



Monroe County Post-Disaster Recovery Strategy

HURRICANE IRMA

January 2020



Monroe Countywide Post-Disaster Recovery Strategy

TABLE OF CONTENTS

Acknowledgments	2
Executive Summary	3
Hurricane Irma Impacts to Monroe County	5
Housing Impacts.....	5
Economic Impacts.....	7
Infrastructure Impacts.....	8
Community Planning and Administration Capacity Impacts	9
Environmental and Natural Resource Impacts.....	9
Long-Term Recovery	10
Goals, Strategies, and Guiding Work.....	10
Prior Work Completed to Guide Goals and Strategies	11
IMPLEMENTATION STRATEGY	13
Overview.....	13
Outcomes	13
Rate of Growth Ordinance and Hurricane Modeling Implications	14
FEMA Community Lifelines of Risk Reduction.....	15
Phased Implementation	16
Phase 1: Sea Level Rise Modeling and Data Finalization	17
Sea Level Rise Modeling and Data Finalization Projects	18
Phase 2: Policy and Program Development	19
Policy and Program Development Projects.....	19
Phase 3: Implement Programs and Projects.....	21
Critical Facilities Projects.....	21
Road Elevation, Relocation, and Stormwater Improvement Projects.....	23
Bridge Replacement Projects	25

Shoreline Protection Projects.....	26
Natural Mitigation Feature Projects	28
Marina, Breakwater, Boat Ramp and Park Improvement Projects.....	29
Business Corridor Improvement Project.....	29
Residential Elevation Projects (Flood Retrofits)	30
Residential Demolition and Greenspace Projects	30
Budget	31
Interjurisdictional Coordination.....	32
Capacity to Support Implementation	32
Appendix A: Hurricane Irma Completed Projects	32
Completed and Ongoing Projects to Address Housing Needs	33
Completed and Ongoing Projects to Address Economic Recovery Needs	35
Completed and Ongoing Projects to Address Finance and Administration.....	36
Completed and Ongoing Projects to Natural and Cultural Resource Needs.....	38
Completed and Ongoing Projects to Address Health and Human Services.....	43

ACKNOWLEDGMENTS

Monroe County wishes to express its gratitude to the **U.S. Department of Commerce Economic Development Administration** for its support (EDA Grant 04-79-07268) which funded, in part, the development of The Monroe County Post-Disaster Recovery Strategy. Monroe County also extends its gratitude to the **South Florida Regional Planning Council** and **OVID Solutions** for their support to Monroe County in the development of this strategy.



EXECUTIVE SUMMARY

MONROE COUNTY AND ITS MUNICIPALITIES REQUEST A \$150 MILLION SET-ASIDE IN THE CDBG-MIT ACTION PLAN FOR THE MONROE COUNTY FLOOD MITIGATION AND SEA LEVEL RISE RESILIENCE PROGRAM

On September 10, 2017, Hurricane Irma struck the Florida Keys as a Category 4 hurricane bringing devastating winds and coastal flooding to Monroe County. While no part of the island chain was spared, the Middle and Lower Keys were hit the hardest. Over two (2) years later, the island chain continues to recover and rebuild following Hurricane Irma.

The Monroe County Post-Disaster Recovery Strategy (PDRS) is intended to:

- **Guide long-term recovery and resilience efforts following this storm,**
- **Help the community learn from its experiences from this event, and**
- **To prepare for the future.**

Hurricane Irma brought to reality the vulnerability of this island chain. When the debris was cleared, homes built to new codes to withstand wind impacts stood as a shining example of wind mitigation in action and a sound investment. Many older ground-level houses and mobile homes were, however, severely damaged. The Keys communities understand that impacts from flooding could have been much worse. As the Florida Keys plans for the future, it will be important to consider not only current flooding vulnerability, but how these vulnerabilities, such as storm surge, can be further exacerbated by sea level rise.



Destruction to Overseas Highway at Sea Oates Beach in Upper Keys / Photo by Cammy Clark

As a national treasure and significant contributor to the economy of the entire state, the future environmental and economic health of this designated Area of Critical State Concern (ACSC) is forever linked to resilience. With plans and policies in place that evaluate the long-term needs of critical facilities and strategies for mitigation, the Florida Keys would like to become the national model for long-term and holistic flood and increased storm surge adaptation in island communities.

Recognizing the unique vulnerability of the Keys and impacts from Hurricane Irma, the communities request a set-aside of \$150 million in funding in the forthcoming U.S Department of Housing and Urban Development (HUD) Community Development Block Grant - Mitigation (CDBG-MIT) Action Plan that establishes the Monroe County Flood Mitigation and Sea Level Rise Resiliency Program.

With this set-aside of CDBG-MIT funding, Monroe County and its municipalities will:

- Continue planning and policy development efforts to project sea level rise on island infrastructure and the environment, creating a Keys-wide plan for resilience.
- Elevate and improve stormwater along roadways that connect to critical evacuation routes including retention, drainage, and treatment to enhance water quality.
- Improve critical infrastructure by relocating it from low-lying areas, hardening it against future storm surge or flooding, or elevating it for future resilience.
- Restore natural shorelines to protect inland areas and/or harden shorelines for resilience.
- Protect drinking water through reverse osmosis improvements to existing systems.
- Elevate or replace homes to mitigate the impacts of flooding, storm surge and sea level rise. Buy out low-lying areas with repetitive loss properties or those that are not suitable for redevelopment.



King tides flood mobile homes in the Keys, Monroe County

HURRICANE IRMA IMPACTS TO MONROE COUNTY

Hurricane Irma was the most intense hurricane to strike the continental United States since Hurricane Katrina in 2005, the first major hurricane to make landfall in Florida since Hurricane Wilma in 2005, and the first Category 4 hurricane to strike Florida since Hurricane Charley in 2004. Irma was a catastrophic hurricane that caused widespread damage throughout the Florida Keys. In addition to the extensive physical damage and other impacts, Hurricane Irma greatly disrupted the lives of residents and business owners in the Florida Keys.



Clean up of Canal 351 in Summerland Key, Monroe County



Clean up of Canal 25, Monroe County, Flickr

The impacts of Hurricane Irma can be seen broadly across the following areas of focus: Housing, Economic Recovery, Community Planning and Administration Capacity Building, Infrastructure Systems, Natural and Cultural Resources, Finance and Administration, and Health and Human Services. These focus areas are described in more detail as follows.

HOUSING IMPACTS

Hurricane Irma will forever be remembered as a housing disaster. Approximately 85% of the housing stock throughout the Keys was impacted. More than 4,000 homes were destroyed or damaged. **Figure 1** below shows an assessment of housing impacts throughout the community. The hardest-hit homes were mobile and manufactured homes, RVs, and live-aboard boats which serve as much needed de-facto affordable workforce housing. Due to the damage to homes and disruption to lives, there was a huge need for case management support to help individuals navigate insurance claims and cope with post-disaster mental and emotional stress. Reconstruction of affordable workforce housing, however, faces many challenges: high construction costs in this island community, a lack of insurance (or underinsurance), stringent wind load construction requirements (180 mph), and significant flood elevation requirements. Further, any homes with more than 50% structural damage (“substantial damage”) are required to be rebuilt to the current building codes and standards, including the noted

elevations and wind loads, which is beyond the financial means of many working families and retirees. Affordable workforce housing was a critical need before Hurricane Irma and has now reached crisis levels with a significant impact on the business community. Due to a lack of workforce, some businesses are forced to limit services or close permanently.

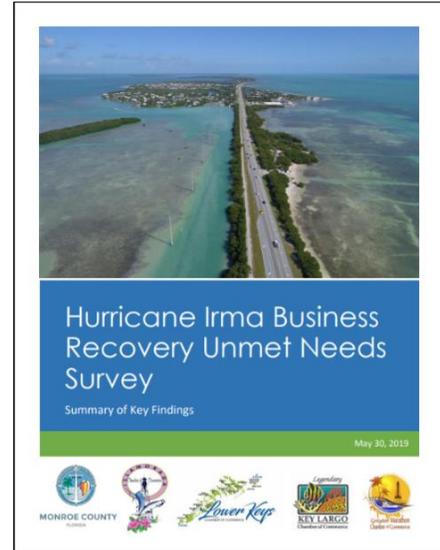
Figure 1. Hurricane Irma Housing Preliminary Damage Assessment

PRELIMINARY DAMAGE ASSESSMENT (SUMMARY W PARK INFO) - THRU 11/26/17					
KEY NAME	UNAFFECTED	AFFECTED	MINOR	MAJOR	DESTROYED
KEY LARGO	2581	3992	326	75	46
VILLAGE OF ISLAMORADA	0	468	427	47	34
FIESTA KEY	0	0	0	257	0
CRAIG KEY	0	1	0	0	0
CITY OF LAYTON	4	0	160	15	0
LONG KEY	304	86	14	0	1
CONCH KEY	0	78	13	4	10
DUCK KEY	292	361	83	7	0
CITY OF KEY COLONY BEACH	0	462	888	206	1
CITY OF MARATHON	0	4018	829	1402	394
OHIO KEY	0	0	0	397	0
BAHIA HONDA KEY	6	9	6	0	0
BIG PINE KEY	264	1538	663	299	473
LITTLE TORCH KEY	389	300	80	25	37
MIDDLE TORCH KEY	3	0	12	0	0
BIG TORCH KEY	11	4	37	1	0
RAMROD KEY	31	20	493	12	19
SUMMERLAND KEY	1	706	20	10	1
CUDJOE KEY	134	914	624	52	81
SUGARLOAF KEY	125	995	207	103	19
UPPER SUGARLOAF KEY	175	0	0	0	0
LOWER SUGARLOAF KEY	6	161	110	0	0
SADDLEBUNCH KEYS	82	0	0	0	0
SHARK KEY	0	39	0	0	0
BIG COPPITT KEY	122	538	63	4	6
GEIGER KEY	41	252	0	7	12
ROCKLAND KEY	1	60	31	0	5
KEY HAVEN	0	457	1	0	0
STOCK ISLAND	895	565	22	15	17
CITY OF KEY WEST	0	11625	282	39	23
Grand Total	5467	27649	5391	2977	1179

Source: Monroe County

ECONOMIC IMPACTS

Local businesses suffered significant losses following the hurricane due to a lack of tourism - the lifeblood of the local economy. **According to a Business Recovery Survey conducted by Monroe County and the local Chambers of Commerce in the year following Irma, 80% of the businesses in the County experienced an extended outage in the aftermath of the storm.** Even two (2) years after the Hurricane, most of the responding businesses, which are mostly small businesses, continue to experience a significant downturn. Tourism, a \$2.7 billion industry in the Keys that employs nearly half of the county's workforce, experienced a significant decline. In September of 2018, Monroe County saw a 40% decline in hotel room demand. Further, many employers struggled to find workers to open their businesses as the homes that traditionally housed the Keys' workforce was decimated. Most employees moved outside the community to find housing.



According to a post-Irma assessment conducted by the International Economic Development Council (IEDC), commercial fishing is a large economic engine by value (\$900 million direct impact) and employment (4,500 workers). The Florida Keys Commercial Fishermen's Association estimates lobster fishermen lost 94,000 of the 350,000 traps for a total equipment loss of \$3.7 million. Lobster output fell by 60% last year for an estimated economic loss of \$38.88 million.¹

While tourism has been rebounding and fisheries recovering, particularly in the Key West and Key Largo areas, businesses in the Middle and Lower Keys continue to suffer. The extent of the ongoing impacts and needs of the business community are outlined in the Hurricane Irma Business Recovery Unmet Needs Survey Report produced in May of 2019. This report can be found on the Monroe County website².

LOBSTER OUTPUT FELL BY 60% IN 2018 FOR AN ESTIMATED ECONOMIC LOSS OF \$38.88 MILLION.

¹ International Economic Development Council, *Business Assessment of Hurricane Irma in the Keys*, July, 27, 2018

² Hurricane Irma Business Recovery Unmet Needs Survey Report (May 2019), available here: <http://www.monroecounty-fl.gov/DocumentCenter/View/17830/Hurricane-Irma-Business-Recovery-Survey-Summary-Report-06-03-19>.

INFRASTRUCTURE IMPACTS

Hurricane Irma demonstrated that Monroe County's investment in mitigation and building hardened infrastructure and facilities prior to the hurricane was successful. Despite the 130 mph winds, the County did not experience widespread structural damage to roads, bridges, water or wastewater systems. While these systems experienced intermittent challenges immediately following the storm, they were efficiently restored in a reasonable timeframe.

The need to continue building redundancy and resilience within the communications systems, power utility infrastructure, and within public safety facilities became more evident following Irma. Response capabilities were hampered within both the public and private sectors by a lack of redundant communications. Similarly, the Monroe County Emergency Operations Center (EOC) and the Sheriff's Office facilities displayed weaknesses in supporting continued operations. Long-term recovery efforts are focusing on enhancing, hardening and replacing these vital, life-saving infrastructure components and public facilities. Countywide, there was damage to over 50 facilities ranging from minimal impacts like damage to signs and fencing to complete rebuilds. Most of the airport damage occurred in Marathon with an estimated cost of \$1.4 million to repair the facility. While damage to publicly owned infrastructure and facilities will be reimbursed by the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program, local governments are responsible for local cost-share. Further, the County and its municipalities continue to encounter challenges with timely reimbursements through the FEMA PA Program, resulting in local governments bearing the additional financial burden of loans for and deficits caused by completed repairs that have not yet been reimbursed.

THE FLORIDA KEYS IS A CHAIN
OF ISLANDS, HOME TO 75,000
RESIDENTS, CONNECTED BY 42
BRIDGES.



Last canal being cleared of debris in the Hurricane Irma canal clearing project.
Photo by Kristen Livengood

COMMUNITY PLANNING AND ADMINISTRATION CAPACITY IMPACTS

As a designated Area of Critical State Concern, the Florida Keys have many community plans and ordinances to guide growth and development while protecting the precious resources that make the island chain unique. Hurricane Irma resulted in several new ordinances that streamlined permitting and redevelopment for a short period of time to allow for temporary housing options and for individuals to repair homes as quickly as possible. These temporary solutions should, however, be codified for future storm responses.

Monroe County and its municipalities experienced significant strains on their local operations following Hurricane Irma, some of which are on-going challenges. Perhaps the most significant financial strain came from the burden of funding local recovery efforts with long and challenging reimbursement processes from the FEMA PA Program to recoup these investments. Further, local staffing capacity was stretched thin with many employees taking on new roles that were not part of their typical day-to-day functions.

ENVIRONMENTAL AND NATURAL RESOURCE IMPACTS

Tied closely to the area of tourism and the discussion on fisheries is that of the natural and environmental resources of the Keys. A region that is home to numerous species of sea and plant life and the nation's only living reef system, the increase in wave action created a drastic change to an already delicate ecosystem.

Perhaps one of the largest and most challenging aspects of recovery was the removal of a significant amount of marine debris from waterways and canals.

This debris includes many household items, derelict vessels, derelict fishing gear, and a multitude of other miscellaneous agents that found their way into the ocean through storm surge or winds. As some of these items contain elements that can pollute waterways - like gas or oils - they can be an environmental concern for sensitive underwater habitats. Further, derelict fishing gear - like lobster and crab traps - that are lost in the storm can continue to trap marine life and act as a hazard to navigation. In an area that is home to endangered species and a National Marine Sanctuary (NMS), these environmental concerns not only impact natural resources but also threaten the local economy, which is intricately connected to the environment.



Plugged canal cleanup, Monroe County Flickr

LONG-TERM RECOVERY GOALS, STRATEGIES, AND GUIDING WORK

In the wake of Hurricane Irma, the Florida Keys are keenly aware of the many realities related to the vulnerability of the island chain. As the Florida Keys looks to the future, it will be important to consider not only current vulnerability to flooding but how these vulnerabilities can be further exacerbated by sea level rise as well. As a national treasure and significant contributor to the economy of the entire state, the future environmental and economic health of this designated Area of Critical State Concern are forever linked to resiliency.

Looking to the future, the community identified a single goal for redevelopment:

REBUILDING A STRONGER FLORIDA KEYS

The Keys communities will accomplish this through the following six (6) strategies:

1. **Promote public health, safety, and general welfare;**
2. **Advance adaptation to coastal flooding, storm surge, and other hazards;**
3. **Protect property, residences, and businesses from storm impacts and minimize damage;**
4. **Minimize public and private losses due to storms;**
5. **Preserve the economy during and after, including business viability and workforce housing; and**
6. **Preserve and protect the environment, including natural and cultural resources and enhance resiliency.**



Sun rises over Bahia Honda 2 weeks after Hurricane Irma / Photo by Cammy Clark

Using these six (6) strategies as guiding principles, Monroe County collaborated with all municipalities within the community to develop a framework for accomplishing these goals through the Monroe County Flood Mitigation and Sea Level Rise Resilience Program, which is detailed in the

IMPLEMENTATION STRATEGY of this plan.

PRIOR WORK COMPLETED TO GUIDE GOALS AND STRATEGIES

Monroe County has been working for nearly a decade prior to Hurricane Irma to develop plans and data that will serve as the basis for adapting to climate change and sea level rise, as detailed in **Figure 2**.

Through this work, Monroe County has developed data, projection models, plans, and pilot programs to build the resilient infrastructure of tomorrow and mitigate inadequate, aging structures.

Figure 2. Monroe County Resilience Efforts Over the Past 10 Years

YEAR	COUNTY ACTIONS TO ADDRESS CLIMATE CHANGE AND SEA LEVEL RISE
Completed Work	
2008	Conducted greenhouse gas emission inventory and convened the Monroe County Green Building Task Force
2009	Joined as founding member of the Southeast Florida Regional Climate Change Compact
2010	Secured a \$1.2 million Federal/State Energy Grant to implement a number of energy efficient measures
2011	Convened a Climate Change Advisory Committee which drafted the County's first Climate Action Plan
2012	Created the County's Office of Sustainability and position of County Sustainability Director
2013	Added Energy and Climate Element to the County's Comprehensive Plan
	Commenced development of the Green Keys Sustainability Action Plan
2015	Completed Countywide Vulnerability Assessment on habitat, critical facilities, and infrastructure including electric, water, and wastewater
	Completed update to the Monroe County Local Mitigation Strategy which recognizes future scenarios for increased flood risk due to sea level rise and describes the risk and vulnerability of the communities in detail
2016	Completed the Green Keys Sustainability Action Plan
	Completed the Roads Elevation Pilot Project Report
	Achieved Class 5 in the FEMA Community Rating System
2017	Added policies to Comprehensive Plan to disincentivize development in high-risk areas
	Adopted Interim Design Criteria Resolution for Road Elevations that factor in sea level rise and future flood risk
2018	Incorporated sea level rise projections into new County facility construction

YEAR	COUNTY ACTIONS TO ADDRESS CLIMATE CHANGE AND SEA LEVEL RISE
Completed Work	
2019	Completed the Countywide Mobile LiDAR elevation data
	Began implementation of the design of the Roads Elevation Pilot Project
	Completed Site-Specific Vulnerability Assessments and Adaptation Plans for two (2) County facilities
	Commenced the Florida Keys Coastal Storm Risk Management Feasibility Study with the Army Corps of Engineers (Shoreline and U.S. 1 Vulnerability Assessment)
	Commenced a \$1.8 million Countywide Roads Vulnerability Assessment/Elevation and Adaptation Plan
	Pursuit of \$150 million in CDBG-MIT funds to implement the Monroe County Flood Mitigation and Sea Level Rise Resilience Program, a regional, multi-year program to address critical infrastructure vulnerabilities, build resiliency, reduce risk, and protect people and property
Upcoming Work	
2020	Develop criteria for Adaptation Action Areas (areas that experience coastal flooding due to extreme high tide and storm surge and are vulnerable to the related impacts of sea level rise)
	Revise Comprehensive Plan to add Peril of Flood requirements for the Coastal Element and incorporate climate, energy and sea level rise strategies and data throughout the Plan
	Complete Repetitive Loss Analysis
	Complete requirements to achieve Class 4 rating in FEMA Community Rating System (results in \$19 million in savings to National Flood Insurance Program policyholders to-date)
	Update the Local Mitigation Strategy to reflect new knowledge on future flood mitigation measures that the County has gained over the past five years

IMPLEMENTATION STRATEGY

*Monroe County and its municipalities request a \$150 million set-aside in the CDBG-MIT Action Plan for the **Monroe County Flood Mitigation and Sea Level Rise Resilience Program.***

OVERVIEW

The Florida Keys would like to become the national model for long-term and holistic flood adaptation in island communities. To implement this strategy, the communities **are requesting a set-aside of \$150 million in funding in the forthcoming CDBG-MIT Action Plan that establishes the Monroe County Flood Mitigation and Sea Level Rise Resilience Program.** This proposed program is envisioned as a framework through which to accomplish the strategies outlined by the community in the Monroe Countywide Post-Disaster Recovery Strategy and GreenKeys Plan.

OUTCOMES

With this set-aside of U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Mitigation Program (CDBG-MIT) funding Monroe County and its municipalities will:

- Continue planning and policy development efforts to project sea level rise on island infrastructure and the environment, creating a Keys-wide plan for resilience.
- Elevate and improve stormwater infrastructure along roadways that connect to critical evacuation routes including retention, drainage, and treatment to enhance water quality.
- Improve critical infrastructure by relocating it from low-lying areas, hardening it against future storms or flooding, or elevating it for future resilience.
- Restore natural shorelines to protect inland areas and/or harden shorelines for resilience.
- Protect drinking water through reverse osmosis improvements to existing systems.
- Elevate or replace homes to mitigate the impacts of flooding and sea level rise.
- Buyout low-lying areas with repetitive loss properties or those that are not suitable for redevelopment.

Low- and Moderate-Income Areas in Monroe County

Recognizing the need to support low- and moderate-income (LMI) populations throughout the Keys, a searchable online map has been created to allow all stakeholders to quickly determine if projects serve an LMI area.

RATE OF GROWTH ORDINANCE AND HURRICANE MODELING IMPLICATIONS

Understanding adaption to sea level rise may justify the need to pursue creative remedies for retiring building entitlements and acquiring properties. The proposed Monroe County Flood Risk Mitigation and Sea Level Rise Resilience Program comes at an opportune time to consider strategies that will both reduce further risk to sea level rise and takings liabilities of the state and local governments due to state-required mandates for hurricane evacuation. **The Florida Keys, as a chain of islands connected by 42 bridges, requires careful evacuation planning to ensure the safety of all residents when a hurricane is approaching. In fact, the Keys communities are able to meet state law requirements that the Keys evacuate its greater than 75,000 residents within 24 hours.**

To maintain the ability to evacuate the chain of islands, Monroe County maintains detailed phased evacuation plans and has adopted a Rate of Growth Ordinance (ROGO) to ensure that proper evacuation times are maintained. ROGO establishes a competitive process for securing building permits in the Keys and is a tool used to allocate and control growth to ensure safe evacuation. In 2012, the State of Florida and the Keys communities used hurricane modeling to determine the max amount of building permits that could be issued while still maintaining a 24-hour evacuation clearance time. This finite number of permits was distributed among local governments based on population and are to be allocated over a ten-year timespan. The program is anticipated to end in 2023 after which no new building permits will be issued.

After 2026, it is projected that no new building permits will be issued in the Keys due to the state-mandated Monroe County Rate of Growth Ordinance (ROGO) which sets a finite number of building permits that will be issued.

The state law presents challenges for local governments and the State of Florida as local property owners could pursue legal remedies (takings claims) and compensation for the inability to develop their property. The County is proposing to extend the distribution of current market rate ROGO building permit allocations through 2026, decreasing the annual allotment from 126 to approximately 63 per year. This change is intended to allow the County more time to acquire properties and retire building rights to reduce takings liability in the future. This also allows more time to react to a new state-run hurricane evacuation model that should be available by 2023 along with the new 2020 census data to understand the current population.

Strategies that address both ROGO implications and sea level rise can include additional voluntary home buyouts (which allows the local government to retain or retire building rights associated with developed properties) and the acquisition of flood-prone areas that are projected to be inundated under future sea level rise scenarios. By taking into consideration future hurricane modeling and development, the Keys can ensure the safety of its residents while also factoring in the need for strategies that reduce risk to sea level rise and legal challenges for the state and local governments.

FEMA COMMUNITY LIFELINES OF RISK REDUCTION

The Florida Department of Economic Opportunity (DEO) has called for CDBG-MIT projects to address the newly introduced, FEMA seven (7) Community Lifelines of Risk Reduction which are intended to facilitate better incident response communication in the period immediately following a disaster. The goal of this work is to help all partners involved in incident management to speak a common language and provide clear direction to decision-makers who may not be familiar with the incident management lexicon. In return, this can lead to better communication about complex issues while maintaining focus on stabilizing the most critical services and infrastructure when it's most needed. In a mitigation context, a community can prioritize improvements to critical services and infrastructure, anticipating how projects may strengthen these assets essential to human health and safety and / or economic security. In return, a community can achieve stabilization more quickly in the post-disaster environment. **Figure 3** shows the components included in each of the seven (7) FEMA Community Lifelines of Risk Reduction.

Figure 3. FEMA Community Lifelines of Risk Reduction

LIFELINE	COMMUNITY LIFELINE COMPONENTS	
Safety and Security	<ul style="list-style-type: none"> • Law Enforcement/Security • Search and Rescue • Fire Services 	<ul style="list-style-type: none"> • Government Service • Responder Safety • Imminent Hazard Mitigation
Food, Water, and Sheltering	<ul style="list-style-type: none"> • Evacuations • Food/Potable Water • Shelter 	<ul style="list-style-type: none"> • Durable Goods • Water Infrastructure • Agriculture
Health and Medical	<ul style="list-style-type: none"> • Medical Care • Patient Movement • Public Health 	<ul style="list-style-type: none"> • Fatality Management • Health Care Supply Chain
Energy, Power, and Fuel	<ul style="list-style-type: none"> • Power (Grid) • Temporary Power • Fuel 	
Communications	<ul style="list-style-type: none"> • Infrastructure • Alerts, Warnings, Messages • 911 and Dispatch 	<ul style="list-style-type: none"> • Responder Communications • Financial Services
Transportation	<ul style="list-style-type: none"> • Highway/Roadway • Mass Transit • Railway 	<ul style="list-style-type: none"> • Aviation • Maritime • Pipeline
Hazardous Materials	<ul style="list-style-type: none"> • Facilities • Hazardous Debris, Pollutants, Contaminants 	

PHASED IMPLEMENTATION

This phased program creates a solid foundation for long-term countywide coordination to address an issue that does not know jurisdictional boundaries. The implementation of this program will be led by an inter-jurisdictional leadership group made of one representative from each local jurisdiction and will obtain advisory input from citizens. This proposed regional, multi-year program will include phases to not only complete modeling needed for development of projects that address the vulnerability of property, including critical facilities as well as residential and commercial areas, but also the construction of new infrastructure or nature-based solutions to prepare for future flood risk. Monroe County and its municipalities will first complete enhanced countywide modeling for sea level rise (already underway, led by Monroe County). Using this information, the County can design residential elevation programs, infrastructure improvements, or nature-based strategies with longer lifespans that account for sea level rise. Next, with the County leading the way, the communities will consider policies that target specific areas for adaptation strategies. Finally, the communities will work together to implement programs and break ground on new projects that reduce the vulnerability of the Keys to future flooding and adapt to sea level rise impacts.

Phase 1: \$7.5 million

Monroe County: 2020-21

Municipalities: 2021-23

Sea Level Rise Modeling and Data Finalization:

Monroe County and its municipalities will first complete enhanced countywide modeling for sea level rise (this effort is currently underway). Additional ground level data will be collected in order to prioritize countywide programs and projects.

Phase 2: \$15 million

Monroe County: 2021-22

Municipalities: 2023- 24

Policy and Program Development: This phase will consider policies and designing programs and projects to mitigate flooding and adapt to sea level rise including residential elevation programs, infrastructure improvements, or nature-based strategies with longer lifespans that account for sea level rise.

Phase 3: \$127.5 million

Countywide: 2023-30

• Implement Programs and Projects: Finally, the communities will work together to implement programs to break ground on new projects that reduce the vulnerability of the Keys to future flooding and adapt to sea level rise impacts.

PHASE 1: SEA LEVEL RISE MODELING AND DATA FINALIZATION

The first phase of the program will involve planning and modeling to understand current and future flooding impacts throughout the County with a focus on how sea level rise will affect the natural and built environment. Monroe County has taken some critical steps over the past several years to begin this work in the unincorporated areas. The County has:

- Completed sea level rise vulnerability analyses.
- Acquired countywide mobile LiDAR elevation data to help guide policy development and infrastructure design for the future.
- Conducted a two-year countywide Roads and Stormwater Analysis with the identification of projects to address current and future flood vulnerability.

Further, the County recently submitted a grant application to the Florida Coastal Management Program for additional work that will:

- Update sea level rise modeling using new mobile LiDAR elevation data,
- Evaluate updated sea level rise projections from the South Florida Regional Climate Change Compact, and update local projections based on this information.
- Determine infrastructure and habitat impacts, as well as areas of increased vulnerability, for a 2030, 2060, and 2100 sea level rise planning horizon.
- Establish Adaptation Action Areas in local comprehensive plans along with goals, objectives, and policies to guide their implementation.

Other municipalities have taken important steps to consider future flood vulnerability as well. Since all local governments are at various stages of planning and modeling, there is a need to first conduct additional work to address any gaps and ensure that all communities are on equal footing.

FEMA Community Lifelines

Food, Water, and Sheltering

Important planning efforts needed to harden evacuation routes to reducing risk to life and safety in the event of a disaster.

Transportation

Data needed to strengthen networks to reduce the likelihood of disruption in services due to a disaster.

SEA LEVEL RISE MODELING AND DATA FINALIZATION PROJECTS

ACQUISITION OF LIDAR DATA FOR MUNICIPALITIES – ALL MUNICIPALITIES

Proposed Cost: \$1,200,000

Acquire important LiDAR data that can be used to guide policy development and infrastructure design for Phase 2 and 3 of the Monroe County Flood Mitigation and Sea Level Rise Program.

ACQUISITION OF LIDAR DATA FOR U.S. 1 – FLORIDA DEPARTMENT OF TRANSPORTATION

Proposed Cost: \$750,000

In partnership with the Florida Department of Transportation (FDOT), acquire LiDAR data to determine elevations that will be critical to mitigating flood impacts to the main thoroughfare and only evacuation route in the Keys.

DETAILED SEA LEVEL RISE MODELING FOR MUNICIPALITIES – ALL MUNICIPALITIES

Proposed Cost: \$3,750,000

Conduct countywide street-level sea level rise modeling to identify priority roadways, infrastructure, and critical facilities for improvements.



Flooded residential street in Key Largo, Monroe County, via Flickr

PHASE 2: POLICY AND PROGRAM DEVELOPMENT

In phase two (2) of this effort, the County and local governments will work to implement policies, prioritize projects, and complete design work for improvements. With updated modeling completed and new census data available now or on the horizon, community leaders can consider policy changes needed to ensure that the natural and built environment is planned with knowledge of how future vulnerabilities may shape the landscape. In this phase, communities may wish to implement adaptation action areas and evaluate potential changes to local codes that guide development. This phase of the project will also consider important changes to the hurricane evacuation modeling that influences important growth regulation tools in the Keys, as described above.

In addition, communities will further refine the project list contained in this plan, adding new projects as well as detailing costs and descriptions based on updated information. The inter-jurisdictional leadership group will work together to set priorities for scoring, and projects will be ranked according to those decisions. Top-ranked projects will then be moved to the design phase for construction and implementation.



South Florida Regional Planning Council and the Monroe County Environmental Resources Department Strategic planning meeting, Monroe County

POLICY AND PROGRAM DEVELOPMENT PROJECTS

COMPREHENSIVE PLAN AND LDR UPDATES – COUNTYWIDE, INCLUDING CITIES

Proposed Cost: \$2,000,000

Monroe County recently submitted a grant application to the Florida Department of Environmental Protection (FDEP) to adopt Adaptation Action Areas (AAAs). If this FDEP application is successful, this funding will be used by municipalities to develop and adopt AAAs. If the project is not funded, the county will need to undertake the development of AAAs as well.

All local governments will need to re-examine Local Comprehensive Plans and Land Development Regulations in light of AAAs and other flooding impacts to create policies that ensure future growth considers increased flooding from sea level rise.

LAND USE ANALYSIS FOR INFRASTRUCTURE IMPROVEMENT PRIORITIZATION - COUNTYWIDE

Proposed Cost: \$3,000,000

Evaluate the level of service for infrastructure along with the existing land uses that about potential infrastructure projects to determine return on investment value for major infrastructure and critical facility improvements.

COUNTYWIDE RESIDENTIAL ELEVATION AND HOME BUYOUT PROGRAM DEVELOPMENT - COUNTYWIDE

Proposed Cost: \$5,000,000

All local governments will develop policies and procedures for a long-term elevation and home buyout program. This project, which will be implemented in Phase 3 of this effort, will address two (2) countywide concerns:

- The vulnerability of workforce housing and
- Reduction of takings liabilities of the state and local governments due to the state-required Rate of Growth Ordinance provisions that address hurricane evacuation concerns.

In addition, this project will include new model prototypes for elevation and new resilient housing that can replace mobile homes and elevate existing concrete block housing while meeting state and local building codes and consider affordability. These alternative housing solutions can serve as a nationwide model for resiliency, as the building codes in Monroe County are the most stringent in the State of Florida. As part of this effort, Monroe County will also evaluate homes that can be built quickly after a storm and vet potential solutions for rapid re-housing recovery programs following disasters, nationwide.

IMPROVED CONSTRUCTION DESIGN STANDARDS AND PRIORITIZE PROJECTS – COUNTYWIDE

Proposed Cost: \$5,000,000

This project will make improvements to countywide design standards for the development of future infrastructure and maintenance of existing infrastructure, and work with all municipalities to prioritize the top projects to be implemented in Phase 3 of this effort. This project will also include improvements made on private property that connect to improved infrastructure for low- and moderate-income individuals who cannot afford it. It is envisioned that these improved standards could serve as a nationwide model for resilience.

PHASE 3: IMPLEMENT PROGRAMS AND PROJECTS

In the final phase of this program, top-ranked programs and projects will break ground and be managed through construction and implementation. The inter-jurisdictional leadership group, with support from the staff working group, will continue to seek additional funding through other sources to carry out projects included in this plan. At the time of the development of this plan, the following projects were identified by communities as priorities to consider for implementation. ***This list provides examples that communities can consider demonstrating that there is a great need for flood mitigation projects that consider sea level rise adaptation. It is recognized that this will likely change as a result of the work in Phase 1 and Phase 2 of the program.***

CRITICAL FACILITIES PROJECTS

Unincorporated Monroe County

MONROE COUNTY FIRE AND RESCUE STATION 18 – MONROE COUNTY

Proposed Cost: \$4,700,000

Construct a replacement Category 5 rated fire station at Mile Marker 68.5 on Overseas Highway (Long Key/Layton). The purpose of this project is to address flooding concerns in addition to wind mitigation measures.

FEMA COMMUNITY LIFELINES

Food, Water, and Sheltering

Protect wastewater infrastructure enabling systems to remain functional after a disaster.

RELOCATE PUBLIC WORKS AND FLEET YARD – MONROE COUNTY

Proposed Cost: \$9,000,000

Move the County Public Works and Fleet Yard from Key West International Airport to a county property on Rockland Key where construction on the new center will occur. This will allow for the airport to grow in a way that accounts for flooding while relocating important county-owned property to a less vulnerable location.



Monroe County Staff participating in cleanup of Stock Island. Photo by Cammy Clark via Flickr

Village of Islamorada

HARDENING SIX (6) WASTEWATER TRANSMISSION PUMP STATIONS – ISLAMORADA

Proposed Cost: \$900,000

This project proposes to implement several hazard mitigation initiatives that will, acting collectively, prevent damage to critical wastewater infrastructure and eliminate and/or significantly reduce functional downtime following a natural hazard event. These initiatives include: adding additional emergency pump-out connection points, increased wastewater retention capacity for mainline breaks, auxiliary generator connections, portable generator capacity, and dam doors (flood-proofing) for critical wastewater infrastructure throughout the Village.



Sunrise over Islamorada after a stormy night. Photo by Grace Courbis

City of Marathon

WASTEWATER CHEMICAL FEED SYSTEM FLOOD AND WIND MITIGATION – MARATHON

Proposed Cost: \$1,714,838

This project will raise all chemical feed electrical systems to a minimum of 1' above the 100-year flood elevation, install anchored double-wall containment tanks and ensure that all structures, equipment, and tanks can withstand 180 mph winds.

Florida Keys Aqueduct Authority

STOCK ISLAND REVERSE OSMOSIS PLANT – FLORIDA KEYS AQUEDUCT AUTHORITY

Proposed Cost: \$40,000,000

The construction of this plant will create an alternative drinking water supply option for the Keys by converting saltwater into drinking water; providing stormproof, drought-proof water service throughout Monroe County.

STOCK ISLAND PUMP STATION – FLORIDA KEYS AQUEDUCT AUTHORITY

Proposed Cost: \$7,000,000

This project is currently in design and will replace a distribution system pump station in the Lower Keys with a new pump station that would be elevated above storm surge projections and enable the system to draw the existing storage tanks to a lower operating level.

MARATHON PUMP STATION – FLORIDA KEYS AQUEDUCT AUTHORITY

Proposed Cost: \$4,500,000

This project is scheduled for 2025/2026 and will replace a distribution system pump station in the Middle Keys with a new pump station that would be elevated above storm surge projections and enable the system to draw the existing storage tanks to a lower operating level.

OCEAN REEF PUMP STATION – FLORIDA KEYS AQUEDUCT AUTHORITY

Proposed Cost: \$3,500,000

This project is slated for 2023/2024 and will replace a distribution system pump station in the Upper Keys with a new pump station that would be elevated above storm surge projections and enable the system to draw the existing storage tanks to a lower operating level.

ROAD ELEVATION, RELOCATION, AND STORMWATER IMPROVEMENT PROJECTS

Unincorporated Monroe County

ROAD ELEVATION AND DRAINAGE IMPROVEMENTS – MONROE COUNTY

Proposed Cost: \$100,000,000

This project would conduct countywide improvements to roads by elevating them and improving drainage and ensure resiliency to flooding and sea level rise.



Construction crews work on project at the County-owned East Martello Fort in Key West.

TWIN LAKES/SANDS SUBDIVISION IMPROVEMENT PROJECT – MONROE COUNTY

Proposed Cost: \$3,900,000

This project will result in drainage improvements and roadway elevation work to improve resiliency to sea level rise. Requested under the CDBG-DR Infrastructure Program but not yet funded. This neighborhood routinely floods now.

STORMWATER DRAINAGE INFRASTRUCTURE IMPROVEMENTS – MONROE COUNTY

Proposed Cost: \$2,700,000

This project includes improvements to 44 structures and facilities including catch basins, French drains, and pipe outfalls that are projected to fail under a 2030 sea level rise scenario.

Village of Islamorada

ROADWAY ELEVATION – ISLAMORADA

Proposed Cost: \$10,000,000

This project would conduct citywide improvements to roads to increase draining and ensure resiliency and flooding to sea level rise, with specific focus along the Old Highway high risk area.

STORMWATER MANAGEMENT SYSTEM – ISLAMORADA

Proposed Cost: \$8,000,000

The project includes the construction of a stormwater management system in the Venetian Shores neighborhood in Islamorada. The stormwater management system will utilize a combination of Miami curbing, exfiltration trenches, stormwater piping, catch basins, and a surface water discharge. The project would increase resiliency to future storms by diminishing stormwater and flooding in the neighborhood; including managing and protecting water resources of the region by balancing and improving flood control, water quality, and natural systems.

FEMA COMMUNITY LIFELINES

Food, Water, and
Sheltering

Harden island chain
evacuation routes to
reducing risk to life and
safety in the event of a
disaster.

Transportation

Strengthen
transportation networks
to reduce the
likelihood of disruption
in services due to a
disaster.

City of Key West

REBUILD ATLANTIC BOULEVARD – KEY WEST

Proposed Cost: \$300,000

Atlantic Boulevard is one of the lowest-lying, highest traveled right of ways shared by cars, pedestrians, and bicycles. Raising and protecting this road will assist with mobility after a storm and increase resiliency to sea level rise.

RAISE ROADWAY AT BERTHA AND 1ST – KEY WEST

Proposed Cost: \$4,000,000

Improve drainage and raise roadway to above 2040 minimum sea level rise projections to reduce flooding along a high-volume, low-lying, cross-town corridor.

FEMA COMMUNITY LIFELINES

Food, Water, and Sheltering

Protect shorelines to stabilize evacuation routes.

Transportation

Strengthen transportation networks to reduce the likelihood of disruption in services due to a disaster.

BRIDGE REPLACEMENT PROJECTS

Unincorporated Monroe County

SUGARLOAF BOULEVARD BRIDGE REPLACEMENT – MONROE COUNTY

Proposed Cost: \$2,767,251

The Sugarloaf Boulevard bridge needs to be replaced and transformed into a pedestrian-friendly, single span bridge with a protected sidewalk. There is a need to eliminate intermediate piles in the water. The replacement bridge will have a 70-year lifespan and be elevated to provide additional clearance for sea level rise.

HARBOR DRIVE BRIDGE REPLACEMENT – MONROE COUNTY

Proposed Cost: \$2,230,000

The Harbor Drive Bridge was constructed in the 1950s and needs to be replaced to harden against storm surge impacts and include pedestrian paths while ensuring historical integrity. The replacement bridge will have a 70-year lifespan.

CARD SOUND BRIDGE REPLACEMENT – MONROE COUNTY

Proposed Cost: \$2,200,000

The Card Sound Bridge is due to be replaced in 2030 with a new structure that includes mitigation for storm surge and wave impacts. This bridge is vitally important as it is one of two evacuation routes for the Keys.



Harry Harris Boat ramp reconstruction post Hurricane Irma. Photo by Cammy Clark

SHORELINE PROTECTION PROJECTS

Unincorporated Monroe County

DUCK KEY SHORELINE HARDENING – MONROE COUNTY

Proposed Cost: \$2,772,720

The entire breakwater surrounding Duck Key is in need of repair to protect nearby properties from storm surge, flooding, and wave impacts. Duck Key is home to residential properties as well as tourism destinations important to the economy of the Keys.

Village of Islamorada

NATURAL RESTORATION AND SHORELINE STABILIZATION FOR SEA OATS BEACH – ISLAMORADA

Proposed Cost: \$10,000,000

Sea Oats Beach was severely eroded during Hurricane Irma. The project would re-establish the beach and beach berm at this location, providing resiliency to future storm damage for U.S. Hwy 1 (the Overseas Highway) while also re-establishing sea turtle nesting habitat. This project would

serve the entire Monroe County. As the only road through the Keys, U.S. Hwy 1 (the Overseas Highway) is also the sole route for rescue and recovery providers and suppliers. If this area were inundated or washed away, no resources could be transported by land to communities south of Islamorada, such as Marathon or Key West.

INDIAN KEY FILL U.S. 1 SHORELINE PROTECTION AND HARDENING – ISLAMORADA

Proposed Cost: \$1,950,000

This project will harden and protect areas along U.S. Highway 1 on Indian Key to better protect nearby properties from storm surge, flooding, and sea level rise.

RESIDENTIAL CANAL DREDGING – ISLAMORADA

Proposed Cost: \$3,500,000

This project establishes maintenance dredging for the removal of sediment within five (5) residential canals in Islamorada to restore water depths to pre-Hurricane Irma conditions. This project will involve mechanical and hydraulic dredging to remove approximately 16,000 cubic yards of sediment within the five (5) impacted residential canals. The sediment being dredged with this project was deposited in the canals from Hurricane Irma-related storm surge. The project will also reduce future storm flood potential.

City of Key West

WEST MARTELLO SEAWALL IMPROVEMENTS – KEY WEST

Proposed Cost: \$500,000

This project would improve the sea wall located at West Martello Street to ensure future resilience to flooding and sea level rise. In addition, the project will conduct shoreline hardening throughout Islamorada to ensure future resilience to flooding and sea level rise.



Monroe County's Rowell's Waterfront Park in Key Largo debris management site during Hurricane Irma. Photo by Cammy Clark

NATURAL MITIGATION FEATURE PROJECTS

Unincorporated Monroe County

ACQUISITION OF FLOOD-PRONE AREAS/STRUCTURES FOR PERPETUAL OPEN SPACE AND LIVING SHORELINES – MONROE COUNTY

Proposed Cost: \$5,000,000

Using sea level rise vulnerability analyses, focus acquisition efforts to flood-prone areas/structures to restore these areas to natural open space. This project would provide resiliency to future storm and flood damage while also re-establishing natural habitat and living shorelines with perpetual open space.

City of Key West

LIVING SHORELINE: SOUTH ROOSEVELT – KEY WEST

Proposed Cost: \$1,000,000

South Roosevelt is an important alternative route in and out of Key West that has been damaged in the past. This project would use green infrastructure to protect South Roosevelt Seawall that acts as a barrier for the airport, homes, and major hotels.

LIVING SHORELINE: WASTEWATER TREATMENT PLANT – CITY OF KEY WEST

Proposed Cost: \$300,000

Wastewater treatment is a critical function to maintain. This project would use green infrastructure to protect the Fleming Key Wastewater Treatment Plan.

FEMA COMMUNITY LIFELINES

Food, Water, and Sheltering

Protect shorelines to stabilize evacuation routes and important wastewater facilities.

Transportation

Strengthen transportation networks to reduce the likelihood of disruption in services due to a disaster.

MARINA, BREAKWATER, BOAT RAMP AND PARK IMPROVEMENT PROJECTS

Village of Islamorada

FOUNDERS PARK/PLANTATION YACHT HARBOR MARINA BREAKWATER STABILIZATION – ISLAMORADA

Proposed Cost: \$1,831,000

The breakwater at Founders Park, which runs outside of the Village’s Plantation Yacht Harbor Marina has suffered extensive damage including breakthroughs from erosion and wash-over from sea level rise and hurricane-related storm surge. The breakwater creates a barrier to protect the entire marina infrastructure along with adjacent park infrastructure, mitigating these important features from the impacts of storm surge.

Repair and stabilization of the natural fill, rip rap, and concrete are necessary to protect this infrastructure and to protect the vessels that rent space at the marina. The project would entail design, permitting, and construction of improvements to fortify the breakwater, including the addition of a layer of new armor stone rock to increase the breakwater width and crest elevation. Severe erosion of the breakwater occurred as a result of Hurricane Irma storm surge and wave activity. This project would also elevate, fortify and stabilize the breakwater, contributing to resilience to future storms and sea level rise.

FEMA COMMUNITY LIFELINES

Transportation
Protect maritime
infrastructure to reduce
impacts in the event of
a disaster.

BUSINESS CORRIDOR IMPROVEMENT PROJECT

City of Marathon

FLORIDA KEYS BUSINESS CORRIDOR RESILIENCY IMPROVEMENTS – GREATER MARATHON CHAMBER OF COMMERCE

Proposed Cost: \$6,150,000 (the maximum project cost per business is proposed to be \$30,000, with businesses contributing \$10,000 per project to generate up to \$2,000,000 in private match)

The U.S. Highway 1 Corridor serves as the main transportation artery for residents and visitors to the Keys. As the primary commercial corridor, U.S. 1 hosts the majority of Keys businesses. Approximately 200 businesses sustained various amounts of physical damage to the exterior of their properties. These business/commercial properties are in dire need of mitigation projects to improve their resiliency to future storms, namely upgraded roofing systems, windows, elevation, and flood proofing technologies/systems that meet current building codes. Following Hurricane Irma, businesses were slow to reopen and several closed indefinitely. Some of those that are open are still missing important signage, landscaping, and visual appeal to attract patrons/customers. This affects their ability to operate, generate revenue, sustain employment, and provide services.

RESIDENTIAL ELEVATION PROJECTS (FLOOD RETROFITS)

Monroe Countywide

COUNTYWIDE RESIDENTIAL ELEVATION – COUNTYWIDE, INCLUDING MUNICIPALITIES

Proposed Cost: \$20,000,000

This project would elevate homes within the county as flood retrofits and improve resiliency to sea level rise.

FEMA COMMUNITY LIFELINES

Food, Water, and Sheltering

Protect homes that serve as shelter for individuals after a disaster.

RESIDENTIAL DEMOLITION AND GREENSPACE PROJECTS

Monroe Countywide

VOLUNTARY HOME BUYOUT PROGRAM – COUNTYWIDE, INCLUDING MUNICIPALITIES

Proposed Cost: \$30,000,000

The County was recently awarded \$15,000,000 from the Florida Department of Economic Opportunity to buy out flood-prone homes and return the area to green space/parks, or for use in stormwater management. Residents expressed a significant amount of interest in this program with approximately \$60 million in homes to be bought out. This project would buy out additional homes that could not be purchased through the DEO award.



Derelict vessel removed by Monroe County's Planning and Environmental Resources Department.
Photo via Flickr

BUDGET

Monroe County is the top HUD-identified Most-Impacted and Distressed (MID) community following Hurricane Irma, the event that precipitated CDBG-MIT funding. The County feels that the Monroe County Flood Mitigation and Sea Level Rise Resiliency Program will significantly advance learning, have long-lasting effects on community risk reduction, strengthen community lifelines, and leverage public and private investment, and improve resiliency in impacted areas. **This program is meant to serve as a catalyst for implementing flood risk reduction when making long-term investments in the Keys beyond planning.**

As demonstrated in the Phase 3 example projects listed above, the communities understand that achieving their goals will require much more investment than is contemplated by this request. The County will continue to make local investments in adapting to changing environments through the acquisition of land and infrastructure improvements, as well as seek other funding sources - such as the FEMA Building Resilient Infrastructure and Communities, and Hazard Mitigation Grant Program - to steadily fund these efforts. A breakdown of the proposed budget is outlined below. This shows the commitment of all communities to reserve the bulk of the funding for game-changing projects to reduce risk.

Figure 4: Monroe County Flood Mitigation and Sea Level Rise Resiliency Program Budget

PROJECT PHASE	PERCENT OF TOTAL BUDGET	AMOUNT
Phase 1: Finalize Planning and Modeling	3.8%	\$5,700,000
Phase 2: Implement Policies, Prioritize and Design Projects	10%	\$15,000,000
Phase 3: Implement Programs and Construct Projects	83.2%	\$124,800,000
Administration Cost	3%	\$4,500,000*
TOTAL	100%	\$150,000,000

*It is anticipated that this program will be implemented over 12 years, equating to \$375,000 in annual program administration. If projects in Phases 1 or 2 do not require the entire budgeted amount, funding will be shifted to Phase 3.

INTERJURISDICTIONAL COORDINATION

The communities will create an interjurisdictional leadership group made of one representative from each jurisdiction and will obtain advisory input from citizens. The County will explore existing frameworks that have been used in the past as models for this coordination to ensure fair and equitable distribution of funding throughout all the island communities. This group will meet regularly to discuss the status of the project, share best practices, and set priorities for future funded projects. This group will also identify funding sources to implement the program.

CAPACITY TO SUPPORT IMPLEMENTATION

Monroe County has a proven track record managing and implementing countywide long-term infrastructure projects and programs. For example, in 2017 the County and municipalities celebrated the completion of a nearly twenty-year project to construct a countywide sewer system throughout the entire island chain to improve nearshore water quality. This was accomplished in partnership with all communities and through guidance from the Florida Department of Economic Opportunity's Areas of Critical State Concern Program. The County and municipalities will work together to augment their capacity through additional contractual support to ensure that dollars are managed in accordance with HUD and state guidelines for CDBG-MIT funding. Using contracted support to augment staff will allow the communities to be flexible in mobilizing quickly to support the management of funds. In addition, when support needs to be adjusted or is no longer needed, communities can downsize support.



Canal Debris following Hurricane Irma in the City of Marathon, Monroe County.

APPENDIX A: HURRICANE IRMA COMPLETED PROJECTS

Recognizing that this plan was created over two (2) years following Hurricane Irma, many recovery projects have already been completed or may be ongoing. Concurrent improvements are vital to restoring the community. These are captured in this appendix as a compendium of activities that may be consulted in a future disaster.

COMPLETED AND ONGOING PROJECTS TO ADDRESS HOUSING NEEDS

This section summarizes completed and ongoing projects and efforts to address housing needs following Hurricane Irma.

MONROE COUNTY STEP PROGRAM

After Hurricane Irma, Monroe County implemented a \$10 million FEMA Sheltering and Temporary Essential Power (STEP) Program, which provided homeowners up to \$20,000 in grant funding for temporary repairs to make a damaged (but not destroyed) home safe, clean, and secure. This program allows individuals to return to living in their damaged homes while longer-term repairs continue, allowing people to return to work and school in the community.

MONROE COUNTY SHIP PROGRAM

The Monroe County Disaster Mitigation Program is utilizing the State Housing Initiative Partnership funding to help qualified homeowners make repairs to their homes. This loan program offers up to \$35,000 per home secured by a recorded zero-interest 10-year note mortgage. The outstanding balance will be forgiven after 10 years. Priority is given to applicants with special needs or disabilities.

ST. COLUMBA EPISCOPAL CHURCH TEMPORARY HOUSING

The St. Columba Episcopal Church purchased travel trailers and staged them on church property to provide short-term housing for families after the storm.

RED CROSS REBUILDING PROGRAM

Funding was made available through the Red Cross to help with rebuilding and repair efforts throughout the Florida Keys. Homeowners could receive up to \$16,500 per residence.

KEYS STRONG – SAMUEL’S HOUSE

Volunteer Florida awarded funding to Samuel’s House through Keys Strong for home repairs and rebuilding efforts. Homeowners could receive up to \$20,000 per residence.

HABITAT FOR HUMANITIES – MIDDLE KEYS CRITICAL HOME REPAIR PROGRAM

The Habitat for Humanities of the Middle Keys Critical Home Repair Program helped qualified low- and moderate-income residents with critical repairs in Marathon and the Middle Keys (7-mile bridge to Layton). Unless physically unable to contribute, homeowners partner with the organization and work alongside volunteers for repair efforts.

FLORIDA COMMUNITIES LAND TRUST

The Florida Communities Trust - through a not-for-profit private citizen developer - constructed affordable housing in the Lower Keys, which provided critical workforce housing options so workers could return to the Keys.

MONROE COUNTY TINY HOMES PILOT INITIATIVE

The Monroe County Board of County Commissioners approved the building of four (4) “tiny homes” in December 2018 to serve as code-compliant models for residents rebuilding after losing their mobile homes during Hurricane Irma. The County solicited vendor proposals to design and build four (4) different resilient code-compliant prototype tiny homes on County-owned land. These replacement homes will be safer and better suited to survive future storms.

FLORIDA HOUSING FINANCE CORPORATION – LIHTC AND SAIL

The Florida Housing Finance Corporation awarded Low-Income Housing Tax Credits (LIHTC) and State Apartment Incentive Loan (SAIL) funds to assist with two (2) new affordable housing developments. This includes \$12.1 million for Docksides at Sugarloaf Key to create 28 new units and \$21.2 million for The Landings at Sugarloaf Key to create 60 units for Lower Keys households earning up to 120% of area median income.

CONCH TRAILER COURT ON CONCH KEY

The Monroe County Commission approved a \$1 million option to purchase Conch Trailer Court on Conch Key for an affordable housing site.

SUN COMMUNITIES PROJECT

Sun Communities, which owns the land beneath two destroyed Plantation Key mobile home parks at Mile Marker 87, is in the planning process for a new affordable housing development featuring a 152-unit mix of recreational vehicle lots and elevated, permanent manufactured homes.

HURRICANE IRMA WORKFORCE AFFORDABLE HOUSING INITIATIVE

Governor Rick Scott and the previous cabinet offered new development rights for 1,300 affordable rental housing units in the Keys to help build new rental housing for residents who agree to evacuate 48 hours in advance of hurricane landfall. Local governments that would like these new ROGO allocations must amend their comprehensive plan to accept these units. The City of Key West and City of Marathon are in the process of amending their local comprehensive plans to accept new allocations; however, their amendments have been challenged locally. Litigation is ongoing.

REBUILD FLORIDA – HOUSING REPAIR AND REPLACEMENT PROGRAM

The Rebuild Florida Housing Repair and Replacement Program is a state-run program managed by the Florida Department of Economic Opportunity (DEO) with federal funding through the Housing and Urban Development Department. This program will help qualified families/residents whose homes were destroyed or severely damaged by Hurricane Irma repair or rebuild their homes. It also is available for property owners who rent to qualified households.

REBUILD FLORIDA – WORKFORCE AFFORDABLE RENTAL NEW CONSTRUCTION PROGRAM

The Rebuild Florida Workforce Affordable Rental New Construction Program will facilitate the creation of quality, resilient affordable housing units to help address the shortage of housing caused by the storms in the most impacted areas of the state. The Florida Department of Economic Opportunity (DEO) will work with the Florida Housing Finance Corporation (FHFC) to leverage CDBG-DR funds with low-income housing tax credits (LIHTC), with or without tax-exempt bond financing for larger multi-family developments. It also will use stand-alone CDBG-DR funds as zero-interest loans to create smaller, multi-family developments. Funds will be awarded through a competitive process to qualified developers to support new construction and may include redevelopment of uninhabitable dwellings.

REBUILD FLORIDA – LAND ACQUISITION FOR AFFORDABLE WORKFORCE HOUSING

The Rebuild Florida Land Acquisition for Affordable Workforce Housing will provide funding to purchase land for the development of affordable housing. This program will target areas of the state where scarcity of land increases the cost and makes it difficult to develop properties that can be rented at an affordable rate for the community's workforce. Monroe County is in the process of identifying vulnerable properties with owners interested in selling their impacted lands to reduce future loss.

REBUILD FLORIDA – VOLUNTARY HOME BUYOUT PROGRAM

The Rebuild Florida Voluntary Home Buyout Program is a voluntary program to encourage risk reduction through the voluntary purchase of residential property in high flood-risk areas. The Voluntary Home Buyout Program will be a state-managed buyout program that leverages FEMA Hazard Mitigation Grant Program (HMGP) funding, where possible.

COMPLETED AND ONGOING PROJECTS TO ADDRESS ECONOMIC RECOVERY NEEDS

This section summarizes completed and ongoing projects and efforts to address economic recovery needs following Hurricane Irma.

ISLAMORADA – SEPTEMBER 2018 JOB FAIR

The Islamorada Chamber of Commerce sponsored a job fair in South Miami-Dade County to recruit potential employees for the Village.

FLORIDA KEYS COMMUNITY COLLEGE APPRENTICESHIP TRAINING PROGRAM

In the fall of 2018, the Florida Keys Community College (FKCC) began its apprenticeship training program. Working with partners in the construction industry, the FKCC has begun training for electrical and carpentry trades as these were deemed high-demand trades by their partners.

FLORIDA KEYS COMMUNITY COLLEGE FOUNDATION FUND

The Florida Keys Community College Foundation has created a fund to assist affected students, faculty, and staff with needed housing and transportation. The fund also provides assistance with the cost of covering textbooks, laptops, and supplies related to employment and student life.

IRMA RELIEF FUNDS FOR STUDENTS AND PERSONNEL

The Monroe County Emergency Fund has established a relief fund and partnered with the Monroe County School District. This relief fund is being disbursed through the School District to the schools with a goal to preserve the workforce, teachers, and students within the County.

EMPLOY FLORIDA HURRICANE IRMA RECOVERY JOBS PORTAL

The Employ Florida Hurricane Irma Recovery Jobs Portal has been created and is administered by the Department of Economic Opportunity. This portal provides links to recovery and cleanup jobs across the state to be viewed by employees. Employers are also able to post job openings on this site.

REBUILD FLORIDA – BUSINESS LOAN FUND

The Rebuild Florida Business Loan program, a resiliency loan provided through a partnership with the U.S. Economic Development Administration (EDA) and administered by the Florida Department of Economic Opportunity, has made \$40 million in federal and state funds available to assist small businesses that are still recovering from Hurricane Irma to rebuild and expand. The Business Loan Fund will target industries identified by the state as key strategic markets for future growth and will focus on creating and enhancing the diversification and resiliency of Florida’s economy. The Fund will address the current gap in available, affordable capital for businesses by providing longer-term loans with higher funding levels at market interest rates.

REBUILD FLORIDA – BUSINESS RECOVERY GRANT

The Rebuild Florida Business Recovery Grant program will provide grants of up to \$50,000 to for-profit and non-profit small businesses for the replacement of equipment and inventory damaged by Hurricane Irma.

REBUILD FLORIDA – WORKFORCE RECOVERY TRAINING PROGRAM

The Rebuild Florida Workforce Recovery Training Program will provide job training to assist Florida residents looking for work in the construction field, thereby providing a new labor force to support the increased construction needs of the Hurricane Irma Recovery effort.

COMPLETED AND ONGOING PROJECTS TO ADDRESS FINANCE AND ADMINISTRATION

This section summarizes completed and ongoing projects and efforts to address finance and administration needs following Hurricane Irma.

EMERGENCY DEBRIS REMOVAL OF STAGING AREAS

Monroe County authorized temporary emergency debris removal staging areas on designated parcels of land for the collection, storage, and transfer of debris related to Hurricane Irma; effective September 11, 2017, for a duration of up to 180 days.

TEMPORARY EMERGENCY STAGING AREAS

Monroe County authorized additional temporary emergency staging areas, on designated parcels of land for the collection, storage, and handling of vessels and marine debris related to Hurricane Irma; effective October 18, 2017, for a duration of up to 180 days.

TEMPORARY EMERGENCY MARINE DEBRIS MANAGEMENT SITE

Monroe County authorized a temporary emergency marine disaster debris management site and vessel staging area on a parcel of land known as the Cudjoe Transfer Station for the collection, storage, and transfer of marine debris and vessels related to Hurricane Irma; effective December 13, 2017, for a duration of up to 180 days to June 11, 2018. The County also provided a procedure for the approval of marine disaster debris management sites and vessel staging areas on Tier 3 properties.

EMERGENCY WORK PERMIT FEE EXEMPTION

Monroe County exempted certain emergency work from permit fees to provide expedient action in order to protect the health, safety, and welfare of the community. Monroe County enacted a 180-day temporary suspension of building permit application fees associated with emergency permits.

TEMPORARY EMERGENCY HOUSING REGULATION

Monroe County provided regulatory authority to allow temporary emergency housing - not subject to the ROGO permit allocation system - for temporary occupancy by residents displaced by a natural or manmade disaster, and for disaster relief workers involved in reconstruction activities following a natural or manmade disaster. This regulation permits the placement of temporary emergency housing on nonresidential properties or vacant residential properties. Temporary emergency housing may be placed on a nonresidential or mixed-use property, or on publicly owned lands or vacant residential properties, excluding lands designated for conservation and resource protection for temporary occupancy by county residents displaced by natural or manmade disaster damage subject to conditions including authorization for the connection to central sewer. Placement of temporary emergency housing for emergency relief workers may be provided. Temporary emergency housing was authorized for up to 360 days on mobile home park sites and RV park sites, beginning on September 5, 2017, and ending on August 31, 2018.

EMERGENCY RELIEF WORKER HOUSING

Monroe County allowed the placement of emergency housing for emergency relief workers involved in reconstruction activities related to Hurricane Irma for 180 days. This allowance provided additional lodging for temporary workers that otherwise could not find a place to stay.

TEMPORARY HOUSING FOR DISPLACED RESIDENTS

Monroe County allowed temporary housing for temporary occupancy by residents displaced by Hurricane Irma at mobile home parks and RV parks (subject to conditions).

EXTENSION OF EMERGENCY HOUSING ON BIG PINE KEY

Monroe County adopted a regulation to allow emergency housing on Big Pine Key to remain on the subject property for two (2) years from the date of issuance of the required no-fee building permit authorizing placement of the temporary housing units. The utilization of the temporary emergency housing shall be deemed compensation, and as such, relief workers temporarily occupying emergency temporary housing shall be determined to be gainfully employed in Monroe County.

INTERIM SIGNAGE PERMITS

Monroe County adopted a resolution stipulating that for a period of two (2) years from the signed date of this resolution (12-21-2017), all sign permits issued by Monroe County shall be interim permits. A permit applicant shall sign a written acknowledgment that will be placed into the file confirming their understanding that the permit is an interim permit, and as such in two (2) years the permitted sign may be deemed nonconforming. At that time, if the sign is damaged by more than 50% or destroyed, the applicant will have to comply with the new sign code.

COMPLETED AND ONGOING PROJECTS TO NATURAL AND CULTURAL RESOURCE NEEDS

This section summarizes completed and ongoing projects and efforts to address the natural and cultural resource needs following Hurricane Irma.

SPINY LOBSTER TRAP SPOTTER PROGRAM

Hurricane Irma displaced more than 150,000 spiny lobster traps in the Florida Keys last year, sometimes miles away from their original locations. But a novel eyes-in-the-sky solution by Florida Sea Grant saved the industry nearly \$4 million by creating a GPS-enabled tool to facilitate the identification and recovery of said displaced lobster traps. To implement this new approach, the Florida Keys Commercial Fishing Association recruited two (2) of its professional spotter pilots and their aircraft to fly over the waters of the Florida Keys and take nearly 15,000 GPS-enabled photographs with costs covered by emergency funding provided by the National Sea Grant Program and the Florida Sea Grant. This information was then uploaded into GIS, incorporated into nautical charts, and distributed to stakeholders and officials. Sea Grant also equipped each plane with GPS-enabled cameras and additional personnel via the emergency funding.

NATIONAL FISH AND WILDLIFE FOUNDATION DEBRIS REMOVAL

Working with fishing partners and funded by the National Fish and Wildlife Foundation, 47 tons of debris (including 1,250 lost spiny lobster traps) was removed. This means that negative habitat impacts and saltwater species deaths due to getting stuck in lost and abandoned traps are kept at a minimum.

NATIONAL RESOURCES CONSERVATION SERVICE MARINE DEBRIS REMOVAL

Through a \$49.2 million grant to Monroe County from the National Resources Conservation Service (NRCS), the County and municipalities have removed marine debris from 100% of the 172 approved canals in the Keys. With a workforce of about 60 people using 15 barges, five (5) sonar boats, four (4) grapple trucks, and other equipment, this project was officially completed on October 15, 2019.

RAPID POST-HURRICANE REEF DAMAGE ASSESSMENT

Funded by the National Fish and Wildlife Foundation, National Oceanic and Atmospheric Administration, and the State of Florida, a large group of partners was convened to conduct a rapid, post-hurricane reef damage assessment of “high-value” sites in the Florida Keys.

MONROE COUNTY BOCC – REMOVAL OF NUISANCE VEGETATION

Monroe County exempted the removal of nuisance exotic vegetation from the permitting requirements of section 6-100 of the Monroe County Code of Ordinances for 60-days as necessary to facilitate the recovery from impacts associated with Hurricane Irma; providing for an effective date of Sept. 5, 2017.

MONROE COUNTY BOCC – REMOVAL OF HAZARDOUS VEGETATION

Monroe County exempted the removal of hazardous vegetation from the permitting requirements of section 6-100 of the Monroe County Code of Ordinances and Chapters 114 and 118 of the Land Development Code for 60-days, as necessary to facilitate recovery from impacts associated with Hurricane Irma; providing for an effective date of September 5, 2017.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)/ FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWC) - LOBSTER TRAP CERTIFICATE BUY BACK

A Lobster Trap Certificate Buy-back Program is proposed to purchase and retire up to 10,000 spiny lobster trap certificates to speed up the reduction of spiny lobster traps being used. Utilizing a grant program, the Florida Fish and Wildlife Conservation Commission (FWC) will offer to purchase trap certificates on a first-come-first-served basis at \$250 per certificate until proposed funds are exhausted. These certificates will be retired. The current value of these certificates on the free market ranges from \$175 to \$225. Offering to purchase trap certificates at above market value provides some assurance that a larger number of certificates will be retired.

NOAA/FWC - LOBSTER TRAP REPLACEMENT

A Lobster Trap Replacement Program is proposed to reimburse fishermen for lost traps. Because it is impossible to quantify losses to individual fishermen, a grant program is proposed to provide funding to lobster fishermen based on the estimated of total number of lost traps, estimated replacement costs of the traps, and then pro-rated by the number of active certificates held by individual fishermen.

NOAA/FWC – DIRECT PAYOUT PROGRAM TO COMMERCIAL FISHERMEN

A Direct Payout Program for Commercial Fisherman is proposed to assist commercial fishermen with losses from Hurricane Irma. The landings value must have been reported in the Florida Fish and Wildlife Conservation Commission’s (FWC) trip ticket system by May of 2018, and fishermen must have landings that were reported each year from 2013 to 2018. Successful applicants would be limited to those residing in coastal counties from Dixie County to Monroe County on Florida’s west coast, and from Nassau County to Miami-Dade County on the east coast. Residence status would be based on addresses provided on Saltwater Products Licenses as of September 2017. A cap on payouts would be set at \$20,000 per individual. A team of FWC employees would be utilized to evaluate grantee eligibility. Utilizing the grant program, the FWC will advertise to applicants to apply online only during a one-

month period, and will pro-rate payments based on the budget for this project and total losses identified from successful applicants.

NOAA/FWC – REDUNDANT POWER SUPPLIES FOR WHOLESALE FACILITIES

A Redundant Power Supplies for Wholesale Facilities Program is proposed to supply commercial fishermen with funding to purchase generators. The grant program would provide up to a 50% cost match (up to \$20,000) for these alternate power supplies for licensed saltwater wholesale dealers who can provide invoices and copies of permits for generators (except for portable generators not connected to a facility's electrical supply). The grant program would additionally cover any installation costs purchased from September 1, 2017, through September 1, 2019. The grantees must agree to allow storage for competitors' product during future storms if the grantee has storage space available. This grant would only reimburse business owners for one generator per facility. Reimbursement would be given to grantees on a first-come, first-served basis until the budget is exhausted. The grantee would stipulate that no other government funds excluding tax breaks, local government rebates, or other incentives had been used to purchase power supply hardware. The grantee would also have to stipulate that their losses had been uninsured. A team of FWC employees would be utilized to evaluate grantee eligibility.

NOAA/FWC – IMPROVEMENT OF UNINSURED REPAIR TO WHOLESALE FACILITIES

An Improvement of the Uninsured Repair to Wholesale Facilities Program is proposed to assist with continued repairs to wholesale facilities. Grant applicants would need to certify that reimbursements would be made on uninsured damages or improvements to the facility or equipment, and would need to supply proof of costs of repairs or improvements conducted by a licensed contractor. Grantee would also have to certify that they have received no other government financial assistance, except government loans for the repair or improvement to their facility. These grants would be available on a first-come, first-served basis until the budget for this program is exhausted. A team of FWC employees would be utilized to evaluate grantee eligibility.

NOAA/FWC – DIRECT PAYOUT TO SEAFOOD WHOLESALE DEALERS

A Direct Payout to Seafood Wholesale Dealers Program is proposed to pay seafood wholesale dealers who had reported landings value at least \$10,000 or less in 2017 than they averaged for the previous four (4) years. The landings value must have been reported in FWC's trip ticket system by May of 2018, and they had to have landings that were reported each year from 2013 to 2018. Successful applicants would be limited to those residing in coastal counties from Dixie County to Monroe County on Florida's west coast and from Nassau County to Miami-Dade County on the east coast. Residence status would be based on addresses provided on Saltwater Wholesale Dealer Licenses as of September 2017. A cap on payouts would be set at \$20,000 per individual. Utilizing a grant program, FWC will advertise to applicants to apply online only during a one-month period and will pro-rate payments based on budget for this project, and total losses identified from successful applicants. A team of FWC employees would be utilized to evaluate grantee eligibility.

NOAA/FWC – DIRECT PAYOUTS TO LICENSED CHARTER BUSINESSES

A Direct Payouts to Licensed Charter Businesses Grant Program is proposed to reimburse licensed captains who can demonstrate at least a \$10,000 decrease in revenues in 2017, compared to the previous four (4) years. The grant program will be advertised for a one-month period and payments will

be pro-rated based on demonstrated losses and project budget. Successful applicants would be limited to those residing in coastal counties from Dixie County to Monroe County on Florida's west coast and from Nassau County to Monroe County on the east coast. Residence status would be based on addresses provided on charter licenses as of September 2017.

NOAA/FWC – CORAL RESCUE

Programs to restore coral reefs are proposed that would include both a coral rescue, tissue caching component, and sponge restoration.

NOAA/FWC – COASTAL HABITAT RESTORATION

A Coastal Habitat Restoration Program is proposed to identify, design, and implement mangrove and seagrass habitat restoration and enhancement projects throughout the affected area. Priority will be given to those projects in areas with the greatest documented impacts. This will be accomplished by using FWC's existing network of biologists to work with regional estuarine and marine habitat restoration partners throughout the affected area to identify and evaluate shovel-ready restoration projects on public land.

NOAA/FWC – DERELICT VESSEL DATABASE IMPROVEMENTS

A project to improve the technical abilities of the Florida Fish and Wildlife Conservation Commission's Law Enforcement Division will help improve the abilities to respond to, and recover from, natural disasters. Management of this project will be conducted by FWC's Boating and Waterways Section under the existing Derelict Vessel Program in cooperation with FWC's Information Technology Division.

NOAA/FWC – MARINE DEBRIS

A continued effort to remove marine debris from waterways is under development. A portion of this project will aim to augment FWC's annual derelict trap removal program in areas prioritized by the Florida Keys National Marine Sanctuary (FKNMS), and not addressed by other grant programs. During the closed - and at times during the open - fishing season for spiny lobster, stone crab, and blue crab, FWC contracts with fishermen to retrieve lost or abandoned traps for disposal. The trap debris removed with this program is usually easily identified from observations made above the water. Hurricane Irma also created considerable underwater marine debris in the FKNMS that is not always visible from the surface. Much of that debris is fishing gear, especially submerged traps and trap rope, but land-based debris was also deposited over much of the seafloor.

NOAA/FWC – TRADITIONAL TRAP RETRIEVAL

The Florida Fish and Wildlife Conservation Commission (FWC), in coordination with priorities of the Florida Keys National Marine Sanctuary (FKNMS), will manage and contract trap retrieval during the trap fishery closed seasons, and where appropriate during the open seasons.

NOAA/FWC – UNDERWATER DEBRIS

The FWC will work with the FKNMS to prioritize locations and the focus of underwater debris removal, focusing on trap debris for areas that are not addressed with other grants. Once the initial prioritization efforts are completed, the FWC will contract the management, operation, and tracking of underwater

debris removal. This contract could be with other local, state, or federal agencies, or non-profit organizations. The contractor will be responsible for acquiring any necessary permits, training, disposing of, and tracking of debris removal. Nevertheless, the FWC will remain involved in this effort to ensure the sub-contractor is effectively managing this operation. Underwater debris removal in a coral reef environment is complex and challenging. The amount of debris Hurricane Irma has created is enormous. Currently, it is very difficult to determine the actual cost structure of this effort. This cost structure will be influenced by the nature of the debris removed, the location of the debris, and the modes of operation to remove that debris. The details of this effort are presently unknown and will be developed once the prioritization is developed in partnership with the FKNMS. Consequently, at this time, this proposal can only assign a total dollar amount for this project.

NOAA/FWC – SHORELINE DEBRIS

The FWC will work with the FKNMS and Everglades National Park (ENP) to prioritize areas to remove debris, focusing on fishing gear-related debris removal along shorelines. After areas are prioritized, the FWC will contract the management, operation, and tracking of shoreline debris removal. This contract could be with other local, state, or federal agencies, or non-profit organizations. The contractor will be responsible for acquiring any necessary permits, training, disposing of, and tracking of debris removal. The FWC will remain involved in this effort to ensure the sub-contractor is effectively managing this operation.

NOAA/FWC – LINELESS TRAP GEAR PROGRAM

A Lineless Trap Gear Program is proposed to reduce the risk of trap line affecting animals and the environment, including protected species. Similar programs in other national and international trap fisheries have tested remote control devices that release marker buoys both on demand, or at a set time. Projects exploring this technology are encouraged. Selected projects will support the FWC's mission to protect endangered species including corals.

NOAA/FWC – FISHERIES INFRASTRUCTURE RECOVERY GRANT

A Fisheries Infrastructure Recovery Grant Program is proposed to disperse funds for the repair of access infrastructure including public fishing piers, boat ramps, and other water access infrastructure. This grant will assist counties, municipalities, and commercial businesses with a non-match competitive grant opportunity, to repair or rebuild infrastructure directly related to the use of, access to, or protection of Florida marine fishery opportunities.

CONCH REPUBLIC MARINE ARMY WATERWAYS RESTORATION

The Conch Republic Marine Army is a local volunteer-driven effort to restore waterways, canals, and mangroves that received a significant amount of debris from Hurricane Irma. Volunteers work primarily from kayaks, canoes, and small boats to manually retrieve debris and haul it to the shore for disposal. To date, the organization has removed nearly 265,000 pounds of debris from the Florida Keys.

DON'T PASS IT UP, PICK IT UP

Leadership Monroe County Class XXVI launched a campaign called, "Don't Pass It Up, Pick It Up" to encourage locals to pick up debris in their community and throw it away. This group encourages locals

to document their involvement by posting their own videos of efforts to pick up debris and raise awareness throughout the community.

MONROE COUNTY HURRICANE DEBRIS REMOVAL

Through a \$49.2 million grant to Monroe County from the National Resources Conservation Service (NRCS), the County and municipalities have removed marine debris from 100% of 172 approved canals in the Keys. With a workforce of about 60 people, using 15 barges, five (5) sonar boats, four (4) grapple trucks, and other equipment, this project was officially completed on October 15, 2019.

COMPLETED AND ONGOING PROJECTS TO ADDRESS HEALTH AND HUMAN SERVICES

This section summarizes completed and ongoing projects and efforts to address the health and human services needs following Hurricane Irma.

KEYS STRONG AND SAMUEL'S HOUSE DISASTER RELIEF

Keys Strong (KeysStrong.org) came together under the nonprofit umbrella of Samuel's House for the purpose of supporting disaster relief efforts. Keys Strong is a unified organization and collaboration of leading Florida Keys Civic organizations and charities, speaking with one voice and helping to rebuild a stronger Florida Keys. The organization served thousands in a variety of needs.

MONROE COUNTY LONG TERM RECOVERY GROUP FORMATION

The Monroe County Long Term Recovery Group was formed in early 2018 to provide recovery services to individuals and families affected by disasters in the Florida Keys community. Services are provided regardless of individuals' race, creed, color, gender, disability, or religious preference. The goal of the group is to see all residents fully recover from disasters.

MONROE COUNTY LONG TERM RECOVERY GROUP TEMPORARY HOUSING FOR VOLUNTEERS

In March 2019, the Monroe County Long-term Recovery Group opened the innovative "Volunteer Village". Volunteer Village addresses a critical need by providing a barracks-style lodging option for volunteer organizations that wish to come to the Keys to offer assistance with clean-up, repair, and long-term redevelopment. The "village" uses shipping containers to create overnight accommodations and provides a bathhouse and tiny home to serve as a common space for organizations and house administration functions for the facility. These facilities are designed to be portable in order to allow movement to other areas for response and recovery from future storms.

Located on county-owned land, the two (2) containers hold 10 volunteers each in spaces that measure 40 by 12 square feet. This housing is a critical piece of rebuilding the Keys and supporting those volunteers who otherwise would not be able to assist the Keys communities.

COMPASS82 CASE MANAGEMENT

Compass82, a non-profit organization that specializes in case management, is providing long-term disaster case management support through a disaster case management grant from Volunteer Florida.

FLORIDA KEYS OUTREACH COALITION'S QUICK ASSIST PROGRAM

The Florida Keys Outreach Coalition's Quick Assist Program and Keys Area Interdenominational Resource's Shelter Needs Program provided county-wide financial direct case management assistance for clients with storm-related losses. Recognizing the overwhelming need for emergency financial assistance, the United Way Florida Keys (UWFK) began a direct case management program in October 2017. Now that the height of the crisis has passed, the program is transitioning to UWFK partner agencies already providing this much-needed service year-round.

KEYS STRONG FURNITURE PROJECT

Keys Strong provided furniture that would have been disposed of or liquidated at no cost to 48 families.

FISHERMAN'S HOSPITAL MODULAR BUILDINGS

Fisherman's Hospital was severely damaged by Hurricane Irma shortly after its purchase by Baptist Hospital. A year later Fisherman's Hospital was functioning as a "field hospital" with a collection of tents and shipping containers. Baptist Hospital stepped in and invested over \$5 million to plant 8,000 square feet of modular buildings at Fisherman's Hospital. As of July 2018, Baptist Hospital had invested more than \$11 million; almost as much as the \$13 million paid by Baptist Hospital to purchase Fisherman's Hospital in 2017.

MONROE COUNTY BOCC PATIENT CARE TAX

Monroe County Commission approved a new property tax for the Middle Keys to raise \$1.5 million a year for 10 years to pay for the care of vulnerable patients.

KEYS STRONG CLINICAL SOCIAL WORKER

A Licensed Clinical Social Worker was provided by Keys Strong to help survivors of Hurricane Irma with one-on-one assistance to individuals and families.

SAMUEL'S HOUSE BASIC NEEDS GRANT

Keys Strong awarded grant funds to Samuel's House to provide for basic needs such as clothing, hygiene, medical services, lease and rental assistance, security deposits and related relocation expenses, mortgage assistance, utility assistance, and other related items.

FREE LEGAL ASSISTANCE

Free legal assistance on some disaster-related issues was provided to low-income survivors.

HAMMOCK HOUSE COUNSELING

The Hammock House at St. Columba Church in Marathon, in partnership with Project H.O.P.E., hosted a four-week counseling class for kids. With funding from the United Way of the Florida Keys, efforts have focused on establishing The Hammock House as a safe place offering children and families a variety of emotional support programs to offer new ways for families to mentally recover.

FLORIDA KEYS SAVE THE CHILDREN'S JOURNEY OF HOPE PROGRAM

The Florida Keys Healthy Start Coalition offered Keys children access to Save the Children's "Journey of Hope" Program. This program, developed by Save the Children following Hurricane Katrina, helps children adjust and cope with traumatic events, develops their natural resiliency, and strengthens their social support networks.

SAVE THE CHILDREN'S CHILD-CARE GRANT

Established in the U.S. in 1932, the Save the Children non-profit organization provided grants to help make repairs and replace materials at 73 child-care programs, preschools, and seven (7) community centers.

DISASTER RECOVERY CENTERS CRISIS COUNSELING

Crisis counseling was offered at the Disaster Recovery Centers (DRC) in Key West, Big Pine Key, Marathon, and Islamorada for 12-hour shifts, 7 days a week, totaling 1,600 hours of service per month. Post-hurricane support groups are offered throughout the Keys and counselors have provided support at every school. These efforts reached more than 1,200 people.

FLORIDA SPCA ANIMAL CARE AND SHELTER

Florida Keys Society for the Prevention of Cruelty to Animals (SPCA) established free routine wellness and medical care clinics to keep animals belonging to community members affected by Irma in their homes as opposed to surrendering them due to financial constraints. Through its FAITH program, FKSPCA is also sheltering animals belonging to these individuals for free until they can find a place to live.

GUIDANCE CARE COUNSELING

The Guidance Care Center provided individual counseling to adults.

MONROE COUNTY LONG-TERM RECOVERY GROUP DISASTER CASE MANAGEMENT

The Monroe County Long-term Recovery Group, with support from Compass82, continues to provide disaster case management to residents impacted by Hurricane Irma.



MONROE COUNTY
FLORIDA

JANUARY 2020