



RECOVERY SUPPORT STRATEGY

Hurricane Irma
FEMA-4337-DR-FL
MARCH 13, 2018



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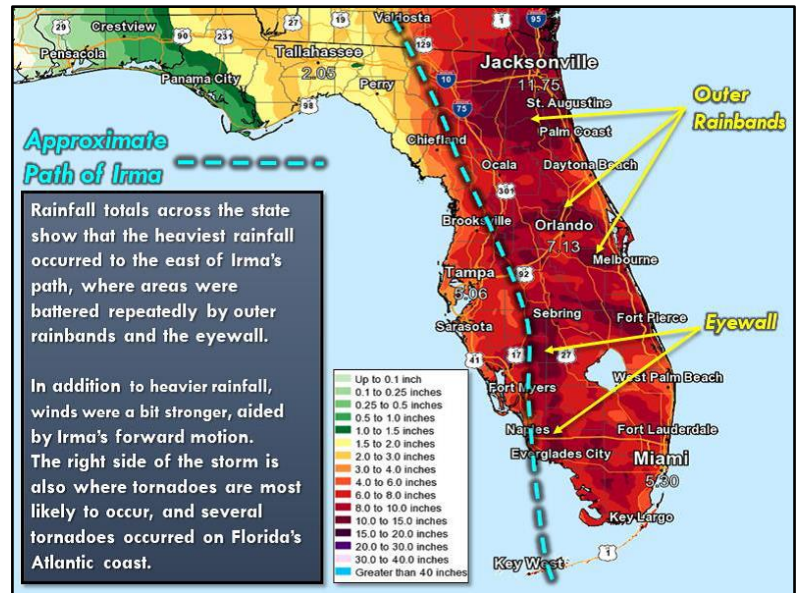


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Executive Summary

The Recovery Support Strategy (RSS), as outlined in the National Disaster Recovery Framework (NDRF), details federal agency programs, strategies, and funding sources available to a wide range of Florida stakeholders as they begin the recovery process from the damages and economic impacts caused by Hurricane Irma. The recommendations contained in the RSS used an all-inclusive approach that identifies key recovery challenges and issues needed for developing strategic objectives and implementation strategies. It also presents opportunities for federal engagement to assist the state and local governments, citizens, businesses, and nonprofit organizations in their efforts to recover from this disaster while increasing resilience in preparing for future events. The RSS provides a strategic view of the recovery process from a very high level. It offers strategies to address recovery issues identified by the State of Florida, the local governments, and its federal partners, while not intending to be a tactical action or implementation plan because ultimately recovery decisions will be up to the residents of Florida and their state agencies. Rather, this document provides solutions and milestones for federal support for consideration after the state and communities set their priorities for recovery.



Hurricane Irma struck the Florida Keys Sept. 10, 2017, as a Category 4 hurricane with maximum sustained winds of 130 mph. The storm made its second Florida landfall later that afternoon on South Florida's lower west coast, near Marco Island, as a Category 3 hurricane with winds of 115 mph.

The damages and social/economic impacts caused by the storm across the state were widespread and severe, resulting in the declaration of a Type 1 Major Disaster designation on Sept. 10, 2017, allowing the Federal Emergency Management Agency (FEMA) to provide a disaster support mission to the State of Florida to assist in the State's hurricane recovery effort. Because of the size and magnitude of damages across the state caused by Hurricane Irma to housing, infrastructure, and potential economic losses caused by the disruption of commercial goods and services as well as severe crops damages/losses, an Advanced Evaluation for determining the need for the activation of a Federal Disaster Recovery Coordinator (FDR) and potential Recovery Support Function (RSF) mission was unnecessary.

FEMA's Region IV Administrator, in consultation with the FEMA appointed Federal Coordinating Officer (FCO), appointed the Florida FDR Officer on Sept. 16, 2017 to lead a Florida RSF Mission. Immediately following his appointment, the FDR activated all six RSF missions to serve under the Interagency Recovery Coordination (IRC) operation in order to deliver a more enhanced and coordinated recovery mission effort. Mission Assignments (deployment of federal agency expertise and resources to state and local governments) are necessary to support the state's response and recovery efforts, and identified those Federal agencies with dedicated Federal resources that are

available to help in the recovery process. The RSFs activated are Community Planning and Capacity Building (CPCB), Economic, Housing, Infrastructure Systems, Natural and Cultural Resources, and Health and Social Services (HSS). A designated coordinating agency leads each federal RSF mission, with assistance from other federal supporting agencies, in conformance with the Recovery Federal Interagency Operations Plan.

To assist with identifying the state's recovery priorities and to serve as a liaison between the state and federal mission, the Florida Division of Emergency Management's (FDEM) State Coordinating Officer (SCO) appointed a State Disaster Recovery Coordinator (SDRC) on Oct. 11, 2017, to work with the FDRC Officer on executing the Florida RSF Mission. The FDRC and SDRC ensure unity of effort in the IRC among federal and state agencies and other partners in Hurricane Irma recovery.

Interagency Recovery Coordination

Florida Division of Emergency Management provided strong leadership and early direction for the Interagency Recovery Coordination mission. To meet the state priority of empowering decision makers at the local level, the State Disaster Recovery Coordinator and his SDRC Representative worked with the Federal Disaster Recovery Coordinator, and FEMA Region IV FDRC to establish a place-based model for providing federal, state and non-governmental technical assistance directly to the most impacted counties of Collier, Hendry, Lee and Monroe. County administrators identified a combined total of 67 priority recovery projects, and the teams will help develop project development strategies to get each project to the implementation stage. Teams are connecting the federal agencies directly to county officials to ensure continuity on project development after the IRC mission stands down.

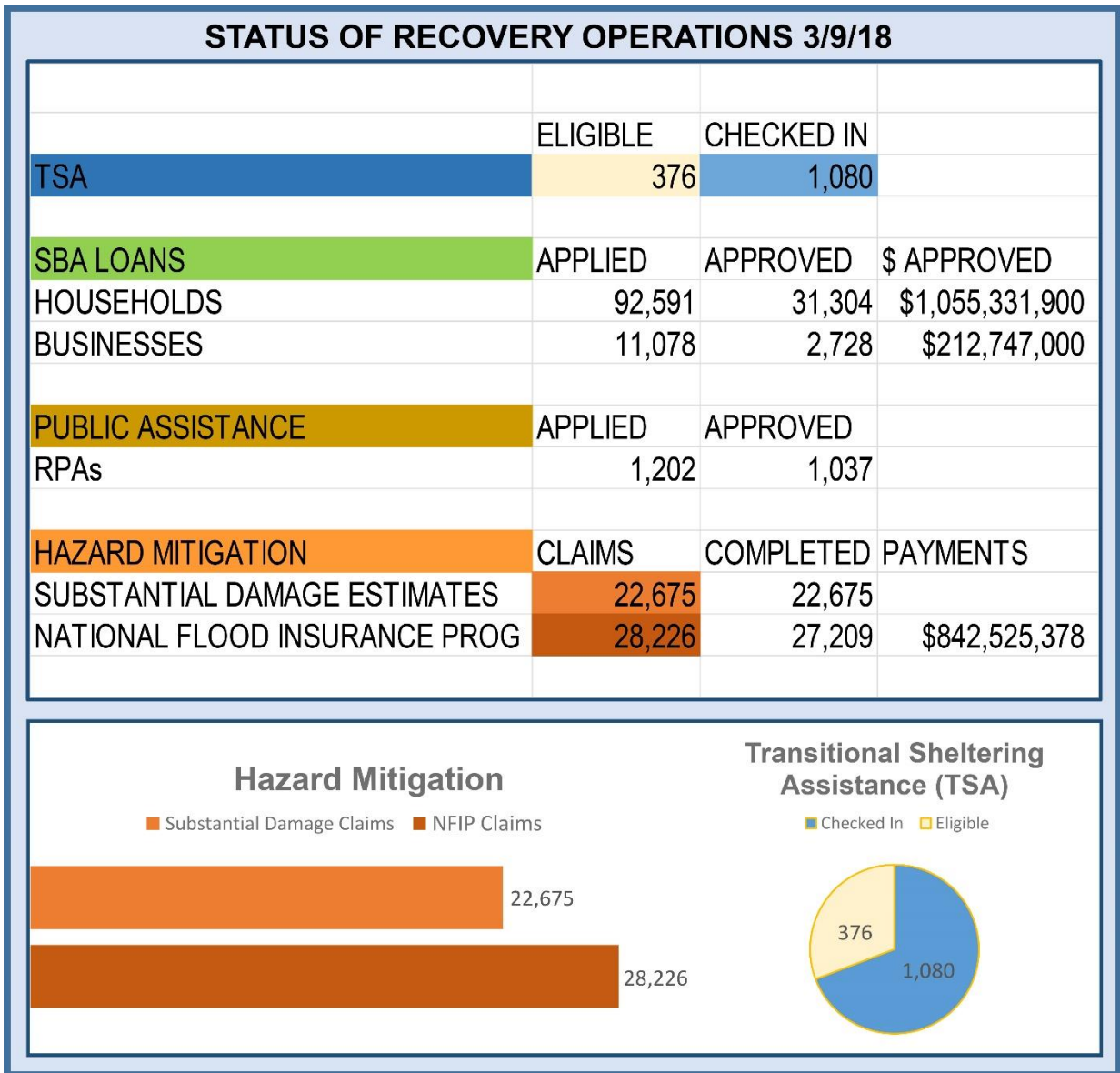
The RSFs, FDRC advisors and the Task Forces assessed impacts and evaluated pre-disaster conditions to develop the [Mission Scoping Assessment](#) for DR-4337-Florida, which was completed on Dec. 11, 2017. The MSA is a summary of findings and issues identified by the six Federal RSFs supporting the NDRC mission in Florida, providing a first look at each RSF's assessment of the impacts of Hurricane Irma, with specific attention to issues facing the State of Florida in developing and managing a recovery strategy. The RSS will build upon the issues identified in the MSA, addressing them and other identified issues not captured in the MSA in more detail.

The RSS will also identify objectives and strategies for how federal agencies can support the state in its storm recovery efforts by leveraging federal authorities and funding identified in the Stafford Act and other traditional disaster recovery programs. To date, the federal and non-federal partners' investments in Florida's Hurricane Irma recovery efforts include:

- **\$615,922,000** in **CDBG-DR funds** awarded by the U.S. Department of Housing and Urban Development to the State of Florida for housing redevelopment and rebuilding, business assistance, economic revitalization and infrastructure repair.
- **\$3,000,000** for **federal mission assignments** to support all declared counties to provide guidance and technical assistance on recovery projects with a focus in Monroe, Collier, Hendry, Lee and Putnam counties.
- **\$1,143,000** statewide from the U.S. Department of Commerce's Economic Development Administration to **fund recovery coordinator positions** for six Regional Planning Councils.
- **\$50,000** commitment from the Miami Foundation to fund Monroe County's **required match** for the EDA Recovery Manager grant.



- The International Economic Development Council, through an EDA grant, will provide professional economic development advisors to communities in need. Two advisors are to be placed in Hendry County.
- **\$899,999,158** disbursed through **FEMA Individual Assistance** Program for Housing and Other Needs.
- **\$201,978,100** for 2,604 **business loan applications** approved by the U.S. Small Business Administration.
- **\$1,032,382,500** for 30,649 **household loan applications** approved by the U.S. Small Business Administration.
- **\$13,571,616** obligated for **FEMA Public Assistance projects**.



Recovery Support Functions and FDRC Advisors

The NDRF organizes recovery efforts into six Recovery Support Functions (RSF). The objective is to focus federal resources on the most pertinent recovery needs and to promote partnerships between the federal government and stakeholders at the local, state and tribal levels.

Each of the six RSFs has a designated coordinating agency, along with primary agencies and other supporting organizations, each with its own recovery mission, as outlined in the NDRF:

RECOVERY SUPPORT FUNCTION	COORDINATING FEDERAL AGENCY
Community Planning and Capacity Building	Federal Emergency Management Agency
Housing	Dept. of Housing and Urban Development
Health and Social Services	Dept. of Health and Human Services
Economic Recovery	Dept. of Commerce
Infrastructure Systems	U.S. Army Corps of Engineers
Natural and Cultural Resources	Dept. of the Interior

FDRC Advisors were appointed to inform and facilitate opportunities across all RSFs in support of recovery for the whole community. FDRC Advisors included Mitigation, Disability Integration, Sustainability, Housing Solutions, Alternative Dispute Resolution, Unified Federal Review and External Affairs.

Task Forces

The cascading and cross-cutting events resulting in the aftermath of Hurricane Irma created some extremely complex issues. To enhance recovery coordination, the following task forces were established to assess damage, recommend strategies and restore, rebuild or replace a resilient infrastructure in Florida.

Nursing Home and Assisted Living Facility Emergency Power and Mitigation

Mission

The Nursing Home and Assisted Living Facility Emergency Power and Mitigation Task Force’s mission is to assess and recommend resources or programs to support nursing homes and assisted living facilities to comply with Emergency Rule #58AER17-1, as well as other mitigation activities.

Member Departments and Agencies

Federal Emergency Management Agency, U.S. Army Corps of Engineers, U.S. Department of Health and Human Services , U.S. Department of Agriculture – Rural Development, U.S. Department of Housing and Urban Development, Elder Affairs – Florida, Florida Health Care Association, Florida Department of Emergency Management.



Coastal Resiliency

Mission

The Coastal Resiliency Task Force mission is to assess damage to the coastal environment and infrastructure, recommend strategies to protect and conserve the environment and restore, rebuild, replace or relocate a more resilient infrastructure for the economic benefit and enjoyment of the coastal Florida communities.

Member Departments and Agencies

Economic Development Agency, Environmental Protection Agency, Federal Emergency Management Agency, U.S. Army Corps of Engineers, U.S. Department of the Interior, Florida Department of Emergency Management, Florida Department of Economic Opportunities.

Everglades City Resiliency

Mission

The mission of the Everglades City Resiliency Task Force is to assess and recommend resources or programs to support the development of a comprehensive strategy to support the city's resiliency, recovery and mitigation efforts.

Member Departments and Agencies

Economic Development Agency, Environmental Protection Agency, Federal Emergency Management Agency, U.S. Army Corps of Engineers, U.S. Department of Health and Human Services, U.S. Department of Housing and Urban Development, U.S. Department of the Interior, U.S. Department of Agriculture Rural Development, Florida Department of Emergency Management.

Water Management for the Everglades

Mission

The mission of the Water Management for the Everglades Task Forces to support the resiliency, recovery, and mitigation efforts of the Las Palmas community; increase water capacity in water management areas; and to explore and assess options to increase the conveyance of water into the Everglades.

Member Departments and Agencies

Environmental Protection Agency, Federal Emergency Management Agency, U.S. Army Corps of Engineers, U.S. Department of the Interior, National Park Service, Miami-Dade County Government, Florida Department of Emergency Management, South Florida Water Management District.

Coordinated Place Based Recovery Support

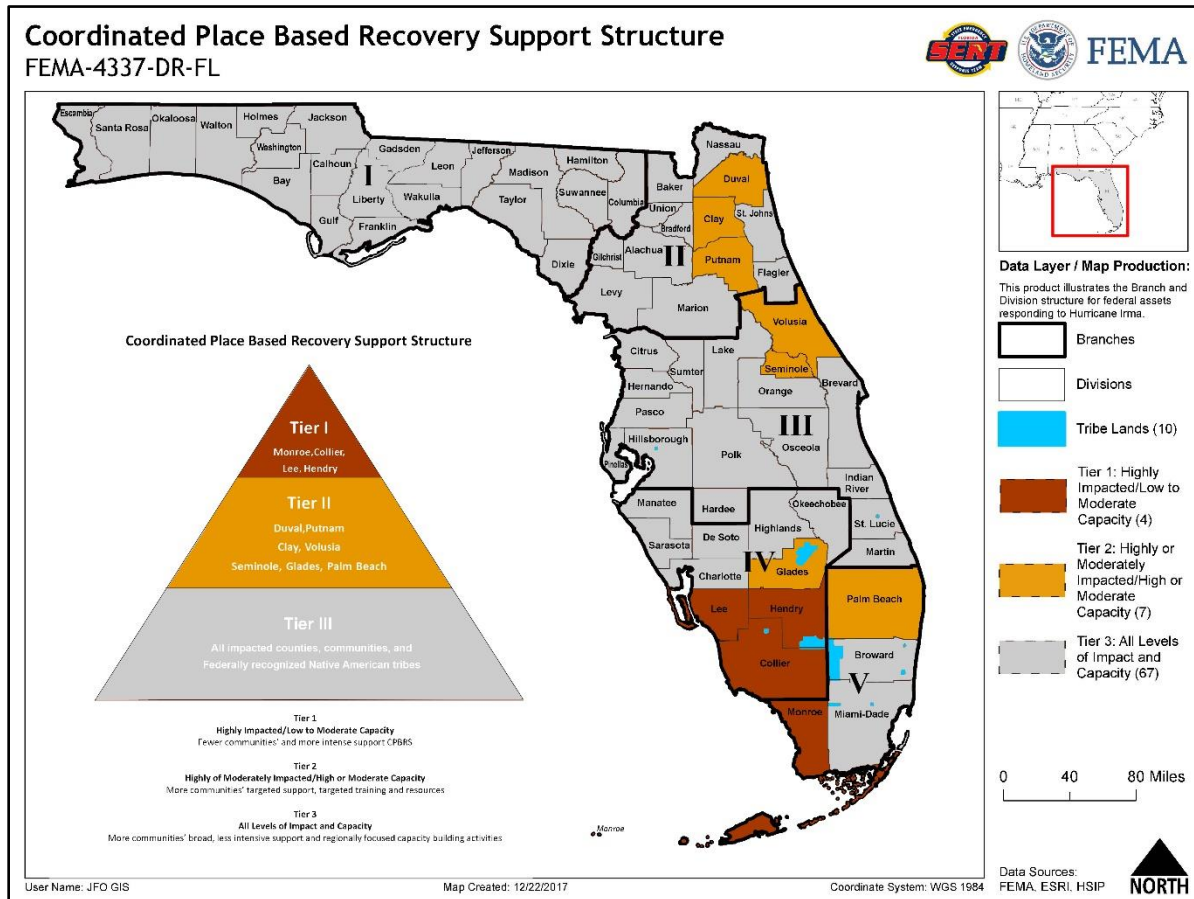
The overall mission of the Coordinated Place Based Recovery Support (CPBRS) function is to provide technical support to local leadership in developing their post-disaster recovery plans, and assist in identifying projects eligible for federal funding. Florida's Division of Emergency Management and Department of Economic Opportunity, along with FEMA's Interagency Recovery Coordination and federal partners, evaluated all Florida counties to determine the severity of impacts and potential existing capacity gaps that limit sufficient support to communities. These counties were offered and have accepted the support of CPBRS teams, which were embedded to provide more locally focused support.

All affected counties were evaluated for technical assistance support and subsequently placed in a tiered system. Collier, Hendry, Lee, and Monroe counties have been identified as Tier 1 counties and were offered CPBRS teams.



Tier 2 counties are those with moderate impacts and moderate to high capacity. The Tier 2 counties include Clay, Duval, Glades, Palm Beach, Putnam, Seminole and Volusia. Counties placed under Tier 2 can receive regional level support in the form of targeted advisory support, capacity-building activities and targeted technical assistance at the county and branch level.

All other affected counties not receiving either a Tier 1 or Tier 2 designation, will receive a designation as a Tier 3 county and offered statewide capacity building activities such as trainings, peer-to-peer engagements, and specifically targeted programmatic support.



Conclusion

The RSS serves as a living document, outlining integrated approaches which partnering agencies will take to provide recovery and will evolve over time, requiring adjustments as some federal programs end and their services migrate to state, local, and non-governmental entities. That necessary evolution has led the IRC to work toward a more efficient flow and tracking of information from teams in the field to better coordinate recovery in the future. During FEMA 4337-DR-FL, the IRC implemented and refined the Tracking Recovery Application Exchange (Max.Trax): a web-based software program that allows community and county issues, strategies and actions to be recorded, updated in real time and shared with multiple federal, state and local recovery partners. Max.Trax will serve as the information management tool intended to increase continuity between future recovery efforts.

Issues at a Glance

All six RSF's have worked with federal, state and local governments and local stakeholders to gather data, local perspectives and knowledge to prepare recovery support strategies. They use the strategies to propose actions for the state, local governments and private sector partners to effectuate a successful long-term recovery. Below is a high level overview of the issues and strategic goals.

The intent of an RSS document is to guide completion of recovery support actions. Definitions and implications of goals, strategies and action plans in the RSS document should be viewed as a dynamic process. Strategies and action plans will be reviewed and updated as more information is obtained and as additional resources become available.

Housing RSF

Issues and Strategic Goals

- 1. Increase Affordable and Accessible Housing Options for Underserved and Disproportionately Impacted Populations, Workforce and Tourism Sector Populations and Farm Labor Populations**
 - 1.1. Provide technical, regulatory and program assistance to build local, regional and state capacity to manage the short, intermediate and long-term housing consequences of an incident that will guide permanent housing policies to support underserved and disproportionately impacted populations. Include construction of affordable and accessible housing that complies with local, state, and national model building codes and incorporates resilience sustainability, and mitigation measures.
 - 1.2. Meet disaster resilient housing needs of displaced and low-moderate income workforce by integrating disaster mitigation measures into community and housing designs and development. Use existing, tested delivery systems to allocate funding to help markets respond to workforce and mixed-income housing needs created by Hurricane Irma; Use and enhance strategies to emphasize the greatest level of creativity, flexibility and responsiveness.
 - 1.3. Meet the affordable housing needs of displaced farm labor households and provide the additional housing units to ensure recovery of Florida agricultural industry.
- 2. Emerging Populations**
 - 2.1. Impact the employment and contracting needs of the emerging population by promoting the application of the Section 3 program in the development of affordable housing and all CDBG-DR funded recovery programs.
- 3. Acquisition & Replacement Strategies**
 - 3.1. Where possible, target repetitively damaged structures and structures built before the Florida State Building Code became effective and use acceptable additions to purchase offers for acquisition and demolition projects, including supplemental payments, credit to property owners who have flood insurance, Uniform Relocation Assistance to displaced tenants.
 - 3.2. Balance risk against social, economic and environmental priorities.



Infrastructure Systems RSF

Issues and Strategic Goals

- 1. Vulnerability of Coastal Communities, Infrastructure, and Natural Areas to Coastal Erosional Damage due to Increased Storm Surge Risks**
 - 1.1. Increase capacity to remove storm generated debris and improve debris segregation to facilitate removal.
 - 1.2. Mitigate the impacts of disasters by preparing businesses to sustain operations, avoid disruptions and achieve greater resiliency in disasters.
 - 1.3. Create a more diverse industrial base in communities overly reliant on one or two industries.
- 2. Vulnerability of Florida's Roadways and Bridges to Sustaining damage from Flooding**
 - 2.1. Improve the resiliency of Florida's roadways to reduce damage and recovery times due to climatic events.
 - 2.2. Protect roadways subjected to frequent flooding in flood prone areas.
 - 2.3. Improve resiliency of state, county and city bridges by reducing structural damage and improving recover times after climatic events.
- 3. Vulnerability of Florida's Electricity Generation, Transmission and Distribution Infrastructure**
 - 3.1. Protect and improve Florida's power transmission and distribution network to withstand and quickly recover from either natural or man-made disasters.
- 4. Vulnerability of Florida's Communication Infrastructure**
 - 4.1. Improve Florida's communication infrastructure to a highly reliable, effective, modern communications network capable of withstand severe storm events.
- 5. Extreme Rainfalls and Storm Surges Result in Chronic Flooding of Urban and Rural Communities**
 - 5.1. Improve the resilience of communities against the impacts of flooding.
 - 5.2. Increase stormwater system performance in identified communities.
 - 5.3. Create or supplement a mechanism to collaboratively identify, prioritize and implement solutions to address flood risk management issues.
- 6. Damage to Ports and Entrance Channels**
 - 6.1. Reduce shoaling in port channels as a function of storm activities.
 - 6.2. Harden utilities that provide services to ports to ensure access to water at all times.
 - 6.3. Identify port access roads that are vulnerable to flooding and rising water levels.
 - 6.4. Implement measures to prepare ports for changing environmental conditions.
 - 6.5. Include port restoration as a high priority item with respect to recovery.
- 7. Enhancing Resiliency of Critical Public Facilities**
 - 7.1. Enhance resiliency of Critical Public Facilities.
- 8. Enhancing Resiliency of Drinking Water and Wastewater Treatment Systems**
 - 8.1. Enhance the resiliency of drinking water and wastewater treatment systems.
 - 8.2. Ensure adequate power supplies to drinking water/wastewater facilities and lift stations.
 - 8.3. Harden vulnerable structures to protect from surges and flooding.
 - 8.4. Reduce Inundation and Infiltration of Wastewater Collection Systems.
- 9. Identifying Funding for Upgrades of Existing Systems**
 - 9.1. Identify Potential Support for Improving Infrastructure Resilience.



Economic RSF

Issues and Strategic Goals

1. Business Loss

- 1.1 Provide support to accelerate business restoration, recovery and continuity especially for businesses that have not closed permanently and are at the highest risk for future business closure.
- 1.2 Mitigate the impacts of disasters by preparing businesses to sustain operations, avoid disruptions, and achieve greater resiliency in disasters.
- 1.3 Create a more diverse industrial base in communities overly reliant on one or two industries.

2. Agriculture & Aquaculture Damage

- 2.1 Restore agriculture and aquaculture operations, especially for major food chain suppliers, in the most impacted counties.
- 2.2 Assist agriculture and aquaculture farmers and producers in developing more resilient operations to mitigate the impacts of disasters.

3. Tourism Resiliency

- 3.1 Prioritize and strengthen activities in assisting tourism-related businesses in the most affected counties.

4. Displaced and Dislocated Workers

- 4.1 Meet the rising needs employers have for a ready workforce that have been exacerbated due to the disasters.
- 4.2 Help displaced and dislocated workers return to the workforce as quickly as possible so that they can restore their household economies and avoid further economic disruption.
- 4.3 Building upon the mitigation practices that were implemented post-Hurricane Andrew, continue the development of more resilient workforce housing to ensure greater workforce resiliency in the future.
- 4.4 Foster a shared understanding of who can do what, where and for whom in addressing the workforce needs to establish an understanding of capacities and responsibilities that enable workforce partners to work across boundaries to aid in disaster recovery.



Natural and Cultural Resources RSF

Issues and Strategic Goals

- 1. Debris**
 - 1.1. Increase capacity to remove storm generated debris and improve debris segregation to facilitate removal.
- 2. Structural Damage**
 - 2.1. Repair and restore structures and facilities damaged as a result of Hurricane Irma to pre-hurricane conditions, as feasible.
- 3. Coastal Damage**
 - 3.1. Use targeted assessments of the most severely damaged coastal areas from federally, locally and privately held beaches for use in determining recovery actions from federal, local, state and other partners.
- 4. Water Quality**
 - 4.1. Protect the environment from contaminated water sources.
- 5. Ecological Health**
 - 5.1. Restore ecosystem health and increase resiliency to natural disasters.
 - 5.2. Prevent proliferation of invasive species.
 - 5.3. Restore ecosystem health to land and sea areas used for agriculture and aquaculture while protecting the natural resources and the environment.
 - 5.4. Restore and reopen state and local parks, recreation, and fish and wildlife areas for recreational, conservation, preservation and subsistence uses.
 - 5.5. Restore wetlands, submerged lands, mangroves, estuaries and coral reefs.



Health and Social Services RSF

Issues and Strategic Goals

- 1. Lack of Access to Behavioral Health Services Post Disaster**
 - 1.1 Restore and improve behavioral health systems to promote the health, resilience and well-being of affected individuals, response and recovery workers and the community.
- 2. Cascading Impacts of Post-Disaster Unemployment and Housing Instability Impacting Social Determinants of Health**
 - 2.1 Enhance efforts to increase accessibility and reach the most vulnerable populations to provide needed social services, including economic and housing assistance.
- 3. Educational and Emotional Support Needed Homeless for Children and Youth in Schools**
 - 3.1 Enhance recovery for children and youth through support to key community services and activities – child care, foster care, youth groups, behavioral health services and schools.
- 4. Child Care Provider Recovery and Resilience**
 - 4.1 Build the capacity of Early Learning Coalitions and providers across Florida to strengthen safety and resilience at child care sites.
- 5. Long-Term Health Impacts on Responders, Disaster Survivors and Volunteers**
 - 5.1 Health and Human Services or their designated agencies or agents could increase awareness of the risk of living in or working in a location with mold contamination and provide informational resources for individuals who do not have the resources or ability to remediate mold independently.
 - 5.2 Health and Human Services or their designated agencies or agents could provide support for the role of Tier I country rural health clinics and health centers (including, Federally Qualified Health Centers), and other CHCs as post-disaster care providers and centers for advocacy and reporting.
- 6. Nutritional Needs for Survivors with Access or Functional Needs**
 - 6.1 Individuals of all needs are able to access critical nutritional resources.
- 7. Many Agencies and Municipalities Have Limited Planning and Execution Capacity to Effectively Address the Wide Range of People with Disabilities and Others with Access and Functional Needs and Living Independently.**
 - 7.1 Florida’s emergency planning and recovery processes and policies are augmented to include additional parameters to support unique and special needs of people with access or functional needs.
- 8. Disproportionately impacted Populations Lack Access to Disaster Case Management Services and are Experiencing Significant Unmet Housing, Economic and Behavioral Health Needs.**
 - 8.1 Enhance efforts to increase accessibility and reach the most susceptible populations to provide needed social services.
- 9. Hospital Recovery – Fishermen’s Community Hospital**
 - 9.1 Based on interviews with governmental responders and non-governmental associations, enhance support for Fisherman’s Community Hospital during recovery and for access to inpatient and outpatient ancillary care for communities in Marathon and the middle Keys.



Community Planning and Capacity Building RSF

Issues and Strategic Goals

1. Recovery Planning and the Capacity to Recovery

- 1.1 Support the State of Florida in their efforts to increase local recovery capacity and community resilience by providing direct technical assistance, training and education, assistance with network development and knowledge transfer.

Mitigation Advisor

Issues and Strategic Goals

1. Disproportional Impacts to Specific Housing Stock

- 1.1 Promote sustainable construction practices as communities repair and rebuild.

2. Growth Management Regulations

- 2.1 Balance risk against social, economic and environmental priorities.

3. Uninsured and Underinsured Building Owners and Renters

- 3.1 Increase awareness of flood risk and minimize future financial losses from flooding.

4. The Local Floodplain Management Ordinance and Substantial Improvement/Substantial Damage (SI/SD)

- 4.1 Support local communities to fulfill their responsibilities as an NFIP participating community.

5. Challenge and Opportunity: Leveraging All Available Resources

- 5.1 Leverage all available resources more efficiently.

6. Implementing Mitigation Opportunities as Infrastructure is Repaired and Replaced

- 6.1 Protect infrastructure from damage.

Unified Federal Review Advisor

Issues and Strategic Goals

1. Recovery projects often use a variety of funding resources to ensure viability. The involvement of multiple federal agency resources entails the communication and coordination of environmental compliance requirements across agencies to avoid delays to timely project development.

- 1.1 The UFR advisor may identify project alignment opportunities that expedite and unify environmental compliance reviews processes among federal agencies. This alignment reduces duplication of effort and facilitates joint reviews by federal agencies, and sustains recovery momentum. The UFR process sustains recovery momentum without delay for regulatory environmental reviews.

2. The Coordinated Place Based Recovery Support initiative embedded EHP liaisons to identify environmental considerations in the four designated Tier 1 counties - Collier, Hendry, Lee and Monroe counties. The UFR advisor is part of the overall coordination cell for the CPBRS initiative and directly supports and mentors embedded EHP Liaisons within each team.

- 2.1 Support the FDRC and coordination cell in the development of policies and procedures that position CPBRS teams for implementation success.

3. Focused coordination across the following federal partners: DOI, EPA, FEMA, HUD, NOAA-NMFS, USACE, USDA-RD, and USFWS are critical to mission success. Active engagement and communication with these specific entities is necessary given the projected evolution and tempo of recovery efforts.



- 3.1 Identify immediate opportunities to use tools and mechanisms for data sharing, synchronization of environmental compliance review, agency workforce integration or other innovative solutions.

Philanthropic Advisor

Issues and Strategic Goals

1. **Funding gaps exist after the depletion of federal, state and local financing sources for prioritized recovery projects. They are then in jeopardy without additional capital.**
 - 1.1 Provide gap funding through private philanthropic organizations for recovery. The intent is to connect recovery needs with private resources that would not have visibility with one other.

Housing RSF Findings

Strategy Development Considerations

The Housing RSF Team has worked collaboratively with many interested parties; including FEMA, USDA, and a host of other federal, state, local government, and local stakeholders to gather data, local perspectives and knowledge, to prepare this Recovery Support Strategy document. The RSF has focused on five issues of significance that were identified in the Mission Scoping Assessment and presents these strategies and proposed actions for the state, local governments and private sector partners to consider for successful long-term recovery. It is hoped that these suggestions will assist the state to create a blueprint for a recovery effort that will be resilient in nature, and will enable them to establish a list of projects that can be adequately resourced to achieve desired outcomes and results for the populations identified herein, and mitigate against impacts in any disaster scenario.

Florida has engaged in an enlightened mitigation strategy prompted by the devastation that occurred after Hurricane Andrew and several other hurricanes. Data and local information the Housing RSF gathered has validated the value of implementing these strategies because fatalities, injuries and physical damage to structures have been less prevalent than would have been projected from a storm of Hurricane Irma's magnitude.

There have been significant impacts to housing structures, and specific populations, particularly in communities in low-lying areas and flood zones. The Housing RSF also confirmed impacts were much more severe in housing types—RVs, trailers and boats—more susceptible to storms and also housing structures that pre-existed the mitigation measures promulgated post-Hurricane Andrew. This RSS identifies strategies and actions to remediate these areas of continued higher risk.

Some severely affected locations support a portion of the state's major economic engines like tourism and the agriculture and aquaculture sectors. It is imperative to pursue remediation actions that are consistent with an overall coordinated strategy. This includes increasing housing availability that communities need for their economic engines to thrive. The RSS has identified issues and suggested ways to help state and local governments work with affected communities and residents to minimize risk and close housing-related gaps.

FEMA and the state have identified four top tier counties based on Irma-generated impacts. They determined that the best approach for successful and responsive outcomes is to engage in a four to six-month place-based effort in those counties. Decision makers there from the state and local governments will have direct access to staff with expertise from the major federal associates assigned to this place-based effort. The members of the Housing RSF have also agreed to be subject matter experts and will be available on a regular basis to provide technical assistance.

The actions and strategies contained within the RSS are applicable across all the areas of the state impacted by Hurricane Irma. It is also hoped that they will be strongly considered for implementation by place-based teams, the state and the local decision-makers working in the identified top tier counties. A disaster of the magnitude of Irma can seem paralyzing to those impacted by its damaging high winds and widespread flooding. However, it also provides an opportunity to access substantial resources that private partners can leverage with appropriate public policy decisions. The partnerships can implement actions to lower risks and create opportunities to remediate affordable and workforce housing shortages. Funding sources should redirect platforms toward remediating damage. Irma has highlighted the clear nexus between affordable workforce housing and the



economic vitality of the state. Accordingly, decisions about funding utilization should be done within the macro-context of supporting projects that are both physically and economically resilient.

The recovery requires place-based solutions to be crafted specifically to meet the present challenges impacted area. The tool box needs to be tailored to ensure the needs of the community and its residents are met as efficiently and effectively as is possible. No two situations share the same set of facts or circumstances, so cookie-cutter solutions are generally not successfully implemented across a state as diverse as Florida. It is important that plans and solutions share the same principles of resiliency, minimizing future risk, involving the affected parties in the solutions and respecting the realities of what is possible within the context of available resources. The place-based nature of these decision-making processes demands concerted effort and goodwill while exercising patience to develop sound plans and projects. The processes should be conscious of urgency, but always within a macro-context that facilitates achieving the best outcome-driven solutions.

Establishing a macro-context for addressing housing needs provides the necessary guideposts to ensure the appropriate funding levels are anticipated and reserved for high priority projects that will not be ready in year one due to complexity. Complex issues include funding partner cycles, requisite zoning and public policy amendments or approvals, site-selection and acquisition time frames, and procurement of development partners. In fact, their normal development timeframes often stretch-out to two, three, four, and perhaps even into year five in the overall recovery timeframe. It will be essential to ensure that sufficient funding from the various potential sources is set-aside to ensure the financial feasibility of meeting the strategic goals and the targeted income groups of the place-based plans.

Let us assume an overall statewide goal is established to create 15,000 new units of affordable workforce housing units in response to Irma (over and above any affordable units that would be created during the “normal” development cycle). Of that number, assume 15 percent for each of the four identified Tier-One counties, with the balance to be distributed amongst the Tier-Two and Tier-Three counties. Now let us assume that the plan contemplates that 75 percent of the units will be developed using the 4 percent low-income housing tax credit program. The availability of the credits attached to the Private Activity Bond Issuance process makes this a plausible assumption, if there are sufficient funds available to close the funding gaps to make these projects financially feasible.

If the gap for these projects in Monroe County averages \$110,000 per unit, and the gap for other projects outside of Monroe County averages \$80,000 per unit, a total of approximately \$950 million will be required to ensure the construction of 11,250 units envisioned by this scenario. If the 25 percent balance of 15,000 units are constructed under a 9 percent LIHTC set-aside, assuming \$10,000 per unit to complete these projects, close to \$1 billion would be required to be made available to turn the scenario envisioned into reality. While this may appear to be a large amount the increase in one-time funding resources combined with a re-prioritized utilization of local, state and federal sources can cover the magnitude of projected costs and make this development effort a reality.

To achieve the desired results and outcomes in this recovery process, it is imperative to begin with the end in mind. All involved parties must achieve consensus about the macro-context that governs the priority setting and funding allocation decision-making process. If the goal of post-Irma recovery is to create a new level of sustainable normalcy throughout the state, the creation of affordable workforce housing will be an essential ingredient of success. A continually more resilient Florida requires resilient affordable housing for workers to support the tourism industry, farm laborers to



drive the agricultural industry and opportunities to house Florida’s disproportionately impacted populations. The RSS identifies strategies, actions, potential public and private partners and sources of funding that will facilitate successful recovery efforts. Local public policy must recognize the value of creating affordable workforce housing and the funding that helps create it.

The RSS contains strategies and related information for each of these five areas the HOUS RSF identified in the Mission Scoping Assessment for focused attention in the RSS:

- Replacement/Acquisition Strategies for several communities
- Housing for Underserved and disproportionately impacted populations
- Housing for Workforce/Tourism Labor
- Housing for Farm Laborers; and
- Housing and Services for Emerging Populations

As the state and their partners in local government establish specific objectives for their recovery efforts, the information in the RSS should be used as they see fit to enhance the successful delivery of solution-driven projects to produce their desired results. This document lists specific strategic objectives and suggests actions consistent with the recognized compendium of housing initiatives appropriate for engagement on the part of the Housing RSF. The Housing RSS expects the desired results will be achieved and will re-position Florida to be better prepared when the next major hurricane strikes.

Recovery Issues and Strategies

Issue 1: Increase Affordable and Accessible Housing Options for Underserved and Disproportionately Impacted Populations, Workforce/Tourism Sector Populations, and Farm Labor Populations

Background

The need to identify housing opportunities for underserved and vulnerable populations, namely, low- and very low-income individuals and families, older adults on fixed-incomes, individuals with access and functional needs, limited English proficient survivors, homeless individuals and families including persons in families with children persists. Affordable housing options for workforce and tourism labor and farm labor communities has been identified as a significant need in the state and will be included in the scope of addressing affordable and accessible housing opportunities. An analysis of post-Hurricane Irma’s impact identified substantial deficiencies in the supply of affordable housing statewide and damage estimates identified significant impacts to owner and renter households leading to a greater strain on an already-stressed affordable housing market. The FEMA Direct Housing Task Force and Housing Recovery Support Function are actively reviewing affordable housing policies for the state, which will lead to additional recommendations for greater affordable housing solutions. The 2017 Home Matters report from the Florida Housing Coalition indicates that “911,390 very low-income Florida households – which include hardworking families, seniors and people with disabilities – pay more than 50 percent of their incomes for housing” which means these households suffer a “severe rent burden.” The health, safety, and welfare of Floridians and the strength of the state’s economy hinges on an adequate supply of affordable housing for Florida’s working families, elders, and people with disabilities living on fixed incomes. While Florida has added over 852,000 rental units since 2000, fewer than 134,000 were “affordable” to the lower income workforce or those on fixed incomes.



With over 112 million tourists visiting the state in 2016, the tourism sector is the largest economic engine for the state, employing a workforce of 1.4 million. Low-wage and low-skilled jobs are prevalent in Florida's economy. With the median hourly wage for all occupations in Florida at \$15.76, it is difficult to find affordably-priced housing across the state, which was a significant economic and housing issue before Hurricane Irma impacted the state.

Even in communities with more moderate housing costs, many residents struggle to find high-quality affordable housing if they work in low-wage jobs or live on fixed incomes. The National Low-Income Housing Coalition, the Florida Housing Coalition, and University of Florida's Shimberg Center for Housing Studies, all confirm three-quarters of Florida's lower-income renter households are cost-burdened, spending half their income for housing.

An approach to correct this market failure is to provide financial incentives that make it profitable for private developers to invest in affordable housing for workers who fuel the state's tourism and service industries. These incentives come from public-private partnerships among lenders, real estate professionals, community-based nonprofit organizations and local, state and federal government agencies.

Workforce housing funders typically impose high standards for high quality building construction and property management. Every partner and every funding source in this community effort—public, private and nonprofit—is an essential component. These Recovery Support Strategy recommendations outline the need for affordable rental housing and homeownership opportunities in Florida. These strategies also highlight the critical importance of the Sadowski State and Local Trust Funds, which can leverage \$4 to \$6 for every dollar of state funding in private investment, federal tax credits, and other funding sources to meet this critical strategic need for housing, if not periodically spent for other purposes.

In terms of the overall workforce, occupations with a median wage below \$13.71 per hour comprise 39 percent of all jobs in the state. Of Florida's 7.5 million households, 14.5 percent have incomes below the Federal Poverty Level, and another 29.5 percent are Asset Limited, Income Constrained, Employed—residents unable to afford the basic necessities of housing, food, child care, health care and transportation.

The United Way of Florida's 2017 report on ALICE households determined the "survival wage" for a household with two adults, one infant and one preschooler was \$27.42 per hour in 2015. In Florida, ALICE workers are the workforce that serves the 100+ million tourists who visit the state's hotels, restaurants, theme parks, beaches and retail shops each year. This includes laborers, clerical staff, mechanics, legal aids, city workers, medical aides, orderlies, therapists, nurses and produce workers.

Investments in affordable workforce housing construction and rehabilitation has a ripple effect on storm-affected local economies. Contractors and suppliers spend money on materials and labor and workers spend their earnings locally. Were the Sadowski Housing Trust Fund money fully appropriated for housing, experts estimate it would create nearly 29,000 jobs and \$3.8 billion in positive economic impact in just one year, while creating durable, disaster resistant, and energy efficient homes that will last far into the future.

As identified in the Mission Scoping Assessment, a significant shortage of farm labor housing existed before Hurricane Irma as documented in the *2016 Rental Market Study*, conducted by the University of Florida's Shimberg Center for Housing Studies. This study indicates that statewide, there were



61,091 unaccompanied workers and 34,451 permitted migrant camp beds, yielding a need for 26,640 additional beds for single workers. In addition, there are 30,986 accompanied households and 5,591 multifamily farmworkers, set-aside units, yielding a need for 25,305 additional multifamily units. It is also important to note that based on recent data from the U.S. Department of Labor's National Agricultural Workers Survey, approximately 48 percent of farmworkers lack work authorization due to their legal status. Therefore, many of the farmworkers referenced above are undocumented and not eligible to reside in federally financed farm labor housing. Nonetheless, the Shimberg Center's need analysis is based on labor levels required for current crop production. Employers are expected to turn to other legal sources of labor such as the H-2A program as immigration enforcement steps up. The unmet need is not expected to be lessened.

Existing shortages of farm labor housing were exacerbated by Hurricane Irma as it disproportionately impacted manufactured housing, sub-standard housing as well as older dwellings constructed before Hurricane Andrew. The aforementioned information is based on data collected by FEMA based on actual claims for individual assistance. Mobile homes and park infrastructure which are the housing stock most often used by farm laborers, sustained significant damage due the storm.

Agriculture is the second largest industry sector in the state and is a major economic driver with an economic value of \$120 billion. In 2015, there were \$8.36 billion in cash receipts for all commodities and total farm expenditures in Florida, at \$5.90 billion, were up 2 percent for 2016. According to the United States Department of Agriculture's National Agricultural Statistics Service, in 2015, Florida had 47,300 commercial farms and ranches, using 9.45 million acres. Hurricane Irma caused more than \$2.5 billion in damage to Florida's agriculture industry, with citrus growers and nurseries suffering the greatest losses, according to a preliminary report released by the state Department of Agriculture and Consumer Services. To address the catastrophic crop losses producers suffered due to this storm, U.S. Representative Tom Rooney has crafted language that will enable the USDA to provide \$1.5 billion in emergency disaster assistance. For an agricultural recovery to occur, it is imperative to retain farm labor through provision of safe, decent and affordable housing. Given that remediation of the housing supply is essential to recovery, this document provides recovery considerations and actions to increase available farm labor housing and sets out the required tools, resources and strategies.

In addition to the federal primary and supporting agencies listed below, other entities including non-governmental organizations, housing industry groups, community development stakeholders, real estate professionals, financial institutions and developers, may be engaged as needed to support state and local housing recovery efforts. HUD and USDA RD will help support the state and engage the appropriate agencies in implementing the strategic initiatives identified herein.

Goal 1.1

(H-1) Provide technical, regulatory, and program assistance to build local, regional and state capacity to manage the short, intermediate and long-term housing consequences of an incident that will guide permanent housing policies to support underserved and disproportionately impacted populations. This includes construction of affordable and accessible housing to comply with local, state, and national model building codes and incorporate resilience sustainability, and mitigation measures.

Strategic Objective 1.1.1

Over the next five years, increase affordable and accessible housing opportunities for underserved and disproportionately impacted households, namely, low- and very low income individuals and families, between 30



percent and 80 percent Area Median Income. Specifically, the state should add at least 15 percent of affordable housing each year over the next five years.

Support Action 1.1.1.1

Encourage private builders, developers and nonprofits to seek development opportunities that meet affordable, accessible and resilient housing needs of the state.

- **Coordinating Agency:** Florida Housing Finance Corp., Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; EDA

Support Action 1.1.1.2

HUD and USDA-RD, in coordination with DEO, FHFA, and SBA will host a series of Housing Fairs in the most impacted counties to provide housing related recovery resources.

- **Coordinating Agency:** Florida Housing Finance Corp.; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; EDA; EPA, SBA; FEMA

Support Action 1.1.1.3

Leverage HUD's Section 108 program for housing. The Section 108 Loan Guarantee Program used by grantees in the early stages of seeking financing allows jurisdictions to get over initial hurdles and leverage other federal, state or local funds.

- **Coordinating Agency:** Florida Housing Finance Corp.; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; EDA; EPA; SBA; FEMA

Support Action 1.1.1.4

Leverage State CDBG-DR, CDBG, and HOME funding options to rehabilitate or construct new affordable, accessible and resilient housing.

- **Coordinating Agency:** Florida Housing Finance Corporation; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; EDA; EPA; SBA; FEMA

Strategic Objective 1.1.2

Increase awareness and access to affordable, accessible and disaster-resilient housing options for older adult residents including those with disabilities and others with access and functional needs and residents of nursing homes and assisted living facilities.

Support Action 1.1.2.1

Elderly Housing Community Loan program provides loans of up to \$750,000 to developers that are making substantial improvements to older adult housing.

- **Coordinating Agency:** Florida Housing Finance Corporation; Agency for health care Administration; Agency for Persons with Disabilities; Department of Elder Affairs.
- **Supporting Partners:** HUD; USDA-Rural Development

Support Action 1.1.2.2

The Homeless Housing Assistance Grant Program assists in the construction of new housing or repair to existing permanent or transitional housing for homeless people.

- **Coordinating Agency:** Florida Housing Finance Corporation; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development

Support Action 1.1.2.3

HUD will promote the use of HUD-approved housing counseling agencies to provide best practices, lessons learned, marketing materials and training for lenders to increase use of federally funded financing programs and products.

- **Coordinating Agency:** HUD, Florida Department of Economic Opportunity, Florida Housing Finance Corporation
- **Supporting Partners:** HUD-Approved Housing Counseling Agencies; NeighborWorks America

Support Action 1.1.2.4

Encourage the use of HUD Section 202 Supportive Housing for the Elderly Grant Program to provide targeted housing options for extremely low-income individuals at or below 30 percent of AMI for households with at least one member 55 or older.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** HUD; Private nonprofits

Support Action 1.1.2.5

Encourage the use of HUD's, Design Details for Accessible Disaster Relief Housing; a manual to assist designers and builders in creating emergency, transportable, temporary dwellings complying with the accessibility requirements of the 2010 Americans with Disabilities Act Standards for Accessible Design and the Uniform Federal Accessibility Standards.

- **Coordinating Agency:** Florida Housing Finance Corporation; Florida Department of Economic Activity
- **Supporting Agency:** HUD

Strategic Objective 1.1.3

Develop and leverage new and existing public and private partnerships to support federal programs to finance and develop rental and low-moderate affordable housing options. The identification of all potential sources of funding, including private sources, to complement and leverage CDBG-DR funds includes, but is not limited to, HUD-approved Multifamily and Single Family Lenders, Community Development Financial Institutions, nonprofit organizations, and philanthropic organizations.

Support Action 1.1.3.1

Florida Preservation Fund: As directed by the Florida State Legislature the Florida Housing Finance Corporation established the Florida Preservation Fund as a pilot demonstration program to help preserve affordable rental housing in Orange, Palm Beach and Pasco counties. The Florida Community Loan Fund was selected as administrator of the Florida Preservation Fund, which was expanded to 26 counties in 2011.

- **Coordinating Agency:** Florida Community Loan Fund



- **Supporting Partners:** HUD; Florida Department of Economic Opportunity; Florida Housing Finance Corporation

Support Action 1.1.3.2

Encourage full funding of State Apartment Incentive Loan. The State Apartment Incentive Loan program provides low-interest loans on a competitive basis to affordable housing developers each year.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** Florida Department of Economic Opportunity

Support Action 1.1.3.3

Encourage Affordable Housing Guarantee Program. The Florida Affordable Housing Guarantee Program was created in 1992 by the Florida Legislature to overcome the lack of available credit enhancement to produce affordable housing in Florida.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** Florida Department of Economic Opportunity

Support Action 1.1.3.4

Support Multifamily Mortgage Revenue Bonds. The Multifamily Mortgage Revenue Bond program uses both taxable and tax-exempt bonds to provide below market-rate loans to nonprofit and for-profit developers who set aside a certain percentage of their apartment units for low income families.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** County Housing Finance Agencies / Authorities

Support Action 1.1.3.5

The Low Income Housing Tax Credit Program Housing Credit (HC) program provides for-profit and nonprofit organizations with a dollar-for-dollar reduction in federal tax liability in exchange for the acquisition and substantial rehabilitation, substantial rehabilitation, or new construction of low and very low-income rental housing units

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** Community Housing Development Organizations (CHODO); Community Development Corporations; Local jurisdictions; Developers

Strategic Objective 1.1.4

Provide technical, regulatory, and program assistance to manage the short, intermediate and long-term housing consequences of the disaster leading to the creation of permanent, affordable and accessible housing compliant with local, state, and national model building codes and incorporating resilience, sustainability and mitigation measures.

Support Action 1.1.4.1

FEMA and OFAs will strategically integrate Federally Coordinated Place Based Recovery capacity building resources into ongoing disaster recovery initiatives at the local level in the state's most impacted communities.

- **Coordinating Agency:** FEMA



- **Supporting Partners:** HUD; USDA Rural Development; EDA; EPA, DOI; SBA

Support Action 1.1.4.2

The Office of Special Needs Assistance Programs develops and disseminates guidance documents for communities for serving adversely disposed populations and using HUD funds for disaster recovery. Deploys trained and experienced technical assistance providers to provide support, subject matter expertise, coordination and facilitation to community members, stakeholders, or any level of government for a coordinated and integrated recovery.

- **Coordinating Agency:** HUD
- **Supporting Partners:** DEO

Support Action 1.1.4.3

The Catalyst Program, provides community based organizations and state and local governments with technical assistance to meet affordable housing needs. This assistance includes training on the development of affordable housing programs, public and private partnerships, local housing assistance plans and regulatory reforms. The program also provides training on project financing, leveraging, achieving state and federal compliance and project completion.

- **Coordinating Agency:** Florida Housing Finance Corporation, DEO
- **Supporting Partners:** HUD; USDA-Rural Development

Goal 1.2

Meet disaster resilient housing needs of displaced and low-moderate income workforce by integrating disaster mitigation measures into community and housing design and development. Use existing, tested delivery systems to allocate funding efficiently to help markets respond quickly to workforce and mixed-income housing needs created by Hurricane Irma. Use enhanced strategies to emphasize the greatest level of creativity, flexibility and responsiveness.

Strategic Objective 1.2.1.

Increase supply of resilient rental housing for low-moderate income workforce via repair and replacement and new construction. Effort will expand Florida's rental housing stock, augmented by units affordable to workforce—below 60 percent AMI. From 2000-2015, supply grew by 859,202 units while only 133,527 units were affordable to renters under 60 percent AMI.

Support Action 1.2.1.1

Support state and local governments in identifying resources to enhance and leverage existing state-led housing programs. Hurricane Disaster Assistance funds can leverage federal resources in the development of additional workforce rental housing, where such housing is consistent with the needs of the communities. The most plentiful federal resources currently available are state and locally allocated private activity Mortgage Revenue Bonds and noncompetitive 4 percent Low Income Housing Tax Credits—4 percent Housing Credits. Over the past 20 years, these programs have been an important source of federal support for affordable housing. Florida historically has coupled State Apartment Incentive Loan funds with state and local MRBs and 4 percent Housing Credits to ensure that developments financed with these programs are both affordable and economically feasible and finance apartments that serve families with incomes between 40 and 60 percent of area median income.



- **Coordinating Agency:** Florida Housing Finance Corp.; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; EDA; EPA; SBA; FEMA

Support Action 1.2.1.2

Support rehabilitation and development of high quality, affordably-priced disaster resilient multifamily rental housing for low-moderate income workforce. Identify federal, state and local funding sources. Coordinate with public and private developers. Multifamily housing development is a cost-effective way to meet rental demand for workforce housing through existing, established and effective rental construction programs financed by Florida Housing Finance Corporation in collaboration with various other high-capacity partners. See below for list of Florida Housing Finance Programs.

- **Coordinating Agency:** Florida Housing Finance Corp.; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; EDA; EPA; SBA; FEMA

Support Action 1.2.1.3

Leverage state CDBG; HOME; CDBG-DR (\$615.9 million awarded Nov. 28, 2017) funding options to rehabilitate or construct new workforce housing for low-moderate income residents and displaced households. Provide TA to the State on use of existing funding under CDBG, HOME and CDBG-DR programs for HOME-funded Tenant Based Rental Assistance.

- **Coordinating Agency:** Florida Housing Finance Corp.; Florida Department of Economic Opportunity.
- **Supporting Partners:** HUD

Support Action 1.2.1.4

Support the state in exploring various housing designs as well as collaborating with public and private partnerships to build affordable and mixed income workforce housing—within proper building codes and standards—to address temporary and permanent workforce housing needs. Develop strategies to assess innovative housing proposed to ensure the units are durable, disaster resistant and energy efficient. Articulate expectations for disaster resistance, including mitigation of flood risks. Effective and efficient recovery will require place-based solutions crafted specifically to meet the individual challenges in each high-impact and low-capacity local area.

- **Coordinating Agency:** HUD, USDA-RD, FEMA, EDA
- **Supporting Partners:** Community Development Corporations, Community Housing Development Organizations, Federal Deposit Insurance Corporation, Federal Home Loan Bank, EPA

Support Action 1.2.1.5

Work with businesses, universities and hospitals in target areas to create or incentivize housing for their essential workforce employees. Effective and efficient recovery will require place-based solutions crafted specifically to meet the individual challenges in each high-impact and low-capacity local area.

- **Coordinating Agency:** HUD, USDA-RD, FEMA, EDA



- **Supporting Partners:** Community Development Corporations Community Housing Development Organizations, FDIC, Federal Home Loan Bank, EPA

Support Action 1.2.1.6

Leverage HUD Section 108 Loan Guarantee Program available to the state, with CDBG, HOME and other resources to increase development of housing that is affordable, disaster resilient and serves the workforce target. Under the Section 108 program, HUD offers state and local governments federally guaranteed loans for housing rehabilitation, economic development and repair of public infrastructure.

- **Coordinating Agency:** Florida Department of Economic Opportunity; Florida Housing Finance Corp.
- **Supporting Partners:** HUD-Office of Community Planning and Development

Support Action 1.2.1.7

Identify shovel-ready multifamily housing proposals that could be funded and expedited by local, regional, state, HUD, USDA and/or other sources. Federal HOUS RSF and State partners correlate assessment of highest multifamily housing loss/damage areas with on-going projects under construction or underwriting process and accelerate completion.

- **Coordinating Agency:** HUD-Office of Multifamily Housing Development; USDA-Rural Development; State; Local
- **Supporting Partners:** HUD-approved Multifamily lenders/developers; USDA-Rural Development; Florida Housing Finance Corporation

Support Action 1.2.1.8

Leverage HUD/Federal Housing Administration Market Rate Multifamily Mortgage Insurance Section 221(d4) program to facilitate new construction and substantial rehabilitation of multifamily housing. FHA mortgage insurance lowers risk to lenders, as well as enhances terms and opportunities for developers. Identify possible collaborative partnerships with current multifamily developers and lenders.

- **Coordinating Agency:** HUD-Office of multifamily Housing Development
- **Supporting Partners:** HUD-approved multifamily lenders/developers/Florida Housing Finance Corp.

Support Action 1.2.1.9

Leverage HUD/FHA 223(f) Market Rate Multifamily Mortgage Insurance program to encourage purchase and rehabilitation of existing multifamily properties. FHA mortgage insurance lowers risk to lenders, which increases opportunities for developers. Identify possible collaborative partnerships with current multifamily developers and lenders.

- **Coordinating Agency:** HUD-Office of multifamily Housing Development
- **Supporting Partners:** HUD-approved multifamily lenders/developers/Florida Housing Finance Corp.

Support Action 1.2.1.10

Leverage USDA-Rural Development Section 538 Guaranteed Rural Rental Housing Program. Loan guarantee, fixed interest rate; 40-year term. Renter income capped at 115 percent of AML. Complexes minimum size of five units.



- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** HUD-approved multifamily lenders / developers; Florida Housing Finance Corp.

Strategic Objective 1.2.2

Leverage and enhance HOME-financed tenant-based rental assistance programs for low-moderate income—60 percent and below AMI—workforce households.

Support Action 1.2.2.1

Identify and leverage state, local government and private/nonprofit resources in support of HOME-financed multifamily workforce housing development. Support state and local governments in leveraging state-led HOME-financed TBRA programs in high tourist/service worker-populated areas and for teachers; municipal employees.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** HUD; USDA-Rural Development; FEMA

Support Action 1.2.2.2

Leverage state CDBG HOME and \$615.9 million in CDBG-DR funding resources. Provide TA to state on use of existing funding under CDBG, HOME and CDBG-DR programs.

- **Coordinating Agency:** Florida Housing Finance; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development

Support Action 1.2.2.3

Low-Income Housing Tax Credit Program: On Nov. 16, 2017, Fannie Mae announced the Federal Housing Finance Agency approved its re-entry into the Low-Income Housing Tax Credit Market effective immediately. Hoping to improve affordable housing stock to help markets in most need of support, Freddie Mac will also participate in the Program. Qualified properties are allocated federal tax credits. Investors can invest in those properties to obtain tax credits resulting in an infusion of cash equity into low-income housing properties, reducing the debt burden for the development or rehabilitation of affordable properties: Investors take the risk, rather than taxpayers, while encouraging the development and preservation of critical affordable housing in underserved communities and for the workforce.

- **Coordinating Agency:** Fannie Mae; Freddie Mac
- **Supporting Partners:** For-profit and nonprofit developers; FL Alliance of Community Development Corp.; Community Housing Development Organizations); Neighbor Works; Local Imitative Support Corp; FEMA VOAD

Strategic Objective 1.2.3.

Increase single family housing repair or replacement and new construction opportunities for low-moderate income workforce and displaced households.

Support Action 1.2.3.1

Leverage HUD FHA Section 203(h) made by qualified lenders to victims of a major disaster who have lost their homes and are in the process of rebuilding or buying another home. HUD FHA's Section 203(h) program provides FHA insurance to disaster victims who lost their homes and are faced with rebuilding or buying another home. FHA-approved lenders assist borrowers eligible for 100 percent financing including closing costs.

- **Coordinating Agency:** HUD/FHA
- **Supporting Partners:** HUD; FHA approved lenders

Support Action 1.2.3.2

HUD FHA's Section 203(k) program enables disaster survivors to finance the purchase or refinance of a house along with its repair through a single mortgage. It also allows homeowners who have damaged homes to finance the rehabilitation of their existing home.

- **Coordinating Agency:** HUD FHA
- **Supporting Partners:** HUD FHA approved lenders

Support Action 1.2.3.3

Leverage HUD FHA Section 203(b) mortgage insurance for the purchase or refinance of a principal residence. The mortgage loan is funded by a lending institution and the mortgage is insured by HUD FHA. HUD FHA's Section 203(b) program provides approximately 96.5% financing. The borrower is able to finance the upfront mortgage insurance premium into the mortgage. Eligible properties include one-to-four-unit structures.

- **Coordinating Agency:** HUD FHA
- **Supporting Partners:** HUD; FHA approved lenders

Support Action 1.2.3.4

Leverage USDA-Rural Development (Section 502) Single Family Housing Direct Loan Program for low and very low-income applicants.

- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** USDA-approved lenders

Support Action 1.2.3.5

Leverage USDA-Rural Development (Section 504) Single Family Housing Repair Loan and Grant Program. 504 is a loan for applicants (62 and over) with very low incomes. Maximum loan is \$20,000. Maximum grant is \$7,500.

- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** USDA-approved lenders

Support Action 1.2.3.6

Through their Predevelopment Loan Program Florida Housing Finance Corp. assists nonprofits and others with planning and financing of predevelopment costs for home ownership or rental housing through loans and technical assistance. Gap financing for planning and predevelopment expenses is funded through the Florida Housing Finance Corp.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** Nonprofit developers; Community Development Corporation; Community Housing Development Organization

Support Action 1.2.3.7

FDIC Office of the Comptroller of the Currency and Federal Reserve to provide guidelines and answer questions from bankers regarding Community Reinvestment Act opportunities during disaster recovery. Requests from local government, nonprofits and other entities soliciting assistance and



donations on their Disaster recovery approaches are received by bankers. The CRA requirements allow the banks to make donations in support of affordable housing, small farmers lending, revitalization/stabilization efforts, meeting needs in community service, etc. CRA's focus is on collaborating with Federal Home Loan Bank, FDIC and OCC to explore how CRA money can best be used to build quality, affordable housing for workforce.

- **Coordinating Agency:** FDIC Office of the Comptroller of the Currency and Federal Reserve
- **Supporting Partners:** Habitat, for-profit and nonprofit developers; FL Alliance of Community Development Corp.; Community Housing Development Organizations; FEMA VOAD

Support Action 1.2.3.8

FDIC OCC Federal Reserve are coordinating a follow-up National meeting in February/March 2018 in Miami to determine how these banking efforts are working. HUD and FEMA have been invited to participate.

- **Coordinating Agency:** FDIC Office of the Comptroller of the Currency and Federal Reserve
- **Supporting Partners:** Habitat, for-profit and nonprofit developers; FL Alliance of Community Development Corp.; Community Housing Development Organizations; FEMA VOAD

Support Action 1.2.3.9

Neighbor Works of America affiliated organizations in Florida Tier 1 & 2 areas. Neighbor Works is a national nonprofit that works with affiliates to create opportunities for affordable housing and community development. Effective and efficient recovery will require place-based solutions crafted specifically to meet the individual challenges in each high-impact and low-capacity local area.

- **Coordinating Agency:** Neighbor Works
- **Supporting Partners:** Nonprofit developers; Community Development Corp.; Community Housing Development Organization; Community Development Financial Institutions

Support Action 1.2.3.10

HUD FHA "Revitalization Areas" are HUD-designated geographic areas authorized by Congress under provisions of the National Housing Act. Revitalization Areas are intended to promote "the revitalization, through expanded homeownership opportunities of revitalization areas." These areas could provide opportunities for workforce housing and/or housing for low income families. There are several revitalization areas already designated in Florida, but local government is often not aware that an area is eligible, they can request more revitalization areas to be designated. The criteria for designation as an FHA Revitalization Area requires: low household income, low homeownership rate in the area and FHA-insured mortgage foreclosure activity in the area.

- **Coordinating Agency:** FHA Atlanta Homeownership Center
- **Supporting Partners:** Local HUD Field Office / Local city/county jurisdiction

Support Action 1.2.3.11

Enterprise Community Partners' Hurricane Community Recovery Fund – Recover Rebuild: Is a coalition of nonprofit organizations working to provide recovery and relief services to affected homeowners and renters are also invited to submit a proposal. A portion of the recovery fund is reserved for organizations serving rural areas. The period of performance for grant awards will be Oct. 1, 2017, through Sept. 30, 2018. Proposals will be accepted on a rolling basis and will be



evaluated as funding permits. For more information, visit: www.enterprisecommunity.org/solutions-and-innovation/recovery-and-rebuilding

- **Coordinating Agency:** Enterprise Community Partners
- **Supporting Partners:** Nonprofit developers; FL Alliance of Community Development Corp.; Community Housing Development Organization; Community Development Financial Institutions

Support Action 1.2.3.12

Provide housing counseling related to resolving issues with contractors; insurance claims; foreclosure processes; home purchase / finance and credit issues. Implement Housing Fairs in to gain exposure of home buying / home repair and financial counseling issues in partnership with federal, state and local partners across the state. Homeowners that need help or have questions about foreclosure, foreclosure prevention, credit issues and / or home purchase/repair can contact a HUD-approved housing counseling agency via 1-800-569-4287. Survivors concerned about housing discrimination may contact HUD at 800-669-9777 or 888-560-8913

- **Coordinating Agency:** HUD/FHA - Office of Housing Counseling
- **Supporting Partners:** Florida Housing Finance Corporation

Support Action 1.2.3.13

Leverage Federal Home Loan Bank of Atlanta Affordable Housing programs to include First-time Homebuyers, Community Partners, Foreclosure Recovery, Community Rebuild and Restore, Veterans Purchase, Returning Veterans Purchase, Veterans Rehabilitation and Returning Veteran Rehabilitation

- **Coordinating Agency:** Federal Home Loan Bank of Atlanta; Federal Reserve Bank
- **Supporting Partners:** HUD; VA; USDA Rural Development

Strategic Objective 1.2.4

Provide Technical Assistance to leverage and enhance housing opportunities for households between 30 percent and 80 percent of the Area Median Income: Quickly and efficiently use existing delivery channels to fund and stimulate the repair and replacement of affordable homeowner and rental housing especially targeted to low-moderate income Floridians with limited access to insurance and loans. Encourage private builder-developers and nonprofit organizations to seek development opportunities in Florida.

Support Action 1.2.4.1

Assist the state to jointly convene housing recovery support event—housing fairs, county official briefings on foreclosure and eviction prevention—with state, local, and HOUS RSF partners in most impacted targeted areas and counties. Effective and efficient recovery will require place-based solutions crafted specifically to meet the individual challenges in each high-impact and low-capacity local area

- **Coordinating Agency:** FEMA
- **Supporting Partners:** HUD, USDA-Rural Development, EPA, SBA, EDA, HHS

Strategic Objective 1.2.5

Provide technical, regulatory, and program assistance to manage the short, intermediate and long-term housing consequences of the disaster leading to the creation of permanent affordable and accessible housing compliant with local, state, and national model building codes and incorporating resilience, sustainability and mitigation measures.



Support Action 1.2.5.1

On Oct. 27, 2017, HUD announced a package of 19 regulatory and administrative waivers aimed at helping communities accelerate their recovery from Hurricanes Harvey, Irma and Maria. It was one of the largest collections of regulatory and administrative waivers ever issued by the Department. The regulatory and administrative relief covers the following HUD programs: The Community Development Block Grant Program, HOME Investment Partnerships Program, Housing Opportunities for Persons with AIDS Program and Emergency Solutions Grant Program. To expedite the use of these funds, HUD's state and local partners can now access a waiver through a new simplified notification process.

- **Coordinating Agency:** Florida Housing Finance Corporation; Florida Department of Economic Opportunity
- **Supporting Partners:** HUD; USDA-Rural Development; FEMA

Strategic Objective 1.2.6

HUD - Community Planning and Development, Office of Block Grant Assistance, Disaster Recovery- will provide technical assistance to Community Development Block Grant grantees who may want to reprogram previously awarded grant funds for disaster recovery through an action amendment.

Support Action 1.2.6.1

Disaster Recovery and Special Issues Division support recovery efforts by providing subject with technical capabilities that can reflect the status, progress, breadth and vulnerabilities through mapping data analyses, reports generating, community feedback and resource monitoring.

- **Coordinating Agency:** HUD
- **Supporting Partners:** FL Department of Economic Opportunity; CDBG Entitlement Communities/Urban counties; USDA-Rural Development; FL DEM; FEMA

Support Action 1.2.6.2

Disaster Recovery and Special Issues Division supports economic revitalization through financial guidance, funding resources identification, providing grants and addressing commercial and residential districts for after tracking and retaining workers. Type of assistance are grants after a disaster appropriation, relocation assistance, rehab, rental rehab and assistance and waivers.

- **Coordinating Agency:** HUD
- **Supporting Partners:** FL Department of Economic Opportunity; CDBG Entitlement Communities/Urban counties; USDA-Rural Development; FL DEM; FEMA

Support Action 1.2.6.3

HUD - Community Planning and Development, Office of Block Grant Assistance, Disaster Recovery: Provides technical assistance to Community Development Block Grant grantees who may want to reprogram previously awarded grant funds for disaster recovery through an action amendment.

- **Coordinating Agency:** Florida Department of Economic Opportunity
- **Supporting Partners:** HUD

Strategic Objective 1.2.7

Provide regulatory relief by reducing HOME Investment Partnerships Program match requirements to zero. For funds addressing damage, provide statutory waiver authority except requirements for public notice, nondiscrimination, fair housing, labor standards, environmental standards and requirements where activities benefit persons of low-and



moderate-income. Provides technical assistance to HOME Investment Partnerships Program grantees who may want to reprogram previously awarded grant funds for disaster recovery through an action plan amendment. With respect to any regulations, waivers, matches, amendments and legislation, efforts are central to helping disaster survivors and the agencies assisting them with key policies regarding their home, business and community.

Support Action 1.2.7.1

Makes HOME Investment Partnerships Program contract technical assistance resources available to grantees in impacted areas to assist in HOME and affordable housing-related disaster recovery efforts.

- **Coordinating Agency:** HUD
- **Supporting Partners:** Florida Housing Finance Corporation

Strategic Objective 1.2.8

Provide support and assistance to enhance local, regional and state capacity to manage short, intermediate and long-term housing consequences of a disaster to lead to permanent housing. Ensure affordable and accessible housing that complies with local, state, and national model building codes and incorporates resilience, sustainability and mitigation measures. Effective and efficient recovery will require place-based solutions crafted specifically to meet the individual challenges in each high-impact and low-capacity local area.

Support Action 1.2.8.1

Multifamily housing is a cost-effective way to meet rental demand for workforce housing through existing, established and effective rental construction programs financed by Florida Housing Finance Corporation and list below.

- Florida Housing Finance Corporation administers the **State Housing Initiatives Partnership Program** to provide funds to local governments as an incentive to create partnerships that produce and preserve affordable homeownership and multifamily housing. The program was designed to serve very low, low and moderate-income families.
- Related to the **State Housing Initiative Partnership Program** the Florida Housing Finance Corporation requires communities to develop a Disaster Strategy as part of their local housing assistance plans, in coordination with Florida Department of Economic Development and Florida Division of Emergency Management. In 2003-2004, 36 percent of communities did not have disaster plans.
- Local **Home Investment Partnerships Program** provides HUD-funded formula grants to entitled participating jurisdictions to fund a wide range of activities that build, buy and/or rehabilitate affordable housing for rent or home ownership.
- **Predevelopment Loan Program** assists nonprofits and others with planning and financing predevelopment costs for home ownership or rental housing through loans and technical assistance.
- The **Multifamily Mortgage Revenue Bond Program** uses both taxable and tax-exempt bonds to provide below market-rate loans to nonprofit and for-profit developers who set aside a certain percentage of their apartment units for low income families.
- **Low Income Housing Tax Credit Program** provides for-profit and nonprofit organizations with a dollar-for-dollar reduction in federal tax liability in exchange for the acquisition and substantial rehabilitation, substantial rehabilitation or new construction of low and very low-income rental housing units for workforce.

The Housing RSF recommends next rounds of LIHTC solicitations and other programs could /



should “target” the least affordable and most impacted areas and use local and state Multifamily Mortgage Revenue Bonds: Uses both taxable and tax-exempt bonds to provide below market rate construction loans to nonprofit and for-profit developers of affordable housing.

- The **Florida Affordable Housing Guarantee Program** was created in 1992 by the Florida Legislature to overcome the lack of available credit enhancement to produce affordable housing in Florida.
- The **State Apartment Incentive Loan program** provides low-interest loans on a competitive basis to affordable housing developers each year.
- **Nonprofit Organization Partners**
 - **Catholic Charities of Central Florida Family Stability Program** has three goals: Serve the working poor who experience a crisis and are seeking financial assistance to remain in their homes, provide important resources to people in need who are facing the threat of eviction or other crisis and provide services that are convenient for people in need of access.
 - **Florida nonprofit Housing, Inc.**'s mission is to empower community-based organizations to assist low- to moderate-income individuals in obtaining decent, safe and affordable housing by providing strategic planning, technical assistance, education, training and related services.
 - **Cape Coral Housing Development** is a HUD approved, Florida nonprofit organization 501(c)(3), dedicated to the economic revitalization of the beautiful city of Cape Coral through a partnership with city government, local lenders and homebuyers by the development of decent, safe, and affordable housing offered to low-income families.
 - **Mercy Loan Fund** focuses exclusively on funding affordable housing and essential community infrastructure projects that support affordable housing. By collaborating with socially-responsible developers, Mercy Loan Fund has helped finance the development of single and multifamily homes for rental and homeownership.

Support Action 1.2.8.2

Florida Governor Scott’s Nov. 14 proposed budget includes \$230.3 million for housing programs — the most since 2010; \$20 million steered to workforce housing in the Florida Keys; \$96.3 million to pay for projects funded by the Florida Housing Finance Corporation; and \$34 million for the State Housing Initiatives Partnership program, which works with local governments.

- **Coordinating Agency:** State and local long-term recovery committees
- **Supporting Partners:** State

Support Action 1.2.8.3

A 14-member Affordable Housing Work Group - created by the Florida Legislature – met for the first time in early September 2017 with a Jan. 1, 2018 deadline to assess the state’s housing policies and recommend changes to the way Florida should target its dedicated affordable housing funds. The group’s mission includes 1) Encouraging public-private partnerships and governmental coordination; 2) Identifying opportunities to streamline state, regional and local regulations affecting the affordability of housing; 3) Advocating development strategies which comprehensively address the housing, economic and social needs of individuals; 4) Advocating the provision of increased technical and financial resources; 5) Promoting research on affordable housing issues, and; 6) Educating the public and government officials to understand and appreciate the benefits of affordable housing. Their recommendations must include, but are not limited to:



- **Coordinating Agency:** Florida Housing Finance Corporation; Florida Department of Economic Opportunity
- **Supporting Partners:** State and local long-term recovery committees

Support Action 1.2.8.4

The Florida Speaker's Select Committee on Hurricane Response and Preparedness was created Sept. 13, 2017 to quickly assess recent experience and pinpoint tangible, meaningful ways to improve Florida's hurricane readiness and response capabilities. While the legislature has a constitutional role to ensure that Florida's state laws, processes and infrastructure are prepared for another future destructive storm event, the Select Committee's specific purpose is to: 1) Gather information; 2) Solicit ideas for improvement; 3) Make recommendations to the Governor for actions within his emergency authority to address hurricane recovery; and 4) Make recommendations for broader proposals to address hurricane preparedness that can be considered during the 2018 Legislative Session. Effective and efficient recovery will require place-based solutions crafted specifically to meet the individual challenges in each high-impact and low-capacity local areas.

- **Coordinating Agency:** Florida Housing Finance Corporation; Florida Department of Economic Opportunity
- **Supporting Partners:** State and local long-term recovery committees

Support Action 1.2.8.5

The catalyst program—Florida Housing Finance Corporation—provides community based organizations and state and local governments with technical assistance to meet affordable housing needs: the development of affordable housing programs, public/private partnerships, local housing assistance plans and regulatory reforms, project financing, leveraging, achieving state and federal compliance and project completion. The Florida Housing Coalition provides training and technical assistance via contract. Their highly skilled and geographically dispersed network of technical assistance providers, professional staff, current practitioners and housing professionals are in virtually all areas of housing development. The Coalition is a principle resource for training and education on affordable housing issues, and is committed to continuing a standard of excellence in training by providing local governments and nonprofit organizations with the skills to become effective partners in the housing delivery process through the provision of technical assistance and training. For more information about Catalyst, training schedules, workshop descriptions and other details, visit the Coalition online at www.flhousing.org or contact them toll-free between 8:30 a.m. and 5 p.m. weekdays at 800-677-4548. The helpline is closed holidays.

- **Coordinating Agency:** Florida Housing Finance Corporation
- **Supporting Partners:** Florida Housing Coalition; Florida League of Cities; HUD; USDA-Rural Development; FL Alliance of CDCs; FEMA

Support Action 1.2.8.6

Related to FEMA's Innovative Housing Project, support the state with CDBG-DR funded pilot project focused on quickly deploying temporary multiuse structures to be used for up to six months while permanent housing units are constructed or repaired.

- **Coordinating Agency:** FEMA
- **Supporting Partners:** Florida Department of Economic Opportunity; Florida Division of Emergency Management



Goal 1.3

Meet the affordable housing needs of displaced farm labor households and provide the additional housing units needed to ensure the full recovery of the agricultural industry of Florida.

Strategic Objective 1.3.1

Consideration; increase affordable and accessible housing opportunities for farm labor households over the next five years which targets low- and very low income individuals and families, between 30 percent and 80 percent Area Median Income. This affordable and accessible housing will comply with local, state and national model building codes and incorporate resiliency sustainability and mitigation measures.

Support Action 1.3.1.1

State and local governments should consult with subject matter experts including nonprofit agencies, grower organizations, and other institutions to specifically determine the type, mix and location of needed projects. Examples of nonprofits are NeighborWorks America, Rural Neighborhoods, Florida Council for Affordable and Rural Housing, Farmworker Association of Florida, and Centro Campesino Farmworker Center, Inc. Further state and national resources include The University of Florida – Shimberg Center for Housing Studies, Rural Local Initiatives Support Corporation, Enterprise Community Partners and National Association of Latino Community Asset Builders. This should be accomplished within one year.

- **Coordinating Agency:** USDA – Rural Development
- **Supporting Partners:** State local governments; nonprofit organizations; national / regional entities

Support Action 1.3.1.2

State and local governments in consultation with subject matter experts should convene funder workshops in the areas determined to have the greatest need for farm labor housing. Funders should include but not be limited to USDA Rural Development, Florida Department of Economic Opportunity, Florida Housing Finance Corporation, Federal Home Loan Bank, local governments, FEMA and private lenders. This should be accomplished within one year.

- **Coordinating Agency:** USDA – Rural Development
- **Supporting Partners:** Florida Department of Economic Opportunity; Florida Housing Finance Corporation; Federal Home Loan Bank; FEMA; private lenders; nonprofit organizations

Support Action 1.3.1.3

To provide for homeownership opportunities, subject matter experts including nonprofit agencies, grower organizations and entities supporting farmworkers, in consultation with potential lenders, should conduct homeownership fairs with an education component. USDA Rural Development should be the primary lender involved as the 502 Direct Loan Program offers very low and low income households with an equivalent interest rate as low as 1 percent with a term of 33 or 38 years. HUD approved housing counsellors should provide homeownership education. This action should occur within the next six months.

- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** HUD-Approved Housing Counseling Agencies; Realtors; Private lenders



Support Action 1.3.1.4

State and local governments and subject matter experts should adopt varied strategies to meet the farm labor housing shortfall including the acquisition and rehabilitation of underused rural housing and older farm labor housing; new construction of rental units targeting families and unaccompanied workers, particularly given a potential increase in employment of H-2A workers, and the adaptive reuse of older mobile home parks to meet new construction needs. Replace pre-1939 manufactured housing in mobile home parks to provide safe, decent and affordable residences that minimize displacement due to windstorm damage. Timeframe for this action would be one to three years.

- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** Local jurisdictions; Regional Planning Councils; Florida Housing Finance Corporation; Federal Home Loan Bank County Housing Finance Agencies / Authorities

Support Action 1.3.1.5

USDA Rural Development should recommend legislative changes to allow for H-2A workers to be housed in projects financed under the 514/516 Farm Labor Housing Direct Loan and Grant Program. Currently, H-2A workers are not permitted to reside at these projects as they are not considered permanent resident aliens. This action has been discussed in appropriations language but not enacted. Timeframe for this action is six months to two years.

- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** Housing Advocacy groups; local elected leaders

Support Action 1.3.1.6

The state should create a Farmworker Housing Recovery Program that would leverage other resources to finance quality housing options in the areas where farmworker housing was devastated by the storm. This recommendation was made by the Hurricane Housing Group created by Executive Order 04-240 as a result of the four hurricanes that hit Florida in 2004. The Work Group recommended \$20,000,000 be set aside which would encourage creative partnerships among nonprofit providers and the agricultural community and the development of innovative housing models that recognize the unique housing needs of Florida's migrant farmworkers. The details of this recommendation can be found in the report dated Feb. 18, 2005. This should be accomplished within a 1 to 2 year timeframe.

- **Coordinating Agency:** USDA-Rural Development
- **Supporting Partners:** Florida Housing Finance Corporation; National / Regional nonprofit organizations; Florida Housing Coalition

Support Action 1.3.1.7

Developers, including nonprofits, for-profits and housing authorities, should leverage state CDBG, HOME, CDBG-DR, SAIL, LIHTC including 9 percent Housing Tax Credits and 4 percent Housing Tax Credits financed with Private Activity Bonds, multifamily Mortgage Revenue Bonds, USDA-Rural Development 514/516 Farm Labor Housing Direct Loan & Grant Program and Federal Home Loan Bank funding options to rehabilitate and/or construct new farm labor housing for very low-moderate income residents and displaced households. This action could take up to five years to accomplish.

- **Coordinating Agency:** USDA-Rural Development



- **Supporting Partners:** Florida Housing Finance Corporation; Florida Department of Economic Opportunity; Local Jurisdictions-County Housing Finance Agencies; Federal Home Loan Bank; Public Housing Authorities; Builder / Developers; Community Development Corporations (CDC); Community Housing Development Organizations (CHODO)

Issue 2: Emerging Populations

Background

Hurricane Irma skirted the island of Puerto Rico but caused extensive damage in the U.S. Virgin Islands. Hurricane Maria followed within a matter of days and caused catastrophic damage to both Puerto Rico and the USVI. As a result, an increasing number of survivors from those islands are seeking refuge in mainland USA, predominantly in Florida. This influx will undoubtedly cause an increasing demand for housing, jobs, schools, health care and other services in many of the same areas already being stressed responding to Florida's Hurricane Irma survivors. The storm-related population growth in Florida is exceeding expectations. In a Nov. 29, 2017, press release Florida Gov. Rick Scott provided updates on the assistance to evacuees from Puerto Rico. Since Oct. 9, 2017, over 199,000 people arrived in Florida from Puerto Rico. The numbers are based on the people who entered the state through Miami International Airport, Orlando International Airport and Port Everglades. As United States citizens, this emerging population will be eligible for all programs available for Florida residents impacted by Hurricane Irma. FEMA's TSA program assistance will provide a short-term jump-start for migrants seeking refuge in Florida's growing urban centers. However, migrants who choose to stay will stress the shrinking availability of affordable housing resources. Housing Choice voucher holders will increase the demand for suitable unsubsidized private multifamily developments. Public housing residents will need assistance on both ends to make successful connections. The remaining participants in the emerging population can best be helped by a social service provider network of social service providers collaborating to assure a comprehensive response to their identified needs.

The employment outlook for the emerging population mirrors that of the storm survivors portrayed in the section for Shortage of Workforce Housing Impact on Tourism as much of the employment on the islands is in the hospitality industry. There is also an added emphasis on a need for employment and services for survivors with limited English proficiency.

Housing needs will include the need for down payment assistance and banking ability. Catholic Charities, United Way and the HUD approved housing counseling agencies can modify their existing programs to address the unique needs of the Hurricane Maria survivors settling in Florida.

The 2010 census states the homeownership rate in Puerto Rico is 72 percent, the highest anywhere in the United States. There is also a high rate of FHA loans. Addressing the needs of relocating homeowners may require engaging HUD's Homeownership Center and many of the HUD approved housing counseling agencies in the effort to resettle the emerging population.

The increasing amount of students from Puerto Rico is impacting schools both with sheer numbers and the frequency of new arrivals in classrooms.

Schools are coping with classroom capacity, teacher shortages and student placement. Locating resettling families near existing afterschool programs and family services will require joint efforts of public and private social service agencies. Although the federal government has granted people affected by the devastating hurricanes of 2017 a 15 days extension to sign up for health care coverage under the Affordable Care Act, the issues facing those families who relocated to Florida



and other mainland states from Puerto Rico is far more complicated than just time. For example, the health care law didn't establish marketplaces in U.S. territories like Puerto Rico. Members of Florida's Congressional Delegation sent a letter to the Director of the Center for Medicare and Medicaid requesting that federal officials publish a fact sheet to provide clarity and alleviate the confusion experienced by Puerto Ricans who have relocated to the continental United States. Health care issues affecting Florida's emerging population can result in costly long-range problems for the state and additional health care concerns for the thousands of Puerto Ricans seeking refuge. Recovery may require the direct coordination of federal and state agencies to effectively address the needs of Hurricane Maria survivors leaving Puerto Rico and the U.S. Virgin Islands.

Goal 2.1

Impact the employment and contracting needs of the emerging population by promoting the application of the Section 3 program in the development of affordable housing and all CDBG-DR funded recovery programs. The Section 3 program is promoted in the Miami-Dade area as a part of the procurement documents. A proposal for funding is given bonus points if it includes an active Section 3 program.

Strategic Objective 2.1.1

Impact the employment and contracting needs of the emerging population by promoting the application of the Section 3 program in the development of affordable housing and all CDBG-DR funded recovery programs. The Section 3 program is promoted in the Miami-Dade area as a part of the procurement documents. A proposal for funding is given bonus points if it includes an active Section 3 program.

Support Action 2.1.1.1

Job Training and Placement for New Residents: Sponsor disaster jobs fairs for emerging population in the relevant counties. Invite vendors to include all local employers, colleges, trade schools and governmental agencies seeking employees. Police, military, Veterans Affairs, HUD Section 3 Representatives, Florida State Workforce Centers and other social service providers should be invited to conduct outreach for their agencies. Red Cross, FEMA, and SBA should be encouraged to invite disaster assistance applicant to attend.

- **Coordinating Agency:** Puerto Rican Chamber of Commerce and ASPIRA
- **Supporting partners:** Florida State Workforce Centers

Support Action 2.1.1.2

Small Business Recovery Conference – Hurricane Irma Small Business Recovery Conference: The recovery conference should feature speakers from U.S. Small Business Administration, U.S. Department of Housing and Urban Development and the Puerto Rican Chamber of Commerce. The conference is designed to promote small business recovery from hurricanes Irma and Maria by providing opportunities to establish and re-establish small businesses by facilitating introductions to commercial buyers from the private sector and public procurement professions from federal, state and local governments. The HUD Office of Small & Disadvantaged Business Utilization and local Section 3 program representatives and their counterparts from other agencies should conduct a panel discussion on contracting opportunities with the government.

- **Coordinating Agency:** U.S. Small Business Administration
- **Supporting partners:** Puerto Rican Chamber of Commerce



Strategic Objective 2.1.2

Increase public/private service providers' access to the cornucopia of HUD housing programs available to low- and moderate-income housing assistance providers. This includes FHA loans, subsidized multifamily housing, public housing, Housing Choice Voucher transfers, HUD-VASH program, HUD Approved Housing Counseling Agencies, HUD Homes, HOME Loan program. There are approximately 75,000 military veterans in Puerto Rico. Many of them are Vietnam War veterans. Nearly all such Veterans are senior citizens eligible VA program assistance. According to an Oct. 13, 2017 USA Today article, many veterans are struggling in Puerto Rico shelters. There is a need for access to the Veterans Affairs programs and the HUD Homeless Veterans program HUD-VASH.

Support Action 2.1.2.1

Homeownership Fairs for Homeowners: Provide homeownership fairs to benefit relocating Maria survivors whose homes were severely damaged or lost with firsthand information on the availability and use of disaster recovery funds and programs. Representatives of the participating agencies will provide details of their agencies' disaster recovery programs and how to access assistance. Invite federal, state and local agencies to conduct outreach and provide information on disaster related programs and resources.

- **Coordinating Agency:** Orlando Regional Realtor Association
- **Supporting partners:** FEMA, the Small Business Administration, FHA, HUD Homeownership Center, HUD Approved Housing Counseling Agencies

Support Action 2.1.2.2

Homeownership Conferences for Realty Professionals: Host conferences staged to provide Florida Realtors with firsthand information on the availability and use of disaster recovery funds and programs to meet the needs of the emerging population. Representatives of the participating agencies should give presentations on the details of their agencies' disaster recovery programs and how to access assistance.

- **Coordinating Agency:** Orlando Regional Realtor Association
- **Supporting partners:** FEMA; the Small Business Administration; HUD; FHA; VA

Strategic Objective 2.1.3

Enhance the capacity of public/private affordable housing developers to provide fair, safe, decent, affordable housing for low and moderate-income households in the emerging population. Conduct local forums with HUD, USDA, Fannie Mae, Enterprise Community Partners, Florida state housing agencies and private lenders to showcase available resources.

Support Action 2.1.3.1

Housing Resource Fairs: Encourage housing assistance service providers to sponsor area Housing Resource Fairs to target families participating in the Irma and Maria Tenant Rental Assistance Program and other residents adversely affected by the storms. Offer storm survivors information on available housing and housing assistance programs for both urban and rural locations from nonprofits community development corporations, multifamily housing landlords/developers, local and state governmental agencies and supportive services providers.

- **Coordinating Agency:** United Way
- **Supporting partners:** PHAs, Catholic Charities, USDA, Neighbor Works

Support Action 2.1.3.2

Encourage the full utilization and expenditure of unused funds from the federal Emergency Solutions Grant program. The purpose of the ESG Program is to help improve the quality and quantity of emergency shelters for homeless persons to help cover the costs of operating emergency shelters, and to fund essential supportive services to homeless individuals. These funds allow homeless persons to have access to safe and sanitary shelter and the services and assistance they need to improve their situations. In addition, the ESG Program is used to fund short-term rental assistance to prevent homelessness, as well as to help move homeless persons back into permanent rental housing. The state has unused funds dating back to 2011 that it can use to stabilize emerging populations and prevent homelessness.

- **Coordinating Agency:** Florida Department of Children and Families
- **Supporting partners:** HUD

Strategic Objective 2.1.4

Increase the capacity of NGOs and faith-based organizations to access public and private resources to benefit initiatives for housing assistance, job placement, child care and family services for emerging populations. Collaborate with government agencies and philanthropies to enhance the resource development efforts.

Support Action 2.1.4.1

Resource Development and Capacity Building: Increase the capacity of NGOs and faith-based organizations to access public and private resources to support initiatives for housing assistance, job placement, childcare and family services for emerging populations.

- **Coordinating Agency:** HUD Center for Faith-based and Neighborhood Initiatives
- **Supporting partners:** U.S. Department of the Treasury; Local philanthropies

Strategic Objective 2.1.5

Determine the health care needs of the emerging population and address the many barriers to accessing affordable health care as well as mental health and social services. Facilitate the direct access to the Florida health care system to assure the transfer of existing coverage or timely application for new health care insurance.

Support Action 2.1.5.1

Encourage the establishment of a disaster open enrollment period for ACA and conduct health care fairs to facilitate effective access to health care insurance for the emerging population.

- **Coordinating Agency:** Florida Health Care Access Program
- **Supporting partners:** CMS and HHS

Issue 3: Acquisition/Replacement Strategies

Background

Hurricane Irma caused significant damage to housing stock in Southwest Florida and the Florida Keys. Since Hurricane Andrew struck Florida in 1992, local communities and the State made significant investments in mitigation measures to eliminate and/or reduce long-term risk to people and property from natural disasters.

Floodplain Management and compliance with local floodplain management ordinances may be an impactful recovery issue for many homeowners, business owners and communities impacted by DR-



4337-FL. Many structures may be determined to be located in a high-risk area, substantially damaged and noncompliant with the local floodplain management ordinance.

Damage data suggests Hurricane Irma disproportionately impacted manufactured housing as well as housing constructed before Hurricane Andrew. Individual property owners may not possess sufficient financial resources to rebuild resiliently and compliancy with their community's local codes and ordinances. As such, all available resources will need to be carefully and creatively leveraged as homeowners rebuild and communities re-examine their land use development processes and policies. Mobile home and RV parks that sustained significant damage due the storm, along with vacant parcels, may be poised for replacement and conversion into multifamily affordable housing communities.

Additionally, communities throughout Florida have consistently identified significant pre-disaster affordable housing shortages. Hurricane Irma exacerbated an already strained affordable housing market by displacing homeowners and renters post-disaster and impacting existing affordable housing units. New affordable housing options are a critical component for the recovery of Florida's workforce labor and tourism industry. Numerous homes and buildings may be determined to be located in high risk areas, substantially damaged, repetitively damaged and noncompliant with the local floodplain management ordinance. Many impacted communities may need to consider and develop housing replacement and acquisition strategies as a large number of structures may be determined to be located in a high-risk area, substantially damaged and noncompliant with the local floodplain management ordinance.

Goal 3.1

Where possible, target repetitively damaged structures and structures built before the Florida State Building Code became effective and use acceptable additions to purchase offers for acquisition/demolition projects, including supplemental payments, credit to property owners who have flood insurance, Uniform Relocation Assistance to displaced tenants.

Strategic Objective 3.1.1

Provide technical, regulatory, and program assistance to build local, regional, and state capacity to manage the short, intermediate and long-term housing consequences of an incident leading to permanent housing, to include affordable and accessible housing that complies with local, state and national model building codes and incorporates resilience, sustainability and mitigation measures.

The Coordinated Place Based Recovery Support Initiative aims to assist heavily impacted and low capacity communities navigate this complex process and develop plans and processes that both enhance their internal capacity and increase their resilience to all hazards.

Support Action 3.1.1.1

The Housing RSF will coordinate with the Hazard Mitigation advisor to directly support communities by integrating the mitigation strategy, activities and data from pre-disaster and early disaster phases into long-term community recovery. It will also collaborate with local communities to further the local hazard mitigation strategy and leverage resources from across agencies to support the development of comprehensive housing solutions.

Goal 3.2

Balance risk against social, economic and environmental priorities.



Strategic Objective 3.2.1

Provide technical assistance to communities to enable them to weigh mitigation options and opportunities within the context of growth management regulations and an acute lack of affordable housing options.

Support Action 3.2.1.1

Using Coordinated Place Based Recovery Support, provide technical assistance as needed to communities as they develop a comprehensive long-term housing strategy with an emphasis on addressing pre-existing affordable workforce housing shortages, unmet needs and compliance with local and state ordinances. Discreet activities may include, but are not limited to:

- Exploring options for redeveloping multifamily housing and purchasing less hazard prone sites for workforce housing.
- Optimizing opportunities for mixed land use development.
- Considering additional types of housing stock, particularly micro housing options in areas where ROGOs are impactful.



Economic RSF Findings

Strategy Development Considerations

The Economic Recovery Support Strategy for Florida is a strategic roadmap that indicates the approach and direction federal and state agencies and stakeholders could take in addressing economic recovery needs, issues and actions from the impacts of Hurricane Irma. The storm strongly impacted the economic conditions of Florida, negatively affecting business, agriculture, aquaculture, tourism and the workforce. This document will help the citizens, businesses, government entities and other organizations—volunteers and nonprofits—work through the recovery issues while improving resource capacities that will help begin a process of ensuring future economic resiliency.

This roadmap was influenced by a review of available impact indicators, such as, the U.S. Small Business Administration loan applications, unemployment assistance, state business damage assessments, agriculture and aquaculture damage data, to pinpoint primary issues to address from an economic recovery and resiliency perspective. It also benefited from discussions held with key leaders representing the Regional Planning Councils, the Florida Department of Economic Opportunity and other state and federal partners.

While the presidential major disaster declaration designated all 67 of the state's counties as eligible for assistance, 21 counties were designated as eligible for FEMA Public Assistance in the categories of C through G.¹ The eligible counties are: Baker, Broward, Charlotte, Clay, Collier, Duval, Flagler, Glades, Hendry, Hillsborough, Lee, Manatee, Miami-Dade, Monroe, Nassau, Palm Beach, Pasco, Pinellas, Putnam, Sarasota and St. Johns. Of these, Collier, Hendry, Lee and Monroe have been designated as Tier 1 counties, those with the highest level of need for outside assistance, to receive coordinated federal support through place-based initiatives.² Four additional counties were identified by the U.S. Economic Development Administration and the RPCs to also be notably impacted. They are: Brevard, Highlands, Polk and Volusia. In addition, the U.S. Department of Agriculture identified 19 counties as primary disaster counties from an agriculture perspective.³ These 19 counties include 16 of the 25 aforementioned counties as well as Alachua, Bradford and Gilchrist counties.

The following RPC regions were most affected by Hurricane Irma: Northeast Florida, East Central Florida, Tampa Bay, Central Florida, Treasure Coast, Southwest Florida and South Florida. In addition, the agricultural sector in the North Central Florida region was also notably impacted. Of these regions, the South Florida region was clearly the most impacted from an economic development perspective. See the following map showing how the regions were impacted by Hurricane Irma's peak winds.

¹ These counties were designated by FEMA for Public Assistance in the categories of C through G, which include permanent work beyond the emergency work in the following areas: roads and bridges; water control facilities; public buildings and contents; public utilities; and parks, recreational and other facilities.

² See the CPCB section of this RSS for further discussion on the Coordinated Place Based Recovery Structure in place for Florida.

³ See Issue 2: Agriculture and Aquaculture Damage in the Economic section of this RSS.



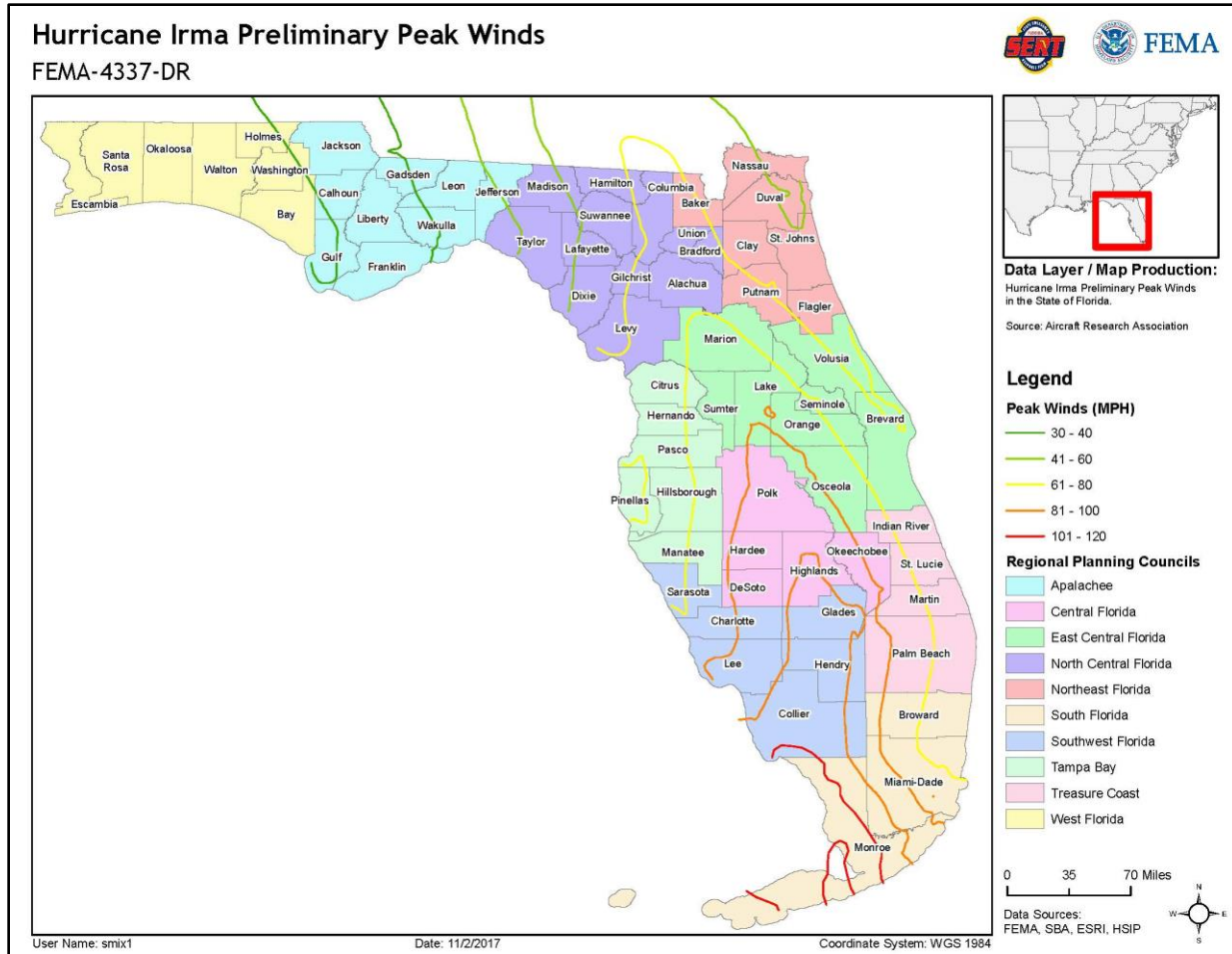


Figure 1: Hurricane Irma Preliminary Peak Winds

Recovery Issues and Strategies

Issue 1: Business Loss

Hurricane Irma had both sporadic and widespread impacts on commercial, industrial and agricultural structures in regions across the state, creating significant business disruptions and closures.

Background

The 12 counties especially impacted by Irma in terms of business loss are Miami-Dade, Monroe, Broward, Lee, Collier, Pinellas, Orange, Palm Beach, Hillsborough, Brevard, Duval and Polk, based on SBA business and economic injury loan applications received and other indicators. Among the counties with the most significant business damage—Miami-Dade, Broward, Pinellas, Lee, Palm Beach, Collier and Monroe—are also among the state’s leaders for commercial and industrial development, as measured by having more than \$1 billion in commercial or industrial property values in 2017 pre-Hurricane Irma, according to data from the Florida Department of Revenue. Nearly 11,000 Florida businesses have applied to SBA for a business loan or economic injury loan, as of Nov. 17.⁴ When considering the businesses applying for SBA assistance, it appears that

⁴ Source: U.S. Small Business Administration

businesses operating in the service sectors were impacted in greater numbers than those in the non-service sectors. (See the following map illustrating SBA applications by county.)

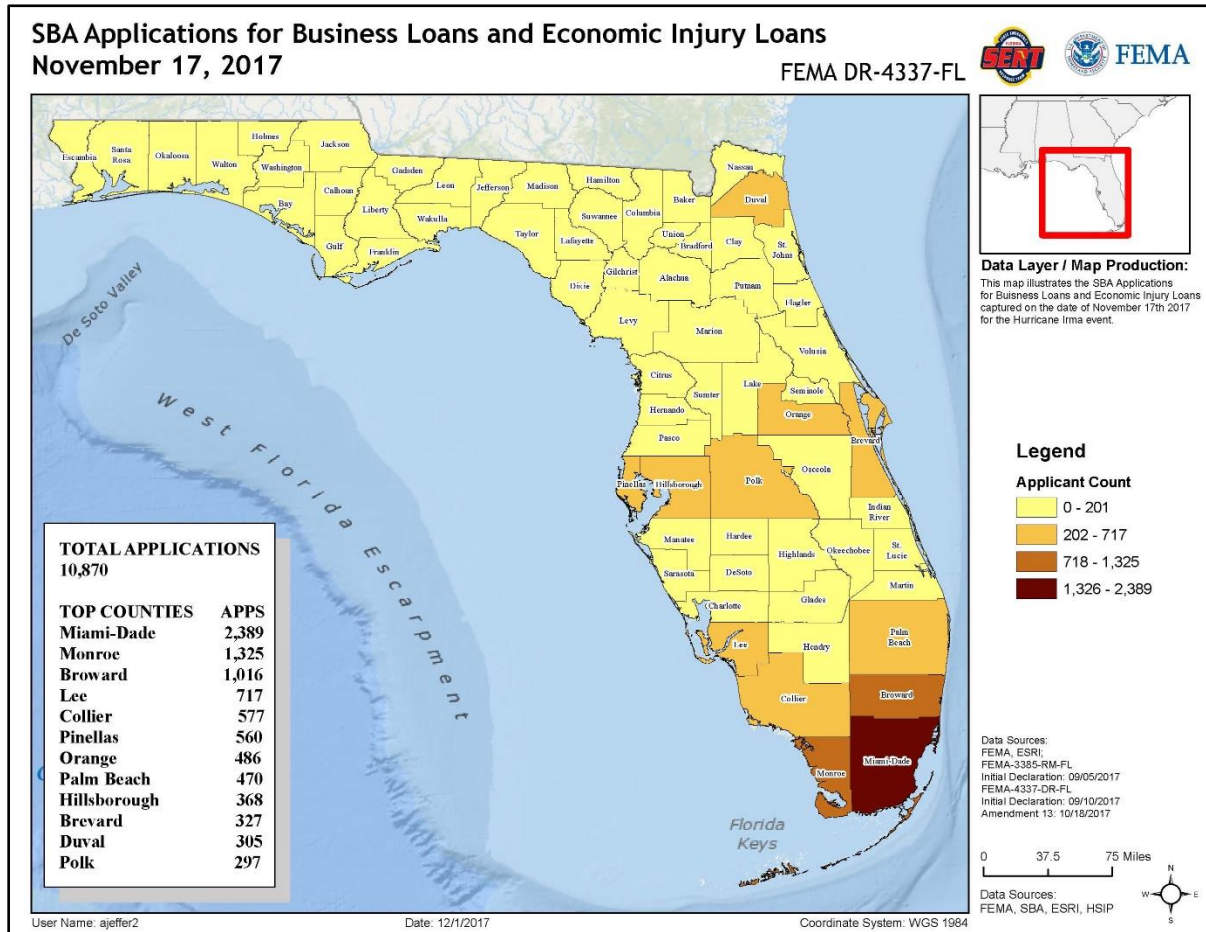


Figure 2: SBA Applications for Business Loans and Economic Injury Loans

Through the Florida Virtual Business Emergency Operations Center, Florida businesses have the opportunity to complete an online business damage assessment survey. This survey is insightful for revealing key needs for business assistance. As of Nov. 30, 2017, 983 businesses had completed the assessment.⁵ Of these, 55 percent had indicated they suffered physical damage and 94 percent had indicated they suffered economic injury. On a positive note, more than three-quarters (77 percent) had indicated that they were open for business. The top identified remaining needs for help include construction and contractor needs (40 percent), access to business (38 percent), short-term capital (38 percent), debris removal (36 percent), access to product supply (33 percent), access to business loans (33 percent), and water damage (30 percent). Aligning with what the SBA application data reveals, the majority (58.5 percent) of the businesses have self-identified to operate in the retail, service or tourism industries.

The Insurance Institute for Business & Home Safety and SBA estimate that while one-in-four businesses can expect to experience a disruptive disaster, approximately 60 percent of those

⁵ Source: Florida Department of Economic Opportunity

businesses do not have a basic emergency response plan.⁶ Of those businesses without a plan, IBHS and SBA estimate that 75 percent of the impacted businesses will fail within three years of the incident. In addition, FEMA estimates that almost 40 percent of small businesses that close after a disaster never reopen their doors because just a few inches of water can cause tens of thousands of dollars in damage.⁷ While it is yet to be seen how these statistics bear out for Florida's impacted businesses, the majority (85 percent) of the 983 businesses that completed the state's survey reported that they have lost or will lose business due to Hurricane Irma. At least 224, or nearly 25 percent, of the businesses reported that they were still not open when they completed the survey. In addition to those that have closed for a period, some businesses were reported to have had to reduce their shifts due to a lack of available workers. Recovering businesses may face the challenge of recruiting new employees to operate at full capacity as their workers may have found other opportunities or relocated due losing their home.⁸

On Sept. 14, 2017, Gov. Rick Scott activated the Florida Small Business Emergency Bridge Loan program to support small businesses impacted by Hurricane Irma.⁹ The program was intended to connect affected businesses with immediate support by providing short-term, interest-free working capital loans to bridge the gap until a business can secure longer term recovery resources, such as sufficient profits from a revived business, receipt of payments on insurance claims, or federal disaster assistance. Under the program, small businesses established before Sept. 4, 2017, with between two and 100 employees can apply for loans up to \$50,000 for 90- or 180-day terms. As of Dec. 11, per data received from DEO, Florida received 1,051 applications for state emergency bridge loans, and nearly 75 percent of the applications have been awarded.

Goal 1.1.

Provide support to accelerate business restoration, recovery, and continuity especially for businesses that have not closed permanently and are at the highest risk for future business closure.

Strategic Objective 1.1.1.

Support the State's efforts in connecting Florida's most impacted communities with resources to aid and advise them in their efforts to help businesses with recovery and restoration over the next six to 12 months.

Support Actions 1.1.1.1.

- In partnership with EDA, the International Economic Development Council, the Florida Economic Development Council, and others, consider developing a symposium or conference for Florida leaders, featuring in-state and out-of-state experts to share best practices in economic recovery.¹⁰
- Broadly encourage the use of the tools and resources available through the IEDC's Restore Your Economy (RYE) portal, www.restoreyoureconomy.org, a tool sponsored by EDA to build greater community capacity for recovering from a disaster.

⁶ Source: International Economic Development Council, *Leadership in Times of Crisis: A Toolkit for Economic Recovery and Resiliency*, March 2015.

⁷ Source: FEMA website (<https://www.fema.gov/protecting-your-businesses>), accessed November 3, 2017.

⁸ See the Issue 4: Displaced and Dislocated Workers in the Economic section of this RSS.

⁹ Source: <https://www.flgov.com/2017/09/14/gov-scott-activates-emergency-bridge-loan-program-for-small-businesses-damaged-by-hurricane-irma/>

¹⁰ Florida should consider aligning these efforts with the Placed-Based Initiative underway for Tier 1, 2, and 3 communities.



- Explore the potential to create a Florida-specific portal, modeled after RYE, to feature best practices and resources in the State to aid in economic recovery.
- Provide support through an EDA grant for creating one or more economic disaster recovery coordinator positions to support place-based initiatives, address business and infrastructure needs, and assist with resource development (e.g., grants).
- Broadly encourage the use of the tools available through the National Institute of Standards and Technology (NIST) Community Resilience Planning Guide for Buildings and Infrastructure Systems to help for greater economic resiliency in the face of disasters (<http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.1190v1.pdf>)
- Help cities explore the potential to become a member of the 100 Resilient Cities program (www.100resilientcities.org) with the Rockefeller Foundation, and leverage the successful efforts of Miami-Dade County's participation in this program.
- Connect community leaders with FEMA's Independent Study Program (<http://training.fema.gov/EMI>) that offers free, self-paced online courses on subjects including Operational Planning, Integrated Preparedness, Continuity Programs and Hazard Mitigation.
- Broadly encourage the use of the tools available through FEMA such as the free, prepackaged and easily downloadable information (www.fema.gov/emergency-planning-exercises) on events including critical power failures, earthquakes, hurricanes, cybersecurity and "whole community" catastrophes.
 - **Coordinating Agencies:** EDA, DEO
 - **Other Supporting Organizations:** FEMA, NIST, IEDC, FEDC, Florida Chamber of Commerce, local chambers of commerce

Strategic Objective 1.1.2.

Support the State's efforts in connecting affected businesses in Florida's most impacted counties with resources to aide and advise them in their recovery and restoration over the next six to 12 months.

Support Actions 1.1.2.1.

- Continue to encourage businesses to report through the FLVBEOC's Business Damage Assessment Survey, and continue to connect these businesses with appropriate resources for help.
- In partnership with SBA, USDA, EDA, the Florida Small Business Development Center Network, U.S. Department of Commerce's Minority Business Development Agency, DEO, and community and regional organizations, host business recovery roundtables and workshops to share information about state and federal programs and resources for business.
- Consider developing a program modeled after EDA's successful economic development assessment team program such as the one that served communities in the aftermath of the BP Deepwater Horizon Oil Spill.¹¹
 - **Coordinating Agencies:** EDA, Florida SBDC Network, NIST, MBDA, DEO, Enterprise Florida, FloridaMakes, CareerSource Florida
 - **Other Supporting Organizations:** FEDC, Florida Chamber of Commerce, local chambers of commerce

¹¹ The EDAT program connected local communities and regions with federal agency leaders and other national subject matter experts in business continuity and resiliency following a disaster. These experts met with local community stakeholders to provide guidance and direct technical assistance for economic recovery.



Strategic Objective 1.1.3.

Partner with the State to increase access to capital for businesses in the most impacted communities through EDA and other resource partners over the next 12 months.

Support Actions 1.1.3.1.

- In partnership with the Florida SBDC Network, explore the potential adoption of new formula eligibility considerations for businesses, such as businesses in hospitality industries that depend upon a 1099 workforce of independent contractors and do not meet the employment requirements for funding through the Florida Small Business Emergency Loan Program.
- Explore with EDA, USDA and other resource partners, such as philanthropies, the potential to create revolving loan funds and repurpose existing RLFs for businesses that endured damage.
- Explore the potential for strengthening financing opportunities for the businesses particularly at-risk for not achieving full economic recovery.
- Explore the potential for creating bank consortiums to create business recovery funds for long-term recovery needs.
 - Coordinating Agencies: EDA, USDA, SBA, Florida SBDC Network, Enterprise Florida
 - Other Supporting Organizations: Florida Chamber of Commerce, Florida Bankers Association, local chambers of commerce, local banks

Goal 1.2.

Mitigate the impacts of disasters by preparing businesses to sustain operations, avoid disruptions, and achieve greater resiliency in disasters.

Strategic Objective 1.2.1.

Support the State's efforts to help Florida businesses develop continuity and resiliency plans through available resources over the next 24 to 36 months so that a higher percentage of Florida businesses have at least a basic emergency response plan.

Support Actions 1.2.1.1.

- In partnership with the RPCs, continue to incorporate community and business resiliency components into the Comprehensive Economic Development Strategy planning processes.
- Support the efforts of the Florida SBDC Network to work with small businesses that have lost significant customer bases because of Hurricane Irma to diversify their market areas and product lines.
- In partnership with local economic development organizations, host training programs and workshops to engage and educate the business community in disaster preparedness and continuity planning.
- Support the efforts of the Florida SBDC Network to hold special workshops for non-employers—sole proprietors such as doctors, real estate agents, taxi drivers—to foster the adoption of business resiliency practices at opportune times for business owners. This can include early breakfast meetings.
- Continue to raise awareness about the resources available through entities such as SBA, the Florida SBDC, EDA, IEDC's RYE economic development volunteer deployment program, DEO, chambers of commerce, and others for accessing technical assistance to assess needs and develop business resiliency plans.



- Through the Florida SBDC Network, develop a certified business continuity training program and work with the insurance industry and other private sector partners to explore the possibility of offering a discount on insurance plans for businesses that complete the program.
- Working with local and state government departments, local chambers of commerce and other partners directly in touch with businesses, connect businesses with the free online tools for business planning listed below:

Table 1: Free Online Tools for Business Planning

ONLINE TOOL	DESCRIPTION
Florida SBDC Bizaster App (http://floridasbdc.org/training-videos/introduction-disaster-preparedness-bizaster-app/)	A tool that can be downloaded as an application for mobile phones and devices to assist with developing a plan for disaster preparedness
Florida Division of Emergency Management: Get a Plan! http://www.floridadisaster.org/getaplan/business.aspx	A tool to help businesses develop an emergency management plan.
U.S. Chamber of Commerce Foundation's Disaster Help Desk https://www.uschamberfoundation.org/disaster-response-and-community-resilience/disaster-help-desk	Provides preparedness and continuity advice and to guide disaster-impacted organizations through the steps of recovery and re-opening
Insurance Institute for Business & Home Safety's OFB-EZ https://disastersafety.org/ibhs-business-protection/ofb-ez-business-continuity/	A business continuity tool designed to help even the smallest businesses focus on planning for any type of business interruption, so they can quickly reopen and resume operations following a disaster
FEMA Ready Business https://www.ready.gov/business http://flash.org/readybusiness	A FEMA program that is managed as part of the Ready Campaign which contains several free tools and resources; hazard-specific toolkits can be found on the FLASH website
FEMA Business Continuity Planning Suite https://www.ready.gov/business-continuity-planning-suite	A software program for any business with the need to create, improve, or update its business continuity plan
FEMA Voluntary Private Sector Preparedness Program https://www.fema.gov/voluntary-private-sector-preparedness-program-ps-preptm-small-business-preparedness	Known as PS-Prep™, this tool assists with developing a comprehensive management system that addresses business continuity

- **Coordinating Agencies:** SBDC, DEO
- **Other Supporting Organizations:** Florida Office of Insurance Regulation



Strategic Objective 1.2.2.

Partner with the State to increase the resiliency of electric power-related infrastructure for business continuity over the next 24 to 36 months, as measured by fewer power outages in future storms.¹²

Support Action 1.2.2.1.

- In partnership with Florida’s electric utilities, create a task force to help businesses and other for-profit entities that depend upon electricity have adequate and properly installed backup generation capacity—generators, fuel and switch capabilities—through expanded financial and technical assistance resources.
- Encourage and work with the U.S. Army Corps of Engineers, Florida's electric utilities and others to identify commercial areas where the power grid infrastructure can be improved and where resiliency components can be built into future development plans like placing new and reconstructed powerlines underground.
- Encourage and support the efforts of local governments to review construction and redevelopment plans for commercial and industrial structures to ensure built-in resiliency components.
- With the assistance of the RPCs, help local governments develop plans that enable better deployment and mobilization of resources for debris removal and management, especially in areas affecting business traffic, to lessen the degree of business disruptions in the future.
 - Coordinating Agencies: DEO, SBDC, U.S. Army Corps of Engineers, Florida’s electric utilities, EDA, Florida Public Service Commission, Florida Department of Transportation
 - Other Supporting Organizations: RPCs, local governments

Goal 1.3

Create a more diverse industrial base in communities overly reliant on one or two industries.

Strategic Objective 1.3.1

Partner with communities lacking economic diversification to develop at least one new market opportunity over the next 24 to 36 months.

Support Actions 1.3.1.1

- Identify communities that are overly reliant on one or two industries.
- Conduct economic diversification feasibility studies for the identified communities and explore with EDA the possibility of grant funds to support this work.
- Connect leaders of the studied communities with federal and state partners who can aid in implementing the recommendations of the feasibility studies.
- Connect the communities with experts in economic development marketing and branding to assist with aligning their marketing efforts to pursue opportunities for economic diversification.

¹² See the Infrastructure section of this RSS for further discussion on the power grid.



Issue 2: Agriculture and Aquaculture Damage

Agriculture and aquaculture damage impacted multiple sectors across the state and may see even greater economic impacts in heavy equipment losses, loss of future production, and rebuilding costs. As Florida is a major producer and exporter for several crops, losses due to Hurricane Irma are anticipated to have significant longer-term impacts on the supply chain for the food services industries.

On Oct. 4, 2017, Florida Department of Agriculture and Consumer Sciences Commissioner Adam H. Putnam announced that the estimated economic agricultural damage caused by Hurricane Irma totaled \$2,558,598,303.¹³ This preliminary assessment accounts for current crop losses and ancillary losses, such as debris cleanup, damaged infrastructure and animals' long-term welfare affected by Hurricane Irma. In addition, crop losses and the storm's impact on natural and managed landscapes, including native bee habitats, is anticipated to adversely impact the ability of bees to provide essential crop pollination services for those crops that survived. More than 315 species of wild/unmanaged bees in Florida provide these essential services for crop production.¹⁴

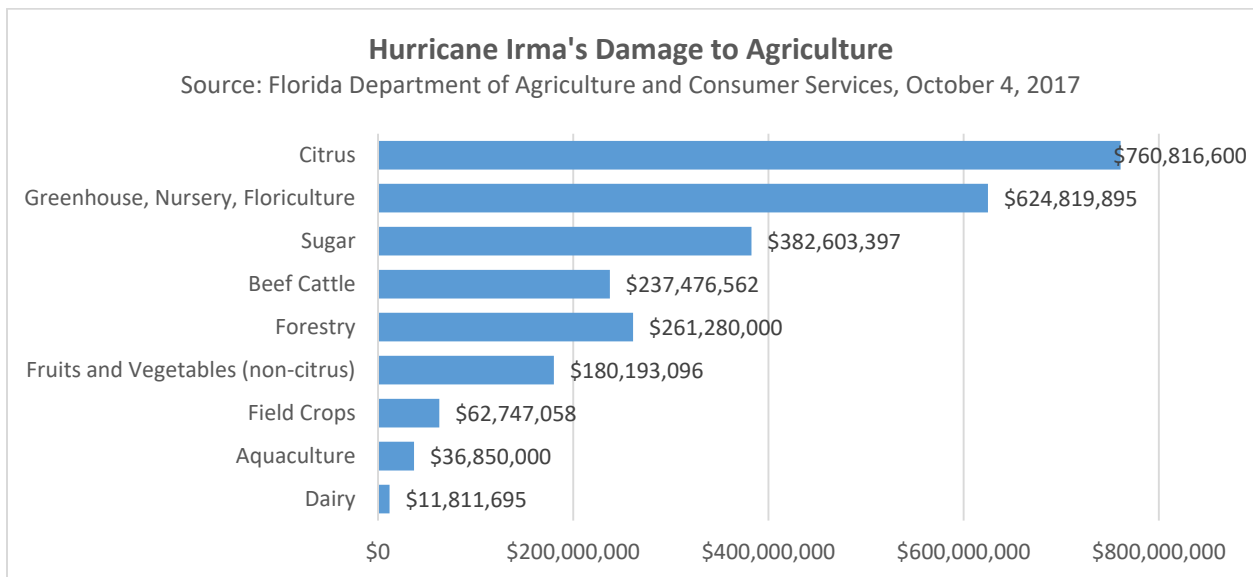


Figure 3: Hurricane Irma's Damage to Agriculture

As of Nov. 29, USDA has received 22 damage survey reports through the Natural Resources Conservation Service; the cost of total damage from those reports is estimated at \$25.7 million.¹⁵ Some impacts will take years to understand. For example, in addition to citrus crops destroyed and affecting the current supply of citrus, the future supply may be impacted by lower yields from affected citrus trees. To try to help impacted Florida citrus growers, Gov. Rick Scott activated a \$25 million Florida Citrus Emergency Loan Program to be available through Nov. 30.¹⁶ In addition, the

¹³ Source: <http://www.freshfromflorida.com/News-Events/Press-Releases/2017-Press-Releases/Commissioner-Putnam-Announces-Preliminary-Florida-Agricultural-Damage-Due-to-Hurricane-Irma-Total-2.5-Billion>

¹⁴ Source: University of Florida Institute of Agriculture Sciences Extension, EDIS, Bees for Pollination, 2015

¹⁵ Source: U.S. Department of Agriculture

¹⁶ <https://www.flgov.com/2017/10/06/gov-scott-activates-25-million-citrus-emergency-loan-program-to-aid-citrus-growers/>

FDACS Commissioner is hosting biweekly calls with major players in the agriculture industry to stay informed about how their operations are recovering and to discern unmet needs.

USDA designated 19 counties in Florida as primary natural disaster areas eligible for Farm Service Agency’s emergency loans, provided eligibility requirements are met. Counties contiguous to the primary counties are also eligible for assistance. See below for a map illustrating the counties designated by USDA as primary disaster areas and the contiguous counties.

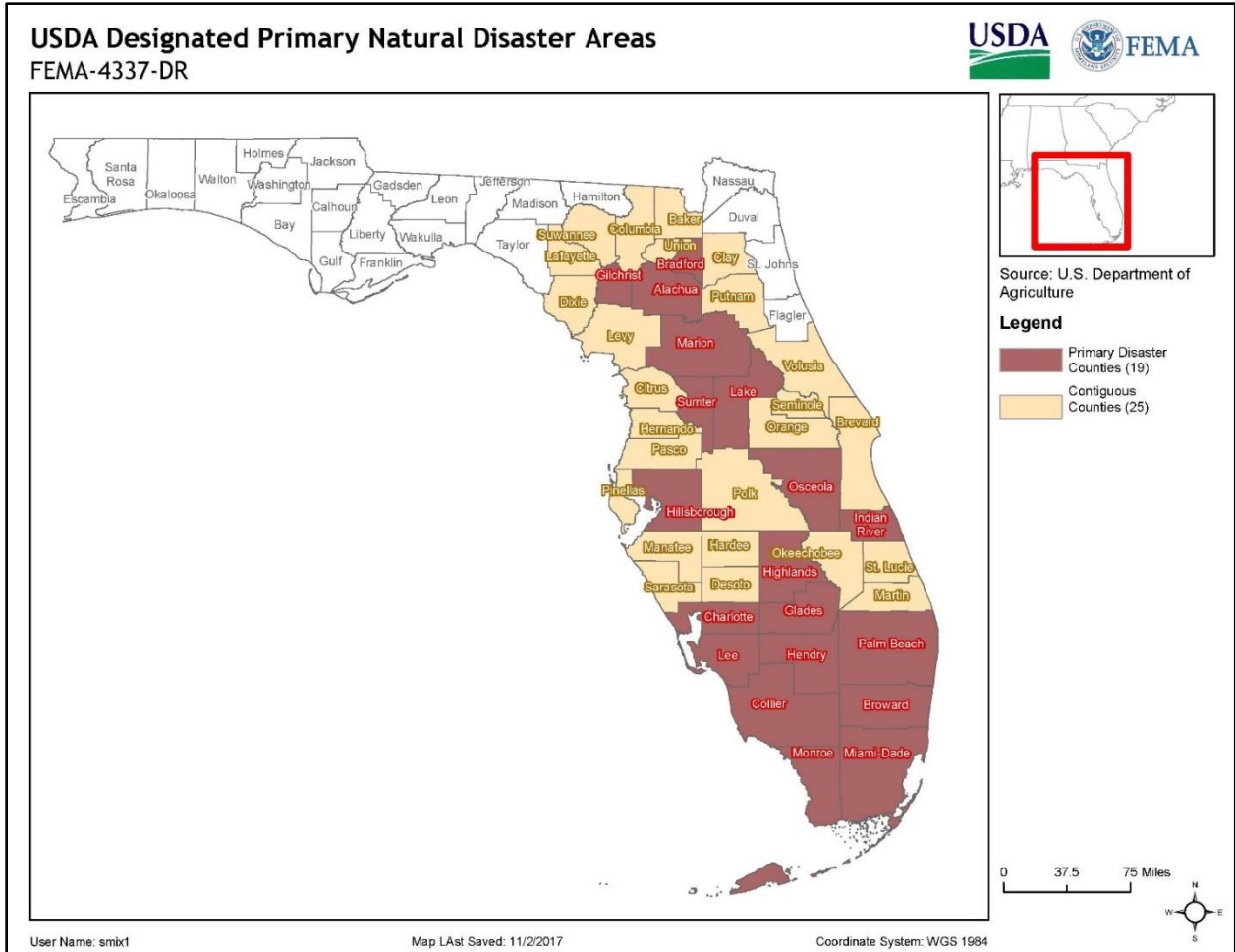


Figure 4: USDA Designated Primary Natural Disaster Areas

Aquaculturists in Florida produce ornamental fish, mollusks, alligators, aquatic plants, live rock and coral, and a diversity of food fish, among other products. Aquaculture farms depend heavily on electricity to run oxygenation and water circulation systems. Even short periods of time without electrical power may result in heavy losses, particularly when fish and shellfish are in larval or juvenile stages. Responses from the FDACS preliminary assessment suggest that total losses in aquaculture are estimated to be \$36,850,000 including \$17,500,000 in product losses. Of the 404 aquaculture operations reporting sales in Florida, an estimated 150 (37 percent) experienced heavy infrastructure, equipment and cleanup losses or costs, averaging:

- \$45,000 per operation in infrastructure loss, totaling \$6,750,000.
- \$80,000 per operation in equipment loss, totaling \$12,000,000.

- \$4,000 per operation in cleanup costs, totaling \$600,000.¹⁷

Goal 2.1.

Restore agriculture and aquaculture operations, especially for major food chain suppliers, in the most impacted counties.

Strategic Objective 2.1.1.

Support the State in the acceleration of recovery and resilience of the agriculture and aquaculture sectors over the next six to 12 months.

Support Actions 2.1.1.1.

- Continue to host roundtables with agriculture and aquaculture farmers and producers to share information about state and federal programs and resources for restoring agricultural and aquaculture operations, partnering with USDA FSA and NRCS, the U.S. Department of Commerce's National Oceanic and Atmospheric Administration, FDACS, the University of Florida's Institute of Food and Agriculture Sciences, Florida Cooperative Extension,¹⁸ and with community and regional organizations.
- Support USDA in promoting and sharing information on agriculture and aquaculture business workshops within the private sector.
- Coordinate with aquaculture colleges and labs in Florida to enhance participation in training and other technical assistance most impacted by Irma.
- Coordinate with IFAS and other units with universities and colleges associated with agriculture to facilitate training and other technical assistance for producers impacted by Irma.
- Support the efforts of IFAS to restore native bee habitats and educate farmers on pollinator-friendly tree and crop restoration methods.
- Work with NOAA and Florida Fish and Wildlife Conservation Commission to explore the feasibility of building upon the pilots for attaching GPS trackers to buoys to develop a sustainable program for monitoring traps.
- Explore resources available through Florida aquatic museums that have specific programs and partners worldwide to assist in disasters such as Hurricane Irma.
 - Coordinating Agencies: USDA FSA and NRCS, NOAA, FDACS, FWC, IFAS, Florida Cooperative Extension
 - Other Supporting Organizations: RPCs, colleges and universities

Strategic Objective 2.1.2.

Support the state in connecting agriculture and aquaculture farmers and producers with resources for financial capital to achieve economic recovery and restoration over the next 12 months.

Support Action 2.1.2.1.

- Conduct further outreach to farmers and producers to ensure they are aware of the existing financial resources available through USDA's FSA beyond crop insurance.

¹⁷ Source: <http://www.freshfromflorida.com/News-Events/Press-Releases/2017-Press-Releases/Commissioner-Putnam-Announces-Preliminary-Florida-Agricultural-Damage-Due-to-Hurricane-Irma-Total-2.5-Billion>

¹⁸ The University of Florida, together with Florida A&M University, administers the Florida Cooperative Extension Service.



- Continue to work with FSA to help farmers and producers engage with the Emergency Conservation Program (ECP), which can provide funds for debris cleanup and restoration of farmland, Emergency Farm Loans, and other ongoing programs that can address crop losses, replacement machinery and rebuilding.
- Explore with SBA the further applicability of SBA business loans and economic injury loans for agriculture and aquaculture businesses.
- In partnership with the Florida SBDC, explore the merits and feasibility of creating a program like the Florida Citrus Emergency Loan Program for other agriculture and aquaculture farmers and producers.
 - Coordinating Agencies: USDA FSA, Florida SBDC, FDACS
 - Other Supporting Organizations: EDA, DEO

Goal 2.2

Assist agriculture and aquaculture farmers and producers in developing more resilient operations to mitigate the impacts of disasters.

Strategic Objective 2.2.1.

Support the State in connecting agriculture and aquaculture producers in the primary disaster counties identified by USDA with resources to assist with creating more resilient operations to mitigate the impacts of disasters over the next 24 to 36 months.

Support Actions 2.2.1.1.

- In partnership with the RPCs, continue to incorporate agriculture and aquaculture-related resiliency components into the Comprehensive Economic Development Strategy planning processes.
- Consider developing a program modeled after EDA's successful economic development assessment team program such as the one that served communities in the aftermath of the BP Deepwater Horizon Oil Spill.¹⁹
- In partnership with USDA's FSA, NOAA and IFAS, examine the state, national, and international industrial supply chain implications from commercial crop and livestock losses and prioritize assistance to producers accordingly.
- Working in concert with FSA, NRCS, FDACS, IFAS and Florida Cooperative Extension, connect producers experiencing crop, livestock and silviculture—forestry—decimation with specialized technical assistance to determine the feasibility and associated resources needed for repair and restoration of damaged structures like buildings, water control and pump stations and future mitigation.
- In partnership with IFAS, build upon the available USDA satellite imagery and Florida's state geographic information systems to develop a dynamic visual database for rating disaster-prone facilities, potential agriculture development sites and other critical assets, from a risk assessment perspective, to prioritize mitigation efforts toward those assets that can have cascading impacts on the recovery of the agribusiness supply chain when impacted by a disaster.

¹⁹ The EDAT program connected local communities and regions with federal agency leaders and other national subject matter experts in agriculture and aquaculture restoration and resiliency following a disaster. These experts met with local community stakeholders to provide guidance and direct technical assistance for economic recovery.

- Through USDA FSA, FDACS and partners, work closely with agribusiness owners, aquaculture producers, and farmers to determine mitigation practices and special needs—high-water vehicles, backup power generators—to prepare for disaster events.
- Through USDA FSA, FDACS and partners, evaluate mitigation initiatives and best practices that have been successful to increase resilience of the agriculture industry and employ those activities as models to mitigate other industry vulnerabilities.
- Explore with USDA – Rural Development and Florida’s Rural Economic Development Initiative the possibility of grants and other assistance to independent producers, farmers, and ranch cooperatives to conduct feasibility studies or business plans or as working capital to assist with the operational costs of an agricultural business.
 - Coordinating Agencies: USDA FSA, NRCS and Rural Development, NOAA, FDACS, FWC, IFAS, Florida Cooperative Extension
 - Other Supporting Organizations: REDI, RPCs, colleges and universities

Strategic Objectives 2.2.2.

- Partner with the state to strengthen the capacity of agriculture and aquaculture farmers and producers to address workforce shortages to help them sustain their operations post-disaster over the next 24 to 36 months through resource sharing, network development, policies and practices.
- Continue to operate a streamlined review process for emergency filings under the U.S. Department of Labor H-2A Foreign Labor Certification program and enhance coordination with governing federal agencies to support the seamless processing of applications through this multiagency process.²⁰
- Implement a state term contract to have backup inspectors on stand-by to support the state’s requirement to conduct pre-occupancy inspections of housing that is employer-provided for H-2A agricultural workers.²¹
- Implement a more proactive approach to connect with farmers, in advance of impending storms, to ensure they have their H-2A applications submitted for foreign workers to address the needs that may arise post-storm.²²
 - Coordinating Agencies: USDOL, DEO, CareerSource Florida, Florida Department of Education, FDACS, local workforce boards
 - Other Supporting Organizations: SBDC, USDA, IFAS, Florida Cooperative Extension, Florida Department of Health, Florida Department of Business and Professional Regulation

²⁰ This support action also appears in Issue 4: Displaced and Dislocated Workers in the Economic section of this RSS.

²¹ This support action also appears in Issue 4: Displaced and Dislocated Workers in the Economic section of this RSS.

²² This support action also appears in Issue 4: Displaced and Dislocated Workers in the Economic section of this RSS.



Issue 3: Tourism Resiliency

Florida’s economy is heavily reliant on tourism and the sales tax revenue it generates. Efforts to ensure continuity of tourism activities are paramount.

Background

On Sept. 15, 2017, the Florida Legislature’s Office of Economic and Demographic Research presented to the governor and the Florida Legislature the “Long-Range Financial Outlook as Adjusted by Hurricane Irma.” This report was updated Oct. 12, 2017 and indicated that tourism-related revenue losses posed the greatest potential risk to the financial outlook. This is due to Florida’s heavy reliance on sales tax revenue generated from tourism and tourism-related businesses. Sales tax collections, amounting to \$22 billion in 2016, account for three-fourths of Florida’s total general revenue collections. See map below referencing taxable sales in Florida in 2016, before Hurricane Irma.

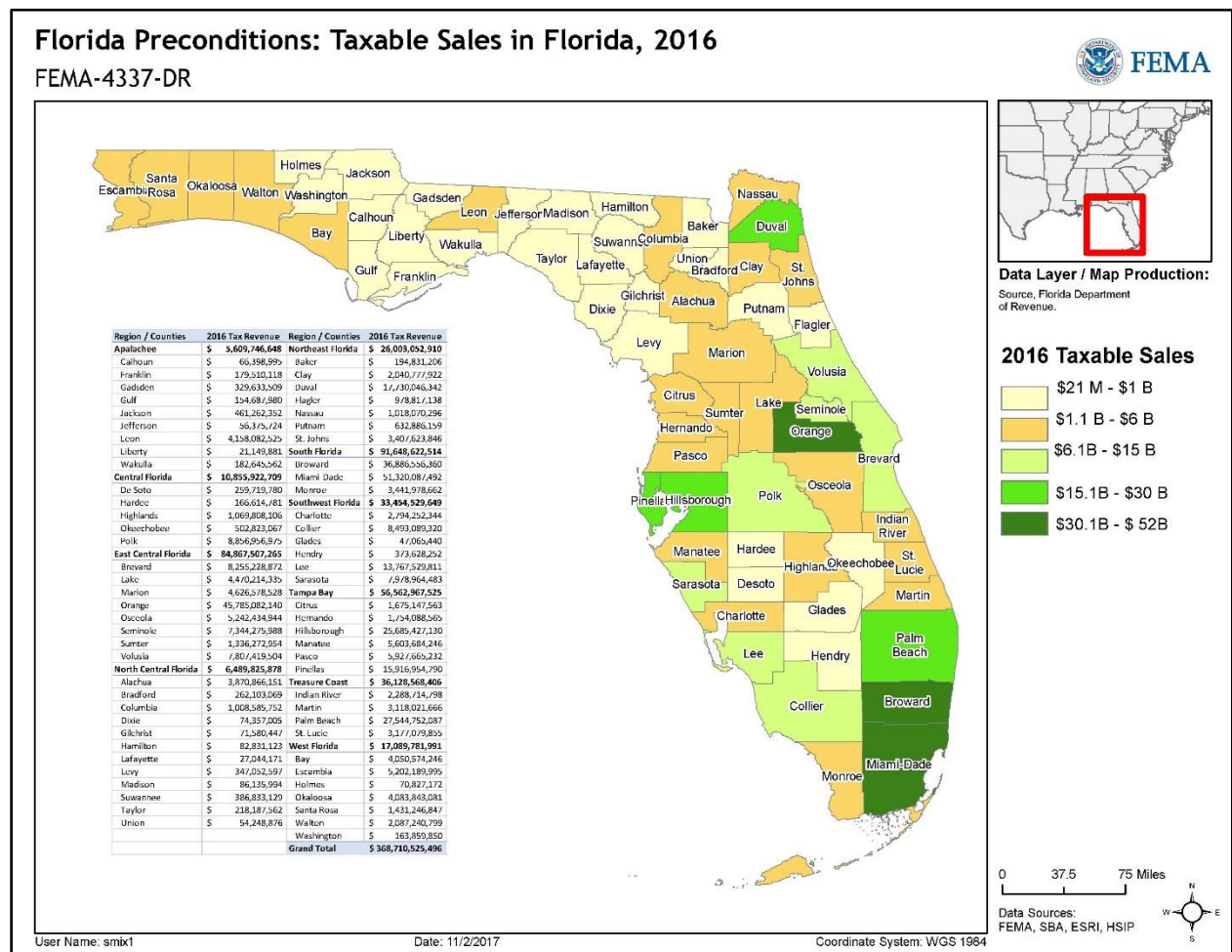


Figure 5: Florida Preconditions: Taxable Sales in Florida, 2016

After reviewing the potential impacts on tourism with state leaders, it was determined that tourism was not as severely affected as portrayed in the global media. This was mainly because the disaster occurred at the beginning of Florida’s slowest tourism month, and before the important tourism planning months of October and November. Another mitigating factor was that hotels were occupied

by Florida evacuees before and during the disaster as well as first responders such as utilities, partners from neighboring states, federal workers, volunteers and workers assisting in cleanup and repairs. However, it should be noted that the disaster-related hotel occupancy failed to produce the level of revenue associated with leisure travelers.

VISIT FLORIDA—the state’s primary tourism promoting organization—reported it had to curtail marketing efforts because the hurricane negatively affected third quarter tourism performance. However, factors described above and VIST FLORIDA’s crisis response efforts mitigated the tourism reduction. VISIT FLORIDA was very proactive in working with local tourism partners to ensure tourism marketing programs were reactivated at the appropriate time, and invested approximately \$5 million in aggressive marketing efforts over the three months immediately following the hurricane.²³ It should be noted that Marathon in Monroe County remains a highly-affected area and the community has been working with state and federal partners to bring the area back to normal conditions before the disaster. The need to replenish affordable workforce housing, especially in the Keys, is a critical economic concern for ensuring continuity of the tourism industry as this industry’s employees depend on such housing.²⁴

Goal 3.1.

Prioritize and strengthen activities in assisting tourism-related businesses in the most affected counties.

Strategic Objective 3.1.1.

Support the state in implementing a strong campaign to address misperceptions about the Florida tourism sector to minimize the economic impact in the most affected communities over the next six months.

Support Action 3.1.1.1.

- Finalize VISIT FLORIDA’s assessment of consumer sentiment toward Hurricane Irma-related travel.
- Continue efforts through VISIT FLORIDA and prominent crisis management firms to implement best management practices in post-disaster response.
- Continue efforts through VISIT FLORIDA to work with local and regional partners to market Florida destinations.
- Continue efforts through VISIT FLORIDA to encourage major hotel and other tourism destination operators to offer special packages for travelers and volunteers assisting communities with major recovery activities.
- Through VISIT FLORIDA, work with partners to facilitate workshops designed to identify specific strategies that have been most effective when dealing with similar challenges. Partners include the U.S. Travel Association, Brand USA, IEDC and other trade associations, local counties and cities, economic development organizations, and other community-based organizations.
- Host webinars to promote usage of clear, consistent messages to offset negative perceptions regarding damage and impacts because of Hurricane Irma.
 - Coordinating Agencies: DEO, VISIT FLORIDA

²³ Source: VISIT FLORIDA

²⁴ See Issue 4: Displaced and Dislocated Workers in the Economic section and the Housing section of this RSS for further discussion.



- Other Supporting Organizations: Florida Chamber of Commerce, local chambers of commerce

Strategic Objective 3.1.2.

Support the state in improving the financial capacity of tourism businesses to sustain and recover operations, following economic disruptions, over the next six to 12 months.

Support Action 3.1.2.1.

- Provide resources and targeted technical assistance to address access to capital and financing needs.
- Work together with other community organizations to identify funding resources outside of the state Legislature.
- In concert with the U.S. Army Corps of Engineers, host workshops to address the safety and security of prominent tourism regions on topics such as water and waste quality.
- Promote business continuity and risk management programs for businesses in key tourist destinations.
 - Coordinating Agencies: DEO, Florida SBDC Network
 - Other Supporting Organizations: Florida Chamber of Commerce, local chambers of commerce

Issue 4: Displaced and Dislocated Workers

Given the significant business disruptions and closures resulting from the latest disaster season, Florida is experiencing a high volume of displaced and dislocated workers.²⁵

Background

As of Nov. 30, 2017, more than 39,000 claims for disaster unemployment assistance or DUA-related assistance were filed.²⁶ The top 12 counties for DUA and DUA-related applications are the same as those with the greatest business impacts based on SBA disaster loan applications. These counties are Miami-Dade, Broward, Monroe, Lee, Collier, Pinellas, Palm Beach, Hillsborough, Orange, Brevard, Duval and Polk. See the map below illustrating DUA applications by county.

²⁵ The cascading impacts of Hurricanes Irma and Maria on Puerto Rico and the Virgin Islands is adding notably to the level of displaced and dislocated workers in Florida as impacted residents from those areas have migrated to the state.

²⁶ Source: Florida Department of Economic Opportunity



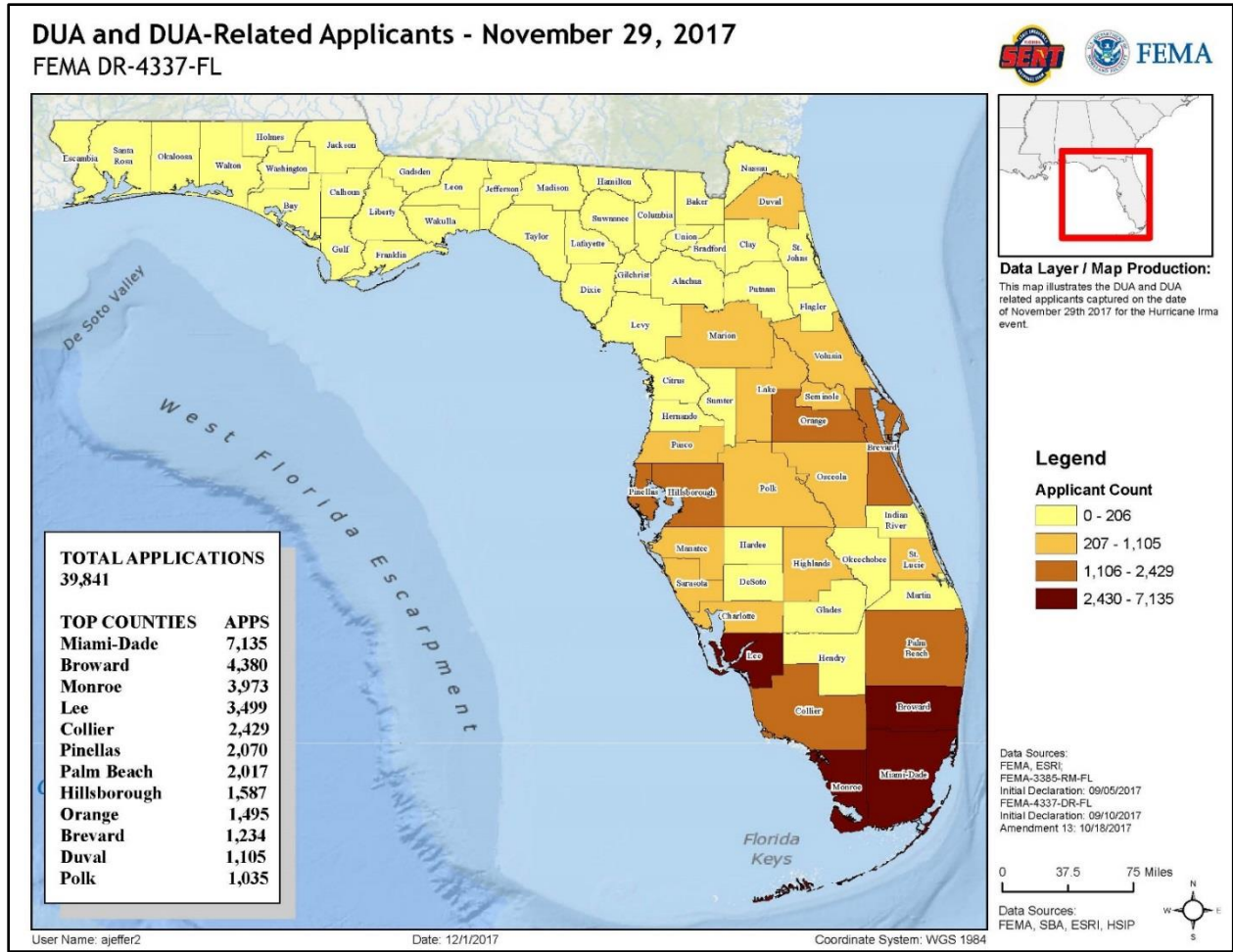


Figure 6: DUA and DUA-Related Applicants - Nov. 29, 2017

Another indicator of the impact to the workforce is the number of SBA applications for home loans. As of Nov. 17, 77,735 applications had been received by SBA for home loans.²⁷ The same top counties for SBA business and economic injury loan and DUA and DUA-related applications account for the most SBA home loan applications in the state, confirming that these counties have suffered the greatest business, workforce and workforce housing impacts. See the map below illustrating SBA applications for home loans by county.

²⁷ Source: U.S. Small Business Administration

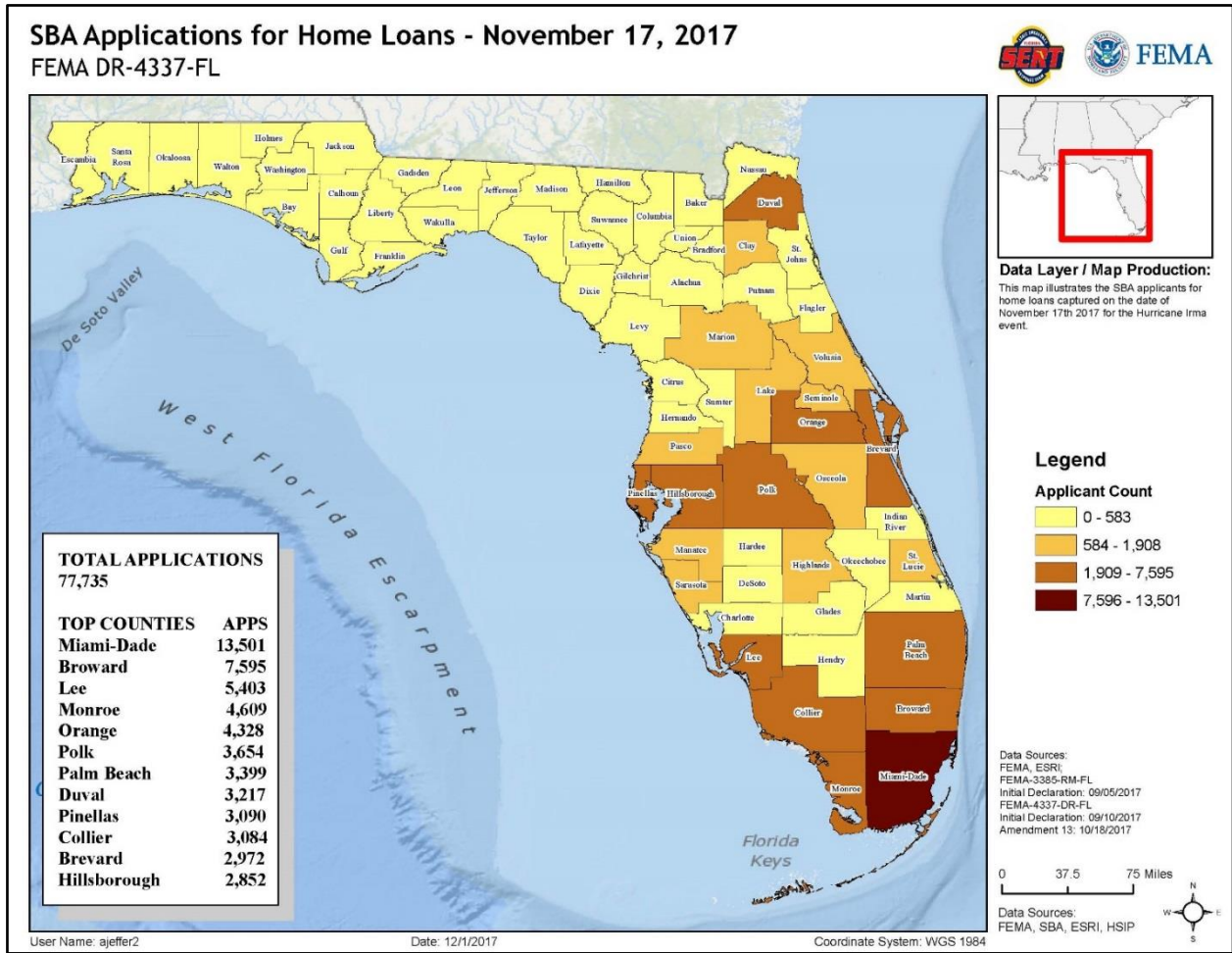


Figure 7: SBA Applications for Home Loans – Nov. 17, 2017

Also signaling an impact to workforce housing is the number of residential claims for National Flood Insurance Program benefits, with 23,437 claims filed in Florida as of Nov. 30.²⁸ This is especially evident in Monroe County, which accounts for more than one-fourth (27.6 percent) of all claims.

Another development with economic implications is the influx of residents from Puerto Rico and the U.S. Virgin Islands relocating to Florida due to hurricanes Irma and Maria. As of Nov. 19, approximately 160,000 Puerto Rican residents have arrived in Florida.²⁹ Individuals are relocating to Florida on a temporary basis, while in the process of migrating to other states, as well as permanent basis. Individuals relocating permanently to Florida will add to the state’s number of displaced workers needing temporary or permanent employment, workforce housing and other services. It is essential to monitor workforce implications of this migration and related matters like school system needs.

²⁸ Source FEMA

²⁹ Source: The Wall Street Journal (<https://www.wsj.com/articles/no-power-in-puerto-rico-evacuees-come-to-orlando-and-find-scant-housing-1510935425>)

To help provide temporary employment opportunities to the state's displaced and dislocated workforce, DEO and CareerSource Florida worked with the U.S. Department of Labor to receive two National Dislocated Worker Grant awards. These funds have been instrumental with providing needed income-earning opportunities to help affected individuals begin to restore their household economies. The local workforce board career centers have played a critical role in connecting job seekers with these and other opportunities for assistance.

Goal 4.1

Meet the rising needs employers have for a ready workforce which have been exacerbated due to the disasters.

Strategic Objective 4.1.1.

Support the state's efforts to connect Florida's employers, especially those in the most impacted counties, with the needed financial and technical assistance resources to aid in workforce restoration over the next 12 to 24 months.

Support Actions 4.1.1.1.

- Continue to work with USDOL to support efforts of local workforce boards serving the most affected communities to adapt their funding plans to address rising demands employers have for workers in Hurricane Irma-affected occupations.
- Continue to connect employers with SBDC and the local workforce boards to aid in workforce restoration.
- Continue efforts with the Florida Department of Education to work with local educational systems and vocational providers to retool and retrain workers to meet employer needs.
- In partnership with the SBDCs, local workforce boards, local government agencies, local chambers of commerce, and others, continue efforts to coordinate the development and delivery of consistent messages to promote and share information on available programs and resources.
- Continue to operate a streamlined review process for emergency filings under the USDOL H-2A Foreign Labor Certification program, and enhance coordination with governing federal agencies to support the seamless processing of applications through this multiagency process.³⁰
- Implement a state term contract to have backup inspectors on stand-by to support the state's requirement to conduct pre-occupancy inspections of housing that is employer-provided for H-2A agricultural workers.³¹
- Implement a more proactive approach to connect with farmers, in advance of impending storms, to ensure they have their H-2A applications submitted for foreign workers to address the needs that may arise post-storm.³²
 - **Coordinating Agencies:** USDOL, DEO, CareerSource Florida, Florida Department of Education, FDACS, local workforce boards

³⁰ This support action also appears in Issue 2: Agriculture and Aquaculture Damage in the Economic section of this RSS.

³¹ This support action also appears in Issue 2: Agriculture and Aquaculture Damage in the Economic section of this RSS.

³² This support action also appears in Issue 2: Agriculture and Aquaculture Damage in the Economic section of this RSS.



- **Other Supporting Organizations:** Florida SBDC Network, USDA, IFAS, Florida Cooperative Extension, Florida Department of Health, Florida Department of Business and Professional Regulation

Goal 4.2

Help displaced and dislocated workers to return to the workforce as quickly as possible so that they can restore their household economies and avoid further economic disruption.

Strategic Objective 4.2.1.

Support the state's efforts to connect Florida's displaced and dislocated workers, especially those in the most impacted counties, with the resources to re-establish gainful employment over the next 24 to 36 months.

Support Actions 4.2.1.1

- In partnership with Florida's technical colleges, universities, K-12 institutions and community based training providers, work with CareerSource Florida in coordination with the Higher Education Council to identify opportunities to increase 4-to-6 week training programs for helping displaced workers return to the workforce as quickly and efficiently as possible in construction and other transitional and temporary employment fields.
- Continue updating and promoting the recovery job portal Irma.EmployFlorida.com set up by DEO for helping dislocated and displaced workers connect with job opportunities.
- In partnership with the local workforce boards, community-based organizations, and others continue efforts to coordinate and deliver a unified and consistent message regarding the resources available for emergency support and disaster recovery.
- Use local workforce boards and community-based organizations and translators to conduct special outreach to displaced foreign-born workers to raise awareness about and connect them with state and federal resources.
- Continue working in concert with Florida Department of Children and Families and other state and local partners to ensure disaster survivors are provided adequate food benefits, and identify opportunities for improvement in the delivery of these benefits after disasters.
- Develop a more proactive and coordinated approach for helping temporary workers meet eligibility requirements to tap into available programs and resources.
- Continue to monitor the workforce needs associated with the incoming displaced population from Puerto Rico and the U.S. Virgin Islands and support efforts to adjust local workforce development plans as warranted.
 - **Coordinating Agencies:** USDOL, DEO, CareerSource Florida, Florida Department of Education, DCF
 - **Other Supporting Organizations:** EDA, SBDC

Goal 4.3

Building upon the mitigation practices that were implemented post-Hurricane Andrew, continue to develop more resilient workforce housing to ensure greater workforce resiliency.³³

Strategic Objective 4.3.1.

Support the state's efforts to provide a more resilient workforce housing infrastructure, especially in regions of the state with housing shortages, over the next 24 to 36 months.

³³ See the Housing section of this RSS for further discussion on housing.



Support Actions 4.3.1.1

- In partnership with the RPCs, work to address the need for more resilient workforce housing in the Comprehensive Economic Development Strategy planning processes.
- Host workforce housing forums with the U.S. Department of Housing and Urban Development state and local housing agencies, nonprofits, and philanthropies in the Keys and other highly impacted places. Use the forums to learn more about available programs and resources to address the need for interim and longer-term affordable workforce housing solutions.
- Support the efforts of local governments to review future construction and redevelopment plans for workforce housing units to ensure built-in resiliency components for better mitigating future hazards.
- Explore opportunities to create a public benefit fund to subsidize the development of more resilient construction.
- Explore the potential to partner with private sector companies that specialize in creating “turnkey workforce housing solutions” to address the needs.
 - **Coordinating Agencies:** USDOL, U.S. Department of Health and Human Services, U.S. Department of Housing and Urban Development, DEO, CareerSource Florida, RPCs
 - **Other Supporting Organizations:** Florida Housing Finance Corporation, Florida Utilities

Goal 4.4.

Establish understanding of workforce capacities and responsibilities so partners can work across boundaries to aid in disaster recovery.

Strategic Objective 4.4.1.

Partner with the state in developing a more formalized framework for developing partnerships and collaborations to address workforce recovery and restoration needs over the next 24 to 36 months.

Support Action 4.4.1.1.

- Continue to develop a consortium with other states and promote information-sharing and opportunities for collaboration among public and private stakeholders. Also, share best practices to serve more customers and apply disaster recovery resources during after disasters.
- Build upon the successful efforts with USDOL and the National Dislocated Worker Grant in Florida implementation... Continue efforts to combine federal funds and create a support network to connect funding opportunities to the individuals who can benefit.
- Explore the potential to work with state organizations in southeastern states to coordinate the delivery of services across state lines to aid in future recovery efforts.
- Explore the potential to develop industry sector partnerships across state lines in sectors that are of relevance to disaster recovery and resiliency (e.g., construction).
 - **Coordinating Agencies:** USDOL, DEO, CareerSource Florida

Other Supporting Organizations: EDA, state agencies in the Southeast, Florida Chamber of Commerce and other state chambers of commerce



Infrastructure Systems RSF Findings

Strategy Development Considerations

The ability of Florida's existing infrastructures to supply potable water, energy, transportation, communications, and waste disposal will directly influence the type and quality of life of people living and working in this state. A well-functioning infrastructure is essential in supporting critical functions such as health care, emergency services, as well as the continued economic growth of some of the state's largest industries like agriculture, tourism, and manufacturing. In many of Florida's 67 counties, aging infrastructure systems and networks still in service already have or are close to exceeding their intended lifespans, and need either upgrading or replacement. Vulnerabilities due to extensive continual usage of these aging infrastructure systems and networks significantly increase the possibility of widespread damage or complete failures in the future as a result of a catastrophic event.

On Sept. 11 – 12, 2017, Hurricane Irma struck the State of Florida generating widespread heavy rainfalls, high winds, inundating storm surges and coastal and inland flooding. The storm produced extensive damage to critical infrastructure sectors across parts of southern, central and northern Florida. After review, FEMA issued a disaster declaration for the following 48 Florida counties:

Alachua, Baker, Bradford, Brevard, Broward, Charlotte, Citrus, Clay, Collier, Columbia, DeSoto, Dixie, Duval, Flagler, Gilchrist, Glades, Hardee, Hendry, Hernando, Highlands, Hillsborough, Indian River, Lafayette, Lake, Lee, Levy, Manatee, Marion, Martin, Miami-Dade, Monroe, Nassau, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Putnam, Sarasota, Seminole, St. Johns, St. Lucie, Sumter, Suwannee, Union, and Volusia counties

South Florida counties Lee, Collier, Hendry, and Monroe were the hardest hit. The Florida Keys in Monroe County sustained the highest level of damage when Hurricane Irma made landfall as a Category 4 hurricane. Generally, the greatest observed impacts and damage to infrastructure within the 48 affected counties occurred either because of the close proximity of infrastructure systems and networks to bodies of water like coastlines, rivers and tributaries affected by Hurricane Irma, or residual flooding that occurred after the storm's passage through the state. High-intensity winds disrupted segments of Florida's power distribution and communication networks, while coastal storm surges and flooding damaged physical structures, roadways, bridges, ports and utility infrastructures. The loss of power and the unavailability of transportation resulted in the closure of critical health care, police, and firefighting facilities, and multiple failures of communication networks, including parts of South Florida's 911 system, hindering the ability of first responders to respond to emergencies during and after the storm.

Despite the significant amounts of infrastructure damage caused by Hurricane Irma, many federal, state, and local officials, as well as residents expected damage to be much worse than what actually occurred. Hurricane Irma exposed many of the vulnerabilities with the state's infrastructure and serves as a wake-up call for the state, counties, and cities about the need to strengthen infrastructure's ability to withstand and quickly recover from severe climatic events. In planning for future storms of Hurricane Irma's magnitude, counties and cities in Florida need to evaluate how best to invest their infrastructure funds to strengthen the resiliency of municipal drinking water and wastewater systems, protect port facilities, bolster the power and communications grids, and increase the capacity of stormwater removal systems to protect roadways and bridges from flooding hazards.



After Hurricane Irma, the state, counties, and cities are now facing the considerable challenges of working to restore and increase the resiliency and effectiveness of Florida’s infrastructure. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, and naturally occurring threats and incidents. Presidential Policy Directive 21 establishes a national policy on critical infrastructure security and resilience. The directive defines resilience as “the ability to prepare for and adapt to changing conditions, withstand and recover rapidly from disruptions.” Under the National Disaster Recovery Framework implemented in Florida following Hurricane Irma, the function of the Infrastructure Systems Recovery Support Strategy mission is to help integrate the capabilities of the federal government to support local, state, and tribal governments and other infrastructure owners and operators in their efforts to achieve recovery and resilience goals when designing or protecting infrastructure systems. Infrastructure Systems core capabilities, as defined by the National Preparedness Goal, are to:

- Restore and sustain essential services—both public and private—to maintain community functionality.
- Develop a plan with a specified timeline for redeveloping community infrastructure to contribute to resiliency, accessibility and sustainability.
- Provide systems that meet community needs while minimizing service disruption during restoration within the specified timeline in the recovery plan.

The following sections will discuss Irma’s impact on infrastructure, ongoing recovery efforts, and strategies for integrating the capabilities of the federal government to support the State of Florida, as well as counties, cities and other public and private infrastructure owners and operators in achieving long-term recovery and resiliency goals related to infrastructure systems. Table 1, Infrastructure Systems Partners, shown below lists the Infrastructure Systems Recovery Support Function coordinating agency, primary agencies, and supporting organizations that are working together on the IS RSF mission to assist in developing strategies to efficiently facilitate the restoration of infrastructure systems and services, support sustainability, and improve resiliency to protect critical infrastructures from future hazards.

Recovery Issues and Strategies

Issue 1: Vulnerability of Coastal Communities, Infrastructure, and Natural Areas to Coastal Erosional Damages due to Increased Storm Surge Risks

The high-intensity waves and higher-than-normal water levels produced by the intense winds and wind gusts caused by Hurricane Irma’s wide wind field resulted in extensive beach and dune erosion along large sections of Florida’s east and west coast. This contributed to the far-reaching storm surge flooding and structural damages sustained in many coastal communities. Initial U.S. Army Corps of Engineers and Florida Department of Environmental Protection damage assessments of beaches on Florida’s east and west coasts determined that many of the dune systems experienced heavy erosion due to intense wind-driven wave action causing significant dune scarps. Fill material behind beach bulkheads was lost due to erosion caused by wind-induced storm surges overtopping bulkheads, while the storm’s sustained winds blew sand to the back beach creating sand “drifts” along coastal roads and sand fences. In the aftermath of a storm that moves sand away from the protective berm and dune systems, beach communities located along Florida’s coastline are at greater risks of sustaining further damage from future coastal flooding and beach erosion.

In its Preliminary Damage Assessments of Florida’s east and west coast beaches and dunes, the USACE and FDEP identified 67 beaches impacted by Hurricane Irma, assessing their need for new or

additional sand nourishment. The USACE under the Flood Control & Coastal Emergencies program identified 22 federal beach projects eligible for rehabilitation work, and any restoration effort undertaken for these particular beaches will be through existing USACE authorities. However, the remaining 45 assessed beaches (27 east coast beaches and 18 west coast beaches) are not under the USACE federal beach renourishment program and therefore do not receive regular intervals of sand renourishment. Table 2 below provides a summary of assessed damages.

Table 2: USACE Nonfederal Beach Damage Assessment for FEMA Support Post Hurricane Irma

	County	Segment	Description	ACF Region	Level of Damage
<u>Atlantic coast Beaches (Florida's East Coast)</u>					
1	Nassau	S. Amelia Island		NE	Severe Damage
2	St. Johns	Anastasia Island		NE	Severe Damage
3	St. Johns	Summer Haven		NE	Severe Damage
4	Flagler	Washington Oaks	R-13.5-14.5	NE	Minor Damage
5	Brevard	Mid-Reach		C	Severe Damage
6	Brevard	South Beaches		C	Severe Damage
7	Indian River	Ampersand Beach	Sector 1	C	Severe Damage
8	Indian River	Wabasso Beach	Sector 3	C	Moderate Damage
9	Indian River	Vero Beach	Sector 5	C	Moderate to Severe Damage
10	Indian River	South Beach	Sector 7	C	Moderate to Severe Damage
11	St. Lucie	S. St. Lucie Beach		C	Moderate to Severe Damage
12	Martin	Bathtub Beach			Moderate Damage
13	Martin	Jupiter Island		C	Severe Damage



	County	Segment	Description	ACF Region	Level of Damage
14	Palm Beach	Coral Cove Park	R1-7.5	S	Severe Damage
15	Palm Beach	S. Jupiter Dune	R19-26	S	Severe Damage
16	Palm Beach	Juno Beach	R26-38	S	Moderate Damage
17	Palm Beach	Singer Island	R60.9-67	S	Severe Damage
18	Palm Beach	Reach 1	R76-79	S	Severe Damage
19	Palm Beach	Mid-Town	R89-102.3	S	Severe Damage
20	Palm Beach	Phipps	R116.5-127	S	Severe Damage
21	Palm Beach	Reach 8	R128.5-134	S	Severe Damage
22	Palm Beach	Lantana/SPB Dunes	R134+75-137+375	S	Severe Damage
23	Palm Beach	Central Boca	R213-223	S	Moderate Damage
24	Palm Beach	South Boca	R223.5-227.5	S	Severe Damage
25	Broward	Deerfield Beach	R6-6.5	S	Moderate Damage
26	Broward	Hillsboro	R6.5-12	S	Moderate Damage
27	Dade	Key Biscayne	R101-108	S	Severe Damage
Gulf Coast Beaches (Florida's West Coast)					
28	Collier	S. Marco Isl. Beach	R-145-148	S	Severe Damage
29	Collier	Naples Beach	R-58.8-78	S	Severe Damage
30	Collier	Park Shore Beach	R-45-57	S	Severe Damage



	County	Segment	Description	ACF Region	Level of Damage
31	Collier	Vanderbilt Beach	R-22-30.5	S	Severe Damage
32	Lee	Captiva Island	R-48-109	S	Moderate Damage
33	Lee	Sanibel Island	R-112-114. R116-1	S	Moderate Damage
34	Lee	Estero Isl. (Ft. Myers Beach)	R-174.6 to R-181.5	S	Moderate Damage
35	Lee	Lovers Key	R-214.5-220.5	S	Moderate Damage
36	Lee	Bonita Beach	R-226-230	S	Moderate Damage
37	Charlotte	Knight Island	R28-40.5	S	Severe Damage
38	Charlotte	Stump Pass	R14-19	S	Severe Damage
39	Sarasota	Lido Key	R35-44	C	Severe Damage
40	Sarasota	Siesta Key	R67-77	C	Severe Damage
41	Manatee	Coquina Beach	R33-44	C	Moderate Damage
42	Manatee	N. Anna Maria Island	R7-10	C	Moderate Damage
43	Manatee	Longboat Key	R44.5-28	C	Moderate Damage
44	Pinellas	Honeymoon Isl. Park Beach	R7.5-12	C	Moderate Damage
45	Citrus	Fort Isl. Park Beach	0.2 miles	C	Moderate Damage

Issue Statement

In past years, hurricanes, tropical storms, and nor'easters have considerably altered Florida's east and west coast beach habitat, morphology and dune vegetation. These subsequent events are causing significant beach, dune, and berm erosion accreted through sand transport due to intensive wind-driven wave action resulting from storm events. In some cases, sequential storm events can compound damages to beaches and dune systems thereby putting coastal communities at even



greater risk of sustaining damage in the aftermath of a storm that moves sand away from the protective berm and dune system.

The 825 miles of beaches and dunes that make up Florida's coastline provide a unique landscape consisting of coastal developments intermixed with pristine beaches and natural undeveloped areas that contain ecosystems full of life. Florida's beaches and dune systems also serve a more important function as the first line of defense against storm surges and high tides, providing coastal development and infrastructure protection buffers from storm-induced surges and high tides by absorbing wave energy to reduce the strength and intensity of storm-induced waves.

Protecting upland areas against storm surges and high tides is not the only function of Florida's beaches and dune systems. Florida's beaches and dune systems also serve as a coastal ecosystem providing critical coastal habitat to a variety of native and nonnative animal species and native plant species including several threatened and endangered species. Florida beaches also provide recreational opportunities for tourists visiting the state. Therefore, restricted use of Florida beaches due to storm induced damage and lost beachfront due to beach or dune erosion will have an impact on Florida's economic outlook. Florida relies heavily upon its beaches to encourage tourism growth that stimulates the state's economy and economic development. Therefore, this assessment will also address the beaches and dune systems as a comprehensive, multifunctional system, providing ecosystem and recreational benefits.



Figure 8: Fort Lauderdale after Hurricane Irma

Beaches identified as nonfederal projects are not eligible for renourishment under the USACE's statutory authority. However, the State of Florida, counties, cities, or local communities may undertake their own renourishment projects. While each beach project may be different, there will be some commonalities. In general, any entity that decides to undertake a beach renourishment project must address the following issues:

Federal Permitting: The USACE authorizes a Regional General Permit for emergency renourishment to protect structures after events. The RGP does carry certain limitations concerning renourishment; renourishment activities that do not qualify under the RGP must obtain a Section 404 Clean Water Act Permit and a Section 10 Rivers and Harbors Act Permit from the USACE.

Note: All permitting and natural resource issues are coordinated through the Unified Federal Review, including issues related to permits under the USACE Regulatory program.

State Permitting: The entity seeking to conduct renourishment activities must obtain a Joint Coastal Permit from the Florida Department of Environmental Protection Bureau of Beaches and Coastal Systems. This is a consolidated permit consisting of a coastal construction permit, environmental resource permit and sovereign submerged lands authorizations. A JPC is required for beach restoration or renourishment; construction of erosion control structures such as groins and breakwaters, and disposal of dredged material onto the beach or in the near-shore area.

Appropriate Sources of Material: To protect Florida’s beaches and preserve the beaches’ environmental integrity, only beach-compatible fill material from appropriate sources on the beach or in any associated dune system is allowable for use in beach and dune renourishment activities

State Requirements: Beach-compatible fill is borrowed sand that matches the general characteristics and functionality of the natural materials occurring on the beach and in the adjacent dune and coastal system. Using beach-compatible fill maintains the beaches and dunes environmental integrity. Coordination with the FDEP Bureau of Beaches and Coastal Systems must occur when using sources of beach-compatible sand for use in beach and dune renourishment projects.

Federal Requirements

Offshore Sand Source: The Bureau of Ocean Energy Management is the federal agency responsible for the management of identified coastal borrow areas for sand sources located in federal waters on the U.S. outer continental shelf. The BOEM has identified and assessed new potential sand sources from Florida to Massachusetts for use in beach and dune renourishment projects under the Atlantic Sand Assessment Project. Additionally, the use of a federally-designated offshore borrow site as a sand source must also meet State of Florida permitting requirements before its use in a beach or dune renourishment project.

Beneficial use of Dredge Material: The USACE looks at beneficial use of dredge material for potential beach renourishment projects. Several programs exist that allow the USACE to team up with nonfederal cost-sharing partners to implement beneficial use projects. Often, the USACE will use repurposed sandy dredged material for beach renourishment or placement near the shore to reduce wave energy and subsequent erosion of beaches. Repurposed dredge material must first undergo analysis to determine its suitability for renourishment purposes. Additionally, the sand acquired from dredging activities must meet the state requirements before use in a beach/dune renourishment project.

Threatened or Endangered Species: Renourishment projects have the potential to have adverse effects to several federally listed species, therefore beach and dune renourishment activities must consider the possibilities of impacts to threatened and endangered species including multiple sea turtles species, whales, manatees and shorebirds. All beach and dune renourishment activities must first initiate coordination with the U.S. Fish and Wildlife Service, Fish and Wildlife Conservation Commission, FDEP Bureau of Beaches and Coastal Systems, and the U.S. Department of Commerce National Marine Fisheries Service before the start of any beach and dune renourishment activity.

Goal 1.1

Replenish beaches and restore natural dune heights to reduce flooding risks in coastal developments and maintain healthy, sustainable and functional coastal environments.

The intended goal is to restore and maintain the beaches and dunes damaged by Hurricane Irma to their pre-storm conditions to:

- Provide protection and damage reduction benefits to reduce flooding risks in communities behind identified affected beaches and dunes.
- Enhance passive and non-passive recreational activities, benefits, business and social opportunities provided by accessible beaches.
- Balance ecological benefit of remaining natural beaches.



Strategic Objective 1.1.1

Develop coastal resilience strategies that support restoration of storm-eroded beaches and dune systems to pre-storm targeted dune heights and beach widths.

Beach and dune erosion is considered “critical” if there is a threat to or loss of upland development and infrastructure, recreational usage, wildlife habitat or important cultural resources. Development of coastal resilience strategies that include comprehensive beach renourishment plans to improve a beach and dune system’s ability to withstand increased storm surge intensities and rising tidal elevations due to sea-level rise is essential to slowing beach erosion. This will also enhance resilience and sustainability of the beach and dune system.

Support Action 1.1.1.1

Develop coastal resilience strategies that enhance resilience and sustainability while reducing beach erosion by focusing on four categories:

- Land use capacity and development
- Infrastructure: existing and future
- Investment and insurance
- Government regulations (federal, state, county and local)

Encourage public leaders and private stakeholders to use these categories to develop strategies and resources to take actions appropriate for their communities and regions

- **Coordinating Agencies:** FDEP Bureau of Beaches and Coastal Systems
- **Supporting Partners:** USACE, USFWS, EPA, BOEM, NOAA, NMFS, DOC, SBA, FDEO

Support Action 1.1.1.2

Develop comprehensive beach renourishment plans to conduct beach and dune renourishment projects on eroded beaches, providing the minimum to maximum levels of protection plus additional sand volumes to optimize the renourishment interval. Short term: up to one year

- **Coordinating Agencies:** FDEP Bureau of Beaches and Coastal Systems, counties, cities or municipalities
- **Supporting Partners:** USACE, USFWS, EPA, BOEM, EPA, NOAA, NMFS

Support Action 1.1.1.3

Identify funding resources and identify the entity that will perform beach and dune rehabilitation and renourishment activities. Short term: up to one year

- **Coordinating Agencies:** FDEP Bureau of Beaches and Coastal Systems, counties, cities or municipalities
- **Supporting Partners:** USACE, USFWS, EPA, SBA, NOAA, NMFS

Support Action 1.1.1.4

Prioritize the order of rehabilitation and renourishment actions by identifying the severity of beach and dune erosional damages that threaten to harm valuable public infrastructure. Short term: up to one year

- **Coordinating Agencies:** FDEP Bureau of Beaches and Coastal Systems, counties, cities or municipalities

- **Supporting Partners:** USACE, USFWS, EPA, DOC, NOAA, NMFS, FDEO, FDEM

Support Action 1.1.1.4

Identify inland or near-shore sand sources for use in beach restoration. Short term: up to one year

- **Coordinating Agencies:** BOEM, USACE, FDEP Bureau of Beaches and Coastal Systems, counties, cities or municipalities
- **Supporting Partners:** NOAA, NMFS, Florida Inland Navigation District, USFWS

Support Action 1.1.1.5

Determine method of sand delivery to identified beaches. Short term: up to one year

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** BOEM, USACE, FDEP Bureau of Beaches and Coastal Systems, NMFS, FIND

Support Action 1.1.1.6

Identify environmental and cultural issues for beach and dune rehabilitation and renourishment actions. Short term: up to one year

- **Coordinating Agencies:** USACE, FDEP Bureau of Beaches and Coastal Systems, BOEM, State Historic Preservation Office (SHPO), counties, Cities or Municipality
- **Supporting Partners:** USFWS, Florida Fish and Wildlife Conservation Commission, NMFS

Support Action 1.1.1.7

Develop environmental restoration monitoring methods to assess the progress of re-vegetation of restored dunes, Long term: three to seven years

- **Coordinating Agencies:** USACE, FDEP Bureau of Beaches and Coastal Systems, counties or municipality
- **Supporting Partners:** USFWS, FWC, NOAA, NMFS

Support Action 1.1.1.8

Obtain necessary permits and implement project. Intermediate: one to three years

- **Coordinating Agencies:** USACE, FDEP Bureau of Beaches and Coastal Systems counties or municipality
- **Supporting Partners:** FWC, NMFS, SHPO

Support Action 1.1.1.9

Ensure protection and safety of marine turtles and their nests from beach and dune rehabilitation and renourishment construction activities by obtaining a federal Endangered Species Act, Section 10 Incidental Take Permit from the U.S. Fish and Wildlife Service before the start of any beach or dune renourishment project that may incidentally harm marine turtles or their nesting habitat. As one of the requirements for obtaining an Incidental Take Permit, the applicant must develop a Habitat Conservation Plan specifying minimization measures implemented during sea turtle nesting season. Marine turtle nesting season begins March 1 through Oct. 31 in Brevard, Indian River, St. Lucie, Martin, Palm Beach and Broward counties, in all other coastal counties in Florida marine turtle-nesting season begins May 1 through Oct. 31.



- **Coordinating Agencies:** USACE, FDEP Bureau of Beaches and Coastal Systems, USFWS, counties, cities or municipalities
- **Supporting Partners:** Florida Fish and Wildlife Conservation Commission, U.S. Department of Commerce National Marine Fisheries Service, EPA

Issue 2: Vulnerability of Florida's Roadways and Bridges to Sustaining damage from Flooding

As Hurricane Irma made landfall in Florida, the Florida Department of Transportation closed the state's six major interstates and multiple bridges to traffic, effectively shutting down the state-maintained highway system that also serve as the state's major evacuation routes. Over the course of two days, as the storm made its way up the Florida peninsula, state, county, and city officials ordered law enforcement agencies to close numerous state, county and city roadways due to flooding. Additionally, state and local officials ordered the closing of many bridges to traffic due to either dangerous high winds or rising floodwaters from rain-swollen rivers and creeks. The cascading consequences from restrictive travel due to the road and bridge closures affected response times of emergency services and the availability of state, county, and city staff to participate in ongoing recovery activities.

Immediately after Hurricane Irma passed, the Florida Highway Patrol began assessing roadway conditions of the interstate system and state highways, evaluating roadway travel conditions that would affect driver safety due to either structural damage, debris blockage, or roadway flooding caused by the storm. FDOT deployed its statewide maintenance force to assess roadway and bridge damages in storm-impacted areas, focusing on clearing and repairing Florida's major highways: US-1, Interstate 75, Interstate 95, Interstate 4, the Florida Turnpike, and Interstate 10 in order to reopen these roads to traffic.

Issue Statement

In the aftermath of Hurricane Irma, short-term and long-term road closures caused numerous travel delays for residents trying to return home after evacuating. The closed roads also restricted the movement of commodities and fuel, causing major financial impacts to Florida's businesses and to the state's tourist industry. Furthermore, the state, counties, and cities incurred significant financial costs in conducting temporary repairs to restore roadway usage, with the prospect of incurring even more unexpected costs to affect permanent repairs or replacement of damaged roads or bridges. FDOT bridge staff conducted inspections of 536 bridges in southwest Florida to evaluate the bridges for signs of erosion caused by floodwaters or rapidly flowing river and creeks. FDOT reported that inspection crews identified no South Florida bridges as needing immediate repairs. However, FDOT was actively monitoring river conditions occurring at a small bridge on I-75 (mile marker 408) crossing the Santa Fe River on the northern border of Alachua County. Heavy rainfall over north Florida from Hurricane Irma resulted in the river rising to record levels presenting a potential safety threat to the bridge. In Central Florida, floodwaters damaged a section of I-4 during Hurricane Irma's passing, requiring FDOT officials to close off the damaged roadway section to interstate traffic. While most damaged roads and bridges have since reopened again to traffic, a significant percentage of early repairs provided only temporary fixes to restore serviceability. Table 3 provides a list of reported damage to roadways.



Table 3: List of Reported Damage Roadways

County	Inspection Date	Damage	Note	Level
Brevard	9/12/2017 2:56	Sinkhole	Extensive damage to Indian River Road, erosion due to flooding	Extensive damage
Hendry	Under Investigation	Damage to Ft. Denaud Bridge	Issues with bridge electrical system that operates mechanical system to open bridge	Very minor damage
Indian River	9/13/2017 20:00	Damage to bridge fender	Sebastian Inlet Bridge Fender damaged underneath Hwy A1A.	Light to moderate damage
Monroe	9/12/2017 2:06	Road washout	US 1 at MM 37 - Part of road on US 1 washed away near mile marker 37 and entrance to Bahia Honda State Park.	Extensive damage
Monroe	9/12/2017 13:10	Broken bridge	4 Vessels damaged (broken bridge)	Light to moderate damage
Nassau	9/11/2017 11:43	Road washout	Time/Date: 11:05 9/11/2017 - East side of Orange Street, between Alma Street and West 4th Street washed out. Assume entire portion of road should be impassable.	Light to moderate damage
Polk	9/11/2017 20:27	Flooded road	Flooded road on the corner of Rockridge Road and Deen Still Road	Moderate to heavy damage
Polk	9/11/2017 13:56	Road damage	Roadway collapse & water running over E. County Line Road	Light to moderate damage
Seminole	9/13/2017 8:22	Road washout	Road washout on Curryville Road just east of CR 3303, washout extends the entire width of the road.	Moderate to heavy damage

Goal 2.1

Improve the resiliency of Florida's roadways to reduce damage and recovery times due to climatic events.

Support the State of Florida in developing and implementing a roadway management plan, which aims to improve and preserve the condition of roadway pavement and bridge performance at a minimum practical cost.



Strategic Objective 2.1.1

Develop strategies to maintain state, county and city roads in a State of good repair.

Strategies for improving the resiliency of existing roads must include a roadway management plan that identifies roadways vulnerable to frequent flooding and evaluates methods to maintain and improve roadway resiliency.

Support Action 2.1.1.1

Develop a statewide roadway management plan for use by the state, counties, and cities that incorporates a rigorous maintenance plan for routinely performing roadways inspections on a regular basis. The plan includes:

- Inspection and repair of crushed or cracked culverts and damaged culvert joints
- Debris blockage removal and drainage; cleaning of roadway culverts and ditches
- Inspection and repair of roadway joints, pavement and foundation
- Institute regular maintenance program of roadway embankments that includes:
 - Inspection to identify areas subject to erosion,
 - Sustainable repairs to roadway embankment slopes subject to erosional washouts
 - Re-sodding of repaired or non-vegetative earthen embankments to prevent further erosional damage to embankments
- **Coordinating Agencies:** FDOT, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, USDOT, USDA

Support Action 2.1.1.2.

Avoid, minimize, or mitigate scour impacts on roadway embankments by strategically placing riprap around roadway embankments adjacent to rivers, streams, and creeks as a floodwater control measures.

- **Coordinating Agencies:** FDOT, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, USDOT

Goal 2.2

Protect roadways subjected to frequent flooding in flood prone areas.

Support the state, counties, and cities in developing and implementing management plans and programs to protect and improve accessibility and stability of roads located within flood plains or in areas often subject to frequent flooding. The plans and projects should be practical, easy to implement and cost effective.

Strategic Objective 2.2.1

Develop flood protection strategies as part of a roadway management plan to maintain state, county and city roads in a State of good repair.

A good roadway management plan must include strategies that assist in identifying vulnerable roadways subject to frequent flooding. The plan must also evaluate strategies and methods that the state, counties, and cities can use to develop practical and cost-effective solutions for improving the resiliency and accessibility of existing roads located in flood plains or flood prone areas of the state.

Support Action 2.2.1.1

Develop strategies as part of a statewide roadway management program to assist counties and cities in identifying roadways subject to flooding, and then develop practical solutions that can address the flooding issues. An important component of this strategy is to develop maps that identify locations of county or city roads subjected to frequent flooding by using flood plain maps, available stream flow and flood elevation gaging data, and aerial maps to determine limits of roadway pavement inundated during a flooding event. Once identified, conduct frequent visual inspections of flood prone roadways in low-lying areas, especially after a flooding event to evaluate the condition of pavement, roadway foundation and embankment. Determine if raising the height or increasing the conveyance under the road will reduce overtopping and frequent inundation to improve roadway conditions without affecting existing stormwater drainage and flows and patterns of existing rivers, creeks, and streams. Evaluate cost effective solutions such as replacing flood-prone roadway sections with either a small bridge made with concrete box culvers or a small con-span bridge to achieve increased conveyances of floodwaters under the roadway to reduce roadway overtopping.

- **Coordinating Agencies:** FDOT, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, EPA, USDOT, USDA

Goal 2.3

Improve resiliency of state, county, and city bridges by reducing structural damage and improving recovery times after a climatic event.

Support the state, counties, and cities in developing and implementing bridge management plans and programs that focus on reducing bridge damage and the resulting bridge closures that can potentially disrupt traffic patterns.

Strategic Objective 2.3.1

- **Develop protection strategies as part of a bridge management plan to maintain state, county and city bridges in a State of good repair.**
- **Develop and implement bridge management plans that incorporate protection strategies and methods to reduce structural damage thereby improving bridge resiliency and longevity.**

Support Action 2.3.1.1

Identify state, county, and city bridges located in frequently flooded areas that are more vulnerable to structural damage due to impacts from floating debris, frequent overtopping, long immersion periods due to elevated water levels, and pier or abutment scouring due to increased floodwater flow. Due to the vulnerability of these bridges to structural damage, some may require an increase in the frequency of bridge inspections conducted on these structures especially after severe flooding events.

- **Coordinating Agencies:** FDOT, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, USDOT

Support Action 2.3.1.2

Institute a program to conduct yearly and/or biannual structural inspections of all state, county and city bridges. Inspect bridge deck, piers, abutments, and fenders for damage, check bridge deck scuppers for debris blockage on older bridges, and check all drawbridge mechanisms to determine if regular maintenance of lifting machinery is occurring and if there is damage due to a lack of maintenance. Consider instituting a statewide bridge inspection assistance program that provides



inspectors to assist poorer counties and cities with keeping their bridge inspection reports up to date, while identifying potential safety issues that need immediate corrective actions.

- **Coordinating Agencies:** FDOT, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, USDOT, USDA

Support Action 2.3.1.3

Evaluate all bridge suspension cables to determine if they can withstand high winds associated with hurricanes up to Category 3.

- **Coordinating Agencies:** FDOT
- **Supporting Partners:** USACE, USDOT, counties, cities or municipalities

Support Action 2.3.1.4

Stabilize slide-prone areas, slopes, embankments, and rock walls around bridges to mitigate scour threat. Extend footing and pile structures to support slopes or protect them from erosion.

- **Coordinating Agencies:** FDOT, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, USDOT

Issue 3: Vulnerability of Florida's Electricity Generation, Transmission and Distribution Infrastructure

Background

In the aftermath of Hurricane Irma's strike on the Florida peninsula, the storm's broad wind field and high winds either destroyed or badly damaged parts of the state's essential power infrastructure network of generating stations and distribution/transmission systems. The ensuing wind and rainfall intensities generated by Hurricane Irma resulted in shutdowns of generating stations, flooding of low-lying power substations, and the downing of thousands of power poles and power lines in what forecasters have characterized as the strongest storm in the state's history to affect the Florida peninsula.

In advance of Hurricane Irma's arrival, Florida Power and Light shut down its two nuclear power plants along the Atlantic Coast to mitigate any potential damage that could occur if the plants were in normal operating mode when the hurricane struck. Loss of these two plants put an even greater strain on the South Florida power grid. Due to Hurricane Irma's projected size, intensity, and probable path up the Florida peninsula, state emergency officials anticipated massive storm-induced power outages to occur in many of the state's larger urban developed areas, and in the rural and coastal communities located within the storm's projected path. The state, working in conjunction with Florida's power utility companies, prepositioned power restoration crews in strategic locations across the Florida peninsula before the storm's landfall so that power restoration crews could quickly begin the task of restoring power after the storm had passed. Once the storm passed through the state and weather conditions improved allowing the power companies to complete their preliminary damage assessments, the real work commenced on the recovery efforts required to repair the storm-induced damage to the power transmission and distribution networks. Much of the damage caused by the storm was to above-ground transmission/distribution lines. Although the power-generating stations reported no direct storm damage, storm-generated debris floating in intake canals presented an even bigger problem for some generating plants. In one instance, FPL had to take one of its Palm Beach County-based power-generating plants offline when waterborne debris blocked the



power plant's intake system, requiring dive teams to clear out water intake pipes in order to bring the power plant back on line.

On Sept. 14, 2017, the U.S. Department of Energy reported a peak outage of 3,568,499 customers without power resulting from damage to Florida's power grid network caused by Hurricane Irma. The following summary covers the U.S. Department of Energy reported assessment of power outages in Florida's electric sector for that day:

Hurricane Irma Electricity Sector Summary (as of 2:30 p.m. EDT Thursday Sept. 14, 2017)

Florida confirmed 2,292,530 customer outages (23 percent of total state customers).

- Several utility companies estimate that 95 percent of customers will have power restored by Sept. 17.
- For customers on the West Coast, 95 percent of customers will have power restored by Sept. 22.

The power utilities located in Florida reported the following information to the U.S. Department of Energy on power outages in their area of coverage (Sept. 14, 2017):

- As of 2:30 p.m., Sept. 14, Florida has 2,292,530 customer outages (23 percent of total state customers).
 - Florida Power and reported 1,354,010 customer outages.
 - Duke Energy Florida reported 490,033 customer outages.
 - Tampa Electric reported 95,512 customer outages.
- FPL estimates power restoration to most of the West Coast of Florida by Sept. 22 and to the East Coast by the end of the weekend, Sept. 17. Restoration to severely damaged areas may take additional time.
 - FPL has restored power to over 3,078,680 customers, or 70 percent of affected customers, following the hurricane.
- As of 7:30 a.m., Sept. 14, Tampa Electric restored service to 80 percent of its 425,000 customers and expects restoration for most of its territory to be complete by Sunday, Sept. 17
- As of 2:30 p.m. EDT, Sept. 14, Duke Energy Florida has restored power to 903,605 customers.
 - Duke Energy Florida estimates to restore power to most of its Central and Northern Florida customers by Sept. 17 and to West Florida by Sept. 15.
- Kissimmee Utility has restored 99 percent, or 37,473 of customers impacted by Irma as of 8 a.m., Sept. 14.
- As of 11 p.m., Sept. 12, Keys Energy Services control center crews had re-energized the tie line, the Keys' main electric transmission line.
 - Keys Energy Services estimates power restoration from Key West to Big Coppitt between Sept. 19 and Sept. 22. Beyond Big Coppitt, Key Energy Services says restoration could be up to one month, depending on the extent of damage.

Issue Statement

Florida's power infrastructure network consists of a vast, complex electrical grid of corporately (investors) or privately owned (non-investors) power-generating plants, power transmission substations, and transmission lines working together to deliver electricity from the power generating plant to the consumer through a complex aging distribution/transmission network. Further, since



Florida's power transmission lines are mostly located above ground, much of the damage caused by Hurricane Irma to transmission lines (damaged or downed power lines) resulted from either falling trees or wooden power poles snapped in half by the storm's high sustained winds and powerful wind gusts.

Florida's unpredictable weather, its aging power infrastructure (ranging in age between 40 and 60 years old), and flood-endangered coastal substations are consistently creating potential system network failure points that can result in frequent long-term power outages that cause untimely and sometimes severe consequences for power consumers. The size, age, usage demands, and complexity of Florida's power transmission and distribution network, when combined with the large number of power utility companies utilizing this infrastructure across the state, creates an overwhelming task for a utility provider in locating, assessing and prioritizing potentially high-consequential failure points in the state's power transmission and distribution network. Whether in the larger developed urban and manufacturing areas, in small, rural, undeveloped areas, or in coastal communities, protecting Florida's power transmission and distribution network presents an array of difficult and complex challenges for many of the state's power utility providers.

The massive power repair and restoration efforts undertaken by Florida's power companies to repair damage caused by Hurricane Irma resulted in most Floridians having their electrical services restored back within 10 days after the storm's passing. Most Floridians now have their power restored in the short-term, but the ongoing power restoration efforts do require the rebuilding of electrical distribution systems and supporting infrastructure, which will take time. Protecting Florida's critical power infrastructure, especially when evaluating power needs in complex urban areas, should attempt to focus on identifying, prioritizing, and strengthening potential system failure points that would have severe consequences for medical and emergency facilities, first responders, residential areas, and the private sector due to cascading power failures.

Goal 3.1.

Protect and improve Florida's power transmission and distribution network to withstand and quickly recover from either natural or man-made disasters.

In order to protect and improve Florida's power transmission and distribution network, State officials and Florida's electric utility providers should focus on evaluating the integrity and resiliency of generation, transmission, and distribution systems by identifying and then mitigating critical failure points in the electrical grid that would compromise the power infrastructure system.

Strategic Objective 3.1.1.

Enhance Florida's power transmission and distribution systems' resilience by minimizing adverse consequences resulting from storm events through advance planning, mitigation efforts and rapid response.

The ability to meet Florida's energy demands depends on the efficiency of the state's power transmission and distribution network, and, more importantly, its ability to meet the demands of consumers. Therefore, the State of Florida and utility providers must collaborate on designing, upgrading, and rebuilding the state's critical power infrastructure to withstand and quickly recover from natural and man-made disasters. State officials and Florida's electric utility providers should prepare for these challenges by utilizing restoration and recovery plans that call for implementing protection measures, strategies for replacing aging power systems with more reliable and resilient systems, and training exercises to evaluate response and rapid recovery of essential electrical services.



Support Action 3.1.1.1.

Strengthen critical power transmission and distribution network by:

- Selectively burying underground electric transmission lines in areas subject to severe weather events; protect underground electric transmission lines against exposure to groundwater and saltwater by use of cabling technologies that provide absolute protection against water exposure.
- Flood-proofing generators, substations and high-risk power generation, transmission and distribution assets by raising the structure or installing removable flood walls, and building berms around facilities located in areas at risk of tidal surge and flooding.
- Identifying and procuring locations of future power plants and substations that are not within flood plains or regulated floodways, obtain necessary permits needed to implement project.
- Identifying and hardening key fuel distribution terminals allowing for the distribution of fuel after the storm.
- Reexamining critical components of the power infrastructure network to identify those components most vulnerable to damages caused by severe weather events.
- Enhancing power grids resilience by using a system of micro grid in maintaining and restoring power after a catastrophic event or a cyber-attack
- **Coordinating Agencies:** Utility Companies, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, U.S. Department of Energy, USDA, U.S. Fish and Wildlife Services, EPA, FPSC, USDOT

Support Action 3.1.1.2.

Accelerate modernization of the power transmission and distribution network by improving system flexibility including the incorporation of distributed (on-site) generation, micro grids, and wind or solar generation systems. Create incentives to encourage distributed generation and smart grid investments.

- **Coordinating Agencies:** Utility companies, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, U.S. Department of Energy, USDA, USFWS, FPSC

Support Action 3.1.1.3.

Incorporate new technologies that can locate and identify specific power outages occurring in the power transmission and distribution network in real time without requiring manual inspections to locate failure points.

- **Coordinating Agencies:** Utility companies, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, U.S. Department of Energy, USDAUSFWS, FPSC

Support Action 3.1.1.4.

Develop and put in place a black start procedure for restoring an electrical power generating station back to operation without relying on the external electric power transmission and distribution network. Install small diesel, solar or wind generators to use as the power source in starting back up the larger generators used to start up the main power generators.

- **Coordinating Agencies:** Utility companies, state, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, U.S. Department of Energy, USDA, USFWS, FPSC



Support Action 3.1.1.5.

Develop public-private partnership to realize security and resilience goals through ongoing critical power infrastructure security and resilience efforts. Public-private partnerships consist of voluntary representatives made up of asset owners and operators, academia and research partners, international partners, as well as federal, state, and local government officials committed to fostering and maintaining trusted partnerships. The focus of this public-private partnership should be to develop restoration and recovery plans that utilize an all-hazards approach. This includes developing and implementing protection measures, conducting preparedness exercises to evaluate response times, identifying gaps in recovery efforts and then using this information to refine restoration and recovery plans.

- **Coordinating Agencies:** Utility companies, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, U.S. Department of Energy, USDA, USFWS, EPA, FPSC

Support Action 3.1.1.6.

Conduct routine inspection of the right of way for electric power transmission and distribution lines and easements for trees and vegetation that could fall during a storm, damaging or downing power lines. Power utility providers should make this a part of their annual maintenance plans to trim or remove hazardous vegetation that are next to or growing around power transmission and distribution lines.

- **Coordinating Agencies:** Utility companies, counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, U.S. Department of Energy, USDA, USFWS, FECC, FPSC

Issue 4: Vulnerability of Florida's Communication Infrastructure

Background

As Hurricane Irma made its Florida's landfall, many South Florida residents and emergency response providers lost cable and internet services, had spotty cellphone service, or suffered a complete loss of all communications services. In areas of South Florida, Hurricane Irma disabled regional communications networks that hampered first responders' ability to respond to and manage emergency incidents. The severity of these communication impacts affecting first responders' response times depends on the particularities of the areas where the disruption occurred and the strength and stability of the communications network in place. Many internet carriers and providers experienced issues with power outages at their facilities or downed overhead cable lines, which interrupted cable TV and internet services, leaving residents with no home internet, telephone or cable TV services.

- **Wireless:** At Hurricane Irma's peak, 27.4 percent of cell sites were out across Florida, six counties had more than 50 percent of cell sites out of service, and two counties had more than 80 percent out of service. Within five days, only three counties, Collier, Highlands and Monroe had cellular service outages at or above 10 percent. Eight days after landfall in Florida, statewide cell site outages averaged around 3 percent.

- **911 Call Centers:** Although most 911 call centers remained operational, during the height of the storm, 14 Florida call centers sustained significant damage that rendered the call centers inoperable and unable to receive or route emergency calls. Further, 911 call centers experienced extremely high call volumes that strained and in some instances exceeded their call-taking capacity.
- **Cable/Wireline:** As of Sept. 15, nearly 1.7 million subscribers in Florida were still without service because of Hurricane Irma. A week after the storm's landfall, the number of subscribers without service dropped to 893,409. Most of these outages were due to power not yet restored in the affected areas, or unrepaired, downed overhead utility lines.
- **Broadcasters:** Emergency managers used radio-frequency monitoring equipment to conduct thousands of status checks of AM, FM, and TV broadcasters in the impacted areas. Broadcasters reported that at least 10 television stations and 51 radio stations were out of service.



Figure 9: Cell Tower in Charlotte County

After the storm, telecommunications repair crews began working on repairing and restoring damaged communication infrastructure, but debris, flooding, and loss of power hampered their repair efforts. Additionally, many of the cellular repair crews lacked proper identification to verify their authenticity to law enforcement officials, further hindering the start of repair and restoration efforts on damaged communication systems and cellular towers.

Issue Statement:

Hurricane Irma caused substantial damage to the state's communication infrastructure, hampering first responders' ability to respond to and manage emergency incidents by disabling regional communication networks in many counties affected by the storm. The absence of timely, valid communications hindered the ability of emergency response services to function effectively under the urgent stress of responding to the public during and after the storm. Emergency response personnel hurriedly searched for workable strategies to put in place to compensate for the communication failure and, in doing so, overlooked available skills and resources because they could not ascertain their availability. Residents sheltering in place lost telephone, cellular, and cable services and had little or no information to assess potential life safety risks due to the inability to receive information on weather conditions, locations and severity of storm damages, and public safety advisories.

After the storm, telecommunication network and 911 service providers submitted communication outage data and operational statuses of Public Safety Answering Point to the Federal Communications Commission through either its Disaster Information Reporting System, or by reporting to the FCC's Public Safety Support Center. As of Sept. 11, 2017 at 11:30 a.m., the FCC

identified 27 Public Safety Answering Points in the Florida reporting area that had disruptions in 911 service:

- Down with no re-routes: 14 (Big Cypress Indian Reservation, Collier County EOC, Ft. Myers Police Department, Glades County Sheriff, Glades County Sheriff Back Up, Hardee County Back Up, Hendry County Sheriff, Highlands County Sheriff, Lee County Emergency Dispatch Center EOC, Naples PD, Okeechobee County Sheriff's Department, Homestead Air Force, Marathon SO and Ocean Reef)
- Up without Automatic Location Information: 2 (Hardee County Sheriff and Lee County Sheriff)
- Re-routed with Automatic Location Information: 7 (Atlantic Beach PD, Belle Glade PD, Indian River SO, Manalapan PD, Miami Beach PD, Neptune Beach PD and St. Augustine PD)
- Re-routed without Automatic Location Information: 4 (Clewiston Police Department, Desoto County Sheriff, Lee County Backup and Sanibel Police Department)
- In addition, the Broward County South Region, FL Public Safety Answering Point lost power on Sept. 10, 2017, at 2:28 p.m.

Goal 4.1

Improve Florida's communications infrastructure to a highly reliable, effective, modern communications network capable of withstanding severe storm events.

The State of Florida and private communication providers must partner together to work on upgrading the state's critical communications infrastructure to a highly reliable, effective, modern communications network capable of withstanding severe storm events. The Department of Homeland Security's 2015 Communications Sector-Specific Plan - An Annex to the NIPP 2013 provides a strategic framework for collaborative protection of communications infrastructure. The basic goals of the risk management framework are:

- **Resilient Infrastructure:** Critical infrastructure and their communication capabilities should be able to withstand natural or man-made hazards with minimal interruption or failure.
- **Diversity:** Facilities should have physically and logically diverse primary and backup communications capabilities that do not share common points of failure.
- **Redundancy:** Facilities should use multiple communication capability types to sustain business operations and eliminate single points of failure that could disrupt primary services.
- **Recoverability:** Plans and processes should be in place to restore operations quickly if an interruption or failure occurs.

The stability of the communications infrastructure in practice will, determine the level of inter-organizational response and performance in actual disaster operations before, during, and after a disaster or emergency. Communications during emergencies and crises must be available for public safety, health, defense and emergency personnel, as well as all consumers in need.

Strategic Objective 4.1.1.

Develop a recovery and mitigation plan that addresses deficiencies and gaps in the state's communications infrastructure, ensuring the availability of basic telecommunications services.

In deciding how best to protect and enhance Florida's communication infrastructure, voluntary collaboration between the state and private communication providers remains the key means for advancing cooperative action toward improving the resilience of the state's communications infrastructure. The Federal Communication Commission developed a set of objectives with specific

priorities related to risk management and capability enhancement of communications infrastructures. The state and private communication providers can use these objectives to develop a recovery and mitigation plan that addresses the deficiencies and gaps in the Florida's communications infrastructure, ensuring the availability of basic telecommunications services. The recovery and mitigation plan should:

- Develop policies that promote access to effective communications services in emergency situations by public safety, health, defense and other emergency personnel, as well as all consumers in need.
- Evaluate and strengthen measures for protecting the critical communications infrastructure.
- Facilitate rapid restoration of the state's communications infrastructure and facilities after disruption by any cause.
- Act swiftly in matters affecting public safety, security, and disaster management by coordinating with industry and federal, tribal and local agencies.

Support Action 4.1.1.1.

Develop requirements for maintaining, operating, and expanding communication infrastructure by establishing standards and specifications guidelines that determine whether a system passes or fails a communication inspection.

- **Coordinating Agencies:** Telecommunication providers, Florida Public Service Commission, counties, cities or municipalities
- **Supporting Partners:** USACE, FEMA, U.S. Department of Energy, FCC, USFWS

Support Action 4.1.1.2.

Develop requirements and procedures (including creation of a database) to identify and provide proper identification credentials to repair crews, making it easier for law enforcement officials to verify to repair crews' authenticity.

- **Coordinating Agencies:** Telecommunication providers, FPSC, counties, cities or municipalities
- **Supporting Partners:** USACE, FEMA, FCC, U.S. Department of Energy

Support Action 4.1.1.3.

Develop plans to use ham radios in restoring vital communication links in the wake of hurricanes, tornadoes and other major disasters to assist in directing first responders by providing real-time situational updates to emergency management agencies.

- **Coordinating Agencies:** Telecommunication providers, FPSC, counties, cities or municipalities
- **Supporting Partners:** FEMA, FCC, U.S. Department of Energy

Support Action 4.1.1.4.

Develop requirements to harden cellular towers to withstand Category 3 or higher winds.

- **Coordinating Agencies:** Telecommunication providers, FPSC, counties, cities or municipalities
- **Supporting Partners:** USACE, FEMA, FCC, USFWS

Support Action 4.1.1.5.

Fiber Optic Cables: Upgrade telecommunications infrastructure by replacing copper wires with fiber optic cables. Copper wire cannot handle the large amount of data needed for high-speed internet and other electronic methods of communications. It is also prone to failure caused by flooding and



erosion, which can limit emergency communications during a disaster. Fiber optic cables are becoming the choice material for new telecommunication installations, as they are less prone to damage from flooding compared and are capable of handling high traffic volumes by relaying significant amounts of data.

- **Coordinating Agencies:** Telecommunication providers, Florida Public Service Commission , counties, Cities or Municipalities
- **Supporting Partners:** USACE, FCC, USFWS, FDEP, U.S. Department of Energy

Support Action 4.1.1.6.

Backup Communications System: With the decline in use of landline telephones in favor of cell phones, many state, county, and city government offices have transitioned from landlines to cellular and fiber optic technologies. As a recommendation to insure uninterrupted communications during an emergency, state, county, and city government offices should keep a landline system as a backup system in case a major event disrupts the power supply. Unlike fiber optic-based systems, traditional landlines are generally not reliant upon the normal power supply to operate, minimizing the risk of interdependency and remaining usable for emergency communications in the event of power loss.

- **Coordinating Agencies:** Telecommunication providers, FPSC, counties, cities or municipalities
- **Supporting Partners:** FEMA, FCC, USFWS, U.S. Department of Energy

Support Action 4.1.1.7.

Underground Wires: Moving electrical and telecommunication wires underground can decrease the risk of damage to these systems. Aboveground wires are vulnerable to damage from high winds and fallen trees. While moving the lines underground can help counties and cities address these issues, it is important to note that the installation and maintenance costs of burying wires is more expensive than that of overhead wires, and it can be more difficult to identify and locate disruption sites.

- **Coordinating Agencies:** Telecommunication providers, FPSC, counties, cities or municipalities
- **Supporting Partners:** USACE, FEMA, FCC, USFWS, U.S. Department of Energy

Support Action 4.1.1.8.

Redundant Systems: Counties and cities can also create redundancy in their emergency communications infrastructure to ensure that during emergencies, the infrastructure can handle an increased volume of calls or withstand power outages. One way to do this is to have multiple call and dispatch centers throughout a county or city, preferably in a centralized location. Each call center can operate as the primary dispatch facility and act as a backup should there be any disruption to phone or power lines

- **Coordinating Agencies:** Telecommunication providers, FPSC, counties, cities or municipalities
- **Supporting Partners:** FEMA, FCC

Issue 5: Extreme Rainfalls and Storm Surges Resulted in Chronic Flooding of Urban and Rural Communities

As Hurricane Irma tracked up the Florida peninsula, the storm brought with it strong winds, storm surges and flooding rainfalls that had a detrimental effect on many cities and communities. Over the course of the storm's three-day period, the National Oceanic and Atmospheric Administration measured record rainfall amounts produced by Hurricane Irma over the Florida peninsula including

15.91 inches of rain in St. Lucie County (recorded at the St. Lucie County International Airport in Fort Pierce).

Storm surges and heavy rains combined to cause rivers to reach record highs. The combined long periods of heavy rainfalls and strong northwesterly winds produced coastal storm surges that caused flooding to occur in many of the coastal communities located along Florida's east and west coasts.

- At the National Key Deer refuge located on Big Pine Key, the National Weather Service measured rainfall amounts of 11.74 inches and a storm surge of 10 feet that impacted the lower Keys. Flooding was reported in portions of Old Town in Key West, as a result of Hurricane Irma's track across the Florida Keys.
- Along South Florida's lower east coast, rainfall amounts were much less than those measured on the lower west coast (3.95 inches measured in Miami Beach), but strong northwesterly winds from the storm resulted in storm surges that caused significant flooding in Miami's downtown business area, in areas of Miami Beach, and in parts of Fort Lauderdale.
- Rainfall from Hurricane Irma varied along the southwest Florida coastline with Sarasota measuring 7.89 inches of rainfall, while St. Petersburg and Tampa only measured 3.67 inches and 4.66 inches of rainfall respectively. The ensuing rainfall and rapid storm surge resulted in the Withlacoochee River in Hernando County (north of Tampa) quickly reaching major flood stage. The river crested at elevation 17.5 feet.
- In Central Florida, Orlando and Daytona Beach reported rainfall amounts of 9.42 and 5.86 inches respectively. Both Orlando and Daytona Beach experienced flooding in portions of their cities.
- In Jacksonville, the Broward River reached flood elevations of 8.01 feet; the Cedar River reached flood elevations of 6.35 feet, while the St. Johns River reached record highs of 5.57 feet at Main Street Bridge and 5.63 feet at Buckman Bridge, exceeding the record storm surge of 4.1 ft. set in 1964 from Hurricane Dora. The northwesterly flow of winds from Hurricane Irma combined with persistent onshore winds resulted in a storm surge that effected the upper parts of the St. Johns River. This storm surge caused extensive flooding in many parts of the city especially in Jacksonville's downtown business and residential areas.

Issue Statement

Developments built within floodplains, high hazard coastal areas, frequent hurricanes, tropical storms, and severe thunderstorms that lack of mitigation to reduce flooding vulnerability are key factors that contribute to the flooding problems currently affecting many Florida communities. Flooding due to rains produced by hurricanes, tropical storms, and severe thunderstorms is difficult to estimate because of the various wind speeds' effect on rainfall patterns. Water surrounds the Florida peninsula making the entire state susceptible to damaging flooding impacts from hurricanes, tropical storms and severe windstorms. Hurricane Irma's extreme rainfall combined with wind-induced storm surges caused severe flooding in many counties, cities, and coastal communities. As a result, Hurricane Irma's heavy rainfalls overwhelmed many stormwater drainage systems, contributing to the flooding that occurred in many areas of the state. Additionally, seawater from storm surges or rain-induced floodwaters flowing through low-lying streets and into homes and buildings posed a major threat to many communities. After the storm passed, floodwaters started to recede, but it would take several days or longer before they would recede enough to conduct damage assessments. Across the state, damage assessments had to wait at least several days before starting due to flooded roads, debris, downed trees and damaged power lines.



Goal 5.1

Improve the resilience of communities against the impacts of flooding.

In flood-prone areas, develop preventive measures to reduce possible adverse effects of flooding by encouraging the development and implementation of long-term, cost-effective, and environmentally sound flood mitigation projects

Strategic Objective 5.1.1

Develop a comprehensive watershed plan to coordinate various water resource projects in identified communities.

Develop strategies for improving the flood resiliency of communities by integrating a wide variety of resource activities to employ a watershed approach to resource management.

Support Action 5.1.1.1.

Develop coordination among different levels of government and promote better public understanding of water management policies and decisions. Establish partnerships to pool resources and data to conduct watershed studies that develop and evaluate flood damage reduction strategies.

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, FDOT, USDOT, USGS

Support Action 5.1.1.2.

Collect, integrate and analyze existing information pertinent to watersheds and create a database for analytical purposes.

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, FDOT, USDOT, USGS

Support Action 5.1.1.3.

Identify, and then prioritize water resource management issues—current and future—relating to water supply, flood protection, water quality and natural systems

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, FDOT, USDOT, USGS

Support Action 5.1.1.4.

Develop GIS mapping of watersheds that integrate data from ground and surface water models, federal and state regulatory and water management databases, with results from statistical analyses. This capability to integrate data from multiple sources allows analysis of previously undiscovered relationships between data.

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, FDOT, USDOT, USGS

Goal 5.2

Increase stormwater system performance in identified communities.

Strategic Objective 5.2.1.

Develop a comprehensive stormwater improvement plan to improve drainage in flood-impacted communities.

Complete stormwater system improvements in identified communities.



Support Action 5.2.1.1.

Develop a comprehensive list of communities in need of stormwater improvements and prioritize.

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, FDOT, USDOT, USGS

Support Action 5.2.1.2.

Identify sources of funding and/or potential partners for implementation, and then coordinate with potential partners.

- **Coordinating Agencies:** Counties, cities or municipalities
- **Supporting Partners:** USACE, FDEP, WMDs, USFWS, FDOT, USDOT, USGS

Goal 5.3

Create or supplement a mechanism to collaboratively identify, prioritize, and implement solutions to address flood risk management issues.

Increase and improve risk communication across federal, state, and local agencies through a unified interagency effort that will leverage information and resources and provide access to national programs including:

- FEMA's Map Modernization program
- Risk MAP programs
- USACE's Levee Inventory and Assessment Initiative

Strategic Objective 5.3.1

Provide focused, coordinated mitigation assistance in implementing high-priority actions such as those identified by a state mitigation plan, while also identifying gaps among agency programs and barriers to implementation. Provide recommendations for addressing these issues. The Florida Silver Jackets team can accomplish this by bringing together multiple federal, state and local agencies to learn from one another and apply their knowledge to reduce the risk from flooding and other natural disasters and enhance response and recovery efforts when bad weather strikes.

Support Action 5.3.1.1

Promote the State of Florida's Silver Jacket team by encouraging greater participation and contributions from local, state, and federal agencies. Silver Jackets is an innovative program that provides an opportunity to bring multiple federal, state, and local agencies together consistently to learn from one another and apply that knowledge to reduce risk.

Support Action 5.3.1.2.

Utilize the Florida Silver Jacket (FSJ) team partners to develop formal and consistent interagency approaches in planning and implementing measures and strategies to reduce the risks associated with flooding and other natural hazards. Through collaboration between various agencies and coordination of state and federal programs, the FSJ team can identify potential challenges and develop comprehensive and implementable solutions that work toward reducing risks from natural disasters.



Issue 6: Damages to Ports and Entrance Channels

Background

Fifteen Florida ports had all shipping activities temporarily interrupted because of Hurricane Irma. Entrance channel shoaling affected most port operations, requiring the U.S. Coast Guard to impose temporary draft restrictions, shutting down ship traffic to and from the ports. Within a few days after Hurricane Irma's passing, the Coast Guard inspected the ports and lifted the temporary draft restrictions. All ports are now open and operating without Hurricane Irma-related restrictions.

Ports are not only locations where vessels can load and discharge cargo. Ports are also important transportation providers.

In conversations with the Jacksonville and Canaveral port authorities, it became apparent that a single comprehensive framework or guidelines could not fully address the resiliency processes and approaches used to reduce consequences of sea level rise, coastal flooding, or other disruptions at ports and coastal communities. This is due in part to the unique characteristics of each situation, the community involved, and the port facilities. However, in addition to shoaling, the following items discussed below are universal and applicable to all Florida ports:

- Access to water is essential to the long-term safety and operation of any port. Potable water is necessary for daily operations and for cruise passengers embarking and disembarking. Fire suppression is paramount at all port facilities due to the presence of fuel and combustible chemicals.
- Sea level rise threatens landward ingress and egress routes.
- High water, due to storm surges and flooding, are affecting port operations.

These items, in addition to shoaling, are factors addressed in this RSS.

Issue Statement

Post-Hurricane Irma shoaling resulted in draft restrictions for all Florida ports.

Goal 6.1.

Reduce storm-related shoaling in port channels.

Strategic Objective 6.1.1.

Support the installation of additional sediment traps for the Florida ports to prevent or mitigate shoaling from future storms. For example, Port Canaveral estimated that their sediment trap prevented the additional deposition of approximately 500,000 cubic yards of material into their navigation channel.

Support Action 6.1.1.1.

Work with respective port authorities to determine where the construction of additional sediment traps would help reduce shoaling in navigation channels.

- **Coordinating Agencies:** Port Authorities, U.S. Army Corps of Engineers
- **Supporting Partners:** Florida Ports Council, Florida Department of Environmental Protection

Issue Statement

Support improving the resiliency of water supply to Florida's port operations.

Goal 6.2.

Harden utilities that provide services to ports to ensure access to water at all times.

Strategic Objective 6.2.1.

Provide for a more resilient water distribution system for port facilities.

Support Action 6.2.1.1.

Work with ports and utility providers to harden water delivery systems to ports. Feasible measures include burying water lines, hardening distribution points, installing redundancies in distribution systems, and identifying appropriate sites for installing water towers for ports.

Support Action 6.2.1.2.

Obtain or identify prepositioned submersible pumps for uses during periods of water service interruptions for port facilities where hardening or upgrading water delivery systems are not feasible.

- **Coordinating Agencies:** Port Authorities, utilities, county emergency management, county public safety entities.
- **Supporting Partners:** Florida Ports Council, Florida Department of Environmental Protection.

Issue Statement

Routes in and out of ports may be vulnerable to storm surge, flooding and rising waters.

Goal 6.3.

Identify port access roads that are vulnerable to flooding and rising water levels.

Strategic Objective 6.3.1.

Implement measures that will protect port ingress and egress routes from storm surges, flooding and rising water levels.

Support Action 6.3.1.1.

Overlay existing road system with existing storm surge maps to identify routes that are most susceptible to surge. Identify threatened routes subjected to current high or king tide flooding.

- **Coordinating Agencies:** Port authorities, utilities, FDOT
- **Supporting Partners:** Florida Ports Council, Florida Department of Environmental Protection

Support Action 6.3.1.2.

Implement measures to improve the resiliency of port ingress and egress through measures such as raising roads, implementing storm damage reduction measures (such as living shorelines) along causeways, changing joint seal design criteria for bridges and upgrading existing culver pipes.

- **Coordinating Agencies:** Port Authorities, local utilities, FDOT
- **Supporting Partners:** Florida Ports Council, Florida Department of Environmental Protection

Support Action 6.3.1.3.

Since most of the state's fuel supply comes in and out of the ports, port closures before the storm can restrict the flow of fuel to the rest of the state. Implement measures to improve fuel distribution before the storm by prepositioning additional tankers and drivers at the ports before the storm's anticipated landfall to ensure adequate fuel distribution across the state and prevent fuel shortages. Since the railroads maintain an extensive rail system that covers the entire state and includes port facilities, use rail tankers to deliver fuel from port fuel depots to all areas of the state. This would be a more efficient way to deliver gasoline downstate because evacuation traffic jams on interstate highways and county roads would not hamper rail fuel deliveries.



- **Coordinating Agencies:** Port Authorities, local utilities, FDOT
- **Supporting Partners:** Florida Ports Council, Florida Department of Environmental Protection

Issue Statement

Ports are subject to rising sea levels and increasingly frequent flooding events.

Goal 6.4.

Implement measures to prepare ports for changing environmental conditions.

Strategic Objective 6.4.1.

Redesigning port facilities to adjust to factors related to increased temperatures, increased precipitation, sea level rise and severe storms.

Support Action 6.4.1.1.

Redesign stormwater drainage systems to handle increased precipitation and rising sea levels and higher flood levels.

- **Coordinating Agencies:** Port authorities, utilities, FDEP
- **Supporting Partners:** Florida Ports Council

Support Action 6.4.1.2.

Install additional tide and river gauges at strategic locations to better model and predict flooding.

- **Coordinating Agencies:** Port Authorities, FDEP, FDOT, Water Management Districts, US Geological Survey
- **Supporting Partners:** Florida Ports Council

Issue Statement

There is no prioritization concerning the order of restoring and reopening port authorities following a storm.

Goal 6.5.

Include port restoration as a high priority item with respect to recovery.

Strategic Objective 6.5.1.

Improve coordination between port authorities and local and state recovery efforts.

Support Action 6.5.1.1.

Develop an action plan that promotes improvement in coordination activities between port authorities and local and state recovery efforts during and after the storm event

Support Action 6.5.1.1.

Support the inclusion of prioritizing the restoration of water, electrical and telecommunications functions at impacted ports into state and local emergency operations plan, mitigation plans and resilience plans.

Support Action 6.5.1.2.

Support the inclusion of staff from the Florida Ports Council (FPC) at the state emergency operations center during the emergency operations



- **Coordinating Agencies:** Port authorities, county emergency management, state emergency management, Florida Ports Council
- **Supporting Partners:** U.S. Coast Guard

Issue 7: Enhancing Resiliency of Critical Public Facilities (CPFs)

Issue Statement

Critical Public Facilities (CPFs) impacted by Hurricane Irma should be rebuilt to increase resiliency.

Goal 7.1.

Enhance resiliency of CPFs.

Strategic Objective 7.1.1.

Increase the resiliency of designated CPFs.

Support Action 7.1.1.1.

Support conducting vulnerability assessments to determine emergency health and safety risks, and potential infrastructure impacts.

Support Action 7.1.1.2.

Approach resiliency holistically: Support improving resiliency from flooding and rising sea levels by raising utilities, mechanical equipment and toxic materials, flood proofing buildings, retrofitting or upgrading stormwater treatment.

- **Coordinating Agencies:** County, city stormwater managers, county, city building and planning regulatory entities, county emergency management, FDEP
- **Supporting Partners:** State emergency management, FEMA, insurance companies



Figure 11: Lift Station - Cape Coral



Figure 10: Repair of a Hospital - Cape Coral

Issue 8: Enhancing Resiliency of Drinking Water and Wastewater Treatment Systems

Issue Statement

Most problems experienced by the waste-water treatment plants and lift stations were due to power failures and excess floodwaters or stormwater runoff inundating the collection system. Backup generators failed due to age and the stress of constant usage. Excess floodwaters entering collections systems from both direct means (discharges) and indirect means (infiltration through fissures in older, fractured clay pipes.) inundated and overwhelmed the collection system. The resulting equipment failures, power losses and floodwater/stormwater collection system inundation led to releases of untreated or partially treated wastewater, spills and backups onto homes.

Goal 8.1.**Enhance the resiliency of drinking water and wastewater treatment systems.****Strategic Objective 8.1.1.**

Assess the risks for drinking water and wastewater facilities and develop appropriate risk management reduction measures.

Support Action 8.1.1.1.

Overlay drinking water and wastewater facility locations with respect to storm surge category, flood plain extent and projected sea level changes.

- **Coordinating Agencies:** utility operators, county emergency management, state emergency management
- **Supporting Partners:** NOAA, FEMA

Goal 8.2.**Ensure adequate power supplies to drinking water/wastewater facilities and lift stations.****Strategic Objective 8.2.1.**

Support increasing resiliency for utilities requirements for backup power.

Support Action 8.2.1.1.

Coordinating with local utility operators, conduct operational stress testing of existing generators and replace generators determined to be inadequate.

- **Coordinating Agencies:** Utility operators, county emergency management, state emergency management
- **Supporting Partners:** USACE

Goal 8.3.**Harden vulnerable structures to protect against surges and flooding.****Strategic Objective 8.3.1.**

Employ site-specific measures to provide protection against elevated flood levels.

Support Action 8.3.1.1.

Provide targeted advice for increasing the resiliency of existing facilities to protect from surges and flooding.

Discussion

Options include elevating equipment above the critical flood elevation level, making pumps submersible and encasing electrical equipment in

watertight casings, constructing a static barrier around vulnerable locations, sealing structures with watertight windows and doors, and sandbagging. The intent is to protect equipment from flood damage and reduce the time needed to return to normal operations. Each measure has associated

*Figure 12: Back up Emergency Power for a Lift Station-Cape Coral*

advantages and disadvantages with respect to effectiveness, cost and complexity (Figure 13). The higher the resiliency of the measure, the more thoroughly the strategy protects the facility during a flood event and the more risk the strategy can help avoid. However, strategies with higher resiliency are often more costly to implement.

- **Coordinating Agencies:** Utility operators, FDEP
- **Supporting Partners:** EPA, DHS

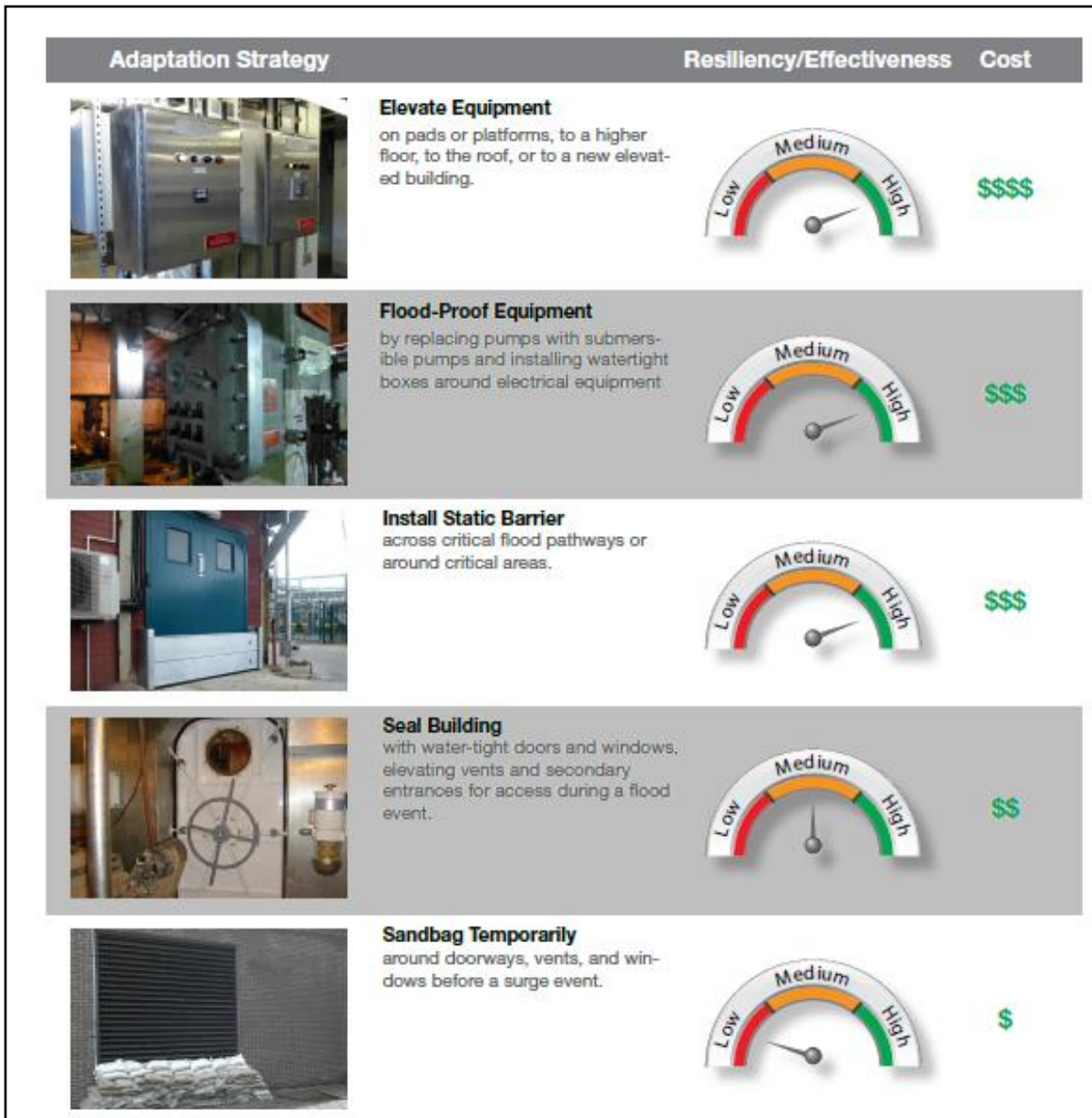


Figure 13: Cost and Effectiveness of Select Resiliency Measures (NYC Department of Environmental Protection, 2013)

Goal 8.4.

Reduce Inundation and Infiltration of Wastewater Collection Systems

Strategic Objective 8.4.1.

Implement Measures to Reduce Incidences of Inundation and Infiltration

Support Action 8.4.1.1.

To reduce the incidences of inundation and infiltration, replace older clay pipes with pipes that are more modern or sleeve and seal the pipes of existing systems.

Issue 9: Identifying Funding for Upgrades of Existing Systems

Issue Statement

Funding to implement resiliency measures can be costly. Brevard County, for example, is planning to spend \$42 million to upgrade three of the six existing systems that are county responsibilities. Appropriate sized generators that provide emergency power for wastewater treatment plants cost between \$600,000 and \$800,000. While taxable entities can issue bonds to provide funding, there are additional funding sources and programs available. Tables 4 and 5 show existing authorities and programs that may help with resiliency and flood damage reduction planning and project implementation.

Table 4: Potential Sources of Funding to Implement Resilience Activities

Agency	Program	Description
FEMA	Hazard Mitigation Assistance	Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) Program, and the Pre-Disaster Mitigation (PDM) Program. Funding for eligible mitigation projects that reduce disaster losses and protect life and property from future disaster damage
FEMA	Public Assistance Program	Federal disaster grant assistance for state, local (and special districts), tribal governments and private, nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies
FEMA	Individual Assistance Program	Provides financial help or direct services to those who have necessary expenses and serious unmet needs if they are unable to meet the needs through other means
Small Business Administration	Business Physical Disaster Loans	Loans to businesses to repair or replace disaster-damaged property owned by the business
USDA	Water & Waste Disposal Loan and Grant Program	Provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas



Agency	Program	Description
Department of Commerce/NTIA	Broadband Technology Opportunities Program	BTOP aims to provide improved access to broadband service to consumers residing in unserved and underserved areas of the U.S. The program offers education, awareness, training, access, equipment, and support as well as other services.
DHS/FEMA	Emergency Management Performance Grant	The EMPG assists state and local governments in enhancing and sustaining their all-hazards emergency management capabilities.
DHS/FEMA	Emergency Operations Center Grant Program	The EOC Grant Program aims to improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure, and interoperable EOCs with a focus on addressing identified deficiencies and needs.
DOT/NHTSA	E911 Grant Program	The purpose of the e-911 Grant Program is to provide funding for the implementation and operation of Phase II enhanced 911 services and for migration to an Internal Protocol-enabled emergency network.
DOJ/OJP	Edward Byrne Memorial Justice Assistance Grant	Justice Assistance Grants support all components of the criminal justice system, from multijurisdictional drug and gang task forces to crime prevention and domestic violence programs, courts, corrections, treatment and justice information sharing initiatives. State and local initiatives, technical assistance, training, personnel, equipment, supplies, contractual support, information systems for criminal justice, and criminal justice-related research and evaluation activities can use Justice Assistance Grant funds.
DHS/FEMA/OEC	Interoperable Emergency Communications Grant Program	IECGP provides funding to State, local and tribal entities for governance, planning, training and exercise funding to States, territories, and local and tribal governments to carry out initiatives to improve interoperable emergency communications, including communications in collective response to natural disasters, acts of terrorism and other man-made disasters.



Agency	Program	Description
DHS/FEMA	Nonprofit Security Grant Program	The UASI NSGP provides funding to support nonprofit organizations that are at high risk of a terrorist attack and are located within one of the specific Urban Areas Strategic Initiatives areas. The program promotes coordination and collaboration in emergency preparedness activities among public and private community representatives, state and local government agencies, and Citizen Corps Councils.
Commerce/NTIA	Public Safety Interoperable Communications Grant Program*	The PSIC grant program provided one-time funding to states and territories to enable and enhance public safety agencies' interoperable communications capabilities.
USDA/RUS	Rural Development Community Connect Grant Program	USDA Rural Development's Community Connect program provides financial assistance to furnish broadband service in unserved, often isolated, rural communities. Communities use these grants to establish broadband service for critical facilities such as fire or police stations, while also providing service to residents and businesses.

In addition to the funding sources listed above, the USACE has funding available through its Continuing Authorities Program and its Planning to States Program. These programs require a local entity (state, county or city) to provide cost share for the project. The programs also have an annual cost cap. Table 5 below provides a list of relevant authorities.

Table 5: Corps Authorities that May Assist in Enhancing Resiliency

Authority	Project Purpose	Authority Summary
Section 14	Emergency Streambank and Shore Line Protection for Public Facilities	<ul style="list-style-type: none"> ▪ Plan, design and construct measures to provide emergency protection to public Infrastructure ▪ Roads, schools, public facilities, historic sites ▪ Open to any non-federal government entity ▪ Project limit of \$5 million



Authority	Project Purpose	Authority Summary
Section 103	Protection of Properties (Public and Private) Against Storm Damages	<ul style="list-style-type: none"> Plan, design and construct measures to provide protection to properties against damages caused by storm driven waves and ocean currents Does not apply to private beaches or beach without public access Project Limit at \$5 million
Section 205	Flood Damage Reduction	<ul style="list-style-type: none"> Plan, design and construct flood control projects Structural and non-structural alternatives spending project limit \$10 million Cannot provide protection for a single private property
Planning Assistance to States	Allows the Corps to Partner with Government Entities and Tribes to Provide Planning Assistance in Matters Related to Water	<ul style="list-style-type: none"> No design or construction authorized \$500,000/project/year
Silver Jackets	Address Floodplain Management Issues	<ul style="list-style-type: none"> Competitive grants Limited funding Pilot projects

With the exception of the Planning Assistance to States program, all the authorities have some commonalities. All projects must be in the nation’s interest to pursue and have a positive cost to benefit ratio. All projects must have feasibility, design and implementation phases. During the feasibility phase of a project, the federal government covers the initial \$100,000. Project costs that are above the initial \$100,000 require cost-sharing splits of 50/50 with the non-federal sponsor. The design and implementation phase has a 65/35 costs sharing split, with 65 percent paid by the federal government. Additionally, the non-federal sponsor can use In kind work to cover their share of the costs.

Under the PAS program, the non-federal sponsor and federal government share project costs equally between themselves. The non-federal sponsor can use In kind work to cover their share of the costs. While not required, cost share increases the chance for Silver Jackets funding. Continuing coordination of these elements is anticipated, along with efforts to identify opportunities for integration with other cooperating partners, coordinate funding options and monitor progress in implementing the National Planning Framework across the prevention, protection, mitigation, response and recovery mission areas.

Goal 9.1
Identifying Potential Support for Improving Infrastructure Resilience

Strategic Objective 9.1
Ensuring Community Awareness of Potential Sources of Technical and Financial Support



Support Action 9.1.1

Participate in scheduled and ad hoc outreach events to present potential opportunities that may provide both technical and financial assistance in enhancing resiliency.



Natural and Cultural Resources RSF Findings

Strategy Development Considerations

NCR has identified the following issues in need of mitigation and support regarding post-Irma relief efforts: debris, structural damage, coastal damage, water quality and ecological health.

Recovery Issues and Strategies

Issue 1: Debris

Background

An overwhelming amount of debris taxed collection and disposal capabilities leaving many areas with debris piles long after the storm. Inconsistent debris separation according to type (i.e., vegetation, household goods, hazardous waste) hindered collection and proper disposal. Debris types and location such as derelict and abandoned vessels, silt, trash, vegetation, and other materials in waterways and reefs created debris management issues not usually seen in hurricanes.



Figure 14: Debris Pile in Big Pine Key

Cross-cutting Issues: HSS may have interest as lack of debris cleanup may lead to impacts on human health caused by vermin, vector borne diseases, and rotting garbage. Housing and economic RSFs may have interest as debris impacts to housing values and safety concerns. Econ may have interest because debris impacts ability to reopen tourism, agriculture, and aquaculture industries

Goal 1.1

Increase capacity to remove storm-generated debris and improve debris segregation to facilitate removal.

Strategic Objectives 1.1.1

- **Eliminate threats to life, public health and safety.**
- **Eliminate threats of significant damage to public and private property.**
- **Eliminate threats to the environment and restore environmental areas damaged by debris.**
- **Improve public and private property to ensure economic recovery of affected areas. This benefits the overall health and well-being of the community.**
- **Improve coordination between invasive species inspectors and pest inspectors with debris pile locations to prevent spread and reduce impact.**
- **Restore debris collection areas to pre-hurricane conditions.**
- **Identify resources available to remove debris from agricultural areas and waterways.**

Support Action 1.1.1.1

- If needed, assist the state in improving debris management to consider natural resource concerns.

- Assess additional needs to clear debris according to debris type.
- Agricultural debris from streams/waterways
- Debris from waterways
- Derelict/Abandoned vessels
- Support the state and local government :
 - Review of existing disaster management plans for dedicated debris staging areas.
 - If necessary, modify to make sure they work.
 - If needed, support the state and local Emergency Management Agencies in monitoring designated debris staging areas.
 - If needed, assist in the necessary environmental compliance to designated debris management sites.
 - As needed, amend existing disaster preparedness plans to designate areas for temporary staging of debris.
 - Assess whether state and local governments need technical assistance in identifying beneficial and sustainable uses for vegetative debris, for instance: mulch, farms, co-generation power plants.
 - Analyze FEMA Individual Assistance and Public Assistance claims to determine extent of damage caused by debris and consider methods to reduce debris damage in future events.
 - Coordinate with state and federal agriculture agencies to determine unmet debris removal needs from agricultural production areas and waterways.
 - Assist, as needed, in debris removal contract management and oversight for the inclusion of environmental concerns (e.g., recycling, invasive species)
 - Consider development of intrastate and interstate mutual aid debris compacts for debris removal and consider best management practices used for power restoration with pre-deployment of assets.



Figure 15: Derelict Vessel in Marathon Key

Issue 2: Structural Damage

Background

Hurricane Irma impacted historical and cultural properties and resources, archaeological sites, museums, libraries, botanical gardens, arboreta, agricultural, animal facilities, parks and recreational infrastructure. Damage occurred from wind, debris, flooding and power failures.

Cross-cutting issue(s): Economic and infrastructure impacts to tourism and local communities due to closures of cultural historical properties, archaeological sites, museums, libraries, botanical gardens, animals facilities, and recreational infrastructure as a result of Hurricane Irma. Some



Figure 16: Leu House with structural damage from Hurricane Irma

libraries are considered critical infrastructure because of the resources they provide such as meeting, shelter, and computer access for the public.

Goal 2.1

Repair and restore structures and facilities damaged as a result of Hurricane Irma to pre-hurricane conditions, as feasible.

Strategic Objectives 2.1.1

Historical Properties, Cultural Resources and Archeological Sites

- Assist property owners on the National Register of Historic Places as well as those that are proposed for listing on the NRHP to determine if assistance is needed or available through insurance, SBA, FEMA or other sources (e.g., Leu House).
- Repair, restore, or mitigate damages to historical and cultural resource structures to pre-hurricane Irma conditions as feasible.

Support Actions 2.1.1.1

- Determine scope of assistance available through NCR RSF and FEMA. Identify additional resource needs.
- Identify impacted resources in need of repair, restoration, protection, and/or mitigation as a result of Hurricane Irma.
- Identify or assist in the development of a rapid needs network pre-and post-disaster to help protect natural and cultural resources and to report storm impact as soon as possible.
- Develop statewide information network that will disseminate information pre-and post-storm and proactively report damage back to FEMA's Hurricane Emergency National Task Force and State Emergency Management post storm during the critical period immediately following a storm in order to protect sensitive collections, buildings and other cultural resources.

Strategic Objectives 2.2.1

Botanical Gardens and Arboreta

- Assist botanical garden and arboreta managers with assessing damage and determining scope of services available through NCR RSF and FEMA assistance programs.
- Reopen, repair, restore, or mitigate damage to botanical gardens to pre-Hurricane Irma conditions as feasible.

Support Actions 2.2.1.1

- Determine scope of assistance available through NCR and FEMA. Identify additional resource needs.
- Determine areas of focus for repair, restoration, protection, and/or mitigation as a result of Hurricane Irma.
- Identify or assist in the development of a rapid needs network pre-and post-disaster to help protect natural and cultural resources and to report post storm impacts as soon as possible.



Figure 17: Debris in Leu Gardens in Orlando, FL

Strategic Objective 2.3.1

Recreational Facilities (Parks, Beaches)

- Assist property owners and managers with damage assessment to recreational structures and facilities; determine if FEMA assistance will cover recovery or if additional federal or private resources are needed.
- Repair, restore, or mitigate damages to recreational facility structures to pre-Hurricane Irma conditions as feasible.



Figure 18: Florida beach

Support Action 2.3.1.1

- Determine scope of assistance available through NCR and FEMA. Identify additional resource needs.
- Target areas to repair, restore, protect, and/or mitigate as a result of Hurricane Irma.
- Identify or assist in the development of a rapid needs network pre-and post-disaster to help protect natural and cultural resources and to report post storm impacts as soon as possible.

Strategic Objective 2.4.1

Libraries and Museums

- Assist property owners and managers with damage assessment to recreational structures and facilities and determine if FEMA assistance will cover recovery or if additional federal or private resources are needed. Repair, restore, or mitigate damages to recreational facility structures to pre-Hurricane Irma conditions as feasible
- Repair, restore, or mitigate damages to libraries and museum structures to pre-hurricane Irma conditions as feasible.



Figure 19: Monroe County Library - Big Pine Key Branch

Support Action 2.4.1.1

- Determine scope of assistance available through insurance and FEMA. Identify additional resource needs.
- Determine areas to focus on repair, restoration, protection, and or mitigation as a result of Hurricane Irma.
- Identify or assist in the development of a rapid needs network pre-and post-disaster to help protect natural and cultural resources and to report post storm impacts as soon as possible.



Figure 20: Museum of the Everglades, Old Laundry National Register Site Everglades City

Strategic Objective 2.5.1**Animal Facilities**

- Restore zoological, other animal nonprofit/research facilities to pre-Irma conditions as feasible.
- Repair and restore facilities to protect the health and safety of animal and human life.

Support Action 2.5.1.1

- Identify zoological and animal facilities that have been damaged by Hurricane Irma via windshield tours and/or contacts. Determine impacts to these facilities.
- Develop Memorandum of Understanding between FEMA and USDA's Animal and Plant Health Inspection Service to disseminate pre-storm activities and information and post-storm support
- Delineate nonprofit versus profit-based zoological facilities.
- Delineate zoological, exhibit-based versus research animal facilities.
- Determine if zoological facilities are critical infrastructure and includes water treatment and or de-salinization facilities.
- Determine if animal facilities include critical infrastructure such as water treatment and/or desalination plants.
- Identify unmet recovery needs and collaborate with insurance, FEMA, NCR, and philanthropic resources.



Figure 21: Flamingos sheltering at Miami Zoo



Figure 22: Animal Facility

Issue 3: Coastal Damage

Background

Wetlands, beaches, estuaries, bays, and marshes were impacted and further degraded by erosion as a result of Hurricane Irma. Dunes and beaches were highly eroded in and Broward Miami-Dade, Monroe, and St. Johns counties. There was extensive erosion in the Florida Keys with sand loss varying by Key. Bahia Honda Beach and Long Beach lost a large amount of sand while the sand on Ohio Key was pushed inland and in some cases, on the other side of the road. Restoration efforts will vary by Key and beaches on the Atlantic and Gulf coasts.



Figure 23: Dune line and beach erosion Flagler beach

Cross-cutting issue(s): Economic RSF has an interest as beaches contribute significantly to Florida's tourism and local economies. Infrastructure may be impacted by erosion or flooding at beaches, inlets, rivers, bridges or and drainage structures. Infrastructure RSF/USACE has responsibility for the federally engineered beaches and is expected to be asked to assist on the restoration of the state, local, and private beaches.

The U.S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission and other wildlife protection agencies also have an interest in sea turtle nesting areas as a result of beach erosion from Hurricane Irma. Endangered sea turtle nesting areas are now exposed to street and business lights where dune lines have been leveled. Dune and beach restoration for sea turtle nesting areas include moving sand that migrated inland back to the beach and mitigating lighting now visible from the dune and beach nesting areas.

Goal 3.1

Use targeted assessments of the most severely damaged coastal areas from federally, locally, and privately-owned beaches for use in determining recovery actions from federal, local, state and other partners.

Strategic Objectives 3.1.

- Assess functionality/health of wetlands, beaches, estuaries, bays and marshes.
- Recover and maintain functionality of impacted wetlands, beaches, estuaries, bays and marshes using sustainable methodologies.
- Develop joint federal, state, and local dune and beach restoration priorities and restore and revegetate the priority beach and dune areas.

Support Action 3.1.1.1

- Use data from GIS mapping and site surveys to determine impacts to damaged coastal areas.
- Determine which state and federal agencies and organizations will participate in actual work and if there is already a line of communication among these agencies.
- Review existing protocols from nongovernmental organizations and government partners.

- Conduct beach lighting surveys to address problem dune breach areas and problem areas needing to be addressed. Collaborate with cooperators to install new lighting retrofits. Identify and use best management practices to minimize impacts to turtle nesting areas.
- Finalize site selection.
- Identify and verify sources of sand and funding for beach restoration.
- Coordinate timing of restoration activities to avoid nesting season (April – November)

Issue 4: Water Quality

Background

Although Irma was largely a wind event, several areas of the state including the Keys, coastal Collier County and the Jacksonville area suffered flooding from storm surge and heavy rains over a sustained period of time. Additionally, many areas were slow to drain due to high levels of rain before the hurricane. The primary focus has been on releases to groundwater from septic systems, water and wastewater treatment facilities, and other sources of contamination. The Florida water management districts develop long-term plans for watershed management to address the chronic flooding and high tide events and will need to consider additional storm surge and hurricane rainfall in their efforts. Additionally they can offer long-term ways to address the issue. Modeling and addressing surface water hydrology will help assess the need for drainage system restoration, particularly in areas with increased development in the inundated areas. Saltwater inundation damage may take several years to show impacts to trees and other vegetation.

Cross-cutting issue(s):

- There may be economic impacts if there are significant releases of point or non-point source pollutants to groundwater, particularly to drinking water sources. If groundwater or surface water sources are deemed unsafe for human consumption, it can adversely affect drinking water sources and the local economy.
- Infrastructure repair and restoration projects in streams and areas adjacent to wetlands, beaches, estuaries, bays, and marshes should consider the hydrogeology and hydraulics of each specific area. It may be best to consider current and future needs for stream health and flood protection rather than restore these areas to pre-flood conditions, The Economic RSF may have interest in significant releases to groundwater, particularly if drinking water sources are deemed unsafe for human consumption because of adverse impacts to tourism. Overall water management from lakes, reservoirs, and water management areas needs to be considered for their impacts to water quality and water levels.
- Health and Social Services may have an interest if rural residents on septic and private well water systems have residual contamination or continue to be exposed to contaminated water.



Goal 4.1

Protect the environment from contaminated water sources.

Strategic Objective 4.1.1

Restore and protect surface and groundwater quality in areas impacted by Hurricane Irma.

Support Actions 4.1.1.1

- Determine impacts to watershed water quality and overall stream health, and restore contaminated surface and groundwater quality in areas impacted by contaminated floodwaters.
- Identify areas of high water inundation. This information will be used to:
 - Delineate areas of potential groundwater contamination from waste treatment facilities, industrial facilities and domestic septic systems.
 - Determine if drinking water supplies, groundwater, or surface water may be contaminated and if this is a widespread problem that needs to be addressed with a remediation plan.
- Inventory: Work with federal, state and local agencies using existing inventories to:
 - Identify areas that were contaminated as a result of Hurricane Irma or if there is known residual contamination from previously identified point or non-point sources.
 - Develop new inventories where there is no data to determine if there have been releases to groundwater or surface water sources.
- Evaluate potential contamination to groundwater aquifers and surface water sources to determine if there has been environmental damage that needs restoration.
- Sampling: Work with federal and state agencies using existing inventories to:
 - Survey watersheds and prioritize which ones need the most attention in developing a sampling plan.
 - Develop a sampling plan after prioritizing areas for sampling and analysis based on criteria such as types and occurrence of contamination, proximity to drinking water sources, environmentally sensitive areas, threatened and endangered species, and other criteria developed with Department of Environmental Protection (DEP).
- Analyze results and determine appropriate actions to restore, protect, and improve water quality and stormwater carrying capacity. Develop and implement plan to remediate or mitigate contamination from waste impoundments.
- Secure funding to implement actions from public and private sources.
- Follow-up to verify success of cleanup efforts via collaboration with county health departments that reported wells testing positive for bacteria to determine if additional sampling indicated additional private well contamination. Determine if the sources of contamination have been identified and clean drinking water has been provided to residents with ongoing contamination.



Figure 24: Everglades City Waste Water Treatment Plant

Issue 5: Ecological Health

Background

The overall health of the varied ecosystems of Florida offer an opportunity to look at long-term recovery in a holistic approach. Disasters also provide an opportunity for many invasive species to increase their spread and impact to native species of plants, animals, fish and other marine life. The Florida natural environment includes federal, state and local parks, wildlife refuges, water management areas, preserves, sanctuaries, submerged lands, and other types of land-and water-based resources. This section identifies the major threats to ecosystems and highlights recovery activities.

Goal 5.1

Restore ecosystem health and increase resiliency to future natural disasters.

Strategic Objective 5.1.1

Assess damage to threatened and endangered species and their habitats and develop restoration projects.

Florida has a wide variety of fish and wildlife totaling over 700 terrestrial species, 200 freshwater and 1,000 marine fish, and thousands of invertebrates and insects. Over 100 of these species are recognized as threatened or endangered. In addition, there are more than 60 threatened and endangered plant species. With both marine and freshwater environments, Florida has some of the most diverse habitat on the globe.

The U.S. Fish and Wildlife Service has primary responsibility for federally threatened or endangered species working in partnership with the Florida Fish and Wildlife Conservation Commission. USFWS and FWCC officials conducted preliminary surveys to determine the impact of Hurricane Irma on various endangered species. Impact assessment for threatened and endangered plants is in the very preliminary stages. Some of the high-profile endangered animal and plant species impacted by Hurricane Irma include the Sea Turtle, Key Deer in the Florida Keys, and the Florida Panther and the Ghost Orchid in the Everglades.

Florida Panther

Habitat in the Florida Everglades and population growth were impacted by Hurricane Irma. The Florida Panther in the Everglades is a subspecies of the mountain lion that is listed as critically endangered with fewer than 100 existing in South Florida. The greatest impact to the Florida Panthers was attributed to the destruction of habitat, resulting in nine deaths due to vehicle collisions.

Key Deer

Habitat impacted by Hurricane Irma. The first landfall of Hurricane Irma was in the Florida Keys, where the only known herd of Key Deer exist. USFWS's survey found that 949 individuals survived, with 21 individuals lost as a direct impact from Hurricane Irma. There were also an additional 12 deaths related to vehicles; this loss was attributed to the destruction of habitat making the deer more vulnerable to traffic.



Figure 25: Key Deer eating dog food near Key Deer NWR

Sea Turtle

Statewide, five species of sea turtles were impacted by Hurricane Irma as Florida supports over 90 percent of the sea turtle nesting areas along the coast in the U.S. Some of the most notable losses were the destruction of an estimated 8,000 turtle nests of endangered sea turtles along both coasts of Florida and the Keys. Sea turtles also sustained heavy nest loss during Hurricane Matthew.

In St. Johns County, beaches were hard hit during both hurricanes Matthew and Irma. Beach armoring, sea wall restoration and mitigation solutions severely compromise turtle nesting habitat unless they are installed behind a restored beach and dune line. This plan will include specific measures for the county to provide alternatives such as dune rebuilding and an outreach program.

If future nesting seasons are disrupted, permanent reduction of the sea turtle populations may occur.



Figure 26: Sea Turtle nursing

Ghost Orchid

A once abundant plant in the Everglades, Ghost Orchid numbers have plummeted to less than 2,000. The top threats to this plant include use of insecticides that eliminate insect pollinators, loss of habitat from urbanization, and poaching by orchid collectors.

Cross-cutting issue: Infrastructure restoration activities of dunes and beaches may be impacted by the timing of turtle nesting season from April through November.

Support Action 5.1.1

- Assess damage to threatened and endangered species and critical habitat.
- Return threatened and endangered species to pre-Irma population levels and protect from invasive species.
- Protect dwindling habitat for threatened and endangered species recovery while assisting future construction projects to mitigate habitat loss.
- Identify populations or threatened and endangered species impacted by the storm and determine population health,
- Prioritize species by developing ranking factors and restoration goals.
- Integrate new habitat management strategy into recovery/restoration plan.
- Determine need for mitigation property.
- Identify risks of future events and potential construction in the areas around existing panther, sea turtle, snail kite, and key deer habitat recovery.
- Identify and prioritize habitat on lands identified as critical habitat in existing recovery plan.
- Develop location-and species-specific surveying plan.

- Develop response plans such as the countywide proactive response plan for St. Johns County. This plan should include specific measures for the county to provide alternatives such as a dune following a storm and an outreach program to protect turtle nesting areas.
- Identify funding to implement restoration plans and follow-up surveys to determine effectiveness of efforts.
- Secure funding to conduct surveys of threatened and endangered species populations in conjunction with overall watershed recovery activities.
- Integrate new habitat management strategy into Recovery Plan. Assist FWCC and USFWS in protecting existing habitat and acquire new suitable habitat for recovery and population growth of Florida Panther, Key Deer and other threatened and endangered species.

Goal 5.2

Prevent proliferation of invasive species.

Strategic Objective 5.2.1

- Determine if Hurricane Irma increased the extent of invasive species distribution and develop strategies and activities to reduce populations.
- Survey areas in targeted watersheds for the presence of invasive species particularly those that will impede watershed recovery or overall ecological health.

Support Action 5.2.1.1

- Develop plan for surveying specific invasive species and their location.
- Secure funding to conduct surveys of invasive species populations in conjunction with overall watershed recovery activities.
- Develop and implement plan for the removal or destruction of invasive species and introduction of native populations for restoration.
- Develop strategies to integrate invasive species identification and assessment in debris management consolidation areas to prevent spread to areas where they are not currently found.



Figure 27: Grove of melaluca

Goal 5.3

Restore ecosystem health to land and sea areas used for agriculture and aquaculture while protecting the natural resources and the environment.

The nexus between the areas used for agricultural and aquaculture production and the environment is complicated and interdependent. Storm damage was not limited to the loss of crops and jobs. Damage to orchards, pastures, aquaculture, forestry, and animal production facilities have the potential to create cascading environmental impacts such as runoff of contaminants, debris impacts to ecosystem health, and delays to overall ecosystem health.

Cross-cutting issues:

Lost economic revenue from agriculture and aquaculture production and associated supply chain businesses. Impacts to surface and groundwater quality and public drinking supplies.

Impacts to infrastructure due to debris and contamination to waterways and water supplies.

Strategic Objective 5.3.1

Ensure a sustainable environment is available and accessible to commercial and recreational fishing and maintain a healthy, life supporting natural environment.

Support Action 5.3.1.1

- Conduct population and catch surveys to determine extent of impact from flooding.
- Determine ways to help commercial and recreational marine life populations recover, reopen closed areas and increase catches to sustainable levels.
- Include local, county, and state agriculture partners into long-term recovery efforts.
- Identify areas with potential soil, groundwater, and surface water contamination from agricultural runoff and animal production.
- Assess damage to commercial and recreational fishing habitat and aquaculture beds and determine if other assistance is necessary to help the industry recover.
- Conduct surveys of damaged wetland habitat and habitat loss from Hurricane Irma and develop plan to restore wetlands critical for seafood production.
- Conduct systematic sampling to identify actual contamination issues and develop plans for restoration or abatement of contamination.
- Identify funding sources such as EPA, FLDEP, USDA, Florida Department of Agriculture, and Consumer Services.
- Integrate agricultural and aquaculture areas into watershed quality improvement efforts.
- Follow-up cleanup efforts with sampling to confirm cleanup objectives are met.

Goal 5.4

Restore and reopen state and local parks, recreation, and fish and wildlife areas for recreational, conservation, preservation and subsistence uses.

Fish and wildlife areas are an extremely important component of Florida's environmental protection efforts, recreational opportunities and economic viability. There are 175 state parks in Florida managed by the Florida Park Service housed within the Florida Department of Environmental Protection. The state parks system includes coastal parks and other areas throughout the impact zone.

The Florida Department of Environmental Protection's Fish and Wildlife Conservation Commission manages over 5.8 million acres as wildlife management areas. The Florida Division of State Lands manages an additional 11 million acres on land and offshore. The U.S. Fish and Wildlife Service manages 11 wildlife refuges in the State of Florida covering over 900,000 acres. These areas are enjoyed by a variety of outdoor enthusiasts including hunters, boaters, photographers, hikers, horseback riders and anglers. The areas also serve as vital environmental and natural resource conservation and preservation areas, water management areas, and provide revenue through commercial fish and shellfish leases.

Cross-cutting Issues:



Economic impacts affect local economies due to closures, including lost revenue from hunting and fishing supplies and equipment, food, lodging, gas and other business activities. There is also the potential loss of revenue from hunting and fishing licenses. The Economic RSF may have interest in damage to significant park or recreational areas particularly if they support tourism and contribute significantly to the local economy.

Community Planning and Capacity Building RSF may also have interest if any of the damaged park or recreational areas are in their targeted communities.

Strategic Objectives 5.4.1

- Assess damage to state and local parks develop and execute recovery plans.
- Identify damaged hunting and fishing areas and develop plan for recovery and reopening hunting and fishing grounds.
- Repair, restore, and reopen damaged state parks in order to allow residents and tourists to return to recreational needs and protect historic resources.
- Acquire additional lands for state and local parks.



Figure 28: Closed Bahia Honda State Park

Support Action 5.4.1.1

- Assess damage to local parks by contacting local parks and recreation departments and determine if they applied for FEMA Public Assistance, had insurance or need additional assistance.
- Identify models, methodologies and best practices to quantify damages and lost use.
- Consider ways to adopt best practices and put them into use in order to justify expenditures for recovery during future disasters.
- Develop methodologies to determine impact of losses and closures.
- Develop damage assessments and cost estimates for repair.
- Develop plans to remove debris, repair damaged facilities and infrastructure, and implement cleanup and restoration.
- Determine additional needs and submit to the Florida Public Assistance legislative package.
- Identify unmet needs remaining after FEMA Public Assistance applications are approved or denied and identify sources of funding.
- Request funding assistance from the state legislature and FEMA PA to repair or restore damage to facilities.
- Submit application for FEMA PA for state parks that were damaged and/or closed after the storm.
- Secure funding for the acquisition of the properties and transfer to state or local park authorities.

Goal 5.5

Restore wetlands, submerged lands, mangroves, estuaries and coral reefs

Florida is home to approximately 1,200 square miles of subtropical coastal ecosystem. Included in this subtropical system are Florida's mangrove swamps concentrated along the southwest coast and extend up to 30 miles inland on the southwest coast and spread along the more northern coasts. Wetlands are a critical part of Florida's ecosystem and support a wide diversity of plant and animal life. Fluctuating water levels and variable salt concentrations create a harsh environment for wetland plants and animals, so in order to survive these harsh conditions, vegetation and wildlife develop special adaptations.



Figure 29: Florida Bay/Everglades National Park

Florida's coral reef ecosystems are an important part of the state's ocean natural resources. These natural resources support a vibrant tourism industry, jobs, protect lives, and serve as valuable coastal infrastructure.

Reefs are a diverse ecosystem and home to many threatened and endangered plant and animal species. The hurricane-induced flooding, storm surge, and/or excessive rainfall may have changed groundwater levels, which may have resulted in contaminate releases from damaged or destroyed septic systems, water and wastewater treatment facilities, and other sources of contamination. Other sources of contamination can emanate from known and unknown sources or the storage of petroleum and other hazardous materials. Long-term assessment and monitoring of impacts will help determine if additional action is necessary to protect groundwater resources.

Strategic Objective 5.5.1

- Restore salt marshes, wetlands, and mangroves damaged by salt or fresh water inundation, silt, debris and other damages.
- Restore submerged lands and coral reefs damaged by debris, silt and other contamination.

Support Action 5.5.1.1

Analyze damage assessments or identify wetlands, submerged lands and coral areas still needing assessment. Rank areas that are high priority and develop additional assessment plans, as needed.

- Analyze results and determine appropriate actions to restore, protect, and improve water quality and habitat as well as stormwater carrying capacity.
- Secure funding to implement actions from public and private sources.
- Secure funding to restore wetland habitat.

Health and Social Services RSF Findings

Strategy Development Considerations

The Department of Health and Human Services is the Coordinating Agency for the National Disaster Recovery Framework's Health and Social Services Recovery Support Function, which assists locally-led recovery efforts in the restoration of public health, health care and social services networks to promote the resilience, health and well-being of affected individuals and communities. The HHS Office of the Assistant Secretary for Preparedness and Response fulfills coordination responsibilities for the HSS RSF under the NDRF.

The HSS RSF Recovery Support Strategy builds on the October 2017 Mission Scoping Assessment, which identified major health care, social services and education-related impacts from Hurricane Irma based on the ongoing RSF assessment process, the Monroe County landscape assessment conducted Nov. 12 – 17, 2017, and a rapid human service needs assessment conducted in Miami-Dade, Monroe, Collier, Broward, and Palm Beach counties Oct. 30 – Nov. 9, 2017. The RSS links the major challenges identified by these assessments with potential support action across the nine core mission areas of the Health and Social Services RSF. The nine core mission areas are:

- Public Health
- Health care Services
- Behavioral Health
- Environmental Health
- Food Safety and Regulated Medical Products
- Long-term Responder Health Issues
- Social Services
- Disaster Case Management/Referral to Social Services
- Children and Youth in Disasters

Through the lens of these mission areas and based on the input received from state, local, and nongovernmental organization stakeholders, three major goals for the health and social services recovery emerged to support the recovery efforts in Florida.

- Support local-level recovery planning by building a holistic understanding of community health and social service needs; prioritize these needs, including accessibility requirements, based on the whole community's input and participation in the recovery planning process; and develop a comprehensive recovery timeline.
- Restore health care capacity and access for impacted populations to include behavioral health, public health and social services functions.
- Restore and improve the resilience and sustainability of the health care system and social service capabilities and networks to promote the well-being of the community.

Recovery Issues and Strategies

Issue 1: Lack of Access to Behavioral Health Services Post Disaster

Background

Behavioral health is an integral part of the public health and medical management system, and should be fully integrated into preparedness, response and recovery activities. Disaster behavioral health includes coping with an unplanned event that has negative consequences on health and stress, an increased risk of substance abuse use/abuse considerations for survivors and



responders, and negative consequences for persons with pre-existing serious behavioral health conditions. As many behavioral health issues arise long after the response period has ended, recovery planning and activities must address current and anticipated behavioral health consequences.

The body of research conducted after disasters over three decades suggests that the burden of Post-Traumatic Stress Disorder among persons exposed to disasters is substantial. In a study conducted with Hurricane Katrina survivors, the high rate of hurricane-related stress and the increase in some forms of mental illness identified nearly two years after the event suggest a continued need for practical and health-related assistance for the survivors. Most people who experience a disaster are likely to psychologically recover without a formal behavioral health intervention; however, protective factors vary, as do the nature of the event and the level of exposure experienced by individuals, families and communities. As a result, some people may experience more severe behavioral health reactions that hinder their recovery. In a smaller subset of people, psychological conditions or substance abuse may develop or worsen if not addressed.

Based on this, the behavioral health impacts of Hurricane Irma on Florida residents must not be underestimated. Behavioral health issues left unaddressed result in increased costs to Medicaid, Medicare, as well as other insurance and provider networks. According to data collected during the Monroe County Landscape Assessment, behavioral health issues are and will continue to be a major public health issue that confronts and inhibits the recovery process for hurricane responders and survivors, especially in the heavily impacted Tier I counties. Exacerbating the situation is the dearth of mental health services present in the counties before the disaster.

Background on Florida's Behavioral Health System

Following many disasters, the capacity of the behavioral health network to absorb the increased demand for services is directly proportional to the size and adaptability of the network. Typically, the Crisis Counseling and Training Program is approved when FEMA Individual Assistance is approved (as was the case in Florida following Hurricane Irma). However, despite the critical services it provides, Crisis Counseling and Training Program is almost entirely dependent on the capacity of the pre-disaster behavioral health network to refer survivors who may require additional clinical assistance. According to their website, the Florida Department of Children and Families Mental Health Program Office is responsible for planning, managing and evaluating a statewide program of mental health services and supports, including community programs, crisis services, state residential treatment facilities, and children's mental health services. The public behavioral health system is funded by federal block grant dollars and the Florida Legislature. In 2016, Florida ranked 49 out of 50 states in per capita mental health spending...

Though the state directly operates some of its mental health treatment facilities, Florida's community mental health system is mostly privatized. Public funds are contracted through local mental health program offices, mostly with nonprofit local community mental health centers. People who need services obtain them by going to those providers directly - the state mental health program offices do not provide services.

The Florida Council for Community Mental Health is a statewide association of more than 50 community-based mental health and substance abuse agencies. Each member agency is a private corporation, generally with a volunteer citizen board of directors who are representative of the local community. These boards set policy for the agencies and serve as a way to help to assure that community treatment needs are being met. FCCMH agencies receive funding from the local, state



and federal governments, as well as organizations such as the United Way and private foundations. Council members serve predominantly low-income individuals and families. Member agencies provide a range of services, including emergency services, residential treatment, outpatient services and rehabilitation and support services. These may include Community Action Teams that provide comprehensive, community-based services to children aged 11 to 21 with a mental health diagnosis or co-occurring substance abuse diagnosis, Florida Assertive Community Treatment Teams that help adults recover from severe and persistent mental illness in the community, and Family Intensive Treatment teams that provide comprehensive services to families in the child welfare system with parental substance abuse. None of these teams or services are located in Hendry and Monroe counties. Additionally, there is an absence of FIT teams available in Collier County.

Since 1992, Florida has closed 36 psychiatric hospitals. In the void of adequate community services, many rely on emergency departments for routine, urgent, emergent, and chronic care or end up in long term assisted living facilities or, in the worst circumstances, the criminal justice system. There are 48 federally-funded community health center program grantees operating over 554 health centers in Florida. In 2016, they served 1,397,966 patients. All grantees reported delivering depression screenings, which is a primary care best practice; however, this generally does not meet the definition of a mental health service. Twelve of the grantees reported delivering no mental health services to patients and 33 reported delivering no substance abuse services in 2016. Additionally, according to the 2016 Health Center Data (Table 1), Florida only has 271 full- and part-time health center staff working in the mental health area. The stress and impact of the hurricane will be felt across multiple populations in Florida, and it is anticipated that behavioral health needs will become more prevalent as residents continue to attempt to recover. The loss of employment, homes, and other hurricane-related losses will likely constrain residents’ financial ability to seek and obtain behavioral health treatment, thereby increasing the number of potential patients that could be served at health centers. The HSS RSF anticipates that the current number of behavioral health staff in the health centers will prove to be insufficient to meet the increasing demand.

Monroe County is served by the Rural Health Network of Monroe County, Florida, Inc., and they were one of the grantees reporting that they delivered no mental health or substance abuse services in 2016. As one of the hardest hit counties, behavioral health services will be needed as residents continue to recover.

Table 6: Health Center Staffing Levels

Health Center Staff	Full and Part Time		Locum, On-call, etc.	
	Persons	Total Months	Persons	Total Months
Psychiatrists	65	4,432	12	237
Licensed Clinical Psychologists	49	2,294	0	0
Licensed Clinical Social Workers	88	2,584	2	14
Other Licensed Mental Health Providers	69	3,685	1	7
Total	271		14	



Behavioral Health Care Services in Tier I Counties

According to Florida's Consumer Survey Results for fiscal year 2016, 85 percent of children and 94 percent of adults reported that they felt positive about the accessibility, quality, and appropriateness of the mental health care that they received via Florida's state funded mental health programming. These statistics contradict findings in the counties that were the most heavily impacted by Hurricane Irma where reports indicate a dearth of behavioral health services before the disaster.

The data from community health needs assessments conducted by the local health departments from Lee, Collier, Hendry, and Monroe counties all point to behavioral health access and quality of services being a major problem in their communities. In a key informant survey conducted in Lee County in 2017, 74.6 percent reported that behavioral health was the number one problem facing their community, ranking it above issues such as heart disease and diabetes. Reasons given for this ranking include poor access to behavioral health resources—especially for low income families and those who are uninsured—stigma, a lack of education and information on services available, and transportation issues. The increasing prevalence of behavioral health issues was attributed to economic drivers, disproportionately impacted individuals, homelessness, drug abuse, and increasing health care costs. A total of 43.5 percent of Lee County adults reported some type of difficulty or delay in obtaining health care services in the past year. The type of care that was ranked as the most difficult to access was behavioral health services followed by primary care and substance abuse treatment. Between 2013 and 2015, there was an annual average age-adjusted suicide rate of 16.9 deaths per 100,000 population, which is higher than statewide and national rates.

Table 7: Key Behavioral Health Indicators for Tier I Counties (Florida Department of Health, Florida Access and Functional Needs Profile, 2015)

Indicator (Department of Health, n.d.)	Year	Lee County		Hendry County		Collier County		Monroe County		Florida	
		Total Pop. 684,465		Total Pop. 38,436		Total Pop. 351,768		Total Pop. 76,461		Total Pop. 20,231,092	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Seriously Mentally Ill Adults	2016	7,275	1.3	157	0.6	1,430	0.5	1,856	2.9	146,968	0.9
Substance Abuse Program Enrollees – Adult	2016	2,769		69		686		543		63,850	
Seriously Emotionally Disturbed Children	2016	1,736	1.4	62	0.6	374	0.6	475	4.1	34,552	0.8
Non-fatal hospitalizations for self-inflicted	2012-2014	161	109	9	76.9	31	41.5	16	123.3		93.1



Indicator (Department of Health, n.d.)	Year	Lee County		Hendry County		Collier County		Monroe County		Florida	
		Total Pop. 684,465		Total Pop. 38,436		Total Pop. 351,768		Total Pop. 76,461		Total Pop. 20,231,092	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
injuries per 100,000 pop. (3-yr rate) (12-18 years old)											
Suicide deaths per 100,000 population (3-year rate) (12-18 years old)	2014-16	12	8.1	1	8.6	4	5.4	4	23.6		5.1
Substance Abuse Program Enrollees - Children	2016	384		10		61		140		19,960	

Although **Collier County** residents experienced remarkably lower percentages of individuals who reported poor behavioral health (7.3 percent in 2013) compared to the State of Florida with 12.7 percent, the community has been highly vocal about the need for more behavioral health services. Collier County has four facilities that provide mental health/substance use/abuse services to residents. The 2016 Community Health Assessment for Collier County identified mental health as one of the key strategic focus areas along with chronic diseases, access to care, alcohol and drug abuse, and obesity. Behavioral health issues were ranked as the second most important health problem. Reasons given for this ranking include lack of behavioral health facilities for children and adults, limited number of Medicaid providers, increased behavioral health issues, and limited initiatives for coordination of sparse social services to assure linkage to care for vulnerable populations with behavioral health needs.



During 2016, the Health Planning Council of Southwest Florida, with feedback from the Healthier Hendry Glades Task Force, developed a survey questionnaire to assess the perceptions of health care and health issues for **Hendry County** residents. The survey was conducted online and on-paper, in both English and Spanish. Respondents were asked to select what they felt to be the three most important health concerns for county residents. Second highest on the list was behavioral health problems, with 60 responses. The main reason indicated for not seeking medical treatment in Hendry County is lack of insurance. Hendry County is extremely poor, with 26.4 percent of households living under the poverty line compared to 16.5 percent for the State of Florida. According to key informant survey results, respondents felt the top areas for improvement in Hendry County and Glades County were: behavioral health and substance abuse disorder services, including counseling and psychotherapy. Many respondents felt that Hendry County did not have enough availability of services. The Hendry Glades Catchment area was designated as a shortage area for behavioral health services.

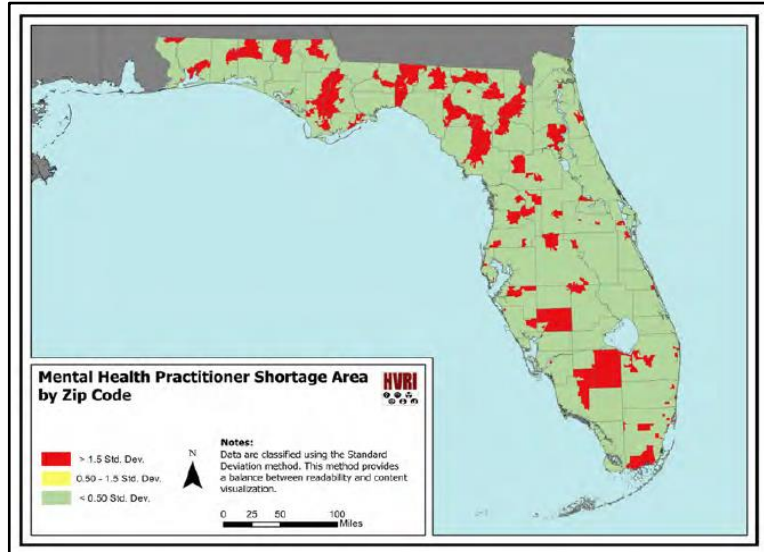


Figure 31: Mental Health Practitioner Shortage Areas within the State of Florida (Hazards and Vulnerability Research Institute, 2012)

Suicide is the fifth leading cause of death for people in the Florida Keys under age 65 (behind cancer, heart disease, unintentional injury and other natural causes). Out of the entire state, **Monroe County** ranks first in suicide death rates over the last 15 years. Monroe County's death rate from 2000 to 2015 was 26.1 deaths per 100,000 population, whereas the state's average was 14.9.



Figure 30: Access to Emergency Mental Health Services (Hazards and Vulnerability Research Institute, 2012)

Clearly behavioral health needs and concerns were a priority even before Hurricane Irma devastated communities in the Tier I counties.

Behavioral Health Needs Post Irma

Discussions were held with more than 20 nongovernmental and local government agencies in several of the Tier I counties. Nearly everyone noted that access to behavioral health care was a challenge in Monroe and Collier counties. The loss of behavioral health staff was a concern verbalized by local officials, which they expect will be exacerbated due to housing and economic

issues. A challenge with behavioral health care was noted by many not just to be a lack of crisis counseling, but also a lack of behavioral health providers who can deal with longer-term challenges. Health and social service providers noted that behavioral health care at the schools, particularly counseling services, was lacking. Some community members are reluctant to seek out services either due to lack of medical insurance, not knowing where to go, or feeling shameful about needing behavioral health support. Many organization representatives discussed how “community healing” needs to take place and that people need to know that experiencing stress in response to a disaster is normal. Compounding factors such as housing and economic losses have contributed to the level of stress and trauma that individuals are experiencing, especially with those that are living in asset limited, income constrained, unemployed households.

Many organizations reported increased stress among their staff members, especially those who had lost or damaged homes or who were working long hours and for long periods of time on relief and recovery efforts. The Early Learning Coalitions of Miami-Dade/Monroe reported seeing recurrent trauma among some of the children attending day care programs who became terrified and inconsolable every time it rained. Elders participating in Agency Alliance on Aging programs in Miami-Dade/Monroe also reported feeling increased stress when they thought about evacuating their homes and, in some circumstances, how difficult it was to get assistance with repair and cleanup of their houses.

The State of Florida Department of Children and Families has requested \$1.9 million from FEMA for the Crisis Counseling Assistance and Training Program Regular Services Program to address behavioral health needs in Monroe, Collier and Lee counties. The CCP Immediate Services Program award covers services in all 48 counties eligible for Individual Assistance. The CCP programs use a combination of behavioral health professionals and paraprofessionals who are trained and supervised to deliver an array of crisis counseling services, including individual and group crisis counseling; basic supportive or educational contact; public education; community networking and support; assessment, referral and resource linkage; and development and distribution of educational materials and media or public service announcements.

Goal 1.1

Restore and improve behavioral health systems to promote the health, resilience and well-being of affected individuals, response and recovery workers, and the community.

Based on the HSS RSF assessments and coordination meetings with state and local stakeholders, the following objectives were identified as common themes to restore and improve behavioral health.

Strategic Objective 1.1.1

Provide state and local stakeholders, social service organizations, emergency responders, early care and school age providers and educators, and others delivering behavioral health support with training and technical assistance.

To support recovery efforts for this objective the HSS or their selected agent in collaboration with stakeholders such as the state and county Department of Health and Department of Children and Families could:

Support Action 1.1.1.1



Collaborate with the Florida Healthcare Coalitions, Medical Reserve Corps or other state, local, tribal and territorial organizations to provide the U.S. Department of Veterans Affairs, National Center for Post-Traumatic Stress Disorder *Psychological First Aid* train-the-trainer course via in person and webinar trainings.

Support Action 1.1.1.2

Develop or adapt existing risk communication, information, and educational materials for social service providers on behavioral health issues that may arise following a disaster including anxiety, stress, fear, grief, increased risk of substance abuse, increased incidents of domestic violence, and the needs of disproportionately impacted individuals such as children.



Figure 32: Mrs. Demming's child care in Miami-Dade County

Support Action 1.1.1.3

Ensure that behavioral health messaging is in accessible formats, adaptable for different cultural groups and age levels, and disseminated to agencies working at the county or local level.

Support Action 1.1.1.4

Provide training on ASPR's Disaster Behavioral Health Capacity Assessment Tool (<https://www.phe.gov/preparedness/planning/abc/documents/dbh-capacity-tool.pdf>) to behavioral health service providers.

Strategic Objective 1.2.1

Coordinate with the State Department of Children and Families, the Department of Health, and Collier, Hendry, Lee and Monroe counties to implement community recovery resilience sessions in each county.

To support recovery efforts for this objective, health and social services stakeholders in the Tier 1 Counties including Voluntary Organizations Active in Disasters and Long -Term Recovery Groups could:

Support Action 1.2.1.1

Work with local officials to identify a lead agency in each Tier I county to assist in planning community recovery forums.

- Identify national and local speakers with expertise in disaster behavioral health who can speak at forums.
- Use the forums as platforms to support and catalyze local planning initiatives for governmental and nongovernmental providers of assistance to children and families.
- Engage local leaders, community members, and advocates from organizations working with vulnerable populations to speak at forums and share their response and recovery stories.

Support Action 1.2.1.2

Engage local NGOs working in social services to identify new delivery methods for how to “spread the word” on the services provided in their respective counties.

Support Action 1.2.1.3

Provide training, such as *Skills for Psychological Recovery* developed by the National Child Traumatic Stress Network, and resources to community members on how to maintain personal and family psychological resilience and social connectedness.

Strategic Objective 1.3.1

Support and maintain long-term case management and behavioral health services in Tier I and other impacted counties through the provision or expansion of human resources.

To support recovery efforts for this objective the HSS or their selected agent in collaboration with stakeholders such as the state and county level DOH, DCF and the Regional National Health Services Corps could:

Support Action 1.3.1.1

Support locally-established, community-led coalitions with county social services, the American Red Cross, and other VOAD members.

Support Action 1.3.1.2

Provide technical assistance and training to build the capacity of long-term recovery groups to support coordinated case management and/or behavioral health care following a disaster.

Support Action 1.3.1.3

Work with philanthropic or other potential funders to develop an incentive strategy to attract and retain behavioral health practitioners (e.g., stipends or housing allowances) who are committed to working in Monroe and other impacted counties.

Support Action 1.3.1.4

Explore opportunities to engage additional Medical Reserve Corps volunteers with expertise in behavioral health and crisis counseling to be available to impacted counties, upon request.

Support Action 1.3.1.5

Provide technical assistance to the Florida Department of Children and Families to apply for National Health Service Corps mental health professionals to deploy to the Tier 1 counties.

Support Action 1.3.1.6

Collaborate with philanthropic organizations that have been important contributors of funding to support behavioral health recovery in other disasters.

Strategic Objective 1.4.1

Encourage behavioral health providers to develop disaster recovery and emergency plans.

To support recovery efforts for this objective, the HSS or their selected agent in collaboration with stakeholders such as the state and county DOH and DCF could:

Support Action 1.4.1.1

Coordinate with the county social services to facilitate the integration of behavioral health providers in long-term recovery groups.



Support Action 1.4.1.2

Provide technical assistance to support state and local partners in developing mutual aid agreements, contracts or other such written agreements, to provide behavioral health services for disaster survivors, especially in areas identified as highly vulnerable to hazards. Disaster behavioral health services also may be delivered through private sector for-profit organizations under contract to state and local governments. Examples of these private providers include the Crisis Care Network, Kenyon International and the KonTerra Group.

Support Action 1.4.1.3

Coordinate with local public health and local emergency management officials to facilitate the integration of health and social services stakeholders into local disaster preparedness activities, to include planning and exercises.

Support Actions 1.4.1.4

Provide technical assistance and training to professional associations and regional intermediaries to better support behavioral health providers in the development of post-disaster recovery plans and identification of lessons learned. Plans should recognize the provider's role as both survivor and "secondary" responder through the course of the recovery.

Issue 2: Cascading Impacts of Post-Disaster Unemployment and Housing Instability Impacting Social Determinants of Health

Background

The economic impacts of Hurricane Irma are well documented in terms of the financial costs of the physical damage; however, equally important are the indirect and secondary impacts of the hurricane, including the disruption and destruction of communities and their negative impacts on families. Disasters affect vulnerable populations disproportionately and the families that are hardest hit are often socially, culturally, or economically vulnerable before the disaster. Furthermore, vulnerable populations without resources such as jobs, insurance, or assistance are less able than others with these resources to repair or rebuild properly.



Figure 33: Hurricane Irma leaves trail of downed trees, high water, power outages in Florida

Due to the significant damage to housing in the Tier I counties and the impact on the tourism industry in Monroe County, many households are currently struggling to make ends meet. This problem is especially apparent for low-income residents and for those identified by United Way as ALICE households. A United Way study that was conducted in 2014 estimated that 48 percent of households across the Florida Keys are living at or below the poverty level or are ALICE households barely making enough to survive. Additionally, 55.9 percent of Lee County children age 0-17 (representing an estimated 68,693 children) live below the 200 percent poverty threshold. The percent of people living under the poverty level in Hendry County is significantly higher than the rest of the state: the percent of children who are under the poverty level is 25.1 percent compared to 17.1 percent for the state. Collier is one of the wealthiest counties in

Florida with a per capita income of \$37,236 for 2014, which is 1.4 times that of the state; however, there are pockets of significant poverty. Four Collier communities have per capita incomes ranging from \$10,029 to \$22,416 including Immokalee, Naples Manor, Golden Gate City and Naples Park. These same communities were also heavily impacted by Hurricane Irma.

Table 8: Socioeconomic Indicators for Tier I Counties (Department of Health, n.d.)

	State		Collier County		Hendry County		Lee County		Monroe County	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Census Population Below Poverty Level³⁴	3,180,109	16.5	47,436	14.1	9,696	26.4	105,166	16.1	9,998	13.4
Households receiving food stamps³⁵	1,121,232	15.4	12,329	9.5	3,152	27.8	31,460	12.5	2,130	7.4
Census population uninsured (under 65)³⁶	3421765	21.4	67,210	27.7	11,142	33.1	120,598	24.4	16,481	27
Homeless Estimate³⁷	33,502	0.2	545	0.2	107	0.3	439	0.1	575	0.8

Consistent concerns reported during the HHS RSF Landscape Assessment in Monroe County were challenges with housing, included lack of rental assistance, no temporary housing options, loss of housing for staff and clients, and damaged homes. The housing situation in Monroe County is exacerbated by high land values, available land limited by geographic and environmental features, and a housing supply limited by controlled growth. In 2014, the median sales price of a single-family home was \$630,000 and the median sales price for condos/townhouses was \$368,000. A rental assistance provider noted that three times more people are applying for assistance than normal, and the available funds that were supposed to last until June 30, 2018, are nearly depleted. According to the Monroe County Department of Health, even before the disaster, the limited availability and high cost of workforce housing often forces workers into sacrificing health care opportunities in favor of paying their mortgage or rent. FEMA also has reported as of Nov. 29, 2017 that the majority of individuals who are currently in the TSA program are renters. The lack of housing and transitional housing was noted by nearly everyone interviewed in Monroe County. Organizations working with people who are homeless reported that due to the high cost of housing and rent in Monroe County, there will likely be an increase in the homeless population and those who decide to migrate out of the county to live elsewhere. In addition, the lack of housing has resulted in challenges with the

³⁴ Data from 2015, rate as percent of total census population

³⁵ Data from 2015, rate as percent of households

³⁶ Data from 2015, rate as percent of population under 65

³⁷ Data from 2016, rate as percent of total population



placement of foster children, and the number of children needing placement increased from one to two children per month to three to six children per week.

Challenges with job loss and loss of pay during the hurricane were also mentioned by many of the organizations interviewed during the landscape assessment in Monroe and Collier counties. This issue is especially prominent in Monroe, which has a tourism-based economy with a prevalence of lower paying service-sector employment. Most households are two-income households by necessity. It was noted that job or pay loss impacts the ability to afford housing, and it also impacts the ability of people to purchase necessary items including medication. Many people noted that more businesses will likely close and jobs will be lost in the next four to six months as the reality of the economic challenges are realized. Both the general population, and the providers of health and social services are affected.

Many residents of the Keys lack sufficient medical coverage, or they may have lost coverage. It was estimated that more than 41 percent of adults in Hendry County are without health insurance; this compares to an overall rate of 28 percent for Florida. Medical debts that have accrued post-hurricane negatively impact the health and well-being of individuals, and the possibility of debt may cause delays in seeking appropriate care.

Goal 2.1

Enhance efforts to increase accessibility and reach the most vulnerable populations to provide needed social services, including economic and housing assistance.

Based on the HSS RSF assessments and coordination meetings with state and local stakeholders, the following objectives were identified as common themes.

Strategic Objective 2.1.1

Support and facilitate the efforts of social service agencies to identify, advocate for, and link vulnerable populations with economic and housing assistance.

Support Action 2.1.1.1

In cooperation with state officials, facilitate the training and orientation to elected officials and community leaders on the elements of a healthy and resilient community and the important opportunity to use recovery efforts to achieve healthy community goals.

Support Action 2.1.1.2

Collaborate with county social services and Florida Voluntary Organizations Active in Disaster to map available resources for housing and economic assistance as well as available job training and

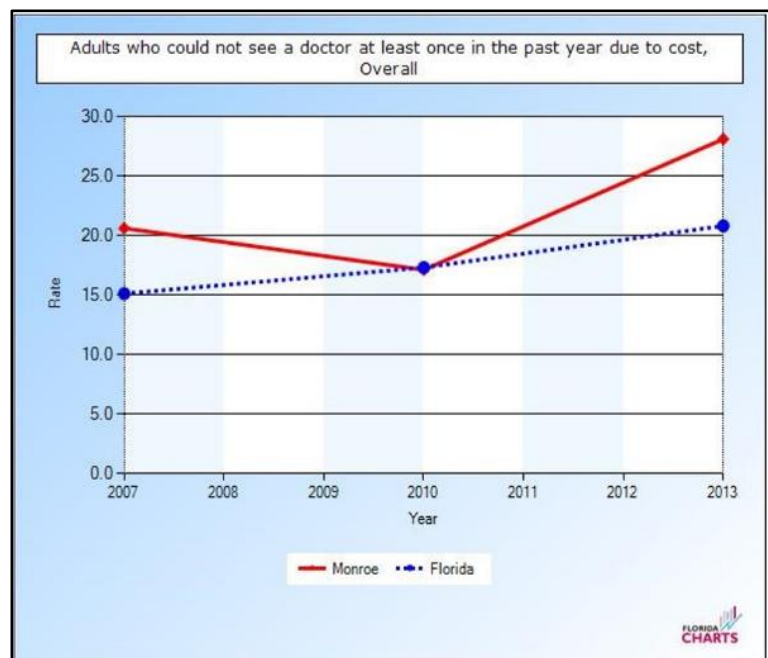


Figure 34: Monroe Cost of Living Indicator (Florida Department of Health in Monroe County, 2017)

educational opportunities. Once assembled, develop a plan to ensure this information is accessible for all survivors.

Support Action 2.1.1.3

Collaborate with the Florida VOAD to identify ways to communicate the availability of community resources, information and key contacts for assistance. Provide support to conduct a recovery-focused Community Assessment for Public Health Emergency Response to improve understanding of community health recovery needs.

Support Action 2.1.1.4

Solicit best practices from other states that experienced surges in foster placement situations and work with state and local officials to ensure that local foster parents and children are equipped with this information to further support foster children staff.

Support Action 2.1.1.5

Collaborate with disaster recovery communication networks such as the long-term recovery groups and workforce commissions to disseminate information about services, job opportunities, and training that is available to meet recovery goals.

Support Action 2.1.1.6

Collaborate with social service providers to refer housing and economic assistance cases to the local LTRGs, which review cases and distribute funds according to need and availability.

Issue 3: Educational and Emotional Support Needed for Homeless Children and Youth in Schools

Background

The after-effects of a disaster can clearly disrupt the lives of children and young populations. Children and youth are more likely than adults to be severely impaired after a disaster, most commonly with PTSD or its symptoms. They are also more susceptible to anxiety disorders, depression, grief, bereavement, and behavioral and academic difficulties.

A study on PTSD in children after Hurricane Andrew found that two-thirds of children who are initially distressed after a disaster recover naturally over the course of the school year. However, children who recovered reported having more social support from friends and family, fewer life stressors in the disaster's aftermath and more positive coping skills than those who remain chronically distressed. Although most children will begin to feel better and recover with good support from leaders and parents or guardians, some children may need extra help. Some children and youth may have more serious problems that do not show improvement over time and may need a referral for more specialized support. Other children may have had previous learning disabilities or emotional problems, which may be made worse by the stress of the disaster.

Children are physically and emotionally dependent on their caregivers, including coaches, teachers, activity leaders and babysitters, and rely on their guidance and direction. Therefore, after a disaster, it is critical for community leaders to focus on children's needs and



Figure 35: HSS RSF observed Eden Park Elementary school head start program in Immokalee.

work with school districts, Head Start, and other child- and youth-focused organizations to help them return to normal routines as soon as possible. In addition to the recovery needs of children themselves, a quick return of school programs and child care is vital to community recovery overall.

Children and youth face a plethora of behavioral, social, and health challenges in Collier, Hendry, Lee and Monroe counties and across the state as a normal part of their everyday lives. These challenges can be exacerbated by disasters such as Hurricane Irma. The mental health impacts of the disaster confounded with economic and social losses, including the financial burden of unemployment and lack of social and financial support during the difficult rebuilding process can all contribute to increases in family and social problems that negatively impact children and youth. Although current research is limited, disasters can also contribute to an increase in violence, suicide as well as sexual and domestic violence. Additionally, the mental health effects of a disaster can lead to an increased propensity for risky and destructive behavior, such as cigarette smoking, alcohol abuse, and binge drinking for adults and youth.

Table 9: Children and Youth Behavioral, Social, and Health Indicators for Tier I Counties

	Year(s)	State	Collier County	Hendry County	Lee County	Monroe County
Percentage of population living under the poverty line	2015	16.5	14.1	26.4	16.1	13.4
Percentage of population 25 y.o. and over with no H.S. Diploma	2015	13.1	14	37	13	9.1
Food Insecurity Rate ¹	2015	15.1	11.1	13.3	13.6	12.1
Births to teenage mothers (ages 15-19) per 1,000 ⁴	2014-16	21	21.2	44	24.6	16.2
Percentage of middle school students reporting binge drinking	2012	4.7	6.3	8.4	5.1	4.9
Arrests, All Offenses by County, Youth 10-17, per 100,000	2014-16	4028.3	3947.4	5414.1	4473.1	4282
Children in foster care (Ages 5-11) per 100,000	2016	428	213.7	237.7	568.8	964.8
Children experiencing child abuse ages 5-11	2014-16	995	770.9	950.1	848.1	1709.4
Children experiencing sexual violence ages 5-11	2014-16	60.6	53.8	55.4	63.9	118.2
Violent acts per 1,000 students in school activities, K-12	2010-12	13.3	5.6	3.4	8.4	9.7



When it comes to baseline health and well-being indicators for children and youth, Hendry County is far behind the state average for educational attainment, as well as many others. Far fewer residents of Hendry County have received a high school diploma than the state average. The percent of children who are under the poverty level is 25.1 percent compared to 17.1 percent for the state. County Health Rankings and Roadmaps has Hendry County currently ranked the 53rd healthiest out of 67 counties in Florida for health outcomes, and the 67th for health factors. These rankings are based on a variety of factors that affect the health of the county's residents such as unemployment, levels of physical inactivity, and rates of smoking, obesity and children living in poverty. Hendry County also has higher rates of burglary, domestic violence offenses, aggravated assault, motor vehicle theft, and forcible sex offenses than the statewide average. There were more than twice as many babies born to mothers between the ages of 15 and 19 and unwed mothers in Hendry County than the Florida average. While the problems facing children and youth in the other Collier, Lee and Monroe counties are not as dire as in Hendry, they also face challenges due to poverty, substance abuse, violence, food insecurity and mental illness. Nearly 60 percent of Lee County children live below the 200 percent poverty threshold. Monroe County youth are using alcohol at rates higher than statewide averages and the county also has higher rates than the rest of the state when it comes to domestic violence, aggravated assaults and forcible-sex offenses.

Florida schools are critical to ensuring that children have safe places to be and access to health and social services both before and after a disaster. They are also important in enabling children to have access to critical behavioral health interventions after a disaster. During HSS RSF site visits to Monroe County in October 2017, teachers and students reported concerns about the mental health and behavioral impacts of the storm on the students.

Homeless Education Liaisons also reported a surge in the needs of displaced students. In Monroe County, more than 500 K-12 school students are homeless as a result of Hurricane Irma, compared with approximately 125 before the hurricane. The number of displaced students in Everglades City in Collier County is likely under-reported due to deportation concerns, as there are students in families with mixed immigration status who are not receiving services. Additionally, children who are temporarily residing in hotels as part of FEMA's Transitional Shelter Assistance program or who are sleeping on neighbors' or relatives' couches because their houses were damaged also qualify as homeless. Substantial gaps in information exist about the status of homeless children and families post Irma and it is unlikely that current social service resources can meet current or future increases in demands, especially once the FEMA TSA program ends.

Goal 3.1

Enhance recovery for children and youth through support to key community services and activities – child care, foster care, youth groups, behavioral health services and schools.

Based on the HSS RSF assessments and coordination meetings with state and local stakeholders, the following objectives were identified as common themes to enhance recovery for children and youth.

Strategic Objective 3.1.1

Restore a sense of safety, connectedness, and well-being for children and youth in schools through the implementation of behavioral health training and interventions.



To support recovery efforts for this objective the HSS or their selected agent in collaboration with stakeholders such as the state and county Department of Children and Families, Department of Education, the Office of Early Learning and county school districts could:

Support Action 3.1.1.1

Disseminate behavioral health resources (e.g., tip sheets, guidance documents, training resources) from the Substance Abuse and Mental Health Services Administration's Disaster Technical Assistance Center and the National Child Traumatic Stress Network, and ensure that SAMHSA's national Disaster Distress Helpline, child welfare hotlines and other critical federal, state, and county resources are made known and available in schools and child care centers.

Support Action 3.1.1.2

Support and coordinate with Save the Children, the Early Learning Coalition, Child Care Aware, and other child-focused organizations to implement "Journey of Hope" – a school based psychosocial intervention to help children cope with disaster-related stressors in early education centers and schools across Collier, Hendry, Lee and Monroe counties.

Support Action 3.1.1.3

Promote and disseminate information in schools across Florida about the free online training "Cognitive Behavior Intervention for Trauma in Schools (CBITS)".

Support Action 3.1.1.4

Conduct "Youth Mental Health First Aid" train-the-trainer courses with adults who regularly interact with adolescents (teachers, school staff, coaches, youth group leaders and parents) in collaboration with the Florida Crisis Consortium, Medical Reserve Corps or other state, local, tribal and territorial organizations.

Support Action 3.1.1.5

Conduct training of youth peer educators on "Youth Mental Health First Aid" in collaboration with the Florida Crisis Consortium, Medical Reserve Corps, or other state and local organizations.

Support Action 3.1.1.6

Provide *Caring for the Caregiver (Staff Care and Resilience)* (The KonTerra Group, n.d.) training for school counselors, educators and other school-based caregivers.

Support Action 3.1.1.7

Encourage child and youth advocates to speak at community recovery forums and share their response and recovery stories.

Support Action 3.1.1.8

Provide technical assistance for child care provider organizations to support their efforts in providing guidance about how to develop disaster recovery plans.

Support Action 3.1.1.9

Provide train-the-trainer training to child care staff to improve children's behavioral health status and cope effectively with post-disaster stressors.

Strategic Objective 3.2.1

Collaborate with the Florida Department of Education and Department of Children and Families to establish Children and Youth Task Force groups in Tier 1 counties.

Support Action 3.2.1.1

Identify agency leads and key stakeholders from affected parents, youth and children, schools, child care providers, Head Start programs, pediatric health and behavioral health providers, recreation groups, community- and faith-based organizations, child welfare authorities, social services, family violence prevention and services, public health authorities, VOADs and other governmental, nonprofit, and private sector partners to engage.

Support Action 3.2.1.2

Conduct an initial planning meeting and identify operational needs in collaboration with the lead agency.

Support Action 3.2.1.3

Collaborate with members to pool resources to develop a plan outlining recovery challenges and viable solutions. Activities that the task force could undertake include:

- Establishing a resource and referral agency as the central communication hub for providers, families, businesses and the general public.
- Mapping resources to address disaster-related long-term needs to facilitate recovery of community services and return to “steady state” operations.
- Identifying services for families with children in FEMA’s Transitional Sheltering Assistance program.
- Developing short- and longer-term training plans on disaster response and coping with stress and trauma.
- Providing a forum for multi-sector coordination, so that behavioral health, infrastructure rebuilding and other long-term recovery efforts affecting children, youth and families are all integrated.
- Providing behavioral health training opportunities for child care providers to help their students.

Support Action 3.2.1.4

Provide technical support to the task force groups by identifying assets and resources to help fill the gaps.

Support Action 3.2.1.5

Facilitate efforts to identify long-term needs, gaps, and sustainability of assistance over time to meet critical needs of children and youth.

Strategic Objective 3.3.1

Improve the health and well-being of homeless, displaced individuals and youth.

To support recovery efforts for this objective, health and social services stakeholders in the Tier 1 Counties including VOADs and long-term recovery groups could:

Support Action 3.3.1.1

Collaborate with U.S. Department of Agriculture and other federal, state, and local agencies to ensure that children and youth displaced by Hurricane Irma and those eligible for Disaster Supplemental Nutrition Assistance Program benefits receive free lunches in schools, and that they remain eligible for the entire school year.



Support Action 3.3.1.2

Collaborate with appropriate providers to ensure that children who receive food at school (e.g., weekend backpacks) continue to receive these resources when schools are closed during breaks, vacations, etc.

Support Action 3.3.1.3

Provide technical assistance to assess recovery needs of abused and neglected children, youth in foster care, runaway and homeless youth; identify strategies to address recovery needs among disproportionately impacted families.

Support Action 3.3.1.4

Provide webinars via the Children and Youth Task Force groups to VOAD, LTRGs, and social service agencies on best practices for working with susceptible children and youth during all phases of the disaster cycle—preparedness, response, recovery and mitigation.

Support Action 3.3.1.5

Identify social services available for adversely impacted children and youth and work with the Children and Youth Task Forces, VOAD, and LTRGs to distribute funds according to need and availability.

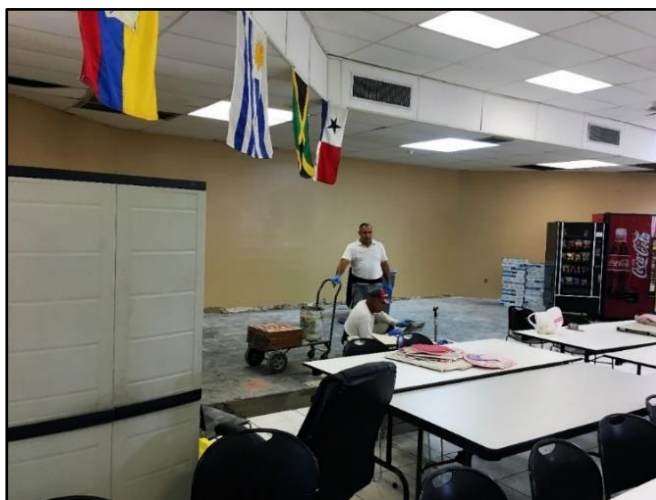


Figure 36 ; Relief supplies distribution for Hurricane Irma survivors on Sept. 14 at Bethel Assemblies of God Church in Immokalee, Florida.

Issue 4: Child Care Provider Recovery and Resilience

Background

The lack of child care following a disaster poses significant challenges to individual and community recovery as parents who are unable to find child care cannot return to work or meet other daily needs. When schools and day care centers are closed, children who have no safe place to play can be at increased risk of injury, and parents can experience added stress when there is no safe place to leave their children so that



Figure 37: Workers repairing damage at Allapattah Community Center, Miami-Dade County

they can return to work and begin restoring some normalcy to their lives. The effects of disaster can linger long after the storm has passed as communities clean up, rebuild and restore services. Restoring schools and early learning centers as quickly as possible is critical to helping children get back into a routine where they can play, interact with peers, and begin to cope with the crises in a safe and familiar environment. Caregivers can play a key role in facilitating children's recovery by helping children express themselves through art, play, drama, music and other creative outlets. It is also imperative that early learning caregivers are trained to recognize signs of trauma in children

who may need extra psychological or emotional support. Child care businesses often struggle to recover because of high startup costs and a lack of licensed providers. Moreover, child care providers are often low-income individuals and may need assistance themselves after a disaster.

The Florida Office of Early Learning governs day-to-day operations of early learning programs and administers federal and state child care funds across the state's 30 regional early learning coalitions. The Redlands Christian Migrant Association is responsible for delivering local services. The 30 ELCs function as nonprofit organizations and leverage local private and public partnerships to meet children's needs. There are 23,136 licensed child care programs (6,150 center-based; 3,362 family based; and 2,659 other regulated child care centers in Florida). According to Child Care Aware, which collected impact assessment data from 862 child care providers across the state, 32.8 percent had received minor damage to their facilities and 3.6 percent had received major damage post Irma. Child care providers across the state also reported inundation of floodwaters in their facilities causing environmental health threats due to standing water and mold. The Early Learning Coalition of Miami-Dade and Monroe reports many providers were not prepared for the disaster.

The HSS RSF has already established a partnership with the ELC for Miami-Dade and Monroe and has begun to build their capacity through the provision of an Awareness and Mitigation of Environmental Health Hazards in Child Care Programs Training held on Nov. 15, 2017. The ELC for Miami-Dade and Monroe also requested technical assistance with preparedness and recovery planning training for their coalition and providers. However, additional outreach needs to take place with other ELCs across the State of Florida to identify additional training and technical assistance needs to facilitate recovery.

Goal 4.1

Build the capacity of Early Learning Coalitions and providers across the State of Florida to strengthen safety and resilience at child care sites.

Based on the HSS RSF assessments and coordination meetings with state and local stakeholders, such as the Office of Early Learning, the following objectives were identified as common themes.

Strategic Objective 4.1.1

Improve disaster recovery capacity of ELCs via training. To support recovery efforts for this objective the HSS or their selected agent in collaboration with the state OEL and ELCs could:

Support Action 4.1.1.1

Provide technical assistance to assess the recovery needs of ELCs across the impacted areas.

Support Action 4.1.1.2

Develop recovery planning training for ELCs and providers that could include information on the following:

- Mechanisms for post-disaster rapid assessment of the status of child care centers
- Processes for assisting centers in attracting resources and rebuilding
- Environmental health and safety issues post disaster
- How to promote psychosocial healing for children after a disaster
- Navigating federal, state, and county programs and services for financial assistance, recertification, and other regulatory requirements post disaster
- Strategies for recruiting and training new staff



- Preparedness planning including the development of a communications plan and stockpiling needed supplies

Support Action 4.1.1.3

Expand outreach to ELCs on requested training topics via regional trainings and webinars.

Support Action 4.1.1.4

Engage ELCs in an after-action process, including analysis of lessons learned and identification of opportunities for improvement.

Support Action 4.1.1.5

Build capacity of ELCs to continuously measure progress toward healthy community goals and adapt recovery plans accordingly.

Support Action 4.1.1.6

Encourage ELCs to share information and engage with other social service providers in disaster management planning and coordination via the Children and Youth Task Force, VOADs and LTRGs.

Support Action 4.1.1.7

Engage ELCs in county level community recovery forums, behavioral health trainings, and other Children and Youth Task Force planned conferences and workshops.

Support Action 4.1.1.8

Identify opportunities for ELCs to share lessons learned and opportunities for improvement so that other jurisdictions can benefit from their recovery experiences.

Issue 5: Long-Term Health Impacts on Responders, Disaster Survivors and Volunteers

Background

Based on interviews with governmental responders, interviews during landscape surveys, and interviews with nongovernmental organizations, hired workers, volunteers, and disaster victims are performing cleanup, demolition, and construction during recovery operations with insufficient training and information on ways to reduce the risk of injury and illness due to exposure to hazardous materials and health hazards. This lack of training puts these individuals at risk for health impacts that could be prevented with the proper training.

Hurricane Irma produced widespread damage throughout the state. This included debris from existing foliage, facades of structures, household and roof materials, personal items, vehicles, vessels, and the contents of businesses and home structures. Included amongst the debris were chemicals, toxins, molds, irritants, and materials that were mixed with non-compatible adjacent materials. Debris removal was supported through FEMA's Public Assistance program and many of these materials were removed, disposed or destroyed.

Disaster recovery workers hired by contractors, local homeowners and volunteers have and will continue to directly engage in the removal of damaged materials from affected structures, products of reconstruction, contaminated materials, mold contaminated environments and household and business chemicals. It was a challenge for the HSS RSF to obtain accurate and comprehensive information on disaster recovery workers and contractors hired to participate in disaster cleanup activities. Anecdotal reports show that workers previously engaged in agricultural activities have



moved into both day-labor and construction jobs without the benefit of sufficient training to effectively recognize risks or protect themselves from exposures and injuries. Reporting of day laborers' and construction workers' use of the health care system is elusive. Currently, there appears to be no formal reporting system of work-related injuries related to storm recovery.

Model worker training programs and materials exist within the Occupational Safety and Health Administration, Health Resources and Services Administration, National Institute for Environmental Health Sciences, and the Centers for Disease Control and Prevention. For example, the CDC has fact sheets on safe clean up practices after disasters and the NIEHS HAZMAT Disaster Preparedness Training Program supports the development and delivery of disaster-specific training to prepare workers to respond to natural disasters. These programs should be brought into a coordinated educational program to address the current needs.

Goal 5.1

Health and Human Services or their designated agencies or agents could increase awareness of the risk of living in or working in a location with mold contamination and provide informational resources for individuals who do not have the resources or ability to remediate mold independently through the following:

Strategic Objective 5.1.1

Based on a review of the impact assessments, interviews during community organizational meetings, and available learning materials, several supportive actions emerge for the health and social services recovery.

Support Action 5.1.1.1

Develop audience-appropriate educational materials for disaster recovery workers, volunteers, disaster survivors, and community groups on hazardous materials and environments that are common to post disaster cleanup, demolition and recovery construction environments, (e.g., working in mold contaminated environments).

Support Action 5.1.1.2

Provide informative materials to Florida community groups and Voluntary Organizations Active in Disaster to have in their inventory or quickly accessible on topics related to disaster recovery in cleanup, such as how to work in mold and other flood related contaminated environments.

Support Action 5.1.1.3

Develop audience-appropriate audio/visual educational materials that address hazards, safety, and reporting requirements for use at worker employment sites.

Support Action 5.1.1.4

Provide access to worker safety training programs and resources for contractors. Educational resources should be distributed upon initiation of any cleanup contracts.

Support Action 5.1.1.5

Provide train-the-trainer educational workshops addressing hazards, safety, and reporting requirements for use by state partners, Voluntary Agency Liaisons and nongovernmental organizations that represent worker advocacy on issues of safety.

Support Action 5.1.1.6

Support state partners, VAL's and nongovernmental organizations in maintaining the quality of educational materials to address hazards, safety and reporting requirements.



Strategic Objective 5.1.2

Provide informational resources to organizations that support underserved populations to remediate their homes without causing additional recovery burden, including illness and injury.

Support Action 5.1.2.1

Provide informative materials to Florida community groups, VOADs and community health centers to have in their inventory or quickly accessible, on topics related to disaster recovery in clean up, such as how to work in mold and other flood related contaminated environments.

Support Action 5.1.2.2

Provide train-the-trainer educational workshops addressing hazards, safety, and reporting requirements for use by state partners, VALs, nongovernmental organizations and community health centers that represent worker advocacy on issues of safety.

Support Action 5.1.2.3

Support state partners, VALs, nongovernmental organizations, and community health centers in maintaining the quality of educational materials to address hazards, safety and reporting requirements.

Goal 5.2

Health and Human Services or their designated agencies or agents could provide support for the role of Tier I country rural health clinics and health centers and other community health centers as post-disaster care providers and centers for advocacy and reporting by accomplishing the following:

Strategic Objective 5.2.1

Provide training to providers in Tier I rural health clinics and health centers (including Federally Qualified Health Centers) and other community health centers working in underserved areas treating the existing population exposed to environmental contaminants from Hurricane Irma.

Support Action 5.2.1.1

Advocate for the use of Florida's pre-existing work-related illness and injury reporting systems to be used for injuries related to storm recovery. Trending this data could help workers better protect themselves and help community leaders better provide a safe working environment.

Support Action 5.2.1.2

Provide train-the-trainer educational workshops addressing hazards, care practices, safety, and reporting requirements for use by state partners and community health centers that represent worker advocacy on issues of safety and health.

Support Action 5.2.1.3

Support State Partners and community health centers in maintaining the quality of educational materials to address hazards, safety and reporting requirements.

Issue 6: Nutritional Needs for Survivors with Access or Functional Needs

Background

Before Irma, Floridians had a higher than average rate of food insecurity as compared to other states in the nation. While food Insecure individuals live in all of Florida's counties, the four Tier I counties had a significant number of residents that were food insecure, before Irma:

- 11 percent of Collier County residents were food insecure
- 13.3 percent of Hendry County residents were food insecure
- 13.5 percent of Lee County residents were food insecure and
- 12.1 percent of Monroe County residents were food insecure

The elderly and those with disabilities face a number of unique medical and mobility challenges that put them at a greater risk of hunger. Low-income older adults are often forced to make the tough choice between buying food and medicine. Other Floridians struggle to access food without reliable transportation.

The Disaster Supplemental Nutrition Assistance Program is a specific part of SNAP that only becomes available once there is a presidentially-declared emergency. The U.S. Department of Agriculture, Food and Nutrition Service must approve the program and the Florida Department of Children and Families administers the program. Activation of D-SNAP benefits cannot occur earlier than one week after the disaster.

Food for Florida, the name for Florida's D-SNAP, was implemented in 48 counties statewide. DCF opened multiple, centrally-located application processing sites throughout the affected areas but they did not adequately prepare for individuals who are aged, infirm, frail, low vision, have low literacy, are deaf, use a walker or other transportation devices, lack transportation, or have a physical disability that prohibits a long wait in the sun. DCF was able to receive approval for a USDA waiver to administer telephone interviews for individuals with disabilities and older adults who were unable to previously interview for DSNAP. However, these individuals must have already preregistered online by a date that predated the announcement of the phone interviews by over two weeks.

The number of applicants overwhelmed some application sites. For example, the Tropical Park site in Miami processed 10,000 applications per day but on the last day the site was open over 50,000 people lined up before the doors even opened. Other Broward and Miami Dade sites also experienced an overwhelming response on



Figure 38: Elmira Leto (Keys Strong), Matthew Massoud (Monroe County Social Services), and Sandra Higgs (Keys Strong)



Figure 39: Individuals interviewed at the Plantation Key Senior Center in Islamorada, Monroe County

the same day. By mid-day, law enforcement requested that three centers in Broward and one in Miami-Dade be shut down. The early closure left thousands of those seeking assistance in a lurch. While DCF planned to provide special assistance to seniors and people with disabilities, many were not able to withstand the wait in the hot, sunny weather.

Goal 6.1

Individuals of all needs are able to access critical nutritional resources.

Strategic Objective 6.1.1

Identify potential existing gaps and lessons learned to ensure individuals with access and functional needs receive the nutritional assistance they need post-disaster.

Support Action 6.1.1.1

Partner with U.S. Administration for Community Living to conduct train-the-trainer sessions to equip both governmental and nongovernmental service providers about appropriate methods of accommodating individuals with special needs.

Support Action 6.1.1.2

Partner with the U.S. Administration for Community Living and the state to develop handouts and other supportive materials that can provide information in multiple formats to accommodate individuals with special needs, such as those with low literacy, low vision and hearing-impaired individuals.

Issue 7: Many Agencies and Municipalities Have Limited Planning and Execution Capacity to Effectively Address the Wide Range of People with Disabilities and Others with Access and Functional Needs and Living Independently.

Background

Currently, 25 percent of Floridians are over the age of 60; by 2030, 31 percent will be over the age of 60 (Florida Department of Elder Affairs (DOEA), 2016).

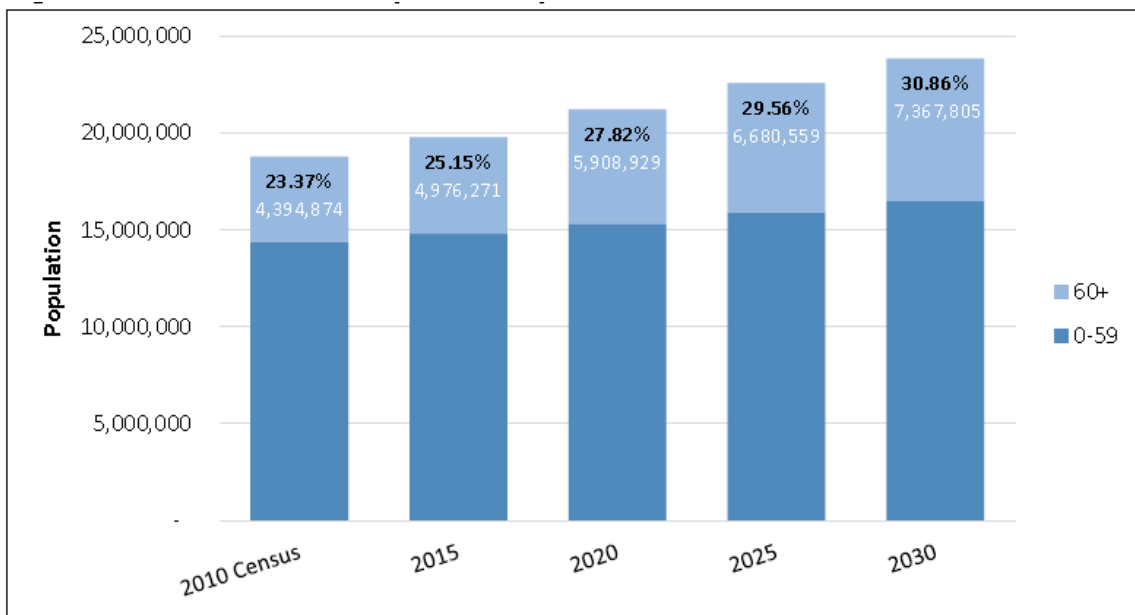


Figure 40: Florida 0-59 and 60+ Population Projections: 2010-2030

In 2015, there were 1,158,038 Floridians living in independent home and community-based settings. The Florida Department of Elder Affairs conducted a 2016 Needs Assessment Survey of the general population of independently living elders in Florida that found that on average, the elders' abilities have declined, as evidenced by a decline in their assessed abilities to perform activities of daily living. Daily living assessments address basic abilities, which include the ability to independently dress, bathe, walk, get out of bed, or use the bathroom. This decline indicates that the average elder living in their own home has already declining abilities. Declining abilities, coupled with the fact that 36 percent of Floridian elders are also caregivers for another aged person, suggests there are many very disproportionately impacted households in Florida.

Whether the disability is due to declining functional status associated with age, or is a disability by birth or accident, the overall issue is the same. A community must be ready to effectively handle people with access and functional needs during and after a disaster

Goal 7.1

Florida's emergency planning and recovery processes and policies are augmented to include additional parameters to support the unique and special needs of people with access or functional needs.

Based on the HSS RSF assessments and coordination meetings with state and local stakeholders, the following objectives were identified as common themes.

Strategic Objective 7.1.1

Increase the ability of older adults with and without disabilities living independently to self-advocate and be self-reliant before, during and following a local disaster.

To support recovery efforts for this objective the HSS or their selected agent in collaboration with stakeholders such as the state and county Department of Elder Affairs could:

Support Action 7.1.1.1

Develop materials and training guides that promote increased understanding of pre-disaster, disaster, short-term recovery and long-term recovery issues to ensure safety and security.

Support Action 7.1.1.2

Support the state Emergency Management Division in their outreach and public messaging to promote self-advocacy for those that require additional assistance during an emergency event and recovery period.

Strategic Objective 7.2.1

Provide training to agencies developing disaster plans to better meet the needs of individuals with access or functional needs.

To support recovery efforts for this objective the HSS or their selected agent in collaboration with stakeholders such as the state and county Department of Elder Affairs could:

Support Action 7.2.1.1

The Administration for Community Living could develop a training webinar (in partnership with the state) to inform recovery stakeholders like FEMA, Corporation for Independent Living, county emergency personnel, and others to the changing demographics and the special needs of the susceptible population.



Support Action 7.2.1.2

Collaborate with the Administration for Community Living and the Florida Department of Elder Affairs to review the disaster plans created by the Florida Department of Elder Affairs Aging Resource Centers for their 11 Aging and Disability Resource Centers. This will help ascertain appropriateness of recovery plans for susceptible populations, including older adults and people with disabilities.

Issue 8: Disproportionately Impacted Populations Lack Access to Disaster Case Management Services and are Experiencing Significant Unmet Housing, Economic and Behavioral Health Needs.

Background

Health and social services recovery is particularly attentive to the health, behavioral health and wellness needs of children, seniors, people living with disabilities, people with access and functional needs, people from diverse cultural origins, people with limited English proficiency, and underserved populations. After a disaster, and throughout the recovery process, it is critical that these underserved populations can meet any immediate crisis needs such as emergency first aid, behavioral health needs, medications, food, water and shelter. However, it is equally important as the emergency phase subsides that longer-term recovery needs of disproportionately impacted populations are addressed. People with access and functional needs, older adults, and those with limited English proficiency may face challenges when it comes to understanding and navigating the processes to apply for benefits due to lack of transportation, accessibility, language or literacy issues.

The Administration for Children and Families (leads Emergency Support Function #6 – Mass Care, Emergency Assistance, Temporary Housing, and Human Services response and administers the Disaster Case Management program for FEMA. There are two different types of DCM programs that are available to meet both short-term and long-term recovery needs post disaster.

- **Immediate Federal Disaster Case Management:** A rapid deployment and implementation of services to support state, local and nonprofit capacity for disaster case management and to augment and build capacity where none exists.
- **DCM State Grant:** A long-term program focused on matching resources with the disaster survivor's recovery plan and continued capacity-building within the state. In Florida, the nonprofit organization Volunteer Florida is responsible for the long term state DCM program grants, and DCM activities will likely start in January 2018.

Additionally, many VOAD members such as the American Red Cross, Catholic Charities, and Salvation Army are providing casework and regular case management services to clients that have been impacted by Hurricane Irma. Social service organizations also provide case management services to their client base, but they may or may not be well versed in how to modify their practices after a disaster. Their knowledge might also be limited about what types of assistance might be available through FEMA and other federal funding mechanisms for the clients that they serve.

During the HSS RSF Landscape Assessment in Monroe County, nearly all agency representatives that were interviewed noted continued challenges with signing up for FEMA Individual Assistance programs and other services post-disaster. Some populations felt that they had not been reached, some saw that the appeal process was an impediment, and many noted the inequities in assistance in rental households and/or multifamily households. The deadline to apply for FEMA IA ended on Nov. 24, 2017, so the shift for case managers has now been toward transitioning to longer-term



recovery planning. Although organizations such as the Aging and Disability Resource Centers, United Way, Salvation Army, and Catholic Charities are providing some level of case management to both existing and new clients that have sought services post-Irma, they do not have enough human and financial resources to deal with the increased caseloads. The influx of evacuees from Puerto Rico in both Collier and Palm Beach counties was reported as an increasing problem, as they do not have the capacity to provide services to this population without additional resources.

Goal 8.1

Enhance efforts to increase accessibility and reach the most susceptible populations to provide needed social services.

Based on the HSS RSF assessments and coordination meetings with state and local stakeholders, the following objectives were identified as common themes.

Strategic Objective 8.1.1

Provide capacity building to social service agencies on disaster case management and train individuals to identify benefits available during the recovery process aid individuals in need.

To support recovery efforts for this objective the HSS or their selected agent in collaboration with the state and county Department of Children and Families, FEMA Voluntary Agency Liaisons and Disability Integration Advisors, VOADs and long-term recovery groups could:

Support Action 8.1.1.1

Collaborate with Volunteer Florida and the Disaster Case Management program partners to include social service providers in the United Methodist Committee on Relief Disaster Case Management (or equivalent) training.

Support Action 8.1.1.2

Deliver webinars to VOADs and other community based organizations on best practices for working with adversely impacted populations, in partnership with FEMA Voluntary Agency Liaisons and Disability Integration Specialists.

Support Action 8.1.1.3

Provide technical assistance on replicating best practices in community network development, including identification of essential partners, building productive relationships and sustaining community presence.

Support Action 8.1.1.4

Encourage social service agencies to link with LTRGs to resolve complex cases and to find additional resources that might be available for disproportionately impacted populations.

Support Action 8.1.1.5

Assist social service agencies in engaging in state and county coordination groups (e.g., VOAD, LTRGs) and task forces (e.g., Children and Youth Task Force) to improve the integration of recovery programs for susceptible populations and reduce duplication.



Issue 9: Hospital Recovery – Fishermen’s Community Hospital

Background

Fisherman’s Community Hospital is a Critical Access Hospital operated by Baptist Health South Florida, a private nonprofit organization, in Marathon. CAHs receive cost-based Medicare reimbursement to reduce their financial vulnerability and improve access to health care. Fisherman’s had 25 acute care inpatient beds and is located more than 35 miles from another hospital. Fisherman’s also had 161 employees.

According to the state, the mobile medical unit currently operating at this site is being financed by an Emergency Management Assistance Compact agreement with North Carolina for 120 days. The hospital has not announced an anticipated reopening date.

Fisherman’s is the center of care for the middle Keys workers, residents and the traveling public. It is also an ambulance-receiving facility. Marathon, Florida sits within Monroe County which is a medically underserved area. During the process of planning and construction, services will be limited at the facility and outpatient clinic services involve travel to other facilities, including within the Baptist system.

As Fisherman’s is repaired or replaced, the temporary mobile medical unit will become the necessary emergency care for all workers involved in this and other construction activities in the middle Keys. Also, tourists and travelers passing through or remaining in the Marathon area will require the continuing presence of a health care facility with emergency services available.

Goal 9.1

Based on interviews with governmental responders and nongovernmental organizations, enhance support for Fisherman’s Community Hospital during recovery and for access to inpatient and outpatient ancillary care for communities in Marathon and the middle Keys.

Strategic Objective 9.1.1

Based on a review of the impact assessments, interviews during community organizational meetings, and available learning materials, several supportive actions emerge for the health and social services recovery. Health and Human Services or their designated agencies or agents could enhance support to Fisherman’s Community Hospital during the time it is repaired or replaced to return to a fully functioning critical access hospital providing access to inpatient and outpatient ancillary care for the middle Keys workers, residents, and the traveling public by accomplishing the following:

Support Action 9.1.1.1

Provide available supplemental consideration and support from HHS and USDA consistent with the rural status of the area and as a principal economic engine for the State.

Support Action 9.1.1.2

Provide assistance to the county and the surrounding areas in any needed HRSA recalculation of rural designations to support additional resource allocations.

Support Action 9.1.1.3

Request continuing support from Centers for Medicaid and Medicare Services and Health Resources and Services Administration for ongoing authorizations to practice approved categories of service delivery based on repair status and continuing efforts to return to a fully functioning Critical Access



Hospital. This includes long-term waivers under the CMS Conditions of Participation where authorized and indicated.

Support Action 9.1.1.4

Provide educational programs to the Marathon facility staff, as necessary, in disaster recovery associated injury and illness conditions including mold and similar environmental conditions. This includes using the state’s existing illness and injury reporting systems related to workplace health events.

Support Action 9.1.1.5

Monitor for additional needs for training for the Marathon facility and the population in the area regarding injury and illness associated with debris handling and the proper use of Personal Protective Equipment.



Community Planning and Capacity Building RSF Findings

Strategy Development Considerations

Through discussions with the State of Florida Department of Economic Opportunity and Division of Emergency Management, the Community Planning and Capacity Building Recovery Support Function initially identified two issues relating to disaster recovery in the Mission Scoping Assessment to include:

1. Recovery Planning and the Capacity to Recovery and
2. Capacity to Fund Local Recovery.

For the Recovery Support Strategy, CPCB developed strategies for Issue 1. A separate strategy for Issue 2 is not required. Any funding capacity needs identified as part of Issue 1 will be vetted by the Coordinated Place Based Recovery Support process.

The level of state and federal interagency support is determined by discussions with impacted counties and municipalities, analyzing disaster impacts, coordinating with local, state and federal partners, and assessing existing local pre-and post-disaster conditions.

The State of Florida has robust community planning capacity. The state requires local governments to maintain a comprehensive plan in accordance with the requirements set out in the state's statutes. In 2011 the Florida Legislature changed the existing law that required local comprehensive planning. The changes were intended to shift from state oversight to local government control of the planning and growth management process. The change also refocused the State's role to "protecting the functions of important state resources and facilities."

Capacity and resilience gained in Florida as a result of numerous storms that have impacted the state during past years was challenged in 2017 as Hurricane Irma became the first storm since 2004 to make direct, prolonged landfall. For many counties, municipalities and communities, personnel with knowledge about disaster recovery programs and activities had moved on; those who remain are now faced with the challenge of navigating a complex sea of laws and rules, programs and activities.

The Community Conditions Assessment is a collection of data and metrics that helps develop an understanding of a community's capacity to support recovery-related activities in light of impacts the community experienced. The CPCB Recovery Support Function used CCA analysis and held discussions with CPCB staff and partners—the State of Florida Department of Economic Opportunity and Division of Emergency Management. They identified two issues stated in the MSA.

CPCB used a tiered approach to develop strategies to target support based on needs of impacted counties. Tier I includes the four southern Florida counties³⁸ having the most pronounced impacts across multiple functional areas. Tier II includes seven counties³⁹ with good capacity and experience with moderate disaster impacts. Tier III includes all impacted and declared counties in Florida.

For the Tier I counties, the newly developed Coordinated Place Based Recovery Support (CPBRs) Team provides a framework for organizing and delivering federal, state, and private sector recovery

³⁸ Monroe, Collier, Lee and Hendry

³⁹ Duval, Putnam, Clay, Seminole, Glades, Volusia and Palm Beach



resources in support of local recovery leadership. CPBRS is coordinated through the Interagency Recovery Coordination Group at the Joint Field Office in Orlando.⁴⁰

The CPBRS concept is intended to support and assist local leadership to:

- Support post disaster recovery planning and project identification;
- Create and implement an expedited and organized decision-making process;
- Develop adequate capacity to successfully identify recovery projects; and
- Assist localities with identification of critical steps and resources for project and strategy implementation.

Recovery Issues and Strategies

Issue 1: Recovery Planning and the Capacity to Recovery

Background

Many Florida counties and municipalities that received the most damage lack sufficient staff with direct experience and knowledge of disaster recovery programs and resources to effectively plan, manage and implement recovery actions and activities.

Goal 1.1

Support the State of Florida in their efforts to increase local recovery capacity and community resilience by providing direct technical assistance, training and education, assistance with network development and knowledge transfer.

Strategic Objective 1.1.1

Provide Tier I counties with support and assist local leadership to develop post-disaster recovery plans and projects. Create and implement an expedited and organized decision-making process. Develop adequate capacity to successfully identify recovery projects and assist localities to identify critical steps and resources for project and strategy implementation.

Support Action 1.1.1.1

Deploy county-based teams for a period not to exceed six months beginning Nov. 27, 2017 to the four most highly-impacted counties (Tier I) who will support county staff in identification and development of recovery projects and project work plans.⁴¹

Strategic Objective 1.1.2

Provide Tier II counties with targeted assistance and focused technical support by providing regional capacity building activities including: training opportunities, tools, resources, best practices and information related to post-disaster recovery.

Support Action 1.1.2.1

Provide support for a period not to exceed six months from Nov. 27, 2017 to the six moderately impacted, higher capacity counties (Tier II) to assist with identification of specific recovery activities.⁴²

⁴⁰ See CPCB Concept of Operations in Annex 7

⁴¹ See CPCB Concept of Operations in Annex 7

⁴² Tier II and III Concept of Operations in Annex 8



Strategic Objective 1.1.3

Provide Tier III communities with training opportunities, tools, resources and information related to post-disaster recovery, best practices and regionally-focused capacity building activities.

Support Action 1.1.3.1

No later than Dec. 31, 2017 provide the State of Florida with a list of webinars, training and broad, regionally focused capacity building activities to increase capacity of all impacted communities (Tier III) to manage recovery activities.⁴³

Strategic Objective 1.1.4

Working with state partners, develop an engagement strategy for the purpose of convening and engaging the network of recovery partners in recovery efforts of impacted cities, counties and communities.

Support Action 1.1.4.1

No later than Dec. 31, 2017 develop a recovery partnership consisting of state, federal and non-federal partners who provide support as available and where applicable to recovery activities of impacted cities, counties and communities; Develop list of Florida recovery partners to include federal and state agencies and organizations, nonprofit and philanthropic partners and private sector groups or organizations.

⁴³ Tier II and III Concept of Operations in Annex 8



Mitigation Advisor Findings

Strategy Development Considerations

The mission of hazard mitigation is to protect lives and prevent or reduce loss of property from hazard events. The four guiding principles for mitigation include Resilience and Sustainability, Leadership and Locally-Focused Implementation, Engaged Partnerships and Inclusiveness, and a Shared Risk-conscious Culture. These principles lay the foundation for the Mitigation mission area and the execution of its core capabilities.⁴⁴, which include:

- Threats and Hazards Identification;
- Risk and Disaster Resilience Assessment;
- Planning;
- Community Resilience;
- Public Information and Warning;
- Long-term Vulnerability Reduction; and
- Operational Coordination.

Mitigation activities undertaken during post-disaster recovery foster community resilience. Decisions made in the short-term have long-term consequences and a deliberative and systematic long-term recovery approach supported by discreet implementation strategies and outcomes to promote resilient community recovery. Opportunities to rebuild stronger and smarter are analyzed, identified, and implemented as part of an overarching recovery strategy. Post-disaster, the Mitigation mission is accomplished by FEMA's Hazard Mitigation Branch, through comprehensive efforts authorized by the Stafford Act, as amended by the Disaster Mitigation Act of 2000, the National Flood Insurance Act, the Flood Insurance Reform Act, and Executive Orders. FEMA hazard mitigation staff partner with state, local, tribal and territorial governments to:

- Assess factors that contributed to disaster effects;
- Identify risk-reduction opportunities;
- Educate the public and local government officials in methods to reduce future risks;
- Promote hazard mitigation community planning and project development that will result in sustainable community development;
- Provide grants to fund hazard mitigation projects;
- Assist communities in marketing the NFIP;
- Provide technical assistance to state, local, tribal, and territorial governments to use rebuilding as an opportunity for enhanced local codes and ordinances;
- Identify and document proven mitigation actions and projects; and
- Quantify the benefits of hazard mitigation.⁴⁵

Through engagement with FEMA's Interagency Recovery Coordination group and the Recovery Support Functions, the state and FEMA's mitigation strategy is integrated into recovery activities and data from pre-disaster and early disaster phases and are interwoven with long-term recovery; mitigation technical assistance is provided to RSF staff to advance understanding of mitigation concepts as they apply to respective RSFs; technical assistance is provided to RSFs in leveraging mitigation opportunities; mitigation activities across RSFs are coordinated to synthesize Federal

⁴⁴ Federal Emergency Management Agency, National Mitigation Framework, Second Edition, June 2016, p.4.

⁴⁵ Federal Emergency Management Agency, Role of Mitigation Post-disaster, May 2011



processes and activities suitable to community needs and hazard vulnerabilities; document and track mitigation accomplishments through the work of the RSFs. ⁴⁶ In response to DR-4337-FL, all six RSFs: Infrastructure Systems, Community Planning and Capacity Building, Economic, Housing, Health and Social Services and Natural and Cultural Resources were activated and a Mitigation advisor was deployed Sept. 26, 2017.

Mitigation Challenges and Opportunities during Recovery from Hurricane Irma

The DR-4337-FL Mitigation advisor to the Interagency Recovery Coordination group identified a number of challenges and opportunities in the Hurricane Irma Mission Scoping Assessment MSA. Each challenge is identified and an accompanying recovery goal, strategic objective and accompanying action item(s) are recommended below.

Recovery Issues and Strategies

Issue 1: Disproportional Impacts to Specific Housing Stock

Background

Assessments indicate counties in southern Florida, southeastern Florida, and northwestern Florida were most heavily impacted. Housing stock type, date and method of construction, and siting in hazard prone areas contributed to some structures being disproportionately impacted by high winds and flooding. Manufactured housing and older stick-built structures constructed of less resilient materials before the Florida State Building Code becoming effective on March 1, 2002 were particularly vulnerable.

Goal 1.1

Promote sustainable construction practices as communities repair and rebuild.

Strategic Objective 1.1.1

Structures are repaired or replaced in compliance with the Florida State Building Code and local ordinances.

Support Action 1.1.1.1

FEMA provides engineering support, risk analysis planning, and building performance evaluation to the state and local communities as homes are rebuilt or replaced. Specifically, a Mitigation Assessment Team will perform detailed assessments of the performance of the built environment, including homes, buildings, streets, open spaces and infrastructure, which will inform the development of recovery guidance. The MAT will produce recovery advisories, fact sheets, and a quick reference guide and develop training for local officials, architects, engineers and the construction industry.

Support Action 1.1.1.2

In concert with state and local partners, identify and develop long-term housing strategies for non-compliant structures and households with unmet needs, to include comprehensive outreach strategy to homeowners.

Support Action 1.1.1.3

Using Coordinated Place Based Recovery Support, provide technical assistance as needed to implement Hazard Mitigation Assistance grants in support of local hazard mitigation priorities, including:

⁴⁶ Federal Emergency Management Agency, National Disaster Recovery Framework Interagency Operational Plan

- Property acquisition and structure demolition;
- Structure elevation;
- Mitigation reconstruction;
- Structural retrofitting of existing buildings; and
- Non-structural retrofitting of existing buildings and facilities.

Where possible, target repetitively damaged structures and structures built before the Florida State Building Code became effective and use acceptable additions to purchase offers for acquisition/demolition projects, including supplemental payments, credit to property owners who have flood insurance, Uniform Relocation Assistance to displaced tenants.

Additions to Purchase Offers

If the purchase offer for a property is less than the amount the property owner must pay to purchase a comparable replacement dwelling in a non-hazard-prone site in the same community, the State of Florida and the community may choose to make available to the property owner a supplemental payment of up to \$31,000 to be applied to the difference. Communities should consider the cost of relocating to a permanent residence that is of comparable value and functionally equivalent.

For the property owner to receive a supplemental payment, the State of Florida and the community must demonstrate the following circumstances exist:

- Funds cannot be secured from other more appropriate sources, such as housing agencies or voluntary groups.
- Decent, safe, and sanitary housing of comparable size and capacity is not available in non-hazard-prone sites within the community at the anticipated acquisition price of the property being vacated.
- The project would otherwise have a disproportionately high adverse effect on low-income or minority populations because project participants in these populations would not be able to secure comparable decent, safe and sanitary housing.

In addition, for the Hazard Mitigation Grant Program, the State of Florida has the option of allowing property owners to provide a credit to property owners with flood insurance. The sub-recipient provides an incentive payment equal to up to five years of flood insurance premiums actually paid by the current property owner for an NFIP policy for structure coverage.

URA Assistance to Tenants

Although the property owner must voluntarily agree to participate in an open space project, participation is not voluntary for residential and business tenants and owners of mobile homes who rent home pads—home pad tenants—and who must relocate as a result of acquisition of their housing. Therefore, these tenants are entitled to assistance as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. 4601 et seq. The implementing federal regulations are in 49 CFR Part 24. Property owners participating in FEMA-funded property acquisition and structure demolition or relocation projects are not entitled to relocation benefits because the voluntary program meets URA exceptions.

URA regulations define “tenant” as a person who has the temporary use and occupancy of real property that is owned by another.



URA relocation benefits to displaced tenants include moving expenses, replacement housing rental payments, and relocation assistance advisory services. Displaced tenants include owners of manufactured homes who lease a pad site.

The amount of assistance the sub-recipient must pay the tenant is provided in 49 CFR Part 24, Subpart E. An eligible displaced tenant is entitled to:

- Reasonable out-of-pocket, or fixed schedule, moving expenses; and
- Compensation for a reasonable increase in rent and utility costs incurred in connection with the relocation in certain circumstances.

Relocation assistance payments for tenants are intended to ensure these individuals are able to relocate to decent, safe, and sanitary comparable replacement dwellings outside the floodplain or hazard area. If a tenant chooses to purchase a replacement dwelling, the tenant may apply the amount of rental assistance to which he or she would be entitled toward the down payment. Similarly, if a mobile homeowner who rents a home pad chooses to purchase a replacement pad or lot, the mobile homeowner may apply the amount of rental assistance to which he or she would be entitled toward the down payment.

The Uniform Act, passed by Congress in 1970, is a federal law that establishes minimum standards for federally funded programs and projects that require acquisition of real property, real estate, or displace persons from their homes, businesses or farms. The Uniform Act's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects.

A tenant displaced from a dwelling as a result of a federally funded property acquisition and structure demolition or relocation project is entitled to a rental increase payment if:

- The tenant rents or purchases and occupies a decent, safe, and sanitary replacement dwelling within one year after the date he or she moves out of the original dwelling, and
- The tenant occupied the displacement dwelling for the 90 days preceding the initiation of negotiations for acquisition of the property.

The initiation of negotiations is defined as the first formal indication that the community wants to purchase a particular property. Any tenant who occupied the dwelling before a disaster event is usually eligible. The exception is if the project negotiations are unrelated to the disaster event or begin so long after the event that the event is no longer a relevant factor. If the dwelling is inhabited after the event, former tenants are generally not eligible. A signed lease is preferable for proving tenancy, but other documentation, such as utility bills, may be used to prove tenancy if a signed lease is not available because of the disaster event.

Compensation for a rent increase is 42 times the amount that is obtained by subtracting the “base monthly rent” for the displacement dwelling from the monthly rent and average monthly cost of utilities for a comparable replacement dwelling, or the decent, safe, and sanitary replacement dwelling now occupied by the displaced person. The “base monthly rent” for the displacement dwelling is the lesser of the average monthly cost for utilities plus the rent at the displacement dwelling as determined by FEMA, or 30 percent of the tenant’s average gross household income. The rental increase payment may not exceed \$7,200. Sub-recipients may exceed the limits identified in the URA regulations in extraordinary circumstances if necessary to ensure a displaced tenant will be able to obtain and retain a comparable unit that is decent, safe and sanitary as defined at 49 CFR



Section 24.2 outside a high-hazard area. A rental assistance payment may, at the sub-recipient's discretion, be disbursed in a lump sum or in installments. If any U.S. Department of Housing and Urban Development programs are providing partial funding for the project, the sub-recipient should verify program requirements to ensure proper coordination with mitigation grant program requirements.

Mobile homeowners who lease a home pad and who must relocate to a new home pad as the result of acquisition of their pre-disaster home pad are entitled to URA relocation benefits and/or replacement housing payments. Payments to mobile homeowners may not duplicate insurance payments or payments made by other federal, state, local or voluntary agencies. Complex situations involving FEMA mobile homes that have been donated to a state or local government and then sold to the mobile homeowner should be directed to the appropriate FEMA Regional Office for eligibility determination and calculation of benefits. Displaced mobile homeowners who rent their home pads are entitled to assistance as described below. In some cases, the combination of the two types of URA assistance may exceed URA's statutory maximum replacement housing differential of \$31,000.

A displaced mobile homeowner/home pad tenant is entitled to compensation for rental and utility increases resulting from renting a comparable home pad and moving expenses as described in this section. Compensation for home pad rent increase is 42 times the amount obtained by subtracting the "base monthly rent" for the displacement home pad from the monthly rent and the average monthly cost of utilities for a comparable replacement home pad. The rental increase payment may not exceed \$7,200.

Displaced mobile homeowners may also be entitled to the following:

Replacement Housing Assistance: For URA purposes, the mobile homeowner is considered to be involuntarily displaced from his or her residence as a result of the home pad owner, or landlord, selling the property. In addition, if the mobile home is also purchased, the displaced mobile homeowner is entitled to replacement housing assistance to compensate for his or her need to find replacement housing. Compensation for mobile home replacement is equivalent to the amount that is obtained by subtracting the value of the purchased mobile home from the cost of a new replacement mobile home.

In some cases, it may not be possible to secure a comparably located site for a replaced/displaced mobile home; the site on which the home is ultimately placed is called "last resort housing." The cost to find and/or obtain such a site may exceed the statutory maximum differential replacement housing payment of \$31,000. Last resort housing cases can result when the sub-applicant has not adequately planned for the relocation of mobile home pad tenants. If a comparable location for a replacement mobile home cannot be found, the home pad tenant may be eligible for replacement housing payments up to the cost of a traditionally constructed home that is comparably located.⁴⁷

Issue 2: Growth Management Regulations

Background

The need to develop a strategic and deliberative approach toward recovery, particularly with respect to a long-term housing strategy, is challenging for any community during the recovery process, but the inherent constraints imposed by specific growth management regulations/requirements further highlight the need.

⁴⁷ Hazard Mitigation Assistance Guidance, FEMA, February 27, 2015, pp. 26-30



In 1975, Florida designated the Florida Keys as an Area of Critical State Concern. The state required the local governments of the Florida Keys to adopt policies to control growth. According to Monroe County, “the rate and distribution of future growth has been limited by implementing Permit Allocation Systems. The Florida Keys local governments, with the exception of Key Colony Beach, have adopted a performance-based allocation system for both residential development and commercial development because of the requirement to maintain a 24-hour hurricane evacuation clearance time, to consider environmental needs including water quality and habitat protection, as well as to maintain and enhance community character. The Permit Allocation Systems create a competitive permit allocation protocol that awards applications with the highest scores building permits.”⁴⁸ Of 3,550 allocations provided to communities in the Florida Keys over a 10 year period, all are anticipated to be built out by 2023, i.e., no further development will be permitted. Total annual allocations by community are:

- Monroe County: 197
- Marathon: 30
- Islamorada: 28
- Key West: 91
- Key Colony Beach: 6
- Layton: 3

Goal 2.1

Balance risk against social, economic and environmental priorities.

Strategic Objective 2.1.1

Provide technical assistance to communities to enable them to weigh mitigation options and opportunities within the context of growth management regulations and an acute lack of affordable housing options.

Support Action 2.1.1.1

Use Coordinated Place Based Recovery Support, provide technical assistance as needed to communities as they develop a comprehensive long-term housing strategy with an emphasis on addressing pre-existing affordable workforce housing shortages, unmet needs and compliance with local and state ordinances. Discreet activities may include:

- Exploring options for redeveloping multifamily housing and purchasing less hazard prone sites for workforce housing.
- Optimizing opportunities for mixed land use development.
- Considering additional types of housing stock, particularly micro housing options in areas where ROGOs are impactful.

Support Action 2.1.1.2

Develop and implement an enhanced outreach approach to inform design professionals, floodplain administrators, and local officials regarding the ongoing Risk MAP projects and their relationship to the State Building Codes and how both can be used for a resilient recovery.

Support Action 2.1.1.3

Encourage property owners to use best available information as structures are repaired and replaced.

⁴⁸ Monroe County Recovery Strategy, 2017, p. 2.

Issue 3: Uninsured and Underinsured Building Owners and Renters

Background

Although damage was largely wind-related, some structures experienced flooding and may be uninsured or underinsured. Florida leads the nation in the number of flood insurance policies in force—1,668,526 residential and 56,868 nonresidential and less than 26,000 flood insurance claims—22,594 residential and 2,365 nonresidential—have been filed to date. The location of the structure relative to the Special Flood Hazard Area, i.e., the area where the National Flood Insurance Program's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies, influences individual risk perception and decision-making specific to flood insurance purchase. Although flood insurance is available for purchase if the owner/renter resides in a community that participates in the NFIP, there is no mandatory purchase requirement⁴⁹ for properties outside the SFHA and structures in low to moderate risk areas may be uninsured or underinsured.

Because flood risk can change over time, FEMA continually updates its inventory of flood hazard information. Therefore, available flood hazard information can vary depending upon the different phases of data development within the flood hazard mapping project lifecycle. Following a severe weather event, impacted communities rely on FEMA's flood hazard information to guide recovery efforts. For this reason, it is important to identify and evaluate all available sources of flood hazard information in order to provide stakeholders the appropriate information needed to support recovery.

Goal 3.1

Increase awareness of flood risk and minimize future financial losses from flooding.

Strategic Objective 3.1.1

Encourage homeowners and businesses to purchase flood insurance.

Support Action 3.1.1.1

Using Coordinated Place Based Recovery Support, provide technical assistance to communities to undertake additional creditable activities under the Community Rating System, lower insurance premiums⁵⁰ and foster the purchase of flood insurance. Activities may include: further assessing flood hazard, managing new development to minimize future damage, ensuring local mitigation strategies also meet criteria for floodplain management plans, reducing flood losses to existing development, improving emergency preparedness and response, and implementing additional public information activities⁵¹.

Support Action 3.1.1.2

Develop a Flood Insurance Outreach Strategy to encourage retention of policies, and promote increased flood insurance coverage throughout the state.

⁴⁹ Note: Some financial institutions may require flood insurance for properties outside the SFHA as part of their own risk management process.

⁵⁰ Note: Premium reductions within the SFHA is between 0 and 45% within the SFHA depending on CRS class and 0-10% outside the SFHA depending on CRS class.

⁵¹ National Flood Insurance Program Community Rating System Coordinator's Manual, FEMA, 2017, p. iv.



Support Action 3.1.1.3

Identify and contact NFIP non-participating communities in IA declared counties to encourage enrollment in the NFIP.

Issue 4: The Local Floodplain Management Ordinance and Substantial Improvement/Substantial Damage (SI/SD)

Background

The post-disaster environment presents a unique opportunity for action. Resilient disaster recovery is a complex process. Building and implementing a culture and practice of resilience does not occur quickly, is often costly and requires in-depth analysis of cross-cutting issues, interdependent touchpoints, and a keen awareness of and preparation for balancing competing priorities. Decisions made in the short term have far reaching long term consequences and a deliberative and systematic long-term planning process supported by discreet implementation strategies and outcomes promotes resilient community recovery. Floodplain management activities, as with a number of recovery issues, do not occur in a vacuum—they are an integral component and consideration of an effective long-term housing strategy, development and redevelopment plans, a key consideration as infrastructure is repaired and replaced, and influential in the long term economic viability of flood prone areas. Enforcement of and compliance with local floodplain management ordinances may be the most impactful recovery issue for many homeowners, business owners and communities affected by DR-4337-FL. A large number of structures may be determined to be in a high risk area, substantially damaged and non-compliant with local floodplain management ordinances. Local communities may lack the internal capacity to make accurate and timely determinations and communitywide political will and buy-in to enforce their ordinances. Although individual property owners and communities may want to rebuild resiliently, they may lack the financial resources, desire to rebuild more resiliently, and alternatives to rebuilding in a high risk area may simply be untenable, particularly within the context of local growth management practices.

Goal 4.1

Support local communities to fulfill their responsibilities as an NFIP participating community.

Strategic Objective 4.1.1

Integrate substantial damage compliance and unmet needs into a comprehensive community-driven risk reduction strategy.

Support Action 4.1.1.1

Using FEMA and contract personnel, help communities to make accurate and timely substantial damage determinations. Support may include:

- Assist local communities to undertake substantial damage inspections.
- Provide Substantial Damage Estimator training to local community officials, including building officials, building inspectors and floodplain administrators.

Support Action 4.1.1.2

Using Coordinated Place Based Recovery Support, provide floodplain management and insurance technical assistance to local communities as they develop a vision for incorporating compliance with local floodplain management ordinances into an overarching strategy for redevelopment, including support to develop a comprehensive public education and outreach campaign.



Support Action 4.1.1.3

Provide communities with key decision points, guidance about programmatic critical paths, and options that foster compliant resilient recovery actions.

Issue 5: Challenge and Opportunity: Leveraging All Available Resources

Background

Initial data suggests that manufactured housing as well as housing constructed before Hurricane Andrew were disproportionately impacted by Hurricane Irma. Individual property owners may not possess sufficient financial resources to rebuild resiliently and in compliance with their community's local codes and ordinances. As such, all available resources will need to be carefully and creatively leveraged as homeowners rebuild and communities re-examine their land use development processes and policies. Ensuring all available resources are leveraged to support mitigation efforts is particularly impactful given some structures may be determined to be substantially damaged and non-compliant with the local floodplain management ordinance. Each of these programs have different timelines for delivery, statutory requirements and lifecycles.

Goal 5.1

Leverage All Available Resources More Efficiently.

Strategic Objective 5.1.1

Better align program delivery across federal and state agencies to support timely recovery actions.

Support Action 5.1.1.1

In concert with the CPBRS coordination cell and federal and state Interagency Recovery Coordination (IRC) partners, develop a funding matrix/recovery guide to help communities to obtain data to prioritize, select, and develop recovery actions that optimize public/private partnerships, including cost share strategy development.

Support Action 5.1.1.2

Using Coordinated Place Based Recovery Support, provide technical assistance to communities as they implement their CPBRS work plans and activities identified in their local mitigation strategies with an emphasis on aligning critical paths and programmatic timelines and requirements.

Issue 6: Implementing Mitigation Opportunities as Infrastructure is Repaired and Replaced

Goal 6.1

Protect infrastructure from future damage.

Strategic Objective 6.1.1

Optimize implementation of identified mitigation opportunities.

Support Action 6.1.1.1

Using Coordinated Place Based Recovery Support, provide assistance to local communities as they implement infrastructure repairs and improvements identified in their CPBRS work plans and local mitigation strategy. Specific recommendations may include, but are not limited to:

- Elevating roads and bridges above the base flood elevation to maintain dry access;



- Drainage improvements, stabilization or armoring of embankments;
- Raising low-lying bridges;
- Flood proofing wastewater treatment facilities located in high hazard areas;
- Flood proofing water treatment facilities in flood hazard areas;
- Using check valves, sump pumps and backflow devices;
- Using bioengineered bank stabilization techniques;
- Encourage a requirement that all critical facilities, including emergency operations centers, police stations, and fire department facilities be located outside flood-prone area;
- Encouraging all critical facilities to meet the requirements of Executive Order 11988 and be built 1 foot above the 500 year flood elevation;
- Installing/upgrading stormwater pumping stations;
- Raising electrical components of sewage lift stations above base flood elevation;
- Raising manhole openings using concrete pillars;
- Installing watertight covers or inflow guards on sewer manholes;
- Installing flood telemetry systems in sewage lift stations;
- Installing backup generators for pumping and lift station in sanitary sewer systems;
- Incorporating inspection and management of hazardous trees into drainage system and maintenance processes;
- Preemptively testing power line holes to determine if they are rotting;
- Inspecting utility poles to ensure they meet specifications and are wind resistant;
- Burying power lines to provide uninterrupted power;
- Upgrading overhead utility lines;
- Installing redundancies and loop feeds; protection and restoration of natural buffers;
- Relocating existing vulnerable critical facilities outside of high-risk areas;
- Reorienting near-shore roads so they are not parallel to the beach to prevent the channelization of storm surge and wind inland; and
- Establishing standards for all utilities regarding tree pruning around lines.⁵²

Support Action 6.1.1.2

Provide Mitigation technical assistance to Public Assistance, primary and secondary agencies within the Infrastructure and Natural and Cultural Resources Recovery Support Functions, State agencies, and local communities with the identification of Mitigation opportunities as infrastructure is repaired and replaced.

Overarching DR-4337-FL Recommended Actions

Use Coordinated Place Based Recovery support to:

- Promote partnerships for education and outreach opportunities with local officials; regional governmental, economic and planning commissions; building, contractor and architectural associations; higher education; and residential and commercial building owners, in the integration of existing best practices and losses avoided on a continuing basis;
- Promote increased community engagement in hazard mitigation public education;

⁵² Mitigation Ideas, FEMA, January 2013, pp. 29, 47, 57,



- Provide appropriate technical assistance in post-disaster NFIP compliance issues and opportunities to promote resilience and sustainability;
- Encourage, provide support, and assist communities to update and/or adopt ordinances to meet or exceed NFIP minimum requirements, and to achieve compliance with EO 11988 and other applicable EOs, insurance regulations and building codes;
- Promote and disseminate NFIP and other applicable insurance information such as flood zone determinations;
- Provide technical assistance as needed to implement the HMA grants in support of the local hazard mitigation priorities;
- In partnership with the Coordinated Place Based Recovery Support Team's Sustainability Advisor, ensure hazard mitigation and sustainability initiatives are integrated into hazard mitigation strategies and into recovery efforts, by FEMA and other long-term community recovery programs, as well as other federal agencies and partners;
- Encourage risk reduction for specific vulnerabilities from natural hazards, future risk, extreme weather, sea level rise and projected changes in climate;
- Provide assistance to local communities in moving from hazard mitigation plans to projects that effectively implement their plan;
- Coordinate with FEMA Public Assistance, Environmental and Historical Preservation, the Interagency Recovery Coordination group, and the philanthropic community to help communities implement hazard mitigation opportunities in support of sustainable, long-term recovery initiatives;
- Use internal and external technical expertise, to provide analysis of hazards and impacts, such as: wind analysis, flood frequency, flood depth, inundation and velocity studies;
- Conduct risk assessment for vulnerability determinations and to target hazard mitigation opportunities;
- Provide risk analysis information to promote risk-informed decision making.
- Provide advice about building codes, mitigation techniques, design and construction standards;
- Identify and promote creative solutions to accomplish mitigation goals;
- Promote resilient and sustainable construction techniques to stakeholders; Promote environmentally conscious, economic and sustainable community redevelopment;
- Provide hazard identification/verification and all hazard frequency determinations for BCA, reconstruction guidance, insurance determinations and planning;
- Provide GIS and remote sensing services or expertise;
- Provide technical assistance in engineering, architecture, earth science, stream geomorphology, geotechnical analysis, soils, natural floodplain function, and building sciences in support of disaster resistant communities and sustainable redevelopment
- In coordination with the state and local mitigation strategy teams, provide technical assistance to identify and develop mitigation opportunities appropriate for funding by the HMGP;
- Communicate need for floodplain mapping validation, and/or the production of advisories.⁵³

⁵³ Task list in concert with FEMA's Hazard Mitigation Field Operations Guide, 2016.



Unified Federal Review Advisor Findings

Strategy Development Considerations

The Sandy Recovery Improvement Act of 2013 added Section 429 to the Robert T. Stafford Act, establishing an expedited and unified interagency review process to ensure compliance with environmental and historic requirements under federal law relating to disaster recovery projects. An interagency Memorandum of Understanding executed by 11 departments and agencies on July 29, 2014 formally established the Unified Federal Review process.

The UFR process coordinates and aligns Environmental Planning and Historic Preservation compliance reviews across multiple federal agencies associated with presidentially declared disasters. The UFR process supports the National Disaster Recovery Framework and recovery core capabilities by maximizing collaborative approaches to EHP compliance and long-term community redevelopment and resiliency.

Through the UFR process, federal agencies that fund or permit disaster recovery projects will coordinate associated independent EHP reviews to expedite decision-making, deliver assistance more efficiently, and ultimately accelerate implementation of recovery projects to meet community needs. The UFR process does not change EHP requirements under existing federal law, rather it provides a set of tools and mechanisms to expedite and unify EHP reviews.

As part of the UFR process, the Federal Emergency Management Agency developed the UFR advisor position, which supports the Federal Disaster Recovery Coordinator as part of the Interagency Recovery Coordination Group in the Joint Field Office. The UFR advisor serves as a liaison and coordinator among federal disaster recovery agencies and their stakeholders through the following activities:

- Assist in expediting and unifying of the EHP review processes by agencies;
- Enhance working relationships for greater coordination across agencies to streamline and expedite EHP compliance review processes;
- Facilitate the alignment of review processes when an interagency review by multiple agencies can satisfy EHP requirements;
- Communicate relevant EHP information to stakeholders, including recipient and sub-recipients, and federal, state and tribal resource agencies;
- Identify and develop programmatic solutions for interagency recovery efficiencies;
- Identify duplication of effort and promote joint interagency review responsibilities where opportunities exist, and
- Provide Recovery Support Functions with technical guidance on review of EHP compliance considerations for recovery priority scoping and strategy development.

Methodology

Due to the scale and range of damage resulting from Hurricane Irma, multiple federal agencies may fund or permit disaster recovery projects. Federal support of such actions or activities could produce a large number of disaster recovery projects, which may leverage federal funding through cost sharing. This scenario could present coordination challenges as long-term recovery efforts increase and accelerate.



The UFR process could apply to the following types of projects or program resources:

- FEMA Grant Programs—Individual Assistance Public Assistance, 404 and 406 Mitigation;
- U.S. Department of Housing and Urban Development resources, including Community Development Block Grant and CDBG-Disaster Recovery funds;
- U.S. Army Corps of Engineers Emergency Protective Programs and Permitting;
- Natural Resources Conservation Service Emergency Watershed Protection Program; U.S. Department of Commerce, Economic Development Administration programs;
- U.S. Department of Agriculture – Rural Development programs; and
- National Park Service, Federal Historic Preservation Tax Incentives Program.

Depending on the type of project, a lead and cooperating federal agency may be designated when conducting compliance with EHP laws and Executive Orders, such as the National Historic Preservation Act, Endangered Species Act, National Environmental Policy Act, Executive Order 11988 or other laws. The UFR process can identify those opportunities and facilitate early collaboration among appropriate federal agencies.

Table 1 lists the most common resources affected by Hurricane Irma as observed by the FEMA Environmental Planning and Historic Preservation advisor and Natural and Cultural Resource Recovery Support Function. The table aligns affected resources with the corresponding federal and state regulatory authorities and partners in Florida. This table is not exhaustive, nor does it encompass all resources, federal laws, statutes, executive orders, or state and federal partners.

Table 10: Most Common Resources Affected by Hurricane Irma

Resource	Federal Laws, Statutes, Executive Orders	Authority	Additional Federal and State Partners
Coastal Barrier Islands	Coastal Barrier Resource Act	U.S. Fish and Wildlife Service	
Coastal Zones	Coastal Zone Management Act	Florida Department of Environmental Protection	NOAA Office of Coastal Management
Cultural and Historic Resources	National Historic Preservation Act, Section 106	Florida State Historic Preservation Officer; Tribal Historic Preservation Officers	Advisory Council on Historic Preservation; National Parks Service
Debris	Resource Conservation and Recovery Act	Florida Department of Environmental Protection; Florida Forest Service	Environmental Protection Agency; U.S. Coast Guard; National Marine Fisheries Service; Natural Resource Conservation Service; U.S. Army Corps of Engineers; U.S. Geological Survey
Fish and Wildlife	Endangered Species Act	U.S. Fish and Wildlife Service: National	Florida Fish and Wildlife Conservation Commission



Resource	Federal Laws, Statutes, Executive Orders	Authority	Additional Federal and State Partners
Resources		Marine Fisheries Service	
Floodplains	Executive Order 11998; National Flood Insurance Program	Federal Emergency Management Agency; Local Floodplain Administrators	Florida Water Management Districts
Habitat	Endangered Species Act	U.S. Fish and Wildlife Service, National Marine Fisheries Service	Florida Fish and Wildlife Conservation Commission; Florida Division of State Lands
Water	Clean Water Act	Environmental Protection Agency; U.S. Army Corps of Engineers	Florida Water Management Districts
Wetlands	Executive Order 11990	U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service	Florida Department of Environmental Protection, Florida Water Management Districts

Unified Federal Review Application

The Recovery Support Strategy is the beginning of a collaborative effort where federal partners identified a path for continuing support to Florida stakeholders working toward recovery and resilience. A successful Unified Federal Review process hinges on strong and close working relationships with internal and external federal, state, tribal and local partners. The process requires clear communication, collaboration across participating or interested parties, synchronization of resources, and the use of tools and mechanisms that support streamlined compliance reviews.

Recovery Issues and Strategies

Issue 1: Recovery projects often use a variety of funding resources to ensure viability

Background

Involvement of multiple federal agency resources entails the communication and coordination of environmental compliance requirements across agencies to avoid delays to the planning process or interruptions to timely project development.

Goal 1.1

Early engagement with the UFR advisor may identify project alignment opportunities that expedite and unify environmental compliance reviews processes among federal agencies.

This alignment reduces duplication of effort for applicants and facilitates joint reviews by federal agencies, where possible. The UFR process sustains recovery momentum without undue delay for regulatory environmental reviews.



Strategic Objective 1.1.1

Improve coordination among RSFs on opportunities to unify and expedite environmental compliance reviews and streamline the recovery process. Establish early involvement of all stakeholders to ensure visibility of recovery projects.

Support Action 1.1.1.1

Identify and track all UFR opportunities with each RSF. Communicate with each RSF on their respective objectives that require regulatory review. Specific areas to collaborate include:

Infrastructure RSF

Projects within the Infrastructure RSF overlap across multiple federal agencies including FEMA, USACE and HUD. The UFR advisor can identify necessary participants, locate existing streamlining agreements or prepare agreement documents with federal regulatory agencies, and determine where collaboration will result in an expedited EHP review process for mutually funded infrastructure projects.

Natural and Cultural Resources RSF

State and federal NCR RSF contacts are important for EHP compliance for disaster recovery projects. Coordinated working partnership between the NCR RSF, UFR advisor, and FEMA EHP staff will enable effective information sharing, and prevent duplication of effort. Sharing assessed impacts creates a thorough list of natural and cultural resource impacts, which facilitates state identification of appropriate recovery priorities.

Housing RSF

The UFR advisor will work with both FEMA Individual Assistance and the Housing RSF to ensure oversight of short-term, intermediate and long-term housing strategies. This role will assist EHP compliance assessments and provide a collaborative approach to meet these associated needs. This collaboration will reduce the duplication of effort between FEMA and HUD EHP reviews and create an efficient and streamlined review process for mutually funded housing solutions.

Weekly UFR huddles and regular discussions with FDRC Advisors, EHP Leadership, NCR RSF, and other RSF will continue to promote regular coordination on emerging issues and projects.

Issue 2: The Coordinated Place Based Recovery Support Initiative

Background

The Coordinated Place Based Recovery Support initiative is an innovative strategy, which provides a framework for organizing and delivering federal, state, and private sector resources in four designated Tier 1 counties - Collier, Hendry, Lee and Monroe counties. The UFR advisor is part of the overall coordination cell for the CPBRS initiative and will directly support, coach and mentor embedded EHP Liaisons/National Environmental Policy Act Specialists within each team as follows:

Goal 2.1

Support the FDRC and coordination cell in the development of policies and procedures that position CPBRS teams for implementation success.

Strategic Objective 2.1.1

Establish consistent policies with CPBRS teams. Eliminate impediments to effective communication practices among CPBRS teams and RSFs.

Support Action 2.1.1.1

The UFR advisor will support Coordinated Place Based Recovery Support teams and EHP/NEPA Specialists, both remotely from the regional office and from the Joint Filed Office as follows:

- Participate in coordination cell on the development of CPBRS policies and procedures;
- Provide guidance on NEPA Planning Framework in conjunction with the CPCB RSF;
- Coach and mentor liaisons on the facilitation of community recovery strategy meetings through the utilization of the NEPA planning framework;
- Provide technical subject matter expertise on environmental planning, compliance requirements, and natural and cultural resource considerations; and
- Identify opportunities to frontload EHP considerations during project formulation for FEMA-funded programs and assist in streamlining the environmental compliance review process.
- Collaborate among EHP Liaisons, UFR advisor and the EHP advisor on federally funded projects and the respective permitting requirements.

Issue 3: Tools and Mechanisms

Background

Focused coordination across the following federal, state and tribal partners: EPA, FEMA, HUD, USACE, USFWS, NMFS and federally recognized tribes are critical to mission success. Active engagement and communication with these specific entities is necessary given the projected evolution and tempo of recovery efforts.

Goal 3.1

Identify immediate opportunities to use tools and mechanisms for data sharing, synchronization of EHP review, agency workforce integration or other innovative solutions.

Strategic Objective 3.1.1

Improve coordination and information sharing among agencies. Leverage the sharing of existing programmatic agreements, records of environmental consideration, biological opinions and other regulatory requirements. Increase programmatic recovery visibility to mitigate duplication of efforts within the JFO and minimize the duplicate interaction with state and local regulatory authorities. Ensure execution of a unified outreach effort.

Support Action 3.1.1.1

Use a strategic approach to outreach, targeting key signatory agencies and state, tribal, and local stakeholders for educational promotion opportunities such as briefings, presentations or meetings. Desired UFR advisor projects and deliverables include:

- Development of Quick Guides and Fact Sheets to support CPBRS teams and EHP Liaisons;
- Collaborate with other federal agencies to identify potential areas of coordination and sharing agreement documents, including preparation of an Endangered Species Act Matrix;
- Discussions with USDA-NRCS on their Emergency Watershed Protection Program and overlaps with Public Assistance funding and their EHP review process;



- Development of NMFS-FEMA Programmatic Agreement based on ESA streamlining, after-the-fact consultation, multi-agency consultations, expedited consultations, emergency consultation procedures, and programmatic consultation and agreement documents; and
- Development of an information sharing protocol between FEMA and USACE to coordinate and streamline the Clean Water Act 404 permitting process and EHP reviews requiring 404 permitting.

The UFR process applies in many instances within this Recovery Support Strategy addressing general RSF issues, goals and strategic objectives. Where appropriate, the RSF Annexes should use the language below as a reference to UFR advisor coordination and support:

“Coordinate with UFR advisor on opportunities to unify and expedite environmental compliance reviews and streamline the recovery process.”



Sustainability Advisor Findings

Strategy Development Considerations

EPA has responded to chemical and oil emergencies pursuant to the National Contingency Plan since EPA's inception in the 1970s, and responded to presidential disaster declarations pursuant to the *National Response Framework* with FEMA for nearly as long. In 2009, to help communities become more resilient, EPA and FEMA partnered to provide smart-growth financial and technical assistance as part of FEMA's long-term recovery efforts in Iowa communities impacted by floods and tornadoes. Since then, the two agencies formed a formal partnership to provide a Sustainability advisor at the request of the Federal Disaster Recovery Coordinator.

Hurricane Irma had statewide and devastating impacts on the State of Florida. It also created opportunities for the Sustainability advisor to support the Coordinated Place Based Recovery Support initiative across six Recovery Support Functions. The Sustainability advisor works with the FDRC, IRC RSFs and federal, state, tribal, and local officials on a wide range of strategies to help advance sustainable development, mitigation planning and short/long-term disaster recovery through the following activities:

- Incorporate sustainability, resiliency, smart-growth practices into hazard mitigation planning and policies.
- Provide technical assistance related to green buildings, indoor air quality, smart growth, energy efficiency, water efficiency, environmental justice and sustainability.
- Leverage national networks of community-based expertise, practices, initiatives and programs to help communities reduce vulnerability, recover and achieve economic, environmental and public health outcomes as a part of mitigation and recovery efforts.
- Identify and advance environmental justice practices to address disproportionately impacted populations.
- Provide technical assistance to affected communities in support of recovery priorities to build capacity for preserving, conserving, rehabilitating and restoring impacted watersheds, wetlands, drinking water and other natural resources.
- Facilitate integration and understanding of how federal programs and resources support the community level economy.
- Demonstrate and promote the post-disaster applicability for resources supporting economic development, workforce development, community development and small business assistance.
- Promote smart growth, emergency preparedness and recovery planning, redevelopment and reuse of contaminated and formerly contaminated sites, and the identification and inclusion of adversely disposed populations and environmental justice communities.
- Provide technical training and expertise on site-specific hazard awareness and implementation of strategies to protect health and safety of public and recovery workers from effects of post-disaster environment.
- Provide technical assistance and environmental health trainings, technical assistance regarding Health Impact Assessments. Provide guidance on Healthy Children and Healthy Schools initiatives to support recovery of schools.



- Use a variety of tools to stimulate discussion about growth and development in selected communities and provide quick, targeted technical assistance to strengthen local capacity to implement sustainable approaches.
- Increase education, outreach and training to allow coordination with associated partners (state, tribal and local governments).

Below are some specific EPA and sustainability programs/partners to support the CPBRS efforts depending on the availability of resources, both staff and funding.

EPA Clean Water State Revolving Fund Program—The Drinking Water State Revolving Fund program is a federal-state partnership to help ensure safe drinking water. Created by the 1996 Amendments to the Safe Drinking Water Act, the program provides financial support to water systems and to state safe water programs.

EPA Sustainable Communities Technical Assistance Program—This program includes four programs in partnership with other federal agencies to provide quick, targeted technical assistance to communities using a variety of tools with demonstrated results and widespread applications:

- **Building Blocks for Sustainable Communities**—Uses a variety of tools with demonstrated results and widespread application to provide assistance to selected communities to stimulate discussion about growth and development, and strengthen local capacity for implementing sustainable approaches.
- **Healthy Places for Healthy People**—Engages with community leaders and health care partners to create walkable, healthy, economically vibrant downtowns and neighborhoods that can improve health, protect the environment and support economic growth.
- **Cool & Connected**—Helps community members with planning assistance to attract investment and people.
- **Local Foods, Local Places**—Supports locally led, community-driven efforts to preserve open space and farmland, boost economic opportunities for local farmers and businesses, improve access to healthy local food, promote childhood wellness, and protect air and water quality.

EPA Partnership with Emory Pediatrics Environmental Health Specialty Unit (PEHSU)—The Southeast PEHSU aims to improve the health of children in our region and to inform families, communities, and health care providers about environmental hazards, their effects, and practical ways to protect our children's health.

EPA Partnership with DOE National Renewable Energy Laboratory (NREL)—NREL provides information on alternative power (i.e., solar stored energy) for drinking water pump stations to ensure availability of drinking water after power failure. Renewable energy resources and technologies can provide the highest environmental benefit by reducing the emissions associated with traditional [electricity sources](#). This partnership enables industry, government, research and nonprofit partners to conceive innovative ideas, develop concepts into prototypes, and accelerate market-ready technologies. The research conducted at NREL improves U.S. homes, businesses and infrastructure—and preserves energy reliability and affordability. NREL partners with the U.S. military, government agencies, and state and local entities to focus on grid modernization and investments in infrastructure technologies dedicated to overall energy security.



Environmental Finance Centers—EPA supports a network of eight environmental finance centers (EFCs) across the country. In Region 4, the University of North Carolina EFC provides training programs and technical assistance to local communities to help manage the costs of environmental protection programs with a focus on water and wastewater, clean energy, watersheds and stormwater through innovative solutions. In addition to direct community outreach, the EFC works with decision makers to assess the effectiveness of environmental finance policies at a regional or state level, and to improve those policies as a way of supporting local efforts.

EPA Green Infrastructure Program—This program creates community benefits through an approach to wet-weather impacts and management that is cost-effective and sustainable. Green infrastructure management approaches and technologies infiltrate, capture and reuse stormwater to maintain or restore natural hydrology. The program’s primary focus is to build capacity for managing water quality issues in Clean Water Act and Safe Drinking Water Act programs through green infrastructure

EPA Region 4 Water Flows Workgroup—The FWG is charged with understanding and addressing impacts of all types of hydrologic alteration under all program areas where there is Clean Water Act authority. The FWG coordinates with other relevant programs, such as the Safe Drinking Water Act, the Endangered Species Act and the National Environmental Policy Act, to help identify, prevent and restore impairments caused by hydrologic alteration.

EPA Indoor Air and Mold Control—During a flood cleanup, the indoor air quality may appear to be the least of the problems; however, failure to remove contaminated materials and to reduce moisture and humidity can present serious long-term health risks. EPA provides information and technical assistance on proper cleanup to avoid exposure to mold and clean up residential mold problems; and how to prevent mold growth. The Healthy Homes Program is also a great resource.

EPA Brownfields Program—This provides direct funding for Brownfields assessment, cleanup, revolving loans and environmental job training. To leverage public resources, EPA's Brownfields Program collaborates with other EPA programs, other federal partners, and state agencies to identify and make available resources. In addition to direct Brownfields funding, EPA also provides technical information on Brownfields financing matters.

College/Underserved Communities Partnership Program—CUPP provides a creative partnership approach to deliver technical assistance from local colleges and universities to small underserved communities at no cost. This program combines environmental justice concerns and mission-related objectives of multiple agencies with core curriculum objectives of local colleges and universities. Communities benefit from the investment of innovative technical assistance and approaches provided by students attending nearby academic institutions.

EPA Science Tools to support Sustainability and Resilience—EPA continues to help communities and other stakeholders apply a suite of tools in a strategic, complementary and informed way to reduce the burden to communities for a more efficient process to capture multiple benefits across economic, societal and environmental impacts. These tools (below) can help stakeholders understand resilience/sustainability priorities.

- **EnviroAtlas**—A web-based decision support tool that gives users the ability to view, analyze and download information related to ecosystem services (nature’s benefits). Contains an interactive, geospatial mapping application with hundreds of data layers that can be used at a wide variety of scales, from national to community levels, and helps communities



understand how various decisions can affect an array of ecological and human health outcomes.

- **Health Impact Assessment**—A tool that helps stakeholders and policymakers understand the public health consequences associated with a plan, project or policy. HIAs follow a structured process; include input from people potentially impacted by the pending policy or plan; are flexible, based on timelines and resources; consider different types of evidence; and provide timely recommendations to decision makers. HIA can be used to enhance a policy/intervention (e.g., green infrastructure) under consideration, to maximize the benefits (public safety, walkability, reduced respiratory illness, reduced heat related illness) and minimize adverse consequences.
- **CANARY: Drinking Water Contamination Early Warning Sensor System**—A tool that uses water quality data, and statistical and mathematical algorithms to identify the onset of periods of anomalous water quality.
- **Community-Focused Exposure and Risk Screening Tool** An online tool that provides access to resources to help communities learn more about their environmental issues and risks, compare conditions in their community with their county and state averages, and explore exposure and risk reduction options.
- **Eco-Health Relationship Browser**—An interactive tool that illustrates the scientific evidence for linkages between human health and ecosystem services—benefits supplied by nature. The browser provides information about several major ecosystems, the services provided, and how those services, or their degradation and loss, may affect people's health.
- **Environmental Justice Screening and Mapping Tool**—Environmental justice mapping and screening tool that provides a nationally consistent dataset and approach for combining environmental and demographic indicators.
- **Green Infrastructure Wizard**—Interactive web application that connects communities to EPA Green Infrastructure tools and resources. Users can produce customized reports to manage water and provide environmental and community benefits.
- **National Stormwater Calculator and Assessment Tool**—Part of the LEED certification guidelines on stormwater. This desktop application estimates the annual amount of stormwater runoff from a specific site based on local soil conditions, slope, land cover and historical rainfall records. The calculator supports planning, analysis and design of alternative stormwater management systems to reduce flooding, nutrient impairment of water bodies, and health risks. Users can evaluate a variety of green infrastructure methods, such as porous pavement and bio-retention to reduce flooding. The calculator takes into account future vulnerability scenarios, changes in seasonal precipitation levels and the effects of more frequent high-intensity storms.



Philanthropic Advisor Findings

Strategy Development Considerations

The Philanthropic advisor helps the Federal Disaster Recovery Coordinator and all of the Recovery Support Functions identify recovery initiatives that may require additional funding and resource support from the funder community. This may include identification of projects and program support that will promote a “Whole Community Recovery.”

In the aftermath of Hurricane Irma, impacts and projected recovery needs were anticipated by the philanthropic community in Florida and elsewhere. This resulted in the creation of more than 20 recovery funds with assets, according to Foundation Center data, of more than \$126,908,000. Many of these funds were dispersed to the nonprofits that provided support to the residents during the relief stage. Other funders focus on ongoing recovery efforts and will work with FEMA’s federal partners to provide gap and cost-share funding for projects that may meet their mission requirements.

The Philanthropy team also engages in impacted communities as part of the Community Planning and Capacity Building function, one of the six RSFs outlined in the National Disaster Recovery Framework... Philanthropy will attend steering committee meetings and community meetings to facilitate identification of recovery projects. Philanthropy subsequently researches funding resources that are project-specific.

The Philanthropic advisor engages in normal and customary support actions:

- Facilitating private non-profit workshops with SBA and PA at the request of community foundations;
- Developing a strategy to inform the funders networks of what FEMA has planned and what FEMA can fund;
- Developing a peer-to-peer structure for experienced disaster recovery funders to help them make thoughtful decisions;
- Connecting with each RSF to identify funding gaps and ways stakeholders can engage with philanthropic organizations to address them;
- Working with philanthropy leaders to develop a briefing so IRC and VAL staff know the do(s) and don’t(s) of working with philanthropy; continuing coordination with USDA Rural Development, HQ, and FL Field Leadership to develop a pilot project to engage with Lowe’s in selected counties to expedite homeowner recovery [this will include Individual Assistance, U.S. Department of Agriculture, DCM and potentially, Housing and Urban Development housing counsellors].
- Engaging resources and support from the Center for Disaster Philanthropy and the Council on Foundations needed for funders to work collaboratively;
- Providing an integrated approach to funders for VALS and CPCB staff;
- Performing targeted grant research for projects with identified gap-funding needs;
- Working with Volunteer Florida to integrate efforts with the Florida Recovery Fund;
- Researching all potential sources of funding for Irma recovery and facilitating discussions about leveraging those funds with other sources (Mitigation, PA and other programs); and
- Facilitating and coordinating grant writing workshops in partnership with HUD and community foundations for low-capacity communities.



In addition to direct support, a library of resources has been produced by the Philanthropic team. In support of the Place Based Recovery Support Initiative, the following products have been demonstrated and proven useful during previous disaster deployments to foster capacity for recovery:

- **A Donor's Guide**—A resource for donors/foundations considering contributions to nonprofit organizations working in Florida's impacted communities.
- **A Resource Guide**—A resource for Disaster Case Managers, Community Recovery Planners, and Long-Term Recovery Group leaders working with survivors to identify resources or organizations they can partner with for recovery.
- **A Grant Guide**—A resource for Long-Term Recovery Groups to find funding for their collaborative efforts toward rebuilding homes for survivors.
- **A Recovery Resource Guide**—A resource for Community Disaster Recovery to identify potential sources funding and technical assistance to support community recovery projects.

Engagement with Foundations

The domestic development landscape has changed rapidly in the past decade. In the new development environment, the importance of foundations and philanthropic capital has increased. A number of factors make it imperative for FEMA to engage strategically in partnerships with foundations:

- **Foundations are becoming full-fledged development partners rather than donors.** They expect to be closely involved in diagnosing and addressing disaster recovery challenges. Foundations and their partners share common recovery challenges and collaborate to mobilize resources and actions to bring about sustained and transformational change. Foundations are steering away from funding single or ad hoc projects but instead plan multi-asset interventions and *leverage* funding with advocacy, networks, knowledge and experience. The community foundations' expertise in "Collective Impact" will help align the priorities and interests of the place-based initiative.
- **Foundations are interested in working with governments.** Historically, foundations have worked primarily with civil society and NGOs. However, more and more they are coordinating efforts or even directly engaging with local, state, and federal governments as their development partners. They seek to prevent duplication of funding efforts from the government grants and to fill gaps where government funding can't be used.
- **Foundations are interested in developing national capacities.** Foundations have demonstrated interest in developing capacities and relations among civil society and government institutions while emphasizing greater civic engagement, transparency, accountability and advocacy for human rights. FEMA hopes to educate these organizations on how disaster recovery efforts are aligned with their own missions.
- **There is a growing convergence in the interests of foundations and other organizations as they engage more directly with development partners.**
 - Foundations are moving toward *solutions that strengthen systems* and away from single-project outputs. In the past, foundations mostly distributed grants for small-scale and single-issue projects in isolation. More often in recent years, they carefully choose development challenges and plan their interventions strategically. The focus of foundations has shifted toward *leveraging* funding with advocacy, networks and knowledge to address issues.
 - Foundations are increasingly committed to *aligning interventions and results with national development priorities and policy* at the state and federal level. Foundations



often work in coalitions and in coordination with government and development partners, seeking cooperation from both the public and private sectors.

Foundations have a number of characteristics that make them attractive partners for disaster recovery:

- **Foundations are emerging thought-leaders:** Foundations are increasingly investing in cutting edge research and testing innovative ideas. They are thought leaders in many sectors. They have funded problem analysis and research, invested their social capital in risky and cutting edge pilot initiatives, and built networks of collaborators (including governments). FEMA would gain access to new development knowledge, networks and people through enhanced collaboration.
- **Foundations have the capacity to run high-profile advocacy campaigns:** Many foundations can effectively mobilize media attention around global development issues such as climate change, food security or public health. Foundations are an important partner in profiling advocacy and communication campaigns on core disaster recovery issues.
- **Foundations forge innovative public/private partnerships:** Foundations are well-positioned to play a catalytic role between private or public investors and social enterprises or entrepreneurs by providing venture capital. There is a recent trend of ‘impact investing’ where philanthropic or *patient* capital is used in financial innovations that solve development problems using an entrepreneurial, results-oriented framework.⁵⁴ Corporate philanthropy has championed this trend. By working more closely with core business, corporate philanthropy leaders help to create new resources and ideas that magnify corporate benefits to society.⁵⁵

In addition to direct outreach to specific foundations, a number of organizations provide broader reach to the philanthropic community. The ongoing connection to the Florida Philanthropic Network, the Council on Foundations, and the Center for Disaster Philanthropy will provide the connectivity and networking necessary to assist potential funders to maximize their leveraging opportunities for community investments that promote Hurricane Irma recovery. FPN plans to convene the funders to provide an opportunity to leverage their funds. This opportunity will also foster input and information sharing with the Interagency Recovery Coordination Group. As projects that may need gap or cost-share funding are identified, the philanthropy group will provide specific targeted grant research that may identify potential providers of additional funding needed to complete projects. The Knight Foundation is an example of a national foundation that funds place-based projects.

Although there is no direct foundation funding available at this time to address a specific RSS objective, the opportunities for private participation in Florida recovery are abundant. The Philanthropic advisor will continue to participate across RSF and Florida priorities to address the always relevant issue of gap funding.

¹ Philanthropic funding typically acts as angel investor offering capital at early stages of enterprise development and seeks return in the long term, typically over 10 years. Investments aim to operationalize inclusive business models that offer affordable goods and services to the poor and initial successes of returns to investors have been found in sectors such as energy and agriculture. The typical financial tools used for this purpose range from loans and equity to social bonds and social stock exchanges. (Source: From Blueprint to Scale, by Monitor, 2012 <http://www.mim.monitor.com/blueprinttoscale.html>)

² [Increasing Impact, enhancing value](#). A Practitioner’s Guide to Leading Corporate Philanthropy, Council on Foundations, 2012.



Recovery Issues and Strategies

Issue 1: Gap Funding

Background

Gaps in funding exist after all other appropriate forms of federal, state, and local funding are exhausted in prioritized recovery projects in jeopardy without additional capital.

Goal 1.1

Provide gap funding through private Philanthropic organizations for recovery. The intent is to connect needs with private resources that would not otherwise have visibility to each other.

Strategic Objective 1.1.1

Inform and coordinate the stakeholders where Philanthropic resources might apply, with the intent of optimizing available funds for highest and best use within the recovery needs and making initial introductions and guidance on application processes.

Support Action 1.1.1.1

See the RSF section objectives where this applies with the key language as follows: “Coordinate funding gaps for Philanthropic opportunities.”

Throughout the RSS, wherever the mention of coordinating for Philanthropic opportunities occurs, this indicates that a potential private source of funding may be appropriate for this strategic objective.



Appendices

Appendix A: Coordinated Place Based Recovery Support

Strategy Development Considerations

Communities and their local governments are often forced to make complex recovery decisions after a disaster. These decisions range widely and can include important issues such as business reinvestment, loss of employment, affordable housing and building long-term resilience. In addition, many of these communities may lack the financial resources and capability, either in staffing or recent experience, to address the planning, decision-making processes, and recovery management capacity needed to start and effectively implement their recovery. Consequences of these decisions may impact community prosperity, safety and identity for years to come.

Purpose

The Coordinated Place Based Recovery Support team Concept of Operations provides a framework for organizing and delivering federal, state and private-sector recovery resources in support of local recovery leadership.

Mission

Support and assist local leadership to develop post-disaster recovery plans and projects, create and implement an expedited and organized decision-making process, develop adequate capacity to identify recovery projects, and help communities identify critical steps and resources for project and strategy implementation.

Scope

The level of interagency support is determined by analyzing disaster impacts, coordinating with local, state and federal partners and assessing existing local pre- and post-disaster conditions. Support is predicated on providing impacted counties with actionable and discrete information to support successful project implementation, and assisting the community with the development of an implementation roadmap. The interagency also will help communities develop the capacity and capability needed to successfully manage long-term recovery plans and projects.

Analysis is underway with Florida Division of Emergency Management, Florida Department of Economic Opportunity and FEMA Hazard Mitigation Branch, federal agency partners, professional associations and nonprofit organizations to identify appropriate levels of support.

Planning Assumptions and Critical Considerations

Local leadership is primary. Federal and state agencies and resources will organize to support local recovery.

Counties, local communities and jurisdictions will identify a single recovery leader or manager to coordinate with the supporting interagency partners and resources.

Background

The State of Florida and its existing planning structures are robust in capacity and innovative in their support. Despite this capacity and capability, the scale and scope of Hurricane Irma requires an extra level of coordinated support to heavily impacted communities lacking sufficient capacity to manage their local recovery efforts. Those communities will face many important decisions that must



be made after a federally declared emergency or disaster. This will invariably impact their long-term recovery goals. It is the goal of the Coordinated Place Based Recovery Support teams to assist heavily impacted and low-capacity communities navigate this complex process and develop plans, projects and processes that enhance their internal capacity and increase their resilience to all hazards.

Overview

Florida's Division of Emergency Management and Department of Economic Opportunity, along with the federal interagency, have reviewed all Florida counties to determine the severity of impacts and potential existing capacity gaps that limit the provision of sufficient support to communities. These counties were offered and have accepted the support of CPBRs teams.

All affected counties were evaluated for technical assistance support and subsequently placed in a "tiered" system. Tier 1 counties have been identified and will be offered teams. These teams will be located in each respective county and provide coordinated support for a duration of four to six months. **Collier, Hendry, Lee, and Monroe** counties have been identified as Tier 1.

Tier 2 counties are those with moderate impacts and moderate-to-high capacity. Tier 2 counties will be offered county and regional level support in the form of targeted advisory support, capacity-building activities, and targeted technical assistance at the county and branch level. **Clay, Duval, Glades, Palm Beach, Putnam, Seminole, and Volusia** counties have been identified as Tier 2.

All affected counties not identified for Tier 1 or Tier 2 support are placed in Tier 3 and will be offered statewide capacity-building activities such as trainings, peer-to-peer engagements and targeted programmatic support.

The Community Planning Capacity Building Recovery Support Function conducted an initial analysis of disaster impacts, existing demographics and social vulnerability data and created a Community Conditions Assessment. This was done at the county level and will develop into community-specific analyses. CCA information was developed in coordination with multiple partners, including the U.S. Census Bureau, AARP, United Way, the Shimborg Center and FEMA Individual Assistance. Subsequently, counties with a significant portion of their households requesting Individual Assistance, those with limited capacity, high social vulnerabilities, low ALICE scores and those agreed upon by the state were offered Tier 1 support. The CCA will continue to develop as disaster impacts are revealed.



Appendix B: Economic Recovery Support Function

Federal Programs to Aid in Economic Recovery

FEDERAL PARTNER	PROGRAMS
ISSUE 1: BUSINESS LOSS	
U.S. Small Business Administration	<ul style="list-style-type: none"> Business Physical Disaster Loans Economic Injury Disaster Loans Microloan Program 7(a) Loan Program Certified Development Companies 504 Loan Program Surety Bonds Small Business Investment Company Small Business Innovation Research Grants Small Business Technology Transfer Research Grants
U.S. Department of Homeland Security Federal Emergency Management Agency	<ul style="list-style-type: none"> Community Disaster Loan Program Public Assistance Program
U.S. Department of Commerce , Economic Development Administration	<ul style="list-style-type: none"> Economic Adjustment Assistance Program Planning Program Local Technical Assistance Program Public Works Program Trade Adjustment Assistance for Firms University Center Program Research and Evaluation Program (National Technical Assistance Program) Regional Innovation Strategies
U.S. Department of Treasury	<ul style="list-style-type: none"> IRS Disaster Assistance and Emergency Relief Bank Enterprise Award Program CDFI Program CDFI Bond Guarantee Program Capacity Building Program Capital Magnet Fund Native Initiatives New Market Tax Credit Program
U.S. Department of Housing and Urban Development, Community Planning and Development	<ul style="list-style-type: none"> Community Development Block Grants Infrastructure and Community Planning High Performance Buildings



FEDERAL PARTNER	PROGRAMS
U.S. Department of Agriculture Rural Development	Rural Business Enterprise Grant Rural Business Development Grant Rural Community Development Initiative Grant Rural Energy for America Program Emergency Community Water Assistance Community Facilities Direct Loan and Grant Program Intermediary Lending Program Water and Waste Disposal Loan and Grant Program Water and Waste Disposal Loan Guarantees Water and Waste Disposal Technical Assistance and Training Grants Community Facilities Programs Water and Environment Service Electric Service Telecommunication Service Business Programs Cooperative Programs Community Economic Development
U.S. Department of Agriculture , National Institute of Food and Agriculture	Small Business Innovation Research Grants
Administration for Community Living	Small Business Innovation Research Grant
U.S. Department of Commerce, National Institute of Standards and Technology	Manufacturing Extension Partnership Community Resilience Center of Excellence Community Resilience Program
U.S. Department of Commerce, International Trade Administration	U.S. Export Assistance Centers
U.S. Department of Commerce, Minority Business Development Agency	MBDA Business Center Native American Business Enterprise Centers
U.S. Department of Energy, Office of Economic Impact and Diversity	Minority Business and Economic Development Minority Education and Community Development Civil Rights & Equal Employment Opportunity Diversity and Inclusion STEM Outreach and Engagement
U.S. Department of Defense (DOD), U.S. Army Corps of Engineers	Office of Small Business Programs Brownfields and Urban Waters Programs



FEDERAL PARTNER	PROGRAMS
U.S. Environmental Protection Agency	Small Business Innovation Research Grants Environmental Justice Collaborative Problem Solving Grants Brownfields Assessment Grants Brownfields Revolving Loan Funds Brownfields Cleanup Grants Brownfields Area Wide Planning Grants Clean Diesel National Grants
Financial and Banking Information Infrastructure Committee	Regulatory Relief for Federally Insured Financial Institutions
ISSUE 2: AGRICULTURE AND AQUACULTURE DAMAGE	
U.S. Department of Agriculture, Farm Service Agency	Emergency Loans Emergency Conservation Program Non-Insured Crop Disaster Assistance Program Emergency Forest Restoration Program Emergency Assistance for Livestock, Honeybee, Farm-raised Fish Livestock Forage Disaster Program Farm Storage Facility Loan Program Livestock Indemnity Program Tree Assistance Program Dairy Indemnity Payment Program Marketing Assistance Loan Programs – Commodity Loans Conservation Reserve Program Conservation Reserve Enhancement Program Farmable Wetlands Program Grassland Reserve Program Source Water Protection Program Direct Operating Loans Microloans Direct Farm Ownership Loans Guaranteed Loans Youth Loans Minority and Women Farmers and Ranchers Loans Beginning Farmers and Ranchers Loans



FEDERAL PARTNER	PROGRAMS
U.S. Department of Agriculture, Natural Resources and Conservation Services	Agritourism and Alternative Enterprises Resource Conservation and Development Program Environmental Quality Incentives Program Agriculture Conservation Easement Program Emergency Watershed Protection Program EWP Floodplain Easement Conservation Technical Assistance
U.S. Department of Agriculture, Rural Development	Community Facilities Direct Loans & Grants Community Facilities Loan Guarantees Community Facilities Technical Assistance and Training Grant Economic Impact Initiative Grants Rural Community Development Initiative Grants
U.S. Department of Agriculture, National Institute of Food and Agriculture	Agriculture and Food Research Initiative
USDA Risk Management Agency	Federal Crop Insurance Program
U.S. Department of Commerce	Office of Aquaculture Office of Habitat Conservation Office of Protected Resources Office of Science and Technology Office of Sustainable Fisheries
U.S. Department of Commerce, National Oceanic and Atmospheric Administration	Fisheries Disaster Relief Saltonstall-Kennedy Grant Program -- Fisheries R&D Marine Fisheries Initiative Fisheries Finance Program Fishermen's Contingency Fund -- Title IV Sea Grant Marine Extension Program
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service Habitat Conservation	Coastal and Marine Habitat Restoration Grants Coastal Ecosystem Resiliency Grants Program DARRP Restoration Implementation Grants Coastal and Marine Habitat Focus Area Cooperative Agreements Habitat Blueprint - Habitat Focus Area grants
U.S. Department of Agriculture, National Institute of Food and Agriculture and U.S. Department of Commerce, National Oceanic and Atmospheric Administration	Extension Disaster Education Network



FEDERAL PARTNER	PROGRAMS
U.S. Department of the Interior, Fish and Wildlife Service	Coastal Program Coastal Wetlands Conservation Grants Cooperative Ecosystems Studies Units Endangered Species Grants International Conservation Programs Neotropical Migratory Bird Conservation Act North American Wetlands Conservation Act Partners for Fish and Wildlife Urban Bird Treaty Grants Wildlife and Sport Fish Restoration Programs
U.S. Environmental Protection Agency	Water Quality Programs Monitoring Shellfish Waters
ISSUE 3: TOURISM RESILIENCY	
U.S. Department of Commerce, International Trade Administration	Market Developer Cooperator Program
U.S. Department of the Interior, National Park Service	Historic Preservation Fund State, Tribal and Local Plans & Grants National Heritage Areas Program National Register of Historic Places "Discover Our Shared Heritage" Travel Itineraries Rivers, Trails and Conservation Assistance Program
U.S. Department of the Interior, National Park Service and Bureau of Land Management	National Trails System
U.S. Department of Transportation, Federal Highway Administration	National Scenic Byways Program Recreational Trails Program Grants
U.S. Environmental Protection Agency	American Heritage Rivers Initiative
U.S. Department of Agriculture, Natural Resources Conservation Services	Agritourism and Alternative Enterprises
National Endowment for the Arts	Challenge America Fast-Track Review Grants Cultural Tourism Program Cultural District Program



FEDERAL PARTNER	PROGRAMS
National Trust for Historic Preservation	Campaign for America's National Treasures African-American Cultural Heritage Action Fund
National Endowment for the Humanities	America's Historic Places Grants Alliance for Response
ISSUE 4: DISPLACED AND DISLOCATED WORKERS	
U.S. Department of Labor, Employment and Training Administration	Disaster Unemployment Assistance National Dislocated Worker Grant Emergency/Disaster Dislocated Worker Grant Layoff/Dislocation Dislocated Worker Grant Service Member Dislocated Worker Grant Trade Adjustment Assistance Dislocated Worker Grant Workforce Investment and Opportunity Act, Adult Program National Farm Worker Jobs Program Senior Community Service Employment Program Work Opportunity Tax Credit Workforce Innovation and Opportunity Act Employment Service/Wagner-Peyser Funded Activities Unemployment Insurance
U.S. Department of Housing and Urban Development	Family Self-Sufficiency Program Section 3 Program Step Up Program
U.S. Small Business Administration	Home and Personal Property Disaster Loans
U.S. Department of Agriculture, Rural Development	Community Facilities Direct Loans & Grants Community Facilities Loan Guarantees Community Facilities Technical Assistance and Training Grant Economic Impact Initiative Grants Rural Community Development Initiative Grants Single Family Housing Direct Home Loans Single Family Housing Guaranteed Loan Program Single Family Housing Repair Loans & Grants Multi-Family Housing Direct Loans Multi-Family Housing Loan Guarantees Multi-Family Housing Rental Assistance Rural Housing Site Loans Mutual Self-Help Housing Technical Assistance Grants Housing Preservation & Revitalization Demonstration Loans & Grants Housing Preservation Grants Farm Labor Direct Loans & Grants



FEDERAL PARTNER	PROGRAMS
U.S. Health and Human Services, Administration for Children and Families	Community Services Block Grant Temporary Assistance to Needy Families Child Care and Development Fund Community Economic Development Grant Program Low Income Home Energy Assistance Program Rural Community Development Program Social Services Block Grant Program Social and Economic Development Strategies Native Youth Initiative for Leadership, Empowerment and Development
U.S. Department of Agriculture, Food and Nutrition Service	USDA Foods for Disaster Assistance Disaster Supplemental Nutrition Assistance Program Farm to School Grant Program
U.S. Department of Labor and Social Security Administration	Disability Program Navigator Initiative
U.S. Department of Labor, Veterans' Employment and Training Service	HIRE Vets Medallion Program Homeless Veterans' Reintegration Program Jobs for Veterans State Grants
Administration for Community Living	Innovations in Nutrition Programs and Services Disaster Assistance for State Units on Aging & Tribal Organizations in National Disasters Minority Serving Institutions Partnership Planning Grants
U.S. Environmental Protection Agency	Brownfields Environmental Workforce Development and Job Training Grants



Appendix C: Infrastructure Systems Recovery Support Function

Infrastructure Systems Partners

Coordinating Agency

U.S. Army Corps of Engineers

Primary Agencies

- Department of Energy
- Department of Homeland Security, Office of Infrastructure Protection
- U.S. Department of Transportation
- DHS, Federal Emergency Management Agency
- U.S. Coast Guard

Supporting Agencies

- U.S. Department of Agriculture
 - U.S. Fish and Wildlife Service
 - U.S. Department of the Interior
 - National Oceanic and Atmospheric Administration
 - U.S. Department of Commerce National Marine Fisheries Service
 - Environmental Protection Agency
 - Small Business Administration
 - Bureau of Ocean Energy Management
 - U.S. Geological Survey
 - Department of Commerce
 - Nuclear Regulatory Commission
- State Coordinating Agencies:
- Florida Division of Emergency Management
 - Florida Department of Environmental Protection
 - Florida Department of Economic Opportunity
 - Florida Department of Transportation
 - Florida Energy & Climate Commission
 - Florida Public Service Commission
 - Florida Fish and Wildlife Conservation Commission
 - State Historic Preservation Office



Appendix D: Health & Social Services Recovery Support Function

HSS RSF Approach to Inform Potential Strategies for Recovery Support

To augment the content in the Mission Scoping Assessment, the HSS RSF used a multidisciplinary approach to collect passive and active sources of information on the impact of Hurricane Irma to Florida's Health and Social Services sector. The team conducted site assessments with state, local and nongovernmental partners, held in-person interviews with key local leaders, did windshield assessments – sites visited without personal engagement – combining qualitative data collected by state and federal partners, and quantitative data where available.

Based on a review of this additional information, the HSS RSF team worked with its partners and identified nine key issues.

Issue 1: Lack of access to behavioral health services post disaster.

Issue 2: Cascading impacts of post-disaster unemployment and housing instability affecting social determinants of health.

Issue 3: Educational and emotional support for homeless children and other vulnerable children and youth in schools.

Issue 4: Child-care provider recovery and resilience.

Issue 5: Long-term health effects on responders, disaster survivors and volunteers.

Issue 6: Nutritional needs for survivors with Access and Functional Needs.

Issue 7: Limited planning and implementation capacity to effectively support survivors with AFN,

Issue 8: Vulnerable populations lack access to disaster case management services and have significant unmet housing, economic and behavioral health needs.

Issue 9: Hospital recovery – Fishermen's Community Hospital, Marathon Key.

HSS RSF Mission Scoping Assessment Issue Update

Three issues identified in the HSS RSF MSA have been addressed and require no further HSS RSF action. They are:

The recoupment of hospitals' disaster response costs will be an ongoing recovery concern. Thus far, 66 health-care facilities have applied for FEMA Public Assistance reimbursement. While additional HSS RSF coordination is not deemed necessary for this issue, it is a topic that will remain important in Florida's recovery.

Fishermen's Community Hospital closed due to Hurricane Irma and has been supported by a mobile medical unit through an Emergency Management Assistance Compact agreement with North Carolina for 120 days. The hospital has not announced an anticipated reopening date.



The Nursing Home and Assisted Living Facility Emergency Power and Mitigation Task Force’s mission was to assess and recommend resources or programs to support nursing home and ALF compliance with Emergency Rules #58AER17-1 and #59AER17-1, and conduct other mitigation activities. Many nursing homes and ALFs are for-profit organizations and are not eligible for FEMA funds to support this requirement. In response, the HSS RSF developed a matrix detailing potential funding sources to comply with the emergency rules. The State Disaster Recovery Coordinator (SDRC) submitted the resource guide to state partners for dissemination.

Partner Organizations

Below is a list of state, local and nongovernmental partners:

Health and Social Services RSF	
Partner Engagement	
State of Florida	Florida Agency for Health Care Administration Florida Agency for Persons with Disabilities Florida Association of Community Health Centers Florida Department of Agriculture and Consumer Services Florida Department of Children and Families Florida Department of Education Florida Department of Environmental Protection Florida Department of Health Florida Department of Elder Affairs Florida Health Care Association Florida Hospital Association
Broward County	Aging and Disability Resource Center Area Agency on Aging Palm Beach/Treasure Coast Broward County Public Schools
Collier County	Eden Park Elementary School Head Start*
*indicates windshield assessment	Oaks Elementary School Head Start Salvation Army United Way
Duval County	Fairway Oaks Center, Head Start Center*



Health and Social Services RSF

Partner Engagement

indicates windshield assessment	George Washington Carver Elementary School, Head Start Center
	Mayport Elementary, Head Start Center*
	R.F. Kennedy Center, Head Start Center*
Lee County	American Red Cross Shelter
	Area Agency on Aging for Southwest Florida
Miami-Dade County	Allapattah Community Action Inc.
	Allapattah Community Housing Inc.
	Area Alliance on Aging
	Citrus Health Network
	Early Learning Coalition
	Miami-Dade County Public Schools
Monroe County	Area Health Education Centers
*indicates windshield assessment	Baptist Health South Florida
	Bayshore Manor (Nursing Home)*
	Bayshore Manor Assisted Living Facility
	Big Pine Academy Early Learning Center
	City of Marathon Fire and EMS
	CVS -- 3788
	Early Steps Day Care*
	Florida Department of Health, Monroe County
	Florida Keys Outreach Coalition for the Homeless/William Reese Center for Homeless Recovery
	General Adams Elementary
	Island Christian School*
	Keys Strong
	Lower Keys Medical Center*
	Marathon Library*



Health and Social Services RSF

Partner Engagement

- Marathon High School
- Mariners Hospital*
- Monroe Area Alliance on Aging
- Monroe County Fire Department
- Monroe County Public Schools
- Monroe County Senior Center: Key West*
- Monroe County Senior Center: Marathon*
- Monroe County Senior Center: Plantation Key
- Monroe County Social Services
- Rural Health Network of Monroe County
- St. James Children’s Center*
- Stanley Switlik Elementary School*
- Sugarloaf School
- Treasure Village Montessori*
- Wesley House Family Services

Palm Beach

- Area Agency on Aging Palm Beach/Treasure Coast

Other ORGANIZATIONS

- Catholic Charities
- Child Care Aware of America
- Feeding Florida
- Harden Insight (private firm)
- Migrant Clinicians Network
- Navigant (private firm)
- National Alliance on Mental Illness
- National Institute of Environmental Health Sciences
- Pediatric Environmental Health Safety Unit
- PYA (private firm)



Health and Social Services RSF

Partner Engagement

FEDERAL AGENCIES	<p>School Based Health Alliance</p> <p>Administration for Community Living</p> <p>Department of Health and Human Services</p> <ol style="list-style-type: none"> 5. Administration for Children and Families 6. Centers for Disease Control and Prevention 7. Health Resources and Services Administration 8. National Institute of Environmental Health Sciences <p>Department of Housing and Urban Development</p> <p>Department of The Interior</p> <p>Department of Homeland Security</p> <ol style="list-style-type: none"> 1.4 FEMA Branch II 1.1 DRC – St. Augustine 1.5 FEMA Branch IV 1.1 DRC - Immokalee 1.6 FEMA Branch V <p>Environmental Protection Agency</p> <p>United States Department of Agriculture</p>
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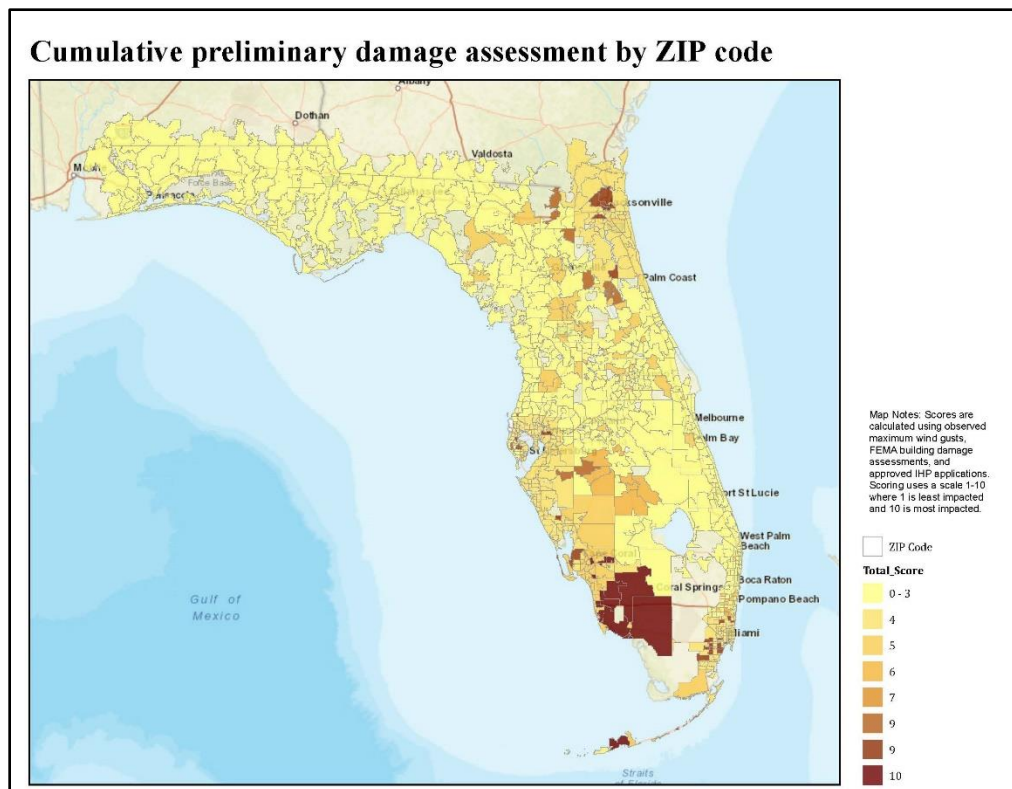
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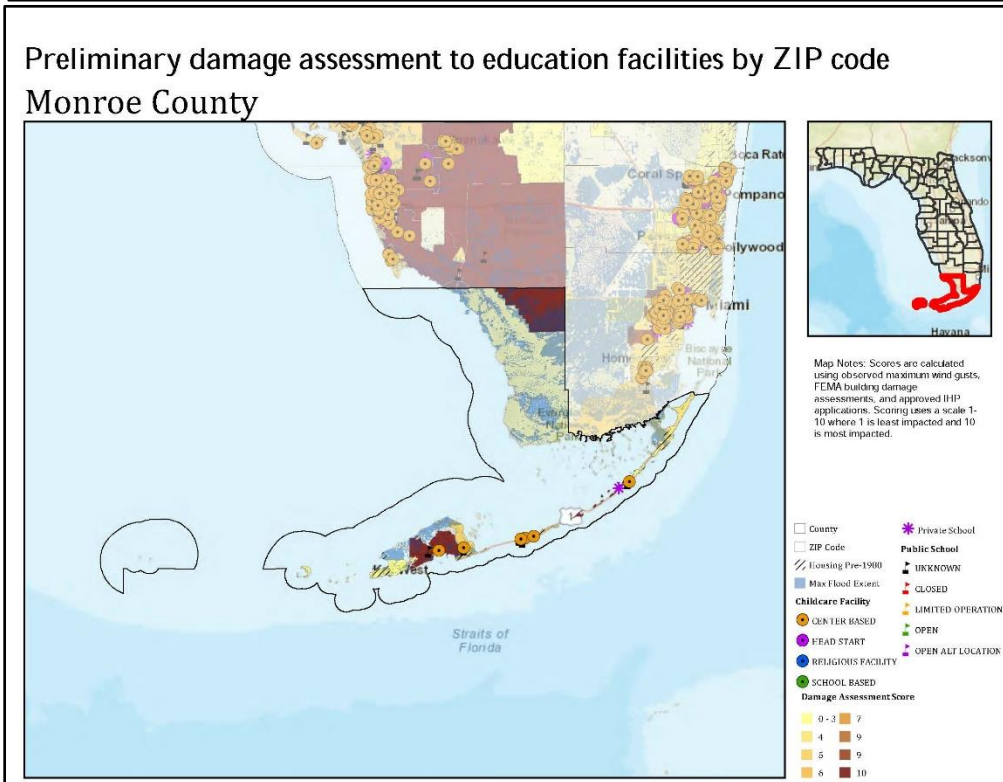
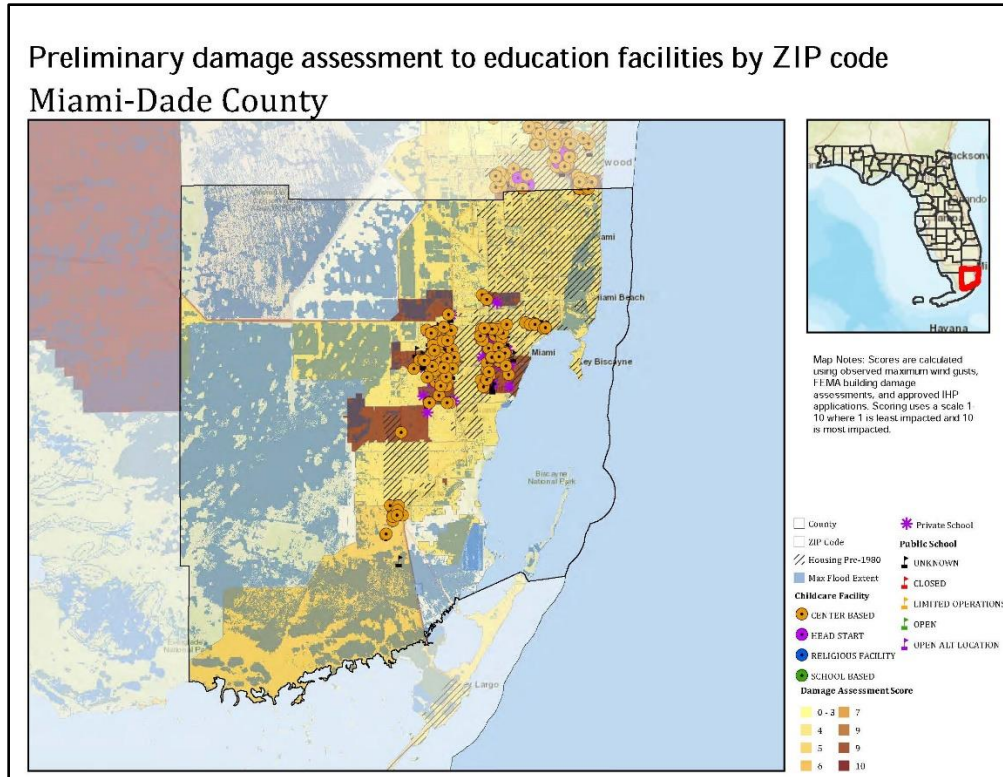
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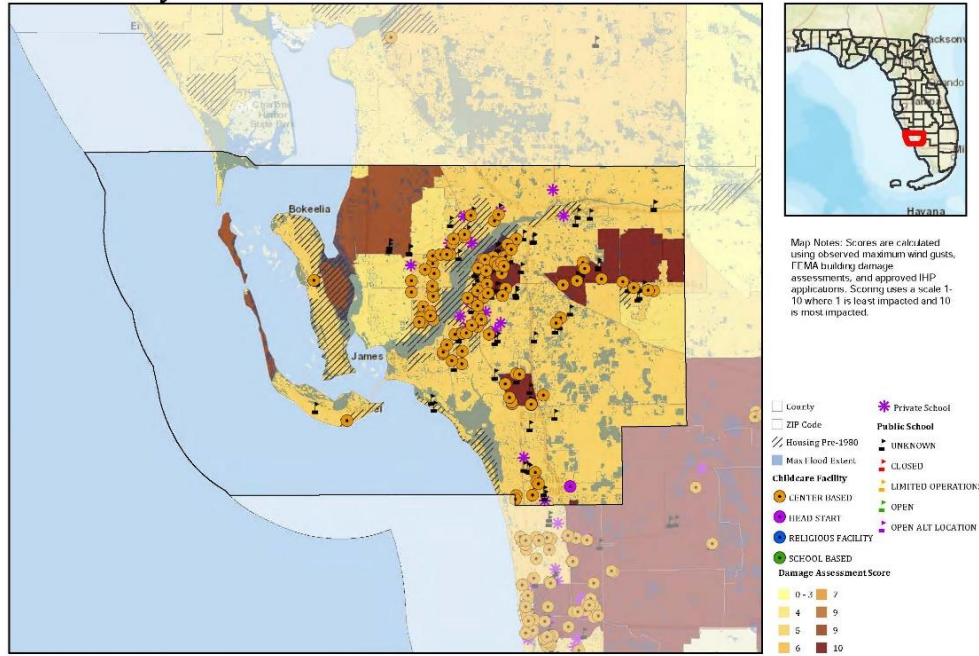
Maps Used to Assist Analysis

Geospatial work products that the HSS used to help analyze and prioritize coordination efforts have been added to the HSS App mid-October 2017.

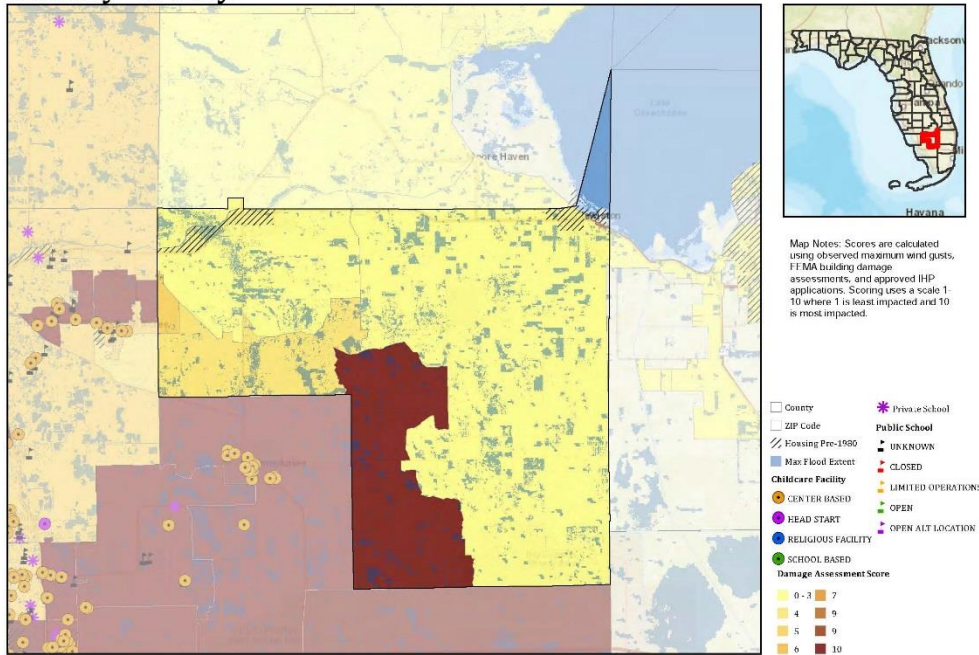


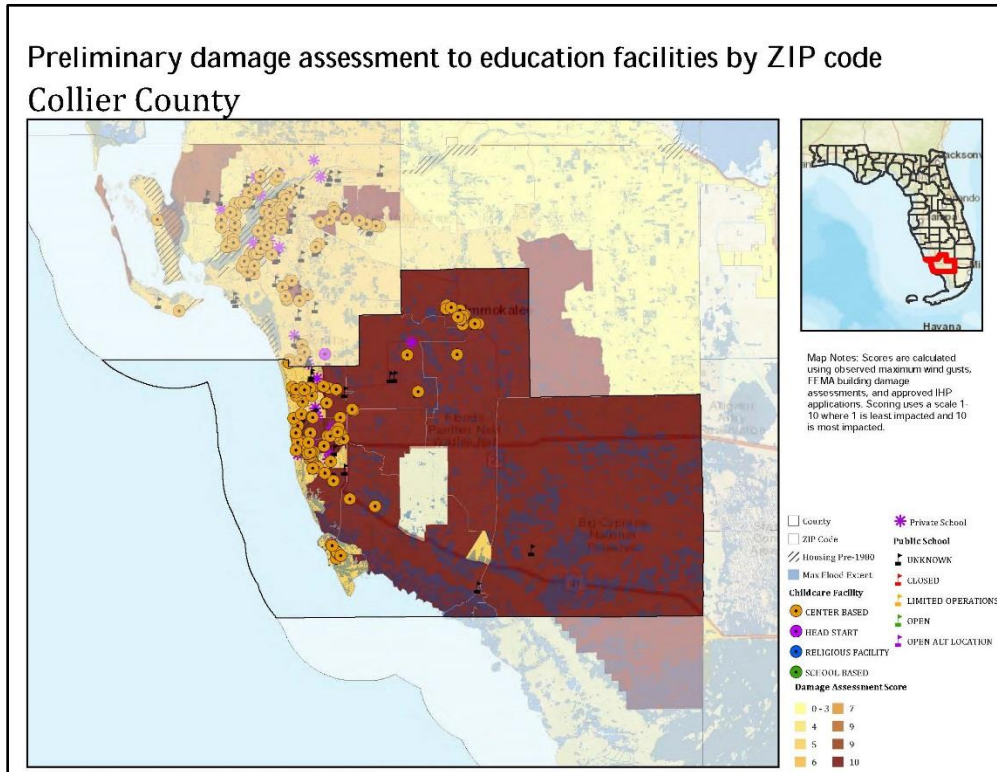
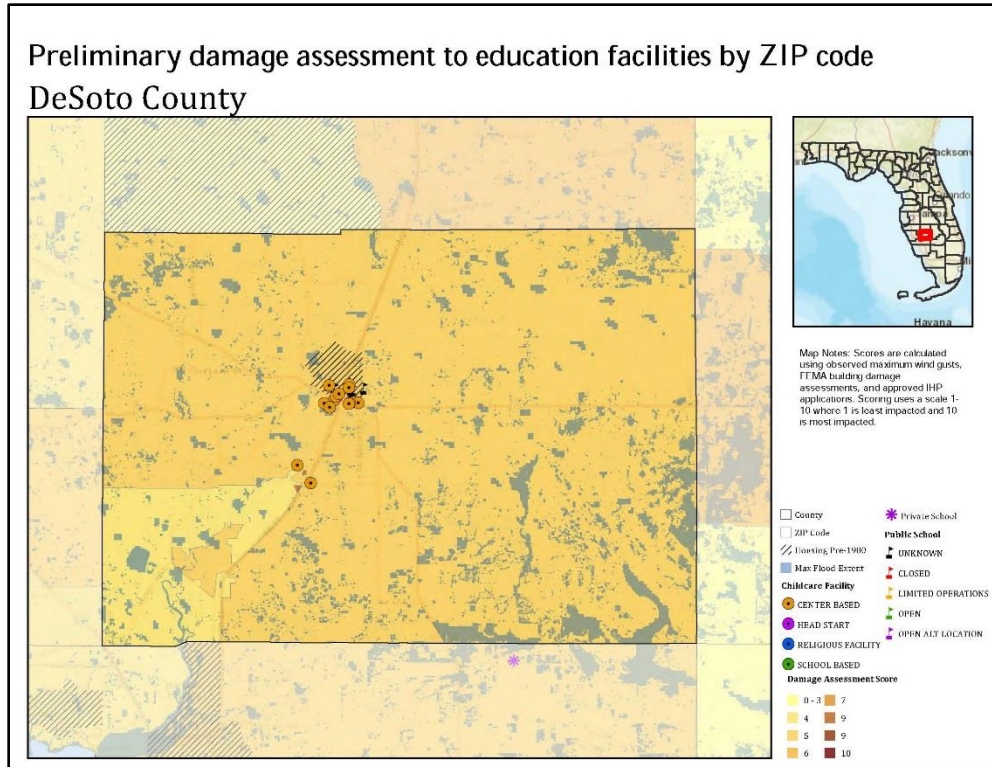


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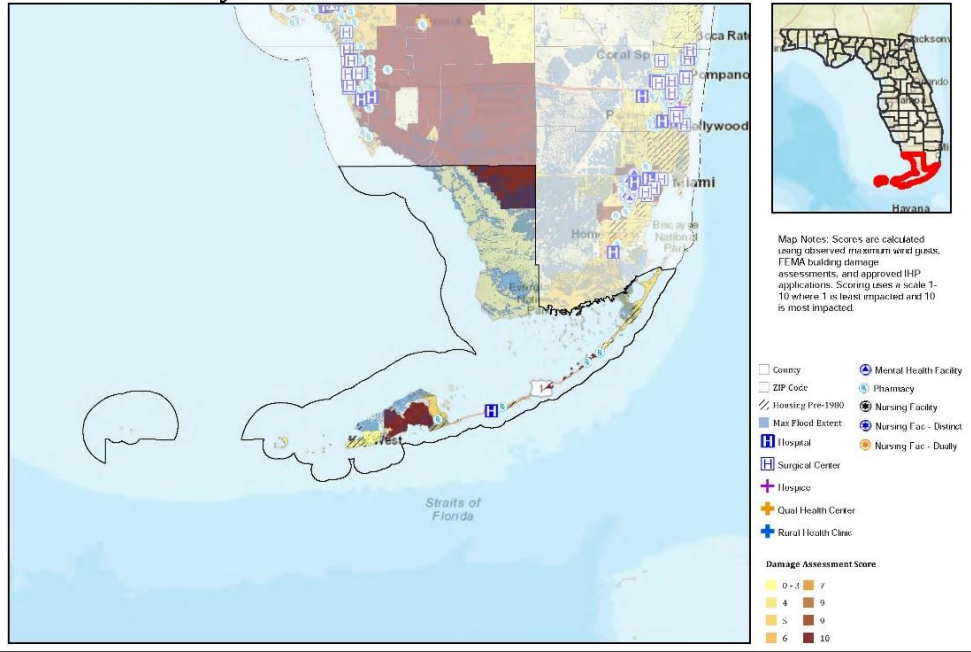


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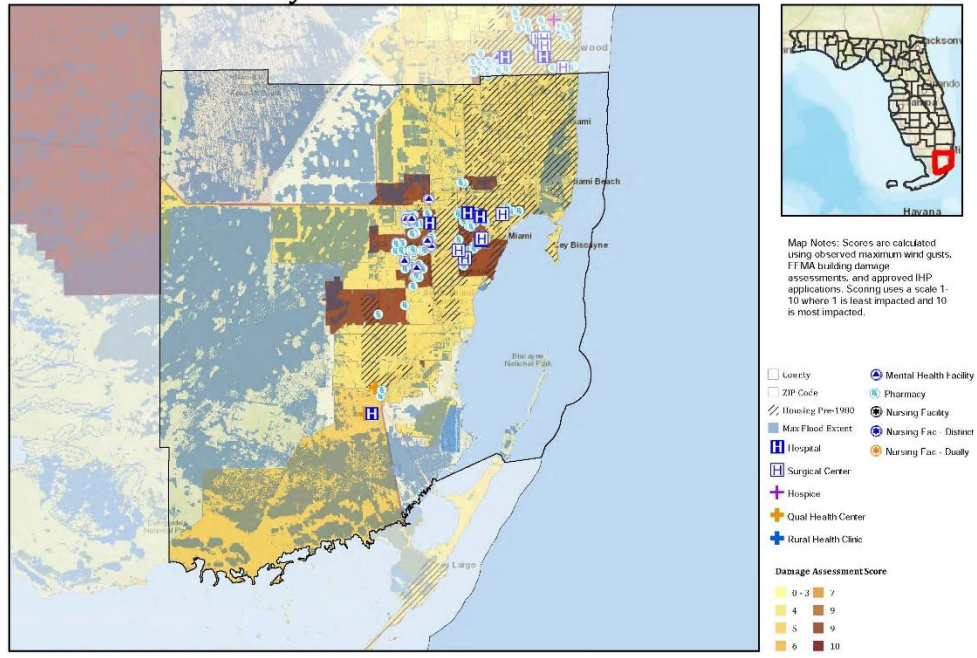


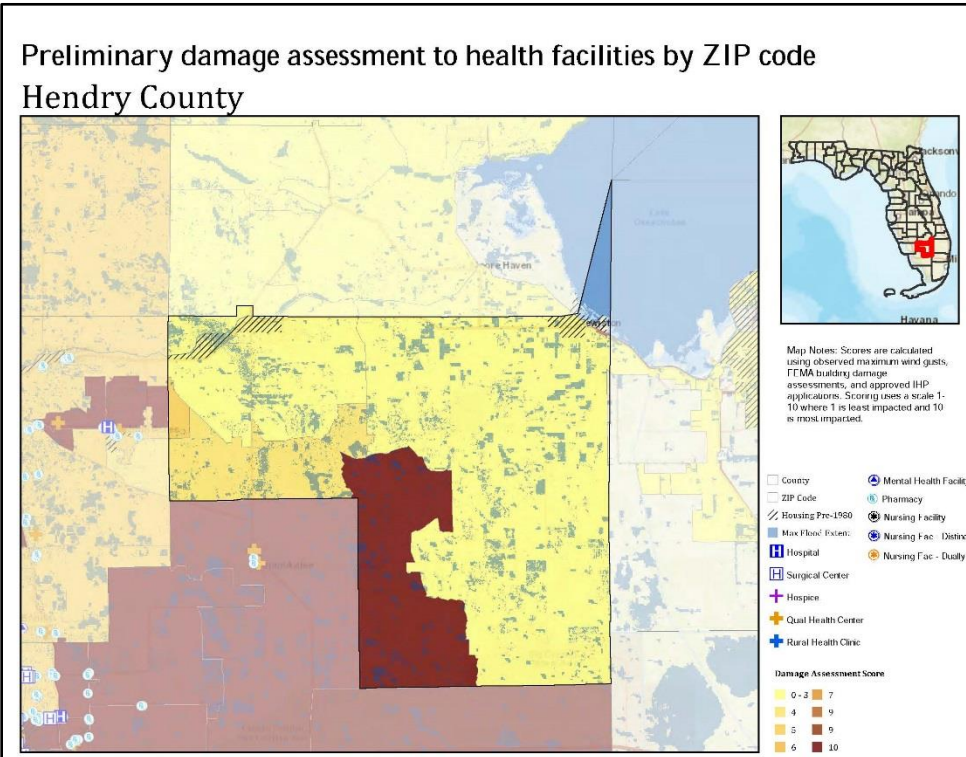
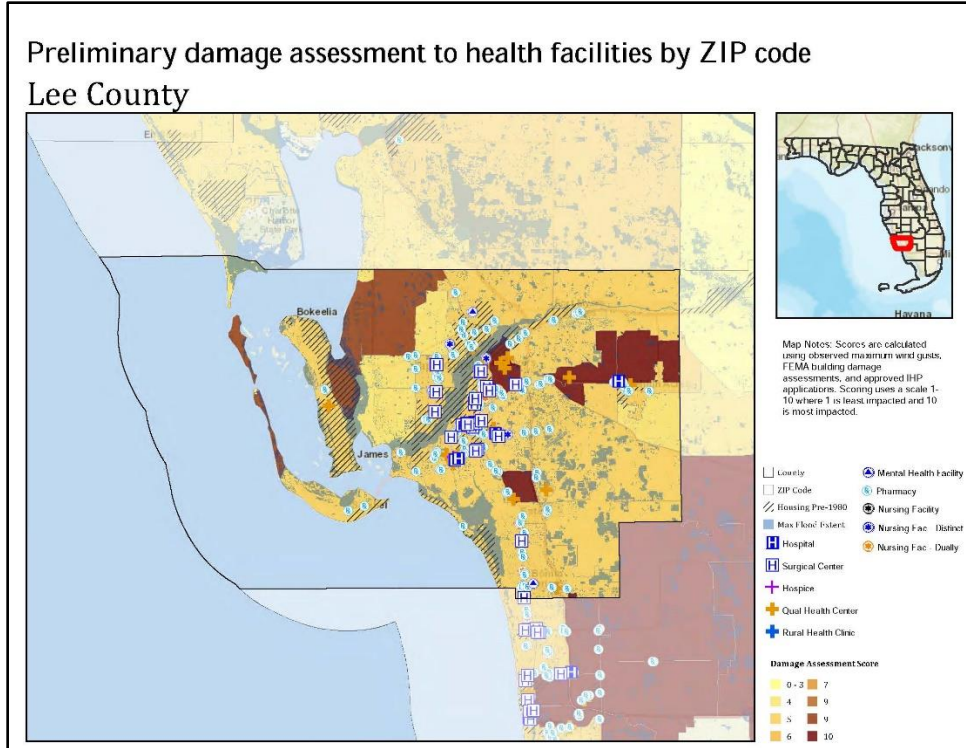


Preliminary damage assessment to health facilities by ZIP code Monroe County

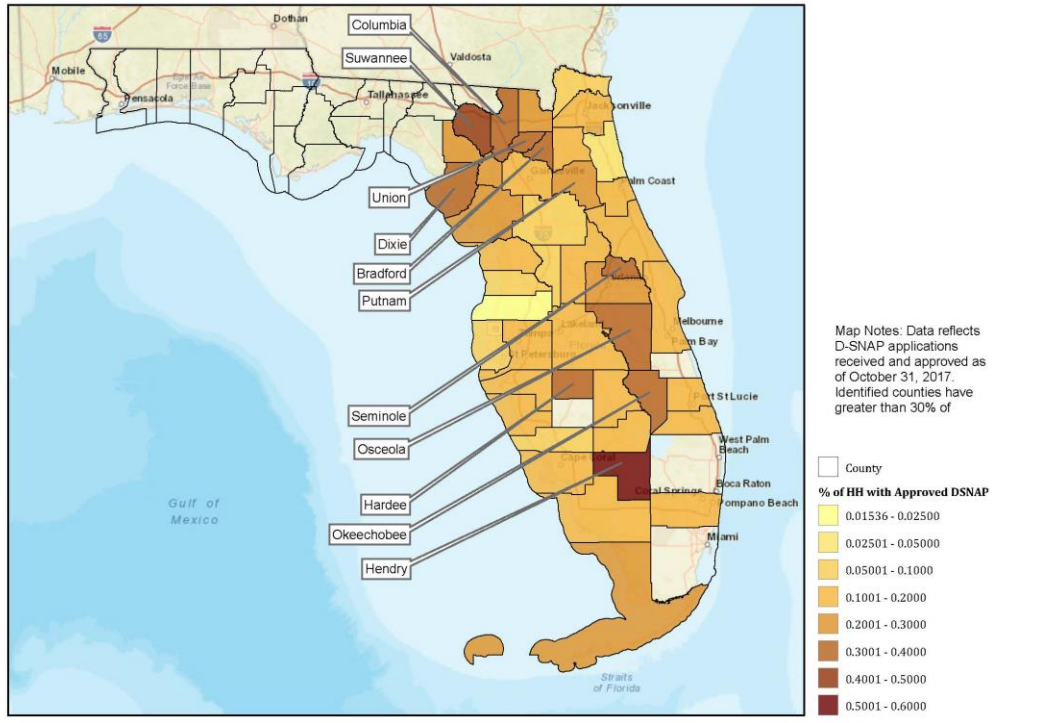


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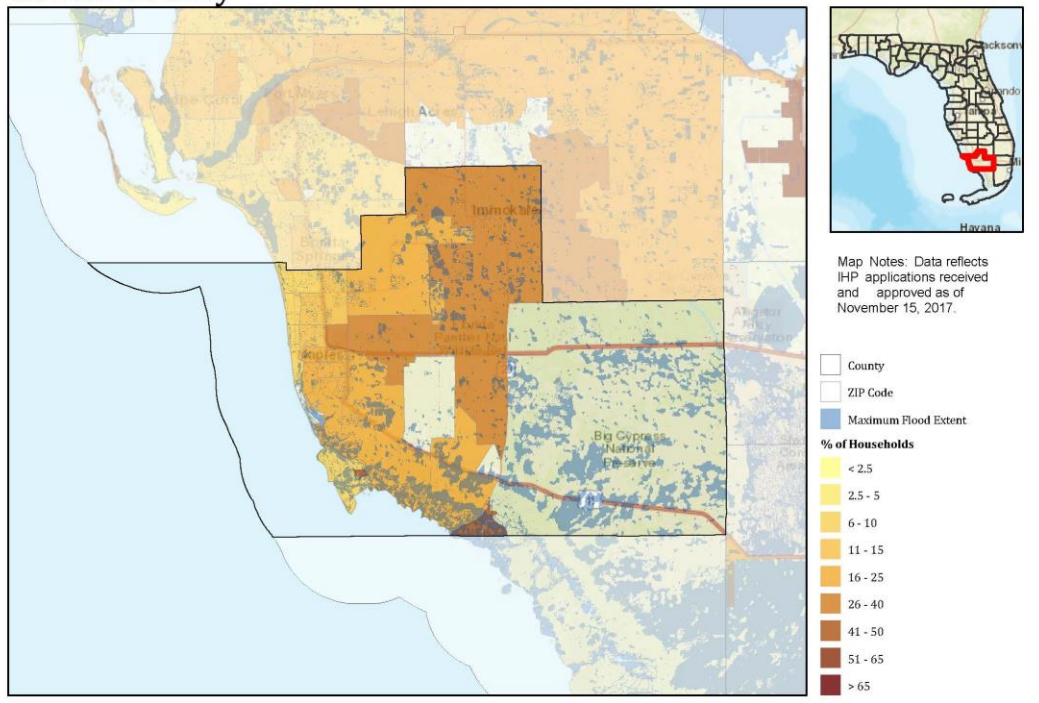


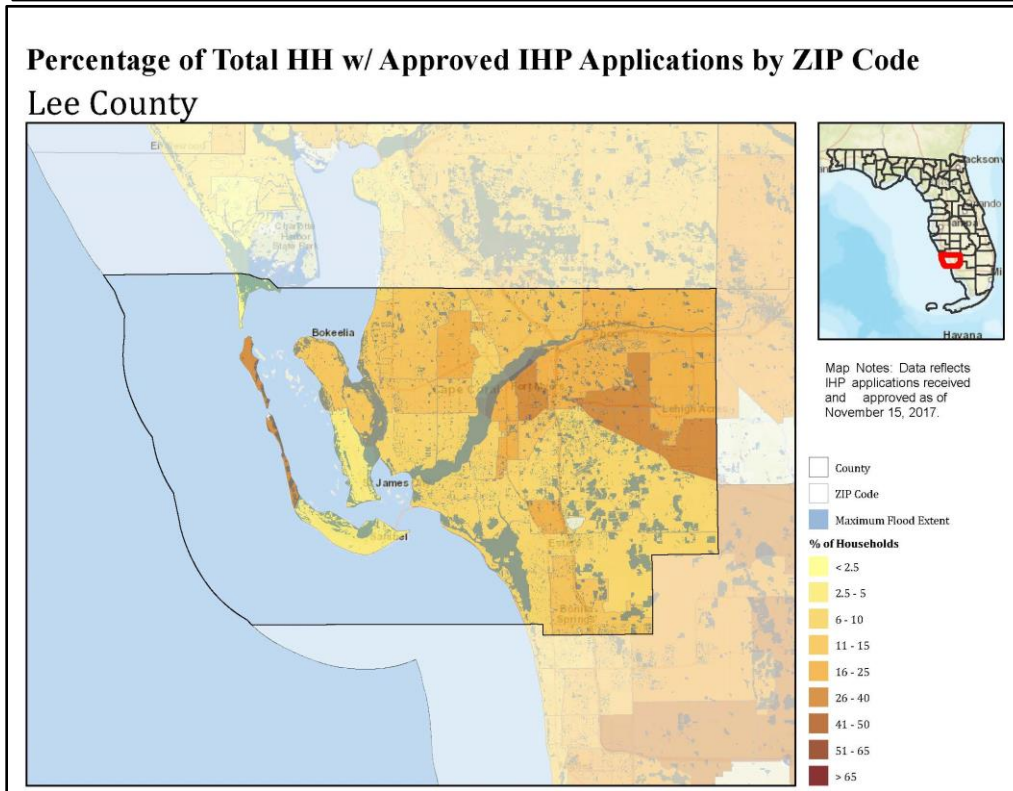
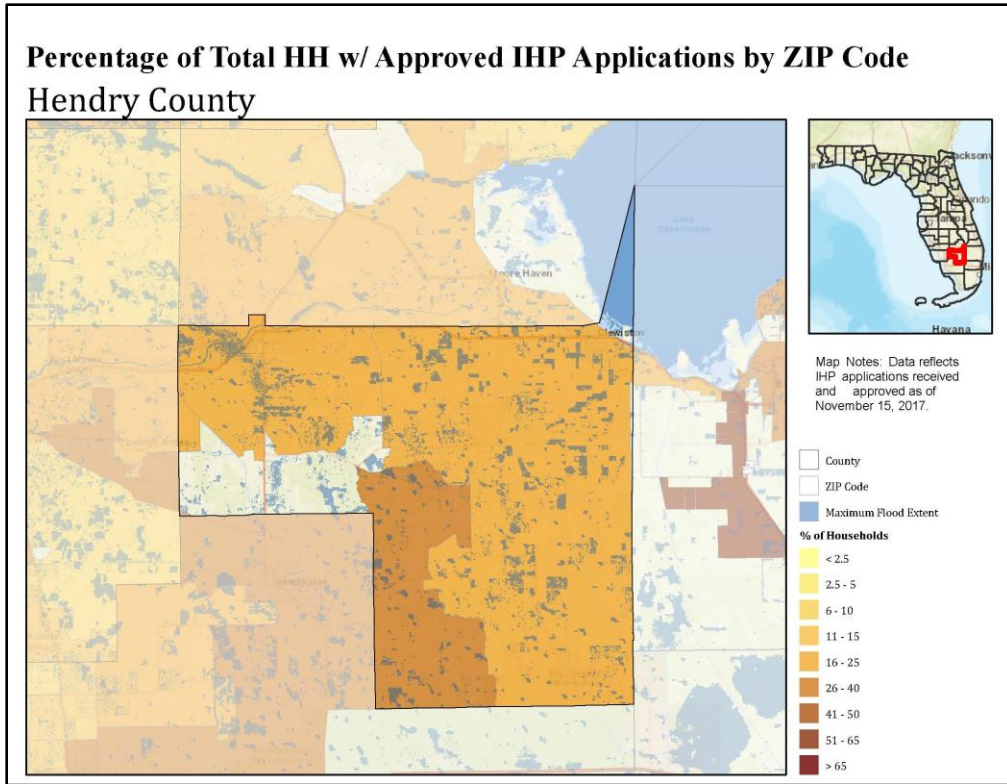


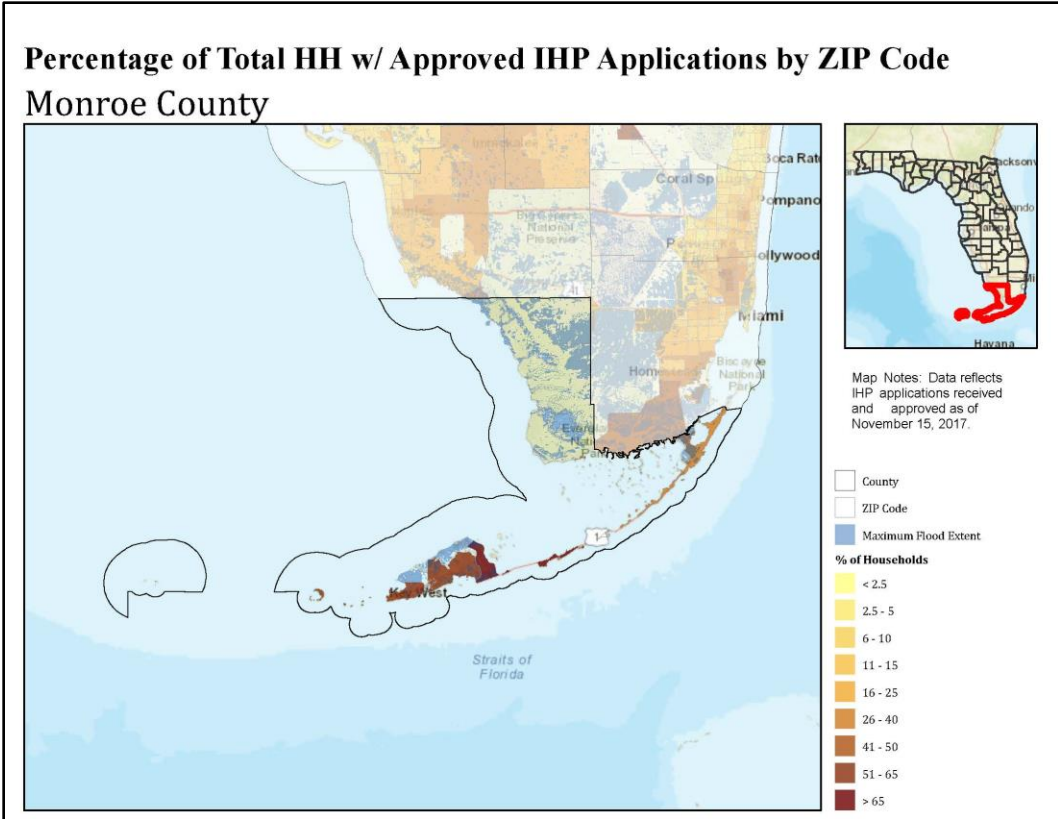
Percentage of Total HH w/ Approved D-SNAP Applications by County



Percentage of Total HH w/ Approved IHP Applications by ZIP Code Collier County







Appendix E: Acronyms

ACHP - Advisory Council on Historic Preservation	JFO - Joint Field Office (FEMA)
AET - Advance Evaluation Team	MSA - Mission Scoping Assessment
ARC - American Red Cross	NCR - US Department of Natural and Cultural Resources
CDFI - Community Development Finance Institution	NCSBTDC - NC Small Business Technology and Development Center
CEQ - Council on Environmental Quality	NDRF - National Disaster Recovery Framework (FEMA)
CNCS - Corporation for National and Community Services	NDRS - National Disaster Recovery Support Cadre (FEMA)
COG - Council of Governments	NEMA - National Emergency Management Association
CPCB - Community Planning and Capacity Building (Recovery Support Function)	NEA - National Endowment for the Arts
DHS - US Department of Homeland Security	NEH - National Endowment for the Humanities
DOC - US Department of Commerce	NFIP - National Flood Insurance Program (FEMA)
DOI - US Department of the Interior	NFIP CRS - National Flood Insurance Program Community Rating System (FEMA)
DOJ - US Department of Justice	NPS - National Park Service
DOL - US Department of Labor	NTIA - National Telecommunications Information Administration
DOT - US Department of Transportation	NGO - Non-Governmental Organization
DUA - Disaster Unemployment Assistance	NOAA - National Oceanic and Atmospheric Agency
EDA - US Economic Development Administration	NRCS - Natural Resources Conservation Service
EMI - Emergency Management Institute	NVOAD - National Voluntary Organizations Active in Disasters
EPA - US Environment Protection Agency	PA - Public Assistance (FEMA)
FCCE - Flood Control & Coastal Emergencies Program	PDM - Pre-Disaster Mitigation Program (FEMA)
FCO - Federal Coordinating Officer (FEMA)	RA - Regional Administrator (FEMA)
FDRC - Federal Disaster Recovery Coordinator (FEMA)	RPDC - Regional Planning and Development Councils
FDRO - Federal Disaster Recovery Officer (FEMA)	RSF - Recovery Support Function (FEMA)
FEMA - Federal Emergency Management Agency	RSS - Recovery Support Strategy (FEMA)
GSA - General Services Administration	SBA - Small Business Administration
HENTF - Heritage Emergency National Task Force	SBDC - Small Business Development Centers
HMGP - Hazard Mitigation Grant Program (FEMA)	SDRO - State Disaster Recovery Officer
HSS - US Department of Health and Social Services	SHMO - State Hazard Mitigation Officer
HUD - US Department of Housing and Urban Development	SHPO - State Historic Preservation Officer
IA - Individual Assistance (FEMA)	USDA - United States Department of Agriculture
IMLS - Institute of Museum and Library Services	TREAS - US Department of Treasury
IRC - Interagency Recovery Coordination	SCO - State Coordinating Officer
IS - Infrastructure Systems	SDRC - State Disaster Recovery Coordinator
ITA - International Trade Administration	



SoVI - Social Vulnerability Index
SRO - State Recovery Office
UFR - Unified Federal Review
USACE - US Army Corps of Engineers
USDA - US Department of Agriculture

USDA-RD - US Department of Agriculture –
Rural Development
USDA-NRCS - USDA Natural Resource
Conservation Service

