Jefferson County Flood Risk Review Meeting

July 25, 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
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Supervisor, Mitigation Planning
NYS Division of Homeland Security and Emergency Services
Phone: 518-292-1155
Email: Corrina.Cavallo@dhses.ny.gov
www.dhses.ny.gov/recovery
The Value of Updated Flood Maps for your Community
The Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) are being updated for your community.
Flood Maps Impact Important Decisions

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?

### Jefferson County: Snapshot

<table>
<thead>
<tr>
<th>Community</th>
<th>Population</th>
<th>NFIP Policies</th>
<th>NFIP Claims</th>
<th>FEMA Claims Paid</th>
<th>CAV/CAC Dates</th>
<th>Hazard Mitigation Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town of Alexandria</td>
<td>2,983</td>
<td>17</td>
<td>7</td>
<td>$12,973.76</td>
<td>CAV: 8/6/2015 CAC: 11/19/2004</td>
<td>Expired</td>
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<td>Town of Cape Vincent</td>
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<tr>
<td>Town of Henderson</td>
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<td>30</td>
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<td>Town of Hounsfield</td>
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<td>N/A</td>
<td>$0</td>
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<td>Expired</td>
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</table>

RiskMAP
Increasing Resilience Together
Why Update your Flood Maps? (cont’d)

<table>
<thead>
<tr>
<th>Community</th>
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<th>NFIP Policies</th>
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<th>FEMA Claims Paid</th>
<th>CAV/CAC Dates</th>
<th>Hazard Mitigation Plan</th>
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<tbody>
<tr>
<td>TOWN OF LYME</td>
<td>1,561</td>
<td>48</td>
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<td>$3,924.56</td>
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<td>TOWN OF ORLEANS</td>
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<td>4</td>
<td>$3,661.00</td>
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<tr>
<td>VILLAGE OF ALEXANDRIA BAY</td>
<td>1,078</td>
<td>17</td>
<td>2</td>
<td>$4,534.03</td>
<td>CAV: 8/6/2015 CAC: 11/19/2014</td>
<td>Expired</td>
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<td>VILLAGE OF CAPE VINCENT</td>
<td>726</td>
<td>3</td>
<td>3</td>
<td>$7,528.00</td>
<td>CAV: N/A CAC: 10/28/2015</td>
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<td>VILLAGE OF CHAUMONT</td>
<td>624</td>
<td>4</td>
<td>4</td>
<td>$7,659.11</td>
<td>CAV: 5/13/2003 CAC: 11/16/2015</td>
<td>Expired</td>
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<td>VILLAGE OF CLAYTON</td>
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<td>VILLAGE OF SACKETS HARBOR</td>
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<td>CAV: N/A CAC: 12/20/2006</td>
<td>Expired</td>
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</table>
Detailed Coastal Mapping

- VE: Wave height ≥ 3 feet
- AE: Wave height 3.0–1.5 feet
- LiMWA: Wave height < 1.5 feet
- BFE: 1% annual chance stillwater elevation
- Flood level including wave effects
- Properly elevated building
- Unelevated building constructed before community entered the NFIP
- Shoreline
- Sand beach
- Buildings
- Overland wind fetch
- Vegetated region
- Limit of SFHA

RiskMAP
Increasing Resilience Together
Preliminary Work Map vs FIS/FIRM

WORK MAPS WILL NOT AFFECT FLOOD INSURANCE REQUIREMENTS OR COSTS
Your Role

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
Jefferson County

The Risk MAP Process and Scope
The most severe flooding from overflow occurs during the spring thaw.

Current Coastal Erosion Hazard Area (CEHA) Base Flood Elevations are lower than what is shown in the U.S. Army Corps of Engineers coast flood level report. A restudy with wind and wave run up or a coastal study is needed.

BFEs are needed along Lake Ontario’s shoreline.
Project Timeline and Schedule

Discovery Meeting
2014

Flood Risk Review Meeting
July 25, 2017

Preliminary Date
TBD

CCO Meeting & Open House
TBD

Appeal Period
TBD

End of Appeal Period
TBD

FEMA issues LFD
TBD

Effective Date
2019-2020

“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
16 Coastal Jefferson County Communities

- 336 miles of shoreline (Lake Ontario and St. Lawrence River)
- Coastal Storm Flooding update
- 2015 USGS NY Great Lakes LiDAR
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

<table>
<thead>
<tr>
<th>Coastal Study Component</th>
<th>Effective Studies (1970’s)</th>
<th>New Study (2017)</th>
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</thead>
<tbody>
<tr>
<td>Topographic data</td>
<td>1960s-1970s USGS</td>
<td>2015 USGS NY Great Lakes LiDAR</td>
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<tr>
<td></td>
<td></td>
<td>USGS 10 meter National Elevation Dataset (NED)</td>
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<tr>
<td></td>
<td></td>
<td>2011 USACE/JALBTCX Great Lakes Topo/Bathy LiDAR</td>
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<tr>
<td></td>
<td></td>
<td>2007 USACE NCMP Topo/Bathy LiDAR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2001 USACE Detroit District Topo/Bathy LiDAR</td>
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<tr>
<td></td>
<td></td>
<td>1999 Lake Ontario Historic Sounding Data</td>
</tr>
<tr>
<td>Stillwater Elevation (SWEL)</td>
<td>Frequency analysis</td>
<td>Lake Ontario - 2012</td>
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<tr>
<td></td>
<td></td>
<td>St. Lawrence River</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gage Analysis - 2016</td>
</tr>
<tr>
<td>Modeled transects</td>
<td>0</td>
<td>304</td>
</tr>
<tr>
<td>Wave set-up</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Wave run-up</td>
<td>Yes for the St. Lawrence River communities</td>
<td>Yes</td>
</tr>
<tr>
<td>Limit of Moderate Wave Action (LiMWA)</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Regional Study Approach

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

Local/County Level Activities

- Mapping tasks performed at county level
- Nearshore wave transformations
- Wave run-up
- Overland wave propagation
Light Detection and Ranging (LiDAR)

Terrain Dataset
Used for modeling & mapping

LiDAR Data Sources
2015 USGS NY Great Lakes LiDAR
2011 USACE/JALBTCX topo/bathy
Gaps supplemented with USGS National Elevation Dataset (NED) data
Jefferson County Transects

- Lake Ontario
  - Elevations: 248-274 feet NAVD 88
- St. Lawrence River
  - Elevations: 248-255 feet NAVD 88
### Jefferson County, NY

**Transect 3, Point 1**

**Date:** 7/28/2015  
**Time:** 08:11:37 AM

<table>
<thead>
<tr>
<th><strong>Location Description:</strong></th>
<th>Beach at Bryant Road within manufactured home community. Surrounding shoreline is bedrock with a small beach made with placed sand. Shoreline should be non erosional to majority being bedrock.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Point Type:</strong></td>
<td>Coastal</td>
</tr>
<tr>
<td><strong>Latitude, Longitude (decimal degrees):</strong></td>
<td>44.38446, -75.853392</td>
</tr>
<tr>
<td><strong>Building Description:</strong></td>
<td>Manufactured home community where homes are elevated by 1-2 feet.</td>
</tr>
<tr>
<td><strong>Vegetation Description:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Marsh Description:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Coast Description:</strong></td>
<td>Artificial Beach</td>
</tr>
<tr>
<td><strong>Fetch:</strong></td>
<td>Limited Fetch</td>
</tr>
</tbody>
</table>

**Description**:
- Artificial beach surrounded by bedrock and dock.
- Manufactured home community, homes elevated 1-2 feet.
- Small stone wall and jetty next to local channel.
Coastal Base Flood Elevation
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.
USACE CSHORE model

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

Erosion in the Great Lakes
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 depth $\geq$ 3 feet

100-year stillwater elevation
100-year wave runup elevation = BFE

100-year wave crest elevation

Datum (e.g., NGVD, NAVD)

Inland extent of wave runup

Wave runup depth < 3 feet
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
  - Consider rainfall associated with event
  - 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 2011 Hazard Mitigation Plan

• Need to review existing local codes and ordinances to determine if amendments are needed to address hazards.
• Sewage treatment plant and water low lift critical facilities must be protected.
• Develop/implement storm water management plan and update drainage capacity to mitigate flooding aggravated by runoff.
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

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)
Elements of a comprehensive community floodplain management program
Work Session:
Review floodplain mapping and flood risk products for validity.
Ask questions!
Workmap Data Viewer
Welcome to the Great Lakes Coastal Flood Study website at greatlakescoast.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.

Learn more at:  http://www.greatlakescoast.org/

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Working Together to Build a Stronger and More Resilient Jefferson County