



FEMA

Discovery Meeting: Upper Fox Watershed

November 13, 2012

RiskMAP

Increasing Resilience Together



Introductions

- Risk MAP Project Team
- Local partners and officials
- State partners and officials
- Other Federal Agency partner representatives
- Private-sector entity representatives

Agenda

- Risk MAP Program Overview
- Why We're Here
- Communities in the Upper Fox Watershed
- Discovery Overview & Discussion
- Next Steps
- Flood Risk Assessment Products Overview
- Mitigation Planning and Communication
- Questions to Consider





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Risk MAP Program and Project Overview

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Program Overview

■ Risk MAP

- Mapping – Flood hazard and risk identification
- Assessment – HAZUS and other risk assessment tools
- Planning – Hazard mitigation planning and HMA grants

■ Risk MAP Vision

- Deliver quality data
- Increase public awareness of flood risk
- Encourage local/regional actions that reduce risk

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Risk MAP Project Benefits

- **Flood risk products and flood hazard maps that are:**
 - Developed by FEMA in accordance with communities
 - Based on the best available data from the community and latest technologies
 - Conducted by watershed
 - Strengthened by partnerships
- **Risk MAP tools and data can be used to:**
 - Create or improve your Hazard Mitigation Plans
 - Make informed decisions about development, ordinances, and flood mitigation projects
 - Communicate with citizens about flood risk

Risk MAP Project Timeline



3-5 Year Process

*Flood Study Review and subsequent steps will only occur if a Risk MAP project is conducted.

Why We're Here

- **Start a dialogue about your flood risk**
- **Understand your needs and priorities**
- **Communicate available resources**
- **Offer partnerships and answer questions**
- **Give you a complete, current picture of your flood hazards and risks to help you better:**
 - Plan for the risk
 - Take action to protect your communities
 - Communicate the risk to your citizens

Why We're Here

County	FIRM Status	Effective Date
Kenosha	Effective	June 19, 2012
Racine	Effective	May 2, 2012
Walworth	Effective	October 2, 2009
Waukesha	Effective	November 19, 2008

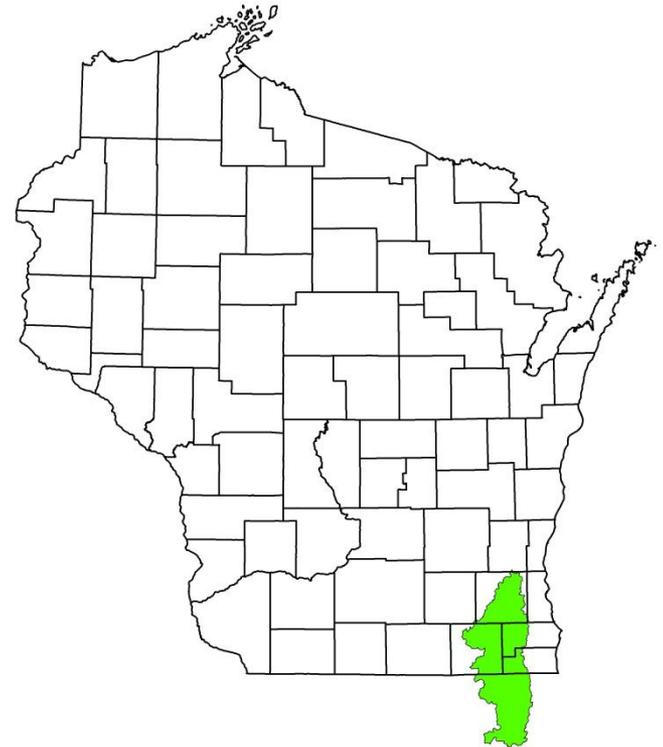
Communities in Watershed

Upper Fox Watershed

- Counties: Kenosha, Racine, Walworth Waukesha
- 660 miles of mapped streams/rivers

Focus Area:

- Studied streams with outdated methodologies
- Unstudied streams with development pressure or other issues



Discovery Process

■ Data Collection

- Collect information about the communities in the watershed
- Develop draft Discovery Report and Map

■ Discovery Meeting

- Present potential flood risk products and get feedback
- Discuss and prioritize areas needing flood risk study
- Discuss local planning and communication assistance

■ Outcome

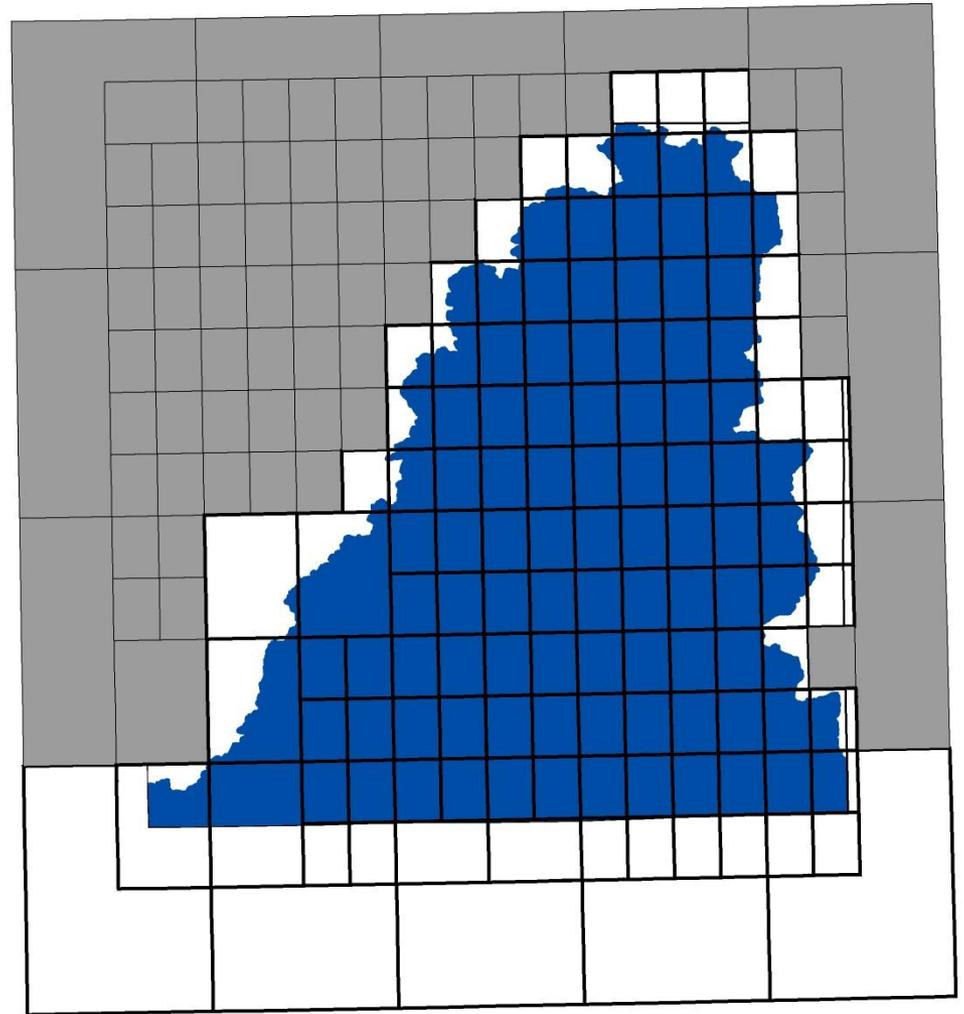
- Finalize Discovery Report and Map
- Develop a scope of work and budget for Risk MAP project

Floodplain Mapping

- **Field Survey**
 - Summer/Fall 2013
- **Hydrologic & Hydraulic Engineering**
 - Fall/Winter 2013-2014
- **FIRM Mapping & Non-Regulatory Products**
 - Based upon availability of grants

Floodplain Mapping

- **Physical Map Revision (PMR)**
 - Revised Panels only for new studies
- **Revised Map Panels & FIS Report**
 - Adopted by affected communities



Next Steps

- **Based on today's discussion and WDNR 5-level ranking system, project scope is developed (areas to be studied)**
 1. Streams currently mapped as Zone AE where the study has been deemed "Invalid" (CNMS).
 2. Gaps between detailed studies that are either currently mapped as Zone A or not mapped at all.
 3. Streams currently mapped as Zone A where a community request was made to study the reach in detail.
 4. Streams currently mapped as Zone A that will be engineered, but remain mapped as Zone A.
 5. Streams that are not currently mapped where a community request was made to study the reach in detail.

Next Steps

- **After Discovery Meeting:**

- Compile comments, update Discovery Map with community concerns
- Results posted on WDNR Floodplain Mapping website
- 2-week comment period for additional/missed issues
- Update Discovery Report and map with results of the meeting and finalized scope of work

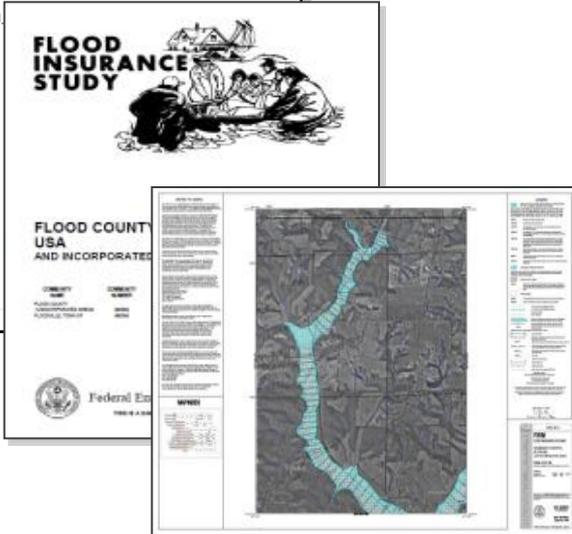
Flood Risk Products

Program Product Comparisons

Traditional Regulatory Products

DFIRM Database

- Flood_Hazard_Data
- Political_Boundaries
- Public_Land_Survey_System
- TopoData
- Community_Panel
- L_Comm_Info
- L_MT1_LOMC
- L_Pan_Revis
- L_Pol_FHBM
- L_Riv_Model
- L_Stn_Start
- L_Wtr_Nm
- S_Bfe
- S_DOQ_Index
- S_Firm_Pan
- S_Gen_Struct
- S_Label_Ld
- S_Label_Pt
- S_LOMR
- S_Perm_Bmk
- S_Quad
- S_Riv_Mrk
- S_Trnsport_Ar

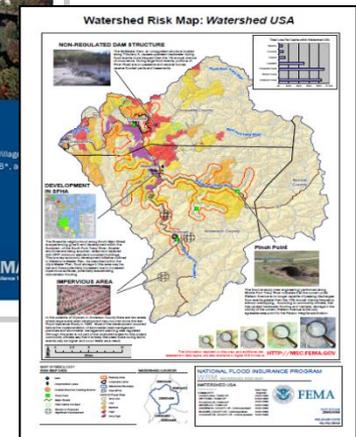
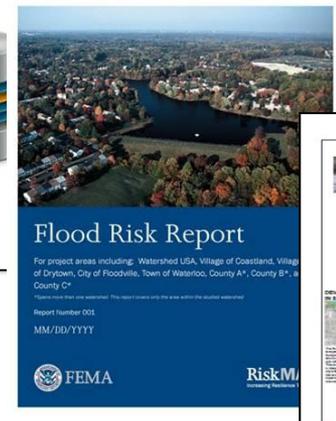


Subject to statutory due-process requirements

Non-Regulatory Products

Flood Risk Database

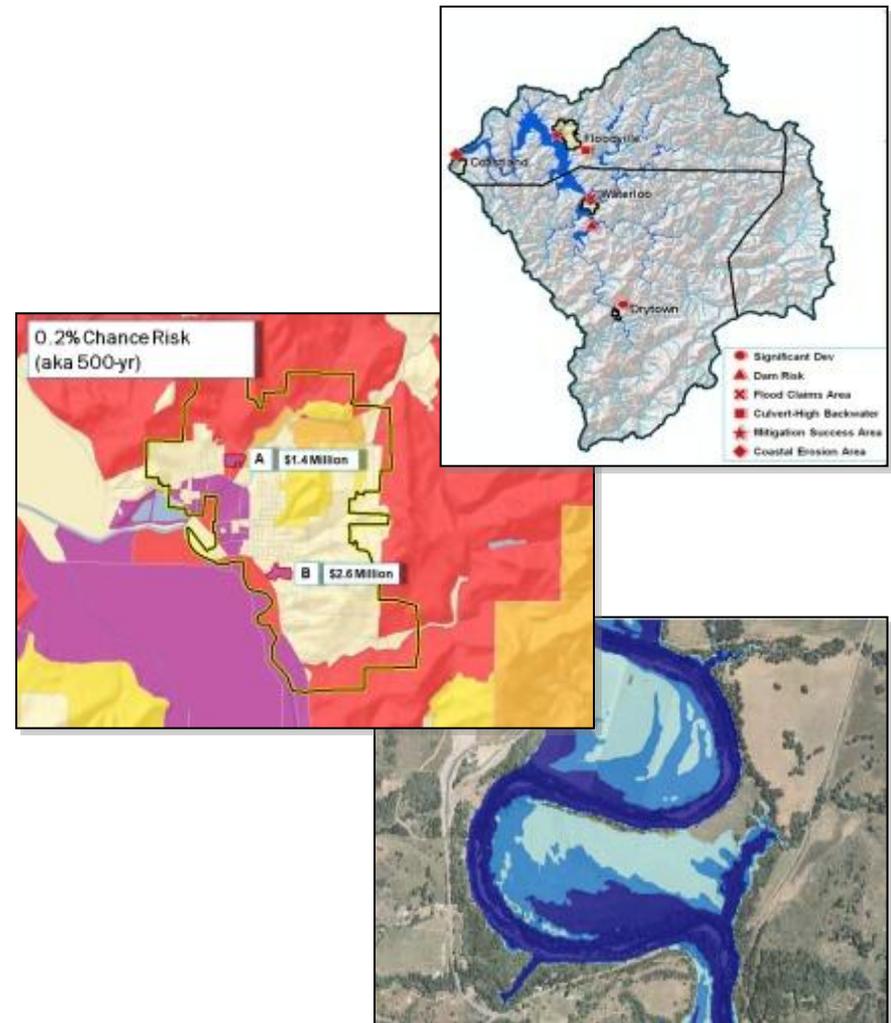
- Community_Panel_Info
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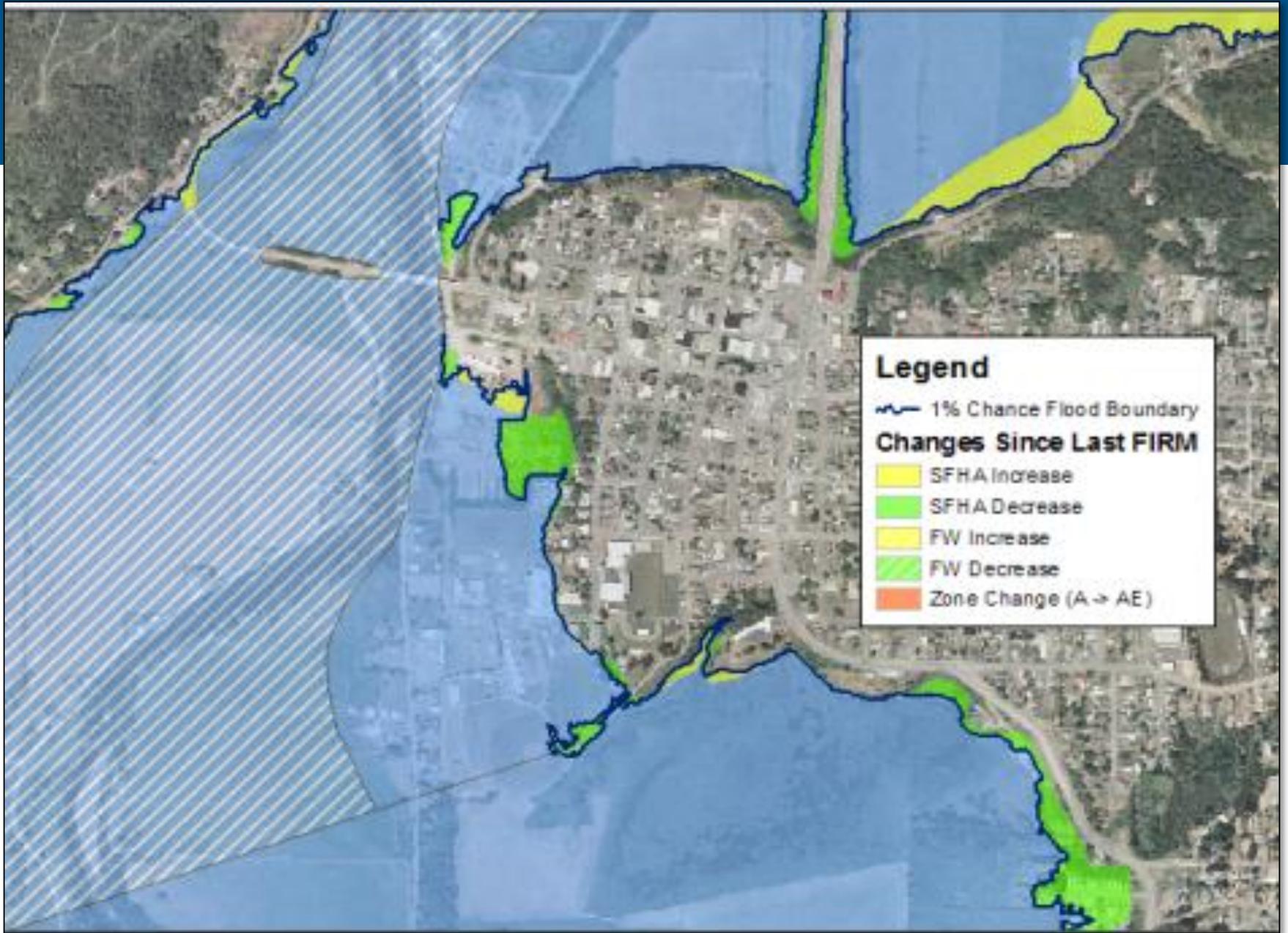
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Flood Risk Products

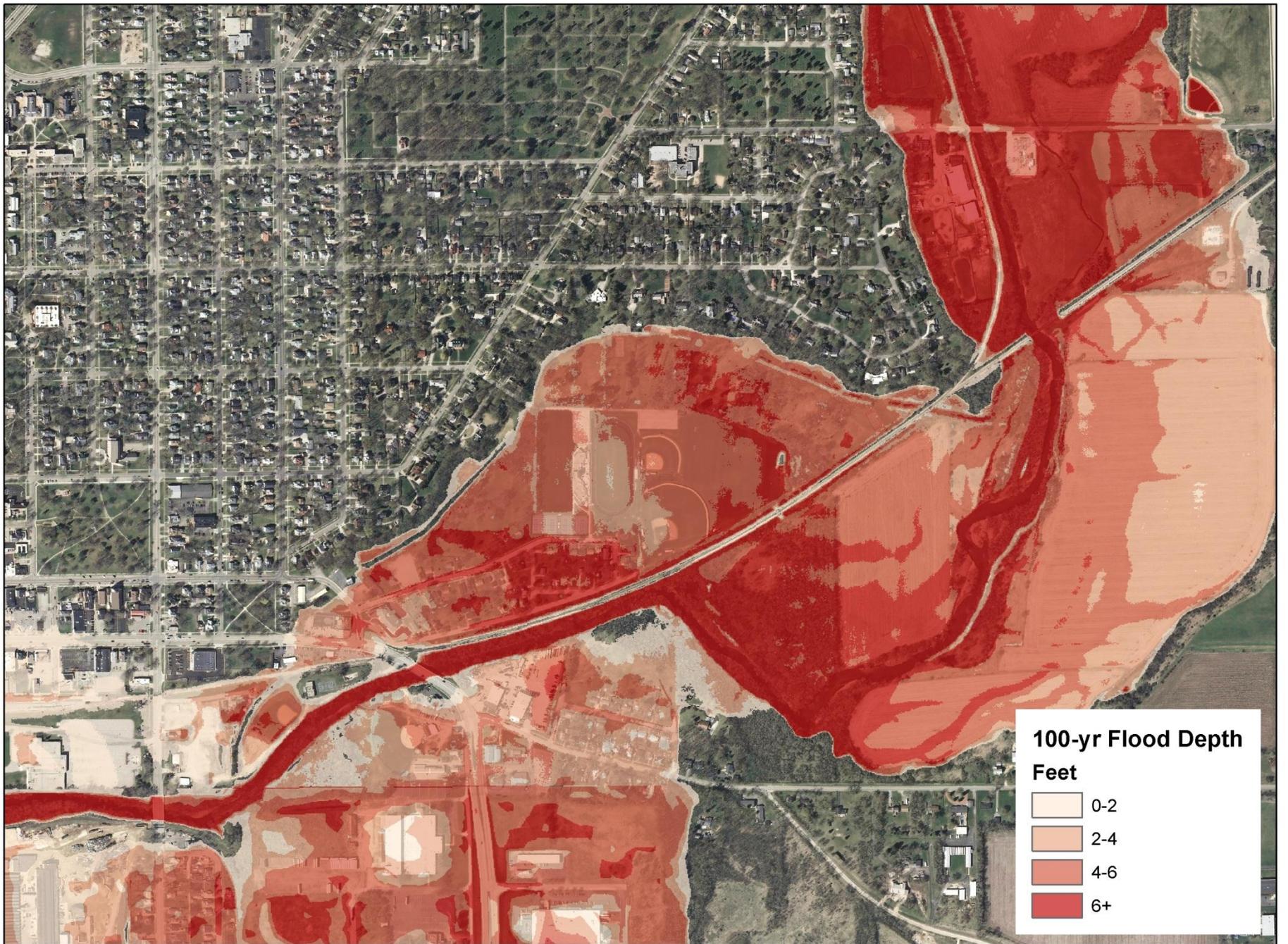
- Changes Since Last FIRM
- Depth and Analysis Maps
- Flood Risk Assessment (HAZUS)
- Areas of Mitigation Interest (if available)



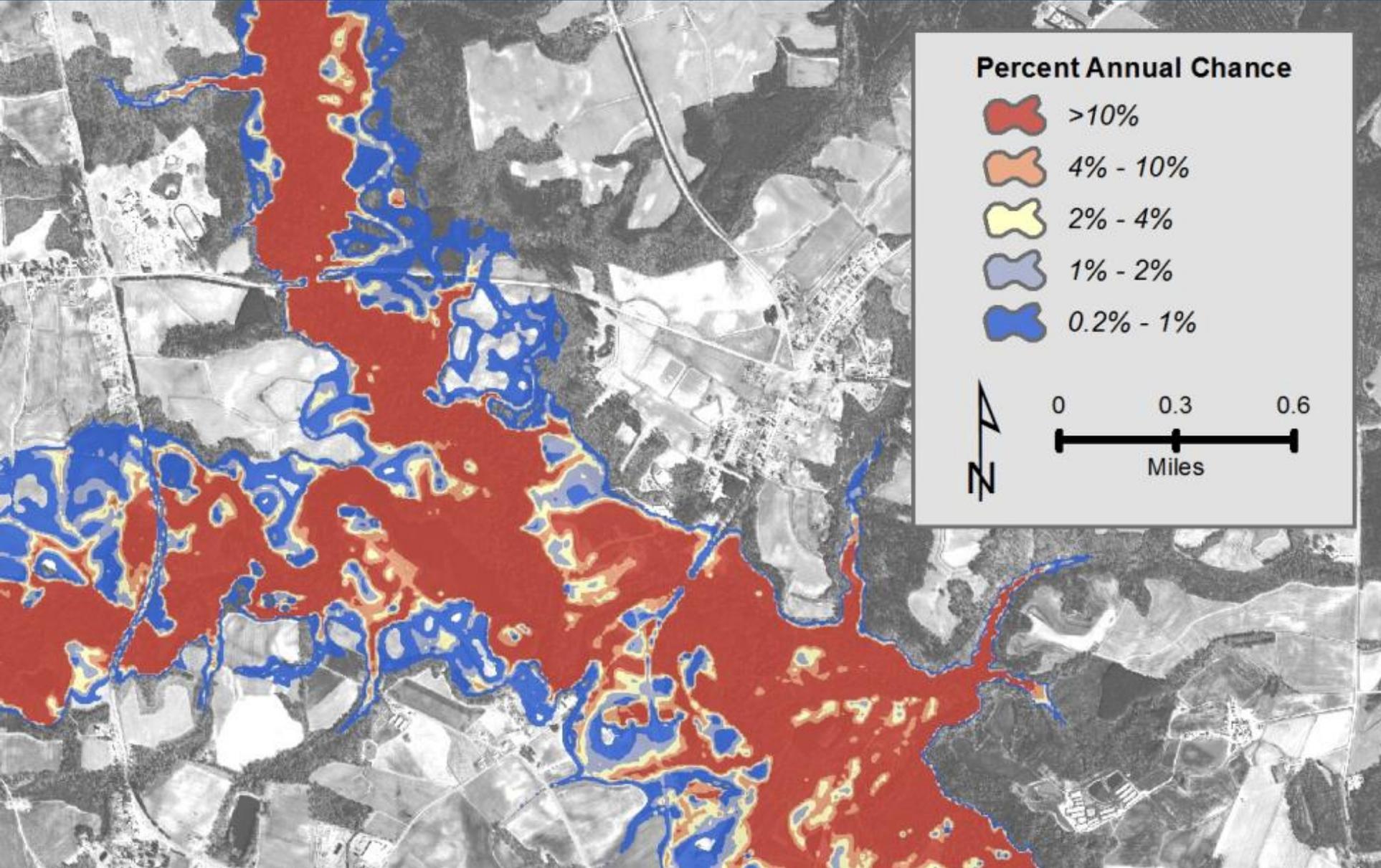
Changes Since Last FIRM



Flood Depth & Analysis Grids



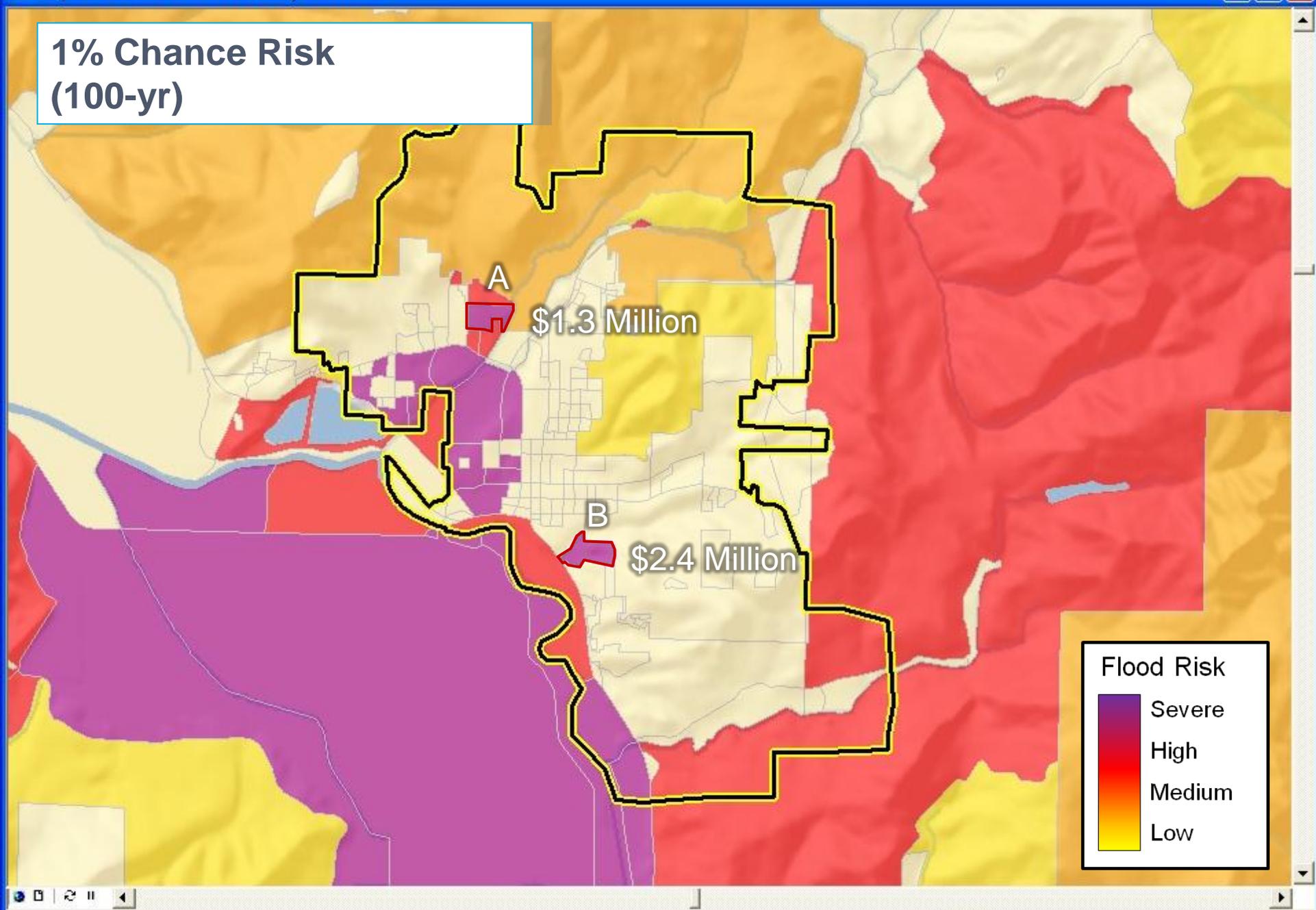
Percent Annual Chance Grid



Flood Risk Assessment

- **HAZUS = GIS-based hazard loss estimation software**
- **Quantifies flood risk in dollars:**
 - Potential damage severity for different flood frequencies
 - Identify locations with possible cost effective mitigation options
- **Identifies areas of relative flood risk:**
 - Floodprone areas (census block)
 - Vulnerable people and property
- **Helps estimate potential losses due to flood risk:**
 - Losses from Average Annualized Loss (AAL) Study
 - Refined losses from new flood study depth grids, local building data

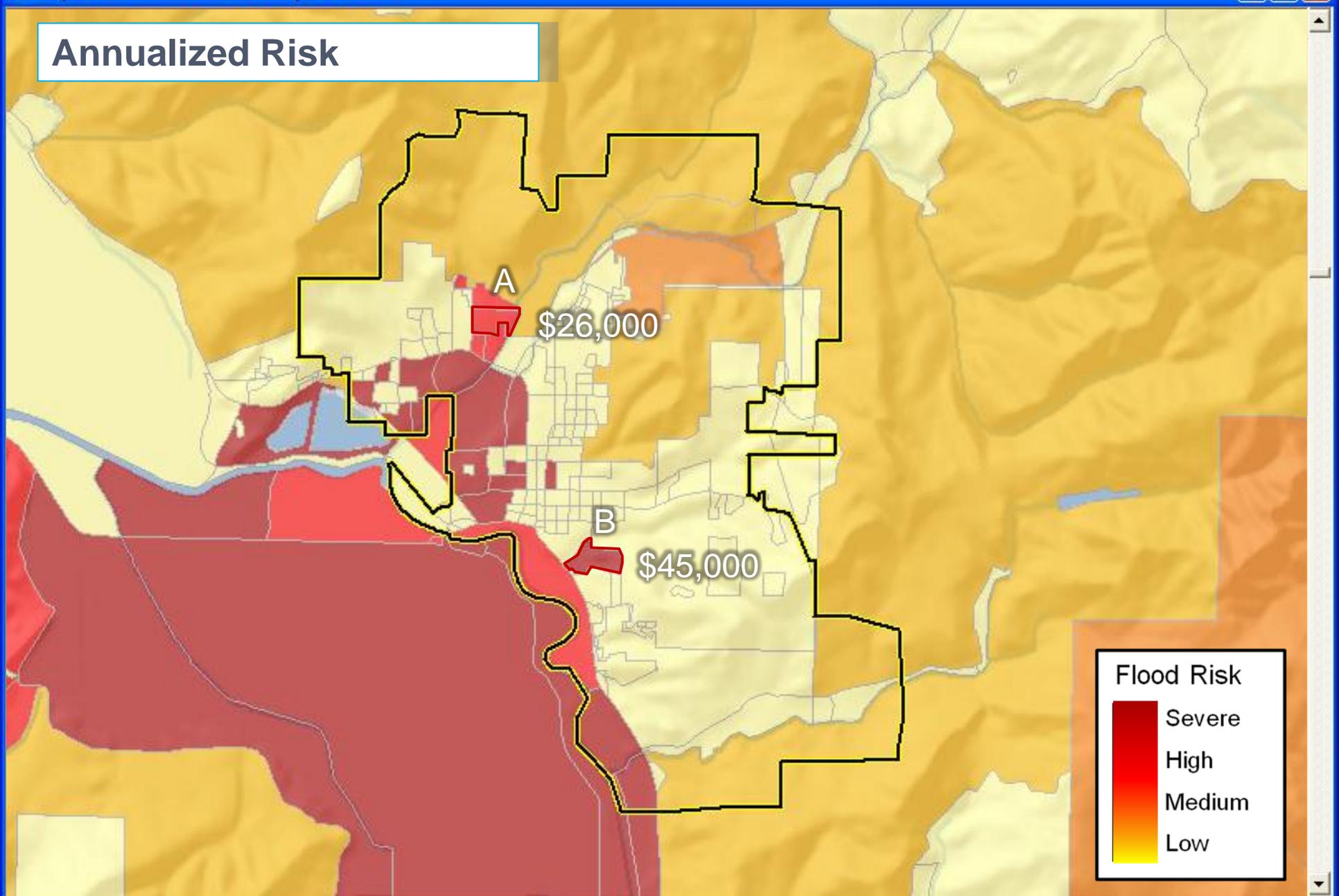
1% Chance Risk (100-yr)



Flood Risk

- Severe
- High
- Medium
- Low

Annualized Risk



Flood Risk

	Severe
	High
	Medium
	Low

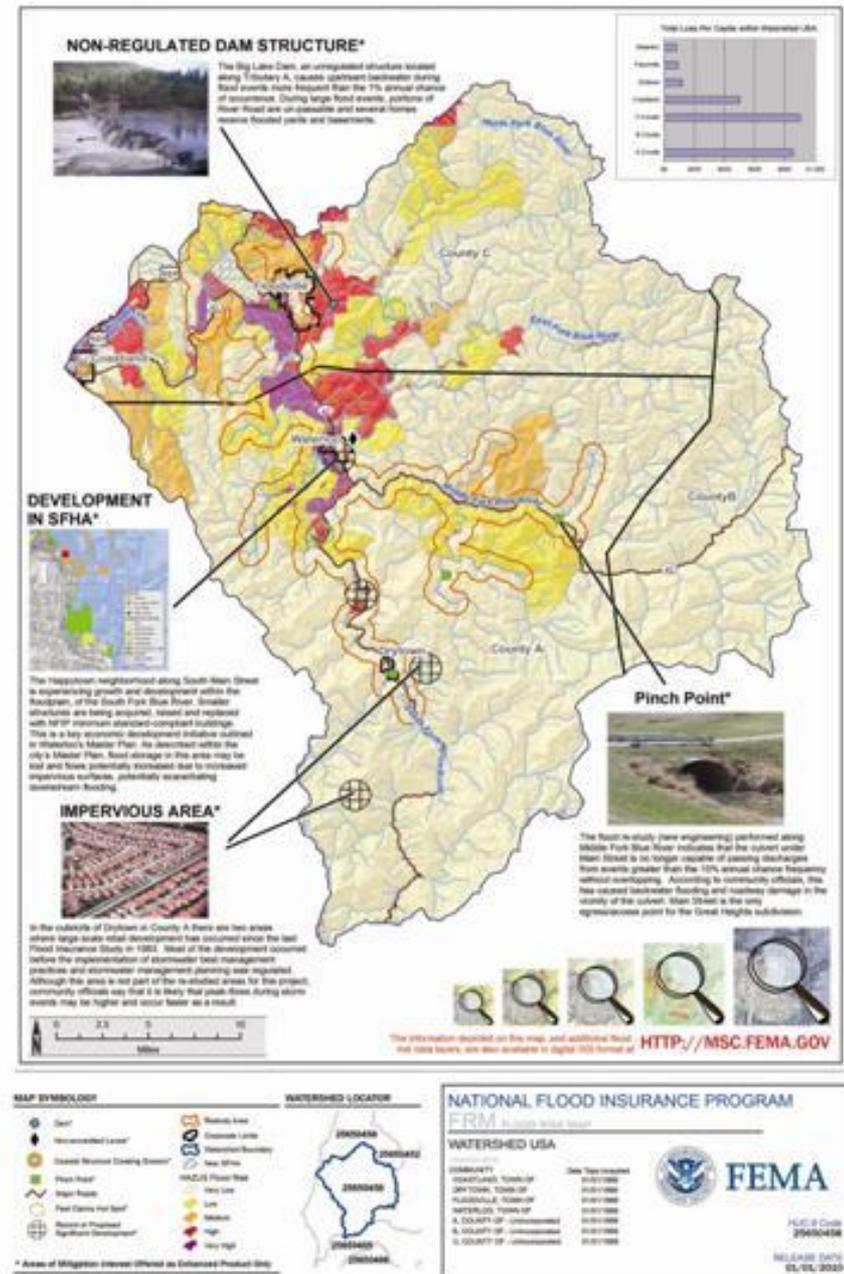
Areas of Mitigation Interest (AOMI)

- **Opportunity for flood risk reduction:**
 - Community identified hot spots
 - Previous clusters of claims
 - Riverine and coastal flood control structures (dams, levees, berms)
 - Floodplain “pinch points” (undersized culverts and bridge openings)
 - Significant proposed and recent floodplain development
 - Locations of successful mitigation projects

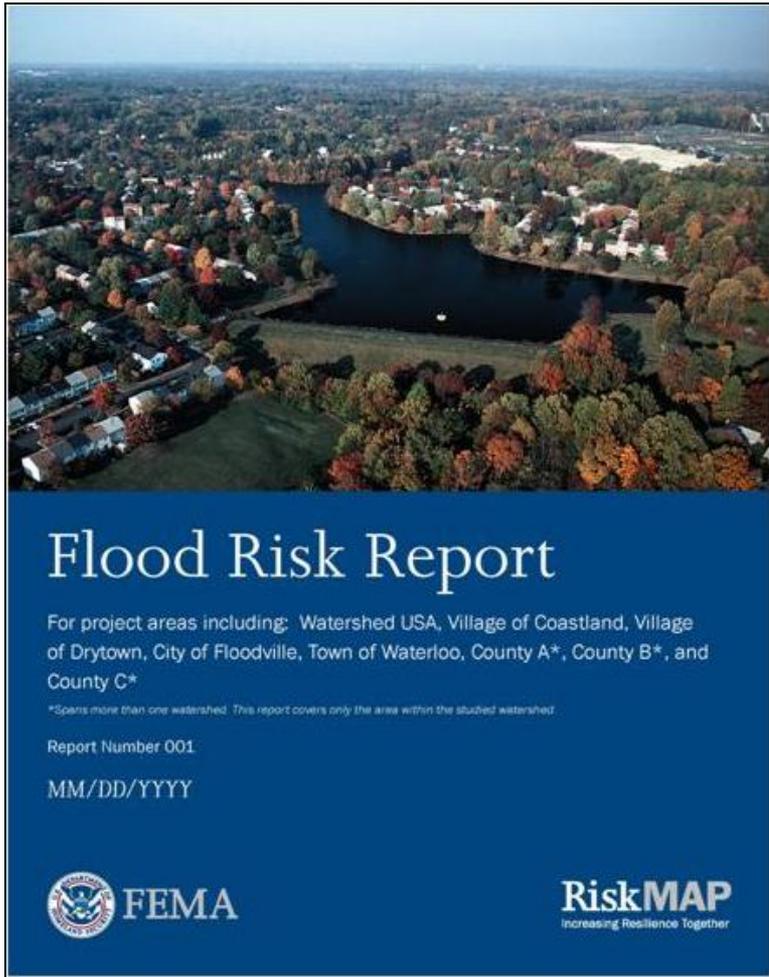
Flood Risk Map

- Visually Promotes Risk Awareness
 - Contains results of Risk MAP project non-regulatory datasets
 - Promotes additional flood risk data not shown but located within the Flood Risk Database

Flood Risk Map: Watershed USA



Flood Risk Report



- **Background**
 - Purpose, Methods
 - Risk Reduction Practices
- **Project Results**
 - Changes Since Last FIRM
 - Depth & Analysis Grids
 - Flood Risk Assessment
 - Enhanced Analyses
- **Summarized by Locations**
 - Communities and Watersheds



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Mitigation Planning and Communication

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Moving Beyond Floodplain Maps





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Flood Risk Data and Discovery Maps

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Data Collection

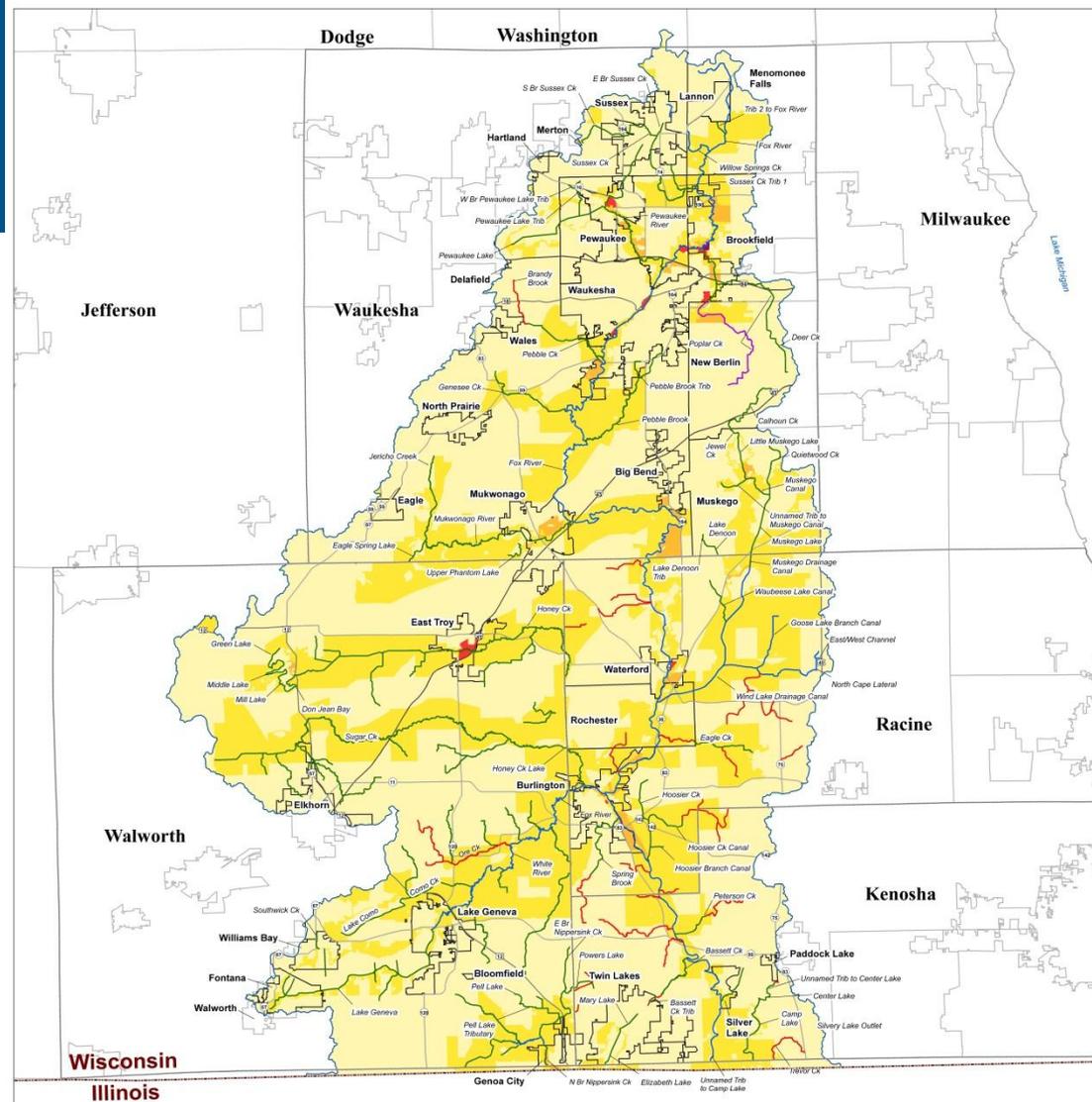
- **From the communities we look for:**
 - Infrastructure information for levees and new bridges, dams, culverts, and road improvements
 - Building footprints or parcel data
 - Boundary, hydrography, and transportation layers
 - Elevation data

Elevation Data/LiDAR Status

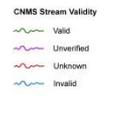
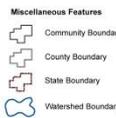
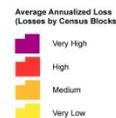
- **Kenosha – 2012 LiDAR available**
- **Racine – 2012 LiDAR needs processing**
- **Walworth – 2005 Photogrammetric**
- **Waukesha – 2012 LiDAR available 12/12**

Data Types	Description	Source
Average Annualized Loss	FEMA's Level 1 HAZUS Average Annualized Loss Analysis	FEMA
Community Boundaries	Location of municipal boundaries	Wisconsin Department of Transportation
Coordinated Needs Management Strategy (CNMS)	Engineering study needs as defined by Phase 3 CNMS data	Region V CNMS inventory
County Boundaries	Location of county boundaries	USGS Topographic Maps
Dams	Location of dams	WDNR Inventory
Streams and Rivers	Stream centerlines based on USGS topo quads	USGS Topographic Maps
HUC-8 Watershed	Watershed boundary	USGS Watershed Boundary Data
Ice Jams	Location of ice jams	U.S. Army Corps of Engineers - Ice Jam Database
Letters of Map Change	Locations of letters of map change	FEMA National Flood Hazard Layer
Major Roads	Location of interstates and major highways	Wisconsin Department of Transportation
Special Flood Hazard Areas	Location of FEMA flood hazard areas	FEMA Digital Flood Insurance Rate Maps
Stream Gages	Location of stream gages operated by multiple agencies	USGS National Hydrography Dataset
Watershed Boundaries	Hydrologic Unit Code-8, watershed boundaries	USGS National Hydrography Dataset
Wetland	Wetland delineations digitized from 24K USGS topo quads	Wisconsin DNR

Discovery Map



Project Area:
Upper Fox River Watershed
HUC-8 07120006



Discovery Map

Miscellaneous Features

-  Stream Gage
-  Letter of Map Change (LOMC)
-  Community Boundary
-  County Boundary
-  State Boundary
-  Watershed Boundary
-  WDNR Wetland Inventory

Special Flood Hazard Areas

-  Approximate (Zone A)
-  Detailed (Zone AE)
-  Ponding (Zone AH)
-  Shallow Flooding (Zone AO)

Roads

-  Interstate
-  U.S. Hwy
-  State Hwy

CNMS Stream Validity

-  Valid
-  Unverified
-  Unknown
-  Invalid

Areas of Mitigation Interest

-  Dams
-  Individual Assistance or Public Assistance
-  Stream Flow Constrictions

Average Annualized Loss (Losses by Census Blocks)

-  Very High
-  High
-  Medium
-  Very Low

Break Out Session

Questions to Consider

- Do you have flood hazard data used for planning/management that are not reflected on the FIRM?
- Are there inaccuracies in the FIRMs for your community? Where?
- Are there new road crossings that are not reflected on the FIRM?
- Are there areas of high population (or population growth) where a Zone A exists on the FIRM?
- Are there areas of future development pressure where a mapped floodplain would be helpful to identify risk?
- Where are problem flooding areas?
- Where are areas of concern for emergency response, i.e., evacuation routing, critical facilities, other vulnerabilities?
- Do you agree with the identified requests and needs currently shown on FEMA's Discovery Map?
- How would you prioritize these issues and needs?