



Hazard Mitigation

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What is Mitigation?

According to the Federal Emergency Management Agency (FEMA):

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



Photo from Kinnickinnic County



Photo from Soldiers Grove, WI



Break the Cycle




Why Do We Mitigate?




- Disasters are costly to society
- State and Federal aid insufficient
- Mitigate to prevent future damages
- Lessen impact and speed response and recovery
- Mitigation happens at the local level



Why Do We Mitigate?

Nationwide Trends

- \$140 Billion in the last 25 years in responding to disasters
- \$6 Billion per year in flood damages
- Costs continue to rise
- People continue to build and live in high-risk areas





Why Do We Mitigate?

In Wisconsin

- \$3 billion in Disaster-related damages last 3 decades
- 12 Federal Disaster Declarations in the 90's compared to 6 in the 80's
- 2000, 2001, two in 2002, 2004, 2007, 2008, two in 2010, 2011, 2012
- 2 snow emergencies (2000 and 2008)




WEM Hazard Mitigation

- Over **\$110 million** in last 21 years through HMGP/FMA/PDM
- Acquisition and Demolition
- Floodproofing and Elevation
- Relocation
- Wind Retrofit
- Safe Rooms
- River Gauges
- NOAA Weather Radios
- Mitigation of Utilities
- Education
- Structural (detention ponds, stormwater management, etc.)
- All-Hazard Mitigation Plans

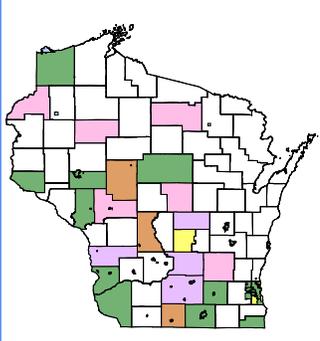


HMGP Project Highlights

Projects funded with HMGP Funding DR-874 (1990) to DR-1944 (2010)

Participating Jurisdictions Type of Project

- Acquisition (74 projects)
- Education (2 projects)
- Other (11 projects)
- Radios (7 projects)
- Safe Rooms (7 projects)
- Storm Sewer/Detention (12 projects)



HMGP Project Highlights

Total HMGP Funding by Project Type (DR-874 to DR-1944)

Project Type	Funding
Storm Sewer	\$3,942,833.00
Safe Room	\$1,462,679.00
Radios	\$176,896.00
Other	\$1,825,916.00
Education	\$74,668.00
Acquisition	\$71,291,965.00

- 653 properties acquired
- 42 structures floodproofed and/or retrofit
- 23 structures elevated
- 1 structure relocated

Value of Mitigation



Gays Mills, WI

For every \$1 spent on mitigation, \$4 is saved in future damages.
(Per the National Institute of Building Sciences -2005)

Examples of Mitigation



Acquisition/Demolition



Communities acquire land, demolish structures and keep the land in open space designation

Images from Darlington, WI

Elevation



Elevation raises a structure out of the floodplain. Wisconsin has specific regulations to follow with elevation projects. See DNR for more information.

Image from Soldiers Grove, WI

Floodwall



Floodwalls can prevent water from inundating structures that cannot be elevated, relocated, or demolished.

Image from Darlington, WI

Community Safe Room



Community Safe Rooms built to FEMA-361 standards can withstand winds up to 250 MPH

Image from Town of Dunn, WI

Stormwater Detention



Detention ponds can store storm water runoff, decreasing flash flooding in urban areas.

Image from MMSD Stormwater Detention Project (Wauwatosa, WI)

Stormwater Systems



Stream restoration allows watersheds to better manage flooding

Image from Theinsville, WI

River Warning Systems

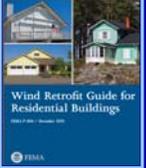


River warning systems installed on conservation dams to warn county officials about expected dam breaching.

Images from Vernon County

Other Projects






- Raise appliances and utilities
- Install back-flow valves
- Retrofit for wind resistance
- Education and Public Awareness
- INSURANCE (flood and sewer)
- Land use planning

Benefits of Mitigation

- Protect the health/safety of citizens
- Preserve or expand tax base
- Attract or retain business/industry
- Revitalize a depressed area




Benefits of Mitigation

- Enhance recreation and tourism
 - Parks
 - Trails
- Increase Community Pride & improve quality of life
- Save Tax Dollars




Mitigation Planning





Disaster Mitigation Act of 2000

- Public Law 106-390 signed into law 10/30/00
- Establishes a national disaster hazard mitigation program
 - Section 203: Pre-Disaster Mitigation Program
 - Section 322: Mitigation Planning Requirement




Vision of DMA 2000

- To reduce disaster losses through pre-disaster mitigation planning to identify cost-effective mitigation.
- Mitigation planning as a tool to streamline and speed up recovery process



Mitigation Planning



- Describe actions to mitigate hazards, risks, and vulnerabilities
- Establish strategy to implement those actions
- Pre-identify projects taking a comprehensive, integrated approach to hazard reduction

Local Planning Options

- Stand alone plan
- Countywide, multi-jurisdictional, watershed, regional
- Integrate into other planning mechanisms– i.e. Comprehensive Plans




Local/Tribal Mitigation Plan Criteria

- Local Planning – 44 CFR Part 201.6
- Tribal Planning – 44 CFR Part 201.7
- Components
 - Planning Process
 - Risk Assessment
 - Mitigation Strategy
 - Plan Maintenance Process
 - Plan Adoption
 - Plan Review

The Planning Process

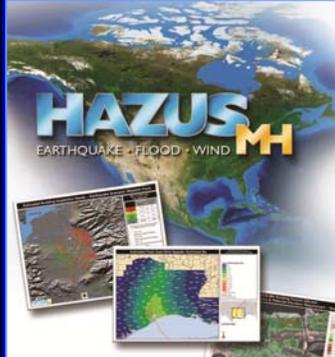
- Describes and documents the planning process (who, what, when)
- Review existing plans, studies, and laws
- Engage the public
- Basic demographics
- Description of land uses and development trends

Risk Assessment

- Description, location, and extent of hazards
- Past events
- Probability of future events
- Type and number of structures at risk
- Potential losses
- Potential impacts




HAZUS-MH



- FEMA's standardized risk assessment methodology to estimate potential losses from flood, wind, and earthquake hazards
- GIS-based software
 - Interfaces with ESRI
- Free to download
- Version 2.1 (2012)
 - Updated damage/loss functions
 - Hazard-specific data updated

HAZUS-MH WI Risk Assessment

- Results were a 100-year flood analysis for each county
- Data estimates are derived from census data incorporated into HAZUS

Upper Fox River HAZUS-MH Risk Assessment

County	Population	# Damaged Buildings	Total Building Exposure (\$1,000)	Total Economic Loss (\$1000)	Building Loss (\$1000)	Short Term Shelter (# People)
Kenosha	149,577	374	\$12,467,944	\$250,736	\$93,902	3,740
Racine	188,831	501	\$15,693,961	\$238,307	\$106,819	5,924
Walworth	93,759	285	\$9,304,295	\$232,517	\$120,010	1,053
Waukesha	360,767	1,154	\$35,955,764	\$739,778	\$291,616	13,042
TOTAL	792,934	2,314	73,421,964	1,461,338	612,347	23,759

Mitigation Goals and Strategies

- Long-term goals
- Objectives
- Mitigation actions (measures) and projects that will reduce risk for each identified hazard
- Action plan for implementing the identified actions



Plan Review, Maintenance and Adoption

- Monitoring, evaluation, and updating the plan every 5 years
- Incorporation into existing planning mechanisms
- Continued public participation
- Plan adoption
- Plan is reviewed by the State, certified, and sent to FEMA for approval.

Planning Deadlines

- Must have an approved All Hazards Mitigation Plan to receive PDM, HMGP, FMA, SRL (exception RFC)
- Local Plans have to be reviewed, updated, and re-approved every 5 years

Plan Update Requirements

- Review recommended revisions from the review of the approved plan
- Follow Plan Maintenance Section of the approved plan; if different document the new process
- Evaluate, review, analyze and update each section of the plan
- Follow federal and state guidance
- Address any data deficiencies identified in the first plan

Plan Updates

- Should allow one year to 18 months for update
- Plan expires on 5 years from approval date



Vernon County, WI

Hazard Mitigation Planning in WI



Tribal Plans:
 Forest County Potawatomi - Approved
 Ho Chunk - Approved, Updating
 Menominee Nation - Expired, Updating
 Oneida - Approved
 St. Croix Chippewa - Approved
 Stockbridge-Munsee - Approved

University Plans:
 University of Wisconsin-Madison - New Plan
 University of Wisconsin-River Falls - Approved

Single Jurisdiction Plans:
 Village of Avoca, Iowa County - Approved
 City of Crandon, Forest County - Expired, Meets Requirements
 City of Darling, Lafayette County - Approved
 City of Eau Claire, Eau Claire County - Expired, Updating
 City of Milwaukee, Milwaukee County - Approved
 City of Sheboygan, Sheboygan County - Approved
 City of Superior, Douglas County - Approved

Legend
 Counties With Approved Plans
 Counties With No Approved Plan
 Counties With No Plan, Not Active in Planning Process
 Counties With an Expired Plan
 Counties Active in Planning or Updating Process
 Counties with Plans that Meet Requirements

Plan Status in the Upper Fox Watershed

- Waukesha County (EPTEC, Inc.)
 - Plan approved 3/15/2011
 - Plan expires 3/15/2016
- Walworth County (Civi Tek)
 - Plan approved 7/7/2009
 - Plan expires 7/7/2014
 - Planning grant approved under FEMA-1944-DR-WI
- Racine County (SEWRPC)
 - Plan approved 11/30/2010
 - Plan expires 11/30/2015
- Kenosha County (SEWRPC)
 - Plan approved 6/30/2011
 - Plan expires 6/30/2016

Public Assistance Program

Incorporate cost-effective mitigation measures when repairing damaged public facilities.




Black River Falls, WI

Unified Hazard Mitigation Assistance Program

- Hazard Mitigation Grant Program
- Pre-Disaster Mitigation Program
- Flood Mitigation Assistance Program
- Repetitive Flood Claims Program
- Severe Repetitive Loss Program

Eligible Sub-Applicants

Entity	Program Name				
	HAZARD MITIGATION GRANT PROGRAM	PRE-DISASTER MITIGATION	FLOOD MITIGATION ASSISTANCE	REPETITIVE FLOOD CLAIMS	SEVERE REPETITIVE LOSS
State Agencies	✓	✓	✓	✓	✓
Tribal Governments	✓	✓	✓	✓	✓
Local Governments	✓	✓	✓	✓	✓
Private Non-Profit Organizations (PNPs)	✓				

Cost Sharing

Programs	Mitigation Activity Grant (Percent of Federal/Non-Federal Share)	Management Costs (Percent of Federal/Non-Federal Share)	
		Grantee	Sub-Grantee
HMGP	75/25	100/0	-/-*
PDM	75/25	75/25	75/25
PDM – Sub-grantee is a small impoverished community	90/10	75/25	90/10
PDM – Tribal grantee is small impoverished community	90/10	90/10	90/10
FMA	75/25	75/25	75/25
FMA – severe repetitive loss property with Repetitive Loss Strategy	90/10	90/10	90/10
RFC	100/0	100/0	100/0
SRL	75/25	75/25	75/25
SRL – with Repetitive Loss Strategy	90/10	90/10	90/10

Funding Availability

Hazard Mitigation Grant Program

- Post-Disaster
- 15% (20% with Enhanced Plan) of the total federal funds allocated for Public and Individual Assistance Programs for each disaster

Funding Availability (Continued)

Pre-Disaster Mitigation Program

- State base amount of \$575,000
- Annual, national competition
- Subgrants projects capped at \$3 million federal share; Planning \$800,000 million for new plan, \$400,000 plan update
- Program reauthorized through 9/30/13

Funding Availability (Continued)

Flood Mitigation Assistance Program

- Annual allocation (approx. \$250,000)
- # of flood insurance policies and repetitive loss properties in the state
- Flood Mitigation only
- Mitigation to NFIP insured structures

Funding Availability (Continued)

Repetitive Flood Claims Program

- Mitigation to NFIP insured structures
- At least one paid flood insurance claim
- Flood Mitigation Only
- No plan requirement
- Inability to manage sub-grant or lack of 25% match
- National Competition

Funding Availability (Continued)

Severe Repetitive Loss Program

- Mitigation to NFIP insured structures
- Flood mitigation only
- At least 4 NFIP claim payments over \$5,000 each, and cumulative exceeds \$20,000; or 2 payments exceeds the value of the structure
- Allocations for target states; otherwise competition
- 11 properties (4 validated) in WI
 - 3 mitigated
 - 1 included in a pending application
 - 1 cannot locate

Eligible Projects

Eligible Activities					
	HAZARD MITIGATION	FLOOD MITIGATION	FLOOD RESISTANCE	FLOOD CLAIMS	SEVERE REPETITIVE LOSS
Mitigation Projects	√	√	√	√	√
Property Acquisition & Structure Demolition	√	√	√	√	√
Property Acquisition & Structure Relocation	√	√	√	√	√
Structure Elevation	√	√	√	√	√
Mitigation Reconstruction					√
Dry Floodproofing of Historic Residential Structures	√	√	√	√	√
Dry Floodproofing of Non-Residential Structures	√	√	√	√	√
Minor Localized Flood Reduction Projects	√	√	√	√	√
Structural Retrofitting of Existing Buildings	√	√			

Eligible Projects (Continued)

Eligible Activities					
	HAZARD MITIGATION	FLOOD MITIGATION	FLOOD RESISTANCE	FLOOD CLAIMS	SEVERE REPETITIVE LOSS
Mitigation Projects (Continued)	√	√	√	√	√
Non-Structural Retrofitting of Existing Bld. & Facilities	√	√			
Safe Room Construction	√	√			
Infrastructure Retrofit	√	√			
Soil Stabilization	√	√			
Wildfire Mitigation	√	√			
Post-Disaster Code Enforcement	√				
5% Initiative Projects	√				
Hazard Mitigation Planning	√	√	√		
Management Costs	√	√	√	√	√

Requirements

- Participating in the NFIP and in good standing
- Cost-Beneficial
- Environmentally Sound
- Considered other alternatives
- Best alternative
- Independently solve the problem
- Plan requirement (except RFC)



Requirements

- HMA applications (PDM, FMA, RFC, and SRL) have to be submitted via FEMA's eGrants system



Mitigation Program Priorities

- Substantially Damaged Properties
- Severe Repetitive Loss and Repetitive Loss Properties
- Approximately 467 RL properties identified in Wisconsin among 97 communities
- 4 validated SRL properties
- Mitigated approximately 112 repetitive loss properties and 1 SRL



Process

- Mitigation Planning is the tool to identify feasible and cost-effective mitigation measures
- Identify mitigation early in process, i.e., beginning with the PDA
- Work with State Mitigation Staff
- Work with DNR Floodplain Management staff on NFIP compliance
- Identify any environmental or historical issues or concerns that could delay or impact the project



Process (Continued)

- Gather data for project development and for the benefit-cost analysis
- Work with property owners
- Document alternatives
- Attend State briefings
- Review and follow federal and state guidance
- Adhere to deadlines for submitting applications
- The sooner WEM gets the application, the sooner they can process it



Racine County

- HMGP: \$2,029,037.80 (State & Federal)
- PDM:
 - PDM08 Racine County Hazard Mitigation Plan
- FMA: N/A



Walworth County

- HMGP: \$2,406,561.98 (State & Federal)
- PDM:
 - PDM07: Walworth County Plan
- FMA: N/A



Waukesha County

- HMGP: \$10,758,000.86 (State & Federal)
- PDM:
 - PDM07 Waukesha County Plan
- FMA: N/A



Kenosha County

- HMGP: \$7,526,464.11 (State & Federal)
- PDM:
 - PDM03: Acquisition and Demolition
- FMA:
 - FMA07: Project



Questions?



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WEM Hazard Mitigation Planning:
<http://emergencymanagement.wi.gov/mitigation/planning.asp>

FEMA Hazard Mitigation Assistance:
<http://www.fema.gov/hazard-mitigation-assistance>