

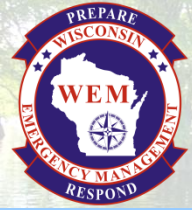


Why Plan?

Roxanne Gray
State Hazard Mitigation Officer

Milwaukee River Watershed Discovery
May 16, 2013





What is Mitigation?

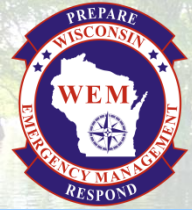
“Mitigation is any sustained action taken to eliminate or reduce the long-term risk to human life and property from natural and technological hazards”



Photo from Kenosha County

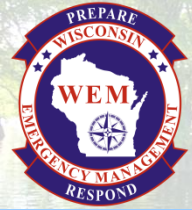


Photo from Soldiers Grove, WI

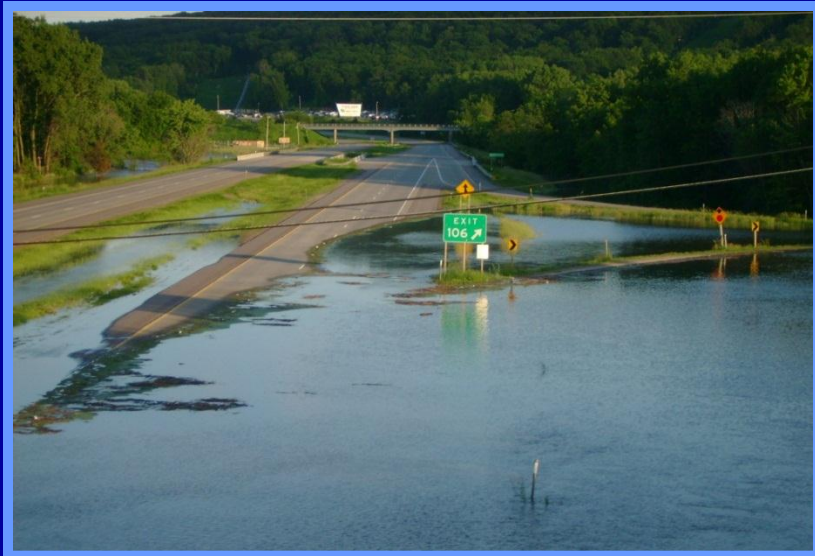


Break the Cycle



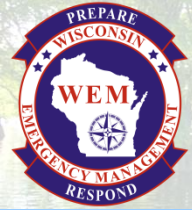


Why Do We Mitigate?



In Wisconsin

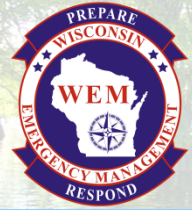
- \$3 billion in Disaster-related damages last 3 decades
- 12 Federal Disaster Declarations in the 90's compared to 6 in the 80's
- 2000, 2001, two in 2002, 2004, 2007, 2008, two in 2010, 2011, 2012
- 2 snow emergencies (2000 and 2008)



WEM Hazard Mitigation

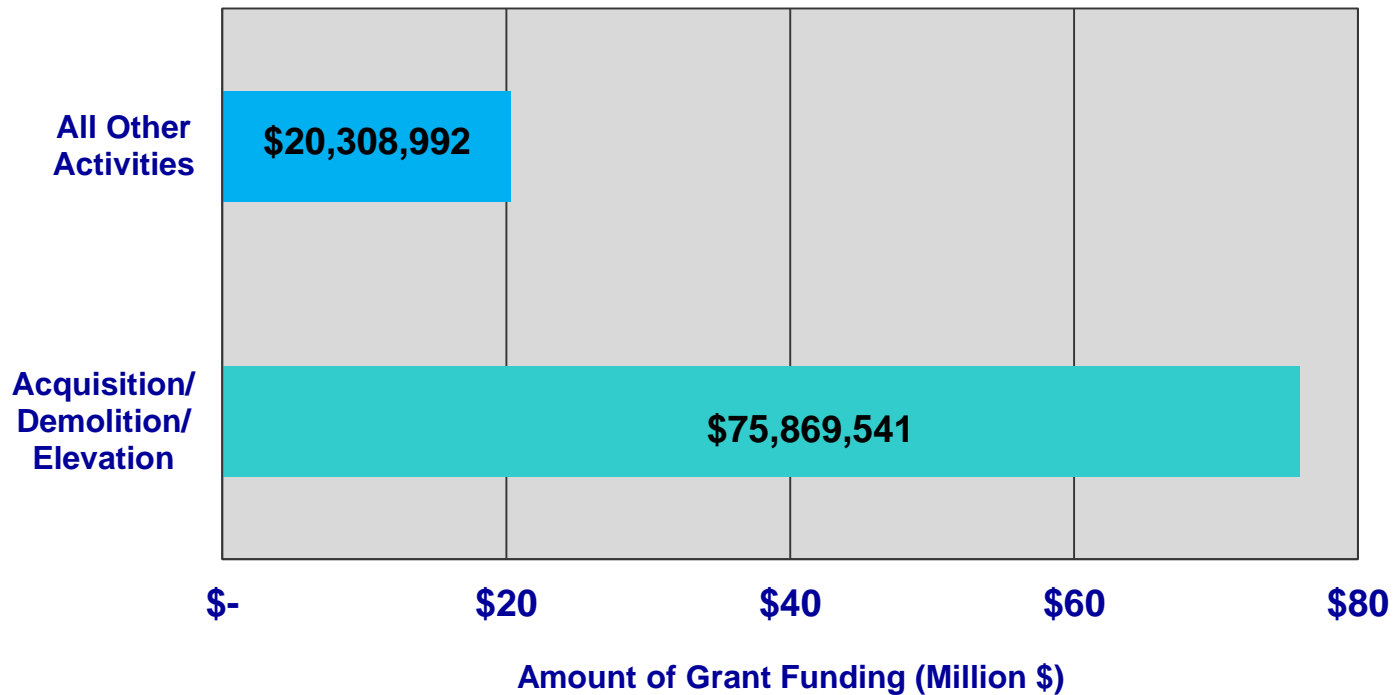
- Over **\$110 million** in last 21 years through HMGP/FMA/PDM
- Acquisition and Demolition
- Floodproofing and elevation
- Relocation
- Wind Retrofit
- Safe Rooms
- River Gauges
- NOAA Weather Radios
- Mitigation of utilities
- Education
- Structural (detention ponds, stormwater management, etc.)
-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



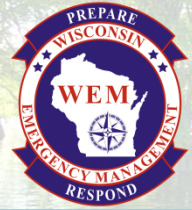


HMA Project Highlights

WEM Grants Management by Activity (1990-2012)



- 698 property acquisitions
- 43 structures floodproofed and/or retrofit
- 25 structures elevated
- 1 structure relocated

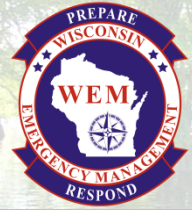


Value of Mitigation



For every **\$1 spent** on mitigation,
\$4 is saved in future damages.

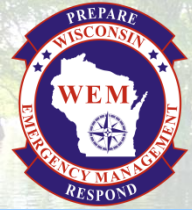
(Per the National Institute of Building Sciences -2005)



Loss Avoidance

Evaluating Losses Avoided through Acquisition Projects, October 2010

- City of Wauwatosa
 - Actual event data and losses avoided
 - Project Cost: \$716,837
 - Losses Avoided: \$1,059,101
 - ROI: 148%



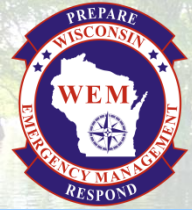
Loss Avoidance

- City of Milwaukee, Villages of Oak Creek and Brown Deer
 - HAZUS modeling and are based on a one-time, 100-year flood event
 - Project Costs: \$2,237,562
 - Losses Avoided: \$1,096,412
 - ROI: 49%
 - ROI will increase with subsequent events



Examples of Mitigation



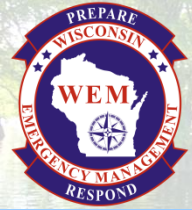


Acquisition/Demolition



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

Images from Darlington, WI

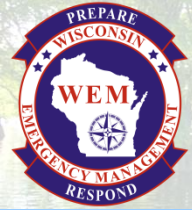


Elevation



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

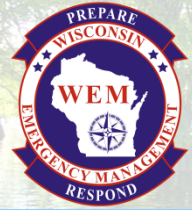


Floodwall



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

Image from Darlington, WI

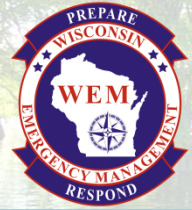


Community Safe Room



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

Image from Town of Dunn, WI

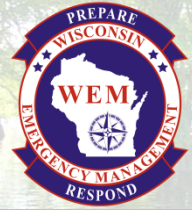


Stormwater Detention



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

Image from MMSD Stormwater Detention Project (Wauwatosa, WI)

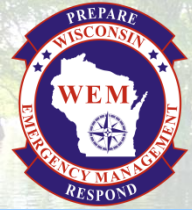


Stormwater



Stream restoration allows watersheds to better manage flooding

Image from Thiensville, WI

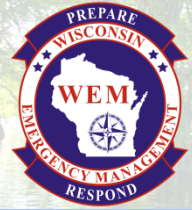


River Warning Systems

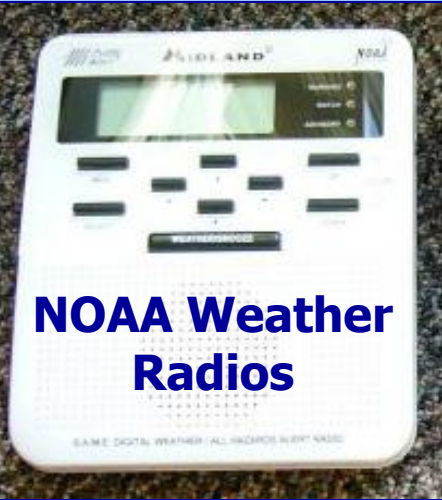


River warning systems installed on conservation dams to warn county officials about expected dam breaching.

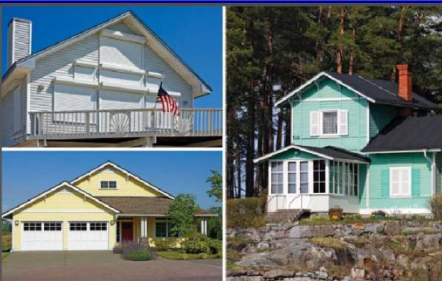
Images from Vernon County



Other Projects

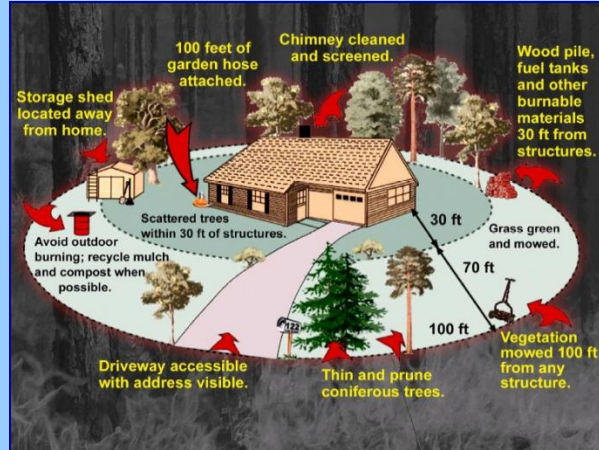


Mobile Home Tie-Downs



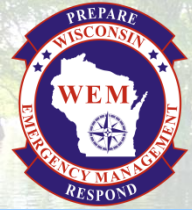
Wind Retrofit Guide for Residential Buildings

FEMA P-804 / December 2010



Proper Landscaping

- 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

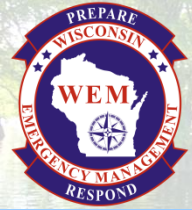
- Protect the health/safety of citizens
- Preserve or expand tax base
- Attract or retain business/industry
- Revitalize a depressed area



Gays Mills, WI



Gays Mills, WI



Benefits of Mitigation

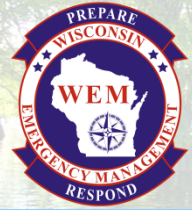
- Enhance recreation and tourism
 - Parks
 - Trails
- Increase Community Pride & improve quality of life
- Save Tax Dollars





Mitigation Planning

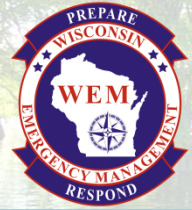




Disaster Mitigation Act of 2000

- 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

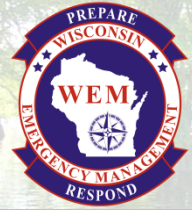




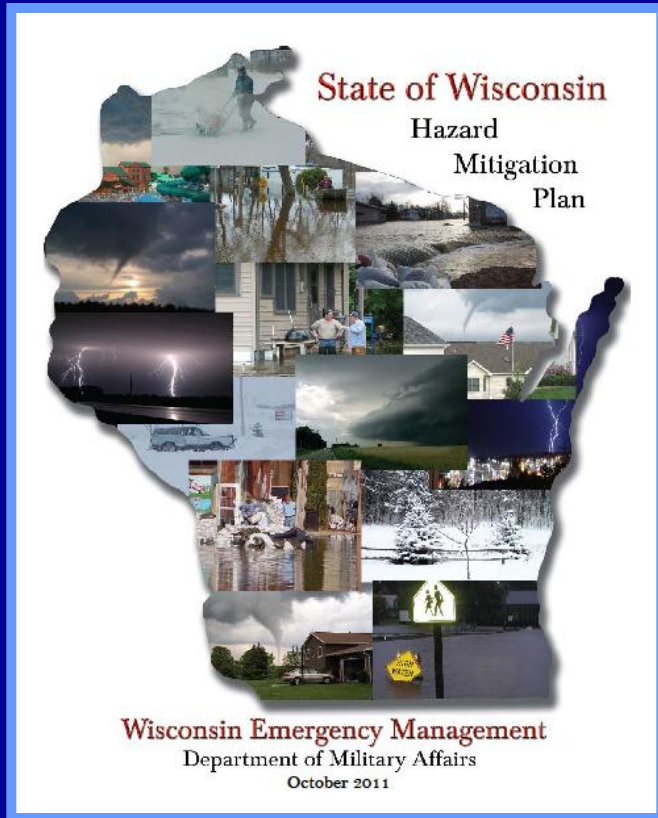
Vision of DMA 2000

- To reduce disaster losses thru pre-disaster mitigation planning by pre-identifying, cost-effective mitigation.
- Mitigation planning would then streamline and speed up the recovery process





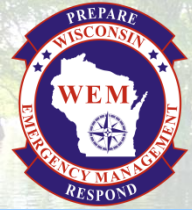
Mitigation Planning



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The ranking systems for
it intended to supersede
rather to allow time and
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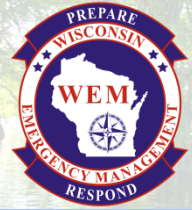
CRITERIA	
	le counties in each event ions
	ill or isolated areas when it or is not applied across the
	very five years on a large (sub-county level) es is poorly established in
CRITERIA	
	le on measures
	eriod of time, or are perma-
	measures that may be ap-
	hazard
Low	<ul style="list-style-type: none"> Mitigation measures are cost-effective only in limited circumstances Mitigation measures are effective for a reasonably long period of time Methods for reducing risk from the hazard are not well-established, are not proven reliable, or are experimental The State or counties have little or no experience in implementing mitigation measures, and/or no technical knowledge of them Mitigation measures are ineligible under federal grant programs There is a very limited range of mitigation measures for the hazard, usually only one feasible alternative The mitigation measures have not been proven cost-effective and are likely to be expensive compared to the magnitude of the damages caused by the hazard The long-term effectiveness of the measure is not known, or is known to be relatively poor

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



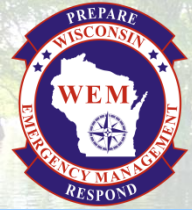
Local/Tribal Mitigation Plan Criteria

- 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



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



Hazard Mitigation Planning in WI

April 2013



Single Jurisdiction Plans:

- Village of Avoca, Iowa County - Approved
- City of Crandon, Forest County - Approved
- City of Darlington, Lafayette County - Approved, Updating
- City of Eau Claire, Eau Claire County - Approved
- City of Milwaukee, Milwaukee County - Approved
- City of Sheboygan, Sheboygan County - Approved
- City of Superior, Douglas County - Approved

Tribal Plans:

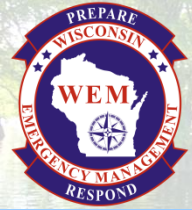
- Forest County Potawatomi - Approved
- Ho Chunk - Approved, Updating
- Menominee Nation - Expired, Updating
- Oneida - Approved
- Red Cliff Band Chippewa - New Plan
- Stockbridge-Munsee - Approved

University Plans:

- University of Wisconsin-Madison - New Plan
- University of Wisconsin-River Falls - Approved, Updating

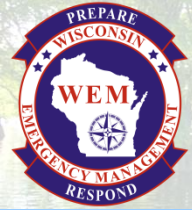
Legend

- 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



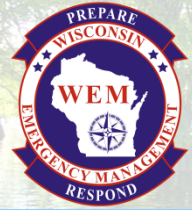
Planning Status

- Dodge County: Plan expired 3/7/12; update in process
- Fond du Lac County: Plan expires 6/22/15
- Milwaukee County: Plan expires 6/11/17
- Ozaukee County: Plan expires 3/18/14; update at FEMA for approval
- Sheboygan County: Plan expires 11/7/13; update in process



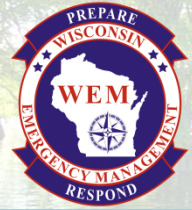
Planning Status

- Washington: Has no plan
- Waukesha County: Plan expires 3/15/16
- City of Milwaukee: Plan expires 6/11/17
- City of Sheboygan: Plan expires 8/30/17



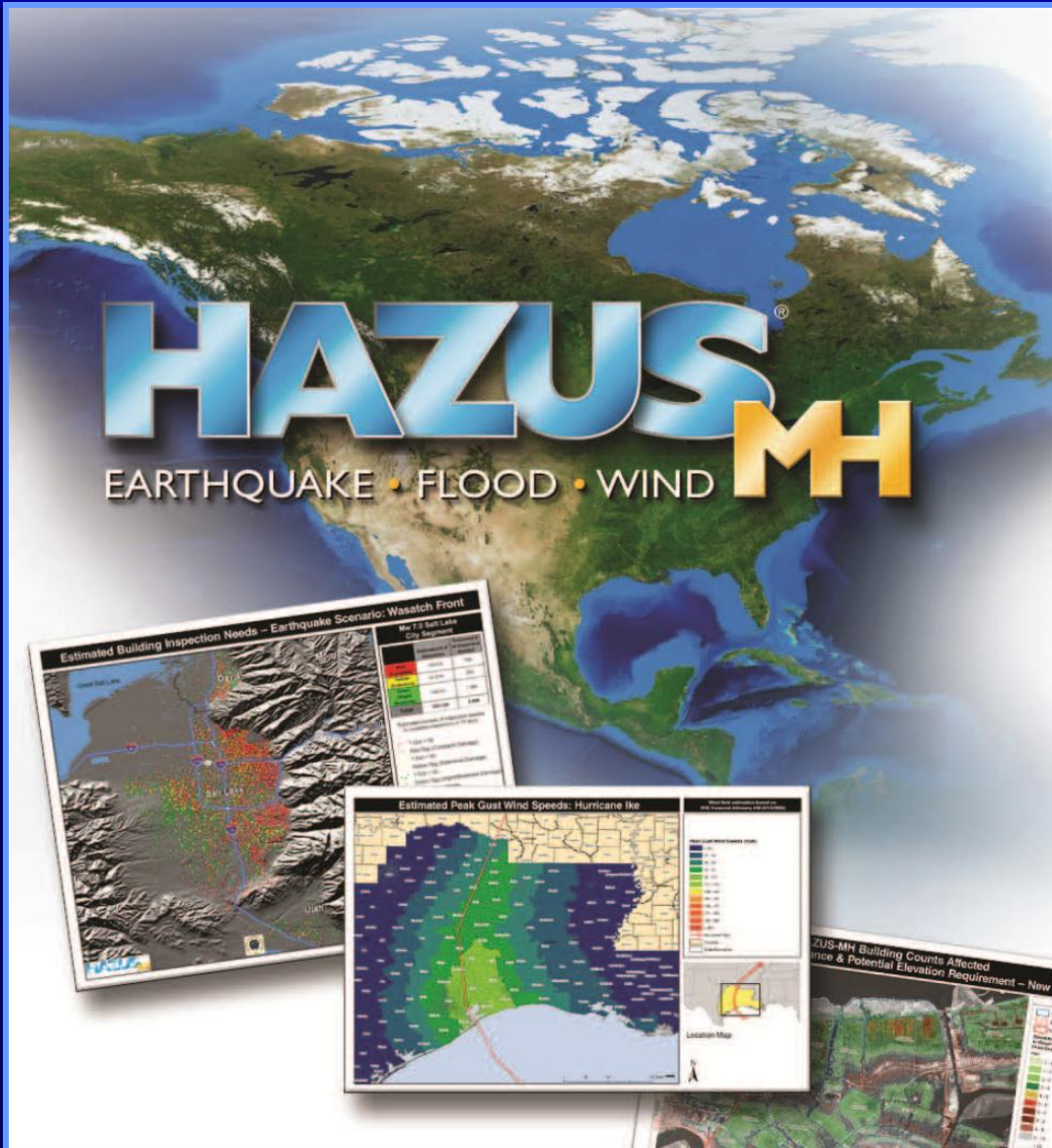
Mitigation Actions

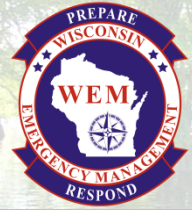
Mitigation actions identified through RiskMAP process need to be coordinated with the county hazard mitigation planning process.



HAZUS-MH

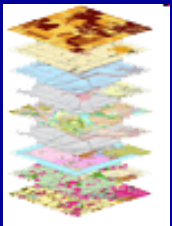
- FEMA's standardized risk assessment methodology to estimate potential losses from flood, wind, and earthquake hazards
- GIS-based software
 - Interfaces with ESRI
- Free to download
- Version 2.1 (2012)
 - Updated damage/loss functions
 - Hazard-specific data updated





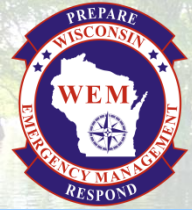
Wisconsin HAZUS Risk Assessment

- FFY 07 Pre-Disaster Mitigation Grant
- Coordination with Land Information and Computer Graphics Facility (LICGF) at UW – Madison and The Polis Center at Indiana University – Purdue University at Indianapolis (IUPUI)
- State wide riverine runs for all 72 counties and coastal runs for counties along Lake Superior and Lake Michigan
- Uses Digital Elevation Maps (DEM)
 - DFIRMs where available
 - Better the data, better the ending product



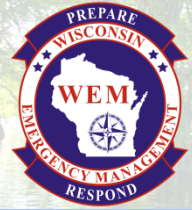
**Land Information
& Computer Graphics Facility**





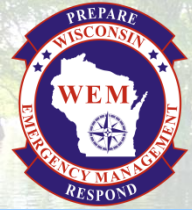
HAZUS-MH WI Risk Assessment

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



HAZUS-MH WI Risk Assessment

Occupancy	Estimated Total Buildings	Total Damaged Buildings	Total Building Exposure X 1000	Total Economic Loss X 1000	Building Loss X 1000
Agricultural	9	0	\$222,488	\$10,306	\$2,506
Commercial	1,778	34	\$6,950,225	\$158,492	\$38,671
Education	34	0	\$757,459	\$7,856	\$1,665
Government	157	3	\$470,664	\$8,638	\$932
Industrial	269	0	\$2,024,873	\$73,478	\$19,549
Religious/Non-Profit	74	0	\$627,954	\$13,646	\$1,851
Residential	117,741	551	\$26,888,748	\$188,061	\$115,171
Total	120,062	588	\$37,942,411	\$460,477	\$180,345



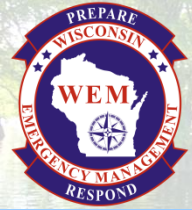
Public Assistance Program



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



Black River Falls, WI



Unified Hazard Mitigation Assistance Program



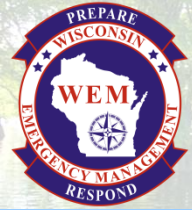
Hazard Mitigation Grant Program

Pre-Disaster Mitigation Program






Flood Mitigation Assistance Program

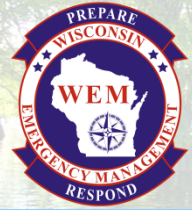
Repetitive Flood Claims Program

Severe Repetitive Loss Program



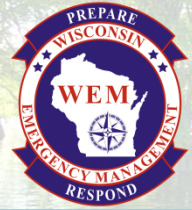
Eligible Sub-Applicants

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



Cost Sharing

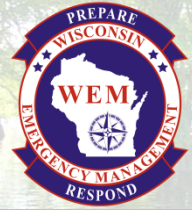
Programs	Mitigation Activity Grant (Percent of Federal/Non-Federal Share)	Management Costs (Percent of Federal/Non-Federal Share)	
		Grantee	Sub-Grantee
HMGP	75/25	100/0	-/- *
PDM	75/25	75/25	75/25
PDM – Sub-grantee is a small impoverished community	90/10	75/25	90/10
PDM – Tribal grantee is small impoverished 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



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)

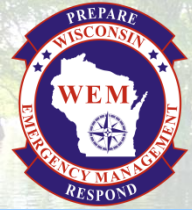




Mitigation Program Priorities

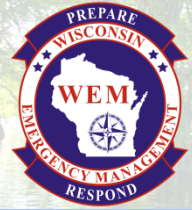
- Substantially Damaged Properties
- Severe Repetitive Loss and Repetitive Loss Properties





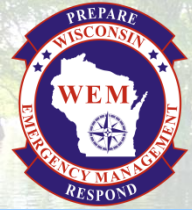
RLP/SRL

- Dodge County: None
- Fond du Lac County: 5 RLP
- Milwaukee County: 251 RLP
- Ozaukee County: 25 RLP
- Sheboygan County: 1 RLP
- Washington County: 4 RLP and 2 SRL
- Waukesha County: 27 RLP



Dodge County

- HMGP:
 - Dodge County: \$34,508 NOAA Weather Radios
 - Dodge County: \$19,894 Planning
- PDM:
 - Dodge County: \$22,976 Planning
- TOTAL: \$77,378



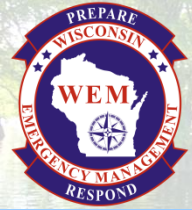
Fond du Lac County

- HMGP

- Oakfield School: \$202,216 reinforced walls in new school
- Village of N. Fond du Lac: \$228,063 acquisition/demolition
- City of Fond du Lac: \$1,342,410 acq/demo

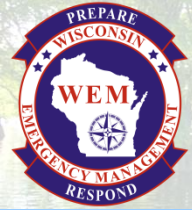
- FMA

- Village of N. Fond du Lac: \$119,132 acq/demo
- Village of N. Fond du Lac: \$12,743 Planning



Fond du Lac County

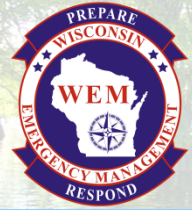
- PDM
 - Fond du Lac County: \$73,154 Planning
 - Fond du Lac County: \$42,324 Planning
- TOTAL: \$2,020,042



Milwaukee County

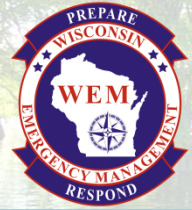
● HMGP

- City of Milwaukee: \$1,545,412 acq/demo & floodproofing
- Milwaukee County: \$70,117 education/outreach
- City of Oak Creek: \$112,182 acq/demo
- City of Wauwatosa: \$2,168,097 acq/demo
- City of Milwaukee: \$91,630 acq/demo
- Village of Brown Deer: \$1,018,831 acq/demo
- Milwaukee County: \$11,510 Planning
- City of Glendale: \$930,686 acq/demo
- Village of Whitefish Bay: \$4,191,375 stormwater



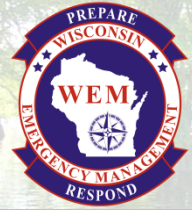
Milwaukee County

- FMA
 - City of Milwaukee: \$5,000 Planning
 - City of Oak Creek: \$5,000 Planning
- PDM
 - City of Milwaukee: \$23,000 Planning
 - Milwaukee County: \$27,927 Planning
 - City of Milwaukee: \$40,000 Planning
- TOTAL: \$10,240,767



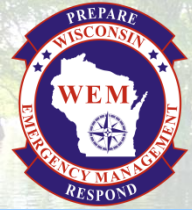
Ozaukee County

- HMGP
 - Village of Thiensville: \$123,047 Detention Pond
- FMA
 - Ozaukee County: \$9,733 Planning
- PDM
 - Village of Thiensville: \$2,308,620 stormwater improvements
 - Ozaukee County: \$50,000 Planning
 - Ozaukee County: \$32,800 Planning
- TOTAL: \$2,524,200



Sheboygan County

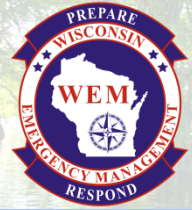
- HMGP
 - City of Sheboygan: \$1,873,000 acq/demo
- PDM
 - City of Sheboygan: \$30,156 Planning
 - Sheboygan County: \$53,000 Planning
- TOTAL: \$1,956,156



Waukesha County

- **HMGP**

- City of Brookfield: \$139,203 acq/demo
- City of Brookfield: \$140,060 acq/demo
- Village of Elm Grove: \$921,601 acq/demo
- Village of Elm Grove: \$721,319 acq/demo
- Village of Elm Grove: \$281,351 acq/demo
- Village of Menomonee Falls: \$1,969,799 acq/demo
- Village of Menomonee Falls: \$397,396
- Village of New Berlin: \$93,947 acq/demo



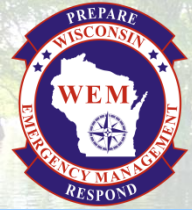
Waukesha County

- FMA

- City of Brookfield: \$10,000 planning
- City of Brookfield: \$46,267 acq/demo
- City of Brookfield: \$140,219 acq/demo

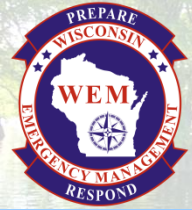
- PDM

- Waukesha County: \$63,976 planning
- Village of Elm Grove: \$4,369 planning
- TOTAL: \$4,929,507



Community Rating System

- New Berlin (7), Elm Grove (5-awesome!) and Ozaukee County (8) participating
- Discounts for property owners on flood insurance policies
- Levels 10 – 1
- Discounts in 5% increments depending on level
- Points for public information, mapping and regulations, flood damage reduction, flood preparation



Questions?



Contact Info:

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