

Cayuga County Flood Risk Review Meeting

July 24, 2017



Agenda

- The value of updated flood maps for your community
- Review updated flood-risk data and important next steps in the Risk MAP process
- Increasing mitigation opportunities in your community
- Working session to review maps





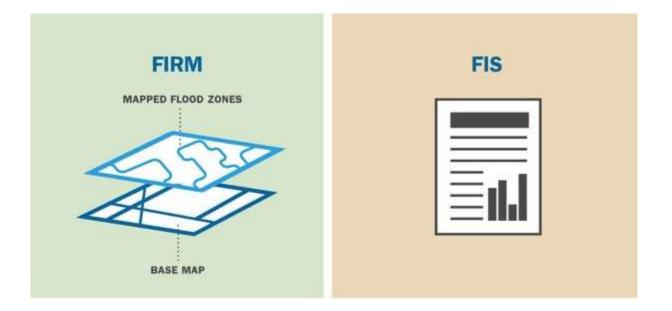
Cayuga County The Value of Updated Flood Maps for your Community





Why Are We Here?

The Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) are being updated for your community.







Flood Maps Impact Important Decisions







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To Identify and Assess the Flood Risk To Establish Rates for Flood Insurance To Determine Local Land Use

To Inform Engineers and Developers To Equip Emergency Managers





Why Update your Flood Maps?

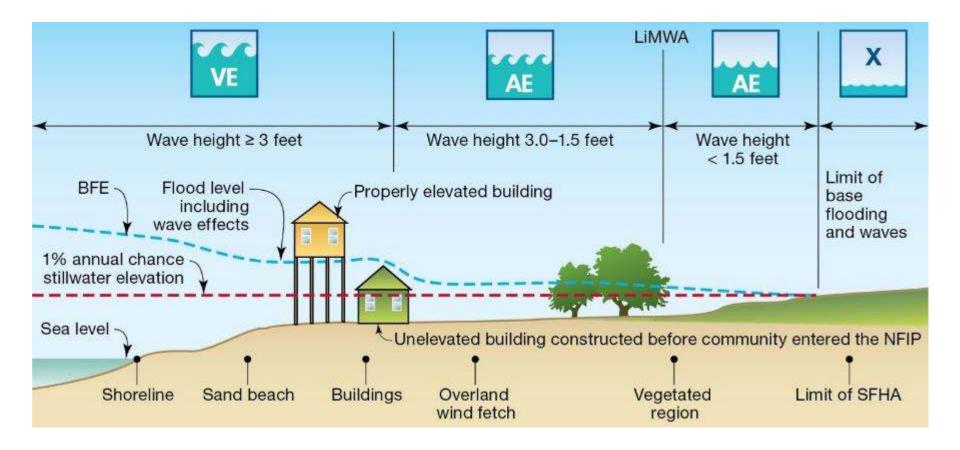
CAYUGA COUNTY: SNAPSHOT							
COMMUNITY	POPULATION	NFIP POLICIES	NFIP CLAIMS	FEMA CLAIMS PAID	CAV/CAC DATES	HAZARD MITIGATION PLAN	
VILLAGE OF FAIR HAVEN	745	9	N/A	\$0	CAV: 10/13/2016 CAC: N/A	Approved*	
TOWN OF STERLING	<mark>3,040</mark>	2	N/A	\$0	CAV: N/A CAC: 5/13/1994	Approved*	

*Plan set to expire in 2019





Detailed Coastal Mapping

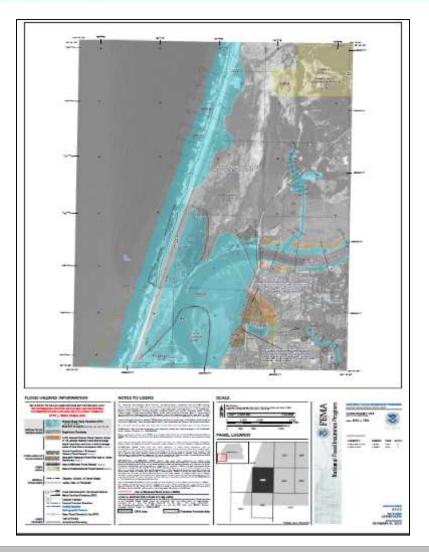




Preliminary Work Map vs. FIS/FIRM

Cayuga County, NY Preliminary Work Map





WORK MAPS WILL NOT AFFECT FLOOD INSURANCE REQUIREMENTS OR COSTS



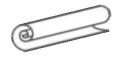
Modeling the Special Flood Hazard Area (SFHA)

VE, AE, and AO Zones are "100-year floodplain" with a 1-percent-annual-chance of flood

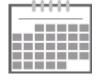
- Insurance is required if you have a federally backed mortgage or received federal disaster assistance
- Informs building code standards



Local Officials, Floodplain Administrators and Staff











Provide technical review of preliminary data

Submit questions and comments to FEMA Share new flood risk info with property owners and stakeholders

Identify mitigation needs and priorities Update local plans, codes, and ordinances





Cayuga County The Risk MAP Process and Scope





Discovery Report 2016

Discovery Report

Lake Ontario – Irondequoit-Ninemile Watershed

HUC 04140101 Caraga, Monroe, Ontario, Ornego, and Wayne Connier, New York*

*These countries upon more than one conversionly please see following page for a list of communities fully or partially located in the waterchad. This report covers only the Frandagasier-Namende Maximished in the State of New Teek.

Report Number 61 July 2016



Federal Ensergency Management Agency Department of Humahaal Security 36 Faderal Plans New York, NY

- Flooding produced by heavy rain, flash floods, landslides, and/or snowmelt has caused road closures, evacuations, and millions of dollars in property damage in Cayuga County communities since 1972.
- Lake Ontario should have an updated, detailed study due to the high rate of coastal erosion.







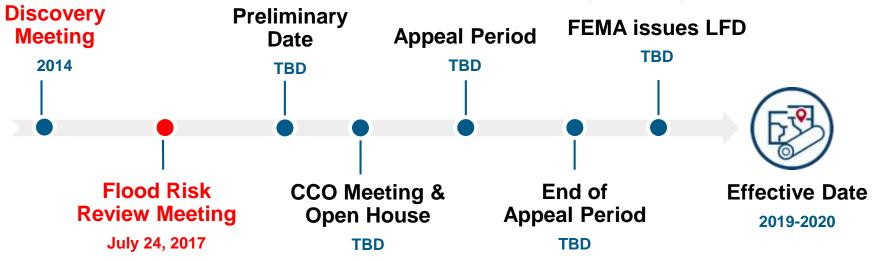


Project Timeline and Schedule

"Letter of Final Determination"

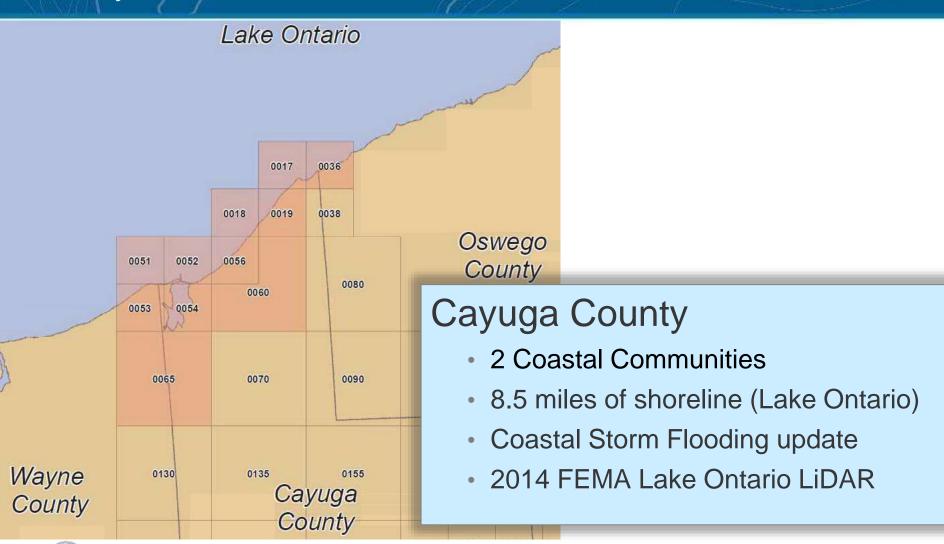
To communities and publishes the BFEs in the Federal Register

Communities have 6 months to adopt the study before the data becomes "effective". *Failure to adopt results in suspension from NFIP*





Study Area





Storm Study Technical Support

Five Report sections

- Short-term Water Levels
- Long-term Water Levels
- Statistical Analysis
- Storm Surge model Setup and Validation
- Storm Production



Report can be found at www.greatlakescoast.org





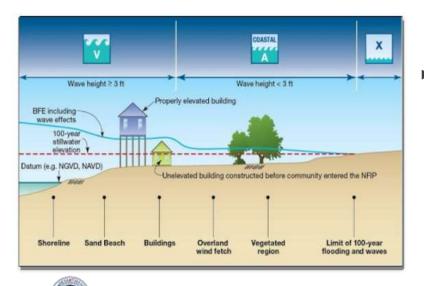
Effective vs. New Coastal Study

Coastal Study Component	Effective Study (2007)	New Study (2017)		
Topographic data	2001 Cayuga County LiDAR	2014 FEMA Lake Ontario LiDAR		
Stillwater Elevation (SWEL)	Gage Frequency Analysis (USACE 1988)	Lake Ontario Storm Surge Model– 2012		
Modeled transects	0	20		
Wave setup	Νο	Yes		
Wave runup	No	Yes		
Limit of Moderate Wave Action (LiMWA)	No	Yes		



Study Approach

- Regional Study Approach
 - Water level and wave analysis
 - Improvement over community-county
 - Reduces number of boundary conditions
 - Greater consistency in assumptions



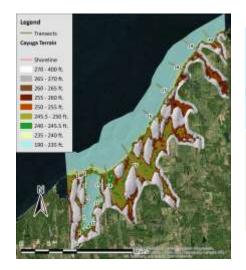
FEMA

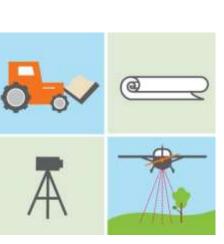


- Local/County Level Activities
 - Mapping level tasks performed at county level
 - Nearshore wave transformations
 - Wave runup
 - Overland wave propagation



Light Detection and Ranging (LiDAR)





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Terrain Dataset

Used for modeling & mapping

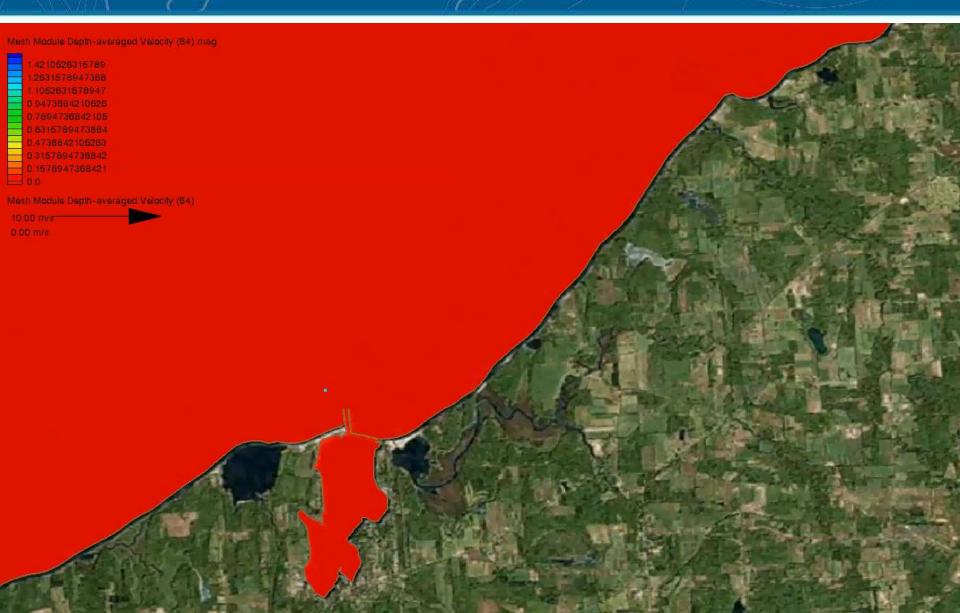
LiDAR Data Sources

2014 FEMA Lake Ontario LiDAR 2011 USACE/JALBTCX Great Lakes Topo/Bathy LiDAR 2007 USACE NCMP Topo/Bathy LiDAR 2001 USACE Detroit District Topo/Bathy LiDAR

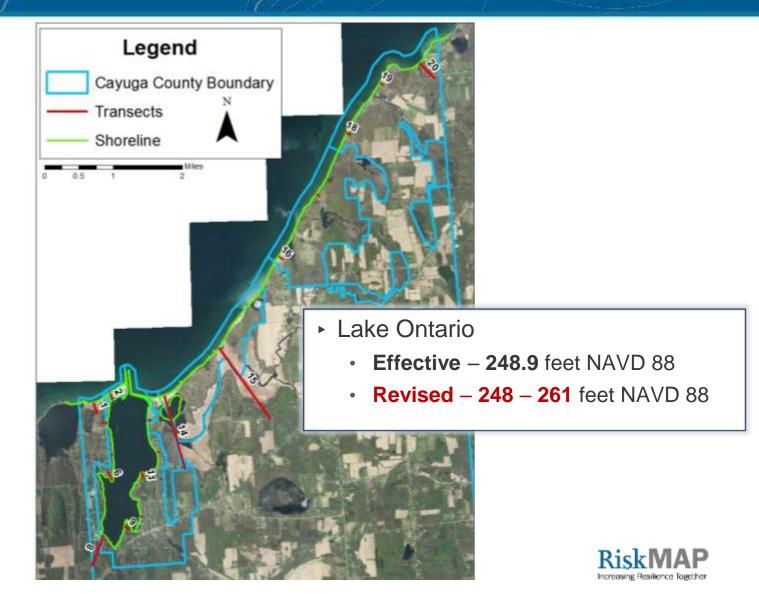




Storm Surge From 12-8-2009



Cayuga County Transects





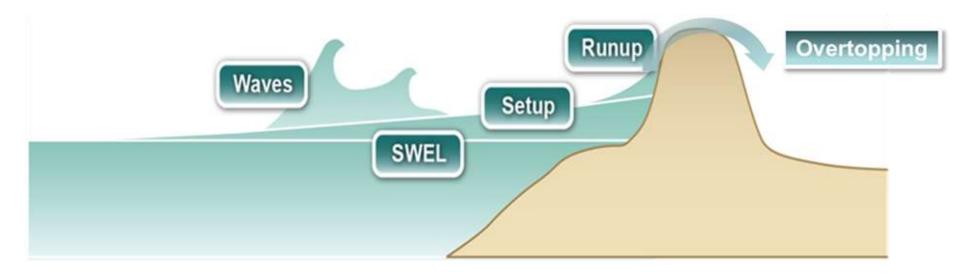
Field Reconnaissance

Cayuga County, NY Transect: TR02 Review Location: 02_1 Team: Joel Plummer & Lisa Turcios Date: 6/22/2015 Time: 3:14:00 PM Location Description W Bay Rd at West Barrier Bar County Park. At lake shoreline. Latitude, Longitude N43°20'43", W76°42'48" **Building Description** Marina building on south side of road, 1 row(s), Open Space Ratio 90% trees, immediately behind beach, Diameter 8 in, Height 40 ft, Vegetation Description Spacing 20 ft Marsh Description N/A **Coast Description** Gravel: Gravel beach of 80 feet wide covered by variable sized pebbles ranging from 1/2 cm to 8 cm. Transitions to small grassy swale. PFD No Fetch Description Open





Coastal Base Flood Elevation





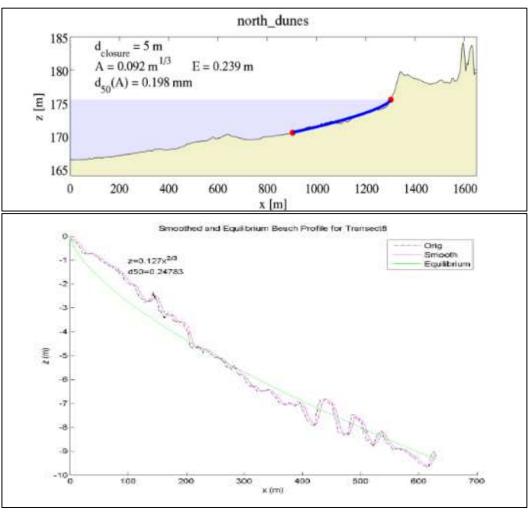


Erosion in the Great Lakes

USACE CSHORE model

- Applies real physics
- Near-shore wave processes
- Cross-shore and along shore sediment transport
- Requires sediment grain size







U.S. Geological Survey (USGS) Study



Combination of sensors:

- Record water levels at 14 locations along Lake Ontario.
- Drones will supplement high-resolution elevation maps and documentation of flooding extents and coastal impacts.





Coastal Erosion and Scour







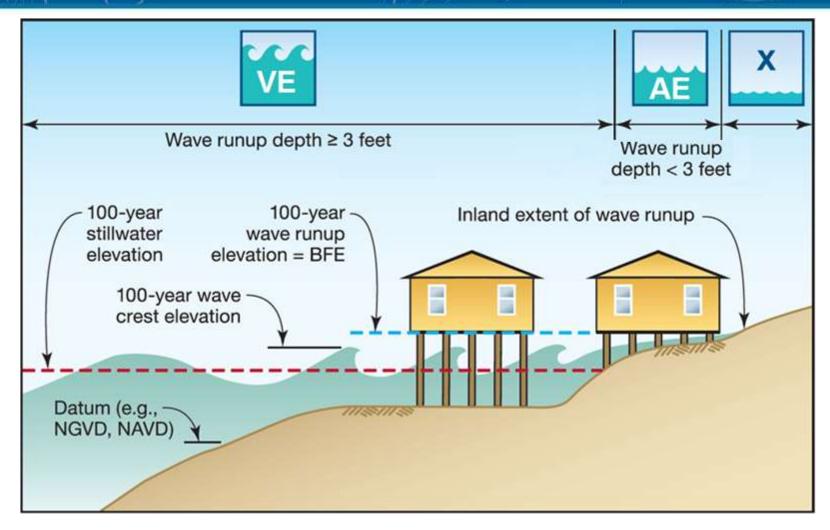


The two most damaging aspects of coastal flooding for coastal buildings.

- Erosion should be considered in determining foundation depths and heights.
- Nature and extent of soil loss expected around a building is critical.
- A slab is not a substitute for adequate embedment.



Detailed Coastal Mapping – Wave Runup





Wave Runup

- Rush of water that extends inland when waves come ashore
- These elevations may be higher than the stillwater elevations developed as part of the storm surge analysis
- First time wave effects have been mapped for this area







Wave Overtopping – AO Zones

- Overtopping Rate
 Considerations for Establishing
 Flood Insurance Rate Zones
- Ponding Considerations
 - Areas were AE not present beyond slope break
 - Duration of overtopping
 - Topography
 - Drainage landward of the overtopped barrier





Limit of Moderate Wave Action - LiMWA

- LiMWA sits inside of a Zone AE
- Triangles point to higher waves
 - Indicates where wave height exceeds 1.5ft
- Also referred to as Coastal A Zone





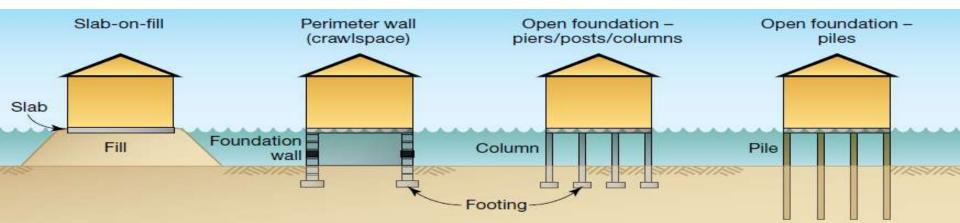
Development Requirements

A Zones

- Slab-on-grade / Slab-on-fill
- Fully-enclosed foundation wall (flood openings required)
- Open foundation on piers, posts, piles, or columns
- Top of lowest floor elevated to or above the BFE
- AO Zone elevate to or above flood depth number or 2 feet above HAG

V Zones

- Open foundation on columns or piles
- Free of obstruction or use of breakaway walls/lattice work
- Parking, access, and storage
- Designed by a registered design professional
- Bottom of lowest horizontal structural member to or above BFE

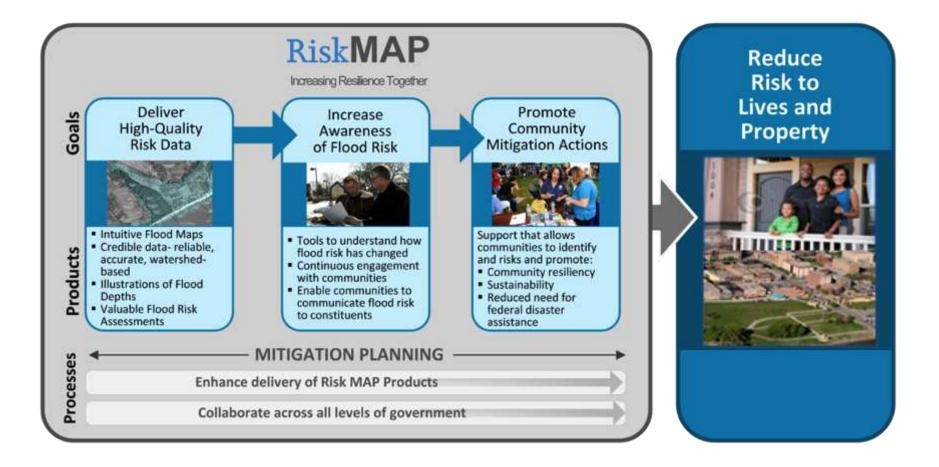


Increase Mitigation Opportunities





Goal: Stronger and Safer Communities





Proposed Mitigation Actions

From the 2013 Hazard Mitigation Plan

- Bank stabilization, gravel bar removal, debris clearing, and erosion control measures will be put in place to combat wave/wind action on the coast and debris jams in creeks
- Multiple municipalities aim to conduct and facilitate community education outreach.
- Continue to meet and/or exceed NFIP standards and criteria through ordinances and zoning restrictions.
- Stormwater drainage systems will be improved.





Grants Overview







Grants available AFTER a disaster

Hazard Mitigation Grant Program (HMGP)

Grants available BEFORE a disaster

- Pre-Disaster Mitigation (PDM) Program
- Flood Mitigation Assistance (FMA) Program

FEMA awards grants to States, tribes, and territories

Communities contact State Hazard Mitigation
 Office (SHMO) if interested in applying for HMA



NFIP Community Rating System Program Basics & Benefits



CMBLND. 1863-0022 Expine December 31, 2016

National Flood Insurance Program Community Rating System

Coordinator's Manual

F1A-15/2013





National Flood Insurance Program Community Rating System

A Strategic Plan for the Community Rating System Fiscal Years 2008–2013

2008 SFEMA

www.CRSResources.org





CRS Community Requirements

- Be in full compliance with the NFIP
- Implement activities
- Maintain Elevation Certificates
- Verification visit every 3 to 5 years
- Recertify each year
- Must meet Class prerequisites
 - Repetitive loss (Class 9)
 - BCEGS 5/5 or better (Class 6)
 - BCEGS 4/4 or better; 1 foot of freeboard and more (Class 4)



National Flood Insurance Program
Flood Insurance Manual

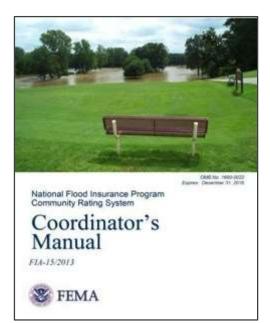
June 2014 Hevised October 2014 Revised April 2015







CRS Coordinator's Manual – <u>Series</u> Organization



100 – Program Overview

200 – Procedures

300 – Public Information Activities

400 – Mapping and Regulations

500 – Flood Damage Reduction Activities

600 – Warning and Response

700 – County Growth Adjustment

Elements of a comprehensive community floodplain management program



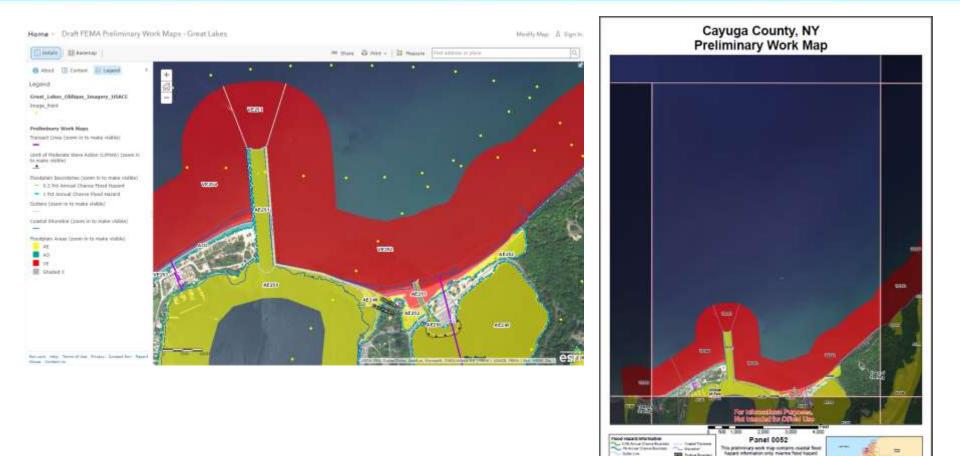


Work Session: Review floodplain mapping and flood risk products for validity. Ask questions!





Workmap Data Viewer





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Questions about Maps?

Great Lakes Coastal Analysis & Mapping Additional Resources

Great Lakes Coastal Flood Study

Welcome to GreatLakesCoast.org

Great Lakes Coastal Analysis & Mapping

Wind Surge Study

Welcome to the **Great Lakes Coastal Flood Study** website at **greatiakescoast.org**. This is the official public website for FEMA's comprehensive storm and wind study of the Great Lakes basin for the purpose of updating the coastal flood hazard information and Flood Insurance Rate Maps (FIRM) for Great Lakes coastal communities. This is the main page of the website and contains the most recent content posted to the site. Use the menu at the left to visit pages with additional content pertaining to the **Great Lakes Coastal Flood Study**.





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Working Together to Build a Stronger and & More Resilient Cayuga County



