

Mitigation Needs Assessment



CDBG-MIT Webinar Series

- HUD and FEMA role (National Mitigation Investment Strategy)
- Resources Addressing Mitigation and Mitigation Planning
 - [2019 CDBG-DR Problem Solving Clinic: Day 1 - CDBG-MIT Grantees](#) July 30, 2019
 - [Beyond the Basics Emerging: Mitigation Practices Slides](#)
 - [Conducting a Mitigation Needs Assessment Slides](#)
 - [EPA Regional Resilience Toolkit Slides](#)
 - [Mitigation Overview Slides](#)
 - [Planning and Designing Mitigation Practices Slides](#)
- [CDBG-MIT Federal Register Notice Webinar](#), September 3, 2019



Presenters

From HUD:

- Jen Carpenter, Assistant Director of Policy, DRSI

From FEMA:

- Jenny Burmester, Shubha Shrivastava and Laurie Bestgen, National Mitigation Planning Program
- Abraham Gunn, Office of Policy and Performance
- Kate Judson, Hazard Mitigation Assistance Division



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Using State and Local Mitigation Plans for a Mitigation Needs Assessment

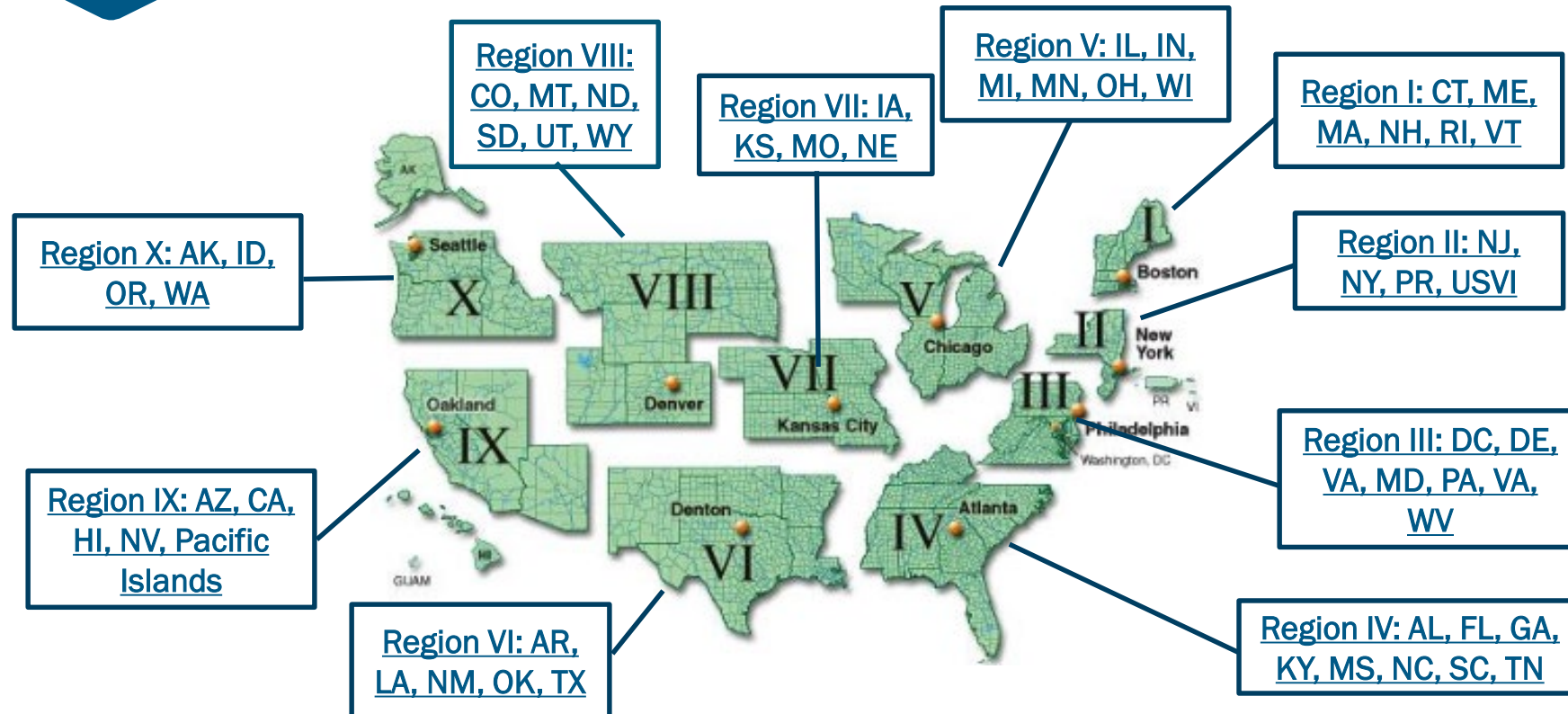
U.S. Housing and Urban Development
Community Development Block Grant – Mitigation
(CDBG-MIT) Webinar

October 10, 2019

Overview

- Mitigation and mitigation planning resources and contacts
- How to leverage and advance existing state and local mitigation planning
- Community lifelines and mitigation

FEMA and State Mitigation Planning POCs



FEMA Regional Mitigation Planning POCs: <https://www.fema.gov/hazard-mitigation-planning-contacts>

State Hazard Mitigation Officers: <https://www.fema.gov/state-hazard-mitigation-officers>

Mitigation and Mitigation Planning

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

-44 Code of Federal Regulations (CFR) §201.2

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 a wide range of resources.**

-44 CFR §201.1(b)



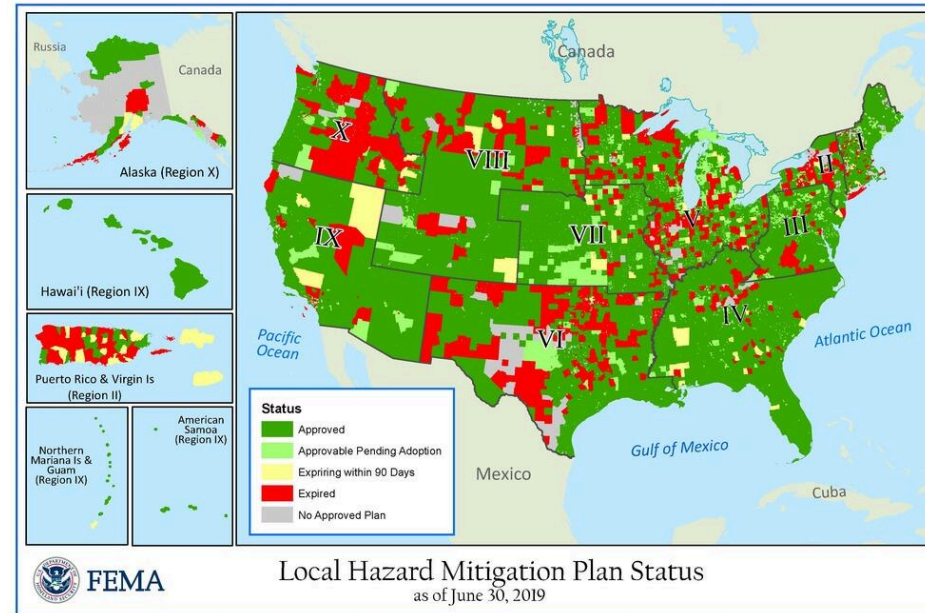
FEMA-approved Mitigation Plan Status

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

50 States, DC, and five territories

20,875 Local governments

217 Tribal governments



<https://www.fema.gov/hazard-mitigation-plan-status>

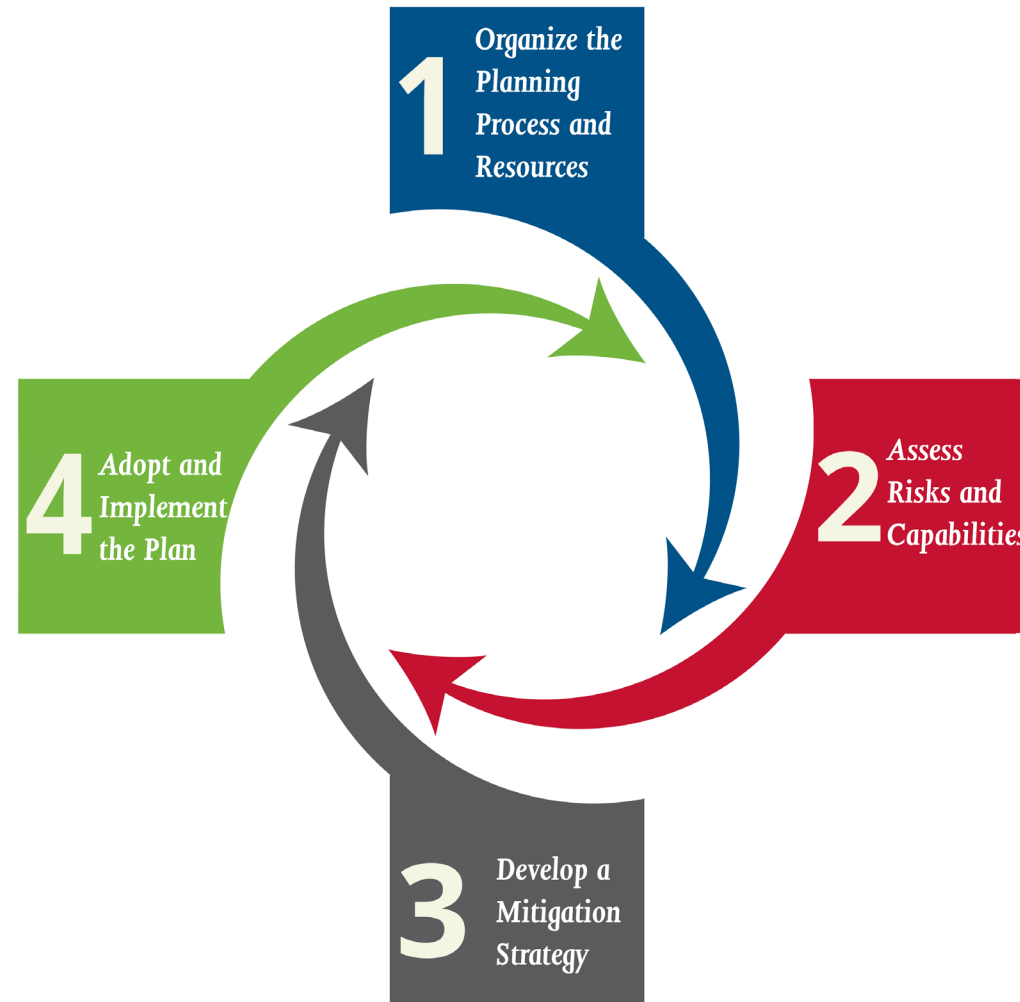
* FEMA-approved or approvable-pending-adoption

Integrating Mitigation into Community Planning

Hazard mitigation planning process lays the foundation for state, territorial, tribal and local governments to look critically at their other planning efforts and align them with **mitigation** concepts, principles and actions with the goal of building resilience.



How to Leverage and Advance Existing State and Local Mitigation Planning



Typical Steps to Conduct a Risk Assessment

1. Identify/Describe Hazards

- State and Local Hazard Mitigation Plans

2. Identify Assets

3. Analyze Risks

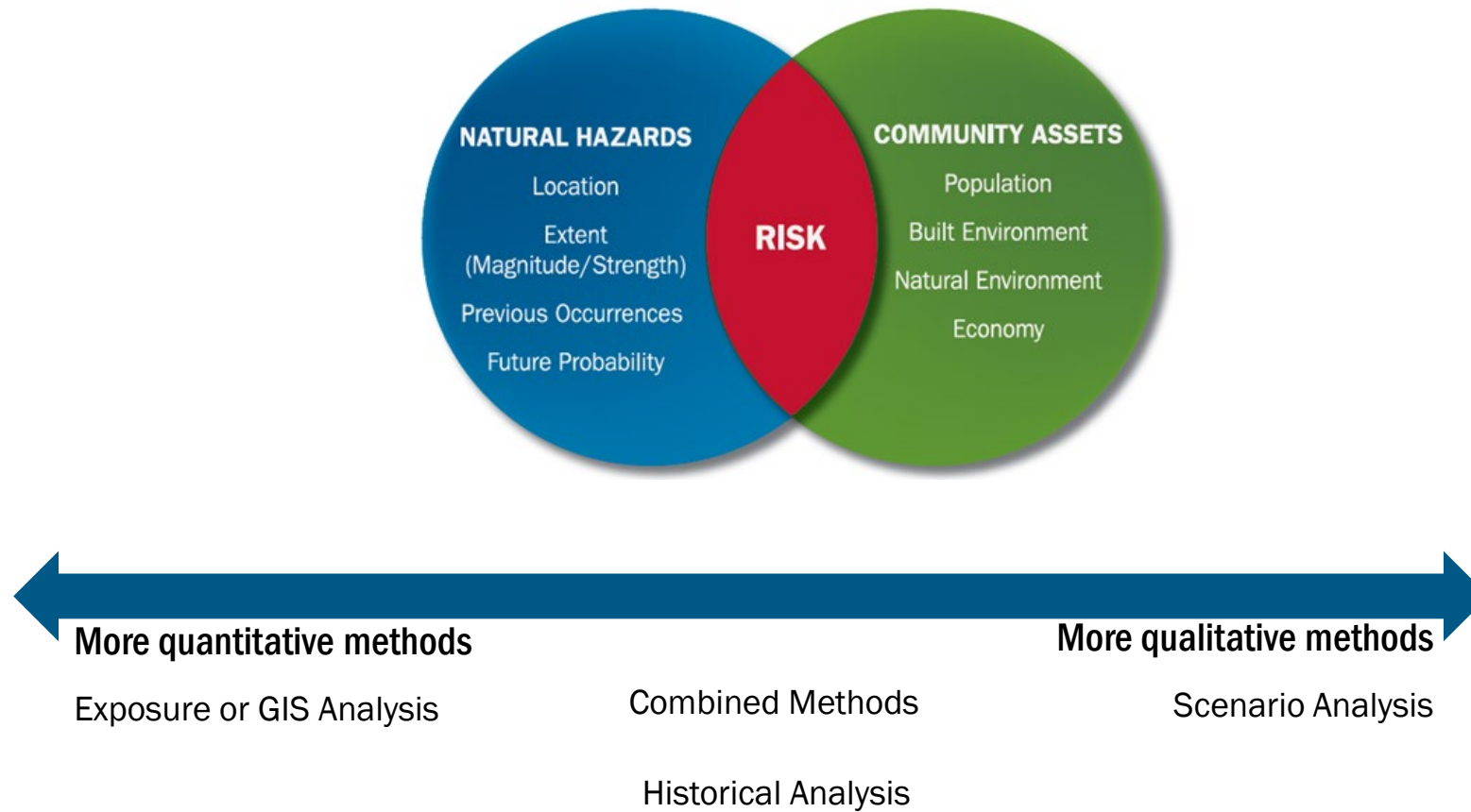
4. Summarize Vulnerability

State and Community Assets Considered

- State owned and leased buildings
- Natural environment
- Economy
- Population
- Built environment
 - Lifelines

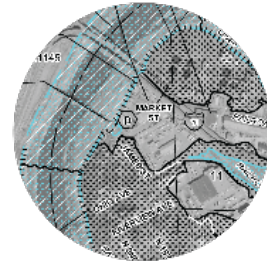


How Risk is Assessed



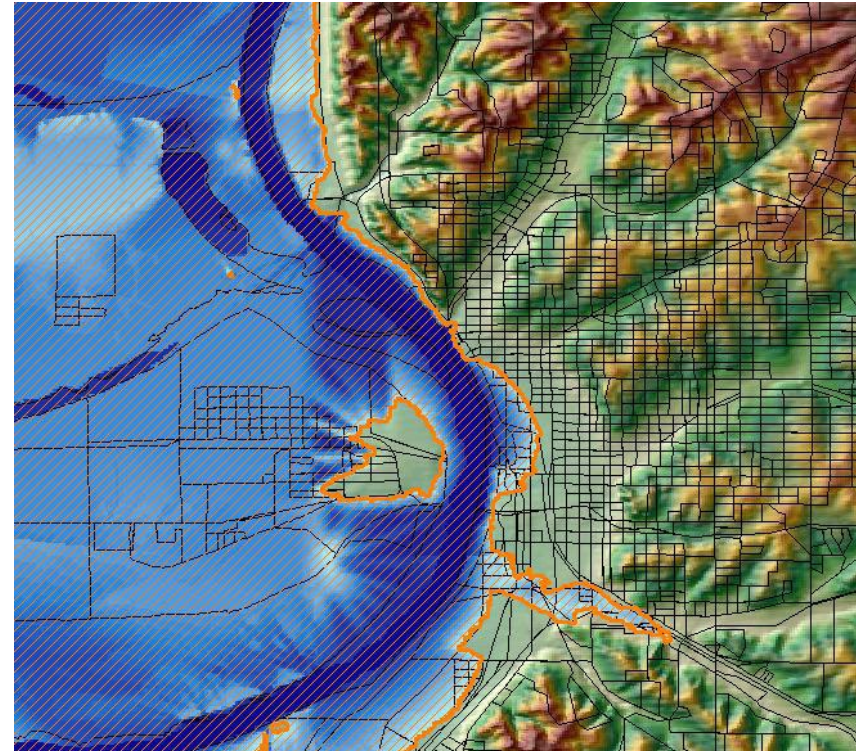
Risk Assessment Methodologies

- **Exposure/GIS Analysis** – hazards with geographic areas of known risk
- **Historical Analysis** – hazards with a repository of historical data
- **Scenario Analysis** – hazards with no defined pattern, geography, or historical record
- **Combination**



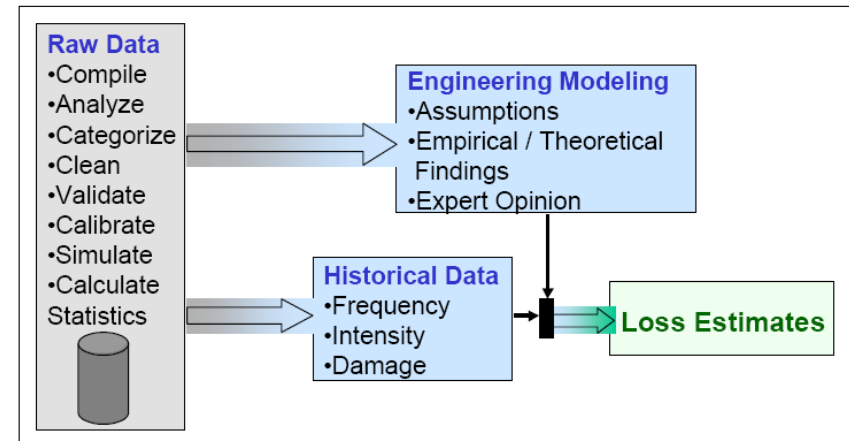
Exposure/GIS Analysis

- **Natural Flood-Related Hazards**
 - Riverine Flooding
 - Levee Failure
 - Dam Failure
- **Natural Geologic Hazards**
 - Earthquake
 - Land Subsidence / Sinkholes
- **Natural “Other” Hazard**
 - Wildfire



Historical Analysis

- **Natural Meteorological Hazards**
 - Drought
 - Extreme Temperature
 - Severe Thunderstorms
 - Severe Winter Weather
 - Tornadoes
- **Human-Caused / Technological**
 - Fires (Urban/Structural)



Used for hazards that occur often with a repository of historical data

Employs Analysis of previous events and locations/impacts/costs to determine potential future locations/impacts/costs

Scenario-Based Analysis

- **Tornado / Human-Caused / Technological Hazards**

- Tornado
- CBRNE Attack
- Civil Disorder
- Cyber Disruption
- Hazardous Materials
- Mass Transportation Accidents
- Nuclear Power Plants
- Public Health Emergencies / Environmental Issues
- Special Events
- Terrorism
- Utilities (Interruptions and System Failures)

- **Used for hazards that are low frequency, high consequence events**
- **Asks “what if” a particular event occurred.**

Combination

A good flood risk assessment will use a combination of:

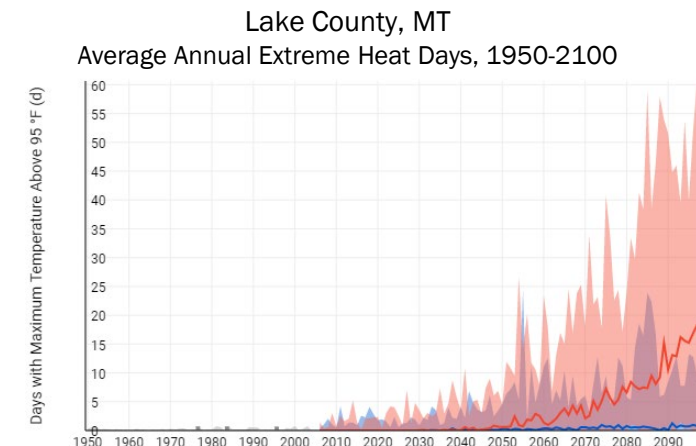
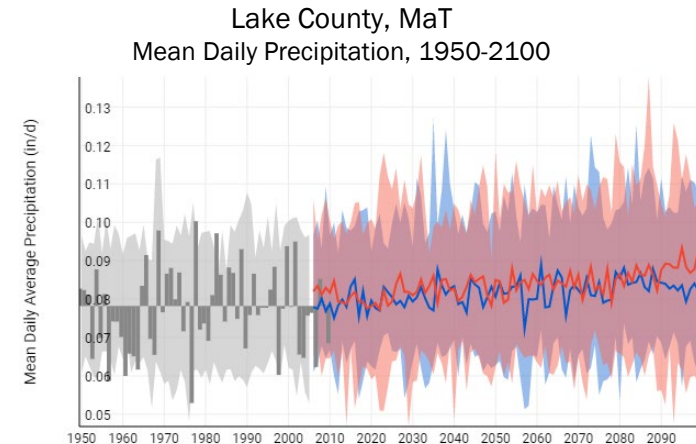
- Exposure/GIS Analysis Using Model-based Flood Risk Products
- Historical Analysis Using Statistics from Past Events



Photo credit: NDNR

A Note on Including Future Risk

- Risk is not static over time
- Risk assessments must include a description of future hazard probabilities
- Future climate and weather patterns:
 - MUST be included in State risk assessments
 - Are OPTIONAL for local risk assessments



Quantitative Risk Assessment Example

Repetitive Loss Properties : Scott County, Missouri

- Quantitative analysis of NFIP repetitive loss properties is required for local hazard mitigation plans.
- NFIP insured structure that has had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978.
- Can be used to inform quantitative assessment of Food, Water, Shelter Lifeline Component

Table 3.18. Scott County Repetitive Loss Properties

Jurisdiction	# of Properties Unmitigated	Type of Property	# Mitigated	Building Payments	Content Payments	Total Payments	Average Payment	# of Losses
Commerce	8	Residential	20	\$262,380	\$12,172	\$274,552	\$12,480	22
Miner	1	Residential		\$33,980	\$0	\$33,980	\$16,990	2
Scott City	5	Residential	1	\$127,325	\$13,753	\$141,078	\$10,852	13
Unincorporated Scott County	19	Residential	1	\$1,382,532	\$128,288	\$1,510,820	\$21,896	69

Source: Flood Insurance Administration as of 07/19/2018

Quantitative Risk Assessment Example: Commonwealth of Massachusetts

■ Hurricane





- Identifies risk zones
- Counts state facilities in risk zones
- Calculates total value of structures in each zone

Hurricane Risk	Number of State Facilities		Building Value at Risk*	
	Count in Risk	Cumulative Count	Value in Risk Zone	Cumulative Value
High	313	313	\$209,600,771	\$209,600,771
Medium-High	3,264	3,577	\$5,346,635,740	\$5,556,236,511
Medium-Low	7,204	10,781	\$14,529,961,903	\$20,086,198,414
Low	2,212	12,993	\$2,543,170,461	\$22,629,368,875
Total	12,993		\$22,629,368,875	
*Building value for all facilities not available				
Building values at risk is based on what was available from VAPS.				

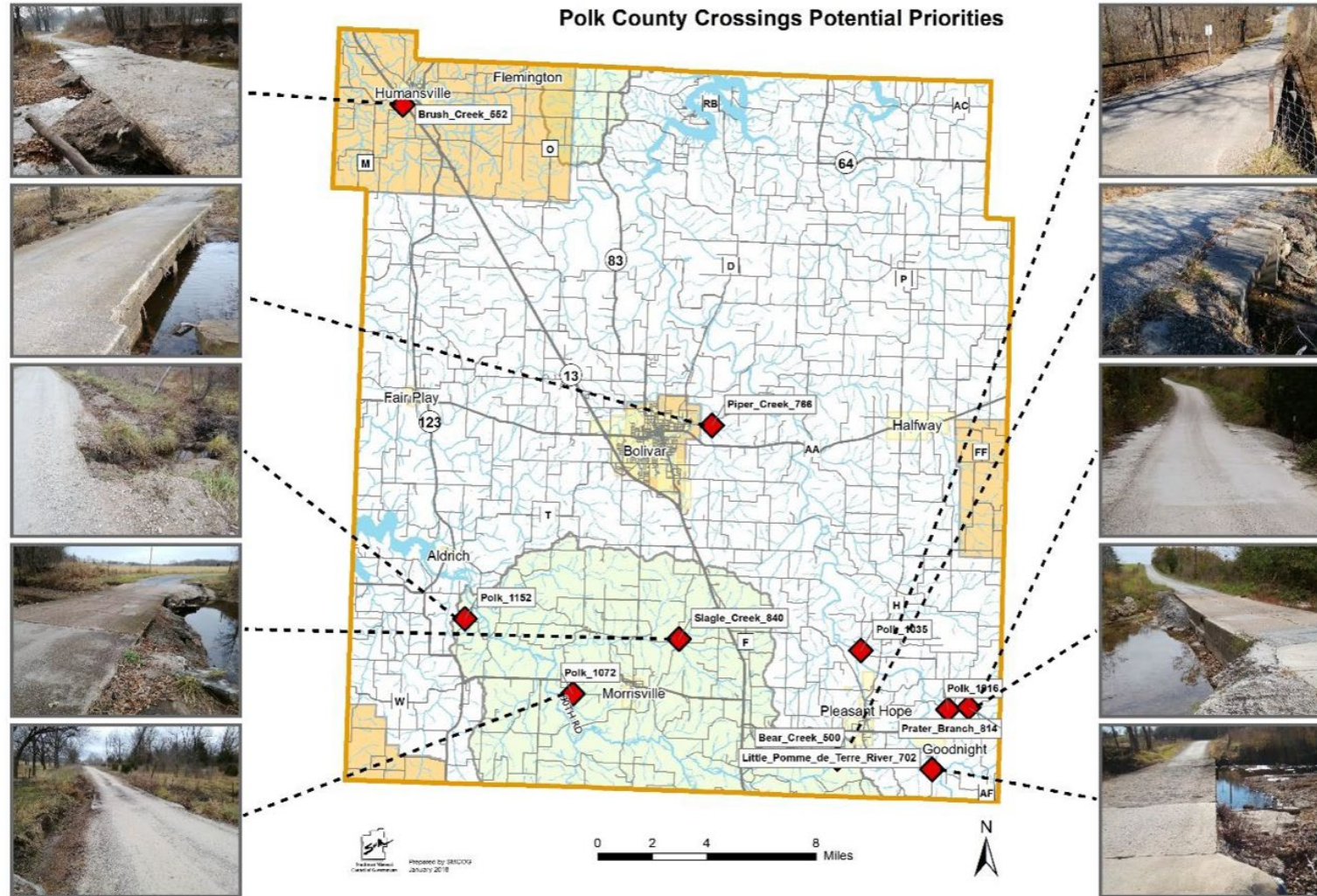
Vulnerability Summary → Problem Statement

- **Highlights most significant risks and vulnerabilities**
- **Informs the Mitigation Strategy**
- **Communicates findings to elected officials/stakeholders**
- **Presented as Problem Statements**
 - Problem statements are the “so what” of the vulnerability assessment.
 - They summarize how a hazard has or could impact a community and identify specific issues (PROBLEMS) that can be solved.
 - Basis for mitigation actions

Narrative Problem Statements: Commonwealth of Massachusetts

 Nor'easter	Although the entire Massachusetts coastline is exposed to nor'easters, east-facing areas, including the Salisbury Beach, Revere, Nahant, Scituate and Marshfield, as well as parts of the Cape and Nantucket, experience these events most strongly.
 Inland Flooding	Most existing stormwater conveyance infrastructure has not been adequately sized to accommodate projected rainfall conditions.
 Landslide	The highest prevalence of unstable slopes is found in area around Mount Greylock and the nearby portion of the Deerfield River, the US Highway 20 corridor near Chester, as well as the main branches of the Westfield River.
 Wildfire	According to the DCAMM facility inventory, 1,143 state-owned buildings are located in identified wildfire hazard areas. The highest concentration of these facilities occurs in Middlesex (185) and Worcester (157) Counties.

Visual Problem Statement: Polk County, Missouri



Developing Mitigation Actions

DEVELOP PROBLEM STATEMENT
from risk assessment

IDENTIFY SOLUTIONS
comprehensive range

**ANALYZE POTENTIAL
SOLUTIONS**

SELECT ACTIONS
*jurisdiction intends to
implement*

PRIORITIZE ACTIONS

**DEVELOP ACTION
PLAN**

INTEGRATE ACTIONS
into existing planning mechanisms

IMPLEMENT ACTIONS



Risk Assessment Informs Mitigation Needs in Four Broad Mitigation Categories

Local Plans and Regulations

- Update building codes
- Revise zoning ordinances
- Develop defensible space ordinances

Structure and Infrastructure Projects

- Improve drainage to reduce flood threat
- Integrate green and gray infrastructure
- Acquire-demolish or relocate structures in hazard-prone areas

Natural Systems Protection

- Erosion control
- Wetland restoration
- Riparian buffers

Education and Awareness

- Incentivize drought-tolerant landscaping
- Publish websites and maps
- Install historic high water markers

Mitigation Actions

Action	Hazard Addressed	Responsible Party(ies)	Potential Cost	Funding Sources	Timeline	Priority
Install larger culverts under Interstate 2 to improve waterflow downstream in the event of flooding.	Flooding	Department of Transportation	\$50,000	FEMA HMA Grant Programs	1–3 years	High
Join the Firewise Program.	Wildfire	Fire Department	Staff Time and Resources	General Funds	1–3 years	Medium
Require new housing and other facilities to use low-flow water fixtures.	Drought	Governing body	Staff Time and Resources	General Funds	3–5 years	Low
Use preventative measures to reduce potential for wildfires (goats, prescribed burns).	Wildfire	Fire Department	\$5,000	General Funds	3–5 years	Low

Structure and Infrastructure Mitigation

- **Mitigation for the Built Environment**
 - What structures/infrastructure has been damaged in the past?
 - What structures/infrastructure are in at-risk areas based on risk modeling?
- **What Structure/Infrastructure Mitigation can address problems associated with lifelines?**



Community Lifelines and Mitigation

Community Lifelines Defined

A lifeline enables the continuous operation of **critical** government and business functions and is essential to human health and safety or economic security.



- Lifelines are the most fundamental services in the community that when stabilized enable all other aspects of society
- Lifelines exist during steady-state and are normally provided by sources organic to the community.
- When disrupted, decisive intervention (e.g., rapid service re-establishment or employment of contingency response solutions) is required.

Incident Stabilization

The lifeline construct is used to focus response actions on incident stabilization; thus the expected objective is to stabilize all lifelines

- **Stabilization** occurs when basic lifeline services are provided to survivors
 - Stabilization may occur either by re-establishing lifeline services in a community through emergency repairs, or through the employment of contingency response solutions
 - Employment and sustainment of contingency response solutions may be necessary to stabilize lifelines until temporary fixes to infrastructure are completed. Lifeline stabilization may require sustained resources and continuous evaluation
- A stabilization target—the desired end-state of response—for each lifeline is created during the deliberate planning process and modified on a per-incident basis to match incident circumstances
- The target should be created collaboratively with key stakeholders

EXAMPLE

An incident destroys the cell towers in an area disrupting communications.

- Stabilization occurs when cell service is provided through contingency response solutions (e.g., Cell on Wheels) and re-establishment occurs when fixed cell towers are operational.

Community Lifeline Components



Multiple components and subcomponents establish the parameters of the lifeline; component-level assessment is required to determine the condition of each lifeline.

1. Safety and Security

- Law Enforcement/Security
- Fire Service
- Search and Rescue
- Government Service
- Community Safety

2. Food, Water, Shelter

- Food
- Water
- Shelter
- Agriculture

3. Health and Medical

- Medical Care
- Patient Movement
- Public Health
- Fatality Management
- Medical Supply Chain

4. Energy

- Power (Grid)
- Fuel

5. Communications

- Infrastructure
- Alerts, Warnings, Messages
- 911 and Dispatch
- Responder Communications
- Finance

6. Transportation

- Highway/Roadway Motor Vehicle
- Mass Transit
- Railway
- Aviation
- Maritime

7. Hazardous Material

- Facilities
- HAZMAT, Pollutants, Contaminants

ASSESSMENT

Status

“What?”

Impact

“So What?”

Actions

“Now What?”

Limiting Factors

“What’s the Gap?”

ETA to Green

“When?”

Community Lifeline Continued

Community Lifelines

 lifelines@fema.dhs.gov

 fema.gov/media-library/assets/documents/177222

Definition

A lifeline enables the continuous operation of **critical business and government functions** and is essential to **human health** and safety or **economic security**.

Purpose

Root Cause Analysis

Interdependencies

Prioritization

Ease of Communication

Assessing

Status → What?

Impact → So What?

Actions → Now What?

Limiting Factors → What's the Gap?

Stabilization

Occurs when basic lifeline services or capabilities are provided to survivors (may be temporary solutions requiring sustainment).

COMPONENTS of Lifelines



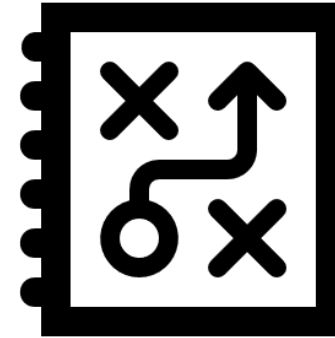
CONDITION	COLOR CODE LEGEND
Grey	Indicates the extent of disruption and impacts to Lifeline services is unknown (Unknown)
Red	Indicates Lifeline services disrupted and no solution identified (Unstable, no solution in progress)
Yellow	Indicates Lifeline services disrupted but solution in progress with estimated time to stabilization identified (Unstable, solution in progress)
Green	Indicates Lifeline services are stabilized, re-established, or not impacted (Stable)

Why mitigate risks to lifelines?

Mitigating risks to lifelines before, during, and after disasters may result in **less devastation**, and response and recovery efforts may be **faster and more effective**.

What is a lifelines mitigation project?

1. Requires deliberate planning.
2. Considers the cascading impacts of the project.
3. Impacts a significant portion of a community.



Building Resilient Lifelines: Example 1



Public Assistance 406 Hazard Mitigation at work at NYU



After Hurricane Sandy caused extensive flooding and the loss of millions of dollars in patient resources and research, New York University's Langone Medical Center developed a plan to prevent future, similar damage.

The Center not only utilized FEMA's **Public Assistance program** to repair the facility, it also took advantage of additional **406 hazard mitigation funding** to recover resiliently.

Some of the resulting projects included:



Constructing a **flood barrier** to shield campus buildings



Funding a **cogeneration plant** to protect the power supply, ensuring uninterrupted medical treatment and research



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Building Resilient Lifelines: Example 2

USVI

Public Assistance
406 Hazard Mitigation
Will Save \$2.3 Billion in Future
Disaster-Related Losses



Following several historic hurricanes, the U.S. Virgin Islands used FEMA's Public Assistance Program (Robert T. Stafford Act, Section 406) for mitigation funding to protect their facilities from future, similar damage while repairing them.

Currently, the USVI has spent more money on hazard mitigation than on permanent disaster repairs.

In fact, for every **\$1** the islands spend on repairs...

They expend **\$1.1** on Public Assistance 406 Hazard Mitigation

This will help build safer, stronger communities and save future disaster-related losses of **\$2.3B**



FEMA

Completed mitigation projects include...



Installing underground electrical lines



Strengthening flood-prone roads



Installing impact-resistant roofs

Building Resilient Lifelines: Example 3

PROJECT SPOTLIGHT:

Gas Shut-Off Valves Protect Critical Facilities in Anchorage, Alaska

Alaska is one of the most seismically active regions in the world.

This could put critical facilities, such as hospitals, at risk if natural gas enters buildings as the result of seismic activity.

In the past
5
years . . .

Alaska has experienced
150,000
earthquakes



DENAINA CIVIC AND CONVENTION CENTER, ANCHORAGE, ALASKA

In 2009, the city of Anchorage mitigated this risk by applying for grants through the Pre-Disaster Mitigation and Hazard Mitigation Grant Programs. These grants helped fund the installation of seismic gas shut-off valves in 117 public buildings.



The valves, which sense shaking and respond by stopping gas flow, protected more than 297,000 residents during a 7.1 magnitude earthquake on November 30, 2018.



FEMA

Resources

- **Hazard Mitigation Planning**, <https://www.fema.gov/hazard-mitigation-planning-resources>
 - [Mitigation Planning Program Resource List](#)
 - [State Mitigation Planning Key Topics Bulletins](#)
 - [Local Mitigation Planning Handbook](#)
 - [Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards](#)
 - [Plan Integration: Linking Local Planning Efforts](#)
 - [Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials](#)
- **Community Lifelines** [Implementation Toolkit](#)
- **American Planning Association**
 - [Hazard Mitigation: Integrating Best Practices into Planning \(PAS 560\)](#)
 - [Planning for Post Disaster Recovery - Next Generation \(PAS 576\)](#)
 - [Subdivision Design and Flood Hazard Areas \(PAS 584\)](#)



Thank You



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Mitigation Needs Assessment



Mitigation Needs Assessment Requirements

- The Mitigation Needs Assessment must:
 - Incorporate quantitative assessments.
 - Identify and analyze all significant current and future disaster risks and provide a substantive basis for the activities proposed.
- Grantees must assess their mitigation needs in a manner that effectively addresses risks through the community lifelines, ensuring critical areas are more resilient and can reliably function during future disasters. This doesn't mean all projects must be "lifeline projects" just that the needs assessment should be organized in a way that addresses risks to those critical areas.



Mitigation Needs Assessment Requirements

- Risks identified in the FEMA approved HMP are the starting point for a Mitigation Needs Assessment. Grantees must cite data sources, including risks identified in the current HMP.
- However, a grantee may identify additional risks that are not included in its jurisdiction's HMP.
- Grantees must organize the risks in a way that addresses the community lifelines – step beyond a jurisdiction's HMP.
- In responding to this action plan requirement and presenting the required information, grantees must review and certify to HUD that they have considered, the resources listed on slide 55 and 56, as appropriate.



CDBG-MIT Coordination

- In the action plan, grantees must:
 - Coordinate and align CDBG-MIT funds with other mitigation projects, and other agencies as appropriate.
 - Describe how they have coordinated and will continue to coordinate with other partners.
 - Demonstrate the connections between the Mitigation Needs Assessment and each activity's total funding.



Low-and-Moderate Income

- Prioritize mitigation programs and projects that protect low-and-moderate income (LMI) individuals in order to meet the overall benefit requirement
- Waived to 50% for CDBG-MIT



Most Impacted and Distressed Areas

- **50%** of all CDBG-MIT funds must be used to address identified risks within the HUD-identified MID areas.
- HUD may approve a grantee's request to add other areas to the based-on data-driven analysis.
 - Grantees who amend the HUD-identified MID areas for CDBG-MIT grant must also amend the HUD-identified MID areas for its corresponding 2015, 2016, or 2017 CDBG-DR grant.



Most Impacted and Distressed Areas

- Grantees may determine where to use the remaining 50% of the CDBG-MIT grant.
- The grant must be used for mitigation activities that address risks within those areas by disasters corresponding to 2015, 2016, or 2017 CDBG-DR grant.



Upcoming Webinars



CDBG-MIT Webinar Series

- Thursday, October 10 at 3:00: Mitigation Needs Assessment w/FEMA and HUD
- Wednesday, October 30 at 3:00: Public Participation & Citizen Advisory Groups – Requirements and Best Practices for MIT
- Thursday, November 7 at 3:00: Buyouts for CDBG-DR and CDBG-MIT
- Thursday, November 14 at 3:00: FEMA BCA Toolkit Demo w/FEMA
- Wednesday, November 20 at 3:00: Best Practices for transformative Mitigation Projects



Resources



- 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>;



- U.S. Forest Service's resources on wildland fire (<https://www.fs.fed.us/managing-land/fire>);
- National Interagency Coordination Center (NICC) which is the focal point for coordinating the mobilization of resources for wildland fire: <https://www.nifc.gov/nicc/>.
- 2019 HUD DOB Webinar: <https://www.hudexchange.info/trainings/courses/duplication-of-benefits-webinar-2019/2970/>



Questions?



Contact Information

- Questions and information requests can be sent to: CDBGMIT@hud.gov

