

# COASTAL RESILIENCY FUNDING GUIDE

A Tool for Puerto Rico Municipalities  
to Recover from the Impacts of  
Hurricanes Irma and Maria



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# 1 INTRODUCTION

Coastal municipalities in Puerto Rico have always faced coastal hazards such as hurricanes and storm surge. However, several trends have increased the natural hazard risk faced by Puerto Rico's municipalities: development in the coastal zone; sea level rise; and high erosion rates in many locations along the west, north and east coasts, such as Rincón, Loíza, and Humacao. These trends mean that more people and infrastructure are exposed to coastal hazards than ever before. Puerto Rico is also experiencing a new and unprecedented challenge—recovering from the devastating impacts from Hurricane Maria and a territory-wide fiscal and debt crisis.

The *Coastal Resiliency Funding Guide* (hereafter referred to as “Guide”) has been designed as a tool for municipalities in Puerto Rico to increase awareness of, and more effectively access, available federal programs and grants and to mobilize local and private resources to strengthen coastal resiliency.

Puerto Rico's nickname is “Isla del Encanto,” or “Island of Enchantment,” due to its impressive array of coastal and natural resources. The goal of this Guide is to support the implementation of locally appropriate coastal resiliency measures that contribute to the sustainable development of this unique and special place.



## Coastal Resiliency Funding Guide

**Place:** Puerto Rico and its 44 coastal municipalities

**Issue:** Puerto Rico's municipalities are recovering from Hurricane Maria's impacts and remain extremely vulnerable to coastal hazards; there is a significant need to provide financing strategies to implement coastal resiliency measures.

### **Funding Guide Objectives:**

- Identify and prioritize funding measures for Puerto Rico municipalities using a “pathway to recovery” framework.
- Promote innovative approaches, best practices, and lessons learned related to coastal resiliency financing.

The *Coastal Resiliency Funding Guide* has been developed by Puerto Rico's Coastal Zone Management Program (PRCZMP), Department of Natural and Environmental Resources (DNER) with support from the U.S. National Oceanic and Atmospheric Administration (NOAA). Tetra Tech, Inc. authored the Guide.



## 1.1 Organization of the Guide

This Guide is designed to help users easily identify appropriate funding sources and best practices related to disaster recovery and long-term coastal resiliency efforts. The Guide includes the following:

- **Section 1: Introduction.** Presents the objective and organization of the Guide. Provides background information and introduces the concept of coastal resiliency.
- **Section 2: Pathway to Recovery.** Recognizing Puerto Rico's post-disaster reality, a pathway for recovery is presented. The pathway includes five steps that can be undertaken by the Territory and its municipalities to support recovery efforts. Each step is designed to support 1) the general recovery process (as recognized through similar post-disaster experiences) and 2) recommended actions or requirements to pursue federal funding for recovery.
- **Section 3: Post-Recovery Funding Sources and Financing Strategies.** Identifies a variety of funding sources that can support coastal resiliency, including federal (with emphasis on post-disaster funding sources), non-profit, and municipal revenue tools.
- **Section 4: Best Practices and Innovative Approaches in Post-Disaster Funding.** The federal government is an important partner in recovery efforts. This section presents best practices and innovative approaches that may assist Puerto Rico and its municipalities to not just tap into these resource streams, but to leverage those funds to support a more resilient and sustainable future.
- **Annex I: Strengthening Coastal Resiliency for Puerto Rico Project.** Describes the Project and how this Guide supports overall objectives.
- **Annex II: Federal Resource Toolkit.** Presents federal resources available to support coastal resiliency.
- **Annex III: Non-Profit Toolkit.** Presents non-profit resources available to support coastal resiliency.
- **Annex IV: Stakeholder Outreach.** Identifies the stakeholders that have supported development of this Guide.

## 1.2 Background

As an island archipelago in the Caribbean, Puerto Rico is particularly sensitive to natural hazards such as hurricanes, extreme precipitation events, and coastal storm surges. The coastline of the archipelago has a length of approximately 800 miles with over 1,225 beaches (DRNA 2017), which includes the four main offshore islands of Vieques, Culebra, Mona, and Desecheo. All of Puerto Rico is classified as a coastal area, which exposes Puerto Rico's entire population, natural resources, and critical infrastructure to some degree of risk from coastal hazards.

Climate change is expected to exacerbate the threat of natural hazards and vulnerability of Puerto Rico's people, infrastructure, and environmental and natural resources. As a result of climate change, average temperatures and sea levels are rising, precipitation patterns are changing, and hurricanes could intensify (PRCCC 2013).

In 2017, Puerto Rico experienced two powerful hurricanes that devastated many parts of the region, and had a significant impact on the territory's coastal regions, infrastructure, housing, and power sources. Hurricane Irma was the first to hit the territory as a potent category 5 hurricane. Although the eye of the storm passed to the north of the territory, 100-mile-per-hour wind gusts were felt throughout the island. The hurricane caused about two-thirds of the population to lose power, and 34 percent of the inhabitants lost access to clean water (Meyer 2017).

Less than two weeks later, while the region was still recovering, Hurricane Maria made landfall as a category 4 hurricane (Bueno 2017). Wind gusts of up to 155-miles-per-hour were recorded and Maria became the first category 4 hurricane to make landfall on the island since 1932. Parts of the island received 30 inches of rain in a single day, and 80 to 90 percent



Flooding damage on September 23, 2017 due to Hurricane Maria. Photo: U.S. Customs and Border Patrol

of some towns were completely destroyed (Meyer 2017). After Hurricane Maria, 44 percent of the population lacked access to clean drinking water, and the electrical grid for the entire territory was down. As of December 2017, the official death toll from Hurricane Maria was 64, but reports from other news sources such as the *Miami Herald* put the figures much higher (Hoyos and Caplan 2017).

At the end of 2017, the Federal Emergency Management Agency (FEMA) announced that assistance to Puerto Rico had reached over \$1 billion, with \$557 million for financial assistance, \$794 million in low-interest disaster loans, and \$468 million for uninsured

hurricane-related expenses (FEMA 2018). Other assistance includes \$2.8 million in flood insurance claims (FEMA 2017). The region is still recovering from the effects of both hurricanes.

Puerto Rico's Coastal Zone Management Program (PRCZMP), Department of Natural and Environmental Resources (DNER), has long recognized the vulnerability of the Government of Puerto Rico to coastal hazards and climate change, and championed proactive measures to address these multi-faceted issues. DNER has supported efforts to quantify and characterize Puerto Rico's shoreline, developed visualization tools of coastal areas under various sea level rise



scenarios and hurricane intensities, and supported the development of vulnerability assessments and adaptation plans for four pilot municipalities. An overarching objective of these efforts is to provide the tools for the municipalities of Puerto Rico to identify critical vulnerabilities and develop coastal resiliency strategies to support healthy and vibrant communities.

However, recovering from the devastating impacts of Hurricanes Irma and Maria presents significant capacity and economic challenges for local governments

and communities. Puerto Rico is also in the midst of a historic fiscal and debt crisis, underscoring the need for municipalities to prioritize and maximize resources, and develop innovative financing solutions.

This Guide seeks to build on DNER's efforts to support the municipalities of Puerto Rico by identifying funding opportunities and investment strategies that municipalities can use to support their coastal resiliency efforts. Refer to Annex I for additional information on the project.

The Puerto Rico Coastal Zone Management Program supported the development of a [Climate Change Council](#), a collaborative group working towards the vision for a Safe, Healthy, Sustainable, Productive, and Resilient Puerto Rico. The PRCCC website provides information on Working Groups, relevant publications, and a Climate Change Tool, and is a recommended resource for all Puerto Rico municipalities.

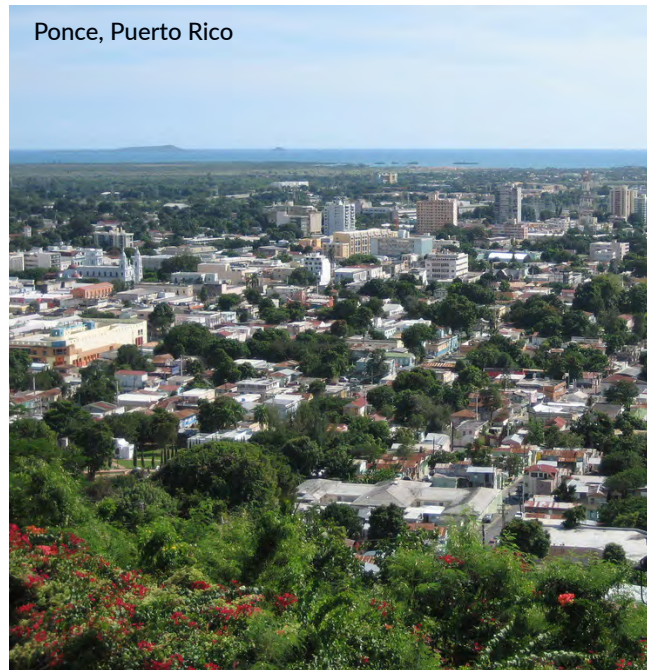
## 1.3 Coastal Resiliency

Coastal resiliency is considered the ability of coastal communities and natural systems to thrive in the midst of chronic stresses, such as erosion, drought periods, and sea level rise, or acute shocks, such as hurricanes and major flood events.

Hurricanes Irma and Maria intensified quickly, which is likely a consequence of deep pools of warm water that were located off the coast of Puerto Rico. Air and ocean temperatures have been steadily rising over the past century and are projected to continue to rise under climate change scenarios; thus, there is a strong likelihood that storms and storm surges will become more intense in the future. Puerto Rico will need to take proactive measures to prepare for the next hurricane season. It is imperative that Puerto Rico effectively mobilize and access resources to recover from the effects of Hurricanes Irma and Maria while also strengthening resiliency to future hazards.

Municipalities in Puerto Rico have developed a wide array of plans and strategies to strengthen their coastal resiliency. For example, the Government of Puerto Rico and all 78 municipalities in Puerto Rico have developed hazard mitigation

Ponce, Puerto Rico



**Urban Resilience** is defined as “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.” Refer to the [100 Resilient Cities program](#) for more information.





Shoreline protection project at Plaza del Mar, Palmas del Mar, Humacao. *Photo: Jorge Suarez*

plans (HMPs)—which are plans that strive to avoid future losses from the impacts of natural hazards by assessing “risk” as their cornerstone. Additionally, DNER has funded climate change adaptation plans for five pilot communities: Salinas, Culebra, Dorado, Rincón and Loiza. Whereas HMPs are required to be updated at least once every five years to address potential changes in vulnerabilities, the climate change adaptation plans consider long-term trends and how vulnerabilities may be exacerbated under climate change scenarios. FEMA guidance for hazard mitigation planning requires states to account for possible changes in risk due to future conditions impacted by a changing climate. This requirement has trickled down to local planning efforts since it is a requirement for local plans to be “consistent” with the state plan’s goals, objectives, and risk assessment. This is a natural

component for any hazard mitigation plan as the frequency and severity of hazard events are increasing as climatic conditions change, especially in coastal environments. Hazard mitigation plans tend to focus on current vulnerabilities and immediate hazard mitigation actions, whereas climate change adaptation plans tend to look at current as well as much longer impact and planning horizons (e.g., 50 and even 100 years).

As an initial step in developing the Guide, the project team evaluated four of the five climate change adaptation plans and four HMPs considered representative of HMPs for coastal municipalities (Rincón, Arecibo, Añasco, and Aguada). This assessment was used to better understand the types of coastal resiliency needs that coastal municipalities have in Puerto Rico. Based on the review of these documents, the project team

identified priority classifications for coastal resiliency funding. The priority classifications include the following issue areas:

- ▶ Coastal Management and Restoration (e.g., maintain a healthy first line of defense against coastal erosion and storm surge)
  - Structural approaches
    - Off-shore breakwaters, artificial reefs
    - Levees, seawalls, revetments
  - Preserve and restore natural coastal defenses
    - Protect and manage coral reefs, mangroves, etc.
  - Beach/Dune nourishment
  - Living Shorelines
- ▶ Municipal Infrastructure (e.g., protect, relocate, and/or retrofit vulnerable infrastructure)
  - Transportation
  - Energy (e.g., power grid)
  - Water and wastewater utilities
  - Other municipal infrastructure (e.g., schools, hospitals, communication, etc.)
  - General building stock (e.g., governmental, residential and commercial)
  - Planning and emergency preparedness

- Response, recovery, and hazard mitigation
- Codes and enforcement

- ▶ Natural Resource Management (e.g., maintain healthy ecosystem services)
  - Land use
  - Watershed management and protection, including wetlands
  - Rainwater harvesting
  - Wastewater reuse
  - Stormwater management, including green infrastructure and community gardens
  - Threatened and endangered species (e.g., sea turtles, manatees, etc.)

Each municipality has its own unique coastal resiliency needs and location/project-specific needs under these general classifications. The project team also recognizes that municipalities may have other plans and planning processes that identify resiliency projects and principles, such as land use and economic development plans. A primary objective of this Guide is to provide a roadmap to help municipalities more easily identify available funding sources and strategies for the projects identified through all their planning efforts that aim to increase their coastal resiliency. The overarching goal is to assist municipalities to turn these plans into financed projects.

## 2 PATHWAY TO RECOVERY

Puerto Rico is facing a long path to recovery. To better support this post-disaster context and inform the Island's pathway to resilience before the next disaster, the Coastal Resiliency Guide has been designed around a pathway to recovery. The recovery steps are illustrated in Figure 2-1 and presented below.

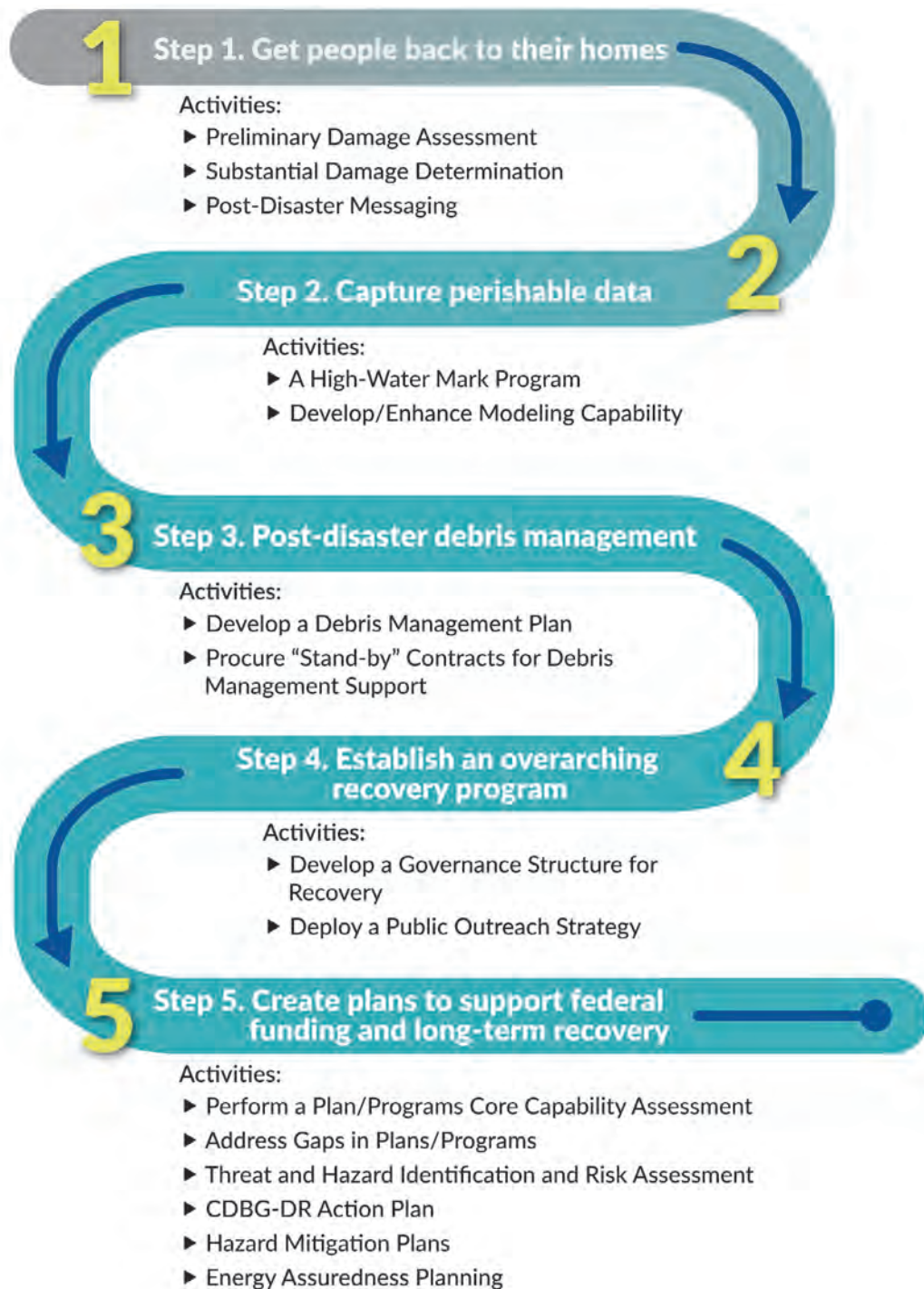


Figure 2-1. Pathway to Recovery



It is important to note that there is no definitive transition line between pre-and post-disaster activities. It is not uncommon for local governments to be in the act of recovery from multiple events at one time, and then be forced to respond to another disaster during that recovery. This was exemplified by Hurricane Irene in August, followed by Tropical Storm Lee in September of 2011. Much of the Northeastern U.S. was still in recovery from Hurricane Ike in 2008, when these events struck, taxing many of the local government resources in the impacted areas. When looking at the 5 phases of emergency management (see Figure 2-2), they are cyclical because all of the phases are linked and directly impact one another. Effective emergency

management should be dynamic in that it is constantly evolving based on lessons learned. So, when thinking about mitigation or community resilience, what is trying to be accomplished is making the circle smaller. If local governments are doing effective mitigation and community resilience projects, the necessity to prepare, respond, and recover from disasters should be lessened. The key is to inform good mitigation and community resilience project identification with information garnered during the response and recovery from past events. A thorough understanding of how to reduce risk can only be developed with a thorough understanding of what that risk is. Understanding what happened in the past is mission critical to preparing for the future.

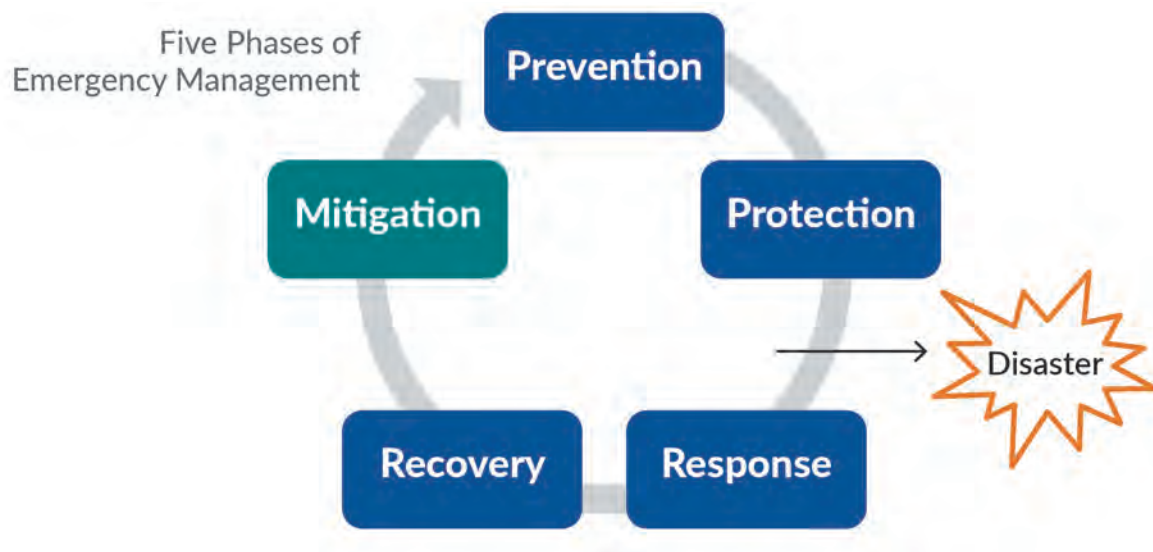


Figure 2-2. Five Phases of Emergency Management

## 2.1 The Recovery Continuum

The National Disaster Recovery Framework (U.S. Department of Homeland Security, 2nd edition, June 2016) defines a recovery process called “the recovery continuum”. This process is best described as a sequence of interdependent and often concurrent activities that progressively advance a community toward its planned recovery outcomes. Decisions made and priorities set by a community pre-disaster and early in the recovery process have a cascading

effect on the nature, speed, and inclusiveness of recovery. The figure below depicts the interconnectedness of recovery activities from pre-incident through the long term.

The recovery continuum highlights the reality that, for a community faced with significant and widespread disaster impacts, preparedness, response, and recovery are not and cannot be separate and sequential

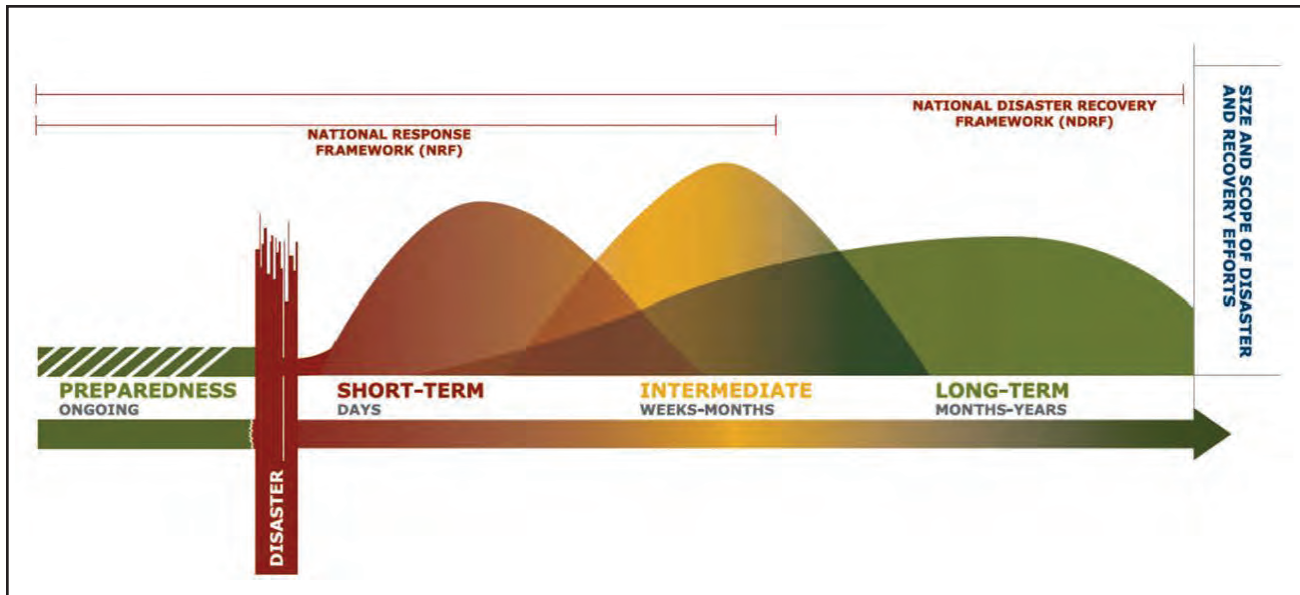


Figure 2-3. The Recovery Continuum, National Disaster Recovery Framework (U.S. Department of Homeland Security 2016).

efforts. Laying an effective foundation for recovery outcomes is a key requirement of response activities, but planning for recovery begins before response. Community-level planning for recovery is a preparedness-phase activity that strengthens continuity and response and hastens recovery. The challenge is to ensure adequate and effective coordination between different efforts and players, as the decisions and outcomes for all phases are interconnected.

Tools for implementing the principles identified in the National Disaster Recovery Framework have been developed by FEMA and the American Planning Association (APA). These tools that expand on the concept to the recovery continuum are as follows:

- “Planning for Post-Disaster Recovery and Reconstruction” (FEMA 421) introduces community planners to policies for rebuilding and recovery after disasters and provides guidance on how to plan for post-disaster reconstruction. FEMA 421 also guides development of a natural hazards element as part of a local, general, or comprehensive plan. This document thus equips planners and others involved in post-disaster reconstruction at all levels of government with

the tools needed to create (or recreate) communities that will withstand natural disasters.

- As a follow-up to FEMA 421, the APA produced “Planning for Post-Disaster Recovery: Next Generation” through a cooperative agreement from FEMA in 2015. This document was designed to help communities improve their resiliency and provides how-to guidance for communities to start their mitigation planning and disaster-recovery planning processes. The “Next Generation” report considers changes in federal legislation as well as the increasing frequency and severity of disasters striking U.S. communities. FEMA Administrator Craig Fugate is featured as the Foreword author of the report, and he relays the importance of planning to limit the impact of disasters. He notes, “If a community is planning for the future, development and redevelopment must incorporate reduction of future risks.” The report provides resources to assist communities with their disaster recovery planning, including a model recovery ordinance for communities that want to enhance their disaster recovery planning before a disaster strikes and domestic and international case studies that share recovery lessons.



Catastrophic failure of unprotected waterfront properties at Rincon. Photo: DNER

## 2.2 Five Step Recovery Process

In the aftermath of a major disaster, it is imperative for community officials to establish a comprehensive recovery strategy that balances short-term recovery needs with longer term recovery and resilience planning. This section presents a pathway to the recovery continuum, focused on a few key planning aspects to consider for recovery needs. The steps have been developed based on experiences and best practices from recent hurricane recovery efforts in the United States, including recovery processes for Hurricanes Katrina (Mississippi and Louisiana), Hurricane Sandy (New York and New Jersey) and Hurricane Harvey (Southwestern Texas). These steps are meant to be general in nature, recognizing that Puerto Rico and its municipalities should tailor them to their site-specific needs.

The overarching objectives of the proposed five step recovery process is to 1) recommend a process

to establish a comprehensive recovery strategy and 2) better align funding options within a post-recovery framework. Each step below presents the overall objective, associated activities, and funding or programmatic considerations. Although funding and programmatic considerations are identified for each step, specific funding options are presented in Section 3 and the supporting annexes. It is also important to note that the five step recovery process is not meant to be exhaustive of all of the post-recovery steps that could or should be taken by a municipality; also, the sequencing of the steps is not meant to be prescriptive—some steps may need to be started before others are finished and some steps may in fact take years to complete. It is hoped that the five step recovery process illustrates a pathway for Puerto Rico to not just recover, but to lay the groundwork to be better prepared for the next natural hazard.



## 2.2.1 **Step 1. Get People Back to Their Homes**

### **Step 1 Overview**

Successful recovery includes the ability of individuals and families to rebound from their losses in a manner that sustains their physical, emotional, social, and economic well-being in a timely manner. This first critical week to first month of response and rebuilding is the time window when the public is listening to government officials and expects definitive direction as to the recovery process. Often, Planning Departments take from weeks to months to 1) develop a rebuilding strategy with guidelines, and then 2) to disseminate these guidelines and 3) to implement their rebuilding strategy. During this often-long time gap, without definitive guidelines disseminated by the government, owners take rebuilding into their own hands, often rebuilding not to code and in a manner detrimental to the coastal environment.

Community planners face intense public scrutiny following extreme events. Communities expect guidelines with immediate answers about rebuilding. Do I need a permit? Do I need an inspection? Must I rebuild to code? What about environmental rules? How about State agencies? We need answers... now! Planning for post-disaster reconstruction and recovery is something many planners have not thought about. Until a disaster strikes, most planning departments do not realize the enormous post-disaster roles and burdens placed on them and the speed with which they are expected to facilitate a sound recovery. Current and next generation planners must integrate hazard mitigation and adaptation strategies into their disaster recovery planning processes. Only through sound pre-disaster recovery planning will communities be prepared to take advantage of the unique window of opportunity available to inject risk reduction and adaptation strategies into post-disaster recovery policies, investments and plans.

When parts of communities are damaged by extreme climate events, they must rebuild safer, stronger and smarter. Without planning done ahead of time, and appropriate engineering design guidelines, environments are degraded. Additionally, local planners should also be cognizant of existing federal and state

recovery policies and programs and weave them into their recovery plan while developing strong pre-event relationships with external providers of assistance in order to enhance the likelihood of a resilient recovery.

### **Step 1 Objective**

In the aftermath of disasters, affected communities need to invest significant resources to address recovery needs. These should be guided by a comprehensive assessment that estimates damages and losses, and identifies the needs of the affected population to ensure that their homes are safe, and that the programmatic obligations of the community are met. This Post-Disaster Needs Assessment (PDNA) is the first step towards developing a holistic recovery program that promotes equity and inclusion.

### **Step 1 Activities**

**Preliminary Damage Assessment:** When a disaster occurs, damage should be identified as quickly as possible for multiple reasons. First and foremost, is it safe for your citizens to return home? Secondly, if a local government will seek assistance from state or federal sources, then local government will need to be able to document the damage that has occurred and show how the value of those damages exceeds the local government's financial resources to respond and recover. These are often referred to as disaster declaration triggers or thresholds. So, the ability to document and quantify the fiscal impact of the damages that occurred is mission critical to establishing funding channels for post-disaster recovery.

FEMA will consider disaster-related damage to any building, works, system, or equipment, built or manufactured, or improved and maintained natural feature that a potential applicant has legal responsibility to restore. Expedient, accurate damage assessments are built on a foundation of information gathered at the local level. A common mistake made in the damage assessment process is the rushing of local assessments—an error that can prolong verification and validation phases and slow the delivery assistance.

It is critically important that local governments identify a damage assessment protocol prior to the disasters occurring, and exercise those protocols on a regular basis as part of their preparedness program. All personnel that will be utilized to perform these assessments should be identified and if additional resources may be needed, sources for those resources should be identified in advance. The concept of “stand-by” contracts with qualified contractors is one way to fill this gap.

**Substantial Damage Determination:** “Substantial Damage” is defined by FEMA as the cost to repair the home is equal to or greater than 50 percent of its market value before the damage occurred. Substantial damage applies to a structure in a Special Flood Hazard Area (SFHA)—or 1-percent-annual-chance floodplain—for which the total cost of repairs is 50 percent or more of the structure’s market value before the disaster occurred, regardless of the cause of damage. This percentage could vary among jurisdictions, but should not be below National Flood Insurance Program (NFIP) standards.

Communities that participate in the NFIP adopt codes/ordinances that require enforcement of provisions that apply to structures within the SFHA that have been determined to be substantially damaged. This determination is a local responsibility under their adopted code or ordinance. Failure to enforce these provisions in the aftermath of any disaster that causes damage to structures in the SFHA could render a community as “non-compliant” with the provisions of the NFIP. It is very important to note, full compliance and good standing under the NFIP is an eligibility prerequisite for any community seeking assistance from a FEMA program authorized under the Robert T. Stafford Act. Funding under these programs could be withheld if it is determined a jurisdiction did not fully enforce the provisions of their Flood Damage Prevention Ordinance in the response to a disaster that caused damages to properties in the SFHA.

Therefore, it is very important that communities have planned and developed clear standards and protocols for substantial damage determination prior to an event. Substantial damage can be very difficult to

determine and enforce months after an event. Communities should have a good understanding of their exposure, (i.e., the quantity of structures in the SFHA) and plan for the “worst-case scenario”. If a jurisdiction has 10,000 structures in the SFHA, how would they physically inspect all 10,000 structures to determine if they were substantially damaged in the aftermath of events like Irma or Maria? What are your procedures for processing appeals of these determinations? How will you notify the property owners of this determination? Are you prepared to process building permits for all those properties you have determined to be substantially damaged? Are you prepared to enforce this provision when the people you displace may have nowhere to go? These are all questions that should be asked, and then answered before the event occurs through planning processes such as post-disaster action plans or recovery plans. *Refer to Section 4.2 for use of mobile applications to aid this process.*

**Post-Disaster Messaging:** A major disaster has just occurred, damaging thousands of properties and displacing even more households. How will your citizens know when it is safe to return to their homes? Once they return, how will they know what their obligations are in terms of codes and ordinances as they rebuild? What should they do with their debris as they clean up? These are only a few of the many questions people typically will have in the aftermath of a disaster. Information dissemination is a critical function of any local government during the recovery process. The last thing a local community wants is its citizens doing what they think is best because they have not been told otherwise. Getting the word out, getting it out often, and getting it out via multiple mediums, is critical.

Local governments can prepare for this aspect of the recovery continuum by preparing pre-canned messaging that includes methods of dissemination for all scenarios that may occur after the occurrence of a disaster. For example, this could include developing messaging on: building permit obligations in recovery, debris management, substantial damage protocol, building safety. This messaging protocol could be tied to the public information support function of a typical Comprehensive Emergency Management Plan (CEMP)

that helps guide the response of local governments to emergencies. The key here is to plan in advance of the event and to clearly identify all of the scenarios that may apply. In other words, pre-disaster planning meant to support post-disaster protocol. This protocol should be reviewed and exercised regularly so that if there is a gap in implementation, the procedures are clearly understood by those who will implement them. Once again, it is important to stress that this advanced planning should be informed by lessons learned and observations from past events.

### **Step 1 Funding or Programmatic Considerations**

All of the activities listed above would be considered programmatic applications of the recovery continuum. However, each activity will either save a local government financial resources or act as a keyway to resources under federal programs. This is summarized as follows:

- ▶ **Preliminary Damage Assessment:** Most communities know when an event is “major”. Especially for events like hurricanes, the early warning provided by state and federal agencies gives local governments enough lead time to set in motion their response and recovery programs. Therefore, most local governments and states for that matter will know if they will be seeking assistance many times during the course of the event. Therefore, being able to assess and document damage is mission critical to getting that assistance. Understanding what FEMA will accept and count as “damage” and being able to capture documentation of all categories of damage will expedite the “triggers” for a disaster declaration under the Robert T. Stafford Act which opens up funding under the Public Assistance (PA), Individual Assistance (IA) and Hazard Mitigation Grant Programs (HMGP). Additionally, the costs incurred for doing those assessments are eligible for reimbursement under the PA program (Category B).
- ▶ **Substantial Damage Determination:** While substantial damage determination is a programmatic obligation under the NFIP, properties determined to be substantially damaged within the SFHA that have flood insurance in force, could be eligible for funding from that flood insurance policy to put towards the cost of elevating that structure in compliance with the local flood damage prevention ordinance. The Increase Cost of Compliance (ICC) coverage is one of several resources for flood insurance policyholders that need additional help rebuilding after a flood. It will provide up to \$30,000 to help cover the cost of mitigation measures that will reduce flood risk. ICC benefits can also help pay for improvements required for repetitive loss properties. To access this portion of a flood insurance policy, the insured must have been determined by the Floodplain Administrator to be substantially damaged based on the enforcement of a regulatory provision within a NFIP compliant flood damage prevention ordinance. It is important to note that many flood insurance policy holders do not realize that they have this coverage provision in their policy. Therefore, this can be an important message to deploy under the Post-Disaster Messaging step discussed below.
- ▶ **Post-Disaster Messaging:** While this step would not directly lead to funding for recovery, it is considered good practice and could indirectly lead to funding at the individual property level. For example, do property owners that have a flood insurance policy know that they can use their flood insurance policy to pay for flood hazard mitigation if they are determined to be substantially damaged? Do they know what types of assistance they may be eligible for under the Individual Assistance (IA) program if they are displaced? Do they know that hazard mitigation grants can be used to fund actions on private property and what types of activities are eligible? These are all topics that should be considered in a post-disaster messaging program.



## 2.2.2 **Step 2. Capture Perishable Data**

### **Step 2 Overview**

In the immediate aftermath of an event, there is tremendous opportunity to obtain new hazard data, as well as develop and implement mitigation techniques in preparation for potential future incidents. The ability to “recreate” an event in models can be a vital step in the recovery continuum. Data from these models can inform resilience alternatives analyses, cost-effectiveness evaluations and overall planning. After an event, there is political will, immediate experience, and strong opportunities for education that promote mitigation strategies and successful practices. By continually integrating and utilizing information and data that result from a disaster to then learn from the disaster, better understand the risk, and take action to further reduce or eliminate the impact, our communities will become safer, stronger, resilient, and more sustainable for years to come.

### **Step 2 Objective**

The primary objective for this step is to utilize information from the past to prepare for the future. As an archipelago in the Caribbean Sea, Puerto Rico is exposed to a variety of natural hazards. One of the best ways to prepare for future natural hazard events is to understand what happened during past events. We now have the technology with geospatial tools and numerical models to be able to recreate events and look at scenarios to inform our preparedness and recovery. But these models need data, and once these models are built, they need to be validated and calibrated based on what actually occurred. This information will also support federal funding requirements.

### **Step 2 Activities**

**A High-Water Mark Program:** Currently, the only flood hazard mapping that attempts to truly reflect flood risk are Flood Insurance Rate Maps (FIRM) produced by FEMA under the NFIP. Flood hazard mapping is an important part of the NFIP, as it is the basis of the NFIP regulations and flood insurance requirements. FEMA maintains and updates data through FIRMs and risk assessments. FIRMs include statistical information such as data for river flow,



Vulnerability of unprotected shorelines.

*Photos: Jose M. Suarez*

storm tides, hydrologic/hydraulic analyses and rainfall and topographic surveys.

While the premise behind flood hazard mapping under the NFIP is sound, there are fundamental components under the parameters for mapping that can draw into question the accuracy of the mapping. First and foremost is the age of the mapping. Producing FIRMs is an expensive proposition. Therefore, FEMA utilizes a complex metric program that looks at factors such as growth rate and change in flood risk to drive flood hazard mapping efforts. There are currently 5 jurisdictions in Puerto Rico that participate in the NFIP (Guaynabo, Bayamon, Carolina, Ponce, and the Government of Puerto Rico). The maps for these

communities were last updated in 2009 and much of the data used for these maps was dated 1978 or older. When a map is produced, it is attempting to reflect the flood risk at that point in time. Thus, FIRMs should be viewed as a snapshot in time that is not necessarily reflective of current conditions, particularly for communities experiencing rapid growth. Additionally, FIRMs are developed from studies that use historical hydrographs, and do not take into account future conditions. By law (Section 60.3 44CFR), FEMA cannot produce maps that include zones to be regulated under the programmatic requirements of the NFIP based on future conditions. FIRMs must use existing condition hydrology for flood hazard mapping.

After a flood disaster, communities need to know several details about the flood event, such as: where did the flood water go, how deep was the flood water, and what velocities were observed at the maximum extent of the flooding. These are the key components of flood risk (extent, depth and velocity). This information is needed in real time to support both the response and recovery efforts post-event. In the months following Hurricane Maria, FEMA created [Advisory Base Flood Elevation](#) (ABFE) maps for Puerto Rico, which identify areas that are in flood zones and show how high structures should be elevated to minimize damage from future flood events. As part of the island's recovery effort, ABFEs are a tool to help make informed decisions that mitigate the effects of flood events and protect life and property, as well as public and private investment.

Before an event, it is helpful to develop a well-defined protocol for data capture. There are opportunities for numerous stakeholders to capture data, including by first responders, public works personnel, media, and even citizens. However, stakeholders need to be educated on the importance of this information, and be given a means to capture the data, establish a repository for the data, and then format the data for use. Then, the community needs to understand how the data can be used. All of this can be done under the context of pre-disaster planning promoted under the recovery continuum planning process.

**Develop/Enhance Modeling Capability:** A key to successfully planning under the recovery continuum concept is being able to make informed decisions. Developing or enhancing a model with updated data (such as through the high-water mark activity discussed above) that can inform risk reduction can be extremely valuable for the decision makers in both communicating risk, as well as informing risk reduction.

Models like FEMA's Hazus-MH risk assessment platform are a viable, cost-effective alternative available for modeling both pre- and post-event impacts for a variety of natural hazards. Hazus is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, hurricanes, and tsunamis. Hazus uses Geographic Information Systems (GIS) technology to estimate the physical, economic, and social impacts of disasters.

However, like any model, you need practitioners that have the full capability in real time to run the models that are part of the response and recovery protocol. These can be jurisdiction personnel or contractors. The key is to have a scripted protocol that identifies the data to be captured, the models to be run, and the results to be interpreted to support the analyses.

In addition, NOAA's funded [CARICOOS](#) is a real-time oceanographic and meteorological data portal system that integrates and publishes coastal ocean and weather data, including winds, waves, tides, currents and hurricane-driven inundation data across Puerto Rico and its municipal islands. It also provides access to forecasts from a variety of sources including satellites, ocean instruments and numerical models to give the user an integrated view of past, present and forecasted ocean conditions in the U.S. Caribbean region. Local and municipal governments can have direct access to this data and technical support as needed from CARICOOS technical personnel.

## **Step 2 Funding or Programmatic Considerations**

**The Public Assistance Program (PA):** Costs related to assessing overall impacts of an incident, locating damage or debris impacts, and conducting PDAs are

indirect costs and eligible as management costs under the Public Assistance Grant program, Section 324 Management Costs. Therefore, costs associated with the capture of perishable data may be reimbursable under the PA program if they are part of a defined program for damage assessment.

**The Quick Response Grant Program:** The Natural Hazards Center sponsors “The Quick Response Grant Program” that provides funds for researchers to quickly travel to disaster-affected areas to capture perishable data. In addition to expanding academic knowledge, funded researchers submit brief reports that make preliminary analyses of recent events available to the Hazards Center’s multidisciplinary network of researchers, practitioners, and educators. The program promotes innovation in disaster research by favoring students, new researchers, and novel areas of study. The imperative to collect perishable data has driven the Natural Hazards Center for nearly 35 years. The program, which is funded through the National Science Foundation, provides small grants to help researchers travel quickly to disaster-stricken areas and document disaster before memories fade and physical evidence is erased.

**FEMA’s High-Water Mark (HWM) Initiative:** Flooding is the number one natural disaster in the United States. Large storms such as Hurricanes Sandy and Ivan, as well as countless others, have ravaged American communities, costing billions a year in recovery, restoration, and rebuilding. However, less than one-third (30%) of respondents to FEMA’s National Flood Risk Awareness Survey believed their communities were at risk of flooding. In fact, a vast majority of Americans (90% of respondents) do not believe flooding was the primary hazard their communities faced. To address this challenge, FEMA partnered with federal agencies to create the HWM Initiative to help improve the public’s awareness of flood risk and encourage communities to take long-term action to address this risk. Federal partners are a critical component of the HWM Initiative. Since the Initiative’s inception, federal partners have committed to helping communities increase awareness of flood risk among their residents and provide expert knowledge and resources to assist in those efforts. Since the initiative

began, FEMA has worked with the following key federal partners:

- ▶ National Oceanic and Atmospheric Administration, National Weather Service (NOAA NWS)
- ▶ NOAA Coastal Service Center
- ▶ U.S. Army Corps of Engineers (USACE)
- ▶ U.S. Department of Agriculture, National Resources Conservation Service (USDA/NRCS)
- ▶ U.S. Department of Transportation, Maritime Administration (MARAD)
- ▶ U.S. Department of Housing and Urban Development (HUD)
- ▶ U.S. Geological Survey (USGS)
- ▶ U.S. Small Business Administration (SBA)
- ▶ U.S. Environmental Protection Agency (EPA)
- ▶ U.S. National Park Services (NPS), Center for Urban Ecology
- ▶ USACE Silver Jackets

The federal partners meet monthly, as part of a Federal Working Group, to discuss ways to assist communities interested in the Initiative and collaborate on ways to promote the HWM projects. To date, the federal partners have provided the following assistance to HWM communities:

- ▶ Expert advice on how to execute a HWM project and plan and promote a HWM launch event
- ▶ Access to data to assist in understanding flood risk and determining sign location
- ▶ Communications and outreach assistance to promote the HWM project and launch event
- ▶ Mitigation examples and resources to assist in identifying ways to reduce flood risk
- ▶ Tools and best practices for managing a HWM project, including specific templates for communications plans, sign design, etc.
- ▶ Opportunity to lead and coordinate the HWM initiative



### 2.2.3 Step 3. Post-Disaster Debris Management

#### Step 3 Overview

Each year, natural disasters, such as wildfires, floods, earthquakes, hurricanes, tornadoes, and winter storms, challenge American communities. The National Science and Technology Council estimates that these disasters cost the United States \$52 billion per year in the form of lives lost and property destroyed (NSCEP 2005). Natural disasters have generated large amounts of debris, causing considerable challenges for public officials. Debris is the waste stream resulting from a natural disaster and often includes building materials, sediments, vegetative debris, personal property, and other materials. Cleaning up this debris can be time-consuming and costly (NSCEP 2005). There are many types of debris, each of which requires distinct procedures for collecting and carting. Certain types of debris, such as infectious waste, chemical or radiological debris, putrescent (carcasses and other matter that will decompose and rot), and electronic waste (televisions, computers, dangerous items like cathode ray tubes) are dangerous. Key questions that a municipality faces after a disaster include: Who does the work and where will debris be taken after it is picked up? What are the procedures if the work site is environmentally sensitive or historically significant?

After a disaster occurs, communities are faced with the dilemma of how to use their existing capacity for recycling, composting, combustion, and disposal of natural disaster debris. Relying on only one of these debris management options may not be sufficient to handle the overwhelming amount of debris generated by a disaster. Communities may need to develop additional staging and storage areas to store, separate, or process the debris before it is sent to a recycling, composting, combustion, or disposal facility. A disaster debris management plan will aid communities in determining the appropriate management options in advance of a disaster to avoid rushed or, ultimately, poor decisions. Debris management planning restores essential services within a jurisdiction, helps ensure the safety of residents, facilitates a more comprehensive reimbursement effort for federal funding sources, and plays a significant role in the recovery continuum.



Abandoned post disaster dwellings and coastal debris.  
Photos: DNER

### Step 3 Objective

The principle objective for this step in the recovery continuum is for a community to be proactive and identify key considerations (such as by whom, how, where, when and how it will pay) for post-disaster debris management. Although the recovery process could take a long time, perhaps even years, careful planning can significantly minimize costly mistakes, speed recovery, protect human health and the environment, and prevent the generation of additional waste. Identifying cost-effective debris management options and resources can save money. It also will increase control over debris management and improve administrative efficiency. The plan also may serve as a resource document in negotiating technical and financial assistance with FEMA and other agencies. Having a sound disaster debris management plan will expedite removal of debris—an important sign of recovery that residents will see. Expedited removal also will reduce dangers of fire, personal injury, and disease vectors.

### Step 3 Activities

**Develop a Debris Management Plan:** Natural disasters can generate tremendous quantities of debris; communities should plan for disasters they may face. An effective disaster debris management plan addresses issues beyond initial removal, prioritizes debris management options, and includes a strategy for recycling and reuse of materials (including mulching/composting) to reduce the burden of volume on disposal facilities. There are many different possible components of a disaster debris management plan. Recommendations presented here are based on insights from community officials who have conducted debris clean-up after a natural disaster. A disaster debris management plan could include the following components:

1. Pre-planning activities
2. Ancillary activities
  - a. Identify likely debris types and forecast amounts
  - b. List applicable federal, state, and local environmental regulations
  - c. Inventory current capacity for debris management and determine debris tracking mechanisms
  - d. Pre-select temporary debris storage sites
  - e. Identify equipment and administrative needs (including pre-negotiated contracts)
  - f. Develop communication plan
3. Create a disaster debris prevention strategy
4. Create a debris removal strategy
5. Harmful materials identification and handling recommendations
6. Recycling options
7. Waste-to-energy options
8. Disposal options
9. Open burning options

A well-constructed Debris Management Plan ensures an applicant maximizes the federal funds it is eligible to receive and retains those funds through the reimbursement and audit process.

### Procure “Stand-by” Contracts for Debris Management

**Support:** In substantial natural disasters, community resources typically are overwhelmed. Communities likely will need to hire private disaster debris management contractors in these special circumstances. Often, such contractors are experienced in dealing with disaster recovery work, such as establishing staging areas, hauling and segregating debris, and coordinating FEMA reimbursement processes. It would be beneficial for municipal officials to identify what disaster debris management contractors are in their area or have capability within the area. Planners could establish relationships with such contractors while drafting their community’s disaster debris management plan. The contractor(s) can be procured to a “stand-by” or “on-call” contract that can be reviewed or re-procured over specified time frames (usually 5 years).

### Step 3 Funding or Programmatic Considerations

Over a recent five-year period, “debris” accounted for approximately 27 percent of the total cost of a disaster (FEMA 2007). Yet debris management remains one of the most overlooked and least-planned-for components of disaster response and recovery. The removal

of debris after a disaster is funded through FEMA's Public Assistance Program under Category A, Debris Removal.

Debris Management Planning would be an eligible activity under the Emergency Management Performance Grant (EMPG) program administered by FEMA. The EMPG Program allows the State to allocate funding based on risk and urgency. Funds address the most urgent local and State needs in disaster preparedness, prevention, response, recovery and mitigation. Funds assist local communities and other State partners in the development, maintenance and improvement of local and State emergency management capabilities, which are key components of a comprehensive emergency management system.

EMPG investments provide the support that State and local governments need to achieve measurable results in key functional areas of emergency management that allow governments to successfully:

- ▶ Prevent a threatened or an actual act of terrorism
- ▶ Protect citizens, residents, visitors and assets against the greatest threats and hazards confronting us—as defined by a threats and hazards assessment
- ▶ Respond quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of a catastrophic incident
- ▶ Recover through a focus on timely restoration, strengthening and revitalization of infrastructure, housing and a sustainable economy, as well as the health, social, cultural, historic and environmental fabric of communities affected by a catastrophic incident
- ▶ Mitigate loss of life and property by lessening the impact of future disasters

Debris Management planning may also be an eligible activity under the Homeland Security Grant Program (HSGP). The purpose of the HSGP is to support state, local and tribal efforts to prevent terrorism and other catastrophic events and to prepare the Nation for the threats and hazards that pose the greatest risk to the security of the United States. References to these priorities can be found throughout this document. The HSGP plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal (the Goal) of a secure and resilient Nation. The building, sustainment, and delivery of these core capabilities require the combined effort of the whole community, rather than the exclusive effort of any single organization or level of government. The HSGP supports efforts to build and sustain core capabilities across the five mission areas of Prevention, Protection, Mitigation, Response, and Recovery based on allowable costs. The HSGP will provide federal funds to assist state, local, tribal, and territorial agencies to obtain the resources required to support implementation of the National Preparedness System (NPS) and the goal of a secure and resilient Nation. Among the five basic homeland security missions noted in the DHS Quadrennial Homeland Security Review, HSGP supports the goal to Strengthen National Preparedness and Resilience.

The key for eligibility under both of the EMGP and HSGP programs is that debris monitoring and debris management planning would have to be identified as gaps in core capability in a Threat Hazard Inventory and Risk Assessment (THIRA) prepared for the Government of Puerto Rico. Thus, it is an overarching recommendation of this Guide that Puerto Rico develop a THIRA.

## 2.2.4 **Step 4. Establish an Overarching Recovery Program**

### **Step 4 Overview**

As can be seen in the first three steps, the recovery continuum is heavily influenced by planning. Both

short-term and long-term recovery will touch every core capability that exists in the Government of Puerto Rico. In fact, as was seen in the aftermath of Hurricanes Irma and Maria, the impacts exceeded the

core capabilities of the Government of Puerto Rico. While planning on multiple fronts is good, if there is no coordination or integration between these planning efforts, implementing these plans in the aftermath of a large-scale event will be a challenge.

Under this step, Puerto Rico could make a programmatic/political commitment to a Recovery Program. This program will need to define a vision, leadership, structure, resources and measures for success. The impacts from Irma and Maria were such that full recovery will take years if not decades to be fully implemented. It is likely that Puerto Rico could experience another significant event before all recovery activities from Irma and Maria are completed.

### **Step 4 Objective**

The principle objective for this step would be to establish a formal program that oversees recovery efforts from now into the future. Whether this be a department, agency, commission or branch of government, this program must be empowered with the authority to oversee all planning that directs recovery or mitigation, or impacts resilience for the Government of Puerto Rico.

### **Step 4 Activities**

#### **Develop a Governance Structure for Emergency**

**Management:** Governance can be defined as the establishment of policies, and continuous monitoring of their proper implementation, by the members of the governing body of an organization. It includes the mechanisms required to balance the powers of the members (with the associated accountability), and their primary duty of enhancing the prosperity and viability of the organization. This type of structure will be needed to guide and oversee all phases of emergency

management both pre-and-post disaster. Overarching program objectives can be established within this structure to ensure applicability to the Government of Puerto Rico, consistency in planning objectives and applications, a singular point for resource acquisition/allocation, and oversight of plan maintenance and implementation. These plans need to be dynamic and adaptable to changing conditions. One way to achieve that is to mandate their periodic review and update. For mandates to be effective, there must be a programmatic tie. For example, FEMA mandates that local hazard mitigation plans be comprehensively reviewed and updated every 5 years for continued compliance under the Disaster Mitigation Act of 2000 (Section 201.6, 44CFR). Local governments with expired plans are not eligible for some hazard mitigation program grants until they update their plans.

This activity does not require that an entirely new government agency be organized. There may be an existing agency, bureau or department that has components of the recovery continuum capability. This current capability could be enhanced to ensure full capability to meet the established vision for this recovery governance.

**Deploy a Public Outreach Strategy:** Whatever recovery continuum evolves for the Government of Puerto Rico, the key to its effectiveness will be the education of and the outreach to the public it is intended to support. The public will need to understand their role in the overall process of recovery both before and after an event. Public engagement after the disaster is not the right time to educate and inform the public on what they need to do to recover, but is recommended as a preparedness activity for future hazards. Public engagement is also important to support buy-in of recovery activities and efforts.

## **2.2.5 Step 5. Create Plans to Support Federal Funding and Long-Term Recovery**

### **Step 5 Overview**

There are many standard planning efforts that typically happen at the state or municipal government scale that provide the opportunity to integrate the principles of the recovery continuum. These include but

are not limited to: building codes and standards, land use plans and ordinances, emergency response plans, climate action plans, capital facility plans and hazard mitigation plans. This step will focus on identifying the plan and program capability at both the state and local level, followed by the development of a strategy for



integration of these plans and programs with an eye towards the recovery continuum.

### **Step 5 Objective**

To integrate plans and programs that can support or enhance the objectives of the recovery continuum.

### **Step 5 Activities**

Activities to pursue that support this objective include:

**Perform a Plan/Programs Core Capability Assessment:** Under this activity, state and local governments would perform a core capability assessment of plans and programs that are currently in effect at the state and local level. The object of this activity would be to identify gaps in capability so that these gaps could be addressed through future planning or to clearly manage the expectations of the Government of Puerto Rico's capability to recover.

**Address gaps in plans/programs:** The plans and programs to be assessed could include but are not limited to:

- ▶ **Building Codes or Ordinances:** The International Building Code and its predecessors have addressed build standard that increases structures resilience to the impacts from natural hazards. This capability plays a significant role in guiding redevelopment after a disaster. The limiting factor of any code or ordinance is the local government's capability to enforce. Any capability assessment should also take into account the jurisdiction's enforcement capacity.
- ▶ **Land Use Codes or Ordinances:** Often referred to as zoning, these codes dictate how land is used or redeveloped. Zoning is the way governments control the physical development of land and the kinds of uses to which each individual property may be put. The resilience continuum application for zoning is the interface between prescribed land uses and the extent and location of known hazards. While many jurisdictions may have zoning capability, that capability may need to be enhanced for application towards the recovery continuum.
- ▶ **Comprehensive Planning:** The comprehensive plan, also known as a general plan, master plan or land use plan, is a document designed to guide the future actions of a community. It presents a vision for the future, with long-range goals and objectives for all activities that affect the local government. This includes guidance on how to make decisions on public and private land development proposals, the expenditure of public funds, availability of tax policy (tax incentives), cooperative efforts and issues of pressing concern, such as farmland preservation or the rehabilitation of older neighborhood areas. These plans usually contain elements that address components of land use such as housing, safety and natural resources. An element based comprehensive plan could easily be enhanced to include a recovery element.
- ▶ **Comprehensive Emergency Management Plan:** For any local or state jurisdiction, Comprehensive Emergency Management involves the creation of an emergency management plan, typically an Emergency Operations Plan that provides for the activation of an Incident Command System as a flexible central command structure for incoming and committed resources that are required to deal with all aspects of the incident as an emergency. Other command-level constructs include multiagency coordination and public information systems; overall, the federal command construct for Comprehensive Emergency Management is the National Incident Management System (NIMS). Many emergency management plans can include a post-disaster action component that can outline many of the short-term recovery objectives of the recovery continuum.
- ▶ **Threat and Hazard Identification and Risk Assessment:** The Threat and Hazard Identification and Risk Assessment (THIRA) is a four-step, common risk assessment process that helps the whole community, which includes individuals, businesses, faith-based organizations, nonprofit groups, schools and academia, and all levels of government, to understand its risks and estimate capability requirements. The THIRA process helps

communities map their risks to the core capabilities, enabling them to determine:

- Desired outcomes
- Capability targets
- Resources required to achieve their capability targets

The outputs of this process inform a variety of emergency management efforts, including: emergency operations planning, mutual aid agreements, and hazard mitigation planning. Ultimately, the THIRA process helps communities answer the following questions:

- What do we need to prepare for?
- What shareable resources are required in order to be prepared?
- What actions could be employed to avoid, divert, lessen, or eliminate a threat or hazard?

THIRAs are usually prepared at the state level, but can be prepared at the local level. THIRAs are typically developed pre-disaster and are validated and/or adjusted post-disaster. As stated above, a THIRA that identifies gaps in core capability may be prerequisite for funding under the EMPG or HSGP programs.

- **CDBG-DR Action Plan:** In response to disasters, Congress may appropriate additional funding through the CDBG program as Disaster Recovery grants to rebuild the affected areas and provide crucial seed money to start the recovery process. To access this funding, impacted communities are required to develop an Action Plan for Disaster Recovery. The Action Plan is required to describe the needs, strategies, and projected uses for the Disaster Recovery funds. Most jurisdictions will not have a CDBG-DR action plan unless moneys have been appropriated by Congress for a past disaster. However, there is nothing to stop a community from developing key components of these plans pre-disaster, to expedite the development of the plan when funding is appropriated post-disaster. It is very important to note that the

turnaround time for the development of these plans can be very short (30 to 45 days). There is also a lot of overlap between these plans and the planning requirements for a hazard mitigation plan developed pursuant to the Disaster Mitigation Act of 2000. *Refer to Section 4.1 for more information on recommended best practices.*

- **Hazard Mitigation Plans:** The Disaster Mitigation Act (DMA; Public Law 106 390), passed in 2000, shifted the federal emphasis toward planning for disasters before they occur. The DMA requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. Regulations developed to fulfill the DMA's requirements are included in Title 44 of the Code of Federal Regulations (44 CFR). The responsibility for hazard mitigation lies with many, including private property owners, commercial interests, and local, state and federal governments. The DMA encourages cooperation among state and local authorities in pre-disaster planning. The enhanced planning network called for by the DMA helps local governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk-reduction projects. The nexus between hazard mitigation plan and the recovery continuum is obvious. Both strive for overall community resilience by promoting loss avoidance both pre-disaster and post-disaster.
- **Energy Assuredness Planning:** An energy assuredness plan (EAP) strives to help local governments prepare plans to ensure that key assets are resilient to disaster events that impact energy. Key components of an EAP include:
  - Energy roles and responsibilities
  - Sources and usage of energy
  - Energy interdependencies
  - Essential services, "key assets"
  - Vulnerabilities of "key assets" from various disaster events
  - Solutions to reduce and/or eliminate the impacts on key assets

While EAPs are currently not required for any state or federal programs, they can be a valuable tool in supporting the recovery continuum. These plans can be standalone or integrated into comprehensive plans, hazard mitigation plans or emergency management plans.

- **Climate Action/Adaptation Plans:** States and communities around the country have begun to prepare for the climate changes that are already underway. Climate action plans are comprehensive roadmaps that outline the specific activities that an agency will undertake to increase

resiliency to climate change impacts and/or reduce greenhouse gas emissions.

### ***Step 5 Funding or Programmatic Considerations***

Many of the above plans or programs can be funded by FEMA Hazard Mitigation Assistance (HMA) planning grants as long as they are part of an overall planning process that results in a FEMA approved hazard mitigation plan. These grants cannot be applied to a singular planning effort that will not result in an approved hazard mitigation plan.





# 3 POST-RECOVERY FUNDING SOURCES AND FINANCING STRATEGIES

There are numerous funding sources overseen by federal agencies and non-profit organizations that support community resiliency efforts. In particular, the federal government plays a strong role in post-disaster funding. This section will present an overview of federal post-disaster funding sources, as well as present other funding sources that will be beneficial to long-term recovery efforts.

This Guide is designed to help users easily identify appropriate funding sources and best practices. This section summarizes resources while Toolkits are included as complementary resources to this Coastal Resiliency Funding Guide. The Toolkits identify available federal and non-profit resources, as well as key information for municipalities to track and prepare applications. The Federal Resource Toolkit includes more in-depth information on those programs that are considered highly relevant for Puerto Rico. The Federal Resource Toolkit is included as Annex II. The Non-Profit Resource Toolkit is included as Annex III.

There are also a wide range of financing strategies that can be used for coastal resiliency projects, which range from traditional financing strategies (e.g., tax revenue) to more innovative financing strategies, such as regional and public-private partnership (PPP) opportunities/initiatives. This Guide will not focus on traditional financing strategies, as we recognize that municipalities are currently using existing funding streams—and it is not within the purview of this Guide to suggest new or enhanced requirements—but will provide information on more innovative financing strategies. Section 3.2 summarizes these strategies.

### 3.1 Federal Disaster Relief

Due to the extensive damage caused by the hurricanes in 2017, the Government of Puerto Rico has estimated that \$94.4 billion dollars will be needed to rebuild the territory (Severino Pietri 2018). In light of this need, and with the rapidly approaching 2018 hurricane season, it is important to know what funding sources are available to the municipalities in Puerto Rico, and what agencies have received funding through the disaster relief packages in the past, in order to be prepared for and resilient to future natural disasters.

The Stafford Act (PL93-288) provides regions affected by a major disaster with a process to gain federal assistance. Once the President approves the declaration that a major disaster has hit, as was done in the case of Puerto Rico on September 21, 2017, the affected region becomes eligible to receive several funding sources to aid residents and the municipal government. Many of the assistance programs are managed by FEMA, and can be grouped into three main categories: public assistance, individual assistance, and hazard mitigation.

While public assistance is usually distributed through grants to the local governments to repair bridges, roads, utilities, and for debris removal, and is FEMA's largest program, individual assistance is paid directly to the residents to provide affected individuals with housing, and disaster employment assistance. Hazard mitigation programs use grants to provide funding for resilience and to decrease the impact of future disastrous events, and is the least funded program.

FEMA funding can be categorized into base funding and major declarations. Base funding finances operations and routine events, and is a smaller portion of the overall funding. Major declarations are based on the amount of money spent on disaster relief in the past 10 years; in 2017, \$6.7 billion was set aside for this funding mechanism, a substantial portion of the overall funding source.

Since Hurricane Harvey and Irma in 2017, three disaster relief packages have been passed by Congress. The

first disaster relief package was passed on September 8, 2017 through the Continuing Appropriations Act, 2018 and Supplemental Appropriations for Disaster Relief Requirements Act, 2017 (PL 115-56). The act appropriated \$15.3 billion to cover the damage from Hurricane Harvey and Irma. The distribution of funds under this appropriation is ongoing, with the Community Development Block Grant (CDBG) program awarded \$1.5 billion in February 2018.

The second disaster relief package was passed by the U.S. House of Representatives on October 12, 2017. At the time of this report, this package is awaiting confirmation from the Senate. The package would appropriate \$36.5 billion for recovery in Puerto Rico, Florida, California, Texas, and the U.S. Virgin Islands (USVI). It includes \$18.67 billion for the FEMA disaster relief fund, \$16 billion for the National Flood Insurance Program, \$4.9 billion may be transferred to the Disaster Assistance Direct Loan Program Account for the cost of direct loans, and \$1.27 billion exclusively for disaster nutrition assistance for Puerto Rico. Other agencies will also receive funding with this bill.

On February 9, 2018 a third disaster relief package was passed by Congress, which provides \$89.4 billion in disaster relief efforts for the U.S. and its territories. This third disaster relief package is pending distribution of funds, but is significant since it sets aside \$11 billion specifically for Puerto Rico and the USVI. In other bills, Puerto Rico had to compete with other regions in the U.S. for funding. Puerto Rico will receive \$4.8 billion for the Medicare program, \$2 billion for electric power restoration and improvement, and \$9 billion for housing infrastructure programs. The bill also sets aside \$28 billion for the CDBG program to begin rebuilding and recovery efforts. Finally \$14 million was earmarked for USDA's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

Under this disaster recovery package, Puerto Rico's cost-share requirement for certain programs with the Army Corps of Engineers will be waived, which allows the programs to be fully funded by the federal government.



Table 3-1 summarizes federal disaster relief appropriations (Severino Pietri 2018).

There is still uncertainty in how the recovery planning process will unfold in Puerto Rico. The Central Recovery and Reconstruction Office of Puerto Rico (CRRO), a division within Puerto Rico's Public Private Partnerships Authority, is acting as the grant oversight authority for relevant federal disaster funds. The Governor of Puerto Rico ordered the creation of the Central Recovery and Reconstruction Office (CRRO) of Puerto Rico under the authority of the Puerto Rico

Financial Emergency and Fiscal Responsibility Act (Act No. 5-2017) on October 23, 2017. Any governmental entity, including the municipalities of Puerto Rico, will need to submit proposals for recovery funds to the OCRR for evaluation and approval prior to the formal submission to a competent authority. At the time of this writing, specific processes and procedures for municipalities were still under development. However, municipalities are encouraged to carefully track the CRRO's website at: <http://www.p3.pr.gov/crro-documents.html> for updates.

**Table 3-1. Federal Disaster Relief Appropriations, Puerto Rico (Severino Pietri 2018)**

Appropriation	Department/Agency	Program	Total	Allocated for Puerto Rico*	Distribution Status
All	Federal Emergency Management Agency	Disaster Relief Fund	\$26,070,000,000	\$2,583,597,590	Ongoing
	Small Business Administration	Disaster Loans Program	\$2,102,000,000		Ongoing
First Supplemental (September 2017)	U.S. Department of Housing and Urban Development	Community Development Block Grant	\$7,400,000,000	\$1,500,000,000	Awarded Feb 2018, awaiting Action Plan from PR Government
Second Supplemental (October 2017)	Federal Emergency Management Agency	Disaster Assistance Direct Loan Program	\$4,900,000,000	\$4,900,000,000	Awaiting approval from Department of Treasury
	U.S. Department of Agriculture	Disaster Nutrition Assistance Program	\$1,270,000,000	\$1,270,000,000	Distributed
	National Flood Insurance Program	General Fund	\$16,000,000,000	\$121,000	Funds Distributed
Third Supplemental (February 2018)	U.S. Department of Housing and Urban Development	Community Development Block Grant	\$28,000,000,000	\$11,000,000,000	Pending
	U.S. Department of Agriculture	Office of the Secretary-Block Grants	\$2,360,000,000		Pending
		Rural Housing Insurance Fund Program Account	\$18,672,000		Pending
		Rural Water and Waste Disposal Program Account	\$165,475,000		Pending
		Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	\$14,000,000		Pending
		Commodity Assistance Program	\$24,000,000		Pending
	U.S. Department of Commerce	Economic Development Assistance Programs	\$600,000,000		Pending
	U.S. Army Corps of Engineers-Civil Works	Construction Fund	\$15,000,000,000		Pending
	U.S. Department of Energy	Electricity Delivery And Energy Reliability	\$13,000,000		Pending
	Department of the Interior	Insular Affairs-Assistance to Territories	\$3,000,000		Pending
	Environmental Protection Agency	Hazardous Substance Superfund	\$6,200,000		Pending
		Leaking Underground Storage Tank Trust Fund	\$7,000,000		Pending
	Department of Education	Hurricane Education Recovery	\$2,700,000,000		Pending
	Department of Health and Human Services	Public Health and Social Services Emergency Fund	\$162,000,000		Pending
		Children and Families Services Programs (Head Start)	\$650,000,000		Pending
	Department of Transportation	Emergency Relief Fund	\$1,374,000,000		Pending
		Public Transportation Emergency Relief Program	\$330,000,000		Pending

As a result of the debt crisis, the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA) was passed in 2016. PROMESA created the Financial and Oversight Management Board (FOMB) and provided the FOMB the right to approve the budget of Puerto Rico (Clark 2017). The Government in Puerto Rico, along with the FOMB are currently working to establish a 12-24 month recovery plan in order to accomplish long-term recovery goals. It is unclear what role, if any, the FOMB will have in recovery efforts and funding.

## 3.2 Federal Funding Sources

There are numerous federal funding opportunities for coastal resiliency, spanning multiple federal agencies, including the Environmental Protection Agency (EPA), NOAA, FEMA, Department of Transportation, USACE, and others. Federal funding programs are subject to agency priorities and approvals, as well as Congressional funding. Thus, the availability of any one funding program and any associated submission deadlines may change from year to year and should be confirmed prior to spending time developing an application. There are often cost-share requirements for these programs; an important consideration is whether a cost-share is required and if so, what type/how much. In-kind resources are sometimes eligible to meet cost-share requirements.

Annex II presents the Federal Resource Toolkit with in-depth information on those opportunities that are considered highly relevant for Puerto Rico. Relevancy was identified using best professional judgment and based on a variety of considerations: 1) application to Puerto Rico's priority coastal resiliency needs (identified above in Section 1.2), 2) cost-share requirements (programs that do not require a cost-share are considered more feasible in the short-term, and thus are ranked higher), and 3) award ceiling (larger award amounts ranked higher). Annex II is organized in alphabetical order by federal agency.

Annex II, the Federal Resource Toolkit, presents a summary table of the 83 federal funding opportunities, including: the sponsoring agency, funding program, cost-share requirements, award floor/ceiling,

eligibility considerations, and the website. Additionally, the table identifies the priority classifications (as presented in Section 1.2) that are covered under each program so that a user can cross-walk priority vulnerabilities and needs with funding opportunities. Again, specific information on disaster recovery funding is still evolving; municipalities are encouraged to carefully track the CRRO's website along with the specific programming requirements.

In general, federal funding sources are considered a highly feasible option for Puerto Rico municipalities to strengthen their coastal resiliency due to the availability of funding that is directly relevant for a wide range of needs. There are also several success stories that illustrate the possibilities in Puerto Rico (refer to Section 4). However, federal grants require capacity to apply and administer, as these programs have regular reporting and monitoring requirements. A lack of capacity and inability to meet cost-share requirements have kept the number of submitted applications from Puerto Rico relatively low compared to other places in the U.S. Section 3.3 will discuss financing strategies that can be used to meet cost-share requirements; while Section 4 will discuss considerations for developing successful applications.

## 3.3 Non-Profit Funding Sources

A variety of non-profit funding sources is available to support coastal resiliency programs. Non-profit funding is tied to the mission of the organization—with many targeted to the conservation of natural resources and provision of ecosystem services. For example, the National Fish and Wildlife Foundation (NFWF) has three relevant conservation grant programs, with one newly created program focused specifically on Puerto Rico (Puerto Rico Seagrass Fund). The awards tend to be relatively small (average approximately \$150,000).

Most non-profit funding sources are highly competitive and not focused on one geography (unlike the Puerto Rico Seagrass Fund), but receive applications nation- and sometimes world-wide. Their preparation and administration require capacity in order to apply for and administer the grant, sometimes at a similar

level as a federal grant. Given the relatively low potential for success (due to the number of applications per award) and the resource commitments these require, municipalities should carefully evaluate the grant before preparing an application. However, communities should absolutely evaluate these opportunities, particularly for those that are targeted for relevant geographic or resources areas. In these cases, such as for the NFWF program, non-profit funding sources are considered moderately feasible.

Annex III presents the Non-Profit Resource Toolkit, which is a summary table of relevant opportunities, including: organization, funding program, cost-share requirements, award floor/ceiling, eligibility considerations, and the website. Additionally, the table identifies the priority classifications (as presented in Section 1.2) that are covered under each program so that a user can cross-walk priority vulnerabilities and needs with funding opportunities.

## 3.4 Municipal Revenue Tools

Local governments have the ability to raise revenue through taxes, protect or enhance natural systems through acquisitions or easements, and create incentives to strengthen coastal resiliency. An overview of these approaches is included below. The use and feasibility of each approach can vary widely among municipalities based on site-specific considerations. However, in order for municipalities to develop a long-term approach to coastal resiliency, a dedicated financing stream and planning process is an important element. Municipal funding can be targeted to a specific need, used more generally, and can even be identified as a method of meeting federal match requirements. A few of these tools are summarized below, along with examples of best practices.

### 3.4.1 Capital Improvement Plans and Funds

Capital improvement plans are tools for states, municipalities, and public utilities to identify infrastructure needs and projects. The plans are accompanied by a capital improvement budget which can be from a traditional municipal stream (e.g., taxes), or could be funded through a bond measure.

Coastal resiliency measures can be integrated directly into the capital improvement planning process. For example, the City and County of San Francisco developed a framework for integrating sea level rise within the capital planning process. The framework was adopted by the Capital Planning Committee in 2014, and provides direction to all departments on how to incorporate sea level rise into new construction, capital improvement, and maintenance projects.

### 3.4.2 Acquisitions and Easements

Acquisitions and easements are tools for states and municipalities to protect areas for a variety of reasons (conservation, public health, recreation, etc.). These tools can be used to ensure that lands that are considered vulnerable to coastal or riverine flood impacts are not used for commercial, or residential purposes.

An acquisition program is used to purchase undeveloped land, while a buy-out program is used to acquire developed land (such as those that experience repeat flooding). There are federal programs that can be used to support these actions (refer to the Federal Resource Toolkit), or they can be implemented independently by a municipality.

The “Guidance for Incorporating Sea Level Rise (SLR) into Capital Planning in San Francisco” presents a step by step guide to establish and apply a consistent and comprehensive review, planning, and implementation process for the City and County of San Francisco. The Guidance is available online at: <http://onesanfrancisco.org/sea-level-rise-guidance>.

The city of Grand Rapids, Michigan planted a rain garden in an area prone to recurrent flooding. The city obtained a FEMA grant to purchase the homes from willing homeowners who petitioned the city to participate in the program; the city provided a percentage of the funding. The city designed a 4,000 square foot rain garden with 15 plant varieties. The rain garden was planted by city staff members and volunteers. Refer to a news article available online here: [http://www.mlive.com/news/grand-rapids/index.ssf/2013/08/watch\\_front\\_porch\\_of\\_grand\\_rap.html](http://www.mlive.com/news/grand-rapids/index.ssf/2013/08/watch_front_porch_of_grand_rap.html)

A conservation easement is typically sold or donated by land owners to limit development of a land-holding. The land owners can be paid by the municipality, or granted a tax benefit from the donation. Coastal and wetland area provide natural protection from natural hazards, and provide valuable ecosystem services. These areas would be ideal for conservation easement purposes. Of course, conservation easements are dependent on willing landowners and are thus considered opportunistic.

### 3.4.3 Taxes and Tax Incentives

Municipalities have the ability to use existing funds or create/incentivize new ones directed to coastal resiliency efforts. A few examples of how other cities are using this traditional method of funding is discussed below.

#### ***Fees or Concessions***

Many cities have developed fees on plastic bag and waterway use (among others) to create dedicated funding streams for resiliency projects. For example, the District of Columbia created a 5-cent plastic bag fee to fund stormwater improvements. Funds generated from the bag fee are being used to clean up the Anacostia River and support climate change adaptation programs, including for green roof and stream restoration initiatives.

Cape Cod recently (November 2016) passed a waterway use tax, subject to all boats on moorings and those launched from town landings. Residents are required to pay \$50 per year, while non-residents will pay \$150 annually. The fee is expected to generate between \$150,000 and \$175,000 annually. The fee

will go into a separate fund that can only be used for waterways projects and not into the general fund. Refer to a news article available online here: <http://www.capecodchronicle.com/en/5144/chatham/809/Officials-Waterways-User-Fee-Will-Supplement-Infrastructure-Upgrade-Costs-Waterways.htm>.

#### ***Preferential Assessment Programs***

Preferential assessment programs discourage landowners of valuable property to sell or develop their land to keep up with tax increases. Usually property is taxed based on the current appraised value, which takes into consideration the current property value, the development potential, and any improvements that have been made on the property. The increasingly high taxes waterfront owners experience has become a major driver for owners to sell or develop their land. Preferential assessment programs provide landowners of valuable property with lower taxes to preserve their property either for historical or environmental needs. Taxes are assessed based on the property's actual value, and not the potential value if the land was developed, lowering the taxes, and incentivizing landowners to keep their property.

The state of Georgia has successfully implemented a Preferential Assessment Program where land that meets certain qualifications and is certified by the Department of Natural Resources can be considered for the lower taxes based on 40 percent of the use value, rather than the fair market value. In some cases the percentage reduction of the taxable value was up to 80-90 percent. In 2010 over 4,000 acres of land qualified as "Environmentally Sensitive Preferred Assessment Properties." Refer to a working paper




that summarizes the program here:

[http://www.lincolnst.edu/sites/default/files/pubfiles/2281\\_1620\\_Sundberg\\_WP13JS1.pdf](http://www.lincolnst.edu/sites/default/files/pubfiles/2281_1620_Sundberg_WP13JS1.pdf).

### 3.4.4 Comprehensive Planning

Comprehensive planning is a process that determines community goals and aspirations in terms of community development. The outcome is the Comprehensive Plan which dictates public policy in terms of transportation, utilities, land use, natural resource protection, recreation, public safety and housing. Comprehensive plans can indirectly generate revenue by directing development/redevelopment away from hazard areas and by establishing impact fees and mitigation incentives as part of a community's land use policies. For example, the City of Myrtle Beach, South

Carolina adopted a comprehensive plan in 2011 that included policies to avoid environmental hazards and reduce the exposure of people and property to coastal hazards by keeping people and property out of coastal floodplains, high-erosion zones, and inlet hazard areas. Sea level rise, earthquakes, storms, climatic changes, tidal waves, tsunamis, winter storms, drought, and wildfires are also addressed in the plan. This 20-year vision resulted in growth for the community as it enhanced the principle attraction for tourism to the community—the beach. These policies also resulted in increased resilience for the city by enhancing the natural protection from coastal storm surge—beaches and dunes. This has led to rapid growth for the community by attracting revenue-generating business and industry to support tourism to the community.



*The 2011 City of Myrtle Beach Comprehensive Plan - Becoming a Sustainable City* serves as the guidebook for the City's development, improvements, and growth over a 20-year period. The plan was first adopted in 1980 and amended in 1999, 2000, 2006, and 2011. A 2007 amendment to the SC Comprehensive Planning Act entitled the *SC Priority Investment Act* added a priority investment element to the comprehensive plan. This element requires an analysis of projected federal, state and local funds available for public infrastructure and facilities during the next 10 years and recommends the projects for those funds. Projects in the 10-year Priority Investment Element include:

- Implement stormwater management strategies that will minimize property damage from flooding
- Correct 6th Ave N drainage problem with outfall project
- Continue stormwater drainage project on Pinner Place
- Proactive and sustainable stormwater projects to include ditches cleaned and piped
- Eliminate stormwater runoff and pipes off the beach
- Neighborhood stormwater projects including Bent Oaks II and III, Bent Oaks IV, Haskell Circle/Sunset Trail, Oak Street south of 16th Ave N, Sacindy drainage, 44th Ave N drainage project, Ocean outfall (25th Ave N) from 24th Ave N street end to Atlantic Ocean
- Various stormwater projects citywide
- Ocean outfall (4th Ave N) from 4th Ave N street end to Atlantic Ocean
- Pine Lakes curb and gutter restoration
- Poinsett Rd to Woodside Ave drainage

To view the City of Myrtle Beach Comprehensive Plan, visit: [http://www.cityofmyrtlebeach.com/departments/planning\\_department/comprehensive\\_plan.php](http://www.cityofmyrtlebeach.com/departments/planning_department/comprehensive_plan.php).

## 3.5 Innovative Financing Strategies

### 3.5.1 Regional

In 2012, multiple agencies from the city of San Diego joined together to combat the increasing climate change risks the region faces, facilitate cross-jurisdictional responses, and form new partnerships. These entities, namely the Cities of Chula Vista and San Diego, the County of San Diego, the Port of San Diego, the San Diego Association of Governments, the University of San Diego, The San Diego Foundation, and San Diego Gas and Electricity (SDG&E) created the San Diego Regional Climate Collaborative (SDRCC).

Experts calculate that by 2050 the sea level rise in San Diego may be anywhere between 12 and 18 inches. Sea level rise and coastal flooding puts the region's infrastructure, ports, airports, military bases, and roads at risk.

SDG&E's partnership programs and the San Diego Foundation provided the initial funds for the collaborative. In order to gain the support of several agencies including public agencies, SDRCC does not require members to pay fees, instead the Steering Committee on the board of the collaborative requires each member to provide a \$5,000 in-kind contribution. The collaborative seeks grant opportunities as additional sources of funding.

Through SDRCC, multiple coastal resiliency planning and implementation programs have been funded, such as the Del Mar Local Coastal Amendment. Under this program the city of Del Mar received \$100,000 to fund coastal resiliency programs that targeted flooding, and \$212,000 for technical studies. The city focused on several ecologically friendly lagoons to prevent flooding in the case of sea level rise and storm surges (refer here for a listing:

<http://www.resilientcoastlines.org/local-initiatives-1>).

For more information on the SDRCC and the projects they are implementing visit:

<https://www.sdclimatecollaborative.org/>.

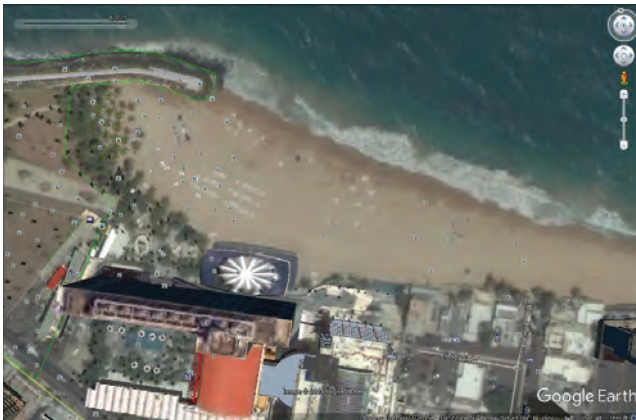
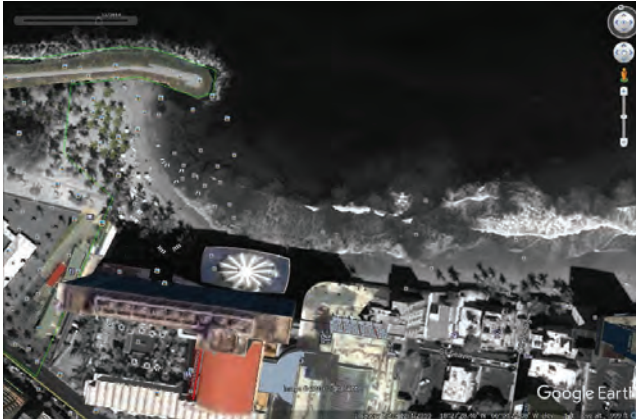
### 3.5.2 Public-Private Partnerships

Public-private partnerships are a way to leverage private sector investment with federal funding to achieve the maximum investment. The Commonwealth of Virginia is developing the Coastal Resilience Laboratory and Accelerator Center (CRLAC), which is focused on helping businesses respond to climate change, and promoting better management of water resources.<sup>1</sup> This center could provide useful information for Puerto Rico's businesses, as well as public-private partnership models that could support coastal resiliency.

In Puerto Rico the private sector has pooled resources to support coastal stabilization efforts, such as artificial reefs and shoreline stabilization projects. An example of this is the Arrecife Condado project, which is a community-based initiative formulated by private citizens with interest in the safety of beachgoers and the conservation of the popular beach near Ventana al Mar in Condado. The project is to plan, design and develop an artificial reef system to mitigate dangerous nearshore rip currents, protect the beach from erosion, and create marine ecological, educational and recreational resources. The non-profit organization was formed under Arrecife Condado, Inc., which has been supported by privately funded businesses investing in the redevelopment of the tourism assets in the Condado area. The project has received funding from the PR Tourism Company as well as other NGOs, and intends to serve as a pilot project for other coastal areas throughout Puerto Rico experiencing dangerously strong currents and coastal erosion. The project has been formulated in conjunction with the DNER

<sup>1</sup> In 2016 the Rockefeller Foundation formed a partnership with the U.S. Department of Housing and Urban Development (HUD), and state and local governments to promote resilience and disaster preparedness. Through the National Disaster Resilience Competition the partnership was able to award \$1 billion in funding to several states and projects. The Commonwealth of Virginia received \$120,549,000 in funding to support the Coastal Resilience Laboratory and Accelerator Center (CRLAC) and the Ohio Creek Watershed project.

and other local stakeholders. Through community involvement and public-private partnerships, a Water-front Business Coalition is being formed to further develop the Arrecife Condado pilot project to serve as an example on how to increase coastal resiliency in Puerto Rico.



Seasonal variations at the Condado Beach indicate the importance of protecting valuable coastal resources through public-private partnerships.

### 3.5.3 Insurance Incentives

Insurance premiums can be drivers for investments in coastal resiliency programs. Based on current studies, zones that are at a high risk for climate change, natural disasters, and flooding may become too risky to be insured, and developers may not be willing to pay the high premiums (Khan et Al. 2017). In areas that are flood prone, or particularly sensitive to the effects of climate change, developers may be able to achieve lower insurance premiums by investing and incorporating resiliency efforts upfront. Lower premiums can become substantial savings in the long term. In some instances, resiliency strategies incorporated into vertical structures reduced the potential flood risk from \$10M to \$1M, which led to a significant premium drop (Marshall and McCormick 2015).

For example, 1450 Brickell in Miami, Florida was designed to be one of the city's most resilient structures. The building exceeds the city's building codes with high impact resistant windows and framing throughout the entire structure, and an elevated ground level above the flood level. The investment in resiliency measures has decreased insurance premiums, and this factor along with electricity savings have provided the building's owner with \$1 million savings annually (Marshall and McCormick 2015). For more information refer here:

<http://uli.org/wp-content/uploads/ULI-Documents/Returns-on-Resilience-The-Business-Case.pdf>.

Catastrophe bonds are another way that local governments have been able to protect themselves in the face of a natural disaster. Catastrophe bonds, or Cat Bonds, are high-yield bonds that are supported by local governments and supplied by reinsurance companies to provide long-term coverage for municipal governments, rather than the year-to-year coverage insurance companies typically provide. These bonds come into effect when a major disaster that meets certain predetermined parameters hits the area covered by the bond.

Re:focus Partners, a company that provides Cat Bonds, has restructured their bonds to measure and monetize the benefits of resiliency measures to lower the cost

of these bonds for municipalities (Kahn et Al, 2017). The City of Hoboken, New Jersey has taken advantage of the disaster modeling and bonds to invest in comprehensive flood walls that protect the city from tidal surge risks in the event of a 500-year storm event (RE.bound Program Press Release, 2015). For more information refer here: <http://www.refocuspartners.com/wp-content/uploads/2017/02/RE.bound-Program-Report-December-2015.pdf>.

Additionally, FEMA's NFIP provides flood insurance in communities that comply with minimum standards

for floodplain management. The NFIP insures property in all 50 states and territories of the U.S. The Community Rating System (CRS) is a mechanism provided by FEMA to incentivize community floodplain management practices that exceed minimum standards by providing flood insurance premium discounts to participating communities. Significant insurance rate savings can be realized for homeowners and businesses in communities that participate in CRS, with savings dramatically increasing as better CRS levels are achieved. For more information refer here:

[FEMA's Community Rating System \(CRS\) Program](#).



# 4 BEST PRACTICES AND INNOVATIVE APPROACHES IN POST-DISASTER FUNDING

When applying for funding, there are a few items to consider that can help municipalities increase the chance of being selected for funding programs. These recommendations have been compiled from interviews with agencies such as NOAA, USACE, EPA, FEMA, and others, as well as based on the experiences of the authors in post-disaster recovery efforts.



A typical calm day on a vulnerable beach in Palmas del Mar, Humacao. *Photo: Tetra Tech*

## 4.1 Develop a CDBG-DR Action Plan



Waterfront park at Washington Street, San Juan, March 2018. Photo: Tetra Tech

As described in Section 2, it is critical for community officials to establish a comprehensive recovery strategy that balances immediate recovery needs (e.g., evacuations, sheltering, debris management, substantial damage determination, utility and service restoration, etc.) with longer-term recovery and resilience planning. As immediate recovery efforts are completed, it becomes increasingly important to have an established strategy that will allow for the seamless shift of resources towards identifying and addressing remaining recovery gaps and working to establish long-term resilience.

In order to be effective, a community may elect to undergo a strategic planning process that identifies prioritized solutions and a clear path to long-term recovery. A strategic recovery plan should act as a guide for local decision makers to expedite an assessment of unmet needs and recovery gaps, identify recovery and resilience projects, and identify other plans and programs that can be leveraged to support recovery, prioritize investments, and catalogue specific

actions and responsibilities to achieve their recovery goals. These strategic recovery strategies should be tailored to a community or region's unique conditions to ensure that the most effective and appropriate solutions are identified to maximize the recovery potential of limited resources. Strategic recovery plans should incorporate a combination of the best available quantitative and qualitative information built upon what just happened to assist communities with developing tailored solutions that directly respond to their specific conditions and risks.

To accomplish this, a community may adopt a multi-step planning process that will result in a tailored strategy that prioritizes the most effective recovery solutions and assists with securing potential recovery resources and funding.

### **Strategic Recovery Planning Process**

The strategic recovery planning process may benefit from the creation of a small work group which will be

responsible for leading the planning process, including establishing overarching direction and goals; engaging key stakeholders, residents, property owners, and business owners; identifying and prioritizing projects; and developing implementation strategies. The work group may include representatives from the governing body; executive staff of the community; various department heads, such as community development, planning, and public works; and emergency management/public safety. It is recommended that the work group meet at regular intervals during the first 3-6 months after the disaster to coordinate resources and develop the recovery strategy. It is important to note that the overarching structure of this work group may already exist as part of another process or program such as the local government's hazard mitigation planning effort, or the establishment of a Local Emergency Planning Committee (LEPC) pursuant to the Planning and Community Right-to-Know Act. Timelines, participants, and responsibilities of the work group may vary depending on the nature and severity of the disaster.

Once established, the community or working groups first step would be the collection and interpretation of data and information on the disaster and its resulting impacts. A combination of quantitative and qualitative information should be used to prepare a comprehensive summary of the disaster. It is recommended that models be utilized such as FEMA's Hazus-MH risk assessment platform to recreate the event, which allows an analyst to quantify impacts which can later be used to estimate the benefits of various resilience alternatives being considered by the work group. The work group should utilize a variety of available information to define the damages/impacts of the disaster including damage reports, inspections, after-action reports, funding/assistance documentation, public worksheets, stakeholder meetings and other locally-specific sources as available. The community should also coordinate with state and federal agencies, such as a state emergency management agency/office and FEMA to access relevant data and information pertaining to the disaster. The collected data and disaster impact summary form the basis for identifying

recovery gaps and also become an essential component of subsequent requests for funding. Providing a narrative of storm events supported by detailed data analysis will help to create competitive applications for funding assistance to support implementation of key recovery projects.

Data collection efforts should include an outreach strategy to engage impacted residents, property owners, business leaders, first responders and other key stakeholders through a series of meetings, interviews, and surveys. These outreach meetings will provide the residents and stakeholders with an opportunity to communicate their observations, issues and impacts from the disaster, unmet recovery needs, potential projects, and any other concerns related to the disaster. This outreach should also include Non-Governmental Organizations (NGOs) and Volunteer Organizations Active in Disasters (VOADs) in an effort to identify a comprehensive list of unmet recovery needs. These outreach efforts will also afford the community an opportunity to provide the residents with valuable information related to recovery projects, available resources and services, and updated timelines.

Early in the planning process, the work group should begin to inventory completed and current recovery efforts and all funding received or anticipated. Once identified, the work group will conduct an unmet needs assessment which compares the impacts from the disaster with completed projects and funding to identify recovery gaps and unmet needs.<sup>2</sup> Potential needs and recovery gaps identified during this process may include, but are not limited to, housing repair and rehabilitation, essential personal needs (e.g., food and clothing), infrastructure repair and reconstruction, business assistance, property acquisition, structural demolition, and social services, among many others. With an understanding of the community's unmet recovery needs, the work group should then establish a vision and series of goals to establish a clear direction for long-term recovery and resilience.

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<sup>2</sup> For more information, refer to the Disaster Impact and Unmet Needs Assessment Kit on the HUD exchange: [https://www.hudexchange.info/resources/documents/Disaster\\_Recovery\\_Disaster\\_Impact\\_Needs\\_Assessment\\_Kit.pdf](https://www.hudexchange.info/resources/documents/Disaster_Recovery_Disaster_Impact_Needs_Assessment_Kit.pdf).



The community should conduct some basic evaluation of existing data and information related to their streams, waterways, stormwater management systems, infrastructure and flood control devices to identify any improvements that could be made to reduce the intensity and frequency of future flooding. Once again, this evaluation should be based upon a thorough look of what just happened and how that compares to what may happen in the future. They should also inventory any existing data and models that could be utilized to identify these improvements. If this type of data and information does not exist, the community should consider conducting a hydraulic and hydrologic evaluation to identify additional projects that may assist with their recovery and improve overall resilience.

Using the results of the impact summary, unmet needs assessment, and stakeholder outreach, the work group can develop, refine, and prioritize a list of recovery projects and initiatives. This process should begin with an initial list of project concepts based on available data and input from the work group. As key analyses are completed and stakeholder outreach is conducted, project concepts should be refined, and the work group should develop a prioritization process that reflects the vision and goals of the community. This prioritization process may include goals accomplished, addressing remaining impacts from the disaster, potential reduction in future damages, and eligibility for funding, among others. To support the prioritization process, the community should continue to coordinate with the state and federal agencies such

The community may conduct an identification and analysis of high-water marks in the community and use existing hydraulic and hydrologic data to more scientifically define recovery and resilience projects.

as the state emergency management agency, state community development offices, FEMA, the National Resource Conservation Service, the U.S. Department of Housing and Urban Development (HUD), and others to collect information on the available public funding for recovery and resilience. The result of this process should be a prioritized list of projects and initiatives with supporting information that details each project's potential for recovery, resilience and alignment with potential funding programs.

With a prioritized list of projects, the work group can now finalize a strategy for recovery and resilience. The strategy will include a summary of the disaster, the identified unmet needs, a prioritized list of projects, and a timeline and actions for implementation. A timeline should also be developed for preparing and submitting applications to the relevant funding programs and for meeting with the prospective funding agencies to discuss the projects and program requirements. When complete, this strategy will provide the community with the necessary data and actions to prioritize and leverage the available funding for recovery and to establish a path to improved comprehensive resilience.



The importance of documenting changes to vulnerable unprotected urban beaches.  
*Photos: José M. Suarez*




## 4.2 Mobile Technologies and Applications

Recent advances in smartphone application technologies have allowed many different agencies and organizations to take advantage of mobile technology and tools in the aftermath of natural disasters. App technologies can be used to provide a range of services from emergency preparedness to data capture. In many instances, in the immediate aftermath of a disaster when power sources may be unstable, using a mobile app may be a convenient, accessible, and cost-efficient way to collect and transfer information.

The ability to quickly capture perishable data, such as high-water marks, the geolocation of flooding, and photos of the flood damage, can be challenging for communities faced with disaster recovery efforts. Following a natural disaster, efforts may be focused on short-term recovery, and needs such as collecting and consolidating data may be considered low priority and delayed. However, collecting data quickly is critical for longer-term recovery needs, as well as to apply for recovery funding and insurance claims.

The rapid evolution of mobile app technologies in recent years have allowed apps to be tailored to the needs of organizations, governments, and individuals. For instance, the Red Cross has developed a number of specialized apps to monitor the status of hurricanes, prepare individuals and their homes for floods, and for general emergency management, amongst many other apps. The specialized hurricane app monitors the weather conditions in the mobile app holder's local area, tracks the hurricane, and allows them to mark themselves safe even if there is no power. Refer here for a description: <http://www.redcross.org/get-help/how-to-prepare-for-emergencies/mobile-apps>.

FEMA has developed their own electronic tool, the Substantial Damage Estimator (SDE) that aids state and local officials with estimating the damage inflicted by natural disasters including flood, wind, wildfire, and seismic damage. A smartphone app has also been developed which details disaster safety tips, emergency meeting locations, a map of local shelters, and FEMA Disaster Recovery Centers. You can find



While supporting the response and recovery efforts from the impacts of Hurricane Harvey in Texas, Tetra Tech staff realized that vital information on the extent and location of the flooding in real time was a vast data gap hindering the recovery efforts. Namely, where the flooding was occurring and the depths and velocities being observed. Realizing that there were thousands of first responders, public works officials, and volunteers out in the field that could provide firsthand accounts of what was physically happening in real time, Tetra Tech developed a smart-phone application (deployable in both Android and Apple configurations) that could be easily downloaded by response and recovery personnel. The smartphone application captured key data points for flood risk assessment and analysis, including the geolocation of the lateral extent of the flooding, the depth of flood water at any given point, and geo-located photos of hurricane-related damages. Due to the urgent need for this technology, the smartphone app was developed in approximately 5 days, and then modified while it was already deployed on the field.

The tool was deployed to over 200 Tetra Tech employees that were in the field performing damage assessment responsibilities. Data acquired was uploaded to the Cloud daily and was utilized to create flood depth grids and photographic inventories used to support substantial damage assessment of over 16,000 structures in 2 counties. The result of the application of this tool was a significant saving of time for substantial damage determination, and a vital capture of perishable data on flood risk from this event.

more information here: <https://www.fema.gov/media-library/assets/documents/18692>.

In addition, private proprietary apps have been developed to help communities capture data after a

natural disaster. These apps can be easily developed in short periods of time with little up front investment and can be downloaded on smartphones by disaster responders, government officials, and community members.

### 4.3 FEMA Hazard Damage Mitigation Grant – Case Study

The Fort Pierce City Marina case study provides insight on how a municipality approached overcoming the limitations of FEMA's public assistance grant funding by pursuing a FEMA hazard mitigation grant.

#### ***Fort Pierce City Marina, Fort Pierce, Florida***

The Fort Pierce City Marina is located on the Indian River Lagoon on the central east coast of Florida. The marina consisted of a floating dock complex within the lagoon and a fixed dock complex in an excavated basin in the upland. The lagoon is a large tidal back bay water feature that is separated from the Atlantic Ocean by barrier islands. At the marina site, the lagoon is about 2 miles wide and has about 17 miles of open water extending to the southeast from the marina.

In 2005, Hurricane Frances approached Florida to the south of the marina and stalled in its forward approach, resulting in 100 mph winds blowing along the southeast open water fetch for about 36 hours. The outer marina was completely destroyed. The marina was insured for about \$4 million but this fell far short of the estimated \$11 million in damages.

A federal disaster declaration allowed FEMA to provide public assistance grant funding to cover the \$7 million shortfall from the insurance coverage. Under the public assistance grant program, the marina would have to be rebuilt using the same plan and type of materials as the original marina. In addition, FEMA would not provide disaster funding assistance if the rebuilt marina were to be damaged or destroyed in the future. This presented a quandary for the City officials since rebuilding the marina with floating breakwaters as in the original design would leave it exposed to future damage by a Hurricane Frances type storm that had an estimated return period of about 8 years.

The framework of the solution lay in the pursuit of a FEMA hazard damage mitigation grant. Under this program, a locally-developed program that would prevent the damages of the original storm (Hurricane Frances in this case) and that could also satisfy economic cost-benefit requirements, constructability reviews, and environmental/regulatory issues could be eligible for grant funding. The conceptual design of an island breakwater complex was developed and presented to FEMA, which reviewed and approved the plan and its targeted design and construction cost. Figure 4-1 shows the project during the final stages of construction.

There were significant design and regulatory permitting issues involved in the project. The marina is adjacent to a Florida Aquatic Preserve, and there are important marine resources including seagrass beds in the general project area. In addition, the marina site is within the limits of an active flood tidal delta deposit associated with the nearby Fort Pierce Inlet. A science-based site investigation program and a comprehensive engineering design effort were conducted to fully address all of these complex issues. Field investigations included multiple marine resource surveys over the 90 acre general project site. Also included were bathymetric and topographic surveys; a magnetometer survey; extensive water, sediment and potential borrow material sampling and chemical laboratory testing; and a geotechnical sampling and laboratory testing program. The engineering program included wave generation and propagation modeling, hydrodynamic modeling, water quality modeling and sediment transport modeling as well as a small scale 2-D and 3-D physical modeling program to verify and refine the designs resulting from the numerical modeling programs.



Figure 4-1. Fort Pierce City Marina, Fort Pierce, Florida

There was extensive coordination between the environmental and engineering components of the project. Marine biologists played an active role in the siting of the project components both in their siting recommendations to avoid direct impacts on marine resources as well as their suggestions for the creation of potential recruitment areas where the wave sheltering and water depth conditions would favor seagrass recruitment. In addition, the marine biologists and engineers worked together to develop a design with environmental enhancement features that also contribute to the structural stability and functional performance of the breakwater islands. The final project design consists of a 15 acre complex of freeform breakwater islands to provide storm wave and current protection for the marina. The complex

includes 21 acres of environmental enhancements including mangrove and dune grass plantings, oyster reef substrates and shorebird nesting habitats. The project received the American Society of Civil Engineers COPRI Institute Project Excellence Award, Large Project Category in 2016.

The overall project required significant time and effort to achieve the required regulatory permits. The project ran from April 2005 to May 2015 when construction was completed. The total project cost was \$33.5 million. The City contributed the \$4 million in insurance proceeds and the balance was covered by the FEMA Public Assistance and Hazard Damage Mitigation Grants, and Florida Emergency Management Grant funds.

## 4.4 Checklist for General Funding Applications

When applying for funding, it is helpful to identify best practices that funding agencies may be looking for in the application process. The following guidance has been collected and consolidated from various

interviews and meetings with funding agency representatives, and describes general best practices when applying to various funding sources.

### ***Consider collaborating with an NGO or a University***

In some instances, a municipality will not have the capacity to develop a strong application for funding agencies. In these cases, partnering with an NGO, university, or private company that can take on the role of a “financial administrator” could provide the candidate with a stronger application. Most universities have grant departments that are equipped to handle the hurdles of applying for funding. NGOs, universities, and private companies may also be able to provide helpful tips to navigate the application process and may increase the chance of success.

In 2017, Nature Conservancy served as the fiscal agent, and developed the proposal for New England states that were applying for a flood protection funding opportunity through NOAA. The actual recipient of the funds was the Nature Conservancy working on behalf of the region, but it provided the states with a strong application to obtain funding for the project.

### ***Be Prepared for Recurring Grants within Projects***

Many agencies have the same grant opportunities each year. These recurring opportunities allow municipalities to prepare well in advance of the grant application release date. Since many grants have a small window of time to accept applications, it is prudent to prepare the proposed projects in advance, and be ready to answer questions and provide details about the project.

In the case of some federal agencies, such as the EPA, it is a frequent practice to engage with stakeholders regarding the grant prior to the RFP release. Once the RFP is released, the agency is not allowed to engage with the stakeholders, so it is imperative to engage with the contacts prior to the opportunity being released.

### ***Use Concrete Evidence***

Being able to evaluate and communicate the impact the project will have with the investment is critical when applying for funding. Agencies want to ensure the money will be well spent and will provide a return on their investment. Using economic measures to demonstrate or predict success, detailing the outcomes of the project, and being clear about what elements of resilience are being strengthened can help communicate the ultimate goal(s) of the project.

### ***Do Your Homework***

Each funding opportunity and agency is unique, and the application must be tailored to your audience. This means that the applicants must do their research prior to applying for a funding opportunity. Find out what types of requirements are stipulated in the funding opportunities, make sure to respond to each requirement, and follow the instructions.

Some agencies such as FEMA would like to see financial reports, or use of the FEMA tool for reporting progress when appropriate in the application. Incorporating these tools into your application may strengthen your submission and proposed project.

### ***Look to Prior Projects***

When applying for a funding opportunity, looking to prior awardees and projects may provide insight into the type of projects that agency feel comfortable funding. If the information is available, there are many helpful tips to be gained by reading through the different awardees and projects that have been awarded funding, such as who were the organizations that collaborated in the application, and what types of partnerships were formed.



## 4.5 Examples of Success

There are several instances where Puerto Rican agencies have applied for federal funding for coastal resiliency projects and been successful. Two examples are presented below.

### ***NOAA Coastal Resiliency Grant***

The NOAA Coastal Resiliency Grants fund projects aimed at helping coastal communities prepare for or recover from the effects of climate change. In 2017, Coastal Resiliency Grants focused on strengthening coastal communities, and approved funding for 19 projects across 17 states and Puerto Rico. In 2018, the focus has shifted to building resilience through habitat restoration.

The University of Puerto Rico- Rio Piedras, successfully received \$200,000 in federal funding for the “Low-Tech Rehabilitation of Coral Reef Ecosystem Services: Test Beds to Reduce Vulnerability” project. The project aims to identify and prioritize sites for coral restoration to recover federally listed coral reef species that in turn provide coastal shoreline protection. The partners for the project included the DNER and Sociedad Ambiente Marino. <https://www.coast.noaa.gov/resilience-grant/projects/>

### ***EPA Water Conservation, Energy Efficiency and Storm Water Pollution Prevention***

The EPA collaborated with the University of Puerto Rico Mayagüez and various hotels to implement the Water Conservation, Energy Efficiency and Storm Water Pollution Prevention project, which attempts to reduce diesel emissions through grants. The project received about \$600,000 in funding to conduct water conservation, storm water pollution prevention, and energy efficiency strategic audits in small businesses. Additionally, online trainings were made available to restaurants, beauty salons, and automobile shops in the coastal areas of Añasco. The grant required in-kind services, but the funding match could be provided at any time during the two year program. EPA grants are not used for construction, but are available for outreach and education, pollution prevention, and reduction of hazardous waste risks.



Shoreline protection project at Plaza del Mar, Palmas del Mar, Humacao. Photo taken January 2017 (before Hurricane Maria)



Effectiveness of shoreline protection project at Plaza del Mar, Palmas del Mar, Humacao. Photo taken February 2018 (after Hurricane Maria).



# 5 CONCLUSION

This Guide is designed to help users easily identify appropriate funding sources and best practices related to disaster recovery and long-term coastal resiliency efforts. Recognizing Puerto Rico's post-disaster reality, a pathway for recovery is presented. The pathway includes five steps that can be undertaken by the Government of Puerto Rico and its municipalities to support recovery efforts. The Guide also identifies a variety of funding sources that can support coastal resiliency, including federal, non-profit, and municipal revenue tools. Additionally, the Guide presents best practices and innovative approaches that may assist Puerto Rico and its municipalities to not just tap into these resource streams, but to leverage those funds to support a more resilient and sustainable future. It is hoped that the recommendations and resources presented in the Guide assist Puerto Rico and its municipalities to not just recover, but to lay the groundwork to be better prepared for the next natural hazard.



Effects of nearshore submerged breakwater in Dorado. *Photo: Jorge Suarez*





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# ANNEX I

## STRENGTHENING COASTAL RESILIENCY FOR PUERTO RICO PROJECT

Puerto Rico's Coastal Zone Management Program (PRCZMP), Department of Natural and Environmental Resources (DNER), initiated the Strengthening Coastal Resiliency for Puerto Rico project to help strengthen local and provisional coastal resiliency efforts based on best available science and practices. This project involves the development of two complementary guidance documents:

- ▶ **Coastal Resiliency Funding Guide** (this document) that proposes recommendations for local governments and communities to think more comprehensively about coastal resiliency and find ways to increase the feasibility of implementing solutions through identification of potential funding strategies, such as public-private partnerships, federal grants and resources, and other local funding mechanisms.
- ▶ **Coastal Engineering Handbook: Best Practices for Puerto Rico** that summarizes the regulatory framework within the coastal zone and identifies best practices in addressing coastal erosion or ecological restoration, and that can be used as a tool for local entities making permitting decisions, as well as for engineers and planners interested in best practices.

Moving from plans to implementation presents significant challenges from economic, planning, and enforcement perspectives for local governments and communities. The project seeks to identify primary constraints and provide recommendations on ways to increase the feasibility of implementing solutions.





# ANNEX II

## FEDERAL RESOURCE TOOLKIT

The Federal Resource Toolkit was developed to consolidate the most relevant information on various funding sources and opportunities, and provide the reader with an easily understandable platform to efficiently search for the appropriate funding source for a specific project. The matrix provides a user friendly way to use the reference guide, and classifies each funding opportunity by agency, program, cost-share requirement, and eligibility, among other categories. The matrix also details which sector each of the opportunities are for, such as infrastructure, planning, environment, etc. The opportunities included in the Federal Resource Toolkit have been specifically selected for Puerto Rico, and are most applicable to the projects envisioned for the territory.

Table A-1. Federal Toolkit – Matrix

Agency	Program	Coastal Management and Restoration			Municipal and Critical Infrastructure (Protect, Relocate, Retrofit)								Natural Resource Management						
		Structural Approaches	Preserve, restore, create natural coastal defenses (living shorelines, mangroves, coral reefs etc.)	Beach Nourishment	Disaster Preparedness	Disaster Response	Transportation	Energy	Water and Wastewater	Other Critical Municipal Infrastructure	Community Development	Residential and Commercial	Watershed Management and Protection	Air Quality	Agriculture	Stormwater Management	Habitat Restoration/Protection	Aquaculture	Threatened and Endangered Species
CDC	Public Health Emergency Preparedness				✖														
Department of Energy	State Energy Program							✖			✖		✖						
Department of Health and Human Services	Research to Action: Assessing and Addressing Community Exposures to Environmental Contaminants										✖								
Department of Homeland Security	Preparing for Emerging Threats and Hazards				✖														
DOT	TIGER						✖												
DOT	Nationally Significant Freight and Highway Projects						✖												
DOT	Advanced Transportation and Congestion Management Technologies Deployment Initiative						✖				✖		✖						
DOT	Surface Transportation System Funding Alternative Grants						✖												
EDA (Economic Development Administration)	Economic Development Support for Planning Organizations										✖								
EPA	Brownfields Area Wide Planning Program												✖						
EPA	Brownfields Assessment Grants												✖						
EPA	Brownfields Cleanup Grants												✖						
EPA	Brownfields Revolving Loan Fund Grants												✖						
EPA	Brownfields Workforce Development and Job Training												✖						

Table A-1. Federal Toolkit — Matrix (continued)

Agency	Program	Coastal Management and Restoration			Municipal and Critical Infrastructure (Protect, Relocate, Retrofit)								Natural Resource Management						
		Structural Approaches	Preserve, restore, create natural coastal defenses (living shorelines, mangroves, coral reefs etc.)	Beach Nourishment	Disaster Preparedness	Disaster Response	Transportation	Energy	Water and Wastewater	Other Critical Municipal Infrastructure	Community Development	Residential and Commercial	Watershed Management and Protection	Air Quality	Agriculture	Stormwater Management	Habitat Restoration/Protection	Aquaculture	Threatened and Endangered Species
EPA	Building Blocks for Sustainable Communities																		
EPA	Clean Diesel National Grants						✖								✖				
EPA	Clean Water State Revolving Fund (CWSRF)									✖									
EPA	Drinking Water State Revolving Fund (DWSRF)								✖										
EPA	Environmental Education Grants																		
EPA	Environmental Justice Small Grants																		
EPA	Multipurpose Grants to States and Tribes	✖	✖	✖					✖						✖				
EPA	Pollution Prevention Grant																		
EPA	Pollution Prevention Information Network Grant Program																		
EPA	Smart Growth Implementation Assistance (SGIA) Program						✖	✖	✖	✖					✖				
EPA	Source Reduction Assistance Grant														✖				
EPA	State Public Water System Supervision									✖									
EPA	State Underground Water Source Protection														✖				
EPA	Urban Waters Small Grants													✖	✖				
EPA	Water Infrastructure Finance and Innovation Act (WIFIA)				✖					✖					✖				
EPA	Water Pollution Control														✖				
EPA	Water Quality Management Planning Grants (EPA)									✖									
EPA	Wetland Program Development																		

Table A-1. Federal Toolkit — Matrix (continued)

Agency	Program	Coastal Management and Restoration			Municipal and Critical Infrastructure (Protect, Relocate, Retrofit)								Natural Resource Management						
		Structural Approaches	Preserve, restore, create natural coastal defenses (living shorelines, mangroves, coral reefs etc.)	Beach Nourishment	Disaster Preparedness	Disaster Response	Transportation	Energy	Water and Wastewater	Other Critical Municipal Infrastructure	Community Development	Residential and Commercial	Watershed Management and Protection	Air Quality	Agriculture	Stormwater Management	Habitat Restoration/Protection	Aquaculture	Threatened and Endangered Species
FEMA	Community Assistance Program - State Support Services Element (CAP-SSSE)																		✖
FEMA	Flood Mitigation Assistance				✖														
FEMA	Hazard Mitigation Grant Program				✖														
FEMA	National Dam Safety Program				✖														
FEMA	National Flood Insurance Policy (NFIP)-Increased Cost of Compliance (ICC)		✖		✖														
FEMA	NFIP Community Rating System	✖	✖	✖	✖	✖													✖
FEMA	Hazard Mitigation Grant Program (HMGP)	✖	✖	✖		✖							✖						✖
FEMA	Pre-Disaster Mitigation Grant Program (PDM)	✖	✖	✖		✖							✖						✖
FEMA	Public Assistance					✖													
FEMA	Flood Mitigation Assistance Grant Program (FMA)				✖														
FHWA	Emergency Relief Program and Resilience					✖				✖									
HUD	Community Development Block Disaster Recovery					✖													
HUD	Section 108 Loan Guarantee				✖					✖									
HUD	State Community Development Block								✖	✖	✖	✖	✖						
HUD	National Disaster Resilience Competition				✖	✖			✖	✖	✖	✖	✖						
NOAA	Broad Agency Announcement		✖																
NOAA	Coastal Resilience Grants		✖		✖														✖
NOAA	Coastal Zone Management Administration		✖		✖														
NOAA	Community-based Marine Debris Removal		✖																✖



Table A-1. Federal Toolkit — Matrix (continued)

Agency	Program	Coastal Management and Restoration			Municipal and Critical Infrastructure (Protect, Relocate, Retrofit)								Natural Resource Management						
		Structural Approaches	Preserve, restore, create natural coastal defenses (living shorelines, mangroves, coral reefs etc.)	Beach Nourishment	Disaster Preparedness	Disaster Response	Transportation	Energy	Water and Wastewater	Other Critical Municipal Infrastructure	Community Development	Residential and Commercial	Watershed Management and Protection	Air Quality	Agriculture	Stormwater Management	Habitat Restoration/Protection	Aquaculture	Threatened and Endangered Species
NOAA	Community-based Restoration Program Coastal and Marine Habitat Restoration Grants		✖																✖
NOAA	Environmental Literacy Grant																		✖
NOAA	Habitat Blueprints' Coastal and Marine Habitat Focus Area		✖																✖
NOAA	Sea Grants/Integrated Projects to Increase Aquaculture Production																		✖
NOAA	Sea Grants/Addressing Impediments to Aquaculture Opportunities																		✖
NOAA	Species Recovery Grants																		✖
USACE	Section 14, Flood Control Act of 1946, as amended	✖	✖		✖		✖												✖
USACE	Section 103 - Beach Erosion and Hurricane and Storm Damage Reduction	✖	✖	✖	✖														
USACE	Section 107 - Small Navigation Projects	✖																	
USACE	Section 111 - Shore Damage Attributable to Federal Navigation Works	✖	✖	✖															
USACE	Section 204 - Beneficial Uses of Dredged Material		✖																✖
USACE	Section 205 - Flood Damage Reduction				✖														✖
USACE	Section 206 - Aquatic Ecosystem Restoration Projects																		✖
USACE	Section 208 - Snagging and Clearing for Flood Control				✖														✖
USACE	Section 1135 - Project Modifications for Improvement of the Environment																		✖

Table A-1. Federal Toolkit — Matrix (continued)

Agency	Program	Coastal Management and Restoration			Municipal and Critical Infrastructure (Protect, Relocate, Retrofit)								Natural Resource Management						
		Structural Approaches	Preserve, restore, create natural coastal defenses (living shorelines, mangroves, coral reefs etc.)	Beach Nourishment	Disaster Preparedness	Disaster Response	Transportation	Energy	Water and Wastewater	Other Critical Municipal Infrastructure	Community Development	Residential and Commercial	Watershed Management and Protection	Air Quality	Agriculture	Stormwater Management	Habitat Restoration/Protection	Aquaculture	Threatened and Endangered Species
USACE	Flood Plain Management Services (FPMS)		✖		✖		✖	✖	✖				✖	✖					
USACE	Planning Assistance to States (PAS) - Section 22 of the Water Resources Development Act of 1974, as amended																		
USDA	Agricultural Conservation Easement Program																		
USDA	Community Forest Program												✖	✖					
USDA	Conservation Innovation Grant													✖					
USDA	Emergency Community Water Assistance								✖										
USDA	Emergency Watershed Protection					✖			✖					✖					
USDA	Regional Conservation Partnership Program				✖									✖					
USDA	Rural Electrification Loans and Loan Guarantees									✖									
USDA	Solid Waste Management										✖								
USDA	Water and Waste Disposal								✖				✖						
USDA	Water and Waste Disposal Predevelopment Planning in PR								✖				✖						
USDA	Watershed and Flood Prevention Operations Program				✖					✖			✖						
US Endowment for Forestry and Communities	Healthy Watersheds Consortium Grant Program		✖								✖		✖						
USFWS	Coastal Program-Ecosystem Adaptation Grants																		
USFWS	State Wildlife Grant Program													✖					
USFWS	National Coastal Wetlands Conservation		✖											✖					

Table A-2. Federal Toolkit – Listing

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
CDC	Public Health Emergency Preparedness	The matching requirements are 10 percent. This program has a statutory formula. This program has Maintenance of Effort (MOE) and Maintenance of Funding (MOF) requirements. PHEP awardees must maintain expenditures for healthcare preparedness and public health security at a level that is not less than the average level of such expenditures maintained by the awardee for the preceding two-year period.	\$42M	State health departments of all 50 States, the District of Columbia, the nation's three largest municipalities (New York City, Chicago, and Los Angeles County), the Commonwealths of Puerto Rico and the Northern Mariana Islands, the territories of American Samoa, Guam and the U.S. Virgin Islands, the Federated States of Micronesia, and the Republics of Palau, and the Marshall Islands.	<a href="http://www.cdc.gov/phpr/readiness/phep.htm">www.cdc.gov/phpr/readiness/phep.htm</a>	N/A	Planning
Department of Energy	State Energy Program	For State Energy Planning, and Innovative Opportunities for Energy Efficiency (Areas of Interest 1 and 2), the recipient cost match must be at least 20 percent of the total Federal Funds allocated. Recipient cost match will not be required for Technical Assistance to Advance SEP Formula Grant (Area 3).	\$2.5M	State entities are eligible to apply for funding as a Prime Recipient, or participate as a Subrecipient. Eligibility for award under Areas of Interest 1, 2 and 3 is restricted to the 50 States, the District of Columbia, American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the US Virgin Islands. Eligibility for award under Area of Interest 3 is further restricted to States and U.S. Territories that have not been selected to receive a SEP Competitive award in the past four years (FY12-FY15). States may work in collaboration with non-State entities. Non-State entities interested in collaborating with their respective SEO must contact that SEO.	<a href="https://energy.gov/eere/wipo/State-energy-program-0">https://energy.gov/eere/wipo/State-energy-program-0</a>	N/A	Planning
Department of Health and Human Services	Research to Action: Assessing and Addressing Community Exposures to Environmental Contaminants	None	\$500,000	Higher Education Institutions, Nonprofits Other Than Institutions of Higher Education, For-Profit Organizations, Governments, State Governments, County Governments, City or Township Governments, Special District Governments, Indian/Native American Tribal Governments (Federally Recognized), Indian/Native American Tribal Governments (Other than Federally Recognized), Eligible Agencies of the Federal Government, U.S. Territory, or Possession	<a href="https://grants.nih.gov/grants/guide/pa-files/PA-16-083.html">https://grants.nih.gov/grants/guide/pa-files/PA-16-083.html</a>	N/A	Environmental

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
Department of Homeland Security	Preparing for Emerging Threats and Hazards	Cost share or match is not required under this program.	\$2.5M	State governments, which include all 56 States and territories, any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.	<a href="http://www.fema.gov/media-library-data/1481122577571-484a17b27924f8882d259fa1c5e797d2/Fiscal_Year_2016_Program_to_Prepare_Communities_for_Complex_Coordinated_Terrorist_Attacks_NOFO_FINAL_20161207.pdf">www.fema.gov/media-library-data/1481122577571-484a17b27924f8882d259fa1c5e797d2/Fiscal_Year_2016_Program_to_Prepare_Communities_for_Complex_Coordinated_Terrorist_Attacks_NOFO_FINAL_20161207.pdf</a>	N/A	Planning
DOT	TIGER	May be used for up to 80 percent of the costs of a project located in an urban area, and up to 100 percent of the costs of a project located in a rural area.	\$100M	State, local, and tribal governments, including U.S. territories, transit agencies, port authorities, metropolitan planning organizations (MPOs), and other political subdivisions of State or local governments. Multiple States or jurisdictions may submit a joint application and must identify a lead applicant as the primary point of contact, and also identify the primary recipient of the award. Each applicant in a joint application must be an Eligible Applicant. Joint applications must include a description of the roles and responsibilities of each applicant and must be signed by each applicant.	<a href="http://www.transportation.gov/tiger/about">www.transportation.gov/tiger/about</a>	N/A	Infrastructure
DOT	Nationally Significant Freight and Highway Projects	INFRA grants may be used for up to 60 percent of future eligible project costs. Other Federal assistance may satisfy the non-Federal share requirement for an INFRA grant, but total Federal assistance for a project receiving an INFRA grant may not exceed 80 percent of the future eligible project costs.	For a large project, the FAST Act specifies that an INFRA grant must be at least \$25 million. For a small project, including both construction awards and project development awards, the grant must be at least \$5 million. For each fiscal year of INFRA funds, 10 percent of available funds are reserved for small projects, and 90 percent of funds are reserved for large projects.	(1) A State or group of States; (2) a metropolitan planning organization that serves an Urbanized Area (as defined by the Bureau of the Census) with a population of more than 200,000 individuals; (3) a unit of local government or group of local governments; (4) a political subdivision of a State or local government; (5) a special purpose district or public authority with a transportation function, including a port authority; (6) a Federal land management agency that applies jointly with a State or group of States; (7) a tribal government or a consortium of tribal governments; or (8) a multi-State or multi-jurisdictional group of public entities.	<a href="http://www.transportation.gov/buildamerica/infragrants">www.transportation.gov/buildamerica/infragrants</a>	N/A	Infrastructure



Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
DOT	Advanced Transportation and Congestion Management Technologies Deployment Initiative	50 percent	\$12M	State or local governments, transit agencies, metropolitan planning organizations (MPO) representing a population of over 200,000, or other political subdivisions of a State or local government (such as publicly owned toll or port authorities), or a multijurisdictional group or consortium of research institutions or academic institutions.	<a href="http://www.fhwa.dot.gov/fastact/factsheets/advtranscongmgtfs.cfm">www.fhwa.dot.gov/fastact/factsheets/advtranscongmgtfs.cfm</a>	The DOT's vision for the ATCMTD initiative is the deployment of advanced technologies and related strategies to address issues and challenges in safety, mobility, sustainability, economic vitality, and air quality that are confronted by transportation systems owners and operators.	Infrastructure
DOT	Surface Transportation System Funding Alternative Grants	50 percent	\$20M	Eligible applicants only include State agencies. MultiState partnerships established to develop regional or national proposals are also eligible. A State DOT will be required to administer the Federal funding. It is recognized that other State agencies may need to partner for purposes of an application submission.	<a href="http://www.fhwa.dot.gov/fastact/factsheets/surftransfundaltfs.cfm">www.fhwa.dot.gov/fastact/factsheets/surftransfundaltfs.cfm</a>	N/A	Infrastructure
EDA (Economic Development Administration)	Economic Development Support for Planning Organizations	The minimum EDA investment rate for planning projects is 50 percent, and the maximum allowable EDA investment rate may generally not exceed 80 percent.	\$200,000	State includes the Commonwealth of Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau. See 13 CFR § 300.3 and 301.2.	<a href="http://www.cfdp.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=7a118a7496f31c1c78eb5ff7542da7f1">www.cfdp.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=7a118a7496f31c1c78eb5ff7542da7f1</a>	N/A	Planning
EPA	Brownfields Area Wide Planning Program	No matching funds are required under this competition. Although cost-sharing/matching is not required as a condition of eligibility under this competition, under Section V.B. of this solicitation the EPA will evaluate proposals based on leveraging.	\$200,000	General Purpose Unit of Local Government. For purposes of the EPA Brownfields Grant Program, a "local government" is defined as a State under 2 CFR 200.64. Local government means a county, municipality, city, town, township, local public authority, Land Clearance Authority, or other quasi-governmental entity that operates under the supervision and control of, or as an agent of, a general purpose unit of local government. Government Entity Created by State Legislature. Regional Council, or group of General Purpose Units of Local Government. Redevelopment Agency that is chartered or otherwise sanctioned by a State.	<a href="http://www.epa.gov/brownfields/types-brownfields-grant-funding">www.epa.gov/brownfields/types-brownfields-grant-funding</a>	EPA currently offers the BF AWP grant funding opportunity every other year, as funding is available. We anticipate the next available funding opportunity will open in summer 2018.	Planning

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Brownfields Assessment Grants	Cost share is not required for this grant.	Community-wide grants: Maximum amount for hazardous substances OR petroleum: \$200,000. Maximum amount for hazardous substances AND petroleum: \$300,000; not exceed \$200,000 for any individual type of grant funding. Site-specific: \$350,000. Coalition: \$600,000	General Purpose Unit of Local Government. For purposes of the EPA Brownfields Grant Program, a "local government" is defined as stated under 2 CFR 200.64.: Local government means a county, municipality, city, town, township, local public authority, Land Clearance Authority or other quasi-governmental entity that operates under the supervision and control of, or as an agent of, a general purpose unit of local government. Government Entity Created by State Legislature. Regional Council or group of General Purpose Units of Local Government. Redevelopment Agency that is chartered or otherwise sanctioned by a State.	<a href="http://www.epa.gov/brownfields/types-brownfields-grant-funding">www.epa.gov/brownfields/types-brownfields-grant-funding</a>	Assessment Grants provide funding for developing inventories of brownfields, prioritizing sites, conducting community involvement activities, conducting site assessments, and cleanup planning related to brownfield sites. Assessment Grant funds may not be used to conduct cleanups.	Planning
EPA	Brownfields Cleanup Grants	The cost share is 20 percent, and may be in the form of a contribution of money, labor, material, or services, must be for eligible and allowable costs under the grant and cannot include administrative costs. Applicants may request a waiver of the 20 percent cost share requirement based on hardship. EPA will consider hardship waiver requests on a case-by-case basis and will approve such requests on a limited basis.	\$200,000 per site, up to 3 sites	General Purpose Unit of Local Government. For purposes of the EPA Brownfields Grant Program, a "local government" is defined as stated under 2 CFR 200.64.: Local government means a county, municipality, city, town, township, local public authority, Land Clearance Authority or other quasi-governmental entity that operates under the supervision and control of, or as an agent of, a general purpose unit of local government. Government Entity Created by State Legislature. Regional Council or group of General Purpose Units of Local Government. Redevelopment Agency that is chartered or otherwise sanctioned by a State.	<a href="http://www.epa.gov/brownfields/types-brownfields-grant-funding">www.epa.gov/brownfields/types-brownfields-grant-funding</a>	N/A	Environmental

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Brownfields Revolving Loan Fund Grants	The cost share is 20 percent, which may be in the form of a contribution of money, labor, material, or services; must be for eligible and allowable costs under the grant and cannot include administrative costs. Applicants may request a waiver of the 20 percent cost share requirement based on hardship. EPA will consider hardship waiver requests on a case-by-case basis and will approve such requests on a limited basis.	\$1M; \$200,000 per subgrant per site.	General Purpose Unit of Local Government. For purposes of the EPA Brownfields Grant Program, a "local government" is defined as Stated under 2 CFR 200.64.: Local government means a county, municipality, city, town, township, local public authority, Land Clearance Authority or other quasi-governmental entity that operates under the supervision and control of, or as an agent of, a general purpose unit of local government. Government Entity Created by State Legislature. Regional Council or group of General Purpose Units of Local Government. Redevelopment Agency that is chartered or otherwise sanctioned by a State.	<a href="http://www.epa.gov/brownfields/types-brownfields-grant-funding">www.epa.gov/brownfields/types-brownfields-grant-funding</a>	N/A	Environmental
EPA	Brownfields Workforce Development and Job Training	Cost share is not required for this grant.	\$200,000	General Purpose Unit of Local Government. (For purposes of the EPA Brownfields Grant Program, a "local government" is defined as Stated under 2 CFR 200.64.: Local government means a county, municipality, city, town, township, local public authority, Land Clearance Authority or other quasi-governmental entity that operates under the supervision and control of, or as an agent of, a general purpose unit of local government. Government Entity Created by State Legislature. Regional Council or group of General Purpose Units of Local Government. Redevelopment Agency that is chartered or otherwise sanctioned by a State.	<a href="http://www.epa.gov/brownfields/types-brownfields-grant-funding">www.epa.gov/brownfields/types-brownfields-grant-funding</a>	N/A	Planning

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Building Blocks for Sustainable Communities	N/A	Assistance provided by contracted experts.	Eligible applicants are States, territories, Indian Tribes, interState organizations, intraState organizations, and possessions of the U.S., including the District of Columbia; public and private universities and colleges, hospitals, laboratories, and other public or private nonprofit institutions.	<a href="http://www.epa.gov/smartgrowth/buildingblocks.htm">www.epa.gov/smartgrowth/buildingblocks.htm</a>	EPA will provide technical assistance to selected communities to implement development approaches that protect the environment, improve public health, create jobs, expand economic opportunity, and improve overall quality of life. Funding will also be given to communities facing community development challenges. Support provided by EPA, or through non-profit organizations.	Planning
EPA	Clean Diesel National Grants	Cost share requirement depends on the type of project.	\$1M	Regional, State, local, or tribal agencies/consortia, or port authorities with jurisdiction over transportation or air quality. Nonprofit organizations or institutions that represent or provide pollution reduction, or educational services to persons or organizations that own, or operate diesel fleets, or have the promotion of transportation or air quality as their principal purpose. School districts, municipalities, metropolitan planning organizations (MPOs), cities, and counties are all eligible entities to the extent that they fall within the definition above.	<a href="http://www.epa.gov/cleandiesel/clean-diesel-national-grants">www.epa.gov/cleandiesel/clean-diesel-national-grants</a>	Marine Shore power Connection Systems: Shore power systems allow maritime vessels to “plug into” an electrical power source instead of using diesel main, or auxiliary engines while at port. This funding can cover up to 25 percent of the cost (labor and equipment) of eligible marine shore power connection systems, including the cost of modifications, attachments, accessories, or auxiliary apparatus necessary to make the equipment functional.	Environmental



Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Clean Water State Revolving Fund (CWSRF)	Under the CWSRF, EPA provides grants to all 50 States plus Puerto Rico to capitalize State CWSRF loan programs. The States contribute an additional 20 percent to match the federal grants.		Eligible projects include construction of publicly owned treatment works, nonpoint source, national estuary program projects, decentralized wastewater treatment systems, stormwater, water conservation, efficiency, and reuse, watershed pilot projects, energy efficiency, water reuse, security measures at publicly owned treatment works, tech assistance.	<a href="http://www.epa.gov/cwsrf">www.epa.gov/cwsrf</a>	The 51 CWSRF programs function like environmental infrastructure banks by providing low interest loans to eligible recipients for water infrastructure projects. As money is paid back into the State's revolving loan fund, the State makes new loans to other recipients for high priority, water quality activities. Repayments of loan principal and interest earnings are recycled back into individual State CWSRF programs to finance new projects that allow the funds to "revolve" at the State level over time.	Infrastructure
EPA	Drinking Water State Revolving Fund (DWSRF)	Congress appropriates funding for the DWSRF. EPA then awards capitalization grants to each State for their DWSRF based upon the results of the most recent Drinking Water Infrastructure Needs Survey and Assessment. The State provides a 20 percent match.		Eligible projects include treatment, transmission and distribution, source, storage, consolidation, creation of new systems.	<a href="http://www.epa.gov/drinkingwatersrf">www.epa.gov/drinkingwatersrf</a>	Programs function like infrastructure banks by providing low interest loans to eligible recipients for drinking water infrastructure projects.	Infrastructure
EPA	Environmental Education Grants	25 percent of the total cost of the project.	\$100,000	Any local education agency, college or university, State education or environmental agency, nonprofit organization as described in Section 501(C)(3) of the Internal Revenue Code, or a non-commercial educational broadcasting entity as defined and licensed by Federal Communications Commission may submit a proposal. Applicant organizations must be located in the United States or territories, and the majority of the educational activities must take place in the United States; or in the United States and Canada or Mexico; or in U.S. Territories. A teacher's school district, an educator's nonprofit organization, or a faculty member's college or university may apply, but an individual teacher or faculty member may not apply.	<a href="http://www.epa.gov/education/environmental-education-ee-grants">www.epa.gov/education/environmental-education-ee-grants</a>	N/A	Planning

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Environmental Justice Small Grants	No cost-sharing, or matching is required as a condition of eligibility or otherwise considered for evaluating proposals for award.	\$30,000	An eligible applicant MUST BE one of the following entities: incorporated non-profit organizations—including, but not limited to, environmental justice networks, faith based organizations and those affiliated with religious institutions; federally recognized tribal governments; or tribal organizations.	<a href="http://www.epa.gov/environmental-justice-small-grants-program">www.epa.gov/environmental-justice-small-grants-program</a>	Applying organizations are encouraged to have a direct connection to and partner with the vulnerable affected, community impacted by environmental harms and risks. This grant often supports non-profit and municipal collaboration.	Planning
EPA	Multipurpose Grants to States and Tribes	There is no match, cost-share, or maintenance of effort requirement for adding multipurpose grant funding to a PPG or for a new multipurpose grant (see "Grant Funding Options" on the next page). There is also no match, cost-share, or maintenance of effort for new stand-alone multipurpose grants.	Each State will be eligible for a specific funding amount that includes: a base amount, an amount based on each State's number of Clean Air Act (CAA) major sources as of 2015, and an amount based on each State's share of EPA's total FY 2015 categorical grant funding.	Available for States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa.	<a href="http://www.epa.gov/grants-multipurpose-grants-states-and-tribes">www.epa.gov/grants-multipurpose-grants-states-and-tribes</a>	N/A	Environmental
EPA	Pollution Prevention Grant	50 percent match requirement.	\$360,000	Eligible applicants include the fifty States, the District of Columbia, the United States Virgin Islands, the Commonwealth of Puerto Rico, any territory or possession of the United States, local governments, city or township governments, independent school district governments, State controlled institutions of higher education, non-profit organizations (other than institutions of higher education), private institutions of higher education, community-based grassroots organizations, and federally-recognized tribes, and intertribal consortia.	<a href="http://www.epa.gov/p2/grant-programs-pollution-prevention">www.epa.gov/p2/grant-programs-pollution-prevention</a>	N/A	Planning
EPA	Pollution Prevention Information Network Grant Program	50 percent match requirement.	\$220,000	State governments, colleges and universities (recognized as State entities), federally-recognized tribes and intertribal consortia.	<a href="http://www.epa.gov/p2/grant-programs-pollution-prevention">www.epa.gov/p2/grant-programs-pollution-prevention</a>	N/A	Planning

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Smart Growth Implementation Assistance (SGIA) program	N/A	Assistance provided by contracted experts.	Tribes, States, regions, local governments, as well as nonprofits that have a partnership with a government entity.	<a href="http://www.epa.gov/smartgrowth/smart-growth-implementation-assistance">www.epa.gov/smartgrowth/smart-growth-implementation-assistance</a>	EPA provides the assistance through a contractor team – not a grant. Through a multiple-day site visit and a detailed final report, the multidisciplinary teams provide options the community can consider implementing to achieve its goal of encouraging growth that fosters economic progress and environmental protection. The program focuses on complex or cutting-edge issues, such as stormwater management, code revision, transit-oriented development, affordable housing, infill development, corridor planning, green building, and climate change.	Planning
EPA	Source Reduction Assistance Grant	5 percent.	\$260,000	Eligible applicants include the fifty States, the District of Columbia, the United States Virgin Islands, the Commonwealth of Puerto Rico, any territory or possession of the United States, local governments, city or township governments, independent school district governments, State controlled institutions of higher education, non-profit organizations (other than institutions of higher education), private institutions of higher education, community-based grassroots organizations, and federally-recognized tribes, and intertribal consortia.	<a href="http://www.epa.gov/p2/grant-programs-pollution-prevention">www.epa.gov/p2/grant-programs-pollution-prevention</a>	N/A	Environmental
EPA	State Public Water System Supervision	Federal assistance is limited to 75 percent of total, eligible program costs.	\$6.6M	Eligibility is limited to the governments of the fifty States, the District of Columbia, the Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, Guam, American Samoa.	<a href="http://www.epa.gov/dwreginfo/public-water-system-supervision-pwss-grant-program">www.epa.gov/dwreginfo/public-water-system-supervision-pwss-grant-program</a>	N/A	Environmental

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	State Underground Water Source Protection	Federal assistance is limited to 75 percent of eligible costs, not to exceed the State allotment.	\$973,000	States, U.S. Territories and possessions, and Indian Tribes that qualify as Programs that have delegated primary Enforcement Authority pursuant to SDWA amendments of 1986.	<a href="http://www.cfdpa.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=6d5355746df50dd8da8d814f4a131f76">www.cfdpa.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=6d5355746df50dd8da8d814f4a131f76</a>	N/A	Environmental
EPA	Urban Waters Small Grants	A minimum non-federal cost share/match of \$4,000 is required.	\$60,000	Eligible applicants include States, local governments, Indian Tribes, public and private universities and colleges, public or private nonprofit institutions/organizations, intertribal consortia, and interState agencies.	<a href="http://www.epa.gov/urbanwaters/urbanwaters-small-grants">www.epa.gov/urbanwaters/urbanwaters-small-grants</a>	The mission of EPA's Urban Waters Program is to help local residents and their organizations, particularly those in underserved communities, restore their urban waters in ways that benefit community and economic revitalization.	Environmental
EPA	Water Infrastructure Finance and Innovation Act (WIFIA)	The maximum amount of WIFIA credit assistance to a project is 49 percent of eligible project costs.	A project shall have eligible project costs that are reasonably anticipated to equal or exceed \$20 million, or for a project eligible under paragraphs (2) or (3) of 33 U.S.C. 3905 serving a community of not more than 25,000 individuals, project costs that are reasonably anticipated to equal, or exceed \$5 million.	Prospective borrowers must be one of the following in order to be eligible for WIFIA credit assistance: (i) A corporation; (ii) A partnership; (iii) A joint venture; (iv) A trust; (v) A Federal, State, or local governmental entity, agency, or instrumentality; (vi) A tribal government or a consortium of tribal governments; or (vii) A State infrastructure financing authority.	<a href="http://www.epa.gov/wifia">www.epa.gov/wifia</a>	N/A	Infrastructure
EPA	Water Pollution Control	The CWA requires States, territories, and interState agencies to expend at least as much as they spent on their pollution control programs in 1971.	\$12,000	A State or territory may receive Section 106 funds if it: Has established and is operating appropriate devices, methods, systems, and procedures necessary to compile and analyze data on navigable waters; Has the authority to take action in cases of imminent and substantial endangerment to the health of persons; and Provides EPA with water quality inventory data required by the CWA. The information on water quality inventory is contained in EPA's biannual water quality report.	<a href="http://www.epa.gov/water-pollution-control-section-106-grants">www.epa.gov/water-pollution-control-section-106-grants</a>	N/A	Environmental



Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
EPA	Water Quality Management Planning Grants (EPA)	This program has no matching requirements.	\$1.4M	State or US Territory Water Quality Management Agencies	<a href="http://www.cfr.gov/index?is=program&amp;mode=form&amp;tab=step1&amp;id=fac3897ce815ad5a346a8867aedbd5c0">www.cfr.gov/index?is=program&amp;mode=form&amp;tab=step1&amp;id=fac3897ce815ad5a346a8867aedbd5c0</a>	Funding for financing high priority infrastructure projects needed to ensure clean water and safe drinking water.	Planning
EPA	Wetland Program Development	Must contribute a minimum of 25 percent of the total project cost.	\$325,000	States, tribes, local government agencies, universities that are agencies of a State, inter-State agencies, and intertribal consortia are eligible to apply for WPDGs under this announcement.	<a href="http://www.epa.gov/wetlands/wetland-program-development-grants">www.epa.gov/wetlands/wetland-program-development-grants</a>	N/A	Planning
FEMA	Community Assistance Program - State Support Services Element (CAP-SSSE)	There is a 25 percent non-federal cost match required for all recipients of CAP-SSSE funds with no restrictions on the types of costs allowed (e.g., in-kind contribution).	Available Funding: \$10,400,000 Projected number of Awards: 52	All 50 States, the District of Columbia, and the territories of Puerto Rico, and the US Virgin Islands are eligible to apply for CAP-SSSE funding.	<a href="http://www.fema.gov/media-library/assets/documents/95099">www.fema.gov/media-library/assets/documents/95099</a>	In Fiscal Year 2017, the CAP-SSSE program will focus on compliance, enforcement and map adoption. While training, Community Rating System (CRS), and other technical assistance activities remain important components of the program's overall community assistance strategy, a credible compliance and enforcement program is essential to meet the program's goals of flood loss reduction, and to support the community Mitigation and Resilience goals of Presidential Policy Directive - 8. In addition, States must meet the national metric of 93 percent map adoptions for those communities that receive Letters of Final Determination (LFDs) in their State.	Planning

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
FEMA	Flood Mitigation Assistance	Cost-share availability under FMA depends on the type of properties included in the subapplication. For example, severe repetitive loss properties may receive up to 100 percent Federal funding and repetitive loss properties may receive up to 90 percent Federal funding. In the case of all other mitigation activities, FEMA may contribute up to 75 percent Federal funding of all eligible costs.	\$100,000	Only available to communities participating in National Flood Insurance Program; FEMA requires State, tribal, and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for HMA mitigation projects; States, territories, federally-recognized tribes, local governments can sponsor applications on behalf of State agencies, local governments/communities.	<a href="http://www.fema.gov/flood-mitigation-assistance-grant-program">www.fema.gov/flood-mitigation-assistance-grant-program</a>	Funding for intermediary organizations who will assist HUD in providing technical assistance to communities engaged in planning efforts built around integrating housing, land use, transportation, and other issues. Primary support will be given to recipients of Sustainable Communities and Brownfield Area Wide Planning grants.	Infrastructure
FEMA	Hazard Mitigation Grant Program	Required to have at least a 25 percent non-Federal cost-share. Small and impoverished communities may receive a Federal cost share of up to 90 percent of the total amount approved under the Federal award to implement eligible approved activities.	The amount of funding available is based on the estimated total Federal assistance, subject to the sliding scale formula that FEMA provides for disaster recovery under Presidential major disaster declarations. The formula provides for up to 15 percent of the first \$2B of estimated aggregate amounts of disaster assistance, up to 10 percent for amounts between \$2B and \$10B, and up to 7.5 percent for amounts between \$10B and \$35.333B. For States with enhanced plans, the eligible assistance is up to 20 percent for estimated aggregate amounts of disaster assistance not to exceed \$35.333B.	Only available after a presidential declaration of a major disaster; States, territories, and federally-recognized tribes are eligible. Local governments are considered subapplicants and must apply to their applicant State, territory, or federally-recognized tribe.	<a href="http://www.fema.gov/hazard-mitigation-grant-program">www.fema.gov/hazard-mitigation-grant-program</a>	N/A	Planning

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
FEMA	National Dam Safety Program	Cost-share not required for this program.	\$150,000	This funding opportunity is restricted to the State dam safety program for eligible entities meeting the statutory definition of a "State" (See 33 U.S.C. § 467(10)). Per 33 U.S.C. § 467(10), the term "State" means each of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, and any other territory or possession of the United States.	<a href="http://www.fema.gov/national-dam-safety-program">www.fema.gov/national-dam-safety-program</a>	N/A	Planning
FEMA	National Flood Insurance Policy (NFIP)-Increased Cost of Compliance (ICC)	Cost-share not required for this program.	Flood insurance policyholders in high-risk areas, also known as special flood hazard areas, can get up to \$30,000 to help pay the costs to bring their home or business into compliance with their community's floodplain ordinance.	If your home or business is damaged by a flood, you may be required to meet certain building requirements in your community to reduce future flood damage before you repair or rebuild. To help you cover the costs of meeting those requirements, the National Flood Insurance Program (NFIP) includes Increased Cost of Compliance (ICC) coverage for all new and renewed Standard Flood Insurance Policies. To be eligible for this coverage, a property must be determined to be "substantially damaged by a flood event(s)".	<a href="http://www.fema.gov/increased-cost-compliance-coverage">www.fema.gov/increased-cost-compliance-coverage</a>	There are four options you can take to comply with your community's floodplain management ordinance and help you reduce future flood damage. You may decide which of these options is best for you. 1. Elevation. This raises your home or business to or above the flood elevation level adopted by your community. 2. Relocation. This moves your home or business out of harm's way. 3. Demolition. This tears down and removes flood-damaged buildings. 4. Floodproofing. This option is available primarily for non-residential buildings. It involves making a building watertight through a combination of adjustments or additions of features to the building that reduces the potential for flood damage.	Planning
FEMA	NFIP Community Rating System	Community must implement the programs that receive credit under the CRS program. There is a cost associated with the implementation of these programs.	Community residents and businesses under NFIP insurance receive discounted premiums.	Participating communities must be in full compliance and good standing under the NFIP as certified by FEMA to participate in CRS.	<a href="http://crsresources.org/files/2013-manual/crs_manual.pdf">http://crsresources.org/files/2013-manual/crs_manual.pdf</a>	Technical assistance on designing and implementing some activities is available at no charge.	Planning

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
FEMA	Hazard Mitigation Grant Program (HMG)	75 percent federal, 25 percent non-Federal. FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities.	Maximum Federal share is \$4 million for projects.	The purpose of HMG is to help communities implement hazard mitigation measures following a presidential major disaster declaration in the areas of the state, tribe, or territory requested by the Governor or Tribal Executive. The key purpose of this grant program is to enact mitigation measures that reduce the risk of loss of life and property from future disasters. This webpage includes extensive resources and job aids to streamline project implementation. To be eligible, communities must have a pre-disaster, all hazards mitigation plan approved by their FEMA regional office, and must be in full compliance and good standing with the minimum requirements of the NFIP.	<a href="http://www.fema.gov/hazard-mitigation-grant-program">www.fema.gov/hazard-mitigation-grant-program</a>	In general, individuals, businesses and private nonprofits via local government, can apply for HMG funding. Individuals may not apply directly for HMG funding, but may be sponsored through an appropriate subapplicant via a local government, state agency, tribe or tribal agency, or private nonprofit. Applications are submitted to the state, eligible tribe, or territory, which receives HMG funds from FEMA.	Infrastructure/Environmental/Planning
FEMA	Pre-Disaster Mitigation Grant Program (PDM)	Required to have at least a 25 percent non-Federal cost share. Small and impoverished communities may receive a Federal cost share of up to 90 percent of the total amount approved under the Federal award to implement eligible approved activities.	Maximum Federal share is \$4 million for projects.	The PDM Program, authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, is designed to assist States, U.S. Territories, Federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. This program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. Mitigation planning is a key process used to break the cycle of disaster damage, reconstruction, and repeated damage. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis.	<a href="http://www.fema.gov/pre-disaster-mitigation-grant-program">www.fema.gov/pre-disaster-mitigation-grant-program</a>	"Small" or "impoverished" refers to a community of 3,000 or fewer individuals identified by the Applicant as a rural community that is not a remote area within the corporate boundaries of a larger city or jurisdictional area or boundary; economically disadvantaged, with residents having an average per capita annual income not exceeding 80 percent of the national per capita income; having a local unemployment rate that exceeds by 1 percentage point or more the most recently reported, average yearly national unemployment rate.	Infrastructure/Planning

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
FEMA	Public Assistance	The federal share of assistance is not less than 75 percent of the eligible cost. The recipient (usually the State) determines how the non-federal share (up to 25 percent) is split with the subrecipients (eligible applicants).	Determined by presidential declaration.	State and Territorial governments, including the District of Columbia, American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, Puerto Rico, and the U.S. Virgin Islands, are eligible Applicants. States must have an approved State Hazard Mitigation Plan for eligibility.	<a href="http://www.fema.gov/public-assistance-local-State-tribal-and-non-profit">www.fema.gov/public-assistance-local-State-tribal-and-non-profit</a>	N/A	Infrastructure
FEMA	Flood Mitigation Assistance Grant program (FMA)	75 percent federal, 25 percent non-Federal. FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities.	\$10M	The FMA program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP. FMA funding is also available for management costs. Funding is appropriated by Congress annually. Communities must have an approved local hazard mitigation plan for eligibility and be in full compliance and good standing with the minimum requirements of the NFIP as certified by their regional office. Projects funded under the FMA program must show a net benefit to NFIP insured properties.	<a href="http://www.fema.gov/flood-mitigation-assistance-grant-program">www.fema.gov/flood-mitigation-assistance-grant-program</a>	The applicant selects and prioritizes applications developed and submitted to them by local jurisdictions to submit to FEMA for grant funds. Prospective sub-applicants should consult the official designated point of contact for their applicant State/tribe/territory for further information regarding specific program and application requirements.	Infrastructure/Planning



Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
FHWA	Emergency Relief Program and Resilience	Approved ER funds are available at the pro-rata share that would normally apply to the Federal-aid facility damaged. For Interstate highways, the Federal share is 90 percent. For all other highways, the Federal share is 80 percent. The Federal share for permanent ER repairs may amount to 90 percent if the combined eligible ER expenses incurred by the State in a Federal fiscal year exceeds the annual apportionment of the State under 23 U.S.C. Section 104 for the fiscal year in which the disasters or failures occurred. Emergency repair work to restore essential travel, minimize the extent of damage, or protect the remaining facilities, accomplished in the first 180 days after the disaster occurs, may be reimbursed at 100 percent by Federal funds.	The FHWA can provide up to \$100 million in ER funding to a State for each natural disaster or catastrophic failure that is found eligible for funding under the ER program.	FEMA requires state, tribal, and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for HMA mitigation projects.	<a href="http://www.fhwa.dot.gov/programadmin/erelief.cfm">www.fhwa.dot.gov/programadmin/erelief.cfm</a>	N/A	Infrastructure
HUD	Community Development Block Disaster Recovery	Cost-share or match is not required under this program.	N/A	CDBG-DR funds are made available to States, Puerto Rico, units of general local governments, Indian tribes, and insular areas designated by the President of the United States as disaster areas. Primarily benefit low-income residents in and around communities that have experienced a natural disaster.	<a href="http://www.hudexchange.info/programs/cdbg-dr/">www.hudexchange.info/programs/cdbg-dr/</a>	Grantees must use at least half of Disaster Recovery funds for activities that principally benefit low-and moderate-income persons.	Infrastructure
HUD	Section 108 Loan Guarantee	Cost-share or match is not required under this program.	\$140M	States, metropolitan cities and urban counties (i.e., CDBG entitlement recipients), non-entitlement communities that are assisted in the submission of applications by States that administer the CDBG program, non-entitlement communities eligible to receive CDBG funds under the HUD-Administered Small Cities CDBG program (Hawaii). The public entity may be the borrower or it may designate a public agency as the borrower.	<a href="http://www.hudexchange.info/programs/section-108/section-108-program-eligibility-requirements/#overview">www.hudexchange.info/programs/section-108/section-108-program-eligibility-requirements/#overview</a>	Section 108 loans can be used to match FEMA grants to rebuild for recovery or future resilience.	Infrastructure

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
HUD	State Community Development Block	States may use \$100,000 plus up to 50 percent of costs it incurs for program administration, up to a maximum of three percent of its CDBG allocation.	N/A	49 States and Puerto Rico participate in the State CDBG Program.	<a href="http://www.hudexchange.info/programs/cdbg-state/">www.hudexchange.info/programs/cdbg-state/</a>	N/A	Infrastructure
HUD	National Disaster Resilience Competition	Cost-share or match is NOT required under this program.	\$500M	40 States and community that participate in the competition.	<a href="http://www.hudexchange.info/programs/cdbg-dr/resilient-recovery/">www.hudexchange.info/programs/cdbg-dr/resilient-recovery/</a>	N/A	Infrastructure
NOAA	Broad Agency Announcement	Cost sharing is not required unless it is determined that a project can only be funded under an authority that requires matching/cost sharing funds.	Funding for potential projects in this notice is contingent upon the availability of Fiscal Year 2016 and Fiscal Year 2017 appropriations.	Eligible applicants may be institutions of higher education, nonprofits, commercial organizations, international or foreign organizations or governments, individuals, State, local and Indian Tribal governments. Eligibility also depends on the statutory authority that permits NOAA to fund the proposed activity.	<a href="https://coast.noaa.gov/funding/_pdf/BAA-NOAA-NFA-NAPO-2016-2004791-posted-12.30.2015-closing-09.30.2017.pdf">https://coast.noaa.gov/funding/_pdf/BAA-NOAA-NFA-NAPO-2016-2004791-posted-12.30.2015-closing-09.30.2017.pdf</a>	Requests applications for special projects and programs associated with NOAA's strategic plan and mission goals.	Planning
NOAA	Coastal Resilience Grants	Federal funds awarded under this program must be matched with non-federal funds (recipient contributions or third party in-kind cost share) at a 2:1 ratio of federal to non-federal contributions.	\$1M	Regional organizations (see below for explanation), institutions of higher education, non-profit and for-profit organizations, U.S. territories and States, Native American tribes, and local governments as defined at 2 C.F.R. 200.64, which includes counties, municipalities, and cities.	<a href="https://coast.noaa.gov/funding/_pdf/NOAA-NOS-NRPO-2017-2005159-FFO.pdf">https://coast.noaa.gov/funding/_pdf/NOAA-NOS-NRPO-2017-2005159-FFO.pdf</a>	These grants are being used to fund projects that are helping coastal communities prepare for weather events, climate hazards, and changing ocean conditions. The focus is on comprehensive regional approaches that use science-based solutions and rely on collaborative partnerships to ensure success.	Environmental
NOAA	Coastal Zone Management Administration	Cost-share or match is not required under this program.	\$250,000	Any coastal State, including those that border the Great Lakes, and including Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Freely Associated States of the Pacific whose Coastal Zone Management program has been approved by the Secretary of Commerce. The Governor shall designate the State agency or entity that is to be the applicant.	<a href="http://www.cfdm.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=dcee349241b53dfc5bbd26b4bccbd1c">www.cfdm.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=dcee349241b53dfc5bbd26b4bccbd1c</a>	Did not receive funding for FY17.	Planning

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
NOAA	Community-based Marine Debris Removal	Federal funds may not exceed 50 percent of the total cost of a project under the Marine Debris Act. Applicants must provide a minimum 1:1 ratio of non-Federal matching contributors to NOAA funds requested to conduct the proposed project. In addition to required cost sharing, NOAA encourages applicants to leverage additional investment where possible.	\$150,000	State, local, and tribal governments whose activities affect research or regulation of marine debris and any institution of higher education, non-profit organization, or commercial (for-profit) organization with expertise in a field related to marine debris. Applications from federal agencies or employees of federal agencies will not be considered. Interested federal agencies may collaborate with eligible applicants but may not receive funds through this competition. Foreign organizations and foreign public entities are not eligible to apply. All projects must take place within the United States or territories or their respective waterways. NOAA is strongly committed to broadening the participation of veterans, historically black colleges and universities, Hispanic-serving institutions, tribal colleges and universities, and institutions that work in under-served areas. NOAA encourages proposals involving any of the above institutions. Applications that have been submitted to other NOAA grant programs, or as part of another NOAA grant may be considered under this solicitation.	<a href="http://www.grants.gov/web/grants/view-opportunity.html?oppld=287350">www.grants.gov/web/grants/view-opportunity.html?oppld=287350</a>	N/A	Environmental
NOAA	Community-based Restoration Program Coastal and Marine Habitat Restoration Grants	There is no statutory matching requirement for this funding	\$1.5M	Eligible applicants are institutions of higher education, non-profits, commercial (for profit) organizations, U.S. territories, and State, local and Native American tribal governments. Applicants must propose work in geographic areas that benefit species with a nexus to NOAA management, further detailed in Section III.C. Applications from federal agencies or employees of federal agencies will not be considered. Federal agencies are strongly encouraged to work with States, non-governmental organizations, municipal and county governments, and others that are eligible to apply.	<a href="http://www.fisheries.noaa.gov/topic/habitat-conservation">www.fisheries.noaa.gov/topic/habitat-conservation</a>	N/A	Environmental

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
NOAA	Environmental Literacy Grant	None	\$500,000	Eligible applicants for this funding opportunity are limited to institutions of higher education; other nonprofits, including informal education institutions such as museums, zoos, and aquariums; K-12 public and independent schools and school systems; and State, local and Indian tribal governments in the United States.	<a href="http://www.noaa.gov/office-education/elp/grants/apply">www.noaa.gov/office-education/elp/grants/apply</a>	N/A	Planning
NOAA	Habitat Blueprints' Coastal and Marine Habitat Focus Area	There is no statutory matching requirement for this funding. NOAA typically leverages its federal funding with matching contributions from a broad range of sources in the public and private sectors to implement coastal and marine habitat restoration. To this end, applicants are encouraged to demonstrate partnerships and some portion of non-federal match (suggested at 1:1) with NOAA funds requested to implement the proposed project. Applications with less than 1:1 match will be considered, however, applicants should note that cost sharing is an element considered in Evaluation Criterion #4 "Project Costs" (Section V.A.4.). Cost sharing will not be waived for Territories of the United States; the Omnibus Territories Act does not apply.	\$1.5M/first year, \$1.0M/second and third years (TOTAL AWARDS). NOAA will not accept federal funding request of less than \$150K, or more than \$650K over three years.	Institutions of higher education, non-profits, commercial (for-profit) organizations, U.S. territories, and State, local and Native American tribal governments. Applications from federal agencies or employees of federal agencies will not be considered. Federal agencies are strongly encouraged to work with States, non-governmental organizations, municipal and county governments, and others that are eligible to apply. Puerto Rico's Habitat Focused Areas are: Northeast Marine Corridor and Culebra Island.	<a href="http://www.habitatblueprint.noaa.gov/habitat-focus-areas/">www.habitatblueprint.noaa.gov/habitat-focus-areas/</a>	N/A	Environmental
NOAA	Sea Grants/Integrated Projects to Increase Aquaculture Production	Non-federal matching funds of at least 50 percent are required (for example, a project receiving \$1,000,000 in federal funding must include at least \$500,000 in matching funds, for a total project budget of \$1,500,000).	\$1M	US States and Puerto Rico	<a href="http://seagrant.noaa.gov/Funding">http://seagrant.noaa.gov/Funding</a>	Additional applications from this competition may be selected for funding in subsequent fiscal years.	Environmental

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
NOAA	Sea Grants/ Addressing Impediments to Aquaculture Opportunities	Non-federal matching funds of at least 50 percent are required (for example, a project receiving \$1,000,000 in federal funding must include at least \$500,000 in matching funds, for a total project budget of \$1,500,000).	\$150K	Sea Grant College Programs, Sea Grant Institutional Programs, Sea Grant Coherent Area Programs, the Federal Funding Opportunity Page 6 of 19 National Sea Grant Law Center, and the National Sea Grant Library. Each entity can submit up to three separate proposals. Other interested parties are encouraged to work with the Sea Grant Programs in their region or topic of interest to explore opportunities for partnering.	<a href="http://seagrantpr.org/">http://seagrantpr.org/</a>	Additional applications from this competition may be selected for funding in subsequent fiscal years.	Environmental
NOAA	Species Recovery Grants	Proposals must include a minimum non-Federal cost share of 25 percent of the total project budget.	\$250,000	Eligible applicants are State agencies that have entered into an agreement with NMFS pursuant to section 6(c) of the ESA. Puerto Rico has entered into this agreement.	<a href="http://www.nmfs.noaa.gov/pr/conservation/states/grant.htm">www.nmfs.noaa.gov/pr/conservation/states/grant.htm</a>		Environmental
USACE	Section 14, Flood Control Act of 1946, as amended	The local sponsor is required to cost-share equally the cost of the Feasibility Study that exceeds \$100,000. The local sponsor is also required to provide 35 percent of the implementation costs of developing plans and specifications and construction. The non-federal share of project implementation costs may include credit for lands, easements, rights-of-way, relocations, and disposal areas (LERRD) necessary for the project, plus a cash contribution of 5 percent of the total project implementation costs. In the event that the value of LERRD, plus 5 percent, does not equal at least 35 percent of the total project implementation cost, the non-federal sponsor must contribute additional cash to equal 35 percent.	\$5M	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Ways-We-Help/">www.saj.usace.army.mil/About/Divisions-Offices/Planning/Ways-We-Help/</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Infrastructure



Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USACE	Section 103 - Beach Erosion and Hurricane Storm Damage Reduction	The non-Federal sponsor is responsible for 35 percent of that portion of total project costs assigned to hurricane and storm damage reduction, 50 percent of that portion of total project costs assigned to recreation, and 100 percent of that portion of total project costs assigned to privately owned shores and the Federal Government is responsible for the remainder of total project costs.	\$5M	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf">www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Environmental
USACE	Section 107 - Small Navigation Projects	The federal share in such projects may not exceed \$4 million.	\$10M	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf">www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Infrastructure
USACE	Section 111 - Shore Damage Attributable to Federal Navigation Works	N/A	The per project limit is \$10M. Projects where the federal cost is \$2 million or less do not require Congressional approval.	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf">www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Environmental
USACE	Section 204 - Beneficial Uses of Dredged Material	Non-Federal sponsors are responsible for 25 percent of the project cost and 100 percent of the cost of operation, maintenance, replacement, and rehabilitation.	There is an annual appropriations limit of \$50 million. For projects with an estimated Federal cost of less than \$10 million, divisions have approval authority. Larger projects are approved by headquarters.	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf">www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Environmental

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USACE	Section 205 - Flood Damage Reduction	The non-Federal sponsor is responsible for 35 percent of total project costs assigned to hurricane and storm damage reduction, plus 50 percent of total project costs assigned to recreation plus 100 percent of total project costs assigned to privately owned shores (where use of such shores is limited to private interests) during the design and implementation phase. Any costs assigned to protection of Federally owned shores are 100 percent Federal.	\$10M	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf">www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Infrastructure
USACE	Section 206 - Aquatic Ecosystem Restoration Projects	The Corps of Engineers provides the first \$100,000 of study costs. A non-Federal sponsor must contribute 50 percent of the cost of the feasibility study after the first \$100,000 of expenditures, 35 percent of the cost of design and construction, and 100 percent of the cost of operation and maintenance.	\$10M	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf">www.nap.usace.army.mil/Portals/39/docs/Civil/CAP_Factsheet.pdf</a>	Puerto Rico is part of the Jacksonville District of the USACE.	Environmental

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USACE	Section 208 - Snagging and Clearing for Flood Control	The Feasibility Study is 100 percent federally funded up to \$100,000. Costs over \$100,000 are shared equally with the non-federal sponsor. Up to one-half of the non-federal share can be in the form of in-kind services. Costs for preparation of plans and specifications and construction are shared at 65 percent federal/35 percent non-federal. The non-federal share of construction consists of provision of any necessary lands, easements, rights-of-way, relocations and disposal areas (LERRD), plus a cash contribution of 5 percent of the total project costs. In the event that the value of LERRD, plus 5 percent cash, does not equal at least 35 percent of the total project cost, the non-federal sponsor must contribute additional cash to equal 35 percent.	\$500,000	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nww.usace.army.mil/Portals/28/docs/assistanceprograms/sec208.pdf">www.nww.usace.army.mil/Portals/28/docs/assistanceprograms/sec208.pdf</a>	N/A	Environmental
USACE	Section 1135 - Project Modifications for Improvement of the Environment	Non-Federal sponsors are responsible for 25 percent of the project cost and usually 100 percent of the operation, maintenance, replacement, and rehabilitation. Up to 80 percent of the non-Federal share may be provided as work-in-kind. Non-governmental entities may serve as the non-Federal sponsor.	\$10M	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.lrl.usace.army.mil/Portals/64/docs/Outreach/Information/1135.pdf">www.lrl.usace.army.mil/Portals/64/docs/Outreach/Information/1135.pdf</a>	N/A	Environmental
USACE	Flood Plain Management Services (FPMS)	Efforts under this program are generally conducted at 100 percent Federal expense, except in those instances where the requestor is another Federal agency or a private party. In those cases the work is conducted on a 100 percent cost recovery basis.	No specific limit.	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nae.usace.army.mil/Missions/Public-Services/Flood-Plain-Management-Services/">www.nae.usace.army.mil/Missions/Public-Services/Flood-Plain-Management-Services/</a>	N/A	Planning

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USACE	Planning Assistance to States (PAS) - Section 22 of the Water Resources Development Act of 1974, as amended	PAS studies are cost-shared on a 50 percent federal – 50 percent non-federal basis. Up to 100 percent of the non-federal cost share requirement may include credit for work performed in-kind by the non-federal partner. Section 1129 of Water Infrastructure Improvements Act (WIIIA) Act of 2016 directed the Secretary of the Army to waive local cost-sharing requirements up to \$200,000 for the commonwealth of Puerto Rico under the PAS program.	No specific per project limit.	Available in all 50 States and U.S. territories. Projects administered through the local USACE office. For Puerto Rico municipalities, the responsible USACE office is the Jacksonville District.	<a href="http://www.nae.usace.army.mil/Missions/Public-Services/Planning-Assistance-to-States/">www.nae.usace.army.mil/Missions/Public-Services/Planning-Assistance-to-States/</a>	N/A	
USDA	Agricultural Conservation Easement Program	25-50 percent of easement costs.	\$500,000	Nonprofits that do not have a 501(c)(3) status with the IRS, other than institutions of higher education City or township governments, State governments, County governments, Native American tribal governments (Federally recognized), Nonprofits having a 501(c)(3) status with the IRS, other than institutions of higher education, Individuals, Special district governments	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/">www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/</a>	Recent NOFO not found.	Environmental
USDA	Community Forest Program	50 percent match of the total project cost. The match can include cash, in-kind services, or donations, which shall be from a non-Federal source.	\$400,000	A local governmental entity, Indian Tribe (including Alaska Native Corporations), or a qualified nonprofit organization that is qualified to acquire and manage land.	<a href="http://www.fs.fed.us/spf/coop/programs/loa/cfp.shtml">www.fs.fed.us/spf/coop/programs/loa/cfp.shtml</a>	Point of Contact: International Institute of Tropical Forestry (PR, VI) Magaly Figueroa, U.S. Forest Service, Jardin Botanico Sur, 1201 Calle Ceiba, San Juan, PR 00926-1119; phone (787) 766- 7718; fax (787) 766-6263; email <a href="mailto:mafigueroa@fs.fed.us">mafigueroa@fs.fed.us</a> .	Environmental

Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USDA	Conservation Innovation Grant	Selected applicants may receive CIG grants of up to 50 percent of their total project cost. The amount of program funding will not exceed \$2 million. CIG recipients must provide a non-Federal funding match equal to the amount of Federal funding requested. The non-Federal funds may be derived from a combination of cash and in-kind sources. Matching funds must be secured at time of application.	\$2M	50 States, the District of Columbia, the Caribbean Area (Puerto Rico and the U.S. Virgin Islands), or the Pacific Islands Area (Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands). Eligible entities include Indian Tribes, State and local units of government, non-governmental organizations, and individuals.	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/">www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/</a>	N/A	Environmental
USDA	Emergency Community Water Assistance	Partnerships with other federal, State, local, private and non-profit entities are encouraged.	Up to \$150,000 are for repairs to breaks or leaks in existing water distribution lines, and related maintenance. Or up to \$500,000 are for construction of a new water source, intake and/or treatment facility or waterline extensions.	Rural areas and towns populations of 10,000 or less, tribal lands in rural areas, colonies. The are to be served must also have a median household income less-than the State's median household income for non-metropolitan areas.	<a href="http://www.rd.usda.gov/programs-services/emergency-community-water-assistance-grants/pr">www.rd.usda.gov/programs-services/emergency-community-water-assistance-grants/pr</a>	N/A	Infrastructure
USDA	Emergency Watershed Protection	NRCS may pay up to 75 percent of the construction cost of emergency measures. The remaining 25 percent must come from local sources and can be in the form of cash or in-kind services.	\$150K (transmission line grants) and \$500K (water source).	Public and private landowners are eligible for assistance, but must be represented by a project sponsor that must be a legal subdivision of the State, such as a city, county, township or conservation district, and Native American Tribes or Tribal governments.	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ewp/">www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ewp/</a>	N/A	Infrastructure



Table A-2. Federal Toolkit – Listing (continued)

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USDA	Regional Conservation Partnership Program	40 percent.	\$10M	Eligible partners include: An agricultural, or silvicultural producer association, or other group of producers; A State or unit of local government; An Indian Tribe; A farmer cooperative; A water district, irrigation district, rural water district or association, or other organization with specific water delivery authority to agricultural producers; A municipal water or wastewater treatment entity; An institution of higher education; and an organization or entity with an established history of working cooperatively with producers on agricultural land, as determined by NRCS, to address Local conservation priorities related to agricultural production, wildlife habitat development, or nonindustrial private forest land management, or critical watershed-scale soil erosion, water quality, sediment reduction, or other natural resource issues.	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/">www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/</a>	N/A	Environmental
USDA	Rural Electrification Loans and Loan Guarantees	Under certain conditions, obtaining a municipal rate loan will require obtaining a concurrent loan (of 10, 20, or 30 percent of the total amount required) from a supplemental financing source. The factors used for determining the amount of concurrent financing required are set forth in 7 CFR 1710.110.	N/A	Rural electric cooperatives, public utility districts, municipalities, corporations, and other qualified power suppliers including those located in the U.S. Territories, the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau.	<a href="http://www.cfda.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=6dbdcba41f35baab6fec0153a16bf422">www.cfda.gov/?s=program&amp;mode=form&amp;tab=step1&amp;id=6dbdcba41f35baab6fec0153a16bf422</a>	N/A	Infrastructure
USDA	Solid Waste Management	Matching funds are not required for this grant, however, applicant and in-kind contributions are recommended.	N/A	Most State and local governmental entities, nonprofits, federally recognized tribes, and academic institutions are eligible. All applicants must have proven ability, background or experience to successfully complete a project similar to the one proposed, legal authority and capacity to provide technical assistance or training.	<a href="http://www.rd.usda.gov/programs-services/solid-waste-management-grants">www.rd.usda.gov/programs-services/solid-waste-management-grants</a>	N/A	Planning

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USDA	Water and Waste Disposal	N/A	Long-term, low-interest loans. If funds are available, grants may be combined with a loan if necessary to keep user costs reasonable.	This program assists qualified applicants who are not otherwise able to obtain commercial credit on reasonable terms. Eligible applicants include: most State and local government entities, private nonprofits, federally-recognized tribes.	<a href="http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program-pr">www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program-pr</a>	This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.	Infrastructure
USDA	Water and Waste Disposal Pre-development Planning in PR	At least 25 percent of the project cost must come from the applicant or third-party sources. In-kind contributions do not count toward this minimum.	\$30K or 75 percent of the predevelopment planning costs.	This program assists low-income communities with initial planning and development of applications for USDA Rural Development Water and Waste Disposal direct loan/grant and loan guarantee programs.	<a href="http://www.rd.usda.gov/programs-services/water-waste-disposal-predevelopment-planning-grants-pr">www.rd.usda.gov/programs-services/water-waste-disposal-predevelopment-planning-grants-pr</a>	N/A	Planning
USDA	Watershed and Flood Prevention Operations Program	Cost-share rates depend on the type of measure and the purpose to which the cost is allocated.	Watershed plans that require \$5 million or more in federal funding for construction require Congressional approval.	Local government, State government	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/">www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/</a>	To learn more about NRCS's Watershed Protection and Flood Prevention Program, please e-mail Kevin Farmer, Watershed Programs Team Leader, at <a href="mailto:Kevin.Farmer@wdc.usda.gov">Kevin.Farmer@wdc.usda.gov</a> or call (202) 720-3413.	Environmental
US Endowment for Forestry and Communities	Healthy Watersheds Consortium Grant Program	Applicants should provide at least 25 percent of the total project cost. This may include cash donations or in-kind contributions from third-parties and allowable costs incurred by the applicant in the project.	\$300,000	Not-for-profit 501(c)(3) organizations, for-profit companies, tribes, intertribal consortia, interState, State, and local government agencies including water utilities and wastewater facilities, and colleges and universities are eligible for funding. Work must be in the 50 United States, Tribal Lands, the District of Columbia, and U.S. Territories.	<a href="http://www.usendowment.org/healthywatersheds.html">www.usendowment.org/healthywatersheds.html</a>	For questions or clarification please contact Peter Stangel <a href="mailto:peter@usendowment.org">peter@usendowment.org</a> ; (404) 915-2763 or Jeff Lerner <a href="mailto:jlerner@americanforests.org">jlerner@americanforests.org</a> ; (202) 236-1883. Check the Healthy Watersheds Consortium Grant Program webpage for updates and other helpful information. Answers to common application questions will be posted on the webpage for your reference. A Sample Application is also posted on the webpage.	Environmental

**Table A-2. Federal Toolkit – Listing (continued)**

Agency	Program	Cost-Share Requirement	Award Ceiling	Eligibility	Website	Notes	Relevant Sector (Infrastructure, Environmental, Planning)
USFWS	Coastal Program-Ecosystem Adaptation Grants	Cost-share or match is not required under this program.	\$10,000	Applicant eligibility is limited to Federal, State, interState and intraState agencies; local and tribal governments; public nonprofit institutions and organizations (such as conservation organizations, watershed councils, land trusts, schools and institutions of higher learning); U.S. territories and possessions; and private landowners including individuals and businesses.	<a href="http://www.grants.gov/web/grants/view-opportunity.html?oppld=289863">www.grants.gov/web/grants/view-opportunity.html?oppld=289863</a>	Samantha Brooke (703) 358-1829 samantha_brooke@fws.gov Coastal Program Team Lead	Environmental
USFWS	State Wildlife Grant Program	Maximum federal share of 75 percent for planning grants and 65 percent for Plan implementation grants.	\$250,000	Eligibility is limited to State agencies with lead management responsibility for fish and wildlife resources in each of the 50 States, the District of Columbia, Commonwealths of Puerto Rico and the Northern Mariana Islands, and the territories of American Samoa, Guam, and the U.S. Virgin Islands, and to the four Associations of Fish and Wildlife Agencies applying on behalf of eligible State agencies. Eligible State agencies must have a Plan that has been revised within the last ten years and has been approved by the Director of the U.S. Fish and Wildlife Service, or is currently under review by a Regional Review Team (RRT).	<a href="https://wsfrprograms.fws.gov/subpages/grantprograms/swg/swg.htm">https://wsfrprograms.fws.gov/subpages/grantprograms/swg/swg.htm</a>	N/A	Environmental
USFWS	National Coastal Wetlands Conservation	The maximum Federal cost share for the NCWCG Program is 75 percent of total project costs in States that have a fund established and used for acquiring coastal wetlands, other natural areas, or open spaces. Projects in States that do not have such a fund are limited to a maximum 50 percent Federal cost-share. American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands are not required to cost-share, and the Federal government may provide 100 percent of the project costs. Puerto Rico is not exempt from the cost share requirements of this Program.	\$1M	Eligible applicants are any State agency or entity designated as eligible by the Governor of a coastal State. It is usually a State natural resource or fish and wildlife agency. If your agency is uncertain of its eligibility, please contact your Regional WSFR Office (see section VIII, Agency Contacts). The Regional WSFR Offices maintain the list of certified eligible agencies in each coastal State in the Region.	<a href="http://www.fws.gov/coastal/CoastalGrants/pdfs/FY2018NCWCG_NoticeAndInstructions.pdf">www.fws.gov/coastal/CoastalGrants/pdfs/FY2018NCWCG_NoticeAndInstructions.pdf</a>	N/A	Environmental

## II.1 U.S. ARMY CORPS OF ENGINEERS FUNDING AUTHORITIES

The Federal Resource Toolkit was developed to consolidate the most relevant information on various funding sources and opportunities, and provide the reader with an easily understandable platform to efficiently search for the appropriate funding source for a specific project. The matrix provides a user friendly way to use the reference guide, and classifies each funding opportunity by agency, program, cost-share requirement, and eligibility, among other categories. The matrix also details which sector each of the opportunities are for, such as infrastructure, planning, environment, etc. The opportunities included in the Federal Resource Toolkit have been specifically selected for Puerto Rico, and are most applicable to the projects envisioned for the territory.

### II.1.1 Planning Assistance to States (PAS) (includes U.S. territories)

**Overview:** Section 22 of the Water Resources Development Act (WRDA) of 1974, as amended by subsequent acts of Congress over the years, provides authority for the USACE to assist states, U.S. territories, local governments, Native American tribes, and other non-federal entities in the preparation of comprehensive plans for the development and conservation of water and related land resources. The need for planning assistance is determined by the individual states, territories, and tribes. Typical studies are only undertaken at the planning level of detail and do not include detailed design for project construction. The studies generally involve the analysis of existing data using standard engineering techniques, although some data collection is often necessary. Most studies become the basis for state, territory, local government, or tribal planning decisions.

The PAS program can encompass many types of water resource-related studies that can improve community resilience in coastal areas. Types of studies conducted

in recent years under the program include, but are not limited to, the following:

- ▶ Water supply and demand studies
- ▶ Water quality studies
- ▶ Environmental conservation/restoration studies
- ▶ Wetlands evaluation studies
- ▶ Sediment management/shoreline erosion studies
- ▶ Dam safety/failure studies
- ▶ Flood risk management studies
- ▶ Flood plain management studies
- ▶ Coastal zone management/protection studies

**Funding/Cost-Sharing Requirements:** The PAS program is funded annually by Congress. Federal allotments for each state, territory, or tribe from the nation-wide appropriation are limited to \$2,000,000 annually, but typically are much less. Individual studies, of which there may be more than one per state, territory, or tribe per year, generally fall in the cost range of \$25,000 to \$100,000, but may be larger depending on the scope of the project. PAS studies are cost-shared on a 50 percent federal – 50 percent non-federal basis. Up to 100 percent of the non-federal cost-share requirement may include credit for work performed in-kind by the non-federal partner. Section 1129 of Water Infrastructure Improvements Act (WIIN) Act of 2016 directed the Secretary of the Army to waive local cost-sharing requirements up to \$200,000 for the Government of Puerto Rico under the PAS program.

**How to Request Assistance/Contact Information:** Government of Puerto Rico and municipality officials who are interested in obtaining planning assistance under the PAS program can contact the USACE Jacksonville District coordinator in the Planning Division at (904) 232-1757. Alternatively, interested parties can also contact the Government of Puerto

Rico coordinator for the PAS program with USACE to request assistance. The Antilles Area Office (SFAO) is located in San Juan, Puerto Rico and is the only Jacksonville District Area Office located in the territory (787) 729-6875.<sup>3</sup> In either case, USACE will coordinate all requests for assistance with the Puerto Rico coordinator to ensure that studies are initiated on prioritized needs in Puerto Rico.

## II.1.2 Flood Plain Management Services Program

**Overview:** The USACE Flood Plain Management Services (FPMS) program was authorized by Section 206 of the 1960 Flood Control Act (PL 86-645), as amended. Its objective is to foster public understanding of the options for reducing flood risk and hazards and to promote prudent use and management of the nation's flood plains. Land use adjustments based on proper planning and the employment of techniques for controlling and reducing flood damages provide a rational way to balance the advantages and disadvantages of human settlement on flood plains. These adjustments are the key to sound flood plain management. The FPMS program provides the full range of technical services and planning guidance that is needed to support effective flood plain management, including:

- a. General technical services – Site-specific data on obstructions to flood flows, flood formation and timing; and the extent, duration, and frequency of flooding can be developed and interpreted under the program. The FPMS program can also provide information on noteworthy natural and cultural flood plain resources and flood damage potential before and after the use of flood plain management measures.
- b. General planning guidance – The program can provide assistance and guidance in the form of “Special Studies” on all aspects of flood plain management planning, including potential impacts of off-flood plain land use changes on the physical, socioeconomic, and

environmental conditions of the flood plain. Common types of Special Studies may address floodplain delineation/flood hazard evaluation; dam break analysis, hurricane evacuation planning; flood warning/preparedness; regulatory floodway analysis; comprehensive floodplain management; flood risk management; urbanization impact; stormwater management; flood proofing; and flood prone structure inventories.

- c. Guides, pamphlets, and supporting studies
  - Guides and pamphlets are also prepared on flood proofing techniques, flood plain regulations, flood plain occupancy, natural flood plain resources, and other related aspects of flood plain management. Study findings, guides, and pamphlets are provided free-of-charge to states, U.S. territories, regional and local governments, and private citizens for their use in addressing flood hazards.

**Funding/Cost-Sharing Requirements:** Program services are provided to states (including U.S. territories), regional and local governments, Indian tribes, and other non- federal public agencies without charge. These entities can also request activities/assistance under this program and provide voluntary funding to expedite assistance. For requests involving voluntary funding, payment is required before services are provided. Letter requests or signed agreements are used. All requestors are encouraged to furnish available field survey data, maps, historical flood information and the like, to help reduce the cost of services.

**How to Request Assistance/Contact Information:** Government agencies, municipalities, organizations, and individuals interested in flood-related information or assistance should contact the USACE Jacksonville District, Planning Division, at (904) 232-6715; (904) 232-2202.<sup>4</sup> Information that is readily available will be provided in response to a phone request. A letter request is required for assistance that involves developing new data, making a map, or preparing a report.

<sup>3</sup> Refer to [www.saj.usace.army.mil/About/Divisions-Offices/Construction/Antilles-Area-Office/](http://www.saj.usace.army.mil/About/Divisions-Offices/Construction/Antilles-Area-Office/).

<sup>4</sup> Refer to [www.saj.usace.army.mil/About/Divisions-Offices/Planning/](http://www.saj.usace.army.mil/About/Divisions-Offices/Planning/).



### II.1.3 Section 14, Flood Control Act of 1946, as amended, Emergency Streambank and Shoreline Protection

**Overview:** Section 14 of the Flood Control Act of 1946 authorizes USACE to study, design and construct emergency streambank and shoreline works to protect public services such as streets, bridges, schools, water and sewer lines, sites on the National Register of Historic Places, and churches from damage or loss by natural erosion. The federal cost limit on Section 14 projects is \$5 million at any one site, including all study, design and construction expenditures.

**Project Process:** USACE will conduct an initial appraisal early in the feasibility study to determine whether the project meets program criteria and provides a basis for determining scope and cost of an entire feasibility study. The solution must be economically feasible and environmentally acceptable. If an acceptable alternative is identified in the feasibility study, USACE will prepare plans and specifications, and subsequently manage construction of the project.

**Cost-Sharing Requirements:** Projects are undertaken on a cost-shared basis. The feasibility study is 100 percent federally funded up to \$100,000. Costs of the feasibility study that exceed \$100,000 must be shared equally by the Federal government and the local sponsor. The local sponsor is also required to provide 35 percent of the implementation costs of developing plans and specifications and construction. The non-Federal share of project implementation costs may include credit for lands, easements, rights-of-way, relocations, and disposal areas (LERRD) necessary for the project, plus a cash contribution of at least 5 percent of the total project implementation costs. In the event that the value of LERRD, plus 5 percent, does not equal at least 35 percent of the total project implementation cost, the non-Federal sponsor must contribute additional cash to equal 35 percent. Federal participation is a maximum of \$5 million.

**How to Request Assistance/Contact Information:** Pertinent officials with the Government of Puerto Rico

or local government officials may formally request USACE to initiate an initial appraisal by letter to the District Engineer, USACE Jacksonville District, P.O. Box 4970 Jacksonville, Florida 32232-0019. For questions and additional information about potential emergency streambank and shoreline protection projects in near-coastal inland streams and along the coastline under the Section 14 program, contact the USACE Jacksonville District Continuing Authorities Program (CAP) Manager at (904) 232-1018.

### II.1.4 Section 103 of the River and Harbor Act of 1962, Hurricane and Storm Damage Reduction

**Overview:** Section 103 of the River and Harbor Act of 1962 authorizes USACE to study, design, and construct small coastal storm damage reduction projects in partnership with non-federal government agencies, such as cities, counties, special authorities, or units of state government (or U.S. territories). Projects can reduce risk of coastal storm damage to multiple public and private properties and facilities or to a single public facility. The maximum federal cost for planning, design, and construction of any one project is \$10,000,000. Hurricane and storm damage reduction projects are not limited to any particular type of improvement. Beach nourishment (structural) and flood proofing (non-structural) are examples of storm damage reduction projects constructed utilizing the Section 103 authority.

**Project Process:** USACE will conduct an initial appraisal early in the feasibility study to determine whether the project meets program criteria and provides a basis for determining scope and cost of an entire feasibility study. The solution must be economically feasible and environmentally acceptable. If an acceptable alternative is identified in the feasibility study, USACE will prepare plans and specifications, and subsequently manage construction of the project.

**Cost-Sharing Requirements:** The feasibility study is 100 percent federally funded up to \$100,000. Costs over \$100,000 are shared equally with the non-federal sponsor. Up to one-half of the non-federal share can be in the form of in-kind services.

Costs for preparation of plans and specifications and construction are shared at 65 percent federal /35 percent non-federal. The non-federal share of construction consists of provision of any necessary lands, easements, rights-of-way, relocations and disposal areas (LERRD), plus a cash contribution of 5 percent of the total project costs. In the event that the value of LERRD, plus 5 percent cash, does not equal at least 35 percent of the total project cost, the non-federal sponsor must contribute additional cash to equal 35 percent.

**How to Request Assistance/Contact Information:**

Pertinent officials with the Government of Puerto Rico or local municipalities may formally request USACE to initiate an initial appraisal by letter to the District Engineer, USACE Jacksonville District, P.O. Box 4970 Jacksonville, Florida 32232-0019. For questions and additional information about potential hurricane and storm damage reduction projects under the Section 103 program, contact the USACE Jacksonville District Continuing Authorities Program (CAP) Manager at (904) 232-1018.

## II.1.5 Section 205 of the Flood Control Act of 1948, Flood Risk Management

**Overview:** Section 205 of the Flood Control Act of 1948 authorizes USACE to study, design, and construct small flood risk management projects in partnership with non-federal government agencies, such as cities, counties, special authorities, or units of state government. The maximum federal cost for planning, design, and construction of any one project is \$10 million. Flood risk management projects are not limited to any particular type of improvement. Levee and channel modifications are examples of flood risk management projects constructed utilizing the Section 205 authority.

**Project Process:** USACE will conduct an initial appraisal early in the feasibility study to determine whether the project meets program criteria and provides a basis for determining scope and cost of an entire feasibility study. The solution must be economically feasible and environmentally acceptable. If an acceptable alternative is identified in the feasibility study, USACE will subsequently prepare plans and specifications, then manage construction of the project.

**Cost-Sharing Requirements:** The feasibility study is 100 percent federally funded up to \$100,000. Costs over \$100,000 are shared equally with the non-federal sponsor. Up to one-half of the non-federal share can be in the form of in-kind services. Costs for preparation of plans and specifications and construction are shared at 65 percent federal/35 percent non-federal. The non-federal share of construction consists of provision of any necessary lands, easements, rights-of-way, relocations and disposal areas (LERRD), plus a cash contribution of 5 percent of the total project costs. In the event that the value of LERRD, plus 5 percent cash, does not equal at least 35 percent of the total project cost, the non-Federal sponsor must contribute additional cash to equal 35 percent. If LERRD plus 5 percent exceeds 35 percent, the sponsor is responsible up to a maximum of 50 percent of the total project costs.

**How to Request Assistance:** Pertinent officials with the Government of Puerto Rico or local municipalities may formally request USACE to initiate an initial appraisal by letter to the District Engineer, USACE Jacksonville District, P.O. Box 4970 Jacksonville, Florida 32232-0019. For questions and additional information about potential hurricane and storm damage reduction projects under the Section 205 program, contact the USACE Jacksonville District coordinator for the Continuing Authorities Program (CAP) at (309) 794-5690.

## II.2 U.S. DEPARTMENT OF HOMELAND SECURITY FUNDING AUTHORITIES - FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FUNDING PROGRAMS

### II.2.1 National Dam Safety Program

**Overview:** This program is intended to be utilized by states to strengthen their existing dam safety programs in order to reduce risks to lives, property and the environment from dam failure. Activities funded under this program include training for state personnel, increasing the number of dam inspections and the submittal and testing of Emergency Action Plans, improved coordination with state emergency preparedness officials, the development of technical assistance materials, seminars and guidelines to improve dam security, and identification of dams to be repaired or removed.

**Project Process:** In order to qualify for assistance under the National Dam Safety Program, the applicant State dam safety program must be authorized by that state's legislation and working toward meeting certain criteria and budgeting requirements. A listing of twelve such criteria and requirements are provided in the application.

Applications will be evaluated based on the following:

- ▶ Applicant has the authority and demonstrates the expertise necessary to fulfill the requirements of the National Dam Safety Program;
- ▶ The Applicant's proposed Work Plan employs sound concepts and techniques, and realistic timetables;
- ▶ Proposed projects are deliverable, sustainable and compatible with the goals of the National Dam Safety Program;
- ▶ The Applicant proposes costs that are complete, reasonable, and cost-effective in relation to proposed projects and tasks.

**Funding/Cost-Sharing Requirements:** The National Dam Safety Program does not impose a cost-share requirement. The period of performance is 12 months. The Program cites a simplified acquisition threshold of

\$150,000. There is no identified minimum dollar value. The FY 2017 Notice of Funding Opportunity identified \$6,800,000 available funds, with 51 projected awards.

#### **How to Request Assistance/Contact Information:**

For financial and administrative questions, contact FEMA Region II grant coordinator; email [Clark.Brewer@fema.dhs.gov](mailto:Clark.Brewer@fema.dhs.gov). Program questions should be directed to Mr. Alan Springett, Senior Engineer; email [Alan.Springett@fema.dhs.gov](mailto:Alan.Springett@fema.dhs.gov); phone (212) 680-8557.

### II.2.2 Pre-Disaster Mitigation Grant Program

**Overview:** The Pre-Disaster Mitigation Grant Program (PDM) is authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The goal of the program is to reduce the overall risk to the population and structures from future hazard events, and reduce reliance on federal funds for future events. The PDM program seeks to strengthen national preparedness and resilience and supports the mitigation mission area in the National Preparedness System and National Preparedness Goal. Both planning and project grants are awarded, with one of the intentions of the program to raise public awareness about reducing future losses before the disaster occurs, however, FEMA will also prioritize funding for mitigation projects over mitigation planning. Priority will be given to eligible applicants that have less disaster funding available through the Hazard Mitigation Grant Program than PDM funding. In the effort to avoid duplication of Flood Mitigation Assistance activities, PDM will give priority to non-flood hazard (wildfire, drought, seismic, and wind) mitigation projects.

**Project Process:** FEMA requires applicants (state, territorial, tribal and local governments) to develop and adopt hazard mitigation plans as a condition of receiving this funding. Local governments may serve

as sub-applicants and can sponsor applications on behalf of homeowners. Sub-applicants submit to their State (either the Emergency Management Agency or the office that has primary emergency management responsibility) for subsequent review and prioritization, and Applicant submittal of the PDM grant application to FEMA. FEMA indicates this program is highly competitive for funds, and the agency makes decisions based both on their priorities for the most effective use of the grant funds and the availability of funds. Each Applicant may submit a maximum of 19 sub-applications, which may include 1 management cost sub-application for the Applicant management costs. Within the 18 sub-applications, a maximum of eight projects may be included. In the FY 2017 application process, FEMA indicates that application submittals will be subjected to a competitive basis of review utilizing five risk-based considerations of the Applicant: financial stability, quality of management systems and ability to meet management standards, history of performance in managing federal awards, reports and findings from audits, and ability to effectively implement statutory, regulatory, or other requirements. Applications and sub-applications must be submitted via the Mitigation eGrants system <https://portal.fema.gov>.

**Funding/Cost-Sharing Requirements:** PDM grants are funded annually by Congressional appropriations and awarded on a competitive basis nationally. In the NOFO FY 2017, \$90M was appropriated for 250 projected awards. Each Applicant is eligible to receive \$575,000. Sub-applications are subjected to additional funding criteria for maximum federal share. Federal funds constitute 75% of eligible activity costs, with small, impoverished communities being eligible for up to 90% federal cost-share. The period of performance is 42 months, with the project ending no later than 36 months after funding selection date. The application period is open from 08/14/2017 to 11/14/2017.

**How to Request Assistance/Contact Information:** FEMA Region II office should be contacted for specific questions pertaining to grant opportunities. The listed Hazard Mitigation Assistance Program contact is Sonny Beauchamp; email [sonny.beauchamp@fema.dhs.gov](mailto:sonny.beauchamp@fema.dhs.gov). The Grants/Financial Management Specialist

is Lyzette Figueroa; email [lyzette.figueroa@fema.dhs.gov](mailto:lyzette.figueroa@fema.dhs.gov). For forms, the Mitigation eGrants System Helpdesk (855) 228-3362; email [MTeGrants@fema.dhs.gov](mailto:MTeGrants@fema.dhs.gov) should be contacted. For state assistance, contact Carel Velazquez Pola of the Puerto Rico Emergency Management Agency at (787) 724-0124; email [cvelazquez@prema.pr.gov](mailto:cvelazquez@prema.pr.gov).

## II.2.3 Flood Mitigation Assistance Program

**Overview:** The Flood Mitigation Assistance (FMA) Program is designed to reduce or eliminate claims under the National Flood Insurance Program (NFIP). Funds for the Program, administered to states and other eligible entities, are appropriated by Congress annually. The funds are directed toward projects and planning that reduce or eliminate long-term risk of flood damage to structures insured under the NFIP. FEMA requires applicants to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance. In the FY 2017 notice of funding opportunity (NOFO), FEMA prioritizes two types of community flood mitigation activities: advance assistance for flood mitigation design and development of community flood mitigation projects, and mitigation projects that address community flood risk for the purpose of reducing NFIP flood claim payments.

**Project Process:** The only eligible applicants for the FMA grant funding include sub-applicants such as state agencies, local governments/communities who sponsor projects on behalf of their homeowners, federally-recognized tribes. These sub-applicants will compile and submit their applications to the states, U.S. Territories or federally-recognized tribes. Projects submitted must be consistent with goals and objectives identified in a current, approved hazard mitigation plan, along with the local/tribal hazard mitigation plan for the jurisdictions in which the activity is located. In the FY 2017 application process, FEMA indicates that application submittals will be subjected to a competitive basis of review utilizing five risk-based considerations of the Applicant: financial stability, quality of management systems and ability to meet management standards, history of performance

in managing federal awards, reports and findings from audits, and ability to effectively implement statutory, regulatory, or other requirements. Applications and sub-applications must be submitted via the Mitigation eGrants system <https://portal.fema.gov>.

**Funding/Cost-Sharing Requirements:** The FMA is a competitive grant program; therefore, FEMA will select those applications to be funded based on the relative ranking of the project, and the eligibility and cost-effectiveness of the proposed project. As announced in the FY 2017 NOFO, FEMA plans to award \$160M to 120 projects; \$70M will be prioritized for community flood risk mitigation proposals and the remaining \$90M will be used for technical assistance, mitigation planning, and mitigation projects reducing risk to severe repetitive loss and repetitive loss properties. The maximum federal share for FMA sub-applications is up to \$100,000 for community mitigation advanced assistance applications, \$10,000,000 for community mitigation project applications, \$50,000 for technical assistance for states that received \$1M in FMA awards in FY2016, \$50,000 for state flood hazard mitigation plans, and \$25,000 for local flood hazard mitigation plans. FEMA has the option to fund severe repetitive loss (SRL) properties at 100% and repetitive loss (RL) properties at 90%; otherwise, FEMA funds are available for up to 75 percent of eligible activity costs. The period of performance is 42 months, with the project ending no later than 36 months after funding selection date. The application period is open from 08/14/2017 to 11/14/2017.

**How to Request Assistance/Contact Information:** FEMA Region II office should be contacted for specific questions pertaining to future grant opportunities. For the 2016 grant cycle, the following contact information was provided: Mitigation eGrants System Helpdesk (855) 228-3362; email [MTeGrants@fema.dhs.gov](mailto:MTeGrants@fema.dhs.gov). To establish a sub-applicant package, interested parties should contact the FEMA Region II Caribbean Division in Hato Rey, Puerto Rico; phone (787) 296-3500.

## II.2.4 Hazard Mitigation Grant Program

**Overview:** The Hazard Mitigation Grant Program (HMGP) is designed to assist communities with implementation of hazard mitigation measures following a presidential major disaster declaration. The principal objective of the grant program is to reduce or eliminate long-term risk to people and property from future natural hazards/disasters. Grant recipients are responsible for prioritization, selection and administration of state and local hazard mitigation projects.

**Project Process:** Applicants for this grant funding include sub-applicants (state agencies, local governments/communities who sponsor projects on behalf of their homeowners, federally-recognized tribes) that compile and submit their applications to the states, U.S. Territories or federally-recognized tribes. These applicants are the only entities eligible to submit HMGP applications. Projects submitted must conform to the approved state and local mitigation plan, demonstrate being of benefit to the disaster area, conform to environmental regulations and state and local codes and standards, demonstrate cost-effectiveness, solve a problem, and be technically feasible. A range of alternatives must typically be considered.

**Funding/Cost-Sharing Requirements:** FEMA provides up to 75% of the funds for projects awarded under this program. The remaining 25% can be cash, in-kind services, loans from other government agencies such as the Small Business Administration, or increased cost of compliance funds from a flood insurance policy. The amount of funding is based on the total federal assistance provides, subjected to a sliding scale formula that FEMA provides up to 15% of the first \$2B of estimated aggregate amounts of disaster assistance, up to 10% for funding between \$2B-\$10B, and up to 7.5% for amounts between \$10B and \$35.33B. In 2016, \$804 million of post-disaster grant monies were delivered to states, tribes and communities. FEMA indicates that \$1 spent on hazard mitigation typically provides the nation approximately \$4 in future benefits.



How to Request Assistance/Contact Information. FEMA Region II office should be contacted for specific questions pertaining to grant opportunities. The listed Hazard Mitigation Assistance Program contact is Sonny Beauchamp; email [sonny.beauchamp@fema.dhs.gov](mailto:sonny.beauchamp@fema.dhs.gov). The Grants/Financial Management Specialist is Lyzette Figueroa; email [lyzette.figueroa@fema.dhs.gov](mailto:lyzette.figueroa@fema.dhs.gov). For forms, the Mitigation eGrants System Helpdesk (855) 228-3362; email [MTeGrants@fema.dhs.gov](mailto:MTeGrants@fema.dhs.gov) should be contacted. For state assistance, contact Carel Velazquez Pola of the Puerto Rico Emergency Management Agency at (787) 724-0124; email [cvelazquez@prema.pr.gov](mailto:cvelazquez@prema.pr.gov).

## II.2.5 Public Assistance Grant Program

**Overview:** The Public Assistance (PA) Grant Program provides federal assistance to governmental organizations (state, tribal, territorial and local governments) and certain private nonprofit organizations following a presidential major disaster declaration. The Governor must request said declaration from the President (through FEMA) within 30 days of the incident that appears to exceed local capabilities for adequate response. The objective of the program is to allow for quick response and recovery from major disasters or emergencies. The grant assistance is applied toward activities such as debris removal, life-saving emergency protective measures (emergency work), and the repair, replacement or restoration of disaster-damaged publicly-owned facilities, with assistance for hazard mitigation measures during the recovery process to

encourage protection of these damaged facilities from future events (permanent work).

**Project Process:** Applicants for this grant funding may include state agencies, local governments, and federally-recognized tribes. Individual homeowners receive consideration through the Individual Assistance program. FEMA evaluates eligibility based on the Applicant, the facility(ies), the work proposed (emergency and permanent), and finally, the cost of the work. The work must be the legal responsibility of the Applicant requesting assistance. FEMA evaluates submittals for reasonableness of cost as the final evaluation criteria.

**Funding/Cost-Sharing Requirements:** FEMA provides up to 75% of the funds for projects awarded under this program. The remaining 25% can be cash, in-kind services, loans from other government agencies such as the Small Business Administration, or increased cost of compliance funds from a flood insurance policy. FEMA guidance suggests that the grant recipient typically determines how the non-federal share is split between the 'sub-recipients' (eligible applicants). FEMA establishes a minimum project threshold for each federal fiscal year.

**How to Request Assistance/Contact Information:** FEMA Region II office should be contacted for specific questions pertaining to grant opportunities. The FEMA website [www.fema.gov/public-assistance-local-state-tribal-and-non-profit](http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit) provides additional information and specifics of the program.

## II.3 U.S. DEPARTMENT OF TRANSPORTATION FUNDING AUTHORITIES

### II.3.1 Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants

**Overview:** The Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants program was initiated pursuant to the American Recovery and Reinvestment Act of 2009 and has since continued annually via congressional appropriations. Eligible applicants for TIGER grants are state, local and

tribal governments, including U.S. territories, transit agencies, port authorities, metropolitan planning organizations (MPOs), and other political subdivisions of state or local governments. Eligible projects for TIGER grants are capital projects that include, but are not limited to: highway or bridge projects (including bicycle and pedestrian related projects); public transportation projects; passenger and freight rail transportation projects; port infrastructure investments; and intermodal projects.

Primary selection criteria for grant funds are: (1) improve safety of transportation facilities and systems; (2) improve the condition and resilience of existing transportation facilities and systems (specifically including projects that would improve a transportation asset's ability to withstand probable occurrence or recurrence of an emergency or major disaster or other impacts of climate change); (3) contribute to economic competitiveness; (4) increase transportation choices and access to essential services; (5) promote environmental sustainability. Secondary selection criteria are (1) use of innovative strategies to pursue long-term outcomes and (2) demonstrate strong collaboration among a broad range of stakeholders. Additional program information is available at [www.transportation.gov/tiger](http://www.transportation.gov/tiger).

**Funding/Cost-Sharing Requirements:** The maximum award, pursuant to the FY 2016 Appropriations Act, is \$100 million and no more than \$100 million may be awarded to projects in a single state (or territory) annually. Across seven rounds of capital projects, TIGER Discretionary Grant awards ranged from \$1 million to \$105 million. Although the average award size has been \$14.5 million, the Secretary of Transportation may make considerably larger awards to appropriate projects.

TIGER Discretionary Grants may be used for up to 80 percent of the costs of a project located in an urban area and up to 100 percent of the costs of a project located in a rural area. The annual appropriations

acts direct DOT to prioritize projects that require a contribution of federal funds to complete an overall financing package, and all projects can increase their competitiveness for purposes of the TIGER program by demonstrating significant non-federal financial contributions. The applicant should clearly demonstrate the extent to which the project cannot be readily and efficiently completed without a TIGER Discretionary Grant, and describe the extent to which other sources of funds, including federal, state, or local funding, may or may not be readily available for the project. DOT may consider the form of cost-sharing presented in an application. Firm commitments of cash that indicate a complete project funding package and demonstrate local support for the project are more competitive than other forms of cost-sharing. DOT recognizes that applicants have varying abilities and resources to contribute non-Federal contributions, especially communities that do not routinely receive and match Federal funds. DOT recognizes certain communities with fewer financial resources may struggle to provide cost-share that exceeds the minimum requirements and will, therefore, consider an applicant's broader fiscal constraints when evaluating non-federal contributions.

**How to Request Assistance/Contact Information:** Government of Puerto Rico and municipality officials who are interested in further information may contact the TIGER grants program staff via email [TIGERGrants@dot.gov](mailto:TIGERGrants@dot.gov), or call Howard Hill at (202) 366-0301.

## II.4 U.S. ENVIRONMENTAL PROTECTION AGENCY FUNDING AUTHORITIES

### II.4.1 Urban Waters Small Grants

**Overview:** The mission of EPA's Urban Waters Program is to help local residents and their organizations, particularly those in underserved communities, restore their urban waters in ways that also benefit community and economic revitalization. The *Urban Waters Small Grants (UWSG) program* recognizes that healthy and accessible urban waters can help grow local businesses and enhance educational,

recreational, social, and employment opportunities in nearby communities.

Eligible applicants include states (including territories), local governments, Indian tribes, public and private universities and colleges, public or private nonprofit institutions/organizations, intertribal consortia, and interstate agencies. In general, projects should meet the following four program objectives: (1) address local water quality issues related to urban runoff

pollution; (2) provide additional community benefits; (3) actively engage underserved communities; and (4) foster partnership. More information on the UWSG program is at [www.epa.gov/urbanwaterspartners/urban-waters-small-grants-101](http://www.epa.gov/urbanwaterspartners/urban-waters-small-grants-101).

ENLACE, a non-government community organization, secured a UWSG in 2011-2012 (\$60,000) to promote an understanding of the environmental degradation of an estuarine tidal channel (*Martin Peña Canal – San Juan, Puerto Rico*) and to engage the community in its restoration and in claiming their right to a healthy environment through education for critical consciousness and democratic action. Subsequently, in 2013-2014 ENLACE secured a second USWG (\$59,999) to design a conceptual plan for a new storm-water drainage system. Components of the conceptual plan include water quality improvements to the Martin Peña Channel and incorporation of green infrastructure initiatives and mechanisms, while taking into consideration new challenges presented by climate change. The scope of work included creating a participatory design process to analyze green infrastructure options for the densely populated area.

**Funding/Cost-Sharing Requirements:** The UWSG are competed and awarded every two years. Since its inception in 2012, the program has awarded approximately \$6.6 million in Urban Waters Small Grants to 114 organizations across the U.S. and Puerto Rico, with individual award amounts up to no more than \$60,000. While there is no minimum, EPA suggests that applicants request at least \$40,000 in EPA funds. Applicants must provide a minimum of \$4,000 as the non-federal cost-share/match. The non-federal cost-share/match may be provided in cash or can come from in-kind contributions, such as use of volunteers and/or donated time, equipment, expertise, etc., and is subject to the regulations governing matching fund requirements described in 2 CFR 200.306, as applicable. Funded cooperative agreements will have a one- to two-year project period.

**How to Request Assistance/Contact Information:** Government of Puerto Rico and municipality officials who are interested in further information may inquire

via the Urban Waters Partnership web site at [www.epa.gov/urbanwaterspartners/forms/contact-us-about-urban-waters-partnership](http://www.epa.gov/urbanwaterspartners/forms/contact-us-about-urban-waters-partnership) or by mail at Urban Waters, 1200 Pennsylvania Ave, NW, Suite 2381, Washington, DC 20460.

## II.4.2 Wetland Program Development Grants

**Overview:** The statutory authority for WPDGs is Section 104(b)(3) of the Clean Water Act (CWA), 33 U.S.C. §1254(b)(3). WPDGs assist state, tribal, local government agencies and interstate/intertribal entities in building programs to protect, manage and restore wetlands. These entities are eligible to apply for Regional WPDG Request for Proposals (RFPs). WPDGs provide eligible applicants an opportunity to conduct projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects (including health and welfare effects), extent, prevention, reduction, and elimination of water pollution. Projects that are demonstrations must involve new or experimental technologies, methods, or approaches. The EPA expects that the results of the project will be disseminated so that others can benefit from the knowledge gained in the demonstration project.

WPDGs provide applicants an opportunity to develop and refine comprehensive state/tribal/local government wetland programs. These programs are meant to:

- ▶ Build the capacity of state/tribal/local governments to increase the quantity and quality of wetlands in the U.S. by conserving and restoring wetland acreage and improving wetland condition.
- ▶ Use one or more of the following “Core Elements” in order to achieve this goal. The core elements as defined in the program guidance are: (1) monitoring and assessment; (2) voluntary restoration and protection; (3) regulatory approaches, including CWA 401 certification; and (4) wetland-specific water quality standards.

Proposals must be for projects that *develop or refine* state/tribal/local government wetland programs. Implementation of a wetland protection program would not be an eligible project under this program. An implementation project is one that is accomplished through the performance of routine, traditional, or established practices, or a project that is simply intended to carry out a task rather than transfer information or advance the state of knowledge. Monitoring and mapping projects should transfer information or advance the state of knowledge and therefore would be eligible under this program.

**Funding/Cost-Sharing Requirements:** According to guidance in the FY 17 and FY 18 WPDG RFP for EPA Region 2, awards will likely range from \$75,000 to \$325,000 in federal funds. Proposals by all applicants, except as noted below, must describe in their proposal

submission how they will contribute a minimum of 25 percent of the total project cost *in cost-share/matching funds* in accordance with 2 CFR 200.306. The cost-share/match must be for allowable costs and may be provided by the applicant or partner organization or institution (sub-recipients). The cost-share/match may be provided in cash or by in-kind contributions.

#### **How to Request Assistance/Contact Information:**

More information on the WPDGs may be found at [www.epa.gov/wetlands/wetland-program-development-grants#R2](http://www.epa.gov/wetlands/wetland-program-development-grants#R2). The EPA Region 2 point of contact for WPDGs is as follows:

Kathleen Drake ([drake.kathleen@epa.gov](mailto:drake.kathleen@epa.gov))  
EPA Region 2  
290 Broadway  
NY, NY 10007  
Phone: (212) 637-3817

## **II.5 U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) FUNDING PROGRAMS**

### **II.5.1 Coastal Resilience Grants Program**

**Overview:** The Coastal Resilience Grants Program is dedicated to providing communities with the resources to address the impacts of climate-related and extreme weather events, and provides opportunities to restore coastal habitats. The program integrates the Coastal Ecosystem Resiliency Grants Program and the Regional Coastal Resilience Grants Program, administered by NOAA Fisheries and National Ocean Service programs, respectively. Applicants submit proposals for either **Strengthening Coastal Communities** or **Habitat Restoration**. However, if the Applicant can demonstrate both elements are addressed under one application, such submittals can be considered. The agency requests that, if this is the case, the Applicant consider selecting from which category the majority of the funds are being requested. The grant program focuses on comprehensive, regional approaches that utilize science-based solutions, which rely on collaborative partnerships to ensure success.

**Project Process:** The Coastal Resilience Grant Program bases selection on the following criteria:

- ▶ Importance and Applicability
- ▶ Technical/Scientific merit
- ▶ Overall Qualifications of the Applicant
- ▶ Project costs
- ▶ Outreach and Education opportunities

**Funding/Cost-Sharing Requirements:** The Coastal Resilience Grant program must be matched with either recipient contributions or third party, in-kind cost-share. The resultant ratio of federal to non-federal contributions is 2:1. For the 2017 application, the anticipated (typical) awards range from \$250,000 to \$1,000,000 for a performance period of 12 to 36 months. The minimum and maximum allowable request are \$100,000 and \$2M, respectively. For the FY 2017 competition, NOAA anticipates a total award of approximately \$15M. This is a highly competitive program, with only 10% of the proposal requests from FY 2015 and 2016 awarded with available funding.

#### **How to Request Assistance/Contact Information:**

Government of Puerto Rico and municipality officials who are interested in obtaining specific guidance can contact the Office for Coastal Management at (240) 533-0815. For the 2017 grant cycle, the agency listed contact was Ms. Lisa Warr; email [Lisa.S.Warr@noaa.gov](mailto:Lisa.S.Warr@noaa.gov).

### **II.5.2 Coastal Zone Management Administration**

**Overview:** The Coastal Zone Management (CZM) Administration Awards program is designed to assist states in implementing and enhancing Coastal Zone Management and related programs that have been approved by the Secretary of Commerce. Formula and project grants are awarded by this program; any coastal state, including Puerto Rico, is eligible to participate in this program.

**Project Process:** The Governor must submit a letter designating the State agency or entity that shall serve as the Applicant. The application proposal must contain a statement of work and budget estimate in accordance with relevant Office of Management and Budget requirements.

**Funding/Cost-Sharing Requirements:** No matching requirements are required by this Program. Assistance provided under the CZM Administration Awards Program typically has a performance period of 12 to 18 months (with a possible 18 month extension, given specific requirements are met). Total project period cannot exceed 3 years. Allocation of between 80 to 90% of appropriated funds to States in prior award periods has been based on a formula utilizing coastal population and shoreline mileage. This Program did not receive funding for FY 17.

**How to Request Assistance/Contact Information.** The program suggests contacting either the Local, Regional or Headquarters offices. Headquarters contact is (24) 533-0908; the listed contact person is [Russell.Callendar@noaa.gov](mailto:Russell.Callendar@noaa.gov). NOTE: the program website <http://coastalmanagement.noaa.gov/programs/czm.html> is not functional at this writing.

### **II.5.3 Community-based Restoration Program Coastal and Marine Habitat Restoration Grants**

**Overview:** The principal objective of the Community-based Restoration Program Coastal and Marine Habitat Restoration grant is to support fish habitat restoration projects that utilize an ecosystem-based approach to foster species recovery and increase fish populations.

**Project Process:** An applicant's proposal will primarily be evaluated on its ability to demonstrate how the proposed habitat restoration action(s) will assist with the recovery of threatened and endangered species, and sustain or help rebuild fish stocks. Successful proposals will:

Identify a habitat-based issue/concern limiting the recovery or sustainability of one or more species targeted by the proposed restoration action;

Describe (in detail) the action and on-the-ground habitat restoration project(s) to be undertaken to resolve the issue/concern; and,

Describe the project(s)' expected outcomes and measurable impact on the project(s)' target species and their ecosystem.

**Cost-Sharing Requirements:** Proposals are funded through cooperative agreements, and will be administered by the NOAA Restoration Center's Community-based Restoration Program. Typical awards range from \$300,000 to \$1.5M over 1 to 3 years. The minimum funding request accepted is \$100,000; the maximum is \$4M over 3 years. While there is no statutory matching requirement for this funding, NOAA encourages Applicants to demonstrate partnerships and some portion of non-federal match (suggested at 1:1) with NOAA funds. Proposals selected for funding will bind the Applicant to the percentage of cost-sharing that is proposed.

**How to Request Assistance/Contact Information:** Application forms may be obtained, and applications must be submitted electronically, at [www.Grants.gov](http://www.Grants.gov).



Customer support should be contacted at 1 (800) 518-4726 or via email at [support@Grants.gov](mailto:support@Grants.gov).

## II.5.4 Community-based Marine Debris Removal

**Overview:** The principal objective of the Community-based Marine Debris Removal Grant Program is to support locally-driven marine debris prevention, assessment, and removal projects that will benefit coastal habitat, waterways, and NOAA trust resources. Eligible entities include state and local governments, institutions of higher education, nonprofit organizations, or commercial organizations with specific expertise in a field related to marine debris. Projects are expected to implement effective marine debris removal activities, with priority afforded to those proposals targeting medium- to large-scale debris, or items that generally cannot be manually removed by an individual, including derelict fishing gear. Additional objectives listed include providing benefits to coastal communities, and the creation of long-term ecological habitat improvements for NOAA trust resources.

**Project Process:** Proposals will be reviewed and ranked based on scoring associated with the five standard NOAA evaluation criteria:

- ▶ Importance and Applicability
- ▶ Technical/Scientific Merit
- ▶ Overall Qualifications of the Applicant
- ▶ Project Costs
- ▶ Outreach, Education and Community Involvement

**Cost-Sharing Requirements:** NOAA anticipates that between 8 and 15 cooperative agreement awards will be made under a specific fiscal year solicitation. Typical awards range from \$50,000 to \$150,000 over 1 to 3 years. The minimum funding request accepted is \$15,000; the maximum is \$250,000 over 3 years. Projects that demonstrate inclusion of habitat recovery monitoring activities may request up to an additional \$100,000. NOAA requires Applicants to provide non-federal matching contributions at a minimum 1:1 ratio, and encourages leveraging additional

investment where possible. A waiver of matching requirement can be granted with documentation that such match is not attainable, or where the probable benefit of the project outweighs the public interest. Additional submittal/documentation requirements to be favorably considered for such a waiver is required.

### **How to Request Assistance/Contact Information:**

Application forms may be obtained, and applications must be submitted electronically, at [www.Grants.gov](http://www.Grants.gov). Additional information regarding the program may be obtained by contacting Mr. Tom Barry; email [tom.barry@noaa.gov](mailto:tom.barry@noaa.gov); phone (240) 533-0425.

## II.5.5 Habitat Blueprint - Coastal and Marine Habitat Focus Area Cooperative Agreements

**Overview:** The principal objective of the Habitat Blueprint- Coastal and Marine Habitat Focus Area Cooperative Agreements program is to identify and support comprehensive and cooperative landscape-scale habitat conservation projects. Eligible entities include state and local governments, institutions of higher education, nonprofit organizations, or commercial organizations with specific expertise in a field related to marine debris. For the 2017-2019 grant period, there were nine Habitat Focus Areas (HFAs) listed; specific to Puerto Rico are the Northeast Marine Corridor and Culebra Island. The primary goal of the HFA is to protect and enhance coastal habitats (e.g., seagrass beds, mangroves, coral reefs) and resources (e.g., fish, sea turtles, marine mammals) associated with coral reef ecosystems that have experienced significant decline due to coastal development, land-based pollution, unsustainable recreational and commercial use, increasing sea surface temperatures and coral bleaching, and increased intensity and frequency of hurricanes.

**Project Process:** Proposals will be reviewed and ranked based on scoring associated with the five standard NOAA evaluation criteria:

- ▶ Importance and Applicability
- ▶ Technical/Scientific Merit
- ▶ Overall Qualifications of the Applicant

- ▶ Project Costs
- ▶ Outreach and Education

**Cost-Sharing Requirements.** NOAA anticipates that typical awards will range from \$150,000 to \$650,000 over 3 years. The minimum funding request accepted for the FY 17-19 cycle is \$50,000; the maximum is \$250,000 for the first year, not to exceed \$650,000 for the full 3 years. Funds will be administered by the Office of Habitat Conservation. NOAA has no statutory matching requirement, but rather encourages demonstration of partnerships and a suggested match of 1:1.

**How to Request Assistance/Contact Information:**

Administrative or technical questions should be directed to Ms. Liz Fairey, NOAA Fisheries Office of Habitat Conservation; email [Liz.Fairey@noaa.gov](mailto:Liz.Fairey@noaa.gov); phone (301) 427-8632. Prospective applicants are strongly encouraged to contact NOAA prior to submittal of an application.

## II.4.6 Sea Grant Marine, Coastal and Great Lakes National Aquaculture Initiatives

**Overview:** The 2017 solicitation for the Sea Grant Marine, Coastal and Great Lakes National Aquaculture Initiatives identified two competitive funding opportunities. The opportunities are available for projects able to demonstrate near-term (2 to 4 year timeframe) increases in aquaculture production, and those that are earlier in the exploratory or development phase but that show promise to contribute to the expansion of sustainable marine, coastal and Great Lakes aquaculture. Included in both opportunities is the expectation that submittals utilize a ‘team’ approach that integrates at least one Sea Grant program and at least one end-user or public-private partnership.

In both initiatives, applications must be submitted through a Sea Grant program.

**Project Process:** Proposals will be reviewed and ranked based on scoring associated with the five standard NOAA evaluation criteria:

- ▶ Importance and/or relevance and applicability of proposed project to the National Sea Grant program objectives
- ▶ Technical/Scientific Merit
- ▶ Overall Qualifications of the Applicants
- ▶ Project Costs
- ▶ Outreach and Education

**Cost-Sharing Requirements:** The Integrated Projects to Increase Aquaculture Opportunities Initiative (near-term increase in production) allows for requests between a minimum of \$100,000 to a maximum of \$1M of federal funds for a 2 to 3 year period. The Addressing Impediments to Aquaculture Opportunities program allows for small-scale projects that may request between \$10,000 and \$150,000 in federal funding for a 6 month to 2 year duration. A non-federal match of at least 50% is required for both initiatives.

**How to Request Assistance/Contact Information:**

Puerto Rico Sea Grant Director Mr. Ruperto Chaparro; email [ruperto.chaparro@upr.edu](mailto:ruperto.chaparro@upr.edu); phone (787) 832-3585 should be contacted to establish interest in an Integrated Projects to Increase Aquaculture Opportunities submittal. Those non-federal entities interested in partnering with Sea Grant for the Addressing Impediments to Aquaculture Opportunities must contact the Sea Grant Program. Administrative or technical questions for both initiatives should be directed to [oar.hq.sg.aquaculture@noaa.gov](mailto:oar.hq.sg.aquaculture@noaa.gov).

# ANNEX III

## NON-PROFIT RESOURCE TOOLKIT

The Non-Profit Resource Toolkit details corporations, funds, and foundations that have funds available to invest in various resilience related programs. The funding opportunities detailed were selected as the most applicable for Puerto Rico. The matrix classifies each funding opportunity by name, program, cost-share requirement, and eligibility, among other categories. The matrix also details which sector each of the opportunities are for, such as infrastructure, planning, and environment, etc.

Table A-3. Non-Profit Resource Toolkit – Matrix

Agency	Program	Coastal Management and Restoration			Municipal and Critical Infrastructure (Protect, Relocate, Retrofit)								Natural Resource Management						
Adaptation Fund	Adaptation Fund	Structural Approaches	Preserve, restore, create natural coastal defenses (living shorelines, mangroves, coral reefs etc.)	Beach Nourishment	Disaster Preparedness	Disaster Response	Transportation	Energy	Water and Wastewater	Other Critical Municipal Infrastructure	Community Development	Residential and Commercial	Watershed Management and Protection	Air Quality	Agriculture	Stormwater Management	Habitat Restoration/Protection	Aquaculture	Threatened and Endangered Species
Ford Foundation	Natural Resources and Climate Change				✖														
Kresge Foundation	Building Capacity and Commitment				✖						✖								
Kresge Foundation	Developing Healthy Places - Fresh, Local & Equitable: Food as a Creative Platform for Neighborhood Revitalization										✖								
Kresge Foundation	Transforming Key Urban Systems/Climate-Resilient and Equitable Water Systems (CREWS)				✖				✖							✖			
Mitsubishi Corporation	Foundation for the Americas										✖			✖			✖		✖
NFW Foundation	Coral Reef Conservation		✖														✖		
NFW Foundation	Five Star and Urban Waters Restoration												✖			✖	✖		
NFW Foundation	Puerto Rico Seagrass Fund		✖										✖				✖		
SeaWorld Parks	Conservation Fund		✖														✖		✖
The Urban Sustainability Directors Network (USDN)	Partners for Places								✖		✖					✖			
Wells Fargo	Environmental				✖				✖		✖					✖			

Table A-4. Non-Profit Resource Toolkit – Listing

Name	Program	Cost Share Requirement	Award Ceiling	Eligibility	Selection Criteria	Other Considerations	Website	Relevant Sector (Infrastructure, Environmental, Planning)
Adaptation Fund	Adaptation Fund	Funding will be provided on full adaptation cost basis of projects to address the adverse effects of climate change. Full cost of adaptation means the costs associated with implementing concrete adaptation activities that address the adverse effects of climate change. The Fund will finance projects and programmes whose principal and explicit aim is to adapt and increase climate resilience.	A cap in resource allocation per eligible host country, project and programme will be agreed by the Board based on a periodic assessment of the overall status of resources in the Adaptation Fund Trust Fund and with a view to ensuring equitable distribution.	To apply for project and programme funding, countries must submit proposals through an accredited institution; Eligible Parties to receive funding from the Adaptation Fund are understood as developing countries that are particularly vulnerable to the adverse effects of climate change including low-lying and other small island countries, countries with low-lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification, and developing countries with fragile mountainous ecosystems.	(a) Level of vulnerability; (b) Level of urgency and risks arising from delay; (c) Ensuring access to the fund in a balanced and equitable manner; (d) Lessons learned in project and programme design and implementation to be captured; (e) Securing regional co-benefits to the extent possible, where applicable; (f) Maximizing multi-sectoral or cross-sectoral benefits; (g) Adaptive capacity to the adverse effects of climate change.	Only institutions accredited by the Adaptation Fund may receive funding for adaptation projects. After accreditation, the entity may submit project proposals aligned with national priorities for consideration by the Adaptation Fund Board.	<a href="http://www.adaptation-fund.org/apply-funding/">www.adaptation-fund.org/apply-funding/</a>	Environmental
Ford Foundation	Natural Resources and Climate Change	N/A	Up to \$30 M	NGOs, governments, other funders and rural communities themselves.	N/A	Focused on low-income populations situated in forests, grasslands, marginal agricultural land, and other rural regions in six areas where the foundation maintains a regional offices: Brazil, Indonesia, China, Eastern Africa, Mexico and Central America, and India.	<a href="http://www.fordfoundation.org/work/our-grants/idea-submission/">www.fordfoundation.org/work/our-grants/idea-submission/</a>	Environmental
Kresge Foundation	Building Capacity and Commitment	N/A	The Environment Program does not accept unsolicited proposals. When available, grant opportunities are listed on the Environment focus area pages, and on the Current Grant Opportunities page.	U.S. 501(c)(3) organizations with audited financial statements that are not classified as private foundations. Audits must be independently prepared following Generally Accepted Accounting Principles or Government Auditing Standards. Financial statements prepared on a cash, modified cash, compilation or review basis do not qualify; Government entities.	Nonprofit organizations located in the United States.	Grants are awarded to organizations that advance the strategic objectives of a given program.	<a href="http://kresge.org/programs/environment/building-capacity-and-commitment">http://kresge.org/programs/environment/building-capacity-and-commitment</a>	Planning



**Table A-4. Non-Profit Resource Toolkit – Listing (continued)**

Name	Program	Cost Share Requirement	Award Ceiling	Eligibility	Selection Criteria	Other Considerations	Website	Relevant Sector (Infrastructure, Environmental, Planning)
Kresge Foundation	Developing Healthy Places - Fresh, Local & Equitable: Food as a Creative Platform for Neighborhood Revitalization	There is no financial match required for planning grants.	\$75,000	Non-profit organizations and local government agencies that are leading multisector, mission-driven food enterprises. Lead applicants could range from community development corporations to food hubs, local economic development departments, community action agencies, arts groups and others. The most competitive proposals will be lead by organizations that are deeply embedded in and trusted by residents of the neighborhood that is the focus of the proposed project. A lead applicant may be any 501(c)(3) or a local government entity located in an urban area in the US or US territories.	Healthy Food Systems that benefit low-income communities; Address: creative place-making, health, economic development, equity.	Regional or city-wide food system strategies will not be considered. FreshLo is intended to fund neighborhood-scale work in cities with at least 30,000 residents. After Planning grants are awarded, Planning grantees will be allowed to apply for Implementation grants. For Planning grantees who successfully complete an implementation plan by the end of the planning period, the Foundation will offer Implementation awards of \$100,000 per year for two years.	<a href="https://kresge.org/programs/health">https://kresge.org/programs/health</a>	Planning
Kresge Foundation	Transforming Key Urban Systems/Climate-Resilient and Equitable Water Systems (CREWS)	N/A	The Environment Program does not accept unsolicited proposals. When available, grant opportunities are listed on the Environment focus area pages, and on the Current Grant Opportunities page.	U.S. 501(c)(3) organizations with audited financial statements that are not classified as private foundations. Audits must be independently prepared following Generally Accepted Accounting Principles or Government Auditing Standards. Financial statements prepared on a cash, modified cash, compilation or review basis do not qualify; Government entities.	N/A	N/A	<a href="http://kresge.org/programs/environment/transforming-key-urban-systems">http://kresge.org/programs/environment/transforming-key-urban-systems</a>	Planning

Table A-4. Non-Profit Resource Toolkit – Listing (continued)

Name	Program	Cost Share Requirement	Award Ceiling	Eligibility	Selection Criteria	Other Considerations	Website	Relevant Sector (Infrastructure, Environmental, Planning)
Mitsubishi Coporation	Foundation for the Americas	N/A	\$50,000	Direct grants and donations are for 501(c) (3) non-profit organizations in the U.S. or their equivalents overseas.	Grants are provided in the following four categories: Biodiversity conservation: We promote the conservation of biological diversity and natural resources by supporting research, the establishment of protected areas, and strategies for valuing the natural environment such as Payments for Ecosystem Services; Environmental education: We support environmental education programs that raise public awareness about the environment, and foster greater appreciation for the value and scarcity of natural resources, and the importance of environmental stewardship; Environmental justice: We promote environmental justice by supporting the rights of marginalized communities to live in a clean and safe environment and participate in decisionmaking that impacts their environment. This helps to ensure that the burdens of industrial development are not unfairly imposed on those communities that are the most vulnerable to negative environmental impacts; Sustainable development: We support means of local livelihood development for communities in environmentally sensitive areas, support for small and medium size enterprises in developing countries, and by promoting sustainable business practices.	N/A	<a href="http://www.mcfamericas.org/">www.mcfamericas.org/</a>	Environmental

Table A-4. Non-Profit Resource Toolkit – Listing (continued)

Name	Program	Cost Share Requirement	Award Ceiling	Eligibility	Selection Criteria	Other Considerations	Website	Relevant Sector (Infrastructure, Environmental, Planning)
NFW Foundation	Coral Reef Conservation	Matching funds from non-U.S. Federal sources are required at a 1:1 ratio for all proposed projects.	\$150,000	Eligible applicants include all persons, organizations, and non-U.S. Federal agencies, including parties within and outside of the United States.	Meet program goals and priorities; technical merit, budget, partnership; monitoring, local impact and broader transferability, long-term sustainability, communication	Tier I Priority: Hawaii: Kaanapali-Kahakili, Maui; Puerto Rico: Guanica. Program priorities: improve sustainable coral fisheries management; enhance management for priority coral reefs and associated watersheds; reduce land-based pollution inputs to coral reefs in domestic priority watersheds.	<a href="http://www.nfwf.org/coralreef/Pages/2017rfp.aspx">www.nfwf.org/coralreef/Pages/2017rfp.aspx</a>	Environmental
NFW Foundation	Five Star Waters Restoration	The ratio of matching contributions offered is considered during the review process, and projects are required to meet or exceed a 1:1 match ratio to be competitive.	\$50,000	Eligible applicants include non-profit 501(c) organizations, state government agencies, local governments, municipal governments, Indian tribes and educational institutions.	Program priorities: on-the-ground restoration, community partnerships, environmental outreach, education and training, measurable results, sustainability. Evaluation criteria: Meet program goals and priorities, technical merit, budget, partnership; monitoring, local impact and broader transferability, long-term sustainability, communication.	PPP; USFS and EPA Urban Waters Federal Partnership funding source has a designated location in Martin Pena Canal/San Juan, PR.	<a href="http://www.nfwf.org/fivestar/Pages/home.aspx">www.nfwf.org/fivestar/Pages/home.aspx</a>	Environmental
NFW Foundation	Puerto Rico Seagrass Fund	N/A	Conservation Projects: \$600K and Research Projects: \$155K	Local, Commonwealth, and Federal agencies; private or public organizations; corporations; schools and universities; consultants; and private individuals may respond to this request for proposals.	Focus (34%), Technical Capacity and Partnership (33%), Work Plan and Budget (33%)	N/A	<a href="http://www.nfwf.org/whatwedo/idea/seagrassfund/Pages/home.aspx">www.nfwf.org/whatwedo/idea/seagrassfund/Pages/home.aspx</a>	Environmental

**Table A-4. Non-Profit Resource Toolkit – Listing (continued)**

Name	Program	Cost Share Requirement	Award Ceiling	Eligibility	Selection Criteria	Other Considerations	Website	Relevant Sector (Infrastructure, Environmental, Planning)
SeaWorld Parks	Conservation Fund	N/A	\$25,000 Although there is no limit to the size of the application request, most grants range between \$10k and \$25K.	The SeaWorld & Busch Gardens Conservation Fund accepts applications from non-profit organizations, governmental entities, and schools and universities. Organizations can be U.S.-based or international. The Fund only supports projects that align with its priorities.	The Fund has 4 major areas of focus: species research, habitat protection, conservation education, and animal rescue and rehabilitation. Each year the Fund has specific conservation priorities it supports. Your programs must align with these priorities.	N/A	<a href="https://swbg-conservationfund.org/en/who-we-are/conservation-priorities">https://swbg-conservationfund.org/en/who-we-are/conservation-priorities</a>	Environmental
The Urban Sustainability Directors Network (USDN)	Partners for Places	1:1 match required by one or more local foundations	\$75,000-One Year \$150-/Two Years	Local government, "city" or "county" in the United States and Canada.	The applicant should be a partnership between the local government sustainability office and the local funder. However, for the purpose of submitting the application, one of the partner entities should submit the grant application and be identified in the proposal as the primary contact.	1) advance a key aspect of an officially endorsed sustainability or climate action plan, or any multi-issue plan endorsed by the mayor or city manager that explicitly states and pursues the goal of integrating and/or balancing economic development, environmental quality, and equity, 2) create a sustainability or climate action plan, or 3) address an area identified for performance improvement or implementation for Certified STAR Communities. Green stormwater infrastructure projects should advance water-related sustainability goals.	<a href="http://www.fundersnetwork.org/">www.fundersnetwork.org/</a>	Infrastructure
Wells Fargo	Environmental			We make contributions to organizations with tax-exempt status under Section 501(c)(3) of the U.S. Internal Revenue Code, as well as to qualified tribal and governmental agencies, including public school systems.	If you'd like to submit a topic for consideration please email a brief description (150 words or less) to <a href="mailto:environmental.affairs@wellsfargo.com">environmental.affairs@wellsfargo.com</a> .	N/A	<a href="http://www.wellsfargo.com/about/corporate-responsibility/community-giving/environmental-grant-program/">www.wellsfargo.com/about/corporate-responsibility/community-giving/environmental-grant-program/</a>	Environmental





# ANNEX IV

## STAKEHOLDER OUTREACH

This guide could not have been possible without the support provided by experts from across federal agencies and local government. The project team appreciates the time and insights provided by each of these individuals.

**Table A-5. Stakeholder Input on the Coastal Resiliency Funding Guide**

Name	Affiliation	Role
Alicea, Eileen	NOAA	Program Manager (Office of Coastal Management, Coral Grants Program)
Arevalo, Juan	FEMA	Regional Program Manager (Region 2 Office)
Garcia-Bermudez, Migel	CLCC	CLCC Coordinator (located in San Juan, PR)
Gutierrez, Juan	EPA	Regional ENERGY STAR Coordinator (Region 2 Office)
Jacobs, Kasey	Formerly with CLCC	Fellow
Legault, Kelly	USACE	Coastal Design, Jacksonville District
Murray, Brent	CLCC	Science Coordinator (located in San Juan, PR)
O'Beirne, Bill	NOAA	Lead, Office of Coastal Management (Southeast and Caribbean Region)
Ramos, Carlos	EPA	Region 2 Office
Reynolds, Melissa,	USACE	Team lead for CAP program, H&H team lead for the Puerto Nuevo Project, Jacksonville District
Rogers, Spencer	NC Sea Grant	Coastal Construction and Erosion Specialist
Schrader, Matt	USACE	Planning Division, Jacksonville District
Stein, Adam	NOAA	Program Manager (Office of Coastal Management, Coastal Resilience Grants Program)
Taylor, Ethan	DOI (International Affairs)	Senior Policy Advisor (coordinates and advises on policy relating to Mexico, Latin America, and the Caribbean)
Velez, Hector	EPA	Associate Regional Counsel (Region 2 Office)