



Effective Disaster Mitigation Projects Webinar

2020 CDBG-DR and CDBG-MIT Webinar Series

Agenda

- **Introductions**
- **CDBG & Mitigation Overview** (Brandy Bones, ICF)
- **Connection Between Planning and Projects** (Mary Beth Caruso, FEMA)
- **Do's & Don'ts for Effective Flood Mitigation BCAs** (Derek Fellows, FEMA)
- **Coastal Flooding Mitigation Project and the McFaddin Project** (Heather Lagrone, TX GLO)
- **Buyout Mitigation Project** (Christine Meissner, FEMA)
- **Seismic Mitigation and Code Enforcement Best Practices** (Roosevelt Grant, FEMA)
- **Q&A**



Introductions



Introductions

- Brandy Bones, ICF
- Mary Beth Caruso, FEMA
- Derek Fellows, FEMA
- Heather Lagrone, TX GLO
- Christine Meissner, FEMA
- Wareesha Tariq, HUD
- Roosevelt Grant, FEMA



CDBG & Mitigation Overview

Brandy Bones- ICF



What is Mitigation?

Mitigation = activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship by lessening the impact of future disasters

CDBG-MIT is specifically for mitigation projects (more on that program in a minute) but CDBG-DR can play an important role as well



What is Mitigation in the Context of CDBG-DR?

While CDBG-DR does not have an eligibility category for mitigation projects per se, CDBG-DR funded programs and projects can incorporate mitigation components

- Buyout (acquisition) programs
- Elevation of structures (housing, public facilities, etc.) and systems (e.g., HVAC)
- Use of certain type of resilient materials (e.g., fire resistant roofing materials)
- Use of other techniques such as setbacks, permeable surfaces and vegetation buffers, etc.



HUD's goals with the CDBG-MIT Program

- Support data-informed investments, focusing on repetitive loss of property and critical infrastructure
- Build capacity to comprehensively analyze disaster risks and update hazard mitigation plans
- Support the adoption of policies that reflect local and regional priorities that will have long-lasting effects on community risk reduction, including risk reduction to community lifelines and decreasing future disaster costs
- Maximize the impact of funds by encouraging leverage, private/public partnerships and coordination with other federal dollars



All CDBG-MIT Program Activities MUST

- (1) Meet the definition of mitigation activities;
- (2) Address the current and future risks as identified in the grantee's Mitigation Needs Assessment of Most Impacted and Distressed (MID) areas;
- (3) Be CDBG-eligible activities under Title I of the HCDA or otherwise eligible pursuant to a waiver or alternative requirement; AND
- (4) Meet a national objective, including additional criteria for mitigation activities and Covered Projects



Connection Between Planning and Projects

Mary Beth Caruso- FEMA



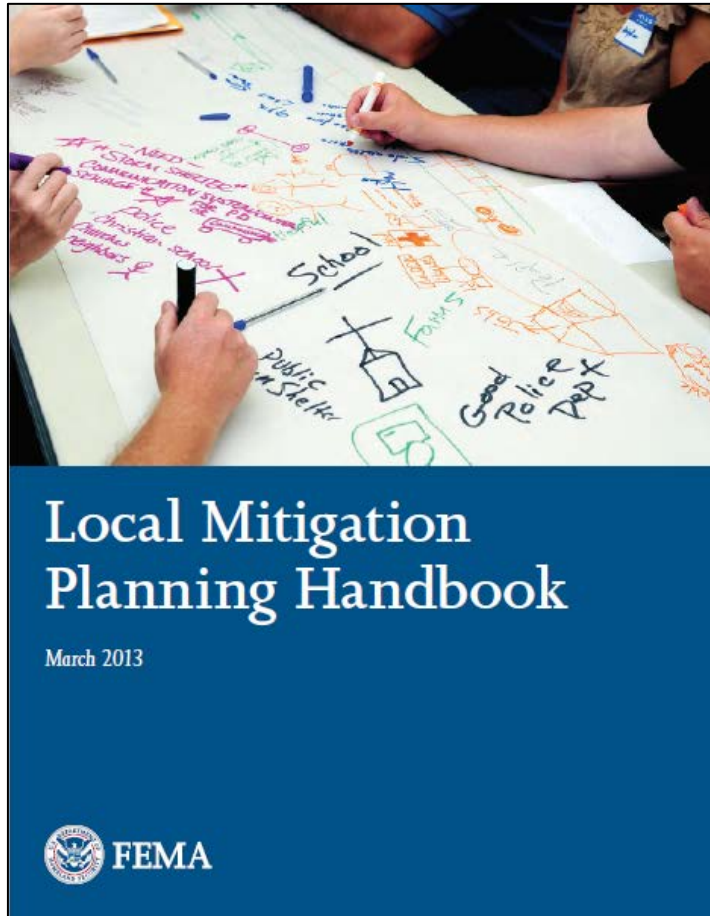
Hazard Mitigation Planning

Mitigation is any **sustained action** taken to **reduce or eliminate** the **long-term** risk to human life and property from hazards.

The purpose of mitigation planning is for state, local and Indian tribal governments **to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of the wide range of resources.**



Planning Requirements



- Disaster Mitigation Act of 2000 amended the Stafford Act and provides the basis for communities to undertake risk-based approaches to reduce hazard risk through planning.
- 44 CFR § 201 contains the federal regulations for what must be included for a FEMA-approved plan.
- The main elements of a mitigation plan include:
 - Public Involvement
 - Risk assessment
 - Mitigation Strategy



Helping Communities Make Risk-Based Decisions

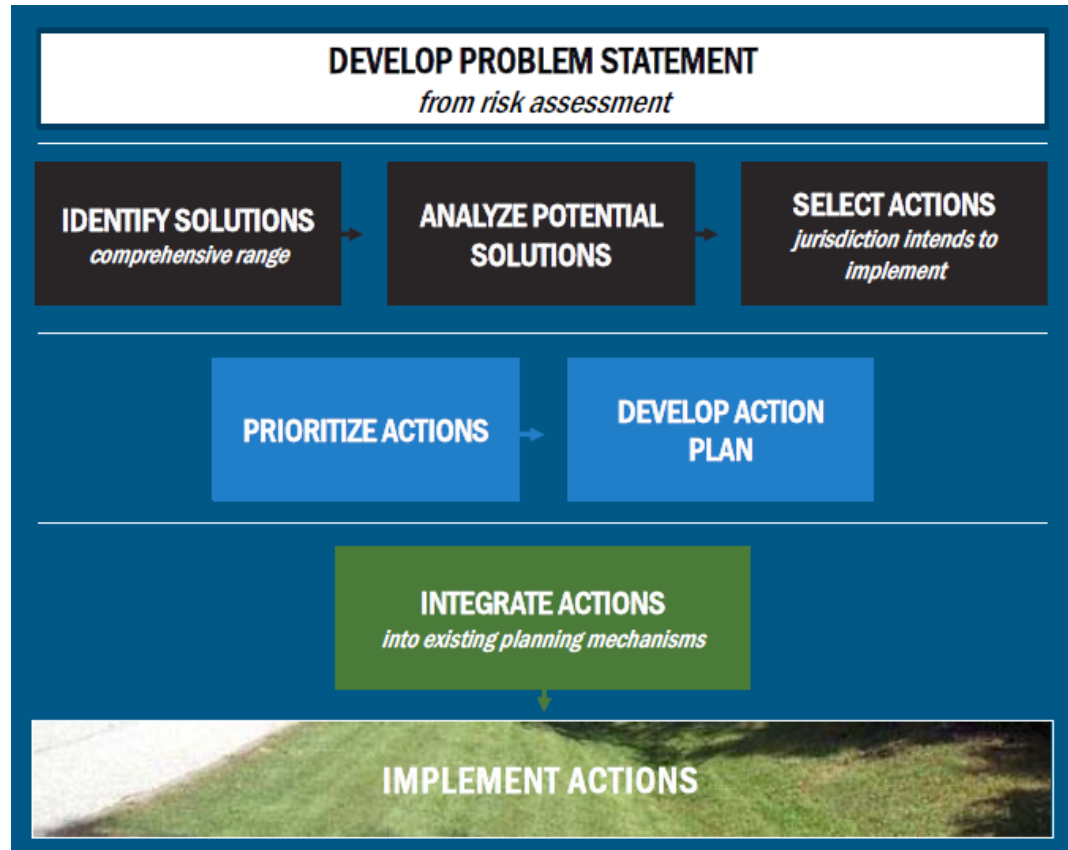


Risk assessments are repositories of information, they contain:

- Detailed descriptions of natural hazards that can potentially impact the community
- Inventories of community assets (people, infrastructure, buildings) that may be at risk
- Risk analysis that involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard.



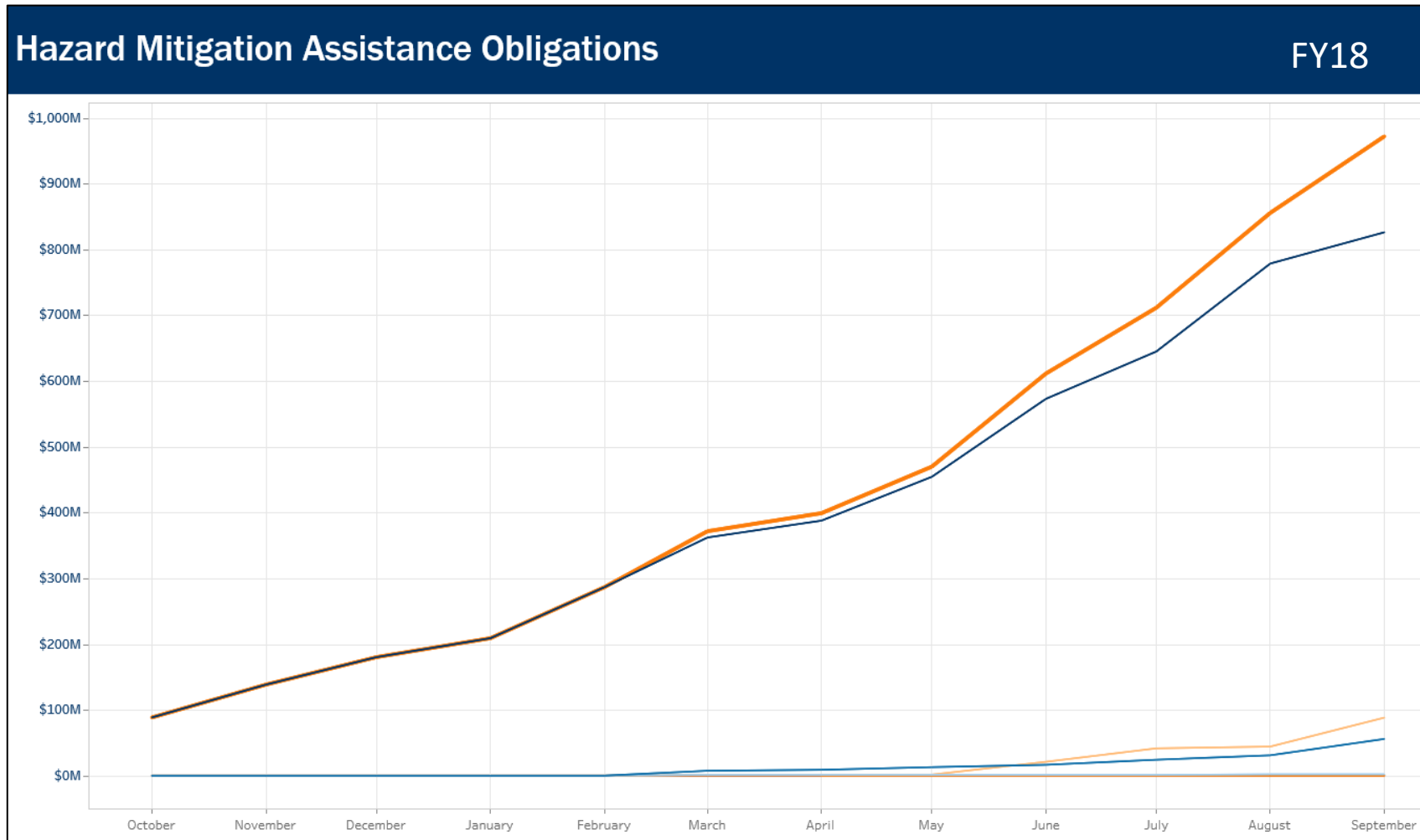
Developing a Mitigation Strategy



- Mitigation strategies can point you in the right direction for project ideas, they contain:
- Overarching goals that guides what the community wants to achieve long-term
- Specific actions that communities can take to reduce risk (structure/infrastructure, education/awareness, green infrastructure and policy/regulatory actions)
- An action plan that conveys the timeline, cost and responsible entity for each action



From Plans to Projects



FEMA's Mitigation Best Practices Portfolio is a resource for searching and learning about hazard mitigation best practices:
<https://www.fema.gov/mitigation-best-practices-portfolio>



Mitigation Plan Requirement for State, Tribal, Territorial and Local Governments Applying for FEMA Grants

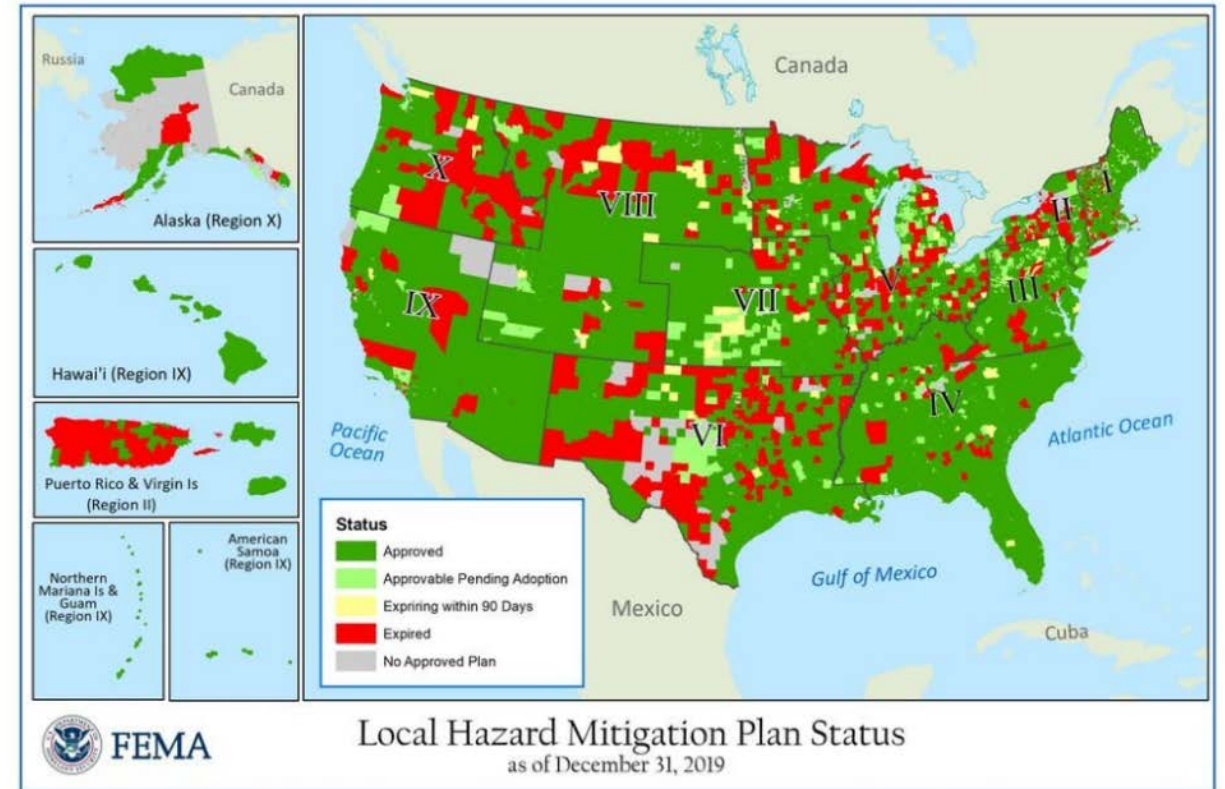
Enabling Legislation	FEMA Assistance Program	Is a Mitigation Plan Required?		Enabling Legislation	FEMA Assistance Program	Is a Mitigation Plan Required?	
		State / Tribal Applicant	Tribal / Local Subapplicant			State / Tribal Applicant	Tribal / Local Subapplicant
Stafford Act	Individual Assistance (IA)	No	No	National Flood Insurance Act	Flood Mitigation Assistance (FMA) planning grant	Yes*	No
	Public Assistance (PA) Categories A and B (e.g., debris removal, emergency protective measures)	No	No		Flood Mitigation Assistance (FMA) project grant	Yes*	Yes**
	Public Assistance (PA) Categories C through G (e.g., repairs to damaged infrastructure, publicly owned buildings)	Yes	No	Water Infrastructure Improvements for the Nation (WIIN) Act	Rehabilitation of High Hazard Potential Dam (HHPD) Grant Program #	Yes	Yes
	Fire Mitigation Assistance Grants (FMAG)	Yes	No				
	Hazard Mitigation Grant Program (HMGP) planning grant	Yes*	No				
	Hazard Mitigation Grant Program (HMGP) project grant	Yes*	Yes**				
	Pre-Disaster Mitigation (PDM) planning grant	No	No				
	Pre-Disaster Mitigation (PDM) project grant	Yes*	Yes**				



FEMA-Approved Mitigation Plan Status

87% of the nation's population lives in communities with current mitigation plans.

- 50 states
- 5 territories
- 20,900 local governments
- 233 Tribal governments



Path Forward

Leverage mitigation plans to more effectively drive mitigation action



Implementation

Guiding mitigation investments



Integration

Influencing community decisions



Do's & Don'ts for Effective Flood Mitigation BCAs

Derek Fellows- FEMA



Do's and Don'ts

■ DO

- Tell complete story, details
- Completely document story,
- Include maps, pictures
- Seek guidance

■ Don't

- Assume the reviewer is familiar with your County/City/Town Facility
- Guess at values or use values without documentation



Flood Mitigation Projects

- Acquisition/Elevations/Reconstruction
 - Move, remove, relocate, elevation
 - No change to the flood conditions
- Localized Flood Control Project
 - Drainage improvements
 - Culverts, Bridges, Pumping stations
 - Floodwater diversion & storage
 - Floodwalls, Levees, Retention
 - Projects designed to reduce flood conditions

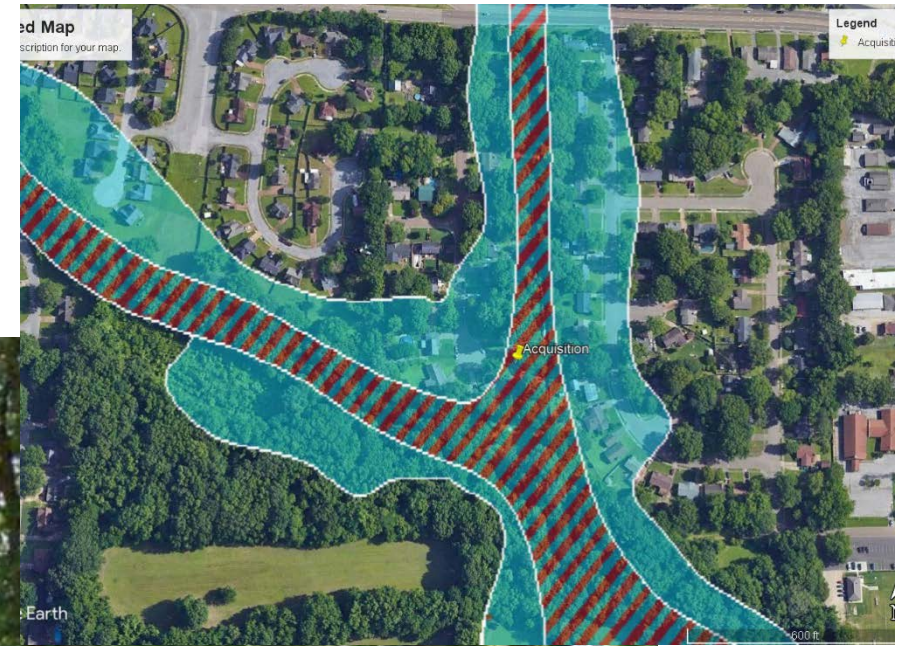


Acquisition/Elevations/Reconstruction

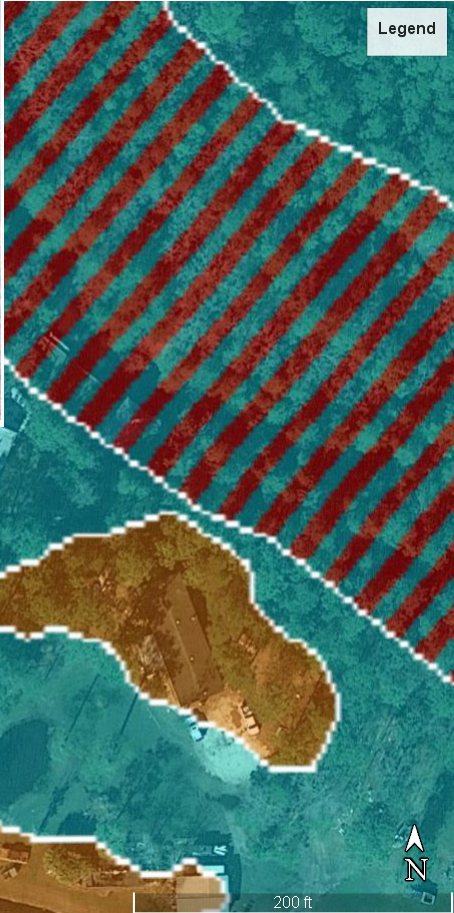
- Located in Special Flood Hazard Area
 - Under \$276k (\$175k elevation) -- No BCA
- Located outside Special Flood Hazard Area
 - Or over \$276k, acquisition (\$175k elevation)
 - Based on depth of flooding in structure
 - Modeled Damages
 - Historic Damages
 - Structure, contents and displacement
 - Height of elevation



Acquisition Example



Elevation Example



Localized Flood Control Project

- Drainage improvements,
 - Culverts, Bridges, Pumping stations
- Floodwater diversion & storage
 - Floodwalls, Levees
- Must have pre-mitigation and post-mitigation conditions
 - Pre-mitigation -- Modeled Damages or Historic Damages
 - Post-mitigation -- Modeled Damages or Professional Expected Damages
- Can include
 - Residential
 - Non-residential buildings
 - Utility infrastructure
 - Roads and bridges



Coastal Flooding Mitigation and the McFaddin Project

Heather Lagrone- Texas General Land Office



Hurricane Ike

During Hurricane Ike, storm surge washed away nearly 20 miles of coastal sand dunes along the McFaddin National Wildlife Refuge in Jefferson County, Texas, leaving the area vulnerable to coastal water intrusion.



Sand Dunes and Disaster Mitigation

- As part of the GLO's disaster recovery programs, the GLO funded the McFaddin Project to restore the sand dunes destroyed by Hurricane Ike.
- Dune restoration mitigates against damage from future disasters by protecting residents from winds, waves, and storm surges in the future.
- Dune restoration also slows the rate of coastline retreat and protects absorbent, healthy marshland, which can prevent damage from hurricanes and other tropical disasters.
- The project serves more than 230,000 people in the area, of which 43% are low-to-moderate income



McFaddin Project Funding

- **Coastal Impact Assistance Program (CIAP):**

- Jefferson County CIAP for FY's 2008 (\$1,312,000), 2009 (\$948,988), and 2010 (\$939,238) "McFaddin Beach Restoration"
- State of Texas CIAP FY 2009 "McFaddin NWR Beach Ridge Restoration" (\$2,000,000)

- **Coastal Erosion Planning and Response Act (CEPRA) Program:** Coastal Erosion Planning and Response (CEPRA) Act enacted in 1999 provides state funding on a bi-annual cycle which requires a partner funding match of a minimum of 25%.

- Coastal Project No. 1516 "McFaddin National Wildlife Refuge (NWR) Beach Ridge Restoration" (\$3,750,000)
- Coastal Project No. 1530 "McFaddin National Wildlife Refuge (NWR) Beach Ridge Restoration" (\$5,900,226)

- **Community Development Block Grant – Disaster Recovery (CDBG-DR):** U.S. Department of Housing and Urban Development grants are allocated to flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.

- Hurricane Ike Disaster Recovery Round 2.2: "Dune Restoration Project" (\$4,801,182)
- Hurricane Rita Disaster Recovery Round 2.2: "Dune Restoration Project" (\$45,000)



Project Selection

Jefferson County Texas			
Critical Infrastructure Needs			
SETRPC			
Entity	Project Name	Description	Estimated Cost
* China VFD	Replace Fire Station	Fire station building was completely destroyed by Hurricane IKE. Project estimate is to build new fire station and related contents	\$ 500,000
* Drainage District # 7	Diversion Ditch	Project will construct a new channel to redirect water to a detention facility to reduce flooding	\$ 3,261,900
* Drainage District # 7	Ditch Enlargement and Cleaning	Project will clean, enlarge and concrete line an open channel to reduce flooding	\$ 3,328,500
* Drainage District # 7	Seawall Repair	Repair erosion along seawall due to Hurricane Ike damage	\$ 5,898,000
* Jefferson County	Hwy 73 Radio Tower	Repair and mitigate future flooding and wind damage to critical law enforcement 800 MHz radio system.	\$ 800,000
* Jefferson County	Road Repair	Repair 42 roads which were submerged in saltwater in the aftermath of Hurricane Ike	\$ 20,000,000
* Jefferson County	Bridge Repair	Repair 3 bridges that were damaged as a result of Hurricane Ike debris flowing into bridge pilings	\$ 4,000,000
* Jefferson County	Dune Restoration	Replace 20 miles of sand dunes washed away by Hurricane Ike storm surge	\$ 60,000,000
Jefferson County	Ford Park Emergency Staging	Strengthen Ford Park Arena roof for higher wind limits, install generators, showers, and additional concrete parking when Federal and State Emergency personnel stage disaster assets at Ford Park	\$ 6,500,000
Jefferson County	Airport Emergency Staging	Renovate and harden airport terminal facilities for mass evacuations/airlifts during emergencies	\$ 3,500,000
Jefferson County	EOC Generator	Purchase and install generator for Jefferson County EOC	\$ 1,500,000
Jefferson County	Alternate EOC	Renovate and harden Annex III facilities for alternate Jefferson County EOC	\$ 5,000,000
Jefferson County	Harden EOC	Install storm shutter window system at courthouse for current Jefferson County EOC	\$ 7,000,000
* Jefferson County WC & ID No. 10	Generator for sewer lift stations	Provide generator, switchgear and related electrical equipment for sewer lift stations	\$ 230,000
* Jefferson County WC & ID No. 10	Building for Sewer Pumps	Purchase and construct new building to house pumps and generator	\$ 535,000
* Labelle-Fannett VFD	Replace Fire Station	Demolish, Replace Fire Station building and related Fire Fighting equipment destroyed by Hurricane Ike	\$ 865,000

- On June 3, 2009, Jefferson County held a workshop to determine the critical infrastructure needs of the County following Hurricane Ike.
- The McFaddin Project involving dune restoration was identified as an urgent unmet need in its application for the second round of CDBG-DR funding, as the region remained vulnerable to storm surges.
- The County left the project out of its application for the first round of CDBG-DR funding due to relatively high estimated cost of the project.

Engagement and Outreach

- Rules associated with CDBG-DR funding require its recipients to hold public hearings.
- Before Jefferson County officially allocated CDBG-DR funding to dune restoration, the County implemented a citizen participation plan including:
 - Outreach efforts (public hearings and notices);
 - Complaint procedures; and
 - Technical assistance.



JEFFERSON COUNTY CITIZEN PLAN PARTICIPATION PLAN

- On November 16, 2011, Jefferson County advertised a public hearing about the project in the Beaumont Enterprise. The hearing, hosted by county officials, took place on November 28, and received no citizen feedback.



Permitting and Planning

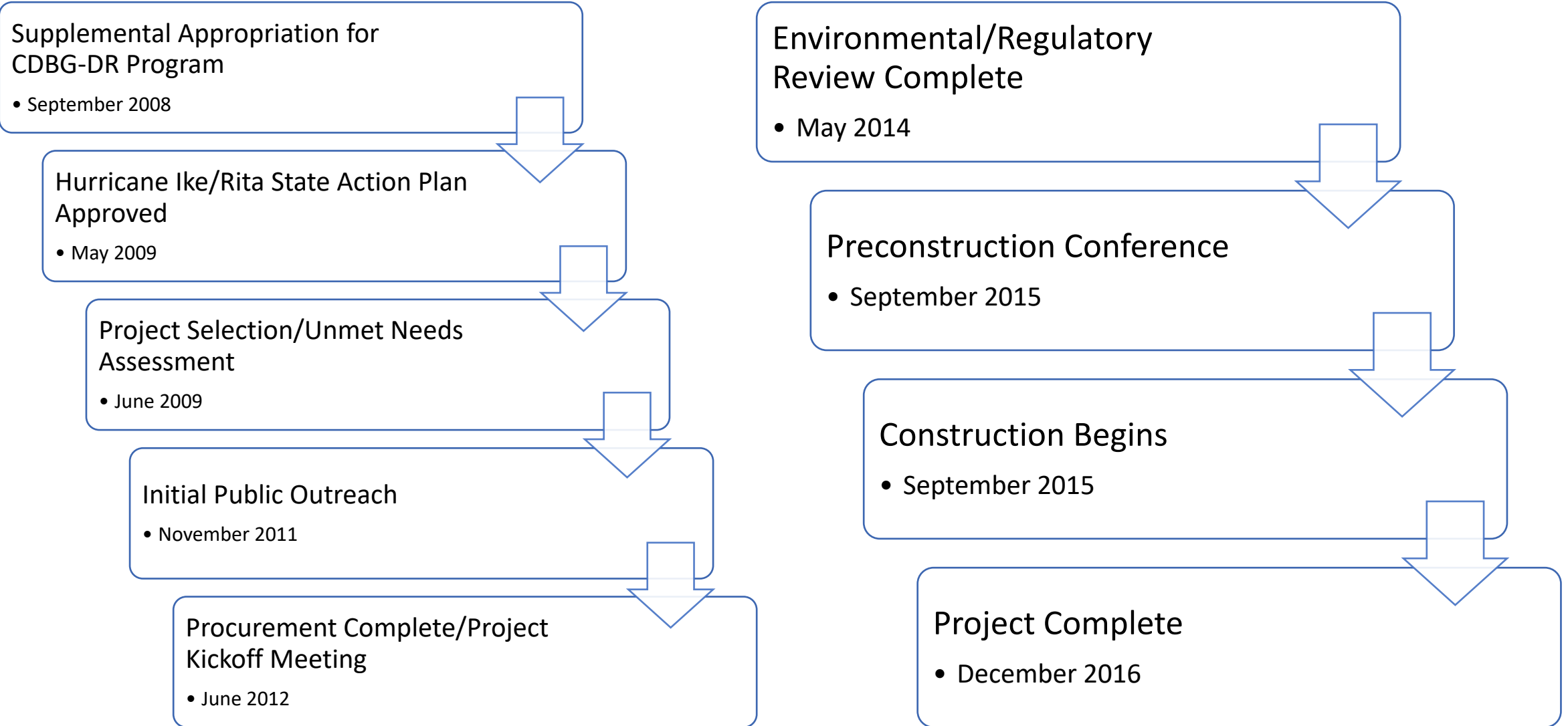


- Because the project was to be completed on federal land, the McFaddin Wildlife Refuge, the contractors were required to seek approval and/or permits from several governmental entities including, but not limited to:
 - U.S. Army Corps of Engineers (USACE);
 - U.S. Fish and Wildlife Service (USFWS); and
 - Texas Historical Commission (THC).

Due to additional environmental regulations attached to CDBG-DR funding on top of USFWS regulations, much of the environmental review was conducted by the project engineer. This was problematic because the extensive amount of additional work provided by the engineer (over 141 man hours) took construction funds from the project.



Project Timeline



Lessons Learned



- Public Outreach: Every effort should be made to encourage strong public participation. Community buy-in is crucial for the long-term success of any project, especially if problems arise.
- Environmental: Because the McFaddin Project was expanding on an existing coastal dune restoration project using different sources of funding, the environmental phase of the project was prolonged by conflicting requirements from those funding sources. Differences in regulation should be taken into account when engaging in a project with multiple funding sources.
- Construction: It is important to be realistic with project deadlines in areas vulnerable to severe weather events. The construction phase of the McFaddin Project was completed behind schedule to due flooded conditions on the job site.

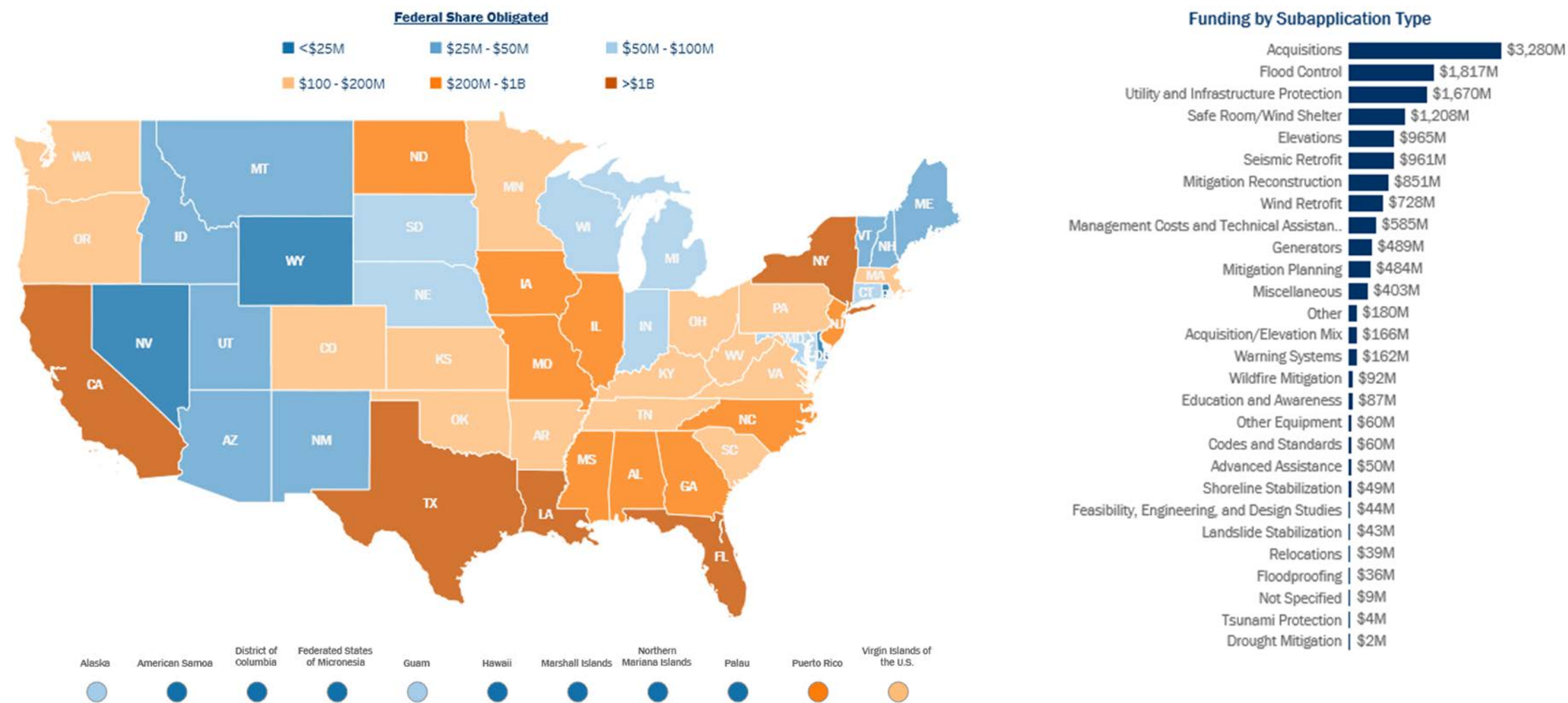


Buyout Mitigation Project

Christine Meissner- FEMA



Flood Mitigation Projects Are Most Common



Property Acquisitions aka “Buyouts”

- **Property Acquisition and Structure Demolition:**
The voluntary acquisition of an existing flood-prone structure and, typically, the underlying land, and conversion of the land to open space through the demolition of the structure.
- **Property Acquisition and Structure Relocation:**
The voluntary physical relocation of an existing structure to an area outside of a hazard-prone area, such as the Special Flood Hazard Area (SFHA) or a regulatory erosion zone and, typically, the acquisition of the underlying land.



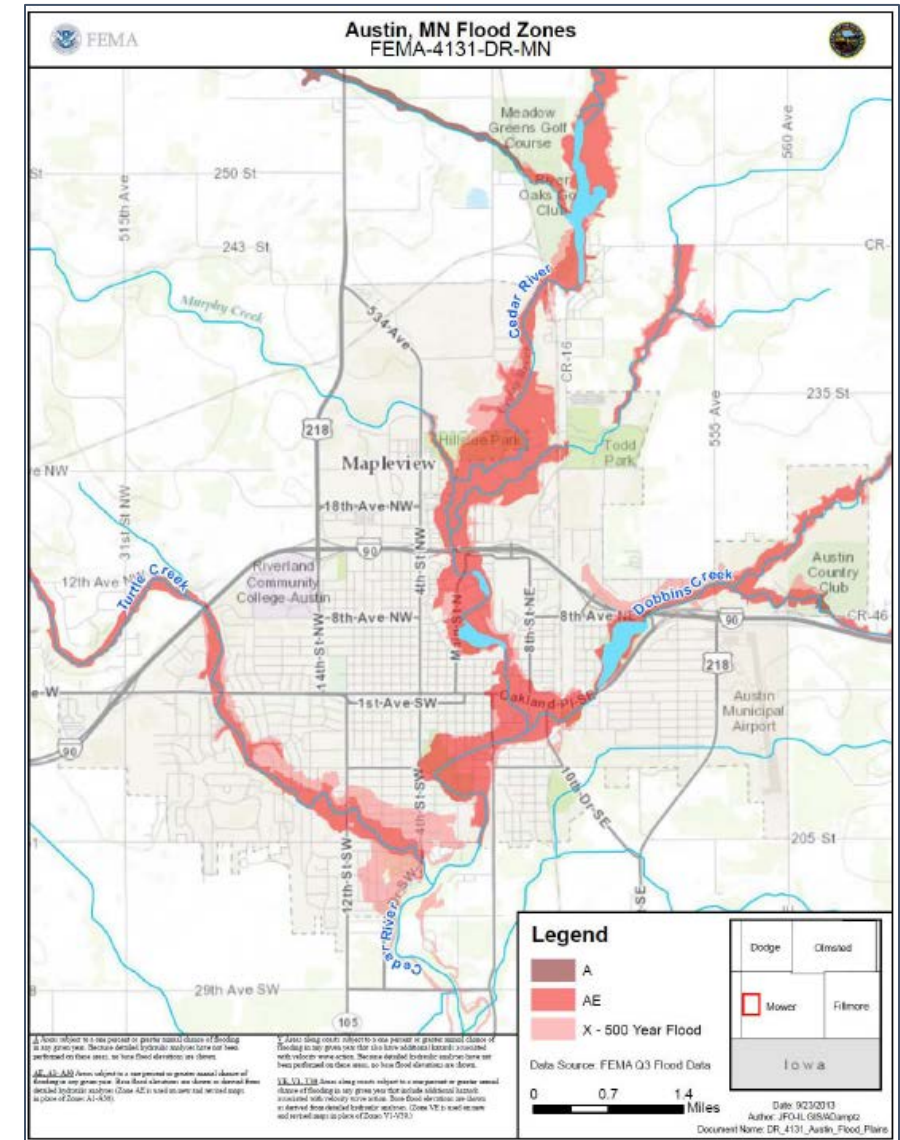
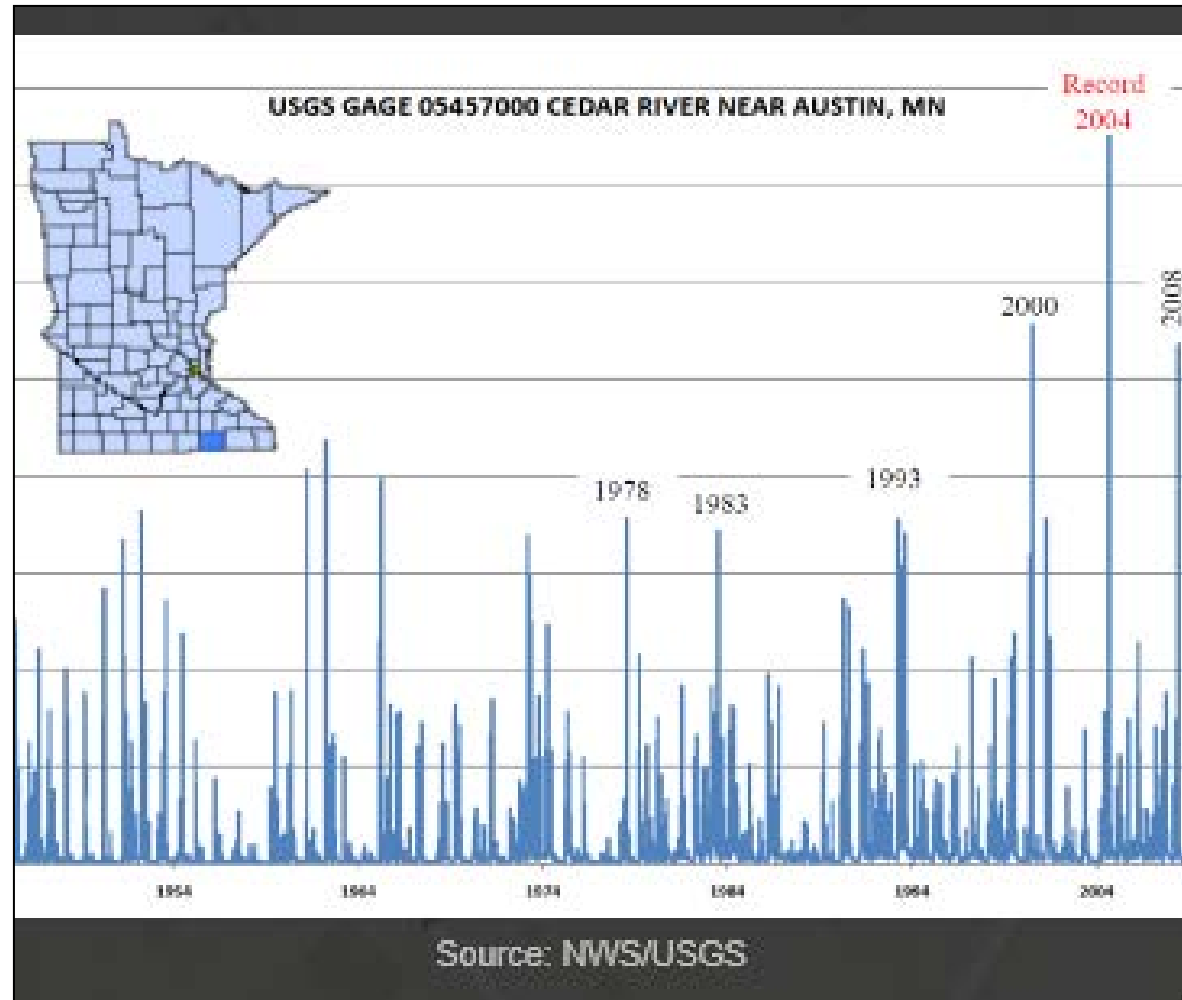
Case Study: Austin, Minnesota



- Population: 24, 718
- Known as “Spam Town USA” (Hormel Corporate Headquarters)



Flood History



Preventing Future Damage



- Nearly 275 homes and businesses have been acquired by the city and removed from the floodplain
- 95% of the property actions occurred within the Special Flood Hazard Area (SFHA)



Saving An Important Landmark



Image source: City of Austin, Minn.



Image source: City of Austin, Minn.

- St. Paul Evangelical Lutheran Church is an architectural landmark since 1953
- After the 93 floods, the community decided to relocate the structure 1.35 miles SW and gut it so water could flow through
- The church is now called the Veterans Pavilion and serves as event space for important events (weddings, holidays)



Loss Avoidance Study

Funding Sources	Total Acquisition Cost	Total Losses Avoided	% of Losses Avoided to Acquisition Cost	Return On Investment (ROI)
58 bldgs. - HUD (after 1978)	\$7,112,759	\$20,351,726	286.10%	2.86
4 bldgs. - sec. 1362 FEMA (after 1988)	\$270,797	\$1,521,651	561.90%	5.62
101 bldgs. – HMGP FEMA (after 1993)	\$7,042,430	\$16,400,693	232.90%	2.33
Totals and total averages	\$14,425,986	\$38,274,070	265.30%	2.65

(Note: Dollars normalized to the year 2001 for all acquisition projects. The discount rate used for this normalization is 7 %.)

“The rate of return and losses avoided were very apparent. We also eliminated mental anguish of homeowners. Peace of mind is hard to quantify.” – Public Works Director Steven Lang



Resilience: Risk Reduction and Environmental Benefits

- Acquired property using FEMA funds must be deed-restricted in perpetuity to open space uses to restore and/or conserve the natural floodplain functions
- Generally allowable land use options: nature preserves, outdoor recreation, gardens, wildlife habitat, wetland management, etc.
- Where possible, homes were acquired in blocks along the Cedar River, Turtle Creek and Dobbins Creek, deeded back to the city, and incorporated into the Linear Park System



Figure 6 – Green space at Wolf Creek in Todd Park, Austin, MN



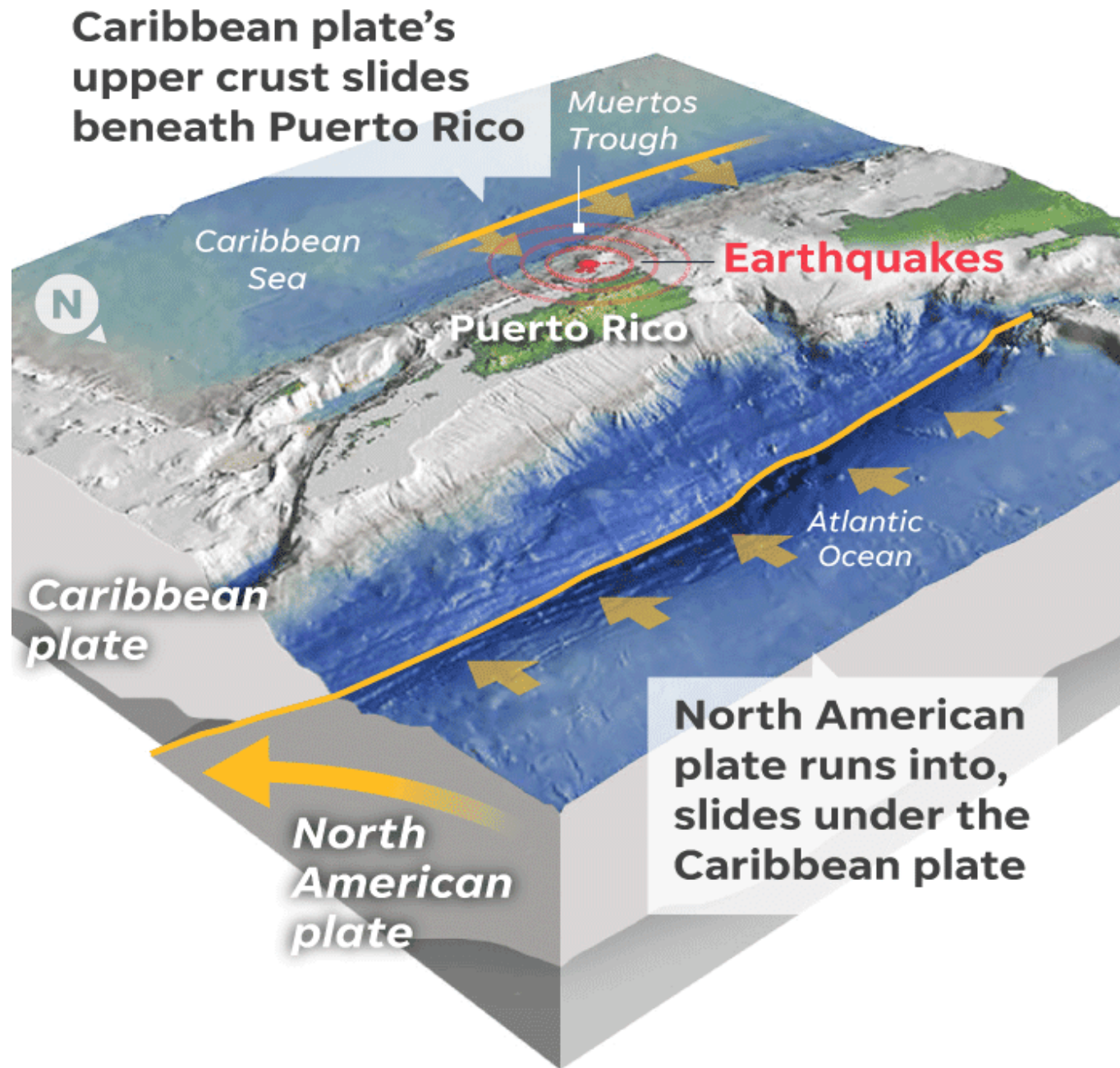
Figure 2 – Open green space in Central Park, Austin, MN



Seismic Mitigation

Roosevelt Grant- FEMA

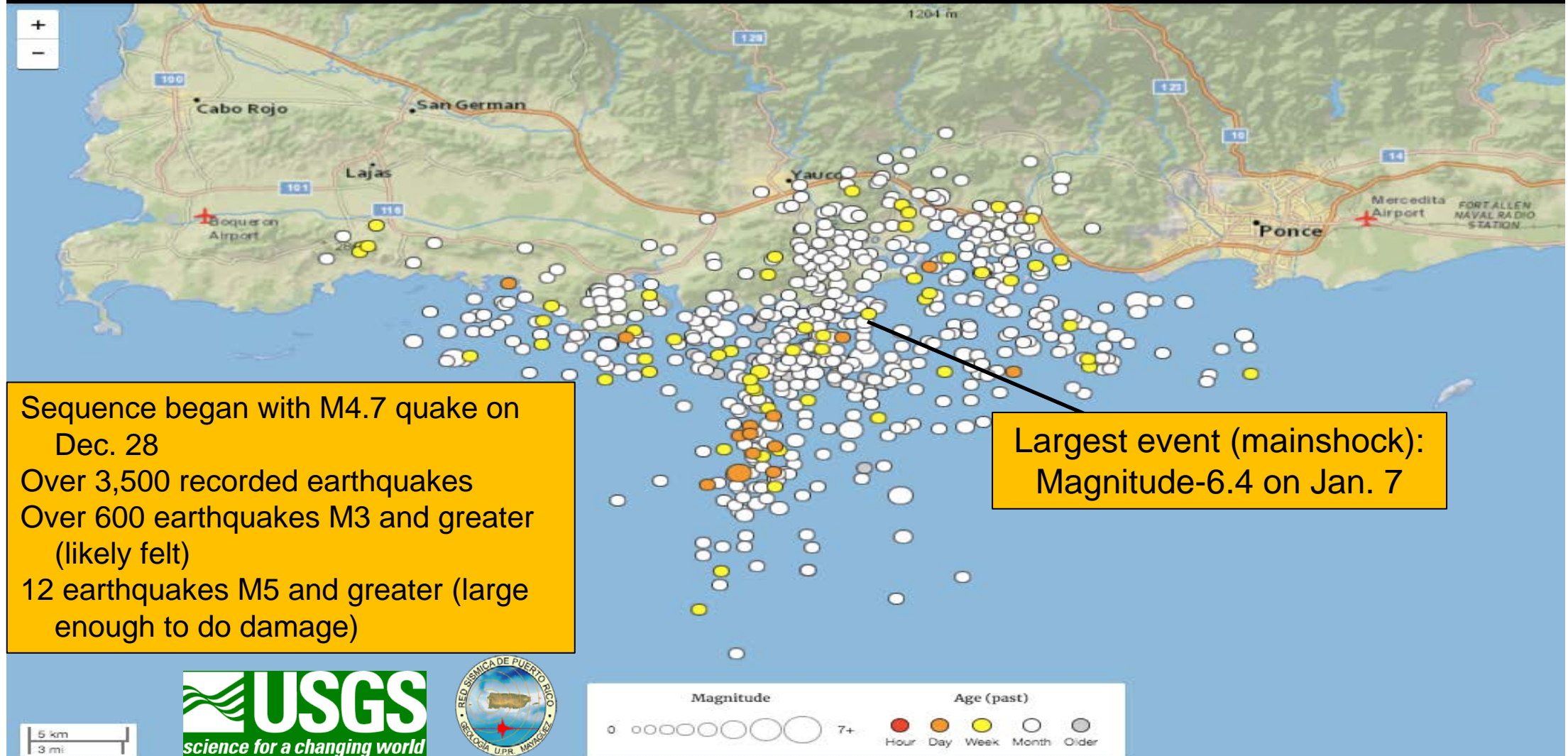




USA TODAY, 2020



Sequence of earthquakes in SW Puerto Rico



Church, *Downtown* *Guayanilla*



Two-story houses Downtown Guanica



Agripina Seda School, Guanica



Examples of Seismic Mitigation--Structural

Structural Retrofitting of Existing Buildings:

Modifications to the structural elements of a building to reduce or eliminate the risk of future damage and to protect inhabitants.

The structural elements of a building that are essential to prevent damage include foundations, load-bearing walls, beams, columns, building envelope, structural floors and roofs, and the connections between these elements.



Examples of Seismic Mitigation—Codes and Standards

- ASCE/SEI 31-03 – Standard Seismic Evaluation of Existing Buildings
- ASCE 41-06 – Standard for the Seismic Rehabilitation of Buildings
- FEMA E-74: Reducing the Risks of Nonstructural Earthquake Damage
- FEMA 232, Homebuilders' Guide to Earthquake-Resistant Design and Construction
- FEMA 530: Earthquake Safety Guide for Homeowners



Homebuilders' Guide to
Earthquake Resistant Design
and Construction

FEMA 232 - June 2006



Building Code Enforcement

Roosevelt Grant- FEMA



The Risks of Informal Construction



Josefina Boya Leon School, Ponce

Structural Seismic Retrofitted under HMGP, DR-1136 in 2004



**2004 Seismic Retrofit Project- 95 public schools located in several PR municipalities.
The total project cost of \$14,470,439 (Fed share: \$10,852,829/Local match \$3,617,610.**



Adolfo Grana Rivera School, Peñuelas

Structural Seismic Retrofitted under HMGP, DR-1136 in 2004



Although the school was closed after Hurricane Maria, it shows that Mitigation Works!

Developing a “PR Culture of Resilience”

Building back safely significantly reduces risk to residents

Requires:

- Renewed focus on Zoning and Building Codes
- Increased capability for Building Code enforcement
- Eliminating “informal construction”



Resources



Resources

- HUD Exchange CDBG-DR page:
<https://www.hudexchange.info/programs/cdbg-dr/>
- HUD Exchange CDBG-MIT page:
<https://www.hudexchange.info/programs/cdbg-mit/>
- FEMA Hazard Mitigation Plan Resources website:
<https://www.fema.gov/hazard-mitigation-planning-resources>
- FEMA State Mitigation Planning Resources website:
<https://www.fema.gov/state-mitigation-planning-resources>
- FEMA State Mitigation Planning Key Topics Bulletins:
<https://www.fema.gov/media-library/assets/documents/115780>
- FEMA Local Mitigation Planning Resources website:
<https://www.fema.gov/local-mitigation-planning-resources>



Technical Training and Additional Resources

- CDBG-MIT Fall Webinar Series:
<https://www.hudexchange.info/trainings/cdbg-mit-webinars/>
- EMI Course E0276: Entry Level Benefit Cost Analysis
 - FEMA Regions and JFOs can offer E0276 when requested
 - BCA training materials are posted at www.fema.gov/benefit-cost-analysis .
- BCA Toolkit 6.0 Release Notes
- BCA Reference Guide (June 2009)
- BCA Reference Guide Supplement (June 2011)
- Updated BCA Reference Guide expected release (Summer 2020)



Technical Assistance

- FEMA offers technical assistance with BCAs through the BCA Helpline.
 - Phone: 1-855-540-6744, 9 am-5 pm (EST) M-F
 - Email: bchelpine@fema.dhs.gov
 - BC Helpline staff can answer questions and provide guidance but cannot perform or review BCAs.
- FEMA
 - FEMA HQ POCs
 - FEMA Region POCs





Thank you!

- Questions
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