



FEMA

# LOCAL OFFICIALS' MEETING

## Kenosha County Upper Fox River Watershed and Coastal Study Map Update

KENOSHA COUNTY, WISCONSIN

May 31, 2022

**RiskMAP**  
Increasing Resilience Together



# Zoom Meeting Housekeeping

- Please enter the organization you belong to in the group chat or to Betsy Finlay so that we have a record of all stakeholders who attended
- If you were not on the original invite and would like to keep updated, please also include your e-mail with your organization in the chat to Betsy
- You are muted and video turned off upon entry
- If you wish to ask a question, Raise your hand or type it in chat (to everyone or to Betsy Finlay)

# Welcome & Introduction

- Risk MAP Project Team, Wisconsin Department of Natural Resources (WDNR)
  - G. Fritz Statz- Project Lead
  - Brian Cunningham - NFIP Coordinator
  - Betsy Finlay – Program Coordinator
  - Chris Olds - Floodplain Engineer
  - Andrea Stern - Regional Engineer
  - Tanya Lourigan-Dam Safety/Floodplain Section Supervisor
- Wisconsin Emergency Management (WEM)
  - Gwen Drewes – State Hazard Mitigation Officer

# Welcome & Introduction

- Federal Emergency Management Agency (FEMA)
  - Munib Ahmad – Region V Engineer
  - Ken Hinterlong – Region V Engineer
  - Frank Shockey – Region V Senior NFIP Specialist
  - Cadence Peterson – Region V Planner

# Meeting Agenda

- RiskMAP Overview/Project History
- Floodplain Engineering & Mapping
- NFIP & Insurance Overview
- What's Next in the Mapping Process
- Final Steps
- LOMCs & the SOMA List

# RiskMAP 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



# Risk MAP Project Benefits

- Flood risk products and flood hazard maps that are:
  - Developed by FEMA in collaboration 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

# Project History

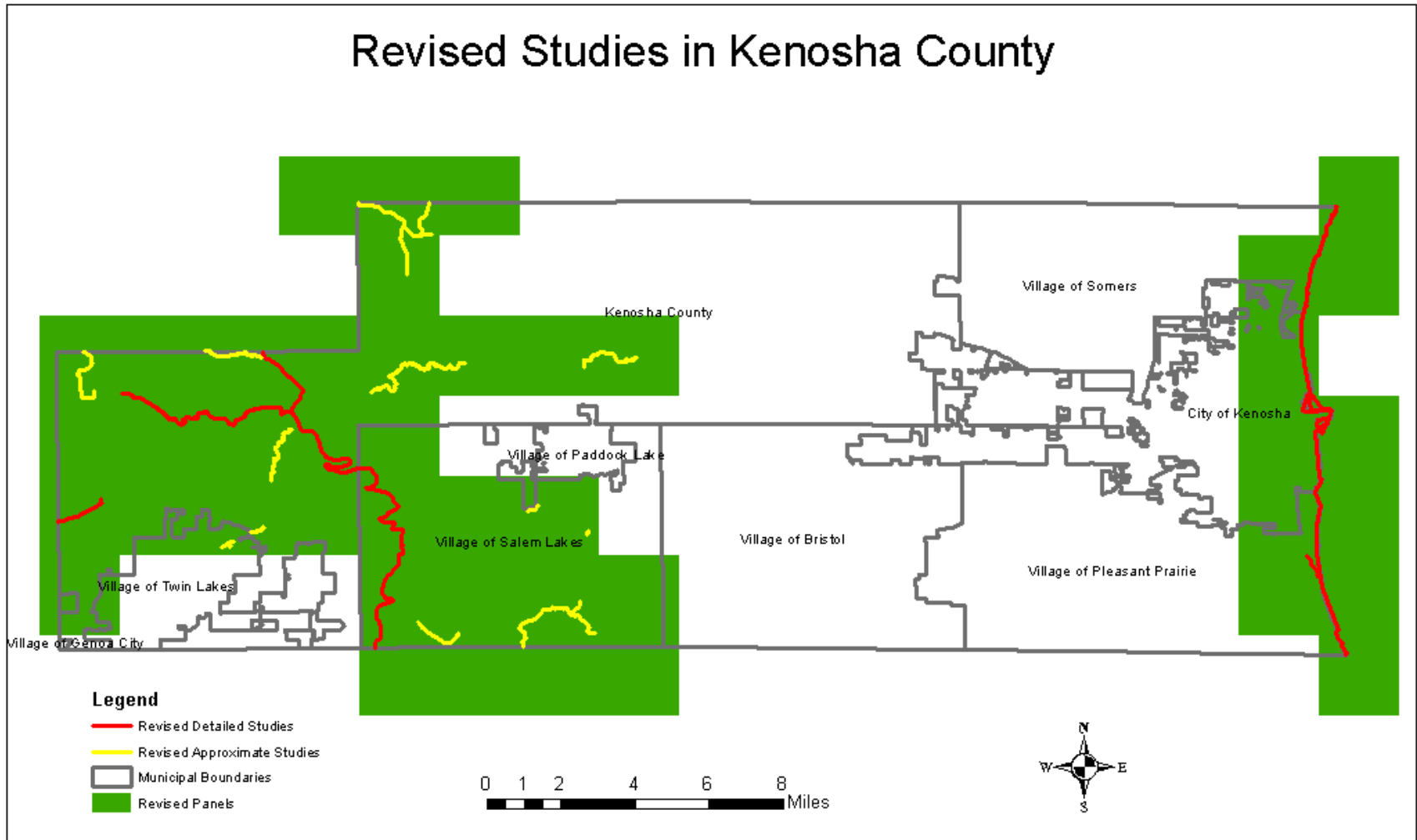
- Project Kickoff meeting – May 16, 2013
- Data Development & Map production  
2014 – through 2019
- Flood Risk Review/Resilience Meeting and Workshop  
August 28, 2019
- Preliminary maps finalized and distributed  
March 28, 2022
- Located online at <https://www.fema.gov/preliminaryfloodhazarddata>
- *FEMA Viewer:* Search “fema preliminary map viewer”
- Local Officials Meeting  
May 31, 2022





# Revised Studies

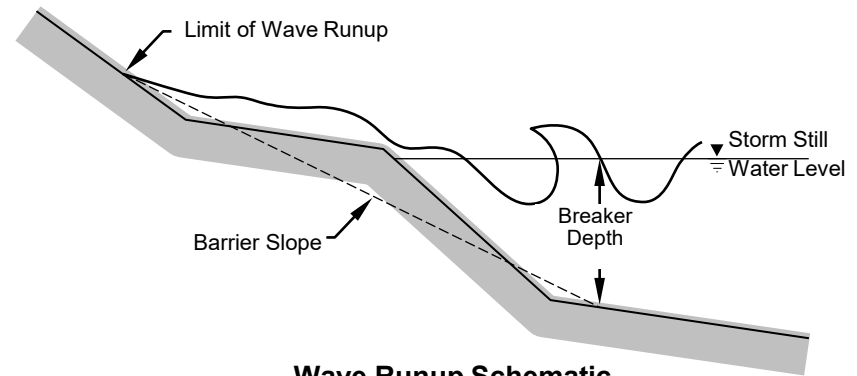
## Revised Studies in Kenosha County



# The Great Lakes Coastal Flood Study Approach

## Regional Study Approach

- Lakewide water level and wave analysis
  - 150 storms from 1960 to 2009
  - Modeling conducted by STARR in 2016
- Greater consistency in assumptions
- Reduces number of boundary conditions



**Wave Runup Schematic**  
from FEMA Great Lakes Coastal Guidelines "D.3" Update

## Local/County-Level Activities

- Mapping tasks performed at the county level
- Nearshore wave transformations
- Episodic erosion
- Wave setup
- Runup and overtopping
- Overland wave propagation

# Coastal Flood Hazard Modeling Overview

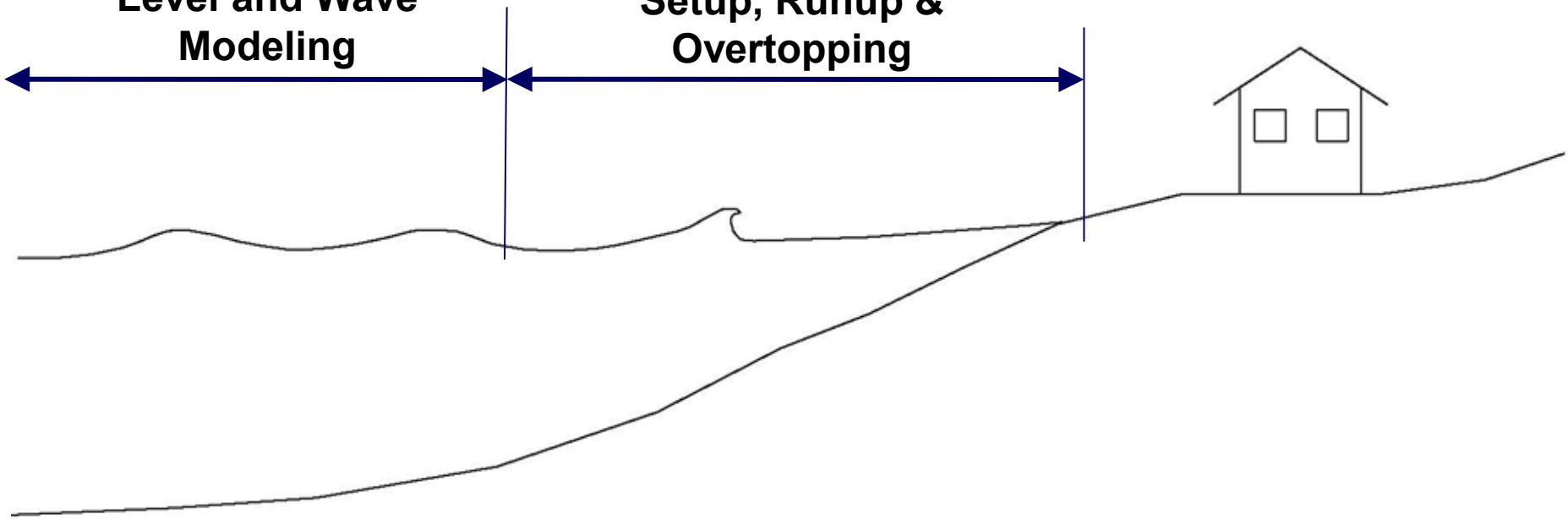
## *Lake-Wide Variation*

**Step 1: Offshore Water Level and Wave Modeling**

## *Local Variation*

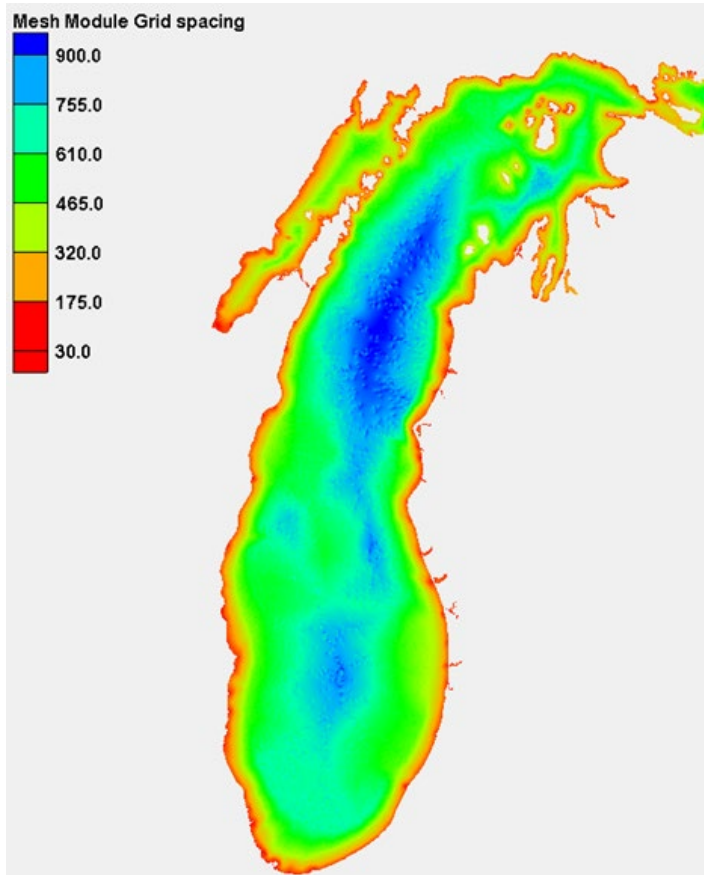
**Step 2: Nearshore Wave Setup, Runup & Overtopping**

**Step 3: Floodplain Mapping**

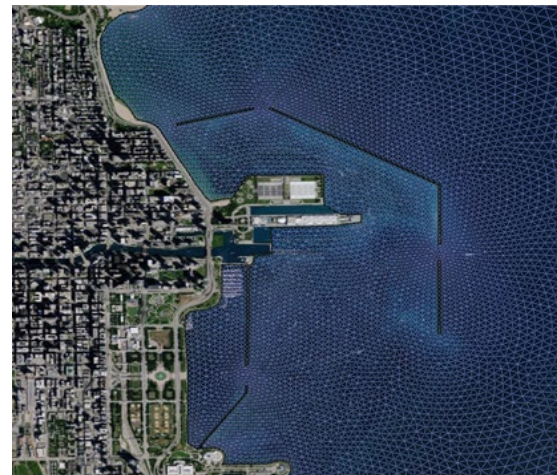


# Offshore Water Level and Wave Modeling

## ADCIRC+SWAN Mesh

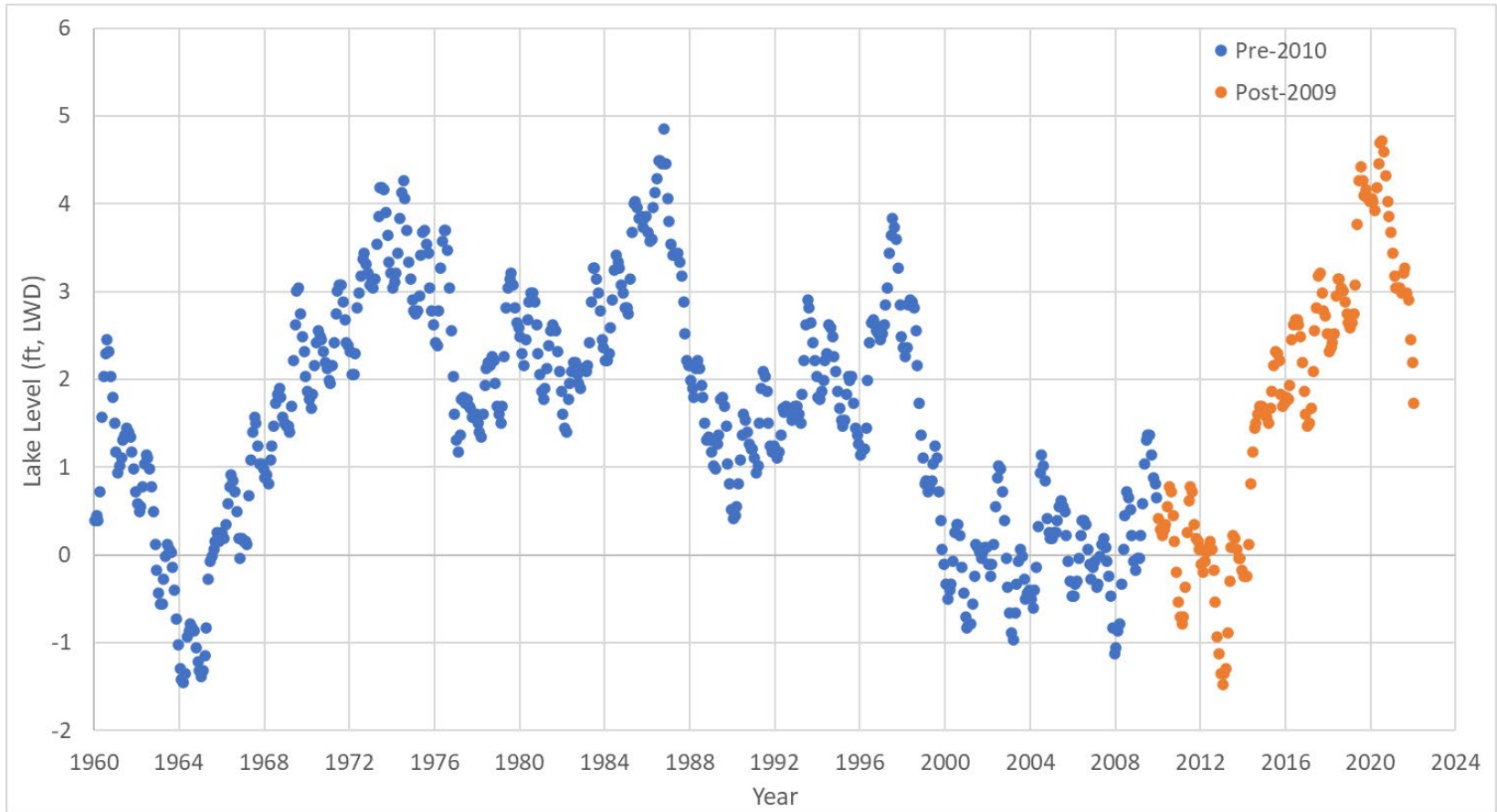


- ▶ Resolution as Fine as 10 m Along Complex Shoreline Features including Jetties, Breakwaters, Inlets, and Natural Shoals

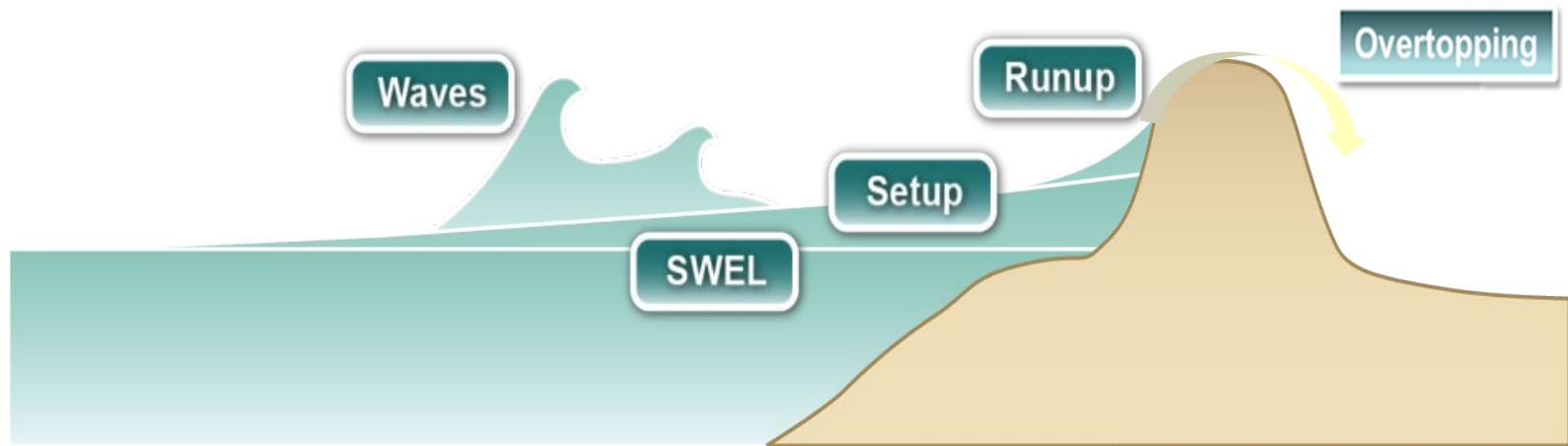




# Lake Michigan Water Levels



# Measuring Coastal Base Flood Elevation



SWEL = Stillwater Elevation (storm surge level)  
TWEL = Total Water Elevation (SWEL + wave effects)

# Special Flood Hazard Areas (SFHAs) - Coastal

## Zone VE

- Coastal high-hazard zone, where wave action and/or high-velocity water can cause structural damage during the 1-percent-annual-chance flood
- Wave heights or wave runup  $\geq 3$  feet
- Subdivided into elevation zones, and BFEs are assigned

## Zone AE

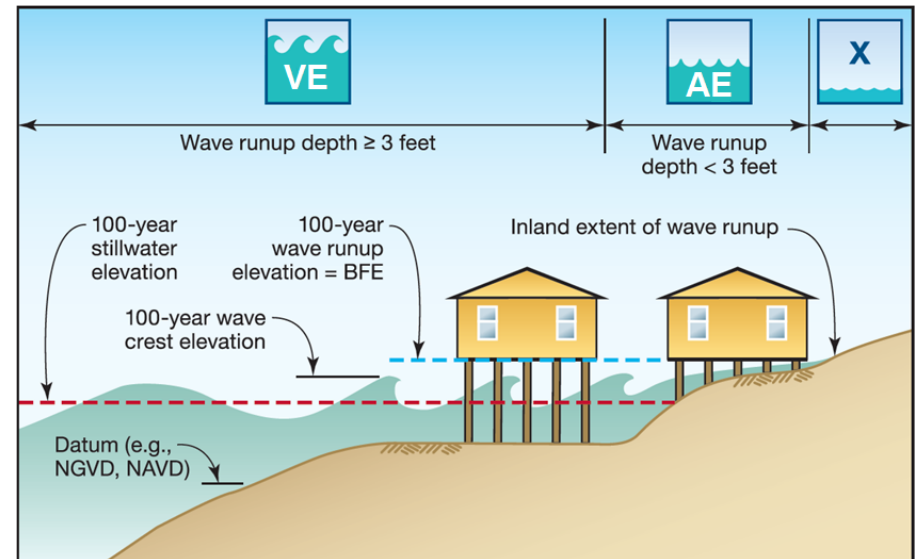
- Applied in areas subject to lower wave energy or inundation by the 1-percent-annual-chance flood
- Wave heights or wave runup  $< 3$  feet
- Subdivided into elevation zones, and BFEs are assigned

## Zone AO

- Applied in areas of sheet-flow and shallow flooding
- Given an associated depth instead of a BFE

## Zone AH

- Applied in areas of ponding
- Assigned a BFE





# Wave Runup Mapping

- Wave runup is very sensitive to shoreline characteristics, especially slope
- Single Base Flood Elevation (BFE)
- Gutters perpendicular to the shore divide the BFEs
- Runup is mapped to elevation associated with BFE, unless overtopping occurs
- VE transitions to AE where runup elevation (BFE) is less than 3 feet above ground elevations



# Wave Overtopping

- Wave overtopping occurs when the wave runup elevation exceeds the barrier's crest elevation
- When overtopping occurs, the zone behind the barrier is designated as:
  - AE if the landward slope is positive
    - BFE established based on runup elevation
  - AO if the landward slope is negative
    - Sheet flow depth established
  - AH if the landward slope is negative and flow is trapped behind a barrier
    - BFE established
- The overtopping rate determines VE splash zones and sheet flow depths

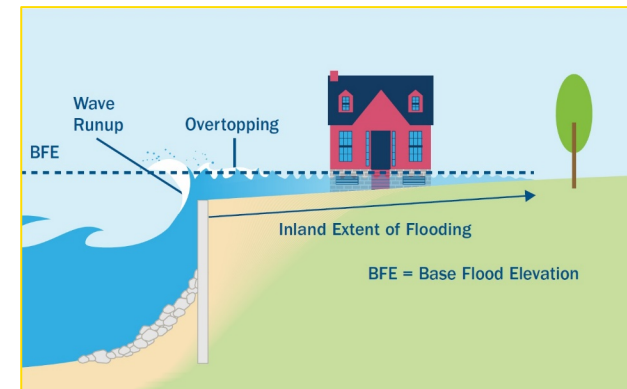


Photo: Green, M. Spencer. AP Photo. 2012.

[http://journalstar.com/ap/business/two-story-waves-on-great-lakes-halt-shipping/article\\_bcf2bb34-b528-52f5-8cd4-0c57e7ea8922.html](http://journalstar.com/ap/business/two-story-waves-on-great-lakes-halt-shipping/article_bcf2bb34-b528-52f5-8cd4-0c57e7ea8922.html)

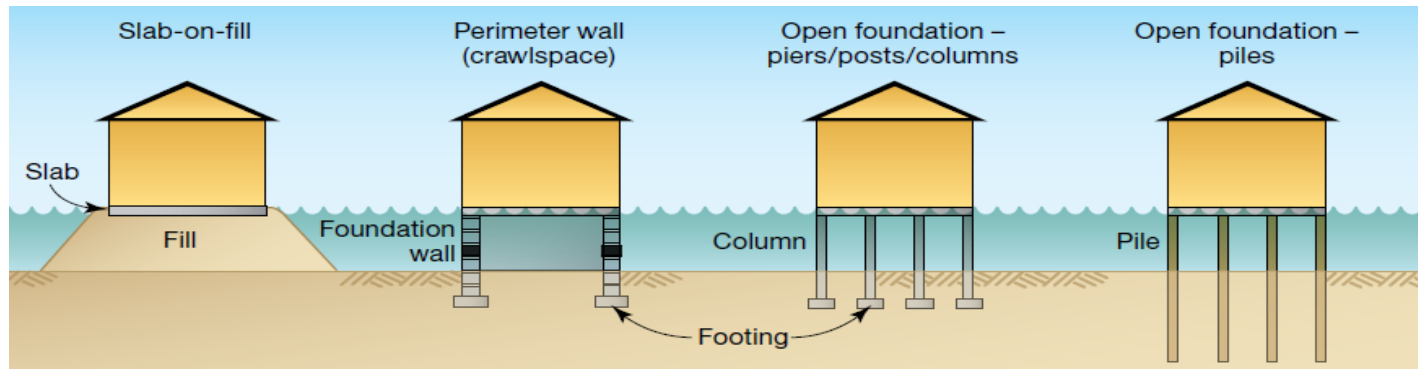
# Differences in Development Requirements

## A Zones

- Fill is allowed outside the floodway, or if it can be shown not to cause a rise in the BFE.
- Fully enclosed foundation walls (flood openings required) are allowed.
- The lowest floor must be elevated to or above the BFE.
- An as-built lowest floor elevation is required to be on file with the permit records.

## VE Zones (and AE Zones on the water side of a LIMWA)

- Fill is not allowed for structural support of buildings.
- Only open foundations on columns or piles, free of obstructions, or breakaway walls are allowed below the BFE.
- Bottom of lowest horizontal structural member to or above BFE, with an as-built elevation on file.
- A Professional Engineer or Architect shall certify the design of the structure, including wind loading, and that must be on file with the permit records.



# The National Flood Insurance Program (NFIP)

- Created by the National Flood Insurance Act of 1968
- Participation is **voluntary**
  - Adopt and enforce regulations
  - Eligible for flood insurance
- **Benefits** of participation:
  - Flood insurance
  - Grants and loans
  - Disaster assistance
  - Federally-backed mortgages



# NFIP Goals

- Reduce the loss of life and property caused by flooding
- Reduce rising disaster relief costs caused by flooding
- Maintain the natural and beneficial functions of the floodplains
- Minimize business interruptions and other economic disruptions



Sparta, 1899: On the night of June 11-12, an intense storm sent all local streams and rivers over their banks, washing out roads, bridges, and cultivated fields; there was no loss of life. [Wisconsin Centennial Story of Disasters and Other Unfortunate Events (Madison, 1948)]

# Accomplishing NFIP Goals

- Publish maps - identify risk
- Educate the public on their own risk
- Provide federally-backed flood insurance coverage
- Encourage development away from the flooding risks and minimize the damage potential to flooding through floodplain management



Trempealeau County

# Basic NFIP Regulations

- Ensure that all proposed **development** is reasonable safe from flooding
- Ensure that the **lowest floor** of any **new** or **substantially damaged** or **improved structure** within the SFHA is elevated to or above the base flood elevation.
- Ensure that **development** within the Floodway does not increase flood heights.



Sauk  
County  
2008



Jefferson  
County  
2008

# Flood Insurance vs. Disaster Assistance

## Flood Insurance

A policyholder is in control.  
Flood insurance claims are paid even if a disaster is not declared by the President.

There is no payback requirement.

Flood insurance policies are continuous, and are not non-renewed or canceled for repeat losses.

More than 20% of NFIP claims come from outside of mapped Special Flood Hazard Areas.

## Disaster Assistance

Most forms of federal disaster assistance require a presidential declaration.

The most common form of federal disaster assistance is a loan, which must be paid back with interest.

The duration of a Small Business Administration disaster home loan could extend to 30 years





# Flood Insurance 101

- Homeowners insurance does not cover flooding
- Almost everyone in a participating community of the NFIP can buy flood insurance
- Available to homeowners, business owners, renters, condo unit owners, and condo associations
- Sold through private insurance companies and agents, or directly through the NFIP
- Claims are paid regardless of disaster declaration
- No payback requirement



# Insurable by the NFIP

- Walled and roofed structures principally above ground
- Manufactured homes or travel trailers, if anchored to a permanent foundation
- Contents of structure (available to owners and renters)
- Building in the course of construction

# Not Insurable by the NFIP

- Buildings completely over water
- Unanchored manufactured homes
- Motorized vehicles
- Gas and liquid storage tanks outside buildings
- Buildings principally below ground
- Machinery and equipment in the open
- Swimming pools, hot tubs, etc.

# NFIP Limits of Coverage

## How much flood insurance coverage is available?

Flood coverage limits for a standard flood policy are:

Coverage Type	Coverage Limit
One to four-family structure	\$250,000
One to four-family home contents	\$100,000
Other residential structures	\$500,000
Other residential contents	\$100,000
Business structure	\$500,000
Business contents	\$500,000
Renter contents	\$100,000

# NFIP-Risk Rating 2.0

FEMA is updating their flood insurance rates through a new pricing methodology called Risk Rating 2.0, starting Oct. 1, 2021.

What is changing:

- Reduce complexity
- Simplifying the quote process
- Increasing mitigation investment
- Assessing and reflecting more information on flood hazards
- Reflecting prior NFIP claims and factoring replacement cost value to calculate a premium
- More information: <https://www.fema.gov/flood-insurance/risk-rating>

# Mandatory Purchase Requirement

## Flood Disaster Prevention Act of 1973

- Flood insurance purchase is required to make, increase, extend or renew any loan secured by structure in SFHA
- Flood insurance required for term of loan

## Flood Insurance Reform Act of 1994

- Established penalties for lender non-compliance
- Requires lenders to review revised FIRMs
- Requires notification and mandatory purchase if revised FIRM shows structure in SFHA
- If escrow account is established, requires escrow for flood insurance



# What Happens Next?

- Upper Fox River and Lake Michigan Coastal Areas
- Proposed Flood Hazard Determination (FHD) published to Federal Register by FEMA
- Community CEOs receive certified letter indicating intent to publish FHD in local newspaper
- WDNR publishes FHD in local newspaper
- 90-Day Appeals period opens
- Resolve appeals and comments and produce final maps



# 90-Day Appeal Period

- Community (or individuals via their community) may appeal areas:
  - Areas showing new or revised BFEs
  - Areas where there is a change in the Special Flood Hazard Areas (SFHA)
  - Areas showing new or revised SFHA (increase or decrease)
  - Areas showing new or revised regulatory Floodway boundaries (increase or decrease)

# Requirements for Appeal

- Revised hydrologic and/or hydraulic analysis
- Data believed to be better than those used in original analysis
  - Documentation for source of new data
  - Proof that new topo data meets FEMA accuracy standards
- Explanation of the error or misapplication of methodology
- Revised flood profiles, floodway data tables and Summary of Discharges table
- Revised floodplain and floodway

# Comments

- All other challenges to the maps are considered comments.
  - Corporate limit revisions;
  - Road name errors and revisions;
  - Base map errors;
  - Requests that changes effected by a LOMA, LOMR-F, or LOMR be incorporated; and
  - Other possible omissions or potential improvements to the mapping.

# Comment Flow Chart



# Final Steps

- FEMA issues a Letter of Final Determination
- Final FIRMs and spatial data are distributed to the communities
- Community adopts the FIRMs and FIS
- FEMA approves revised ordinance
- FIRMs are effective

# Letter of Final Determination

- Sent to CEO of Community
- Establishes effective date of FIS and FIRM
- Formal notification to community of need to update floodplain management regulations by the effective date
- Followed by two additional reminder letters

# Adoption by Community

- Every community may have a different process to adopt ordinances or modify existing ordinances
- May require public notice and comment period
- May require a sub-committee approval prior to full board adoption
- May require two or more readings at board meetings prior to formal adoption

# Adoption by Community

## Time Line for Ordinance Amendment and Adoption

FEMA	DAYS FROM EFFECTIVE MAP DATE	Required Actions
Letter of Final Determination issued. Local Floodplain Ordinances <u>must</u> be amended and updated within 6 months (180 days). <u>No extensions will be granted.</u>	180	Review local floodplain ordinance for compliance with State Model Floodplain Ordinance. The Model Ordinance was updated in January 2012. Communities should consider repeal and replacement with current State Model.
FEMA 90 Day Notification Letter	90	Draft Non-standard ordinances should be submitted to FEMA and DNR for review and comments.
FEMA 60 Day Notification Letter	60	Final review and updates of ordinances should be near completion.
FEMA 30 Day Notification Letter	30	Certified copies of adopted amended ordinances should be submitted to FEMA and DNR for final approval and processing.
Effective Map Date	0	Adopted amended ordinances approved by FEMA/DNR.

Adopted amended ordinances **must** be approved and processed by FEMA/DNR by the Effective Map Date or community will be **immediately** suspended from the NFIP.

**FEMA WILL NOT GRANT ANY EXTENSIONS.**



## WISCONSIN DEPARTMENT OF NATURAL RESOURCES

### MODEL FLOODPLAIN ORDINANCE With Flood Storage Modifications

FOR

### WISCONSIN COMMUNITIES

Effective July 18, 2017

A cooperative effort  
of  
Wisconsin Department of Natural Resource  
and  
Federal Emergency Management Agency



FEMA

RiskMAP

Increasing Resilience Together



# What is a SOMA?

- A Summary of Map Actions (SOMA) is prepared to assist a community in maintaining the Flood Insurance Rate Map (FIRM).
- A SOMA will document previous Letters of Map Change (LOMC) actions that will be superseded, incorporated, or revalidated when the revised FIRM panels become effective:
  - Letters of Map Amendment (LOMAs)
  - Letter of Map Revision based on fill (LOMR-F)
  - Letters of Map Revision (LOMRs)

SOMA-1

## PRELIMINARY SUMMARY OF MAP ACTIONS

Community: MONROE COUNTY

Community No: 550571

To assist your community in maintaining the Flood Insurance Rate Map (FIRM), we have summarized below the effect of the enclosed revised FIRM panel(s) on previously issued Letter of Map Change (LOMC) actions (i.e., Letters of Map Revision (LOMRs), Letter of Map Revision based on Fill (LOMR-Fs), and Letters of Map Amendment (LOMAs)).

### 1. LOMCs Incorporated

The modifications effected by the LOMCs listed below have been reflected on the Preliminary copies of the revised FIRM panels. In addition, these LOMCs will remain in effect until the revised FIRM becomes effective.

LOMC	Case No.	Date Issued	Project Identifier	Original Panel	Current Panel
NO CASES RECORDED					



### 2. LOMCs Not Incorporated

The modifications effected by the LOMCs listed below are either not located on revised FIRM panels, or have not been reflected on the Preliminary copies of the revised FIRM panels because of scale limitations or because the LOMC issued had determined that the lot(s) or structure(s) involved were outside the Special Flood Hazard Area, as shown on the FIRM. These LOMCs will be revalidated free of charge 1 day after the revised FIRM becomes effective through a single revalidation letter that reaffirms the validity of the previous LOMCs.

### 2A. LOMCs on Revised Panels

LOMC	Case No.	Date Issued	Project Identifier	Original Panel	Current Panel
LOMR-FW	10-05-4320A	06/28/2010	LOT 2, CERTIFIED SURVEY MAP -- SOUTHWEST 1/4, OF SOUTHWEST 1/4, SECTION 5, T17N, R3W	55081C0332D	55081C0332E
LOMA	17-05-1545A	03/08/2017	CSM, LOT 2 (SECTION 8, T17N, R3W) -- 11460 COUNTY ROAD A	55081C0334D	55081C0334E
LOMA	17-05-4204A	08/07/2017	CSM, LOT 1 (SECTION 24, T17N, R3W) -- 15562 HIGHWAY 16	55081C0360D	55081C0360E

# Letter of Map Change (LOMC)

Page 1 of 2		Date: February 21, 2018	Case No.: 18-05-2084A	LOMA				
 <b>Federal Emergency Management Agency</b> Washington, D.C. 20472								
<b>LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)</b>								
COMMUNITY AND MAP PANEL INFORMATION			LEGAL PROPERTY DESCRIPTION					
COMMUNITY	MONROE COUNTY, WISCONSIN (Unincorporated Areas)		A portion of Section 1, Township 18 North, Range 4 West, as described in the Warranty Deed recorded as Document No. 631798, in the Office of the Register of Deeds, Monroe County, Wisconsin					
	COMMUNITY NO.: 550571		The portion of property is more particularly described by the following metes and bounds:					
AFFECTED MAP PANEL	NUMBER: 55081C0195D							
	DATE: 1/20/2010							
FLOODING SOURCE: SOPER CREEK			APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 44.061312, -90.811504 SOURCE OF LAT & LONG: LOMA LOGIC      DATUM: NAD 83					
<b>DETERMINATION</b>								
LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
--	--	--	7611 County Highway Q	Portion of Property	X (unshaded)	--	--	865.1 feet
Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).								
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)								
LEGAL PROPERTY DESCRIPTION			STATE LOCAL CONSIDERATIONS					
PORTIONS REMAIN IN THE SFHA ZONE A								
This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.								
This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 330-2027 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3001 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.								
 Luis V. Rodriguez, P.E., Director Engineering and Modeling Division Federal Insurance and Mitigation Administration								

- Letter of Map Amendment (LOMA)
  - A letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the 1-percent-annual-chance flood.
  
- Letter of Map Revision (LOMR)
  - A letter from FEMA officially revising the effective FIRM to show changes to floodplains, floodways, or flood elevations.

# Break Out Session

- Preliminary Viewer Demonstration
- Individual Questions
  - Maps
  - Floodplain Management
  - Insurance
  - Map Adoption

Flood Map Changes Viewer with Web AppBuilder for ArcGIS

Find address or place

## Welcome to the Flood Map Changes Viewer!

The Flood Map Changes Viewer (FMCV) includes the following: [preliminary National Flood Hazard Layer](#), [preliminary Changes Since Last FIRM \(CSLF\)](#), the [Preliminary Map Comparison Tool](#), and the [pending National Flood Hazard Layer](#), and the [National Flood Hazard Layer \(NFHL\)](#). The consolidated FMCV provides a single location to access flood hazard data across several data life stages and facilitates a better understanding of potential changes coming to flood hazard risks. For more information on using the Preliminary Map Comparison Tool in the FMCV, please visit the [Preliminary Map Comparison Tool Tutorial](#) page.

Preliminary data are for review and guidance purposes only and cannot be used to rate flood insurance policies; they are not used to determine whether there is a mandatory flood insurance purchase requirement. By viewing preliminary data and maps, the user acknowledges that the information provided is preliminary and subject to change. Preliminary data, including new or revised FIRMs, FIS reports, and FIRM Databases, are not final and are presented on the MSC as the best data available for a particular area at this time. FEMA will remove the preliminary data for a particular area once effective data are available..

Questions? Contact the Map Specialists at the [FEMA Map Information eXchange \(FMIX\)](#).

Do not show this splash screen again.

OK



Geoprocessing

Input Output

To print Map Changes report:

- 1) Click the pin tool below.
- 2) Click a point on the map to select location.
- 3) Press Execute to receive a comparison report at 1 in = 500ft scale for the selected location.

The process may take up to one minute.\*

Help Run

App State

Click to restore the map extent and layers visibility where you left off.

## Legend

### Preliminary National Flood Hazard Layer

Preliminary FIRM Panel Index



Preliminary Political Jurisdictions



Preliminary Profile Baselines



Preliminary Cross-Sections



Preliminary Base Flood Elevations



Preliminary Levees



Preliminary Coastal Transects



Preliminary Transect Baselines



Preliminary General Structures

--- Flood Structure



— Dam, Weir, Jetty

— Other Structures

Preliminary River Mile Markers



## Layer List

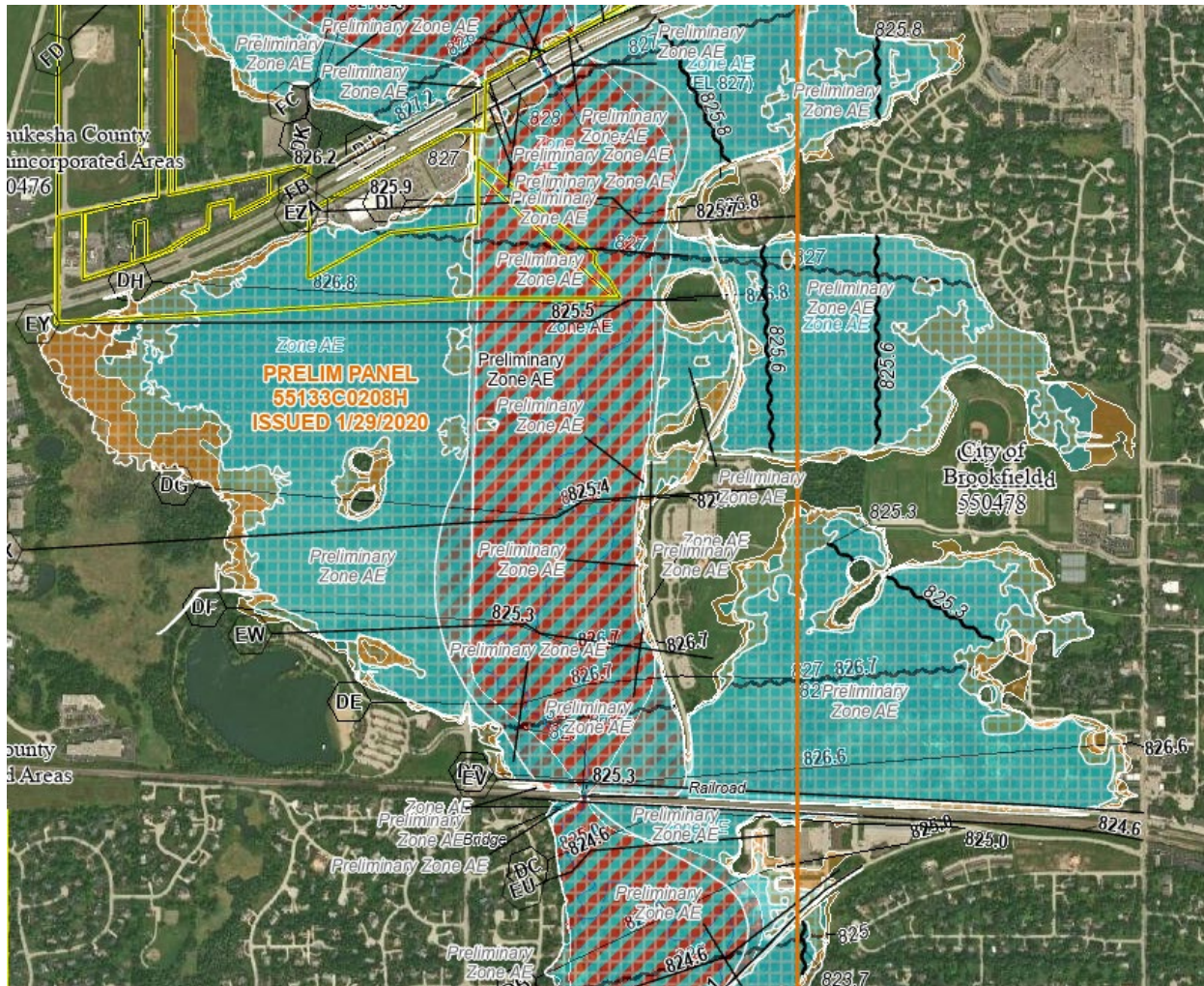
### Layers

- Preliminary Changes Since Last FIRM Layer ...
- Pending National Flood Hazard Layer ...
- Preliminary National Flood Hazard Layer ...
- Effective FIRM Panels ...
- National Flood Hazard Layer ...
- Coastal Barrier Resources System Area (US FWS) ...

## Layer List



- Pending National Flood Hazard Layer ...
- Preliminary National Flood Hazard Layer ...
- Preliminary Data Availability ...
- Preliminary FIRM Panels ...
- Preliminary FIRM Panel Index ...
- Preliminary Political Jurisdictions ...
- Preliminary Profile Baselines ...
- Preliminary Water Lines ...
- Preliminary Cross-Sections ...
- Preliminary Base Flood Elevations ...
- Preliminary Levees ...
- Submittal Information ...
- Preliminary Coastal Transects ...
- Preliminary Transect Baselines ...
- Preliminary General Structures ...
- Preliminary River Mile Markers ...
- Preliminary Water Areas ...
- Preliminary ...





### Geoprocessing

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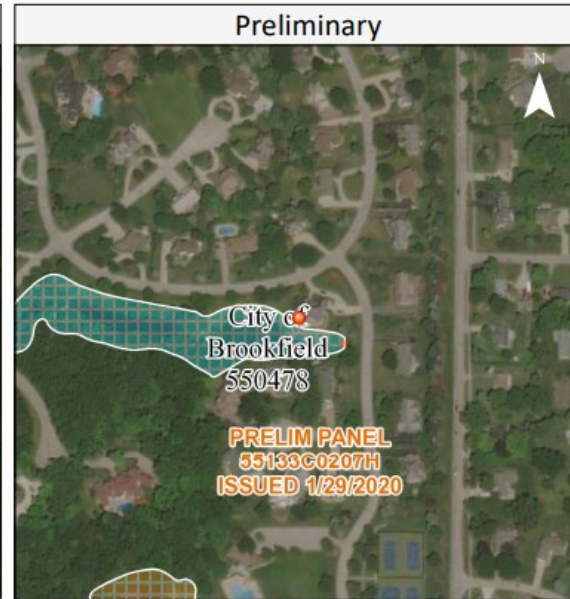
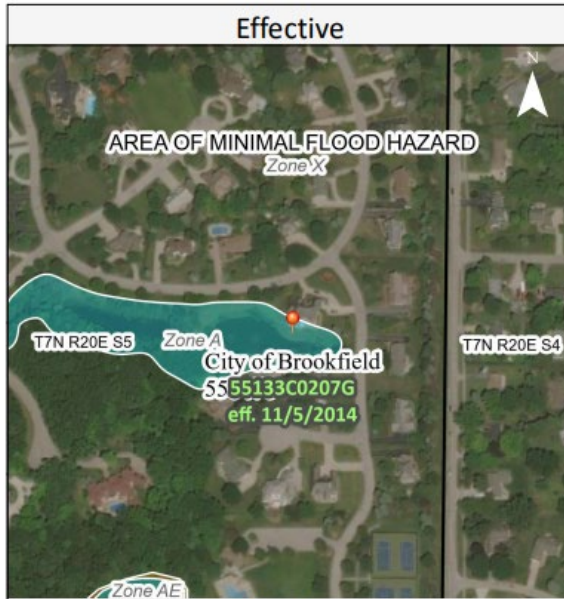
[Help](#) Run





# Comparison of Flood Hazard

Effective & Preliminary Flood Hazards



Effective	
POI Longitude/Latitude	-88.1475, 43.0992
Effective FIRM Panel	55133C0207G
Effective Date	11/5/2014
Flood Zone	A
Static BFE*	Not Available
Flood Depth	Not Available
Vertical Datum	Not Available

Preliminary	
POI Longitude/Latitude	-88.1475, 43.0992
Preliminary FIRM Panel	55133C0207H
Preliminary Issue Date	1/29/2020
Flood Zone	X
Estimated Static BFE*	Not Available
Estimated Flood Depth	Not Available
Vertical Datum	Not Available