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# Flood Map Modernization and Risk MAP Update

Briefing to Flood Mapping Coalition  
October 2010

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# Agenda

- Risk MAP Datasets and Products
- Map Mod and Risk MAP Project Timelines
- FY10 Flood Mapping Progress Report and Production Plan
- Risk MAP Conversions
- NFIP Reform – (See separate PowerPoint file)

# The Paradigm Shift: Map Mod to Risk MAP



- Map Modernization used increasingly-available technology to increase the quality, reliability, and availability of flood hazard maps and data
- It focused on digitizing maps to provide timely, accurate information to community planners



Risk MAP further enhances the maps, involves communities during the assessment and planning stages, and guides and encourages them to communicate risk to their constituents



# Risk MAP

Through collaboration with State, Local, and Tribal entities, Risk MAP will deliver quality data that increases public awareness and leads to action that reduces risk to life and property.





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# Flood Risk Data and Products

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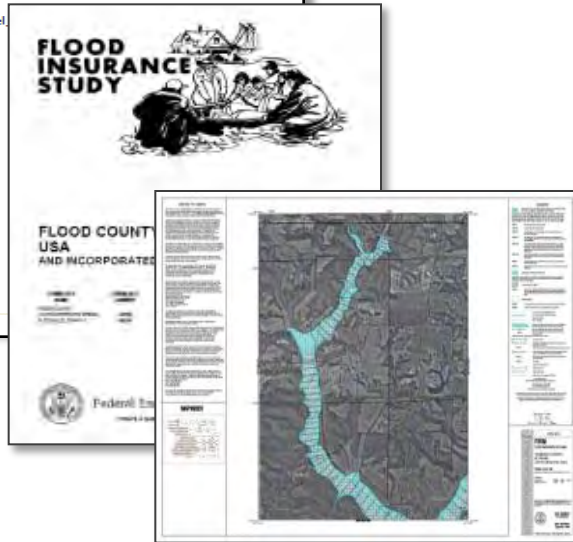


# Program Product Comparisons

## 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

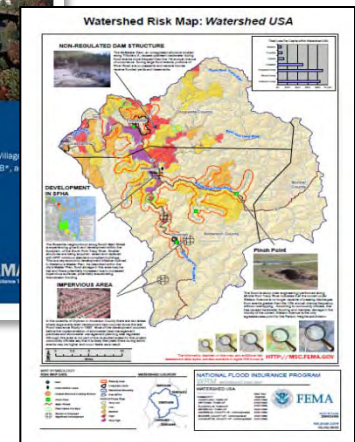
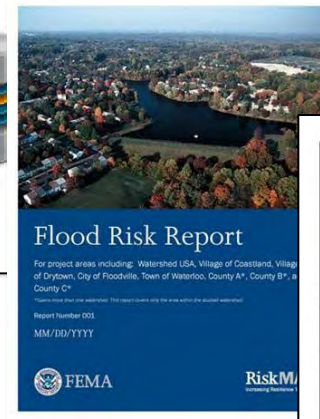


Traditional products are regulatory and subject to statutory due-process requirements

## Non-Regulatory Products

### Flood Risk Database

- Community\_Panel\_Info
- 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



Risk MAP products are non-regulatory and are not subject to statutory due-process requirements

# Flood Risk Datasets/Products and Enhancements

**Consistent with the theme of scalable flood risk products, the flood risk datasets themselves are also scalable via the ability to enhance the core dataset elements**

- **Flood Risk Datasets**
  - Changes Since Last FIRM \*
  - Flood Depth & Analysis Grids \*
  - Flood Risk Assessments \*
- **Enhanced Flood Risk Datasets**
  - Areas of Mitigation Interest
  - Others

## **Flood Risk Products**

- Flood Risk Database
- Flood Risk Report
- Flood Risk Map

\* Enhancements to the datasets are also available



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# Flood Risk Datasets

- Changes Since Last FIRM
- Flood Depth & Analysis Grids
- Flood Risk Data
- *Areas of Mitigation Interest*

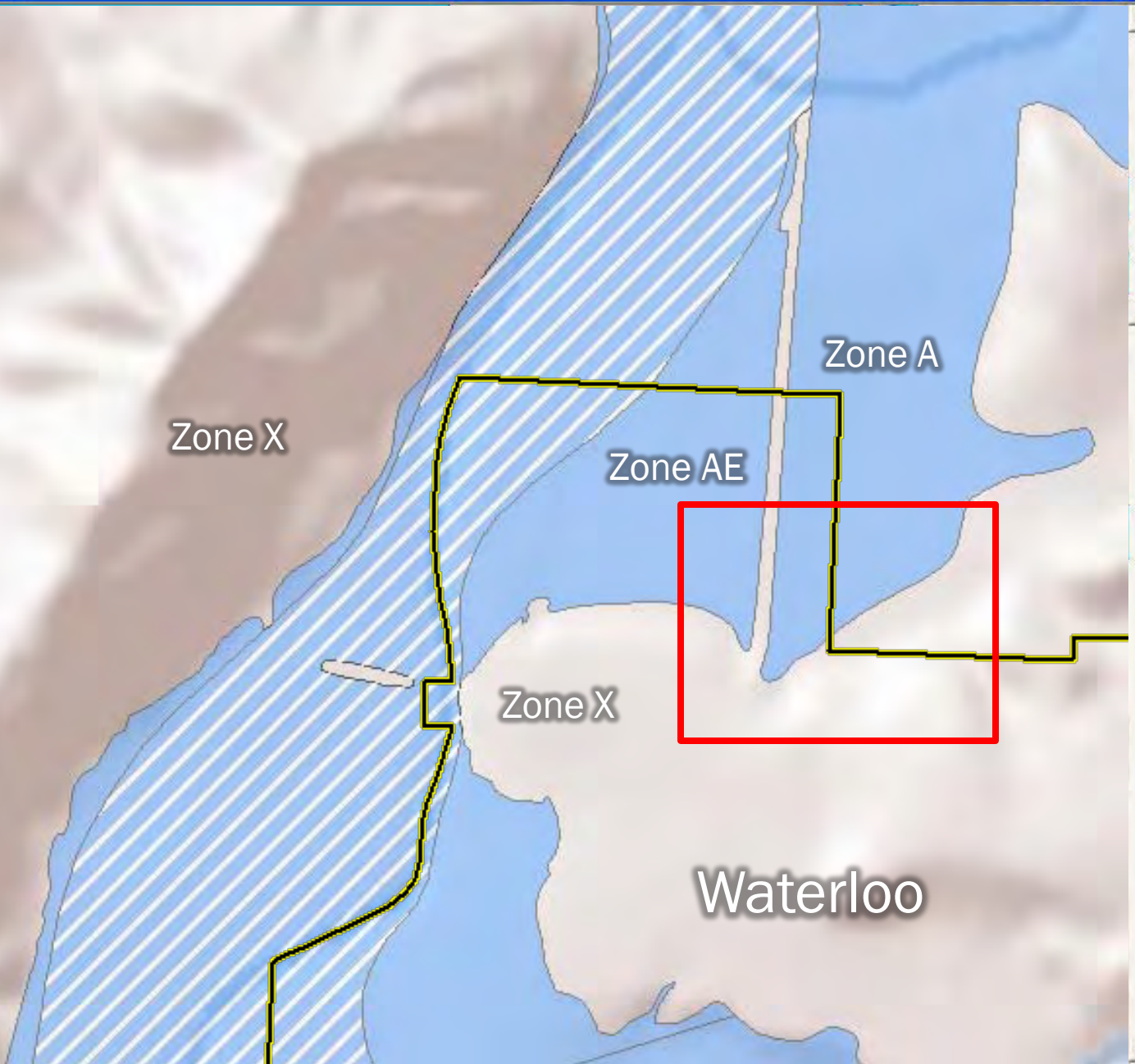
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Previous Mapping (old topo)



Zone X

Zone A

Zone AE

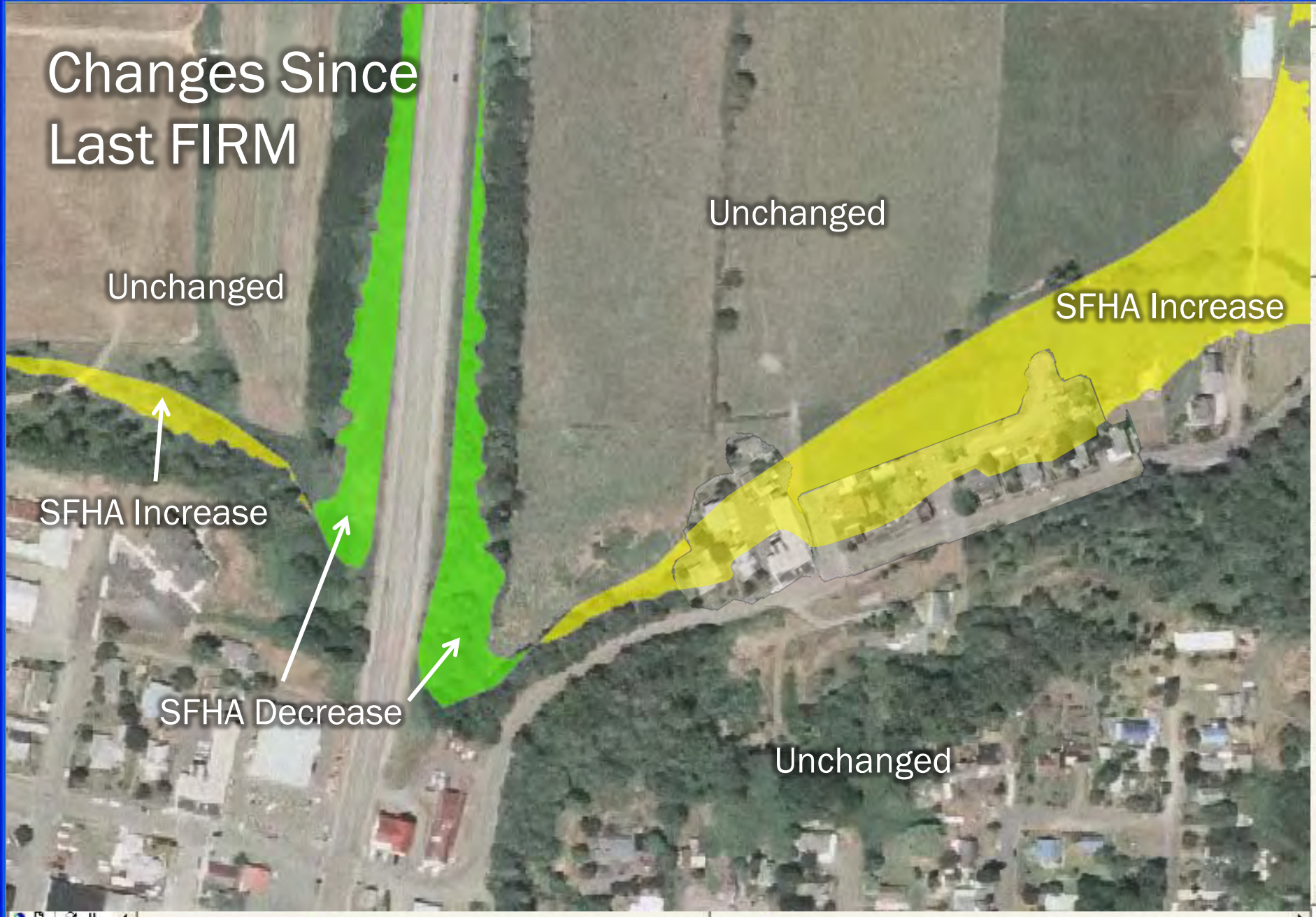
Zone X

Waterloo





# Changes Since Last FIRM



Unchanged

Unchanged

SFHA Increase



SFHA Increase

SFHA Decrease


Unchanged













# Changes Since Last FIRM Content Scalability

## ■ Changes Since Last FIRM

-  GIS Layer (vector polygon based upon spatial intersect of pre and post SFHA datasets)
-  Attached table attributes containing pre and post SFHA zone designations and study information including contributing engineering factors.

## ■ Enhancements

-  Same as above with addition of structures and population impacts (requires locally provided input data, e.g. footprints, parcels, etc.)

Changes Since Last FIRM	Riverine	Coastal	Levee
Vector Polygon Boundaries			
Pre and Post SFHA Zone Information			
Contributing Engineering Factors			
Structure and Population Estimates			



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# Flood Depth & Analysis Grids

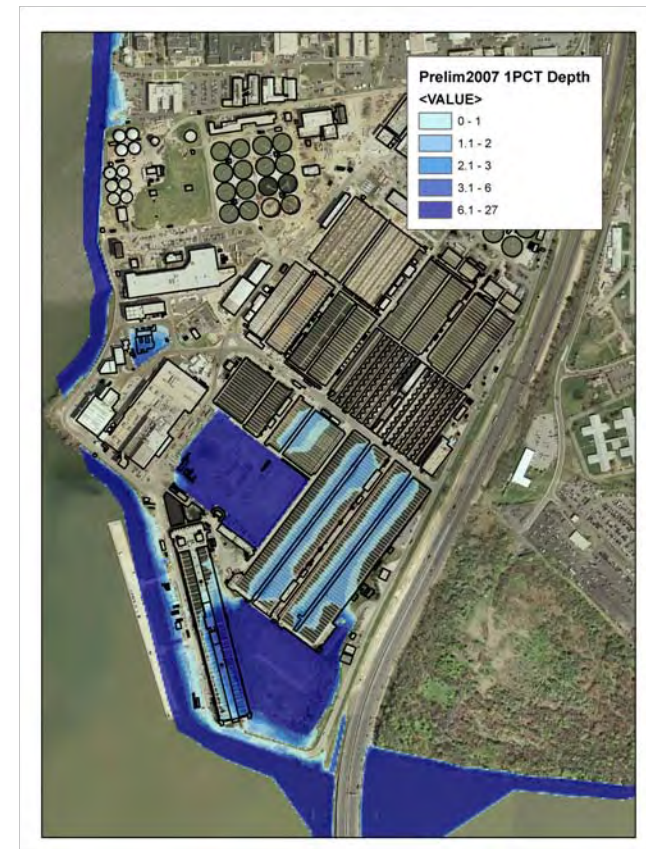
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# Flood Depth Grids (Depth\_XXpct)

- **Flood Depth Grids**
  - Riverine: 10%, 4%, 2%, 1%, & 0.2% Annual Chance (A.C.) Floods
  - Coastal: 1% A.C. Flood
  - Levee: 1% A.C. Flood
- **Enhanced Datasets**
  - Riverine, Coastal, and Levee: Any depth grid associated to a flood frequency other than those listed above (e.g. the 2% Coastal depth grid, the 0.5% Riverine depth grid, etc.)



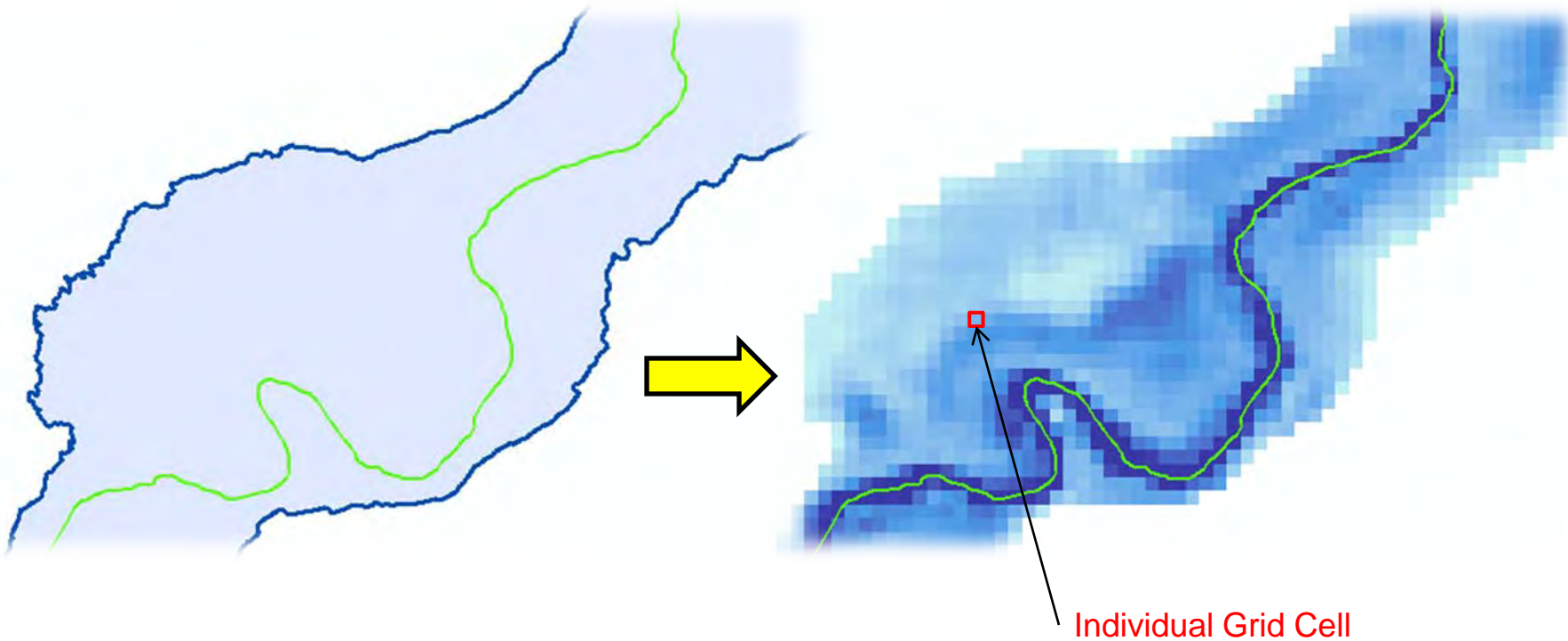


# Flood Depth Grids

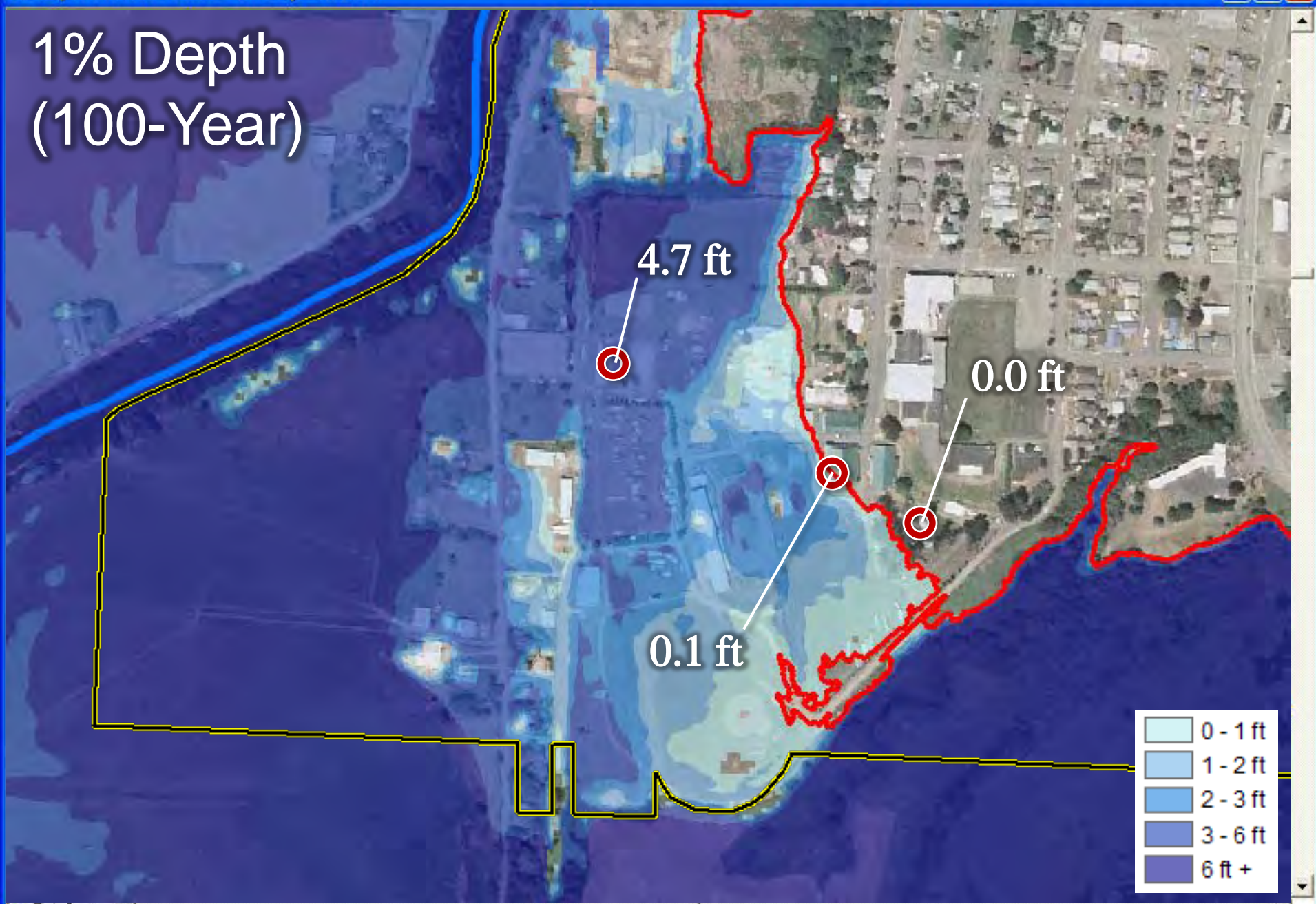
- Each Grid Cell has a Unique Value

FIRM 1% Annual Chance (100-yr) Floodplain

1% Annual Chance Depth Grid



# 1% Depth (100-Year)



4.7 ft

0.0 ft

0.1 ft

0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 6 ft
6 ft +

# Flood Depth & Analysis Grids Content Scalability

- Summary Table of Grids (☑) vs. Enhanced Grids (★)

Grid(s)	Riverine	Coastal	Levee
Depth: 10%, 4%, 2%, 0.2% Annual Chance	☑	★	★
Depth: 1% (100-yr) Annual Chance	☑	☑	☑
Depth: Additional Flood Frequencies (e.g. 50%, 20%, 0.5%, 1% “plus”, etc.)	★	★	★
Percent Annual Chance of Flooding	☑	★	★
Percent Chance of Flooding over a 30-yr Period	☑	★	★
Water Surface Elevation : 10%, 4%, 2%, 1%, 0.2%	★	★	★
Water Surface Elevation Change	★	★	★
Depth: Annualized	★	★	★
Velocity	★	★	★
Top & Toe of Levee	N/A	N/A	★

\* Note that the delivery of water surface elevation grids is an enhancement



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# Flood Risk Assessment Data

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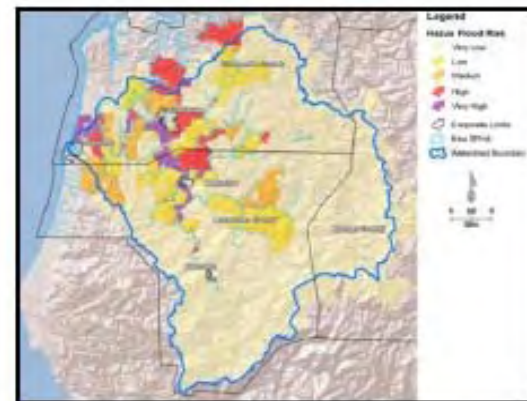
# Flood Risk Assessment Datasets

- **Flood Risk Assessment Data**

- 2010 HAZUS Average Annualized Loss (AAL) Study
- Refined HAZUS and Other Risk Analyses



**HAZUS MH**



**Flood Risk Assessment**



# Estimation of Losses

## ■ Dollar Losses

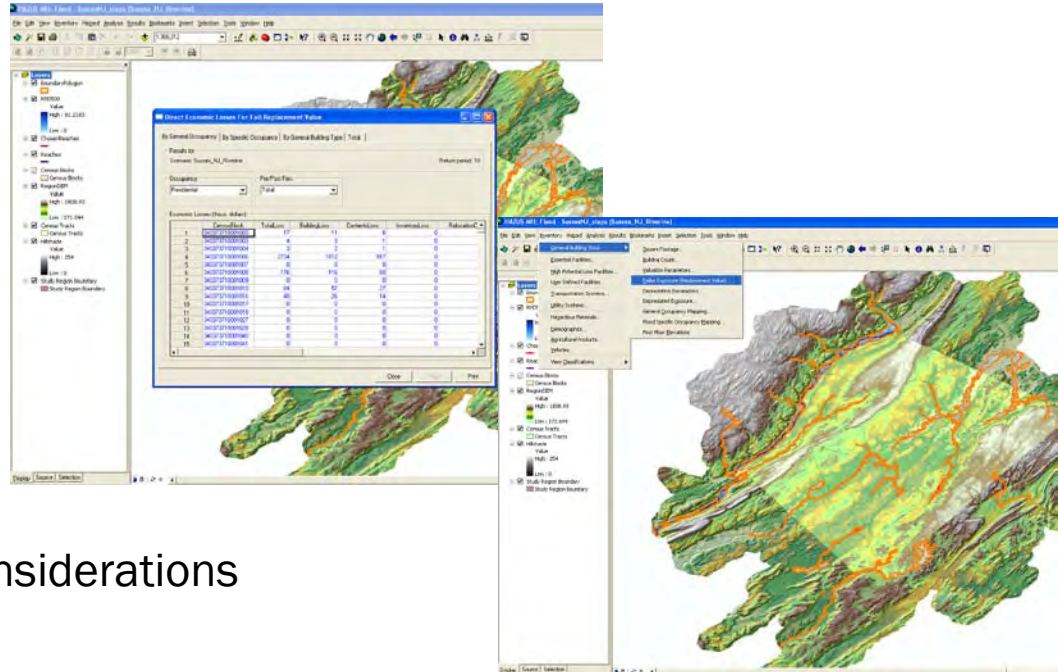
- Residential Loss
- Commercial Loss
- Other Asset Loss

## ■ Percent Damage

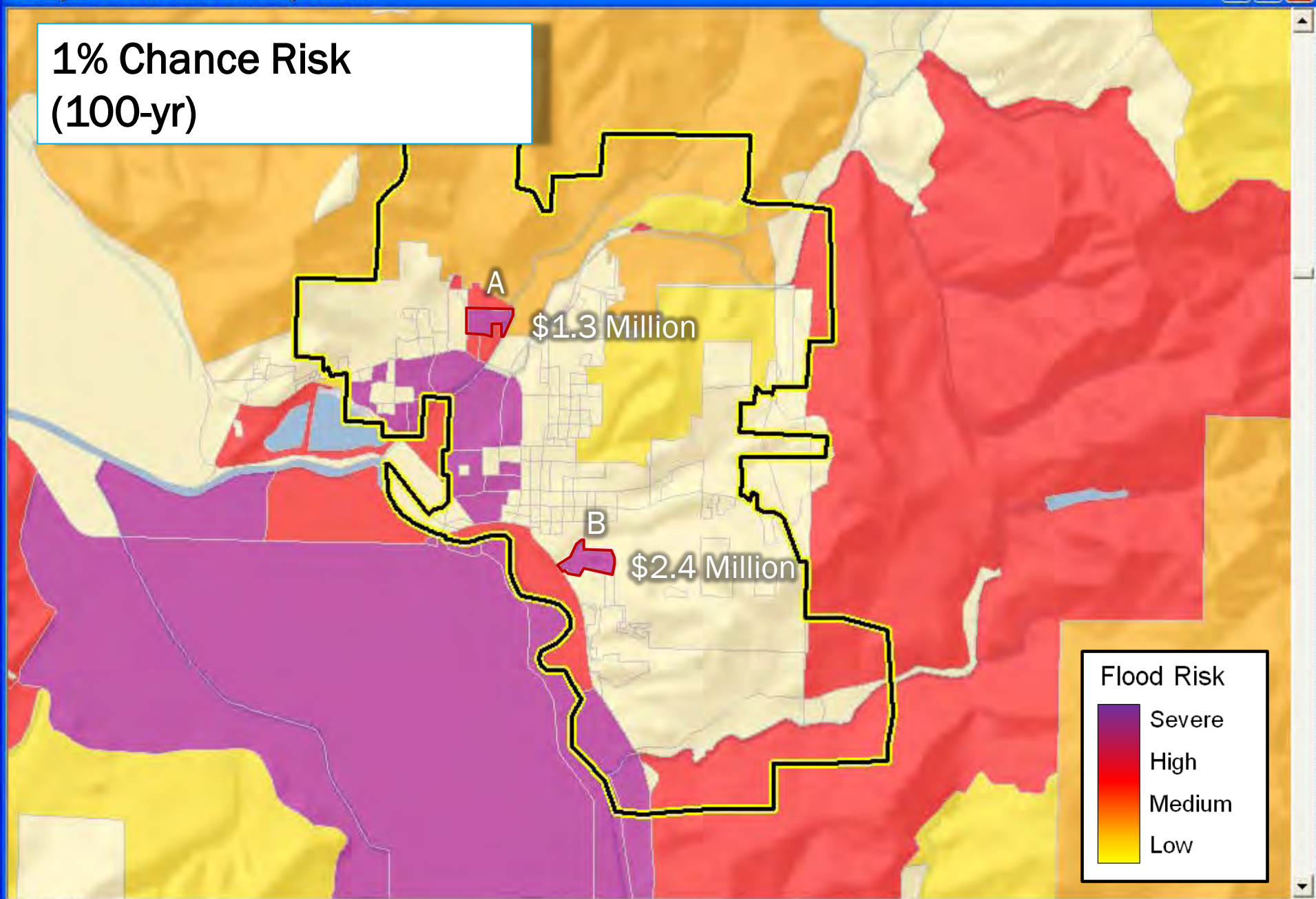
- Evaluates Building Stock
- Structure and Content Considerations

## ■ Business Disruption

- Considers Total Occupancy Tables
- Considers Lost Income and Wages



# 1% Chance Risk (100-yr)



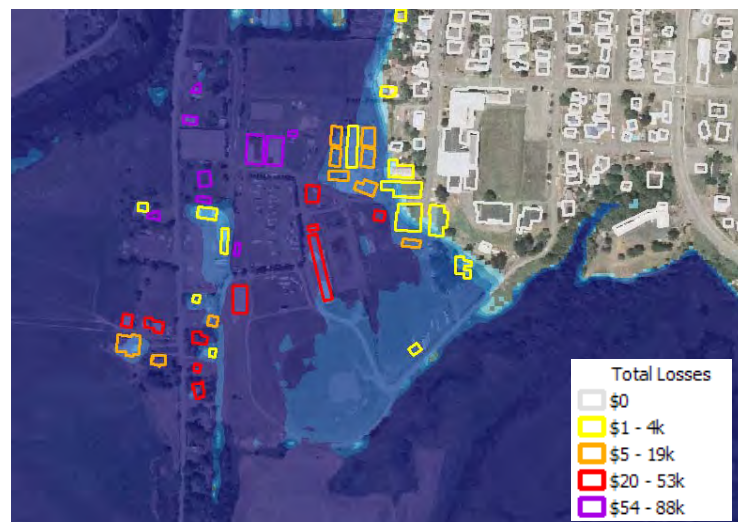
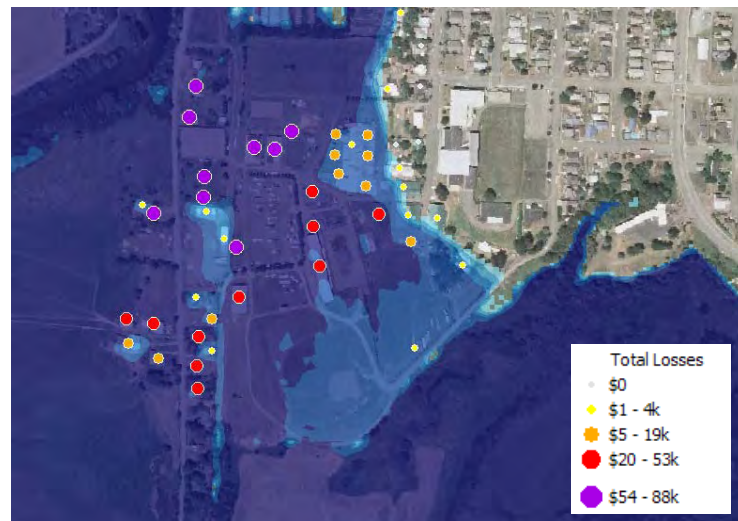
**Flood Risk**

- Severe
- High
- Medium
- Low

# Enhanced Risk Assessment Analyses

## ■ Enhancements could include:




- Risk Assessments at site-specific locations
- Incorporation of locally-provided inventory data (first-floor elevations and/or parcel data)
- Additional sources of flood depth grids
- Supplemental HAZUS analyses or other types of analyses









# Flood Risk Assessment Content Scalability

## ■ Flood Risk Assessment

-  HAZUS analysis for reaches with new or updated studies where depth grids can be generated
-  Should include 10%, 4%, 2%, 1%, and 0.2% annual chance events and Annualized Loss
-  HAZUS GBS Losses (dollar losses, percent damage, business disruption)

## ■ Enhancements

-  Additional events
-  Additional HAZUS loss calculations (infrastructure, critical facilities, user-defined facilities)
-  Use of local data to updated/supplement HAZUS data
-  Non-HAZUS analysis methods (needs to be able to produce the required output to populate the associated tables in the flood risk database)



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# Areas of Mitigation Interest (Enhanced)

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# Areas of Mitigation Interest Types

Items that may have an impact (positive or negative) on the identified flood hazards and/or flood risks - Examples include:

- Community Identified “Hot Spots”
- Previous Claim Areas (e.g. clusters of claim, RL, SRL)
- Riverine and Coastal Flood Control Structures (e.g. dams, levees, coastal berms, etc)
- Floodplain “Pinch Points” (e.g. undersized culverts and bridge openings, etc.)
- Significant proposed and recent floodplain development
- Locations of successful mitigation projects



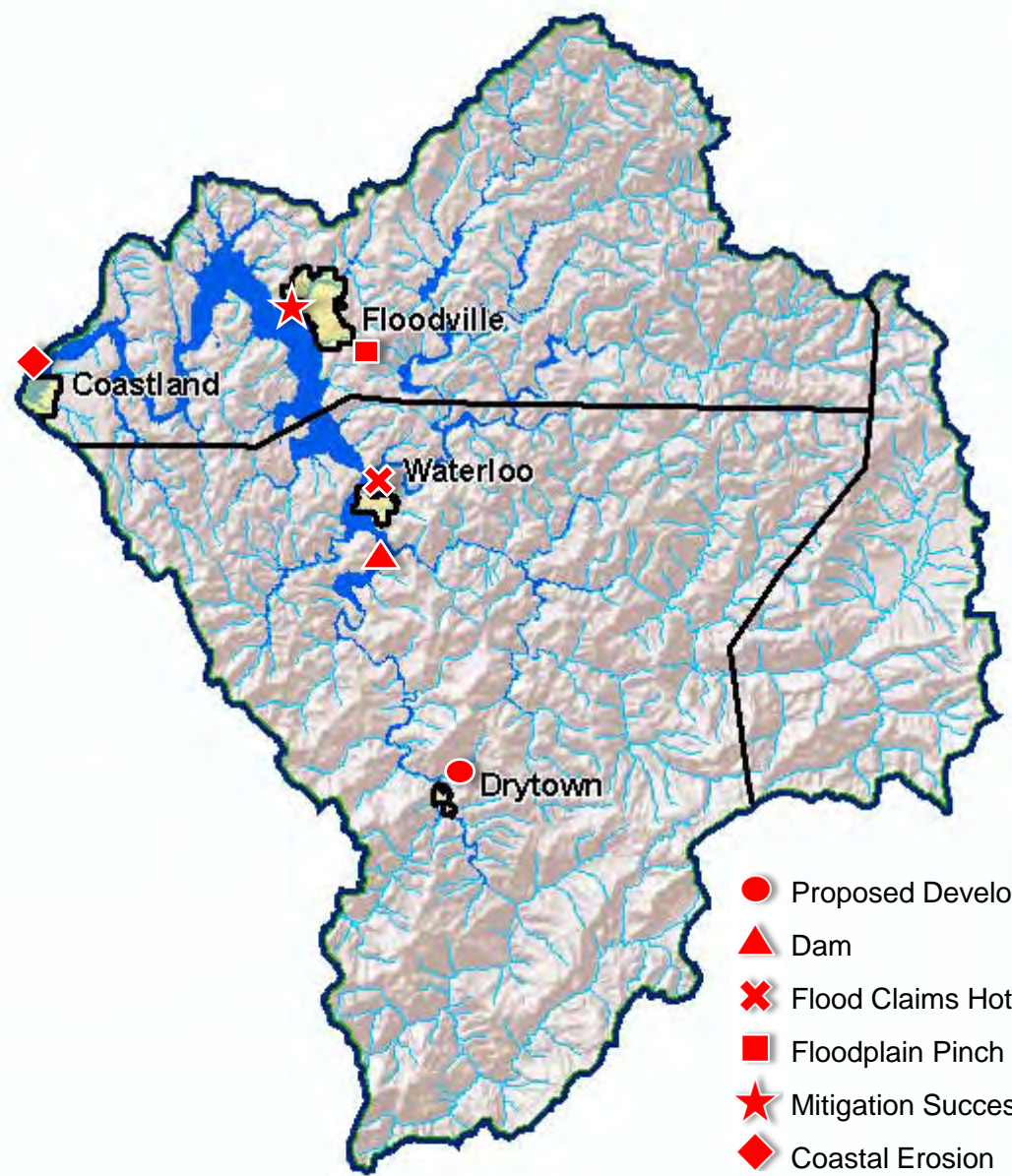
Visualization of  
Areas of Mitigation Interest

### Flood Claims Hot Spot ✖



**Description:**  
Quietwater neighborhood has flooded on 4 separate occasions since 1995. The results have produced over 36 claims from 16 structures. Of these structures, 12 are Repetitive Loss and 2 are Severe Repetitive Loss

**Source:**  
State NFIP and SHMO  
Waterloo Planning and Zoning Dept



- Proposed Development
- ▲ Dam
- ✖ Flood Claims Hot Spot
- Floodplain Pinch Point
- ★ Mitigation Success Area
- ◆ Coastal Erosion



# Areas of Mitigation Interest

## Sources of Data



- Community Provided Data
  - Interviews and questionnaire from Discovery Meeting
  - Mining of existing mitigation plans
- Engineering Data
  - Review of existing H&H models
  - Engineering data from other reports (e.g. USACE)
- Other Government Agency Data
  - Claims data (inc. RL, SRL, clusters, etc)
  - CNMS data
  - Flood control structures

# Areas of Mitigation Interest Content Scalability

- **Areas of Mitigation Interest** 
  - N/A: Only included as an enhanced dataset in FY10
- **Enhanced Dataset** 
  - In FY 2010 Areas of Mitigation Interest is being offered as an enhancement only
  - As the dataset is better defined it is anticipated that it will become a part of each Risk MAP project in future years, with additional enhancements to be later defined



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# Flood Risk Products

- Flood Risk Database
- Flood Risk Report
- Flood Risk Map

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# Flood Risk Database

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# Flood Risk Database (red = enhanced)



## Changes Since Last FIRM

- Horizontal Changes and Results
- **Structure/Population counts impacted by change**

## Depth & Analysis Grids

- Depth (10, 04, 02, 01, 0.2 percent chance)
- Percent Annual Chance
- Percent 30-Year Grid
- **Delivery of Water Surface Elevation (multi-freq)**
- **Water Surface Elevation Change Grid (1%)**
- **Velocity Grids, Annualized Depth, Top and Toe of Levee**
- **Multi Freq Grids for Levee and Coastal Areas, etc.**

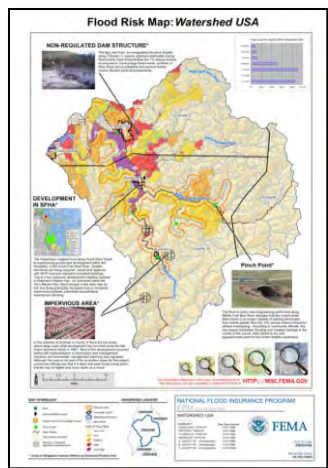
## Flood Risk Assessment

- Average Annualized Loss – 2010
- Refined Flood Risk Assessment
- **HAZUS or Non-HAZUS with improved data/assumptions**

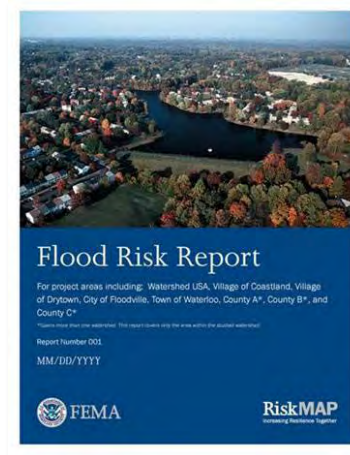
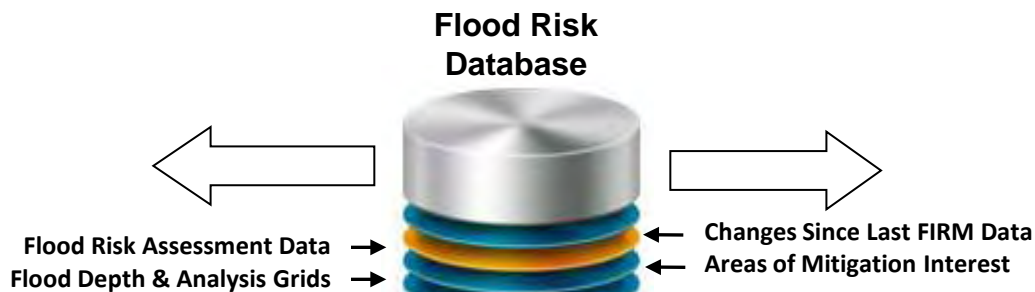
## Areas of Mitigation Interest

- **Areas of Mitigation Opportunity or Awareness**

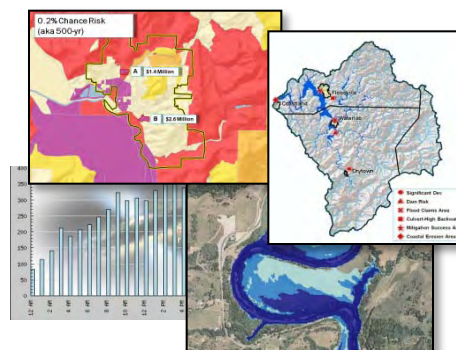
# Flood Risk Database Distribution Context



Flood Risk Map



Flood Risk Report



Ad-Hoc Flood Risk Analyses



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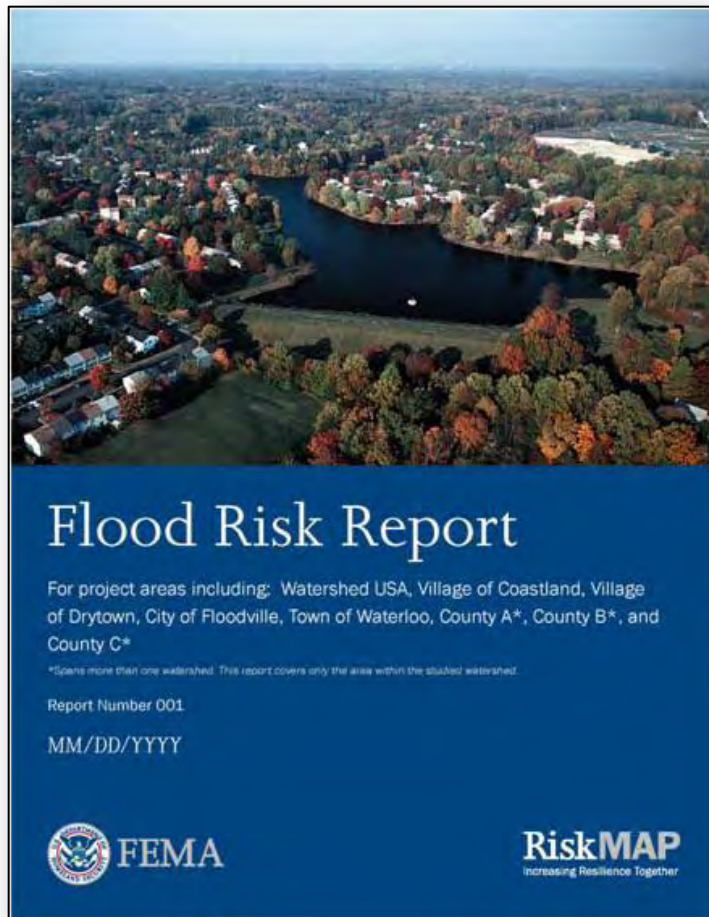
# Flood Risk Report

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# Flood Risk Report Content Overview




- **Background:**
  - Purpose, Methods
  - Risk Reduction Practices
- **Project Results**
  - Changes Since Last FIRM
  - Depth & Analysis Grids
  - Flood Risk Assessment
  - (Enhanced analyses)
    - e.g. Areas of Mitigation Interest
- **Summarized by Locations**
  - Communities and Watersheds



# Flood Risk Report Content – Details

## Watershed /Project Level Summary

**WATERSHED USA HUC-0123456**




**Overview**  
The Watershed USA is located in the northwest portion of the greater Meyer Basin. The tables below provides an overview of the watershed's estimated population, infrastructure types, value, and floodplain management program information. This information should be considered as an indication of the watershed's total exposure.

Category	Total Area (mi <sup>2</sup> )	Population	Net Population	Net Change	CR Index	Flood Hazards	Public Coverage
Watershed USA	10,000	100,000	100,000	0	1.0	100%	100%
Area within EF19	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF20	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF21	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF22	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF23	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF24	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF25	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF26	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF27	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF28	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF29	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF30	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF31	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF32	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF33	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF34	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF35	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF36	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF37	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF38	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF39	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF40	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF41	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF42	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF43	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF44	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF45	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF46	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF47	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF48	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF49	1,000	10,000	10,000	0	1.0	100%	100%
Area within EF50	1,000	10,000	10,000	0	1.0	100%	100%

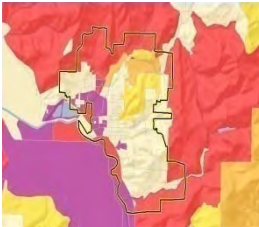
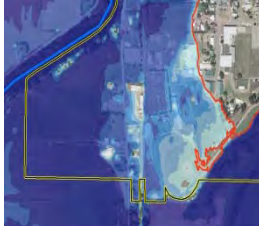
**Changes Since Last Map**  
Mapped Special Flood Hazard Area (SFHA) boundaries depict the locations of the 1% annual chance flood. These areas are subject to change based upon physical, climatologically or engineering methodology updates. The table below summarizes the increases, decreases and net change of SFHAs for areas studied within the watershed. Additional information such as type of Flood zone change, reason for change, and locations of change may be found within the Changes Since Last Map mapping layer and tables located within the Risk Assessment database.

Area of Interest	Total Area (mi <sup>2</sup> )	Increase (mi <sup>2</sup> )	Net Population	Net Buildings	Decrease (mi <sup>2</sup> )	Net Population	Net Buildings
Area within EF19	1,000	0.000	0	0	0.000	0	0
Area within EF20	1,000	0.000	0	0	0.000	0	0
Area within EF21	1,000	0.000	0	0	0.000	0	0
Area within EF22	1,000	0.000	0	0	0.000	0	0
Area within EF23	1,000	0.000	0	0	0.000	0	0
Area within EF24	1,000	0.000	0	0	0.000	0	0
Area within EF25	1,000	0.000	0	0	0.000	0	0
Area within EF26	1,000	0.000	0	0	0.000	0	0
Area within EF27	1,000	0.000	0	0	0.000	0	0
Area within EF28	1,000	0.000	0	0	0.000	0	0
Area within EF29	1,000	0.000	0	0	0.000	0	0
Area within EF30	1,000	0.000	0	0	0.000	0	0
Area within EF31	1,000	0.000	0	0	0.000	0	0
Area within EF32	1,000	0.000	0	0	0.000	0	0
Area within EF33	1,000	0.000	0	0	0.000	0	0
Area within EF34	1,000	0.000	0	0	0.000	0	0
Area within EF35	1,000	0.000	0	0	0.000	0	0
Area within EF36	1,000	0.000	0	0	0.000	0	0
Area within EF37	1,000	0.000	0	0	0.000	0	0
Area within EF38	1,000	0.000	0	0	0.000	0	0
Area within EF39	1,000	0.000	0	0	0.000	0	0
Area within EF40	1,000	0.000	0	0	0.000	0	0
Area within EF41	1,000	0.000	0	0	0.000	0	0
Area within EF42	1,000	0.000	0	0	0.000	0	0
Area within EF43	1,000	0.000	0	0	0.000	0	0
Area within EF44	1,000	0.000	0	0	0.000	0	0
Area within EF45	1,000	0.000	0	0	0.000	0	0
Area within EF46	1,000	0.000	0	0	0.000	0	0
Area within EF47	1,000	0.000	0	0	0.000	0	0
Area within EF48	1,000	0.000	0	0	0.000	0	0
Area within EF49	1,000	0.000	0	0	0.000	0	0
Area within EF50	1,000	0.000	0	0	0.000	0	0

**Flood Risk Assessment**  
The primary objective of the risk assessment is to estimate potential flood losses so that communities within the watershed may better understand their vulnerability and need for identifying and implementing hazard mitigation actions. The table below summarizes the estimated losses including numbers and types of structures impacted by this flood risk assessment. Where available and as appropriate, this assessment has considered local hazard mitigation planning results. Annualized results indicate the estimated dollar value of flood risk this community carries any given year.



1 DRAFT



## Flood Risk Report

For project areas including: Watershed USA, Village of Coastland, Village of Drytown, City of Floodville, Town of Waterloo, County A\*, County B\*, and County C\*

\*Spans more than one watershed. This report covers only the area within the studied watershed.

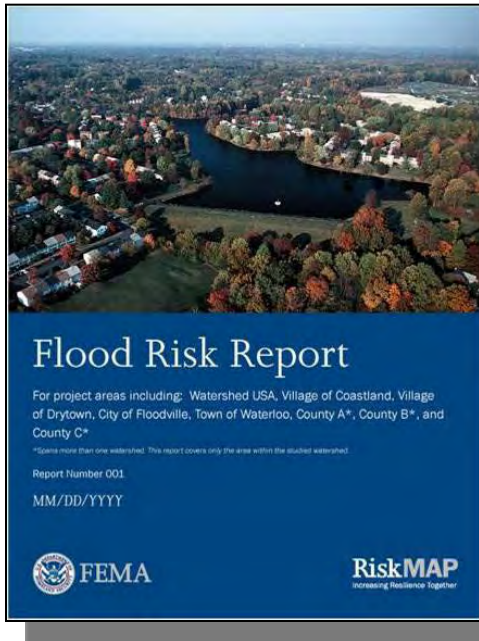
Report Number 001

MM/DD/YYYY



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# Changes Since Last FIRM within the Flood Risk Report



**CITY OF FLOODVILLE** CID 0123456

**Overview**  
The City of Floodville is the largest of five cities located within Anderson County. The tables below provides an overview of the community's estimated population, infrastructure types, value, and floodplain management program information. This information should be considered as an indication of the community's total exposure.

Infrastructure Type	Total Area (mi <sup>2</sup> )	Population	Total Structures	Value (\$)	Estimated Value (\$)	Estimated Value (\$)	Estimated Value (\$)
Residential Single-Family	15.12	15,120	15,120	151,200,000	151,200,000	151,200,000	151,200,000
Commercial	0.50	500	500	5,000,000	5,000,000	5,000,000	5,000,000
Industrial	0.20	200	200	2,000,000	2,000,000	2,000,000	2,000,000
Public Works	0.10	100	100	1,000,000	1,000,000	1,000,000	1,000,000
Other	0.18	180	180	1,800,000	1,800,000	1,800,000	1,800,000

**Changes Since Last Map**  
Mapped Special Flood Hazard Area (SFHA) boundaries depict the locations of the 1% annual chance flood. These areas are subject to change based upon physical, climatological or engineering methodology updates. The table below summarizes the increases, decreases and net change of SFHAs for this community. Additional information such as type of flood zone change, reason for change, and location changes are located within the Changes Since Last Map mapping layer and tables located within the Risk Assessment database.

Area of Interest	Total Area (mi <sup>2</sup> )	Increase (mi <sup>2</sup> )	Incr Population	Incr Buildings	Decrease (mi <sup>2</sup> )	Decr Population	Decr Buildings
Area within SFHA	21.082	1.038	1,785	4,939	-2.556	-1,909	-647
Area within Floodway	3.2121	0.739	100	42	-0.1328	-17	-17
Area within SFHA	-1.519	-	-	-	-	-	-
Area within Floodway	3.0793	-	-	-	-	-	-

**Additional Analyses Performed:**  
Changes Since Last Map can also affect water surface elevations, and therefore impact estimated depth of flooding. The table below summarizes the increases, decreases and net change of SFHA flood elevations and depths.

Area of Interest	Net Change (mi <sup>2</sup> )	Net Population	Net Buildings
Area within SFHA	-1.519	-124	4,291
Area within Floodway	3.0793	83	25

**Flood Risk Assessment**  
The primary objective of the risk assessment is to estimate potential flood losses so that communities may better understand their vulnerability and need for identifying and implementing hazard mitigation actions. The table below summarizes the estimated losses including numbers and types of structures impacted by this flood risk assessment. Where available and as appropriate, this assessment has considered local hazard.



Area of Interest	Total Area (mi <sup>2</sup> )	Increase (mi <sup>2</sup> )	Incr Population	Incr Buildings	Decrease (mi <sup>2</sup> )	Decr Population	Decr Buildings
Area within SFHA	21.082	1.038	1,785	4,939	-2.556	-1,909	-647
Area within Floodway	3.2121	0.739	100	42	-0.1328	-17	-17
Area of Interest	Net Change (mi <sup>2</sup> )	Net Population	Net Buildings				
Area within SFHA	-1.519	-124	4,291				
Area within Floodway	3.0793	83	25				

**Enhanced**

# Flood Risk Report Content – Details and Scalability

## Flood Risk Report Tables

### Flood Risk Assessment (example)

*Watershed USA's flood risk assessment incorporates results from recently performed HAZUS-MH Level 1 and 2 analyses taken from local hazard mitigation plans. FEMA updated these analyses to account for newly modeled areas throughout the watershed and more detailed building locations and values provided by the local governments. The highest areas of flood risk were concentrated in the City of Floodville as well as unincorporated portions of the watershed along Indian Creek. This area accounts for nearly 70% of the watershed's total estimated flood risk and should be evaluated for potential risk reduction activities*

Percent Chance Event	Total Asset Loss		Residential Asset Loss			Commercial Asset Loss			Other Asset Loss			Business Disruption
	Dollar Losses	Percent Damage	Units	Dollar Losses	Percent Damage	Units	Dollar Losses	Percent Damage	Units	Dollar Losses	Percent Damage	
10% (10-yr)	\$15,212,203	4.55%	706	\$10,439,703	13.66%	42	\$3,112,500	1.55%	33	\$1,660,000	0.33%	\$760,610
4% (25-yr)	\$20,519,895	6.13%	913	\$11,804,895	15.44%	66	\$4,980,000	2.48%	75	\$3,735,000	0.75%	\$1,025,995
2% (50-yr)	\$25,191,613	7.53%	1,079	\$13,571,613	17.76%	83	\$6,225,000	3.10%	108	\$5,395,000	1.08%	\$1,259,581
1% (100-yr)	\$40,230,797	12.02%	1,992	\$19,273,297	25.22%	125	\$9,337,500	4.64%	232	\$11,620,000	2.33%	\$2,011,540
0.2% (500-yr)	\$81,480,216	24.35%	2,532	\$32,925,216	43.08%	415	\$31,125,000	15.48%	349	\$17,430,000	3.50%	\$4,074,011
Annualized (\$/yr)	\$365,269			\$176,029			\$109,560			\$79,680		\$18,263





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# Flood Risk Map

**RiskMAP**

Increasing Resilience Together



# Flood Risk Map (accompanies and is a subset of the Flood Risk Report)



## Flood Risk Report

For project areas including: Watershed USA, Village of Coastland, Village of Drytown, City of Floodville, Town of Waterloo, County A\*, County B\*, and County C\*

\*Spans more than one watershed. This report covers only the area within the studied watershed.

Report Number 001

MM/DD/YYYY



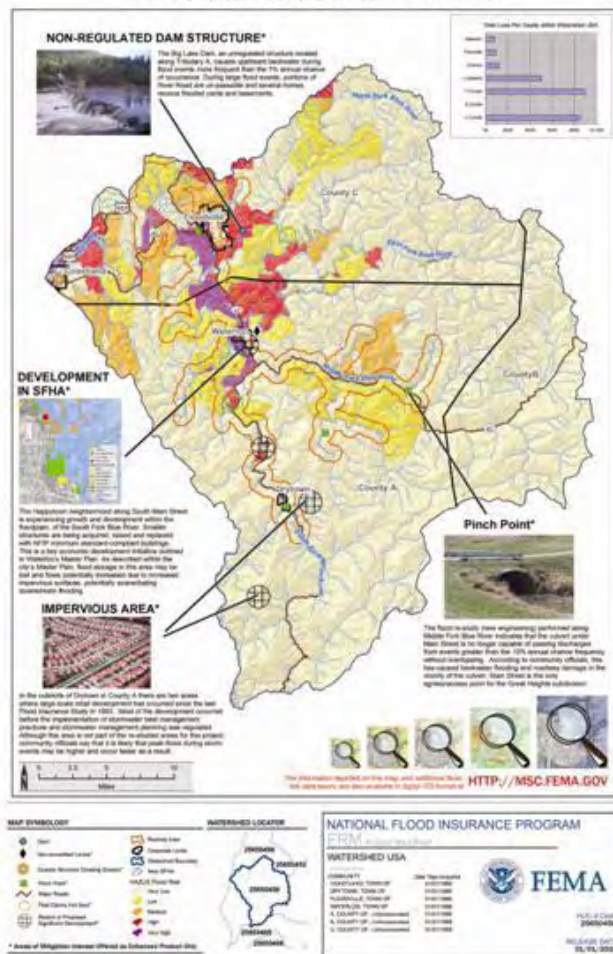
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**RiskMAP**  
Increasing Resilience Together



# Flood Risk Map

Flood Risk Map: Watershed USA



- 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

## MAP SYMBOLOGY

- |   |   |  |                    |
|---|---|--|--------------------|
|  | Dam*  |   | Restudy Area       |
|  | Non-accredited Levee*                       |   | Corporate Limits   |
|  | Coastal Structure Creating Erosion*         |   | Watershed Boundary |
|  | Pinch Point*                                |   | New SFHA           |
|  | Major Roads                                 | <b>HAZUS Flood Risk</b>  |                    |
|  | Past Claims Hot Spot*                       |   | Very Low           |
|  | Recent or Proposed Significant Development* |   | Low                |
|   |   |   | Medium             |
|   |   |   | High               |
|   |   |  | Very High          |

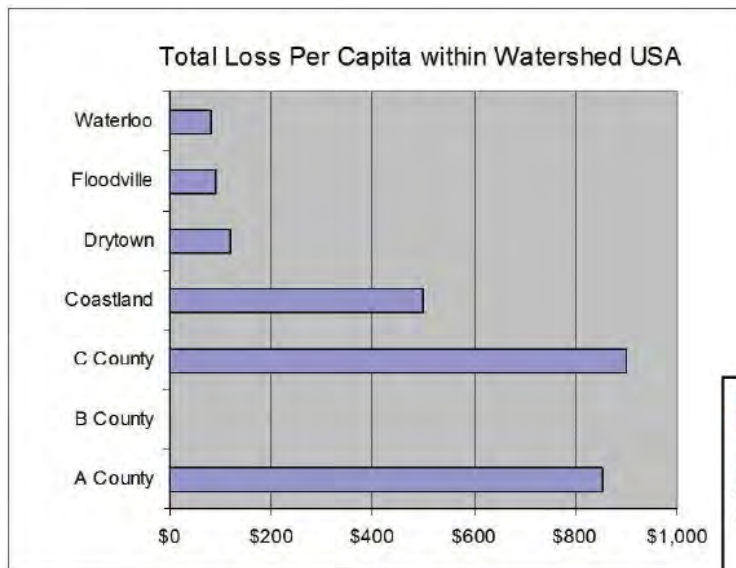
\* Areas of Mitigation Interest Offered as Enhanced Product Only

## WATERSHED LOCATOR



# Flood Risk Map

## Community Level per Capita Losses



### NATIONAL FLOOD INSURANCE PROGRAM FRM FLOOD RISK MAP

#### WATERSHED USA

Watershed Affects

COMMUNITY	Date Topo Acquired
COASTLAND, TOWN OF	01/01/1999
DRYTOWN, TOWN OF	01/01/1999
FLOODVILLE, TOWN OF	01/01/1999
WATERLOO, TOWN OF	01/01/1999
A, COUNTY OF - Unincorporated	01/01/1999
B, COUNTY OF - Unincorporated	01/01/1999
C, COUNTY OF - Unincorporated	01/01/1999



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HUC-8 Code  
**25650458**

RELEASE DATE  
**01/01/2010**

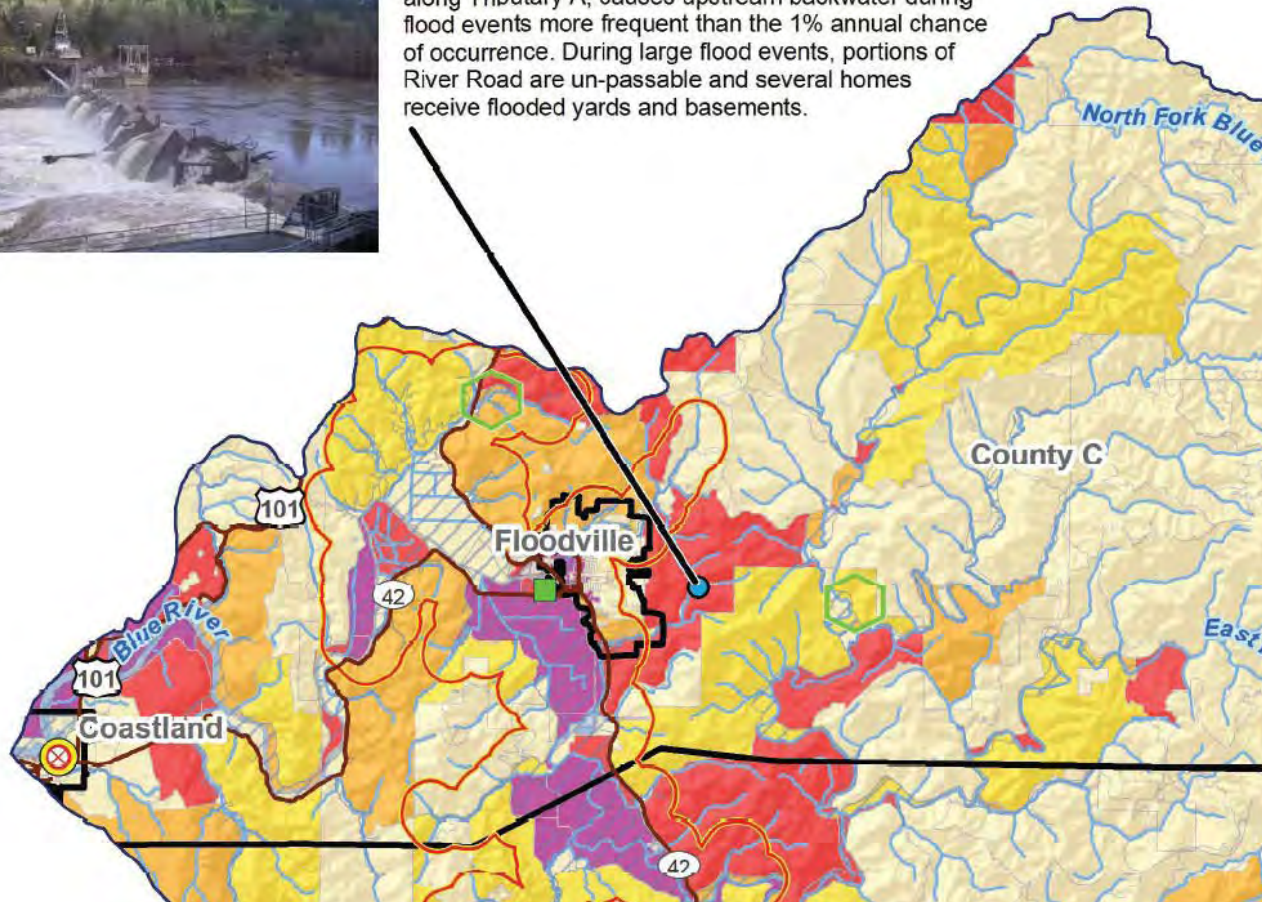


# Flood Risk Map

## NON-REGULATED DAM STRUCTURE\*



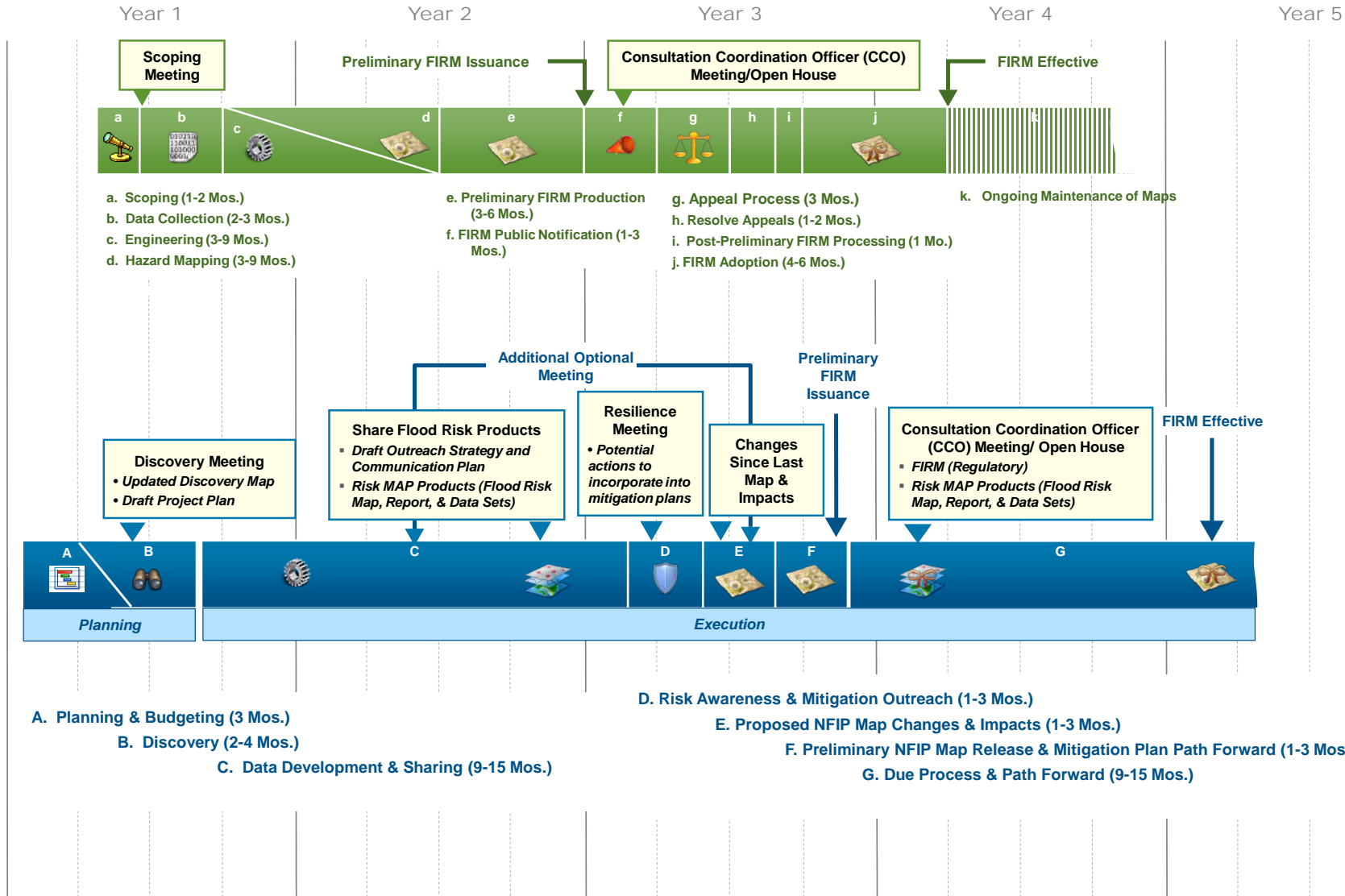
The Big Lake Dam, an unregulated structure located along Tributary A, causes upstream backwater during flood events more frequent than the 1% annual chance of occurrence. During large flood events, portions of River Road are un-passable and several homes receive flooded yards and basements.



# Map Modernization and Risk MAP Project Timelines

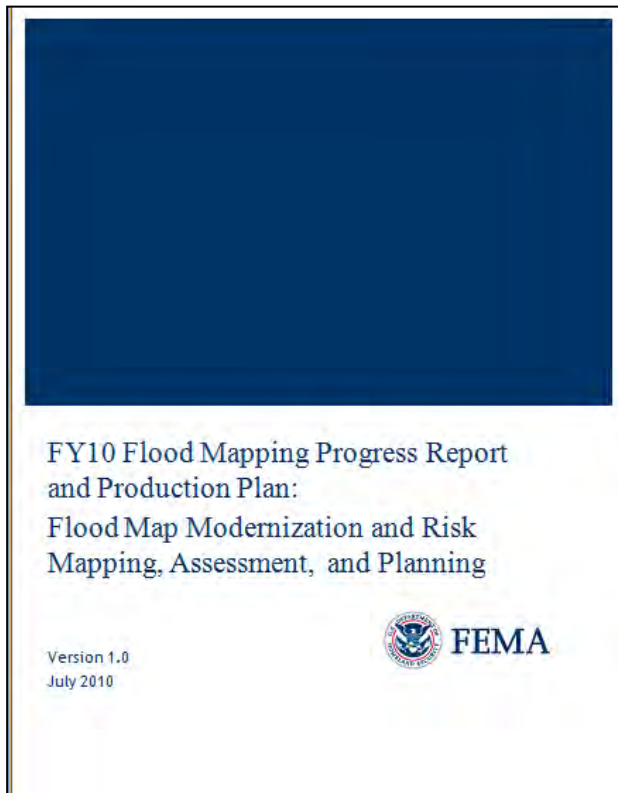
Map Modernization  
2 - 3 years

Risk MAP  
3 - 4 years





# FY10 Flood Mapping Progress Report and Production Plan



- Update on performance in the Flood Map Modernization Program.
- Strategy for prioritizing and initiating coastal, levee, riverine, and Cooperating Technical Partner (CTP) flood engineering and map data updates for Risk MAP.
- U.S. Maps depicting map production progress, planned updates, and an appendix that lists by State and county all scheduled and completed flood map production activities for Map Mod and Risk MAP projects.
- In FY10, Risk MAP flood map studies are beginning to reflect watershed-based analyses and project planning.
- Available on FEMA website at:
  - [http://www.fema.gov/plan/prevent/fhm/mm\\_main.shtm](http://www.fema.gov/plan/prevent/fhm/mm_main.shtm)

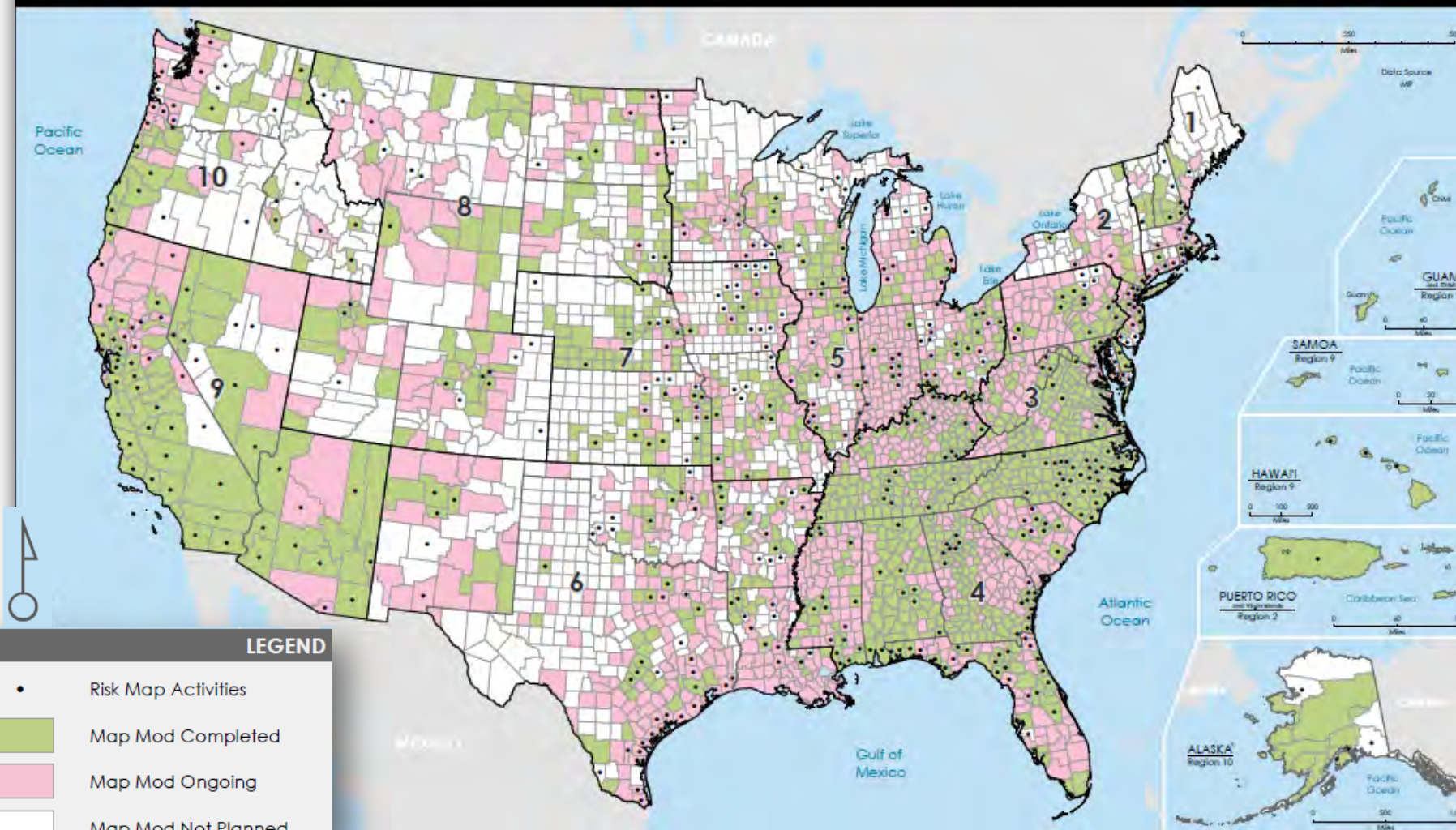
# Map 2: Risk MAP Activities Relative to Map Mod Counties Through FY10

NATIONAL FLOOD INSURANCE PROGRAM

Map 2: Risk MAP Activities Relative to Map Mod Counties Through FY10



FEMA  
As of May 2010



# Conversion to Risk MAP

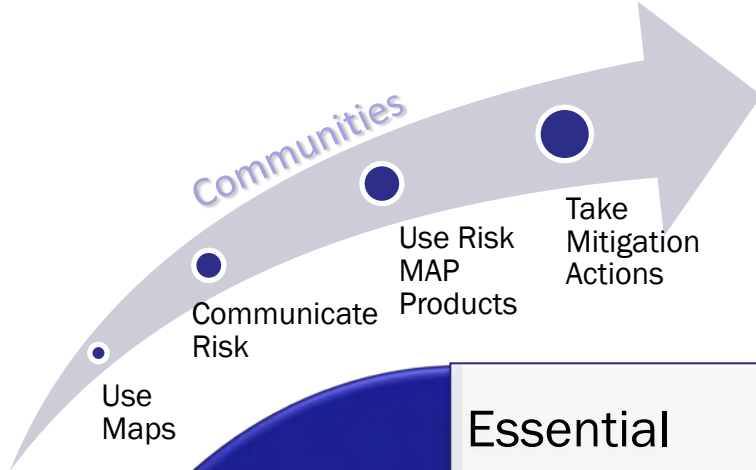
FEMA has identified Map Mod projects where communities could benefit significantly from a conversion to Risk MAP now.

Which projects are being considered for conversion?

- Less than 10% of existing Map Mod projects (more than 100)
- Based on where Risk MAP elements could provide significant benefit to communities having their maps modernized
- Issues that have come up through a communities modernized mapping process that may be addressed by Risk MAP program elements and products

We will not be considering projects that have had their Letter of Final Determinations issued

# Risk MAP



## Objectives of Risk MAP Conversions

<p><b>Essential Track</b></p>	<ol style="list-style-type: none"> <li>1. Communicate what has changed</li> <li>2. Educate local officials on how to maintain/update SFHA</li> <li>3. Build additional risk awareness among community officials</li> <li>4. Present FEMA options to address risk and reduce hazards</li> <li>5. Promote local officials to communicate risk</li> </ol>	Countywide
<p>Risk Awareness &amp; Mitigation Track</p>	<p><i>Reinforce Objectives 3-5</i></p> <ol style="list-style-type: none"> <li>6. Document mitigation actions to take</li> </ol>	
<p>Data &amp; Engineering Track</p>	<ol style="list-style-type: none"> <li>7. Improve engineering data for risk assessment products</li> </ol>	
<p>Other Risk MAP Products</p>	<ol style="list-style-type: none"> <li>8. Create risk assessment products</li> </ol>	





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THE RISK IS REAL

# Mitigation Works



## NFIP Reform Update

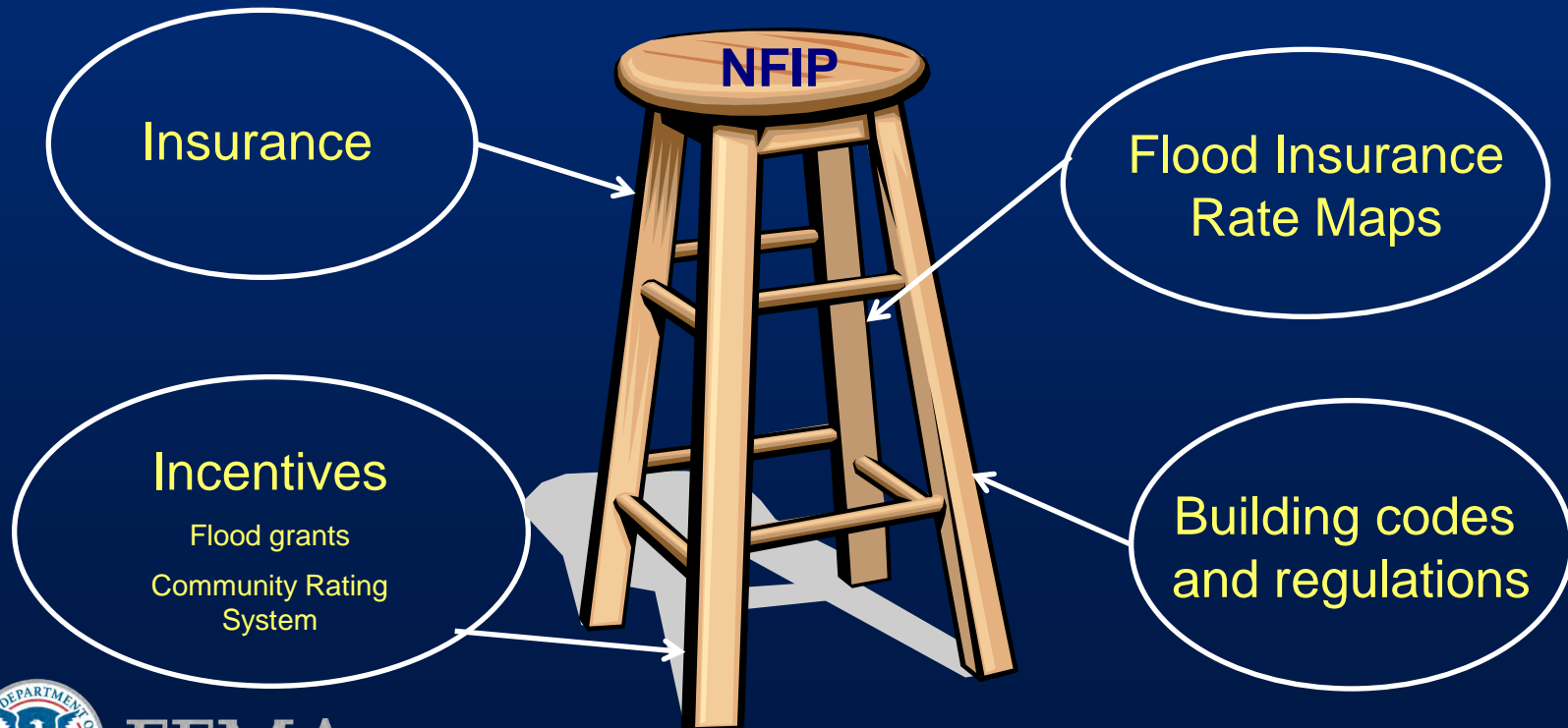
October 2010



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# Today's Paradigm

The NFIP is a voluntary Federal program enabling property owners in participating communities to purchase insurance against flood losses in exchange for adopting and enforcing regulations that reduce future flood damages. A participating community's floodplain management regulations, must meet or exceed the NFIP minimum requirements.



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# The Call for Reform

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Building on what we've heard...

- Call for Issues (1998 - 2000)
- American Institute for Research (2001 – 2006)
- GAO reports (multiple)
- NFIP Listening Session (2009)



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# NFIP REFORM

GAO findings

Stakeholders

“The Clips”  
vocal  
push back

Agreement/Conflict

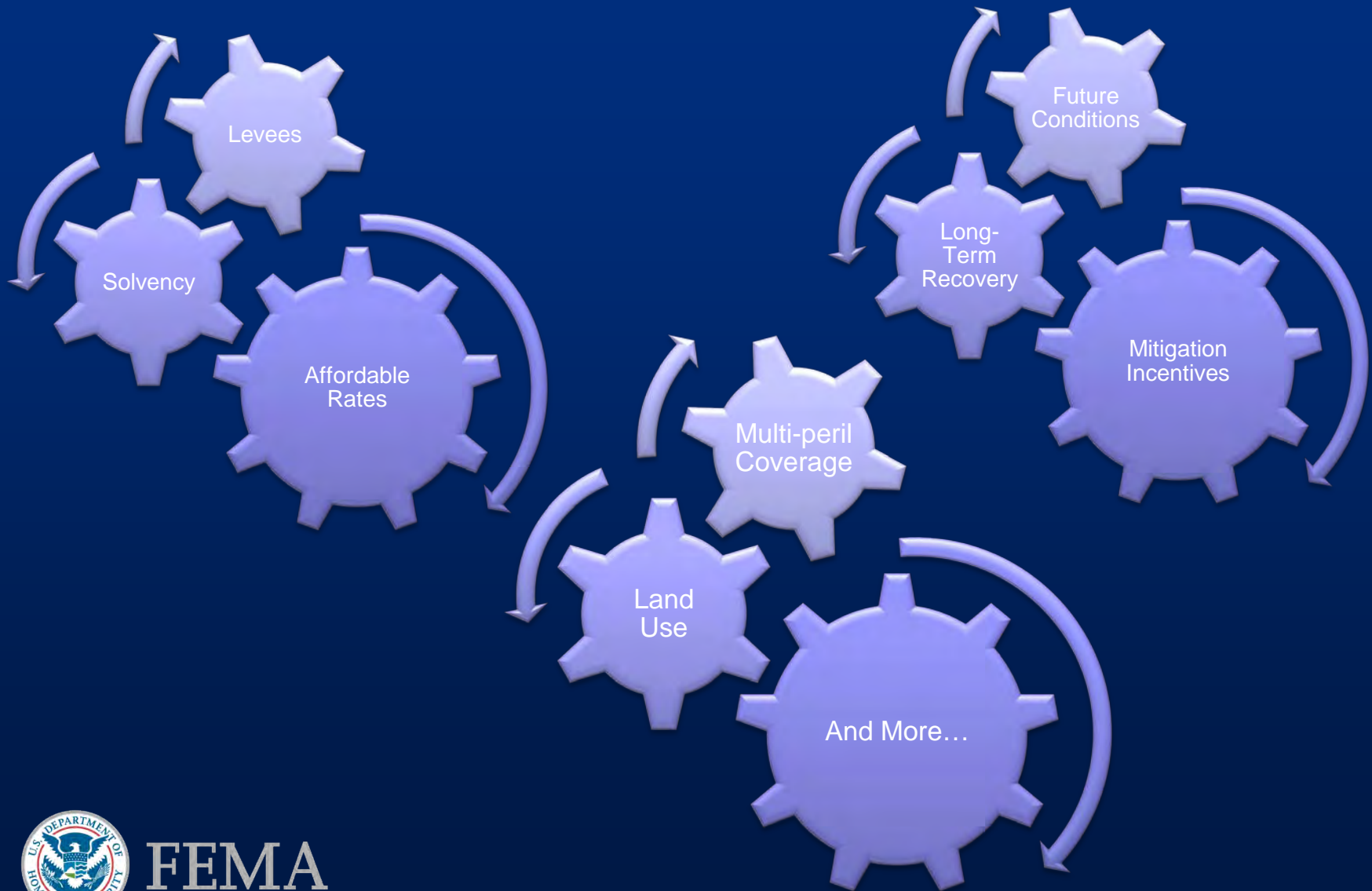
1. Actuarial rates - reduce losses from policy subsidies and rep loss properties
2. Increase property owner participation
3. Develop accurate maps
4. Effective oversight of insurance operations

1. Affordable insurance rates
2. No mandatory purchase
3. Stop the maps



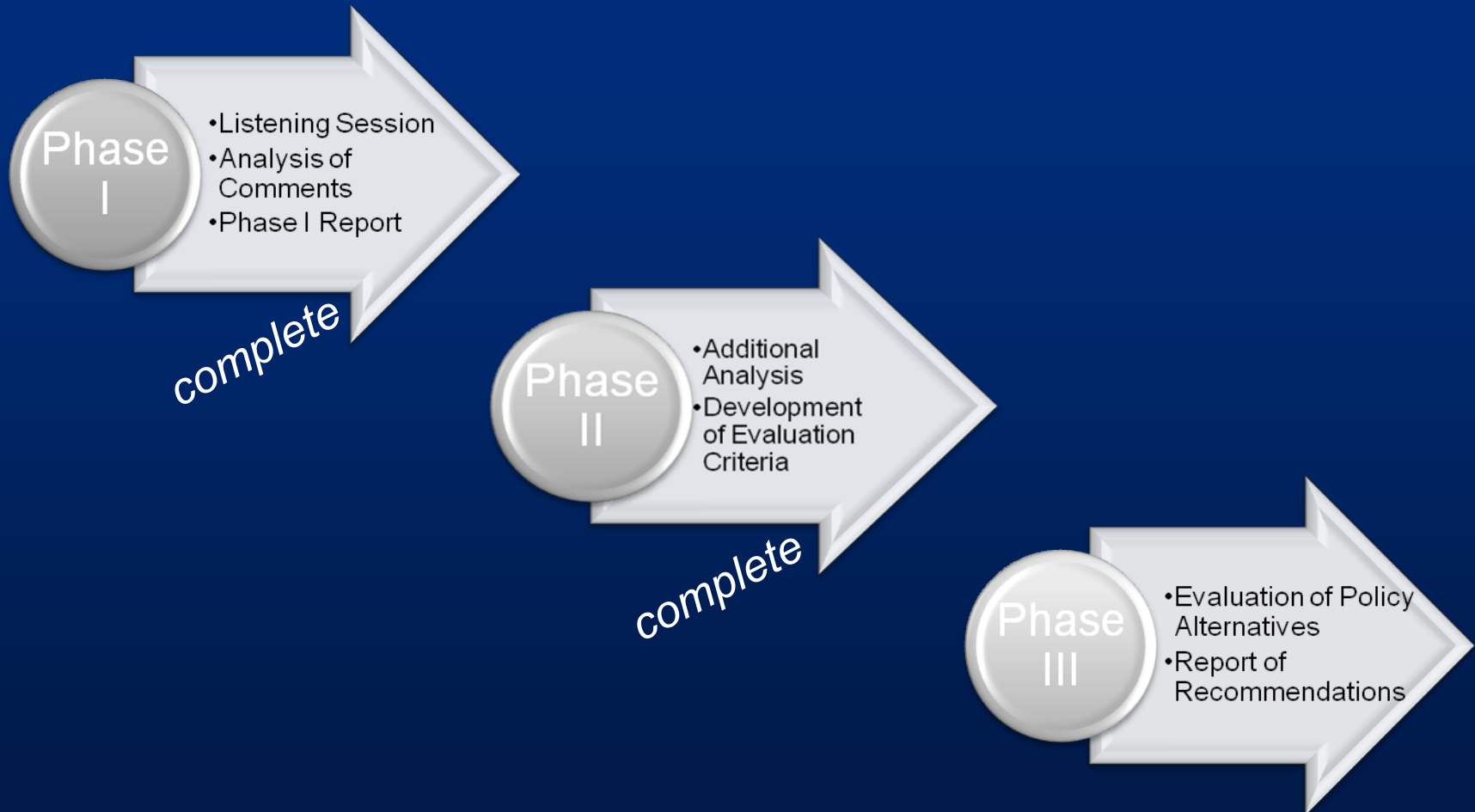
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# Hot Issues: Turning Towards Innovation



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# NFIP Public Policy Reform Process



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# Phase I - *Completed*

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- Phase I Goal: Capture stakeholder concerns and recommendations to understand the need for NFIP reform
- Listening Session held November 5-6, 2009 in Washington, DC ~ *200 participants ~ 1,285 comments*
- Web Comment period open from November to January ~ *165 comments*
- The analysis of comments culminated in a final report entitled “NFIP Stakeholder Listening Session: Findings and Next Steps”



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# Phase I: NFIP Listening Session – Summary Themes

Most Frequent Themes (in order)	% of Overall Comments
Communication needs to become a priority	21%
Improve risk maps	20%
Modify the definitions and process for calculating risk, rates and coverage	15%
Floodplain Management Plan standards and guidelines	9%
Expand the risk pool	8%
Subsidies need to be addressed in a definitive manner	7%
Overall take on NFIP	7%
Increase incentives (state, community and individual levels)	5%
Mitigate risk using existing tools	3%
Miscellaneous	2%
Make historical data readily available to the general public	2%
Evaluate and improve the handling of Repetitive Loss Properties	1%

# Working Group Timeline

Phase II

Phase III

1.  
Define the  
Problem

2.  
Determine  
Evaluation  
Criteria

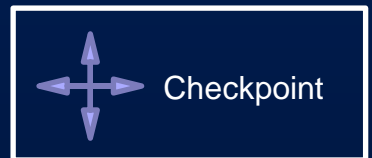
3.  
Identify  
Alternative  
Policies

4.  
Evaluate  
Alternative  
Policies

5.  
Distinguish  
Between  
Alternative  
Policies

6.  
Implement  
the Policy

Vetting:



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# Phase II - *Completed*

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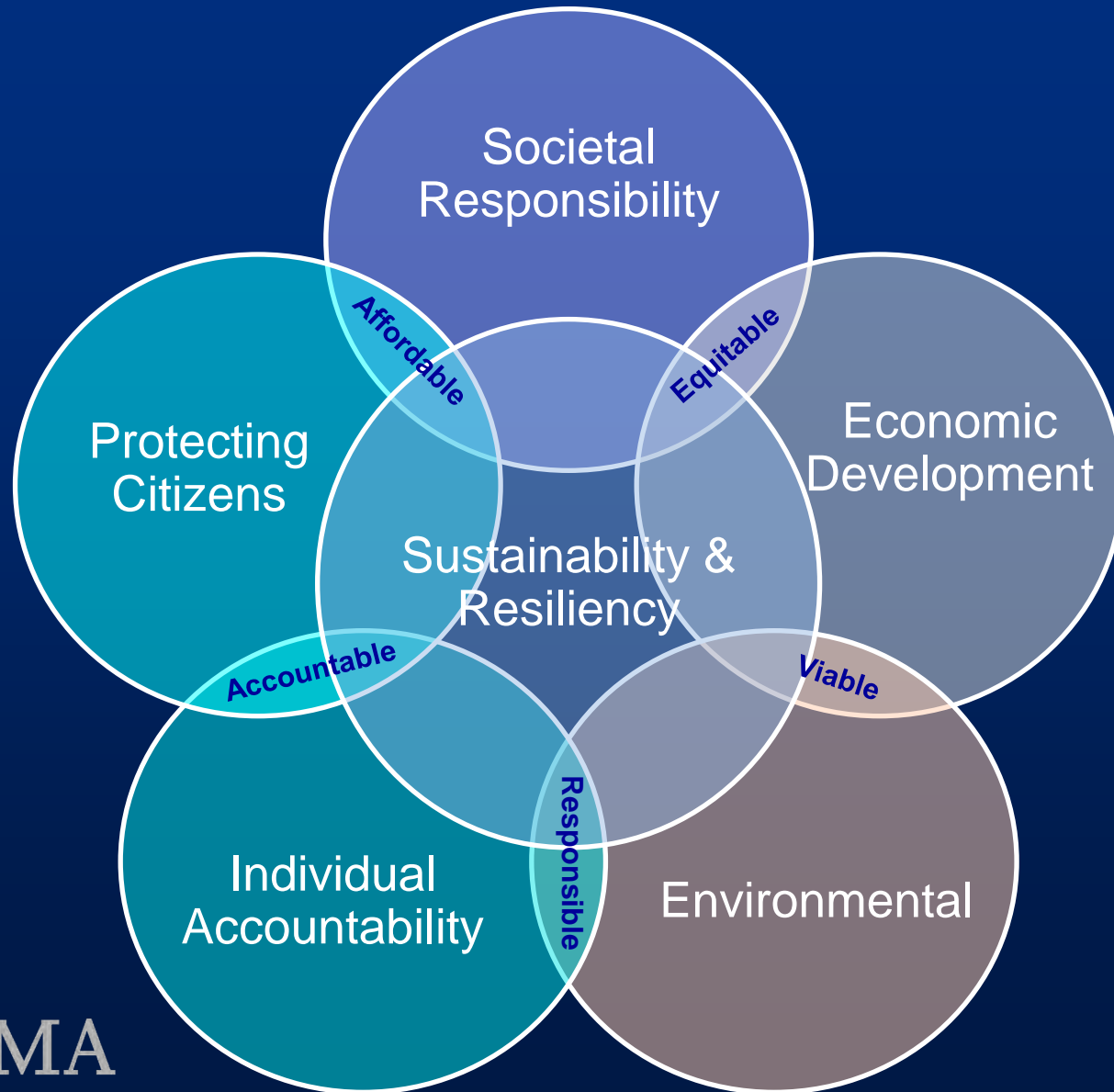
- Phase II Activities:

- Adopted a policy analysis framework to guide the NFIP reform effort
- Analyzed existing stakeholder input regarding the NFIP to understand the public policy context
- Developed and adopted guiding principles to direct the NFIP reform effort
- Adopted evaluation criteria to be used in scoring each of the proposed policy alternatives (to be developed in Phase III)
- Issued final Phase II Report – September 2010



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# NFIP Reform Public Policy Context



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# NFIP Reform Guiding Principles

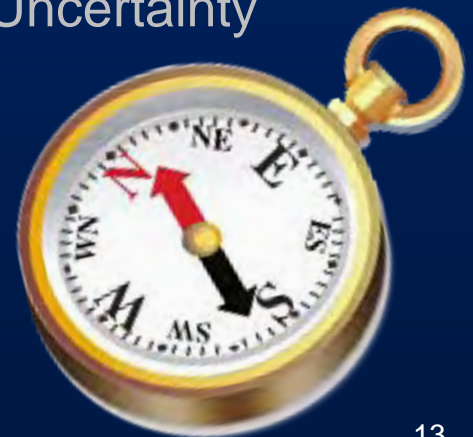
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- ❖ Protect lives, property, environmental and cultural assets.
- ❖ Motivate people to voluntarily participate in reducing society's risk.
- ❖ Make the best use of public resources.
- ❖ Ensure selection of an adoptable and sustainable policy.
- ❖ Consider notions of equity with regard to risk and socioeconomic status.
- ❖ Recognize and consider the governance and responsibility of states, communities and tribes as a means to achieve sustainability and resiliency.

# NFIP Reform Evaluation Criteria

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- Evaluation criteria were developed to be used in scoring the policy alternatives in Phase III
- The following characteristics defined our criteria:
  - ✓ Accurate and Unambiguous
  - ✓ Understandable
  - ✓ Comprehensive but Concise
  - ✓ Practical
  - ✓ Direct and Ends-oriented
  - ✓ Sensitive to the Alternatives under consideration
  - ✓ Measurable and Consistently Applied
  - ✓ Explicit about Uncertainty



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# FINAL Set of Evaluation Criteria

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- Cost of flood is borne by individuals
- Individuals incur costs of increased risk gradually
- Full assistance is provided to those who cannot afford the cost of flood
- Minimize exposure to flood hazards
- Maximize natural and beneficial functions of the floodplain
- Efficiency - Maximize the societal benefit/cost ratio
- Administrative feasibility
- Political acceptability



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# The Weighted Criteria – FEMA example

#	Criteria	HQ Leadership <i>n=9</i>	Regional Leadership <i>n=9</i>	Mitigation Regional Staff <i>n=59</i>	FIMA HQ Staff <i>n=60</i>
1	Cost of flood is borne by individuals.	16%	20%	22%	20%
2	Individuals incur costs of increased risk gradually.	11%	14%	16%	14%
3	Full assistance is provided to those who cannot afford the cost of flood.	8%	9%	9%	7%
4	Minimize exposure to flood hazards.	18%	21%	21%	25%
5	Maximize natural and beneficial functions of the floodplain.	16%	18%	16%	17%
6	Efficiency - Maximize the societal benefit/cost ratio.	13%	9%	8%	8%
7	Administrative feasibility	10%	6%	5%	5%
8	Political acceptability	9%	3%	3%	4%



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# NFIP REFORM: PHASE III



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# Phase III Overview

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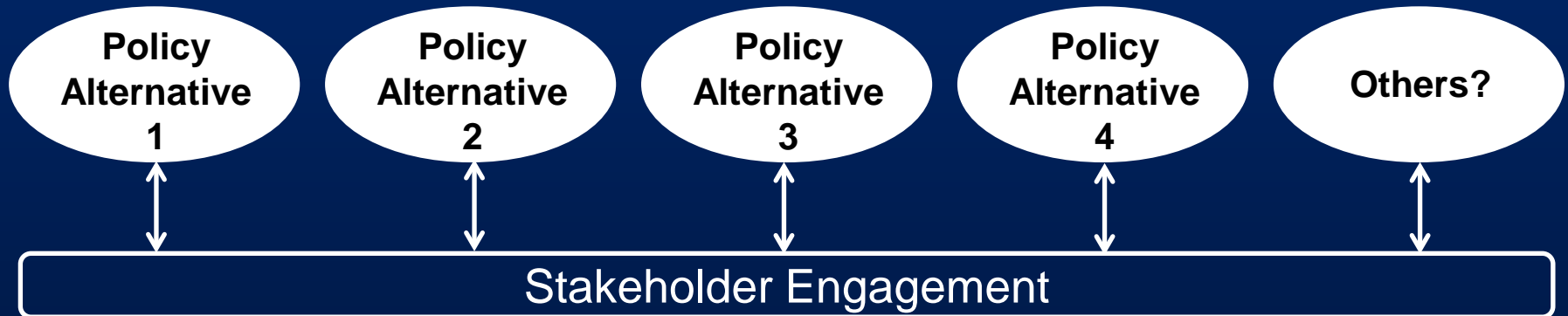
- Phase III Activities:
  - Develop draft policy alternatives to consider in the reform effort
  - Gather stakeholder input to further define policy alternatives
  - Evaluate the alternatives using the evaluation criteria and weighting developed in Phase II
  - Determine recommended policy alternative and develop into a complete reform package including legislative and regulatory language
  - Submit full reform proposal to FEMA leadership



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# Step 3: Identify & Develop Alternative Policies





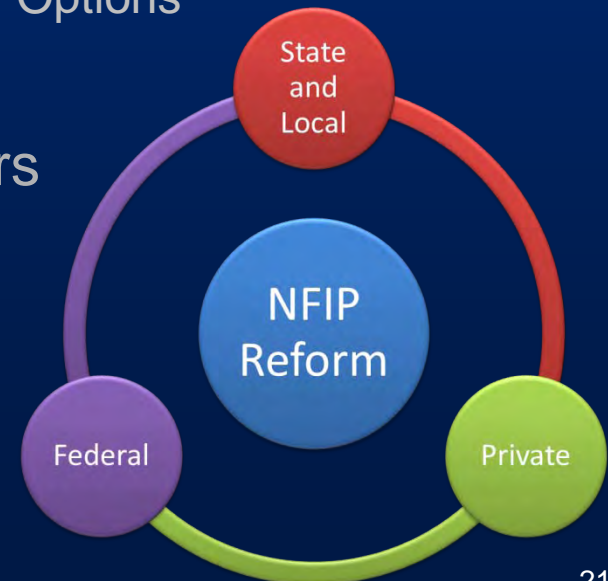
# Reform Packages



REPAIR

# Step 3: Policy Alternative Themes

- The NFIP Reform WG has identified four initial policy themes.
- For each theme, possible policy alternatives have been identified and analyzed in a white paper.
  - ❑ Theme 1: National Flood Insurance Policy Options
  - ❑ Theme 2: Privatization Policy Options
  - ❑ Theme 3: Community/State-based Policy Options
  - ❑ Theme 4: Federal Assistance Policy Options
- The policy themes are subject to modification as the Working Group gathers additional stakeholder input and engages industry expertise.



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# FEMA NFIP Summit: September 21-23

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- 40 participants from across FEMA HQ and Regions attended the Summit (see full participant list on next slide)
- The Summit resulted in the following outcomes:
  - Created internal advocates for NFIP Reform
  - Gathered input on policy options and identified any missing options
  - Solicited policy recommendations for each theme



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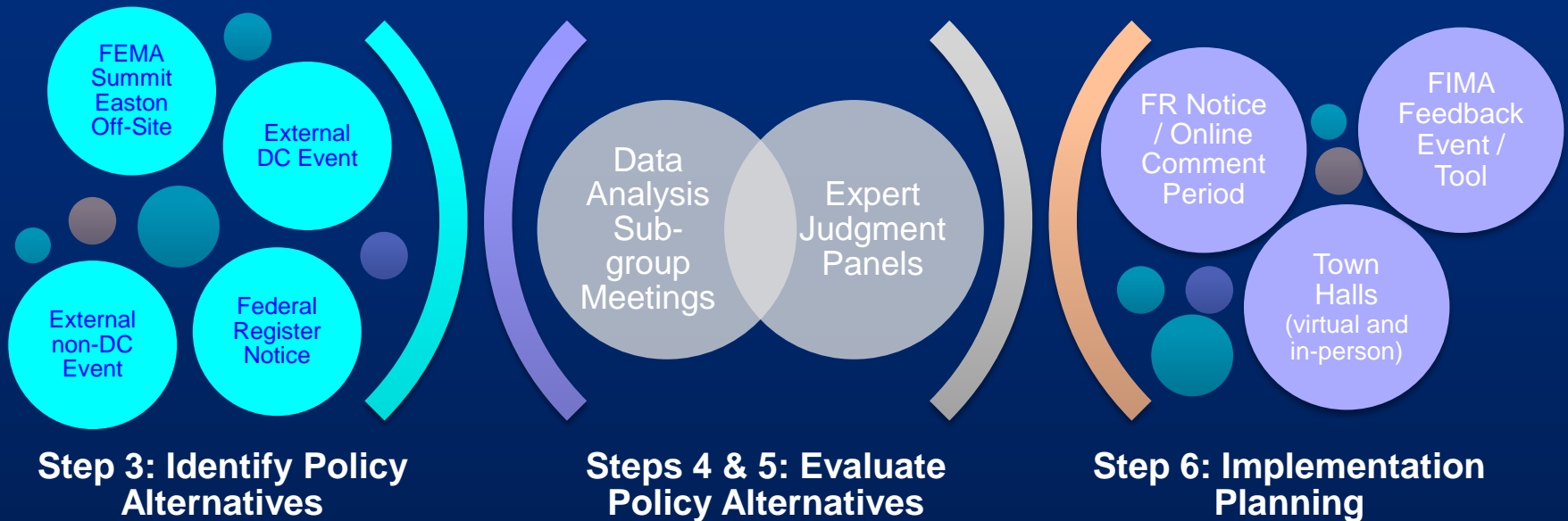
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# WHAT'S NEXT?



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# Stakeholder Engagement Mechanisms



*Note: This diagram is not intended as a timeline, but rather a representation of how the mechanisms align with the outcomes of each step of the Reform effort. The timeline for each of these events is still under development.*



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