

The National Flood Insurance Program in New York

Jacob Tysz, CFM



Me

Professional

15 Years involved with the National Flood Insurance Program (NFIP)

Certified Floodplain Manager

FEMA Call Center

Approximately 500 LOMAs/LOMR-Fs

Development of FIS/FIRMs

2 ½ Years with NYSDEC

Outreach/Communications/Writing Training

Professional Organizations

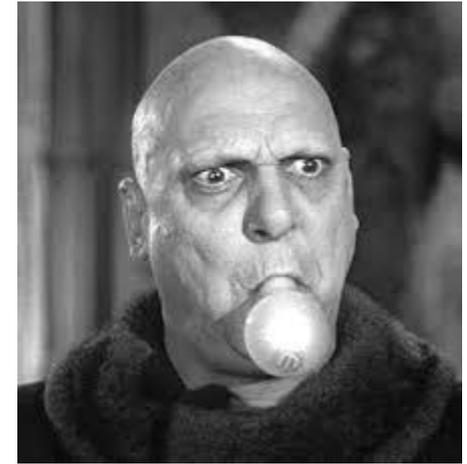
New York State Floodplain and Stormwater Managers Association - Treasurer

Association of State Floodplain Managers - Region II Board Member

Personal

Rexford, Saratoga County, New York

Wife, two kids



ATKINS

“Jacob – The Goth Years”

NYSDEC Contacts

Central Office

– Bureau of Flood Protection and Dam Safety 625 Broadway, 4th Floor, Albany, NY 12233-3504

- Bill Nechamen: 518-402-8146 Chief, Floodplain Management william.nechamen@dec.ny.gov
- Kelli Higgins-Roche: 518-408-0340 Environmental Engineer 1 kelli.higgins-roche@dec.ny.gov
- David Sherman: 518-402-8215 Environmental Program Spec. 1 david.sherman@dec.ny.gov
- Jennifer Horton: 518-402-8148 Environmental Engineer 1 jennifer.horton@dec.ny.gov

Region 7

– 615 Erie Boulevard, West Syracuse, New York 13204

- Kevin Delaney: 315-426-7501 kevin.delaney@dec.ny.gov

Acronyms

ASFPM - Association of State Floodplain Managers	FBFM - Flood Boundary and Floodway Map	LOMC - Letter of Map Change
BFE - Base Flood Elevation	FEMA - Federal Emergency Management Agency	LOMR - Letter of Map Revision
BW-12 - Biggert Waters Flood Insurance Reform Act of 2102	FHBM - Flood Hazard Boundary Map	LOMR-F - Letter of Map Revision Based on Fill
CAC - Community Assessment Contact	FIRM - Flood Insurance rate Map	Map Mod – Map Modernization
CAV - Community Assessment Visit	FMA - Flood Mitigation Assistance	NFIP - National Flood Insurance Program
CDBG - Community Development Block Grant	FIS - Flood Insurance Study	NYSDEC - NY State Dept. of Environmental Conservation
COBRA - Costal Barrier Resource Act	FPA - Floodplain Administrator	NYSFSMA - NY State Floodplain & Stormwater Managers Association
CLOMA - Conditional Letter of Map Amendment	HAG - Highest Adjacent Grade	OPA - Otherwise Protected Area
CLOMR - Conditional Letter of Map Revision	HFIAA-14 – Homeowner Flood Insurance Affordability Act of 2014	PDM – Pre-Disaster Mitigation
CLOMR-F - Conditional Letter of Map Revision based on Fill	HMGP - Hazard Mitigation Grant Program	PMR - Physical Map Revision
CRS - Community Rating System	HUD - Housing and Urban Development	RFC - Repetitive Flood Claims
DFIRM - Digital Flood Insurance Rate Map	ICC - Increased Cost of Compliance	SFHA - Special Flood Hazard Area
eLOMA - electronic Letter of Map Amendment	LiMWA - Limit of Moderate Wave Action	SRL - Severe Repetitive Loss
EMI - Emergency Management Institute	LOMA - Letter of Map Amendment	USACE - US Army Corps of Engineers
	LAG - Lowest Adjacent Grade	

Agenda

This evening we'll be discussing:

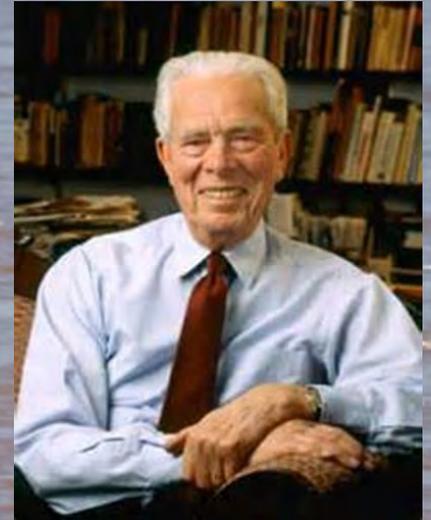
- Background and Overview of the National Flood Insurance Program (NFIP)
- Mapping
- Letters of Map Change (LOMCs)
- Case Study – North Canton, Ohio
- Mitigation

National Flood Insurance Program (NFIP)

Background and Overview

Gilbert White, 1945

“Floods are an act of God, but flood losses are largely an act of man”



NFIP - Background

Timeline:

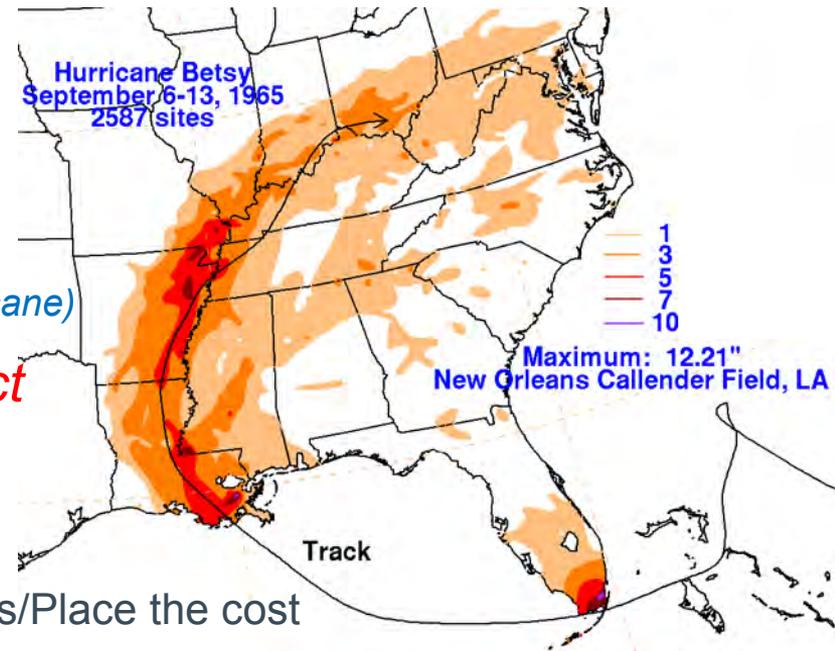
- *1850s – 1960s: Flood control structures*
- *1929: Privately-offered flood insurance is withdrawn*
- *1936: Congress declares that “flood control a “proper” federal activity”*
- *1950s: Limited, spotty post-disaster aid from Federal Government, provided on an “ad hoc” basis, begins*



NFIP - Background

Timeline:

- 1965: *Hurricane Betsy* (First \$1B hurricane)
- 1968: *National Flood Insurance Act*
- GOALS:
 - Reduce loss of life/property
 - Relieve cost of flooding borne by taxpayers/Place the cost on those properties at risk
 - Provide Federally backed flood insurance coverage
- DRAWBACKS:
 - Little incentive for communities to join Program
 - No funding to create floodplain mapping



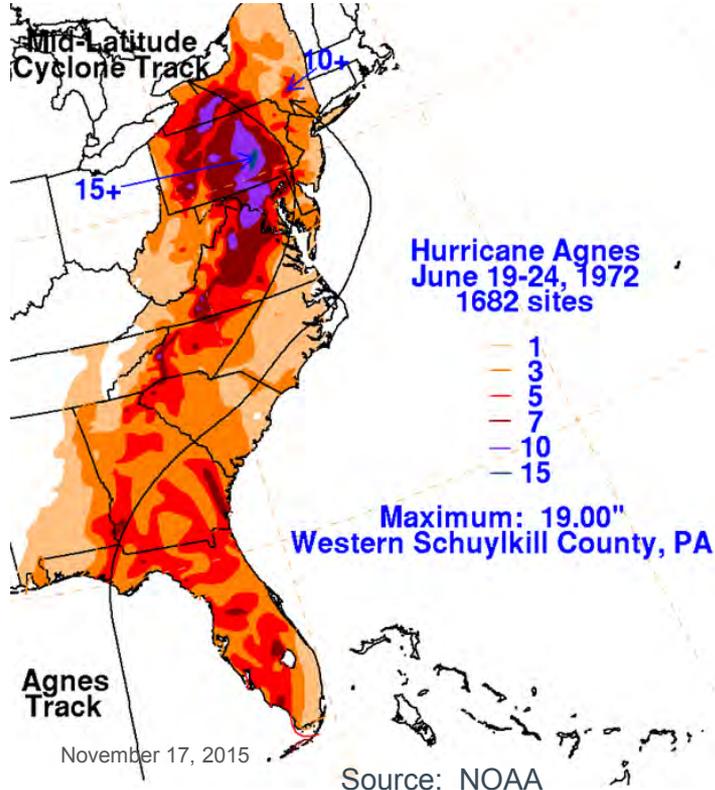
Source: NOAA

NFIP - Background

Timeline:

- 1972: Hurricane Agnes
- 1973: Flood Disaster Protection Act of 1973
 - **NEW** Carrot and stick approach
 - Linked flood insurance/post-disaster funding to NFIP participation!
 - Funding now available for flood mapping
 - As a result, many community now join NFIP
- Continuing challenge

However, still relatively easy to avoid flood insurance requirement



NFIP – Background

Timeline:

- **National Flood Insurance Reform Act of 1994**
(following Upper Mississippi River floods of '93)
 - Focus on the “lending” side of insurance risk
 - **Waiting** period extended to 30 days

- **Biggert–Waters Flood Insurance Reform Act of 2012 (BW12)**
(following Katrina, Rita, Lee, Irene, Sandy, and others (2005-2011))
 - Elimination of subsidized flood insurance rates for non-actuarially-based properties
 - Mapping of future conditions
 - Mandated FEMA/USACE cooperation/coordination on Levees

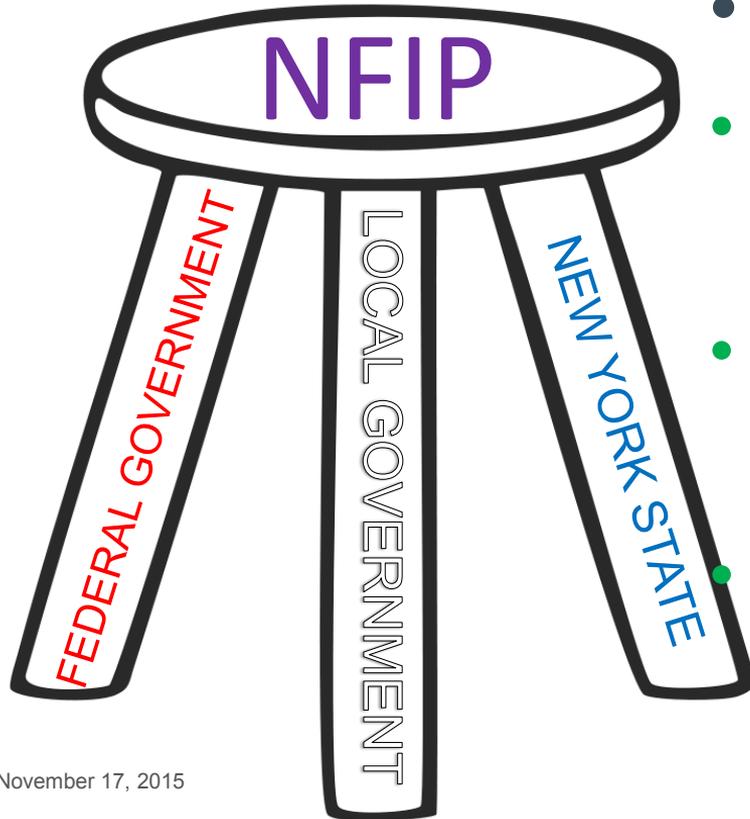
- **Homeowner Flood Insurance Affordability Act of 2014**
 - Delay of and limit to premium increases called for under BW12

The NFIP Today

The Players

NFIP – The Players

ATKINS



- *Three partners:*
- Federal government
 - (FEMA)
- State government
 - (NYSDEC)
- Local government
 - (Cities, towns & villages)

NFIP – The Players

Federal responsibilities (FEMA):

- Oversee national program
- Risk identification/mapping
- Establish minimum criteria for regulation/best practices
- Provide flood insurance coverage

State responsibilities:

Departments of Environmental Conservation & State

- Offer technical assistance to local communities/agencies
- Provide model local law for flood damage prevention
- Assist local communities maintain effective NFIP practices through Community Assistance Contacts and Visits
- Establish development/building standards through State Building Code (*Department of State*)

Local responsibilities (Participating Communities):

- Adopt/enforce local floodplain management ordinances
 - *to at least minimum NFIP standards + New York State requirements*
- Community must adopt **effective** FIRM
- Issue or deny floodplain development/building permits
- Oversee development
 - Inspect development
 - Maintain development records
 - Remedy violations
- Assist FEMA and NYSDEC in keeping maps up-to-date

- *In Madison County (and the state):*
- **Generally the Code Enforcement Officer (check your local law)**
 - **In New York (town of Cazenovia §93-12) the FPA duties include:**
 - Review all development permit applications...
 - to ensure that all necessary permits have been obtained from those federal, state or local governmental agencies
 - to determine if the proposed development adversely affects the area of the SFHA
 - to verify that proposed development will not negatively effect the flood-carrying capacity of the SFHA
 - Other responsibilities include, but are not limited to:
 - Obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source
 - Obtain and record the actual elevation, in relation to mean sea level, of the lowest floor
 - Maintain floodproofing certifications

- *In Madison County (and the state):*
- **Generally the Code Enforcement Officer**
 - **In New York (town of Cazenovia §93-12) the FPA duties include (continued):**
 - Notifying adjacent communities and the NYSDEC prior to any alteration or relocation of a watercourse
 - The authority to make interpretations when there appears to be a conflict between the limits of the federally identified area of special flood hazard and actual field conditions.
 - The use of flood information from any other authoritative source, including historical data, to establish the limits of the area of special flood hazard when base flood elevations are not available
 - Issue Stop Work Orders
 - Conduct inspections of during period of construction
 - Issue Certificates of Compliance
 - Other duties/tasks related to maintaining community NFIP compliance!

NFIP – The Appeals Board

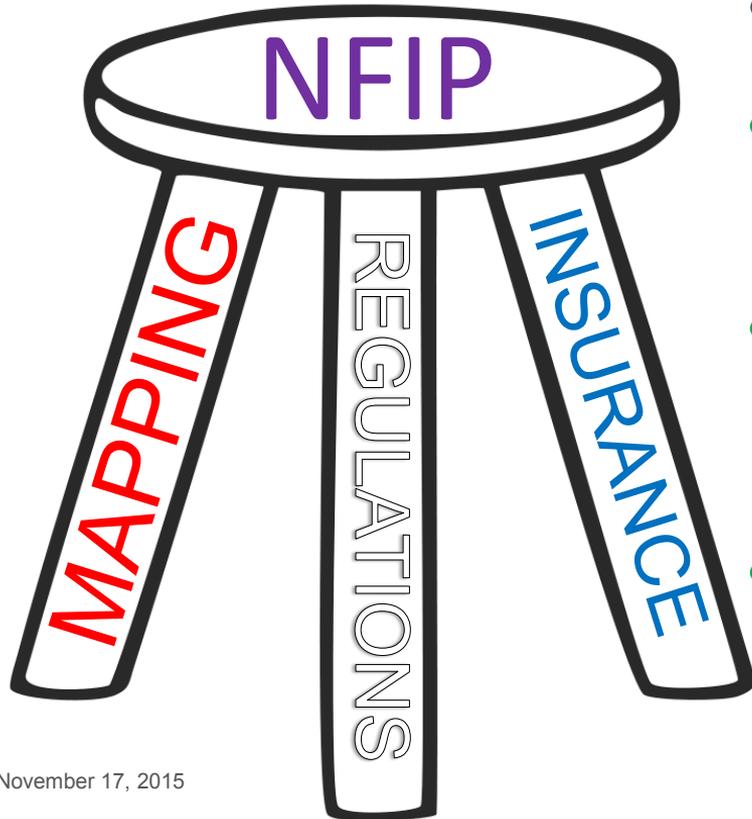
- *In Madison County (and the state):*
- Generally the Zoning Board of Appeals (but may be other board)
 - In New York (town of Cazenovia §93-16) the Appeals Board duties include:
 - Hear and decide appeals and requests for variances
 - Decide appeals when it is alleged that there is an error on the part of the FPA
 - Consider all technical evaluations, all relevant factors, standards
 - These may include (but are not limited to):
 - danger to life and property
 - necessity to a waterfront placement/alternative locations
 - emergency access in times of crisis
 - costs of providing governmental services during and after flood conditions (including search and rescue operations, maintenance and repair of public utilities and facilities (sewer, gas, electrical and water systems) and streets and bridges)
 - behavior of flooding (heights, velocity, duration, rate of rise and sediment transport, etc.)

The NFIP Today

The Nuts and Bolts

NFIP – The Nuts and Bolts

ATKINS



- *Three components:*
- **Mapping**
(Risk identification)
- **Regulations**
(Community compliance)
- **Insurance**
(Availability)

NFIP – The Nuts and Bolts

Mapping:

- Identifies areas with highest flood risk
- Provides basis for communities' regulations
- Determines properties subject to flood insurance purchase requirements
- Supports ratings for flood insurance

Insurance:

- Specific definition of a “flood”
 - Must be overland flow
 - Two or more properties
 - Two or more acres

NFIP definition of a FLOOD:
*“a general and temporary condition of partial or complete inundation of normally dry land areas from the **overflow** of inland or tidal waters, or the unusual or rapid accumulation or runoff of **surface** waters from any source”*

NFIP – The Nuts and Bolts

Regulations:

- Require local governments to provide direction and manage risk
- No flood insurance is available unless the community adopts and enforces a floodplain management ordinance(s)
- Provide protection for new and substantially improved or substantially damaged structures
- Make sure development does not increase flood risk for existing properties

In New York, this is done through your *LOCAL LAW*

NFIP – The Nuts and Bolts

Regulations:

- School, Improvement, and Other Special districts are **NOT** exempt from NFIP regulations!
- ***Environmental Conservation Law, Article 36:***
 - *“Any local law or ordinance adopted...shall apply to any construction or improvement undertaken within any such local government by any county, city, town, village, school district or public improvement district.”*



ATKINS

Credits: Owego - John Howell/via Flickr; Minot, ND - FEMA

NFIP Mapping

What it is - What it looks like - How to find it

NFIP Mapping

ATKINS

- *What it is...*
- Elements of NFIP Mapping
 - Flood Map Index
 - Flood Insurance Rate Map (FIRM)
 - Flood Insurance Study (if applicable)



NFIP Mapping

What it is:

Definitions:

Floodplain Boundaries/Flood Zones

- **Base Flood** - Flood with 1-percent chance of being equaled or exceeded in any given year (“100 Year Flood”)
- **Base Flood Elevation (BFE)** - Computed *elevation* to which floodwater is anticipated to rise during Base Flood
- **Special Flood Hazard Area (SFHA)** - *Spatial extent* of area covered by floodwaters of Base Flood (i.e., 1-percent-annual-chance of being flooded in any given year)
 - Designated Zones **A, A1-30, AE, AO, AH,** and V, V1-30, or VE

NFIP Mapping

What it is:

Definitions:

Floodplain Boundaries/Flood Zones

- **Floodway** - Area to be kept free of obstructions and reserved for the purpose of discharging the base flood without increasing the BFE.
- **Approximate Study** - Area studied with limited detailed information.
(Zones A and V)
- **Detailed Study** - Area studied by detailed methods of analysis.
(Zones **A1-30**, **AE**, **AO**, **AH**, and **V1-30**, or **VE**)
- **Areas outside SFHA** - Zones B, C, D, and X (shaded/unshaded)

NFIP Mapping

What it is:

“*EVOLUTION*” of Flood Mapping Nomenclature

Old Format	New Format	Meaning
Zones A1-A30	Zone AE	Area of 1% flood
Zone AH	Zone AH	Area of ponding
Zone AO	Zone AO	Area of sheet flow from 1-3 feet deep
Zone B	Zone X (shaded)	Area of 0.2% flood
Zone C	Zone X (unshaded)	Area “beyond”/outside 0.2% flood
Zone D	Zone D	Area of unknown/unstudied risk

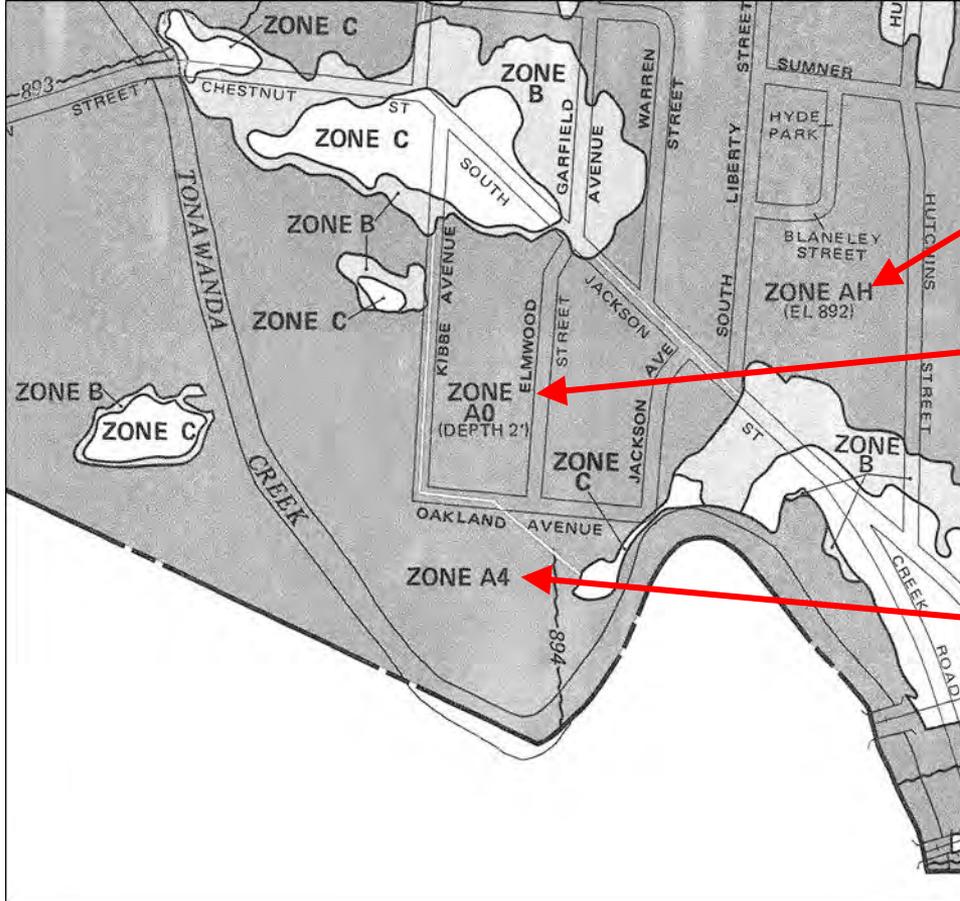
NFIP Mapping

- *What it looks like...*

NFIP Mapping

What it is:

Special Flood Hazard Areas (SFHA)



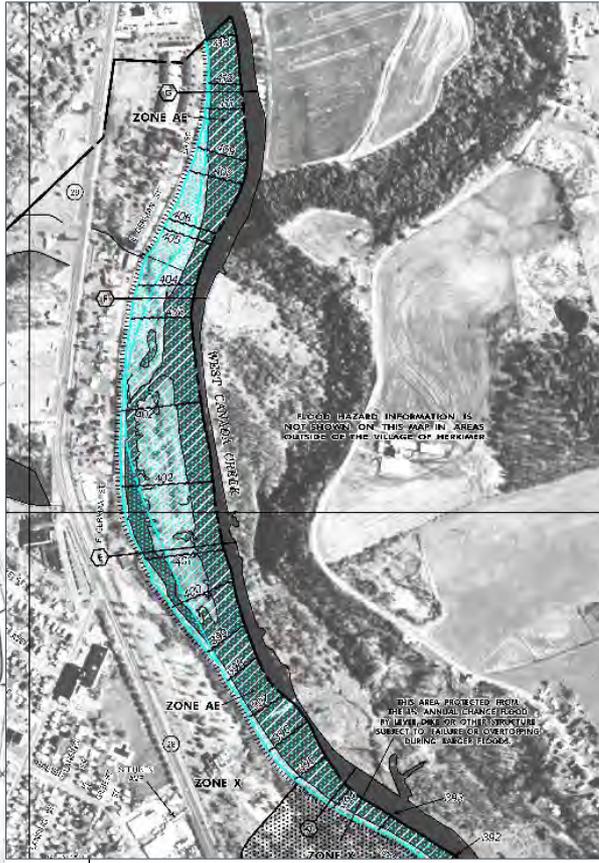
- **Zone AH** – Base floodplain from ponding, with BFE
- **Zone A0** – Base floodplain from sheet flow, with base flood depth (Number represents water depth, not elevation)
- **Zone A1-30** (numbered) – Base floodplain with BFE (old format FIRM)

NFIP Mapping

What it is:

Special Flood Hazard Areas (SFHA)

- **Zone AE** – Base floodplain with BFE



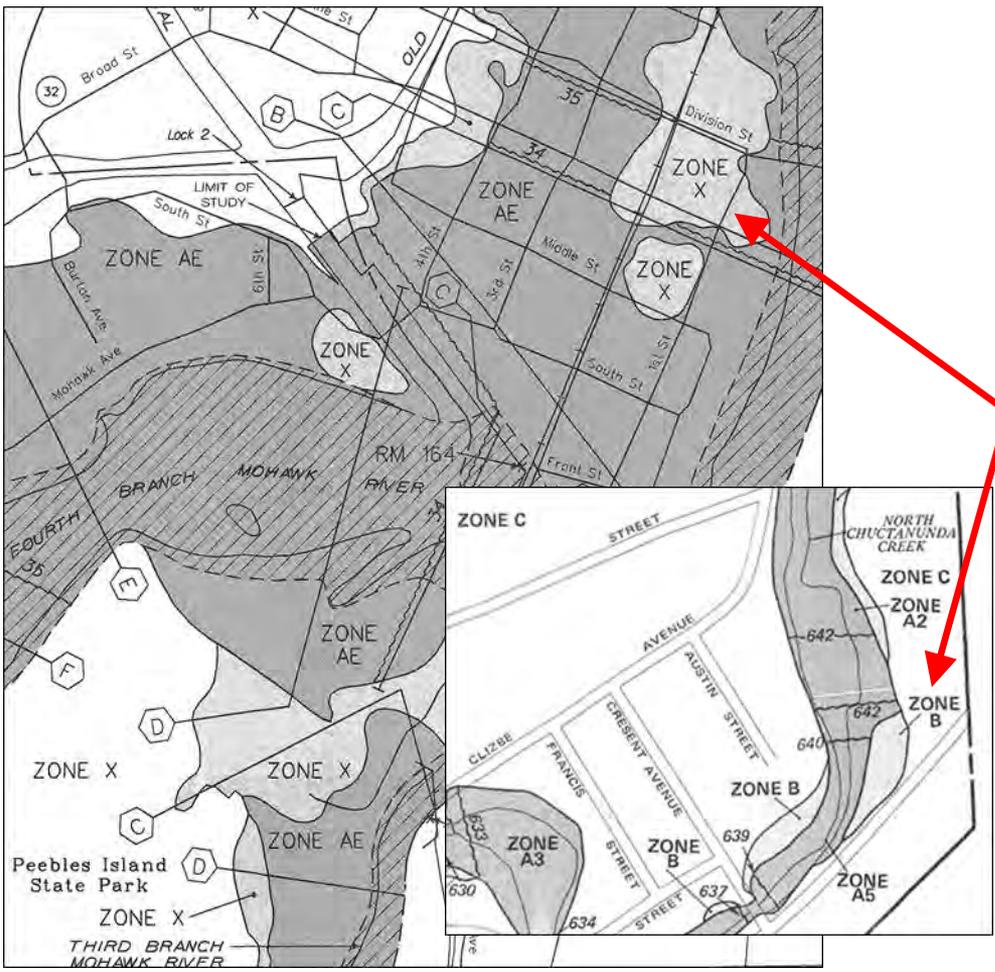
NFIP Mapping

What it is:

Zones outside the Special Flood Hazard Area

- **Zone B** and **Zone X (shaded)** – Area of moderate flood hazard, i.e., *beyond* limits of 100-year flood but *within* limits of the 0.2-percent-annual-chance (500 Year) flood

- Also used to designate base floodplains of lesser hazards:
 - areas protected by levees
 - shallow flooding areas less than 1 foot
 - drainage areas of less than one square mile.



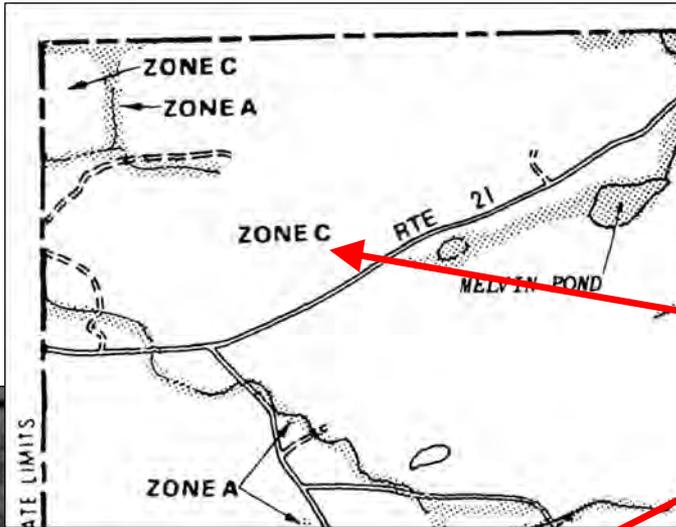
NFIP Mapping

What it is:

Zones outside SFHA (continued)

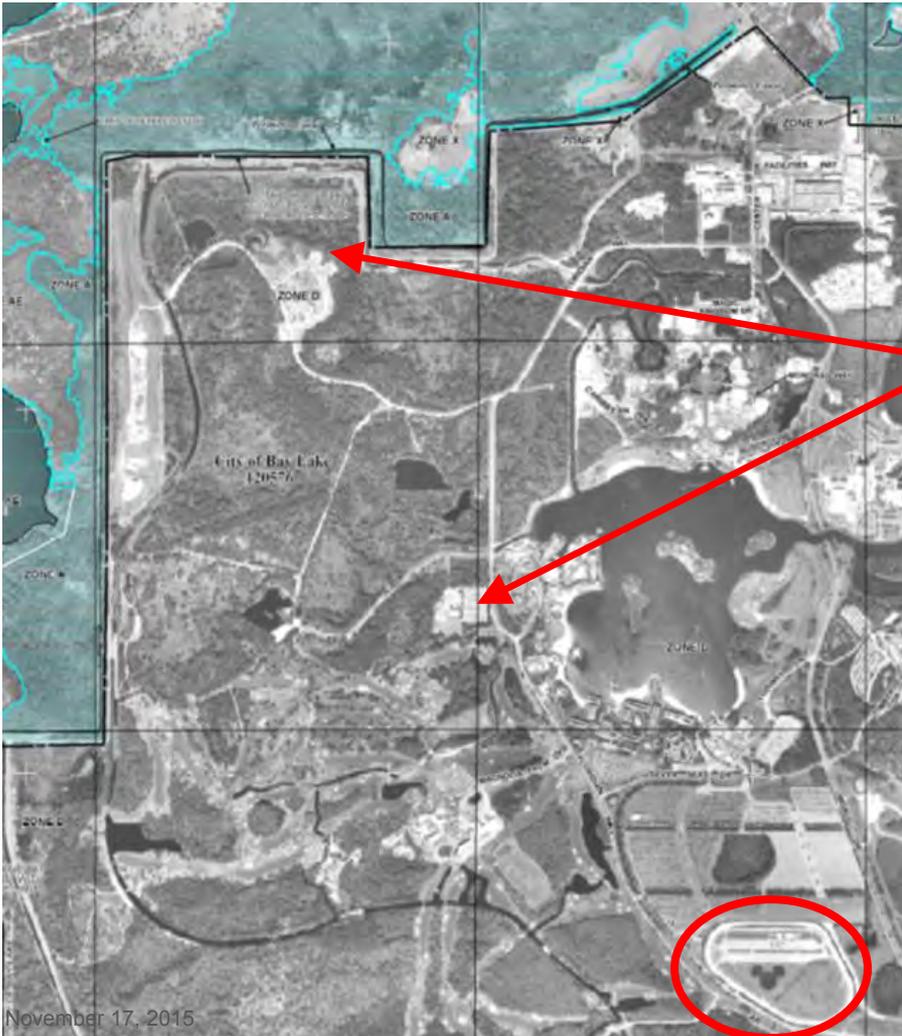
- Zone C and X (unshaded)** – Area of minimal flood hazard, i.e., *beyond* limits of the 0.2-percent-annual-chance (500 Year) flood

- These areas may have ponding and local drainage problems that do not warrant detailed study or designation as base floodplain.



NFIP Mapping

Zones outside SFHA (continued)



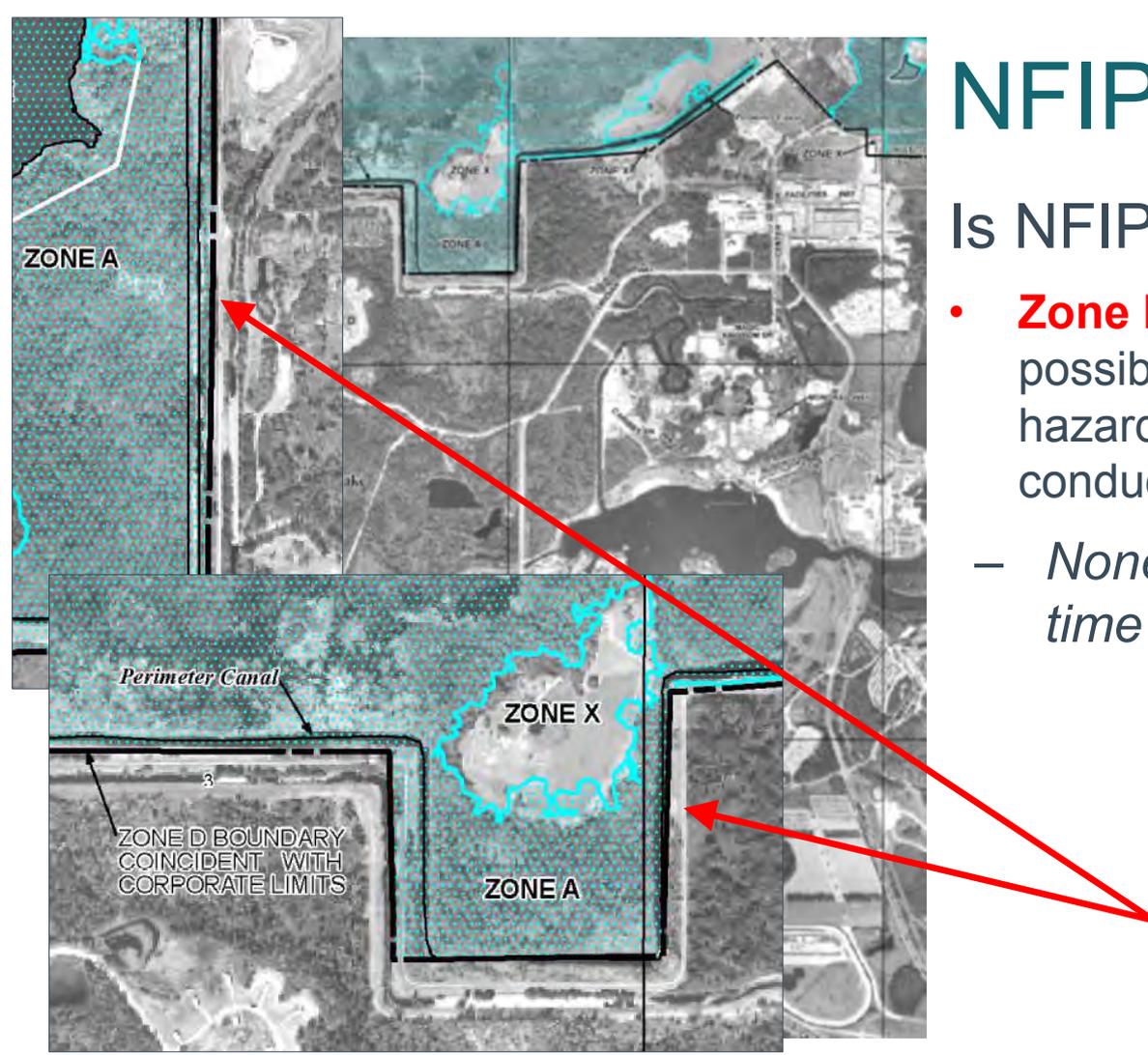
Zone D - Area of undetermined, but possible, flood hazard, i.e., no flood hazard analysis has been conducted.

- *None in New York State at this time*

NFIP Mapping

Is NFIP mapping perfect?

- **Zone D** - Area of undetermined, but possible, flood hazard, i.e., no flood hazard analysis has been conducted.
 - *None in New York State at this time*



NFIP Mapping

Is NFIP mapping perfect?

- Mapping Assumptions!

What is **NOT** shown on flood maps?

- Ice Jams
- Blocked Culverts
- Urban Flooding
- Watersheds under One Square Mile
- Dam and Levee Failure Inundation Areas
- Many Other Unknowns....



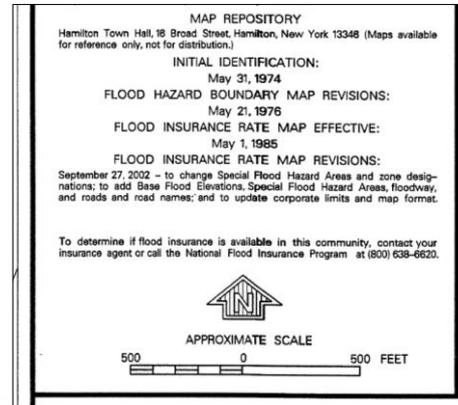
Photo Credits: Ice Jam: Floodsmart.gov; Bridge, FEMA

Flood maps illustrate the “Best Possible Scenario”, NOT the WORST!

NFIP Mapping

ATKINS

- *What it looks like...*
- **“EVOLUTION”** of Flood Mapping
 - Flood Hazard Boundary Maps (FHBM)
 - Flood Boundary and Floodway Map (FBFM)
 - Flood Insurance Rate Map (FIRM)
 - Old format (before 1986)
 - New format (since 1986)
 - Countywide
 - Digital (DFIRM)
 - FIRMette



Your Flood Mapping may have been *revised* over the years...

...the *Methods* and *Calculations* used to determine Flood Risk can *change* over time!

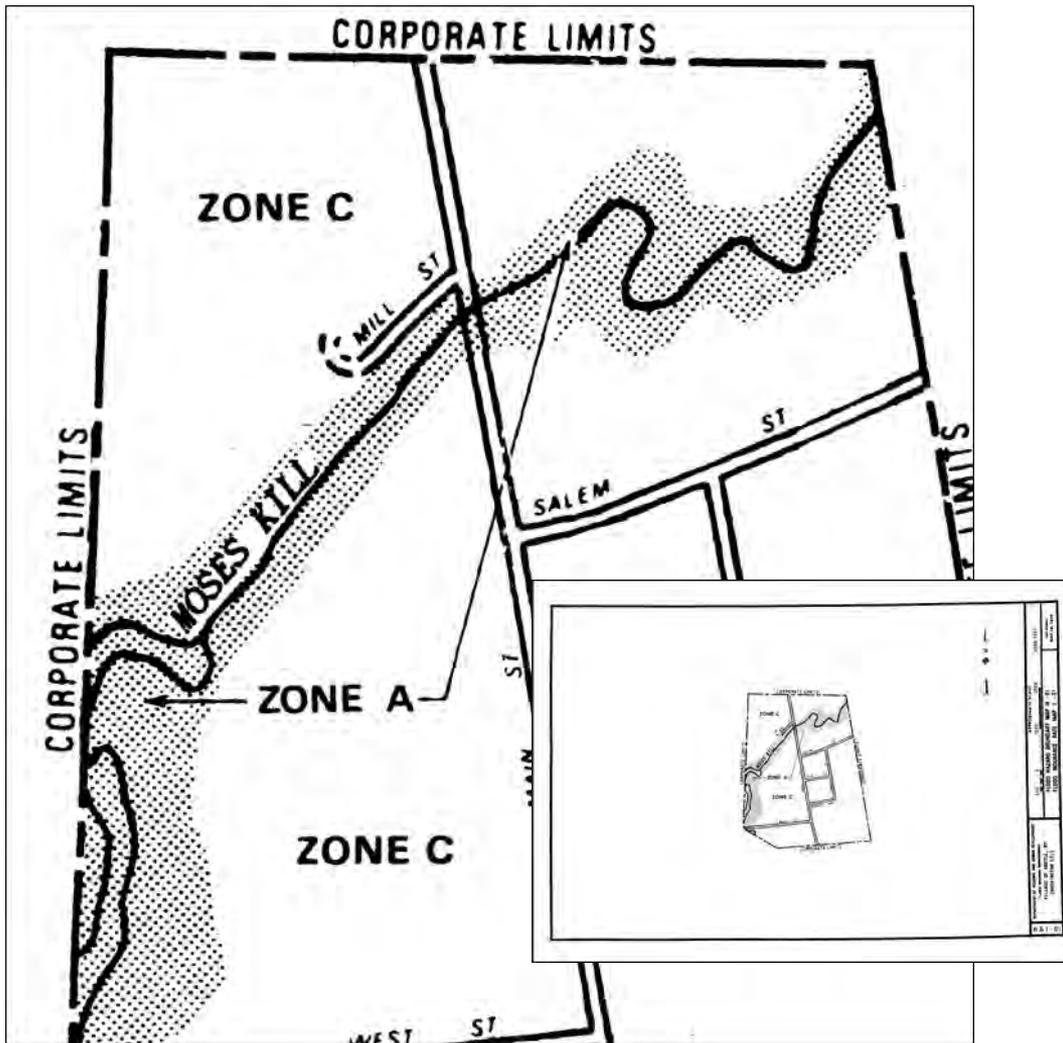
NFIP Mapping

ATKINS

What it looks like...

Flood Hazard Boundary Maps (FHBM)

- Produced quickly in the 1970s and early 1980s without detailed studies or hydraulic analyses for interim use by flood-prone communities.
- Floodplain boundaries (approximate) **Yes**
- Flood zones (approximate) **Yes**
- Floodway **No**
- Base Flood Elevations **No**



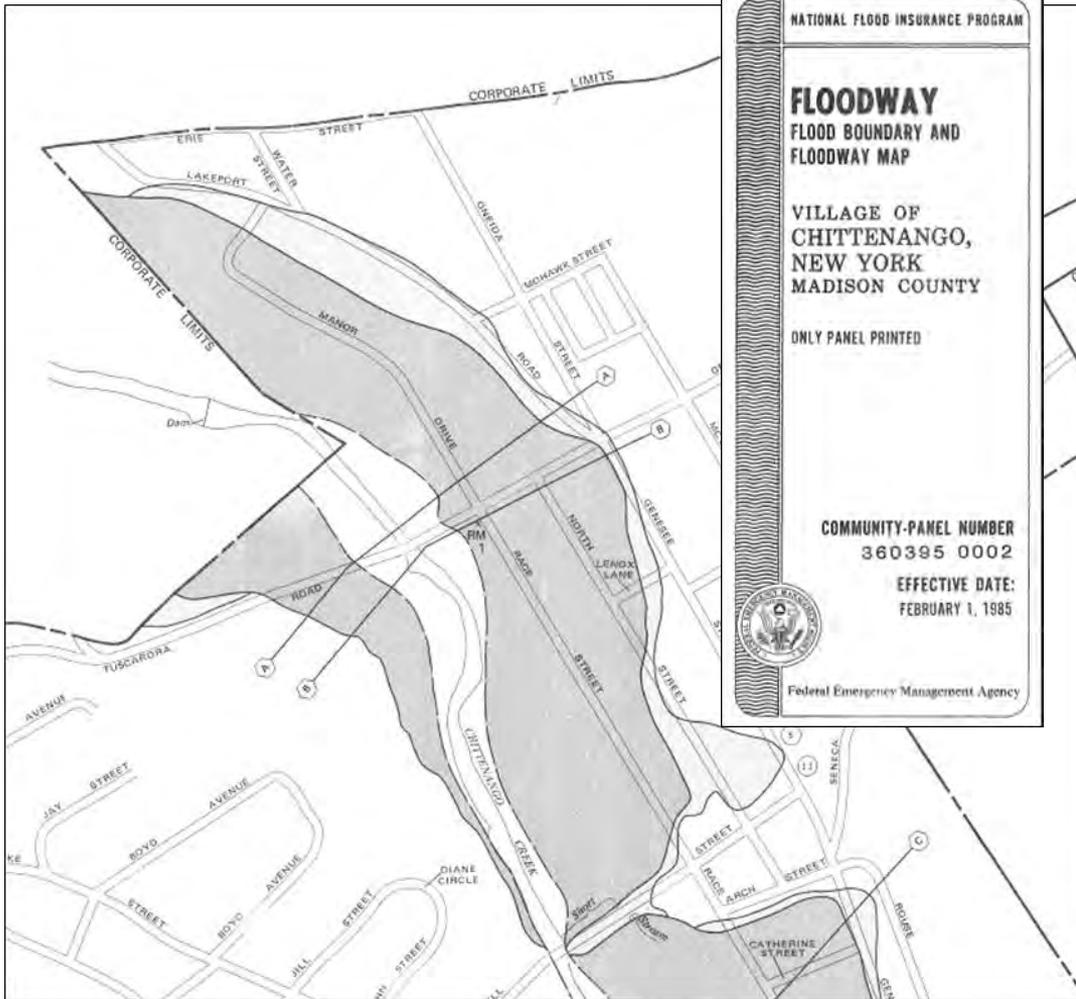
NFIP Mapping

What it looks like...

Flood Boundary and Floodway Map (FBFM)

Produced prior to 1986 in combination with (old format) FIRM.

- Floodplain boundaries Yes
- Flood zones No
- Floodway Yes
- Base Flood Elevations No

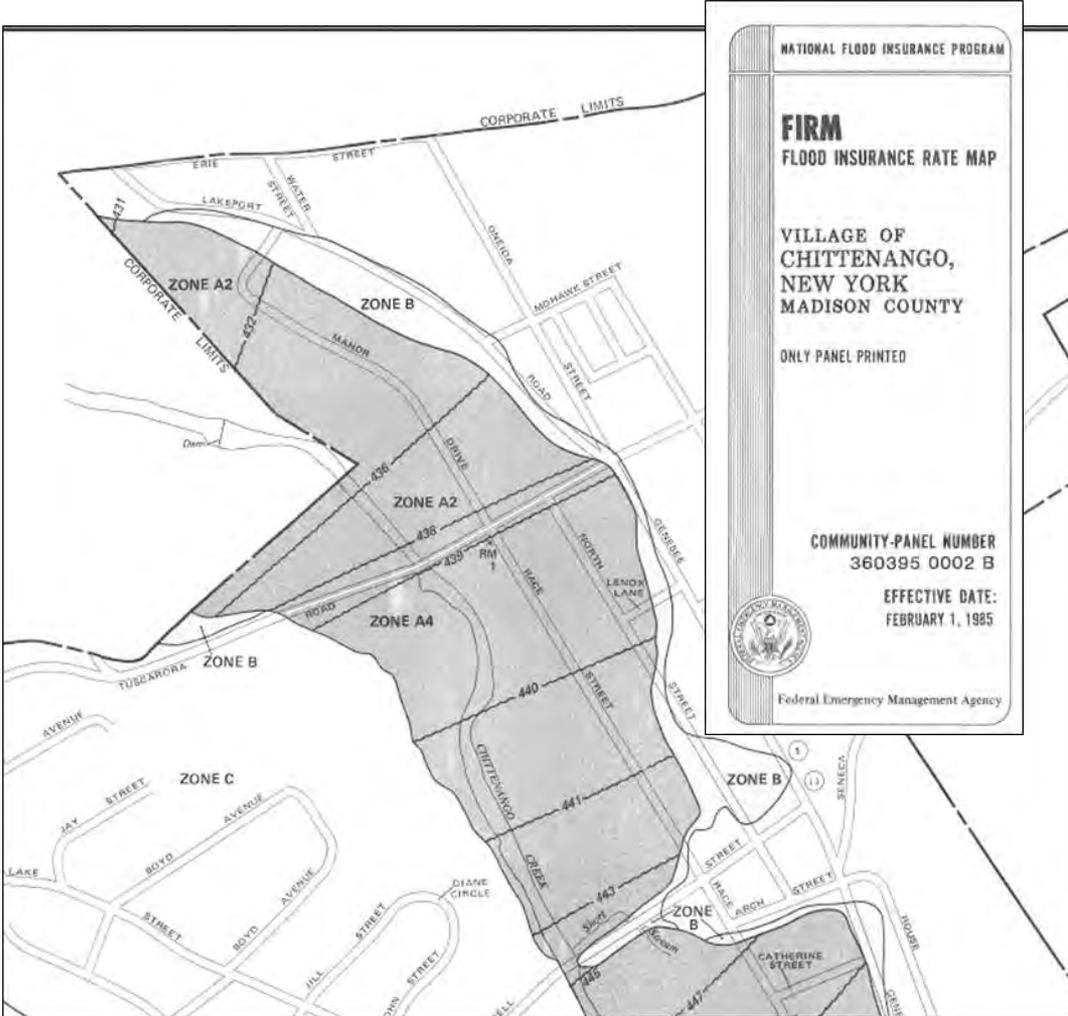


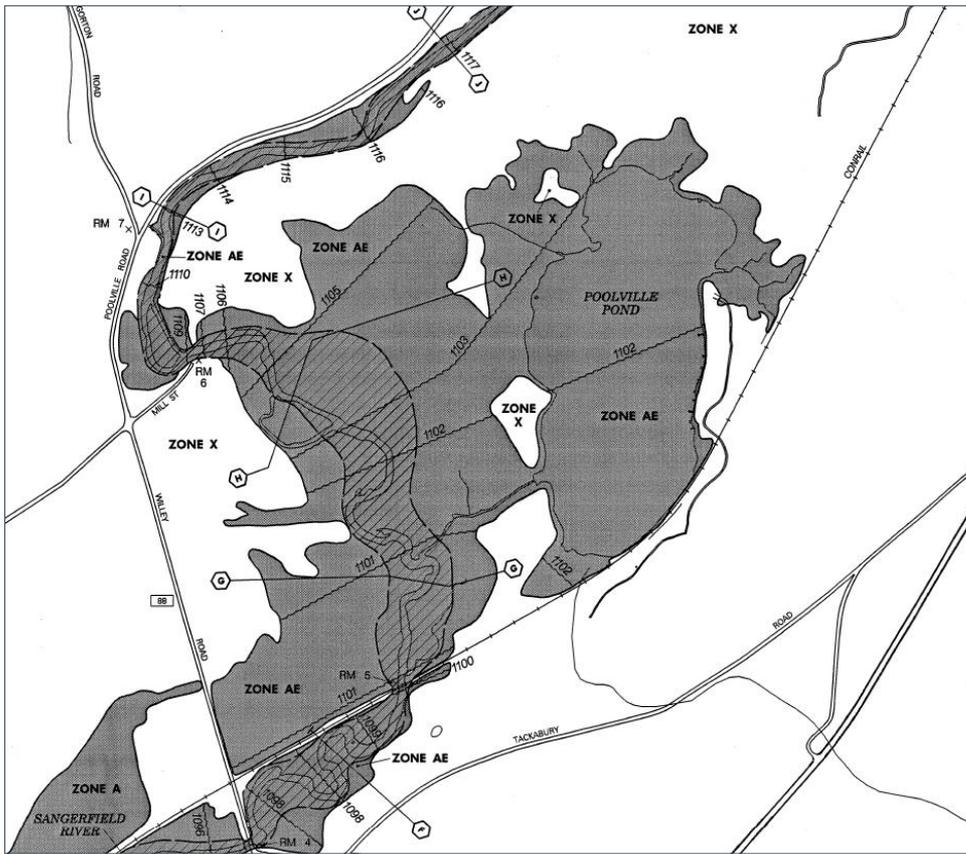
NFIP Mapping

What it looks like...

(Old Format) Flood Insurance Rate Map (FIRM)

- Produced prior to 1986 in combination with FBFM.
- Floodplain boundaries **Yes**
- Flood zones **Yes**
- Floodway **No**
- Base Flood Elevations **Yes**





NFIP Mapping

ATKINS

What it looks like...

Flood Insurance Rate Map (FIRM)
– Second Generation

- Combined the data sets of First Generation FIRM and FBFM.
- Floodplain boundaries **Yes**
- Flood zones **Yes**
- Floodway **Yes**
- Base Flood Elevations **Yes**

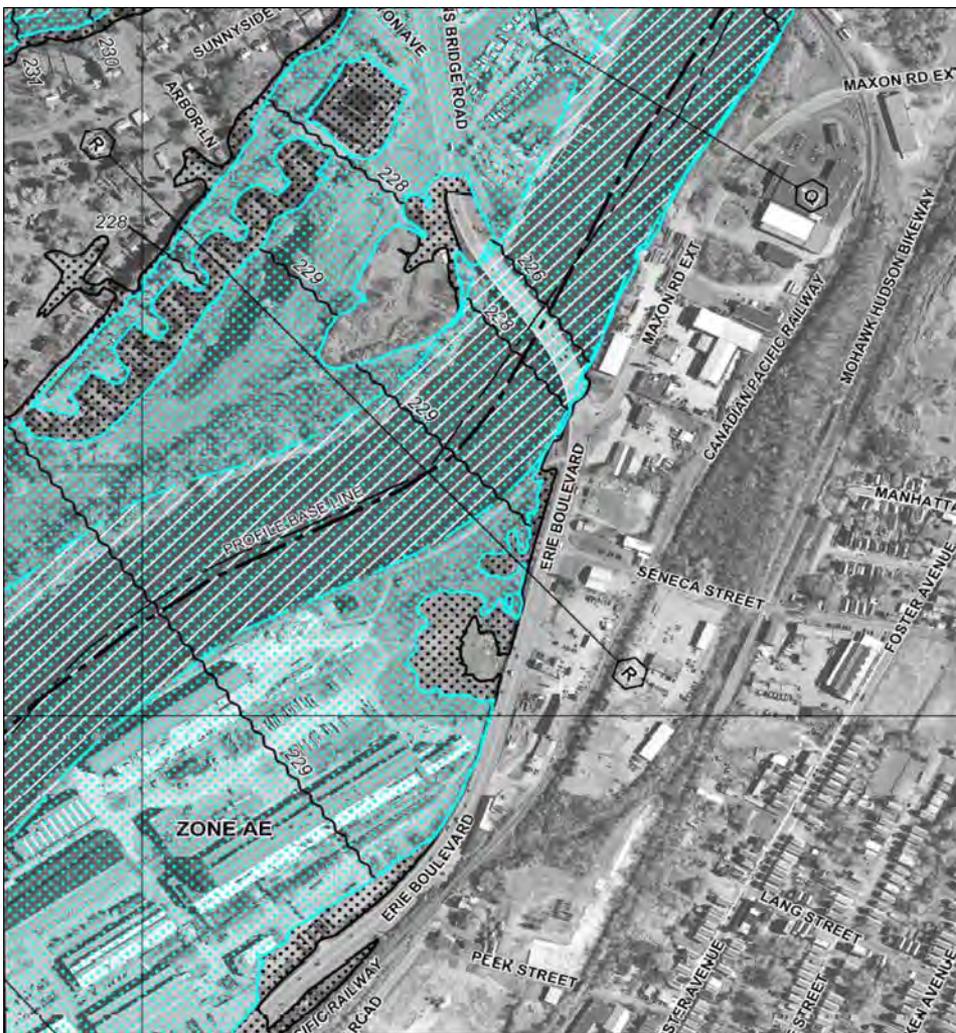
NFIP Mapping

ATKINS

What it looks like...

Flood Insurance Rate Map (FIRM)
– Current Format

- Base map uses orthophotos.
- Floodplain boundaries **Yes**
- Flood zones **Yes**
- Floodway **Yes**
- Base Flood Elevations **Yes**



NFIP Mapping

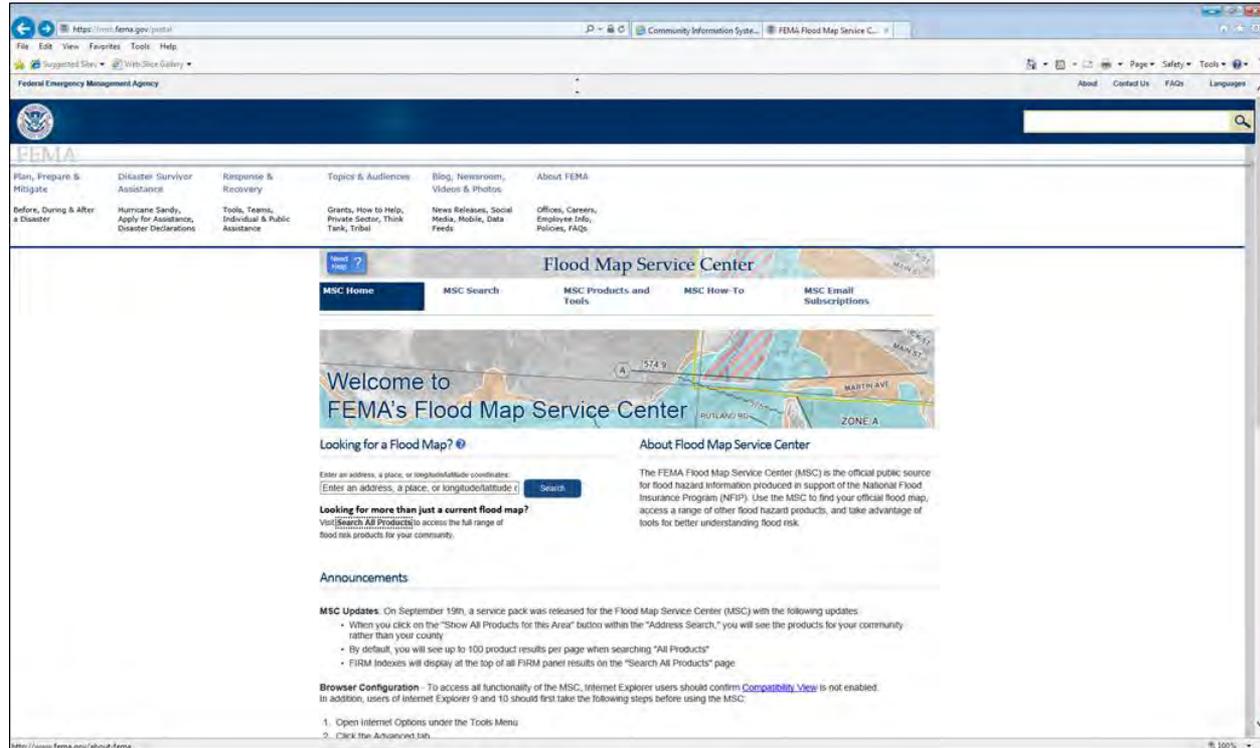
- *How to Find it...*

NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV



NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

FEMA

Before, During & After a Disaster | Hurricane Sandy, Apply for Assistance, Disaster Declarations | Tools, Teams, Individual & Public Assistance | Grants, How to Help, Private Sector, Think Tank, Tribal | News Releases, Social Media, Mobile, Data Feeds | Offices, Careers, Employee Info, Policies, FAQs

Flood Map Service Center

MSC Home | MSC Search | MSC Products and Tools | MSC How-To | MSC Email Subscriptions

Welcome to FEMA's Flood Map Service Center

Looking for a Flood Map? ⓘ

Enter an address, a place, or longitude/latitude coordinates:
30 nott road rexford, ny 12148

Search

Looking for more than just a current flood map?
Visit [Search All Products](#) to access the full range of flood risk products for your community.

Announcements

MSC Updates: On September 19th, a service pack was released for the Flood Map Service Center (MSC) with the following updates:

- When you click on the "Show All Products for this Area" button within the "Address Search," you will see the products for your community rather than your county
- By default, you will see up to 100 product results per page when searching "All Products"
- FIRM Indexes will display at the top of all FIRM panel results on the "Search All Products" page

NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

The screenshot displays the FEMA Flood Map Service Center (MSC) website interface. At the top, the FEMA logo is visible on the left, and a search bar is on the right. Below the header, there are navigation tabs: "Plan, Prepare & Mitigate", "Disaster Survivor Assistance", "Response & Recovery", "Topics & Audiences", "Blog, Newsroom, Videos & Photos", and "About FEMA". Each tab has a brief description of its content.

The main content area is titled "Flood Map Service Center" and includes navigation links: "MSC Home", "MSC Search" (highlighted), "MSC Products and Tools", "MSC How-To", and "MSC Email Subscriptions".

A "Search by Address" section is active, showing the search input "30 nott road rexford, ny 12148". Below the input, it states "You have selected a location in CLIFTON PARK TOWN". A message indicates: "The flood map for the selected area is number 36091C0635E, effective on 08/16/1995".

Two icons are present: a magnifying glass labeled "VIEW MAP" and a green checkmark labeled "SAVE MAP". A red arrow points to the "VIEW MAP" icon. Below these icons is a button "Show all products for this area".

A "Letters of Map Change" section lists "Revisions (0)", "Amendments (0)", and "Revalidations (0)".

The right side of the page features a locator map showing flood map boundaries. A red pin marks the location on "Nott Rd". The map includes a legend with four categories: "Selected Flood Map Boundary" (blue outline), "Printed Flood Map Boundary" (black outline), "Non-printed Flood Map Boundary" (dashed black outline), and "Unmapped Area" (grey). The map also shows "Riverview Rd", "Nott Rd", "Nott Farm Rd", and "Independence Ct". A "Hybrid" map style selector is visible in the top right of the map area.

At the bottom right, the text "POWERED BY esri" is displayed.

NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

The image displays two screenshots of the FEMA Flood Map Service Center website. The left screenshot shows the main interface with a map, navigation tools (Zoom Win, Pan, Zoom In, Zoom Out, 1:1, MAX), and a 'Make a FIRMeTe' button. A red arrow points from the 'Zoom In' button to a zoomed-in view of a map area. The right screenshot shows a detailed view of the map area, including a 'Help' button, a 'Suggested Sites' dropdown, and a 'Web Site' icon. The FEMA logo is visible at the top of both screenshots.

NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

The screenshot shows the FEMA Flood Map Service Center (MSC) search interface. The page header includes the FEMA logo and navigation links such as 'Plan, Prepare & Mitigate', 'Disaster Survivor Assistance', 'Response & Recovery', 'Topics & Audiences', 'Blog, Newsroom, Videos & Photos', and 'About FEMA'. The main content area is titled 'Search All Products' and includes a search bar with 'MSC Search' and 'MSC Products Tools' buttons. Below the search bar, there are fields for 'Jurisdiction' and 'Jurisdiction Name'. The 'Jurisdiction' field has a dropdown menu open, showing a list of locations in New York state, with 'ONEIDA, CITY OF' selected. A red arrow points from the 'NEW YORK' text in the 'Jurisdiction' field to the dropdown menu, and another red arrow points from the 'ONEIDA, CITY OF' option to the 'Search' button. The 'Search' button is located at the bottom of the search form.

NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

Search Results for ONEIDA, CITY OF

Click [subscribe](#) to receive email notifications when products are updated.

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

-  Effective Products (18) 
-  Preliminary Products (0) 
-  Pending Product (0) 
-  Historic Products (9) 
-  Flood Risk Products (0) 



NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

jurisdiction location using the drop-down menus above.

Effective Products (18) ?

FIRM Panels (7) DL ALL

Please note: Searches often result in many map files listed under a given section. You can determine the Product ID for the individual map panel needed by looking at the Map Index file. The index map files have "IND" within the Product ID and appear at the start of the list. These index files show an overview of a jurisdiction and how it is subdivided into map panels with the Product ID for each panel shown.

Show 100 entries Showing 1 to 7 of 7 entries Previous 1 Next

Product ID	Effective Date	LOMC	Size	Download	View
360408IND0	02/23/2001		1MB	DL	VIEW
3604080001D	02/23/2001		1MB	DL	VIEW
3604080002D	02/23/2001		2MB	DL	VIEW
3604080003D	02/23/2001	LOMC	1MB	DL	VIEW
3604080004D	02/23/2001	LOMC	1MB	DL	VIEW
3604080005D	02/23/2001	LOMC	2MB	DL	VIEW
3604080007D	02/23/2001		1MB	DL	VIEW

FIS Reports (1) DL ALL

LOMC (8)

NFHL Data-State (1)

NFHL Data-County (1)

Preliminary Products (0) ?

Pending Product (0) ?

Historic Products (9) ?

NFIP Mapping

How to Find it...

FEMA Flood Map
Service Center

MSC.FEMA.GOV

The image shows a screenshot of the FEMA Flood Map Service Center web application. The interface includes a top navigation bar with the FEMA logo and the text 'Suggested Sites' and 'Web SI'. Below this is a main map area with a red rectangle highlighting a specific region. To the left of the map is a vertical toolbar with icons for 'Zoom Win', 'Pan', 'Zoom In', 'Zoom Out', '1:1 Zoom In', 'MAX Zoom Out', and 'Make a FIRMette'. A red arrow points from the 'Make a FIRMette' button in the toolbar to a larger, detailed view of the same button on the right side of the screen. The right side also shows a 'Help' icon and a text area with technical details about map projections and datum.

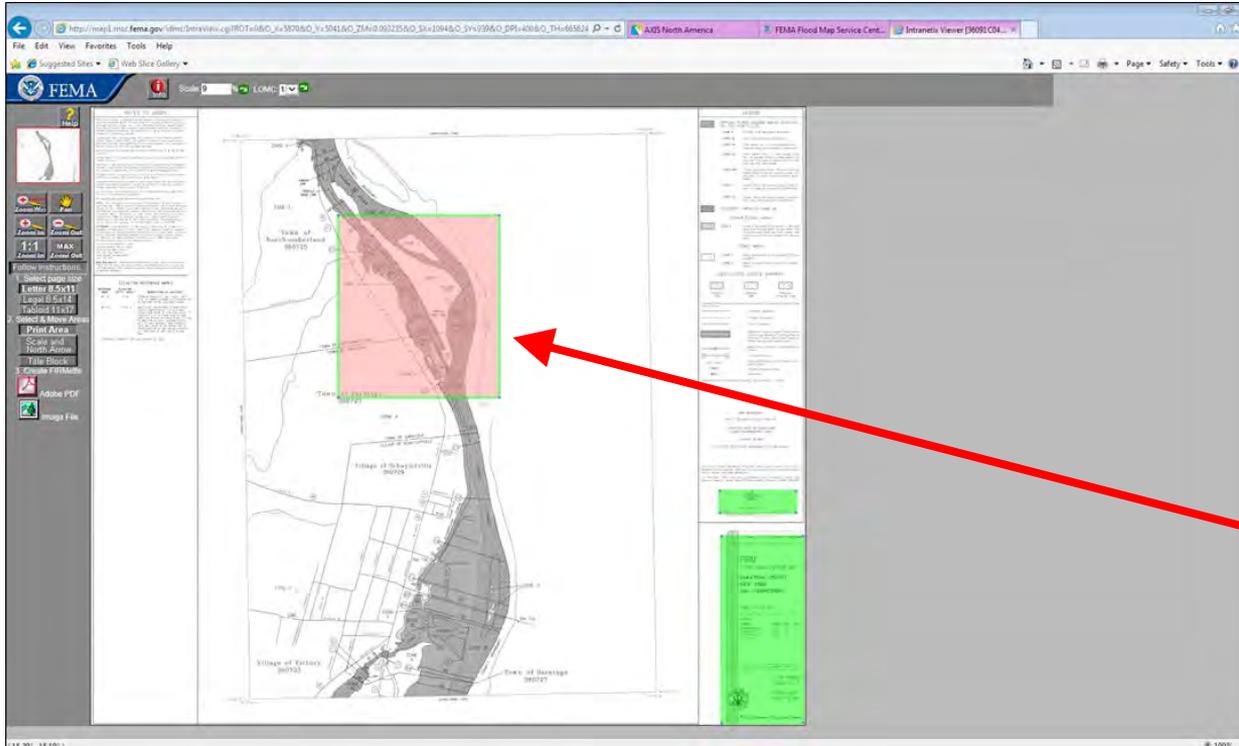
NFIP Mapping

How to Find it...

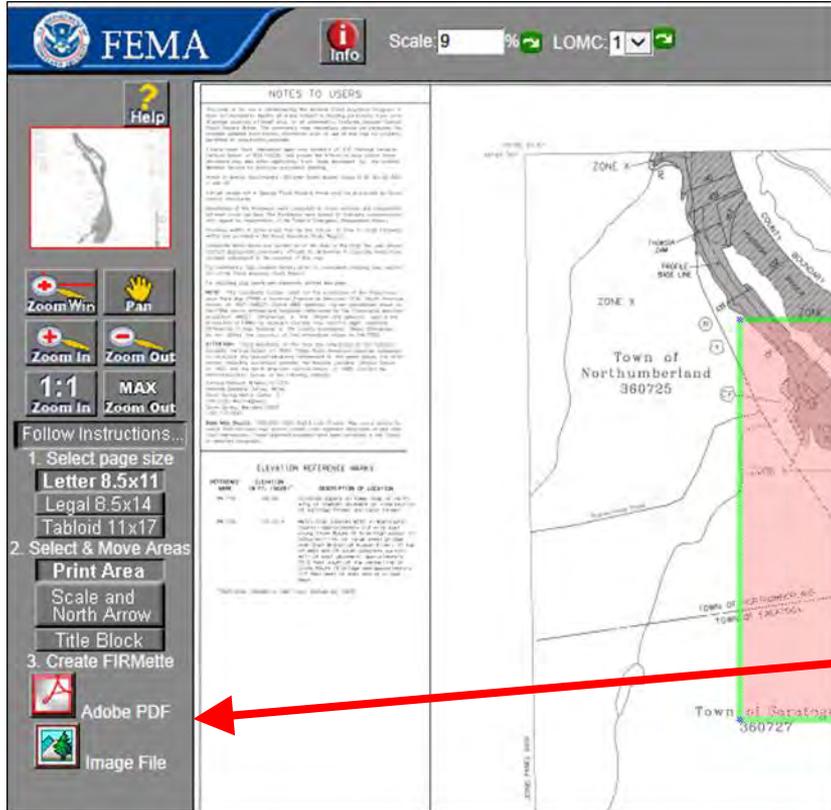
FEMA Flood Map
Service Center

MSC.FEMA.GOV

Select
your Area
of Interest



NFIP Mapping



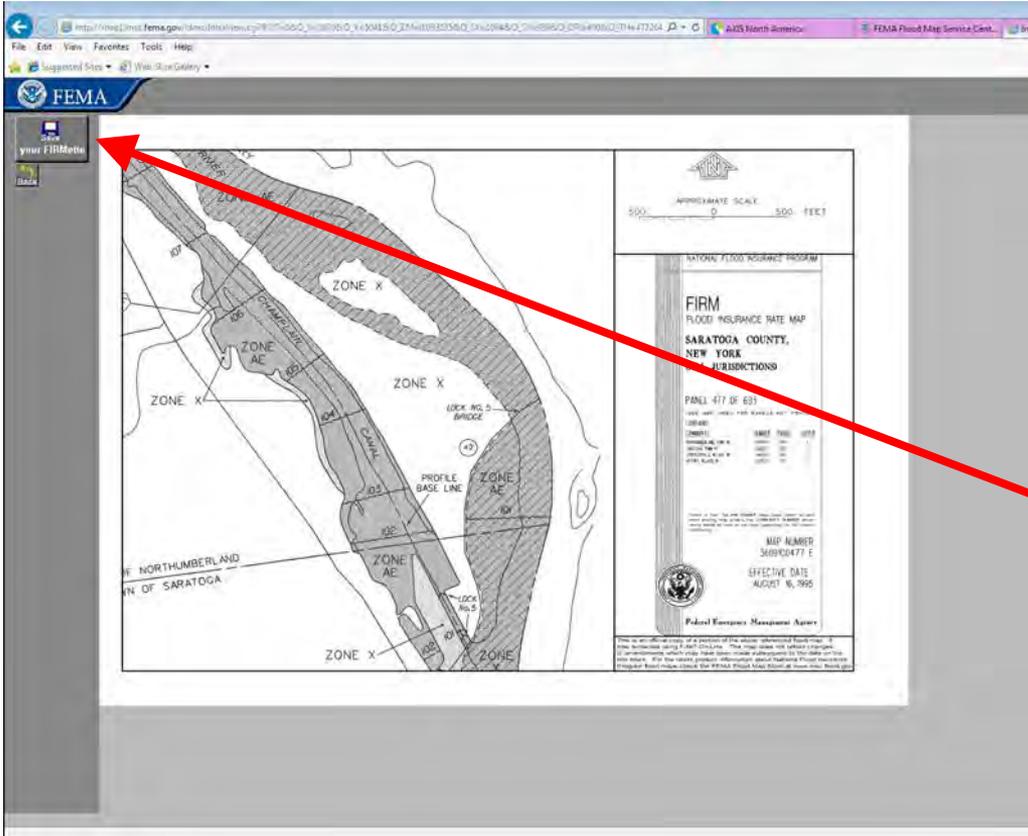
How to Find it...

FEMA Flood Map Service Center

MSC.FEMA.GOV

Select your Method of Printing

NFIP Mapping



How to Find it...

FEMA Flood Map Service Center

MSC.FEMA.GOV

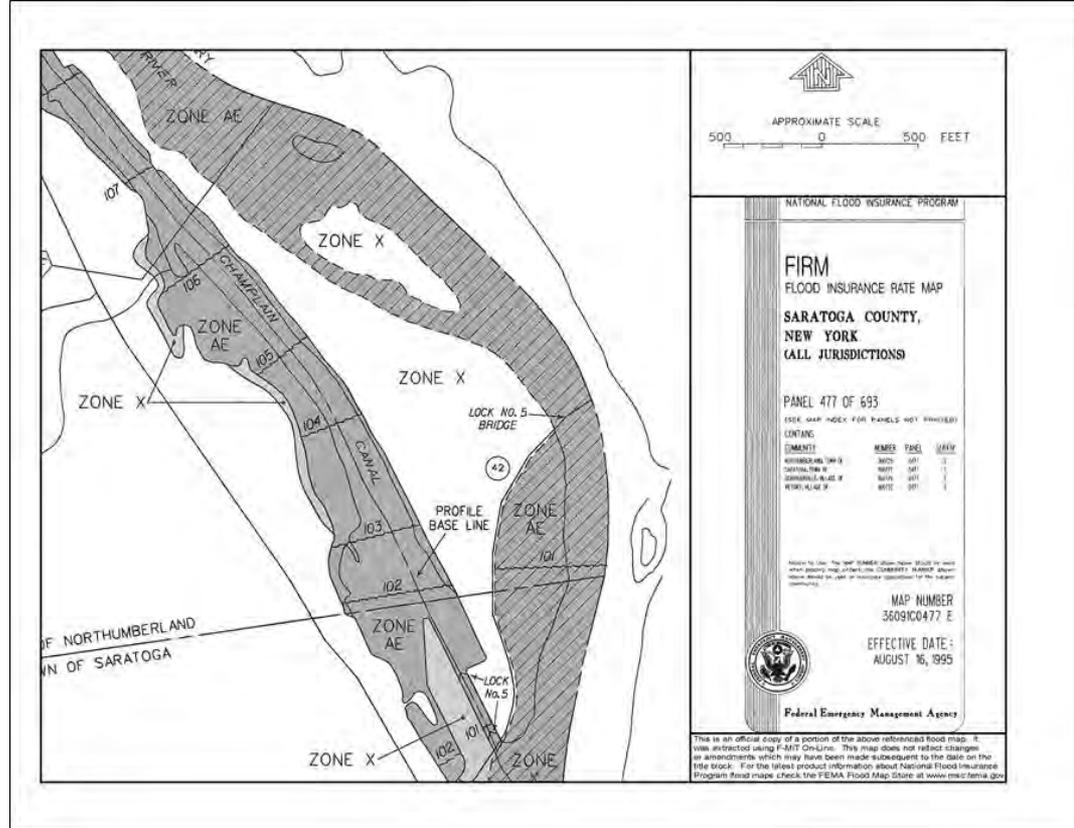
Save your
FIRMette

NFIP Mapping

Your FIRMette!

Useful for:

- Property Owners
- Lenders
- Planning
- Code Officers
- **You!**



NFIP Mapping

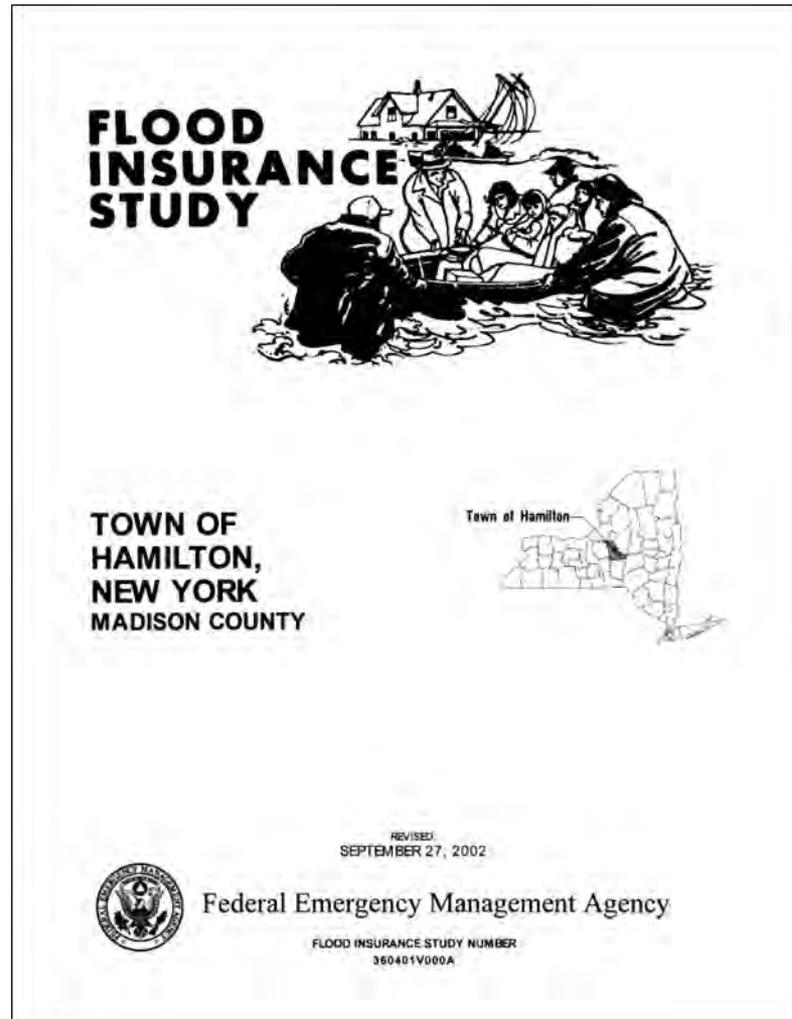
- *The Flood Insurance Study (FIS) as a Planning Tool...*

NFIP Mapping

The FIS as a Planning Tool...

Flood Insurance Study (FIS)

- Narrative
 - Background, context, summary
- Hydrology – *How much water is there?*
 - Flood discharge
 - Flood frequency
- Hydraulics – *How will the water behave?*
 - Flood elevations
 - Floodway / flood fringe (parts of floodplain – defined later)
- Mapping
 - How the accompanying map was developed



NFIP Mapping

The FIS as a Planning Tool...

Beyond Flood Heights

How big should the opening be?

How much water can we expect?

How fast will the water be flowing?

Will that road flood during the 50 year flood?

Table 3 - Summary of Discharges

<u>Flooding Source and Location</u>	<u>Drainage Area (square miles)</u>	Peak Discharges (cubic feet per second)			
		<u>10-Percent- Annual- Chance</u>	<u>2-Percent- Annual- Chance</u>	<u>1-Percent- Annual- Chance</u>	<u>0.2-Percent- Annual- Chance</u>
ALPLAUS KILL At confluence with Mohawk River Upstream of Canadian Pacific Railway bridge	56.3	3,410	4,840	5,500	6,900
Approximately 1000 feet upstream of Van Vorst Road bridge	46.0	2,945	4,180	4,750	6,000
	39.9	2,635	3,740	4,250	5,450
KROMME KILL At confluence with Mohawk River	9.1	734	1,121	1,299	1,700
Approximately 1000 feet downstream of Canadian Pacific Railway bridge	6.5	611	952	1,112	1,450
Approximately 1200 feet upstream of State Route 50 bridge	5.0	524	825	967	1,290
LISHA KILL At confluence with Mohawk River	18.2	1,398	2,016	2,377	2,967
At USGS Gage #01356190 (Located approximately 20 feet downstream of New York State Route 7)	15.3	798	1,213	1,441	1,861
MOHAWK RIVER Upstream of confluence of Alplaus Kill	330.6	82,700	131,000	149,600	186,200
At confluence of Mohawk River					53,055

TABLE 5 - SUMMARY OF STILLWATER ELEVATIONS

<u>Flooding Source and Location</u>	Elevation (feet)			
	<u>10-Percent- Annual- Chance</u>	<u>2-Percent- Annual- Chance</u>	<u>1-Percent- Annual- Chance</u>	<u>0.2-Percent- Annual- Chance</u>
Cayuga Lake	384.1	385.4	385.8	386.8
Cross Lake	*	*	381.0	*
Lake Ontario	Not utilized	Not utilized	248.9	249.6
Owasco Lake	714.76	716.41	716.92	717.98

(Reference datum NAVD 88)

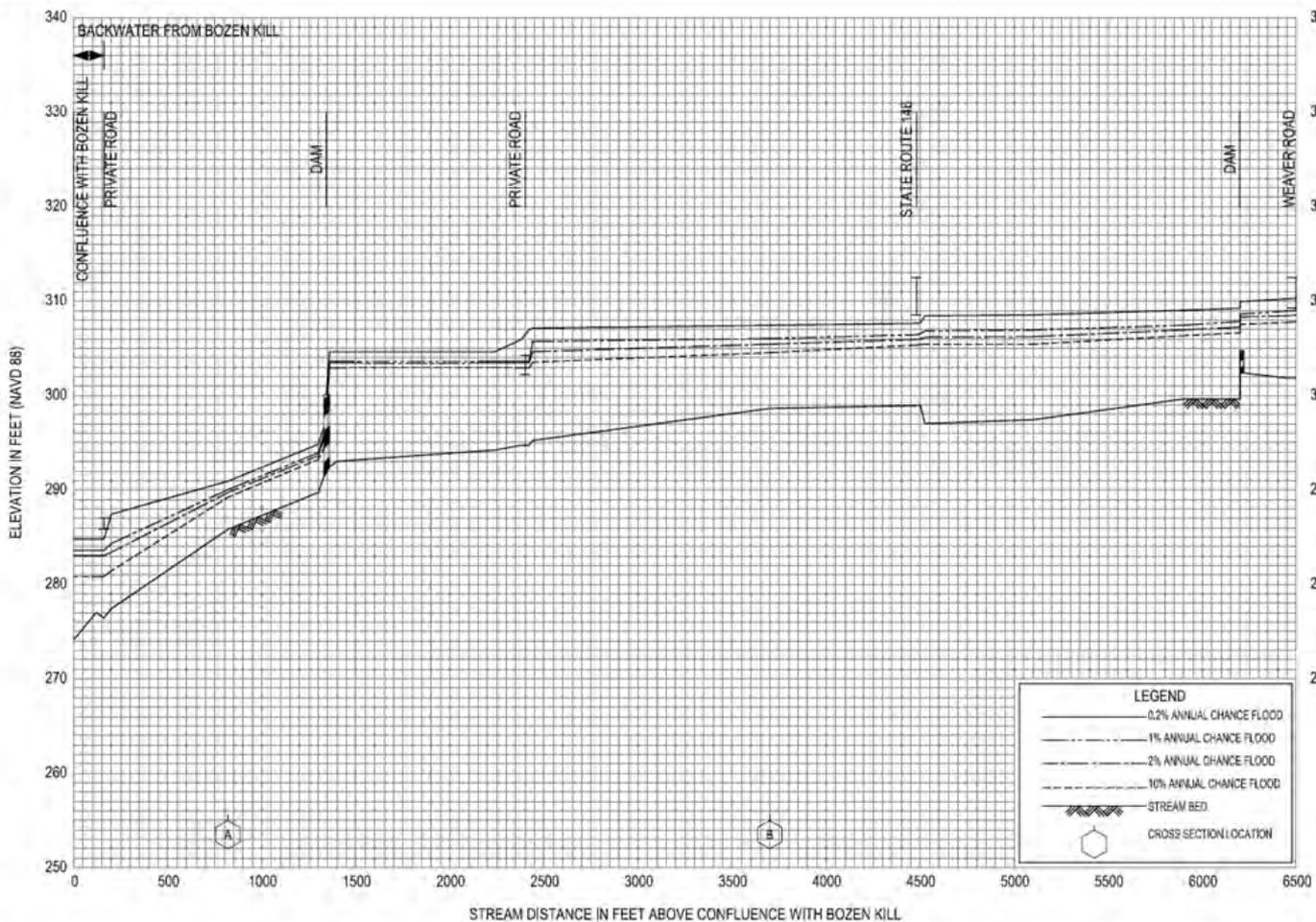
*Data not available

NFIP Mapping

The FIS as a Planning Tool...

Beyond Flood Heights

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE-FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
ALPLAUS KILL (Lower Reach)								
A	1,230	60	1,100	5.0	222.9	219.4 ²	220.1	0.7
B	1,347	158	1,254	4.4	222.9	220.1 ²	221.1	1.0
C	3,477	347	2,306	2.4	222.9	220.9 ²	221.8	0.9
D	5,577	355	1,474	3.7	222.9	221.7 ²	222.6	0.9
E	6,236	49	481	11.4	223.9	223.9	223.9	0.0
F	6,781	81	733	7.5	226.6	226.6	226.6	0.0
G	7,446	38	435	12.6	227.1	227.1	227.1	0.0
H	8,448	159	1,098	5.0	230.2	230.2	230.5	0.3
I	9,074	97	874	6.3	230.4	230.4	231.2	0.8
J	11,084	205	1,021	4.7	232.9	232.9	233.7	0.8



FEDERAL EMERGENCY MANAGEMENT AGENCY
ALBANY COUNTY, NY
(ALL JURISDICTIONS)

FLOOD PROFILES
BLACK CREEK

Letters of Map Revision

- *How to Amend the Flood Insurance Rate Map*

Letters of Map Revision

- NFIP maps are **legal documents** and only FEMA can change them.
- Reasons for map changes:
 - To correct non-flood-related features (*e.g., changes to a community's corporate limits*)
 - To include better ground elevation data (*site-specific ground elevations*)
 - To reflect changes in ground elevations in the floodplain (*the placement of fill*)
 - To revise flood data (*new, better flood study*)
 - To submit new flood data (*flood study for development in unnumbered A zone*)
 - To reflect a flood control project (*levee, reservoir, channel modification*)
 - To correct other discrepancies (*with required documentation*)

Letters of Map Revision

Largely based on Scale or Size of Proposed Change:

- **Restudy** – New Flood Insurance Study (FIS) for some or all of community
 - *Where development has substantially changed runoff conditions (FEMA initiated)*
- **Revision** – Used to reflect new data, changed conditions, different analyses
 - *Revision of floodplain boundary (frequently submitted by engineers working with developers)*
- **Amendment** – Used to remove area that was inadvertently included in SFHA
 - *When more precise ground elevation data is available for a particular property or structure (typically initiated by a homeowner or property owner)*

Letters of Map Revision

How is the FIRM changed?

- **Physically** change the map and publish new FIRM panel(s)
 - Typical for restudies
 - Sometimes for revisions and, rarely, amendments
- Issue a **Letter** that describes the map change
 - Typical for amendments and revisions

Letters of Map Revision

- Conditional Letter of Map Amendment (CLOMA)
 - FEMA review prior to construction.
 - No fill.
 - Determination based on “as proposed” plans.
 - Follow-up LOMA still required to amend FIRM.
- Letter of Map Amendment (LOMA)
 - Official change *by letter* to effective FIRM.
 - Additional data submitted by property owner
 - Typically site-specific.
 - Yes/No answer.
 - *Does not actually change the map.*

Letters of Map Revision



- Letter of Map Amendment (LOMA)
 - How can you help?
 - ***“Must Have” Information:***
 - Correct FEMA **“MT-xx”** form
 - Certified Plat Map or Registered Deed
 - ***“Likely Need” Information:***
 - Lowest Adjacent Grade (LAG)
 - ***“Might Need” Information:***
 - Base Flood Elevation (BFE)

Letters of Map Revision

- Letter of Map Amendment (LOMA)
 - Provides critical data about subject
 - Legal Address
 - FIRM panel and date
 - LAG (if applicable)
 - BFE (if applicable)
 - Additional Considerations
 - **OUTCOME – DETERMINATION**

Page 1 of 2		Date: June 27, 2013		Case No.: 13-02-1254A		LOMA		
 Federal Emergency Management Agency Washington, D.C. 20472								
LETTER OF MAP AMENDMENT								
DETERMINATION DOCUMENT (REMOVAL)								
COMMUNITY AND MAP PANEL INFORMATION				LEGAL PROPERTY DESCRIPTION				
COMMUNITY		CITY OF SARATOGA SPRINGS, SARATOGA COUNTY, NEW YORK		Lot 4, Bell Nav Development Company, as described in the Deed, recorded as Instrument No. 2013016570, in the Office of the County Clerk, Saratoga County, New York (TMI: 177.20-7-3)				
AFFECTED MAP PANEL		COMMUNITY NO.: 360728						
		NUMBER: 36091C0437E						
		DATE: 8/16/1995						
FLOODING SOURCE: ROWLAND HOLLOW CREEK				APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.056, -73.834 SOURCE OF LAT & LONG: GOOGLE EARTH PRO DATUM: NAD 83				
DETERMINATION								
LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
4	-	Bell Nav Development Co.	4 Tommy Luther Drive	Structure (Residence)	X (Unshaded)	330.0 feet	331.4 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 equalled 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.)								
PORTIONS REMAIN IN THE SFHA ZONE A								
<p>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 structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equalled 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.</p> <p>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 Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMA Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.</p>								
 Luis Rodriguez, P.E., Chief Engineering Management Branch Federal Insurance and Mitigation Administration								

Letters of Map Revision

- Conditional Letter of Map Revision based on Fill (CLOMR-F)
FEMA review prior to construction (*“PROPOSED”*).
 - States FEMA's determination that proposed project will qualify for LOMR-F when completed.
 - Determination based on “as proposed” drawings.
 - Follow-up LOMR-F still required to amend FIRM.
- Letter of Map Revision based on Fill (LOMR-F)
 - Official change *by letter* to effective NFIP map.
 - Like LOMA, but triggered by the use of fill to raise elevation of site.
 - Community must *“acknowledge”* fill placement and believe that site is *“reasonably safe from flooding”*.
 - Yes/No answer.
 - *Does not actually change the map.*

Letters of Map Revision

- **Conditional Letter of Map Revision (CLOMR)**
 - Possible changes to an SFHA warrant FEMA's comment before construction begins.
 - Provides a determination based “as planned” drawings.
 - Follow-up LOMR still required to revise FIRM.
 - Proposed changes will **alter** SFHA, BFE, or other aspect of flooding
- **Letter of Map Revision (LOMR)**
 - Official change to effective NFIP map
 - Used to **change** flood zones, floodplain and floodway delineations, flood elevations.
 - New map issued as attachment to letter

Letters of Map Revision

Conditional Letter of Map Revision (CLOMR)

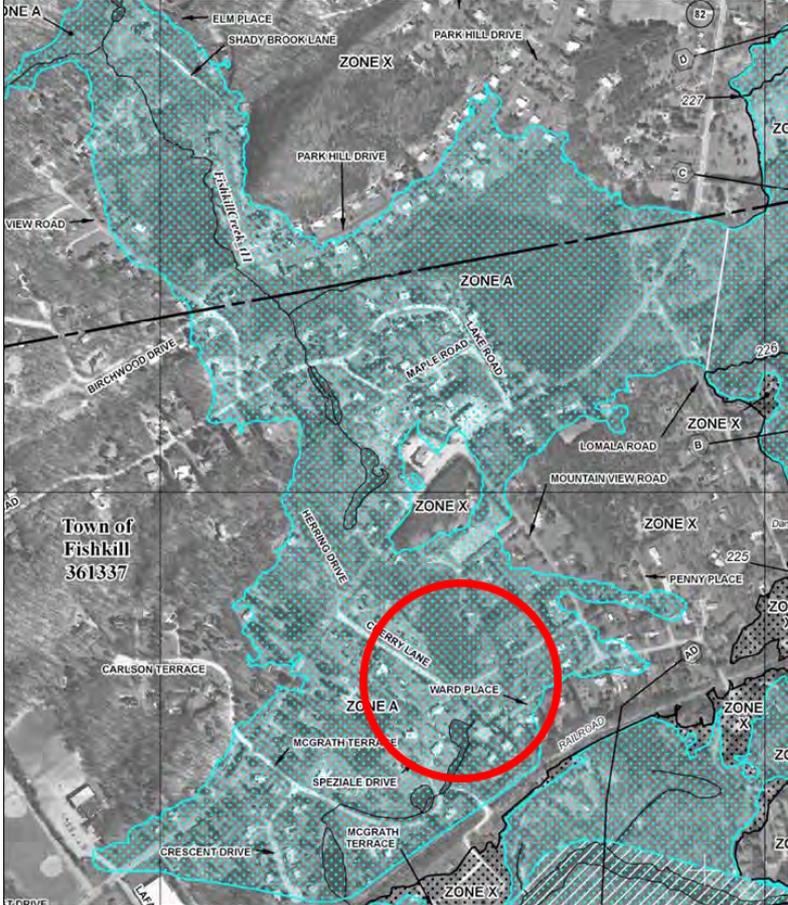
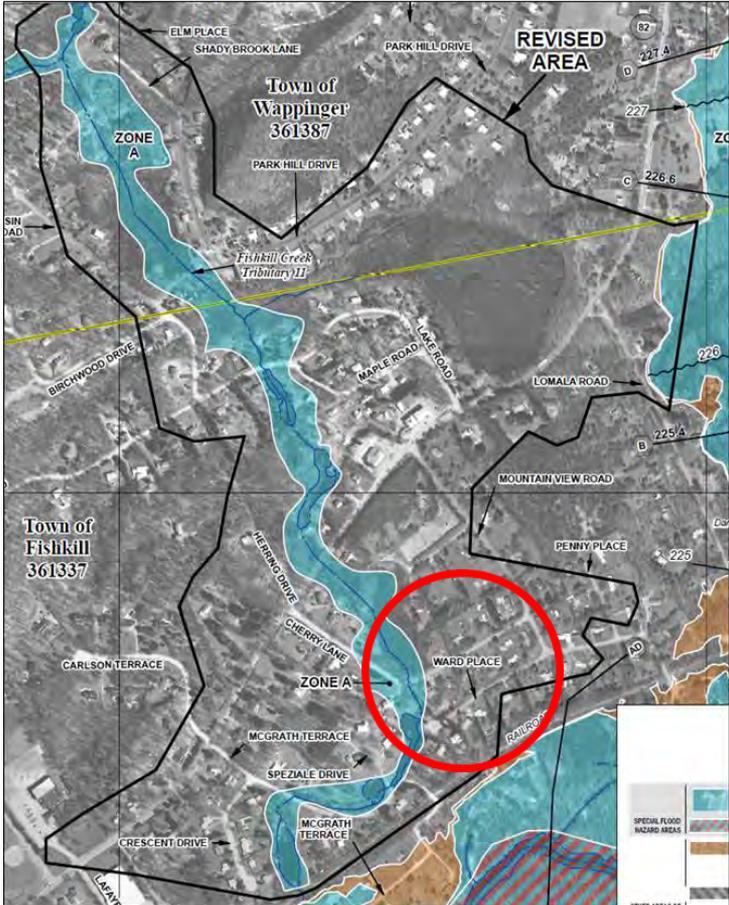
- Community must apply for CLOMR if they propose to permit encroachments which will cause BFE increases in excess of:
 - 1.0 foot in SFHA
 - 0.0 foot in floodway
- Evaluation of alternatives
- Notice to affected property owners
- Concurrence from affected communities
- Certification that no structures are located in affected areas

Letters of Map Revision

Letter of Map Revision (LOMR)

- Causes a physical change to at least a portion of a FIRM panel or panels
- Used for large areas
- Alternative to republishing an entire panel
- Community must review hydrologic/hydraulic analyses and mapping
- **Republish FIRM and FIS** to incorporate changes in BFEs, floodplains, floodways
- Protest and technical appeal process
- Impacted LOMAs/LOMR-Fs revalidated

Letters of Map Revision



Development and NFIP Regulations

The importance of careful planning

Development and Mapping

- *Case Study – North Canton, Ohio*

North Canton, Ohio

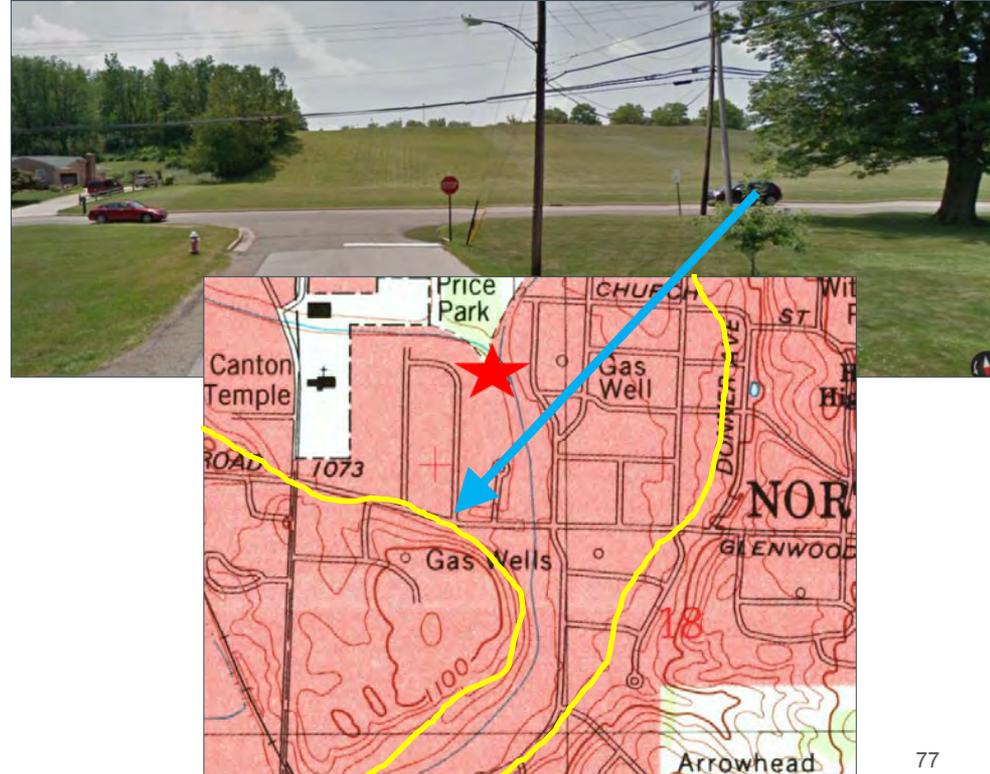
ATKINS

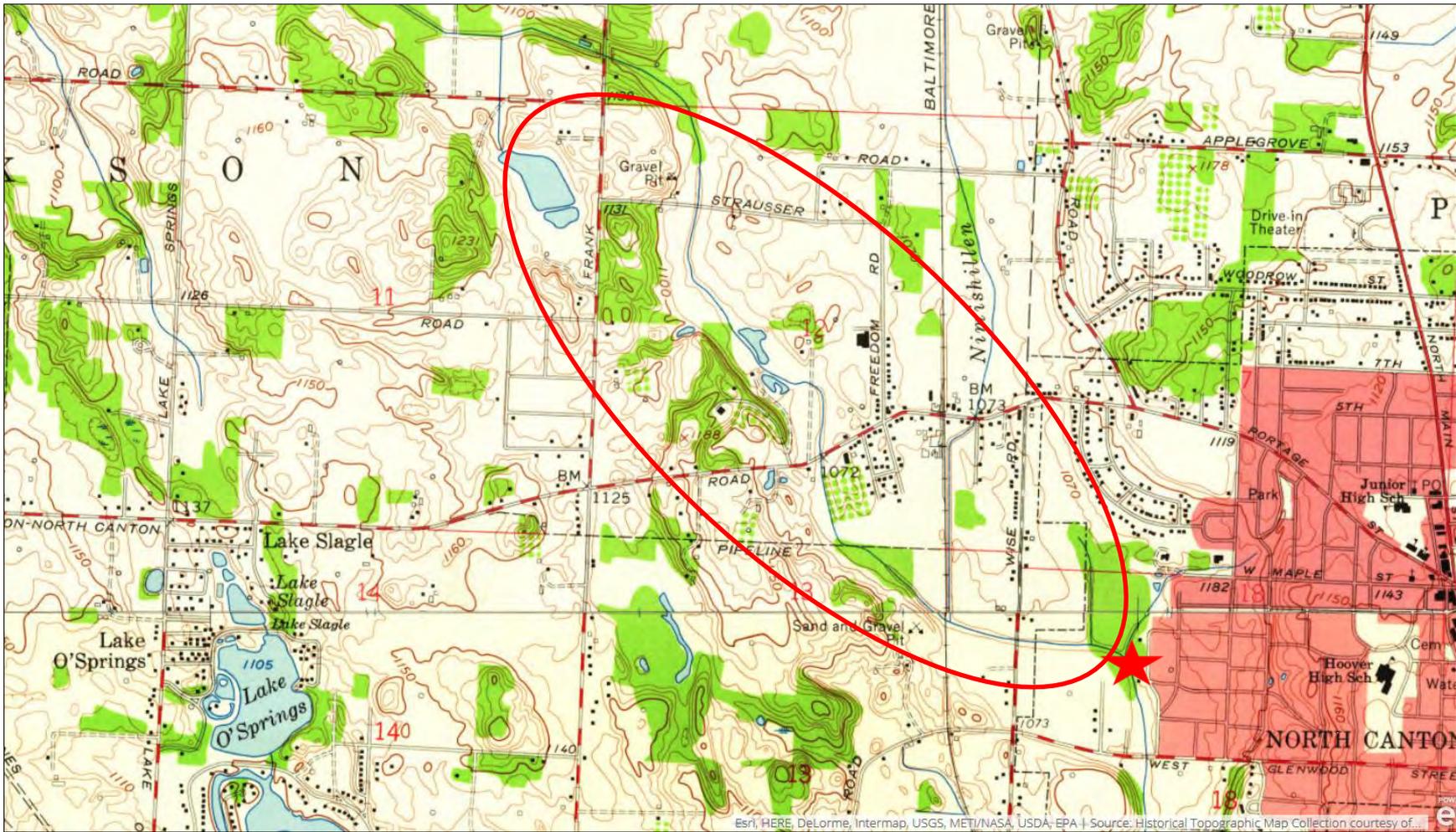


North Canton, Ohio

Factors:

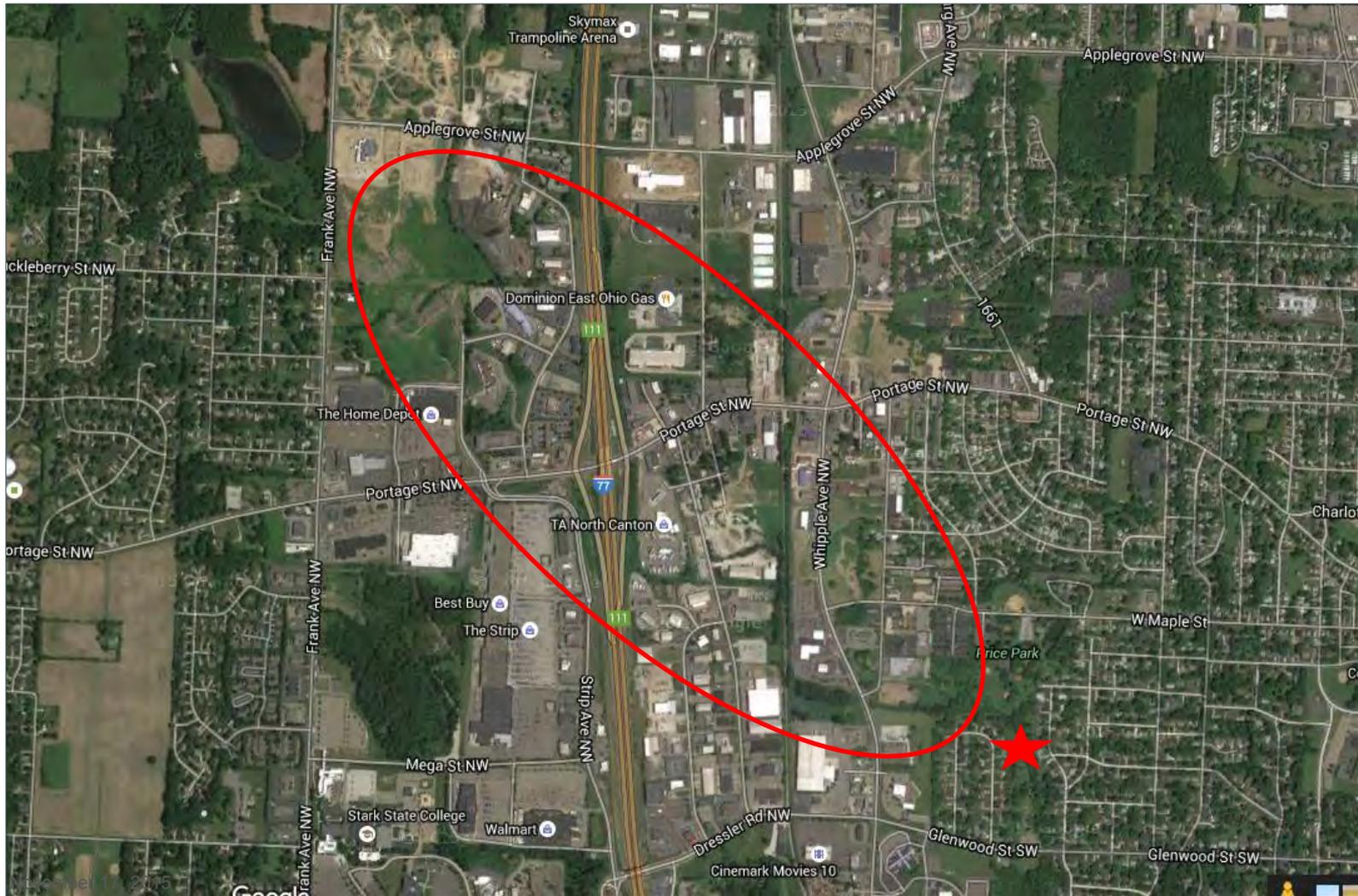
- Homes were built in obvious floodplain
- Runoff increased due to continuous development in the watershed





Esri, HERE, DeLorme, Intermap, USGS, METI/NASA, USDA, EPA | Source: Historical Topographic Map Collection courtesy of...

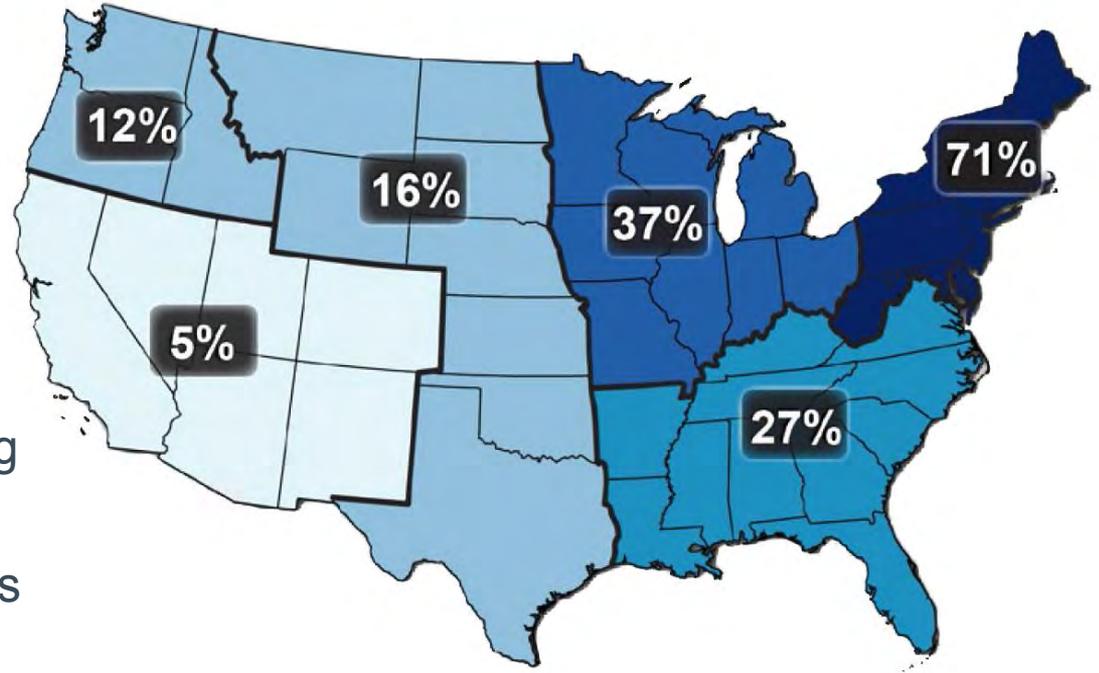
ATKINS



North Canton, Ohio

Factors:

- Storm Intensities and Frequencies Increasing
- In New York we can expect more extreme rain events in future years
- Map shows percentage increase of precipitation falling in very heavy events
 - Heaviest 1% of daily events



North Canton, Ohio

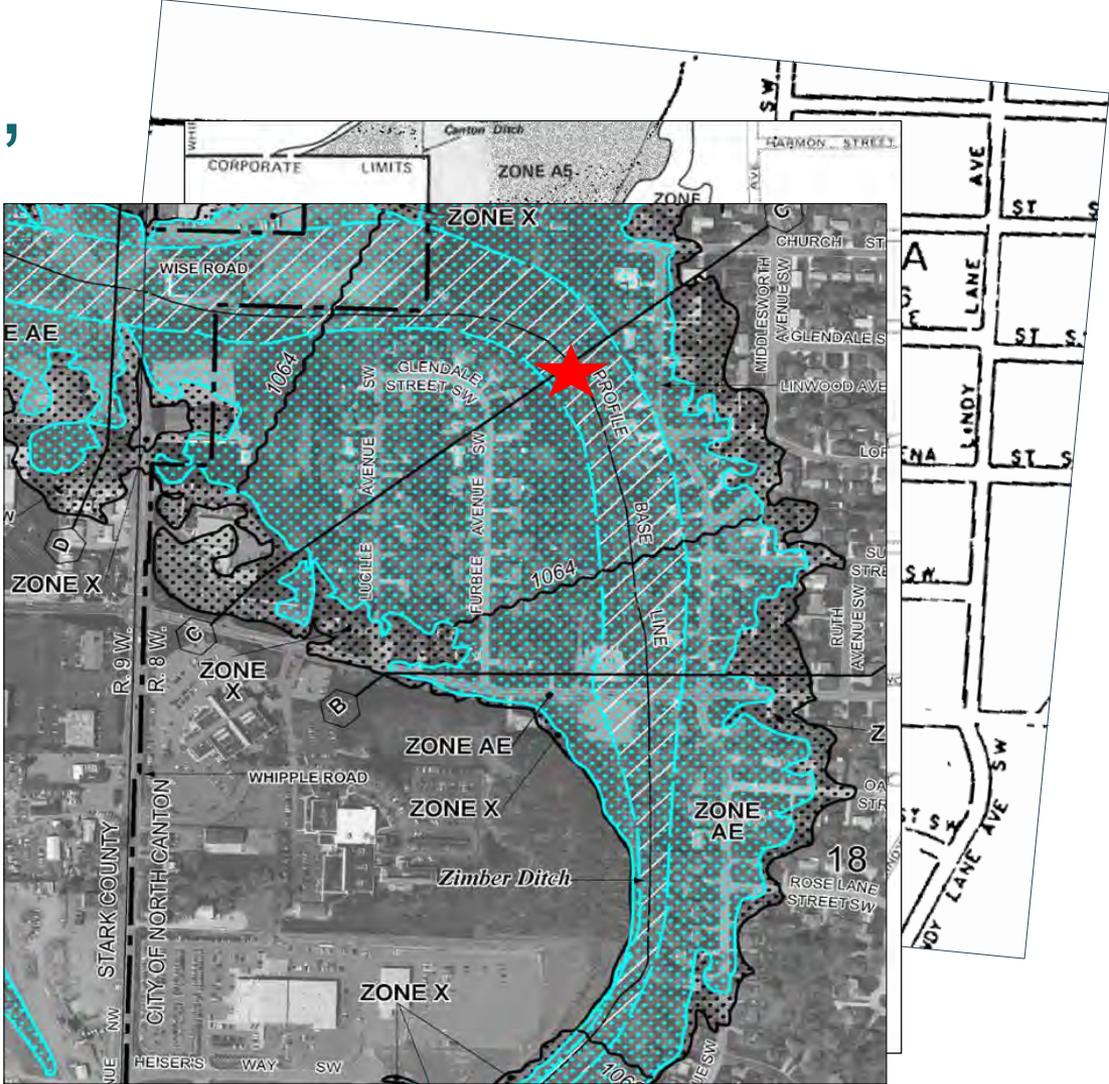


ATKINS

North Canton, Ohio



North Canton, Ohio



North Canton, Ohio

ATKINS



Photo Credit (all):
Google Maps,
Streetview

North Canton, Ohio



Photo Credit (both): Canton Rep

North Canton, Ohio

Results:

- Regular, devastating floods
 - Three floods in 2011!
 - Buy outs of 12 homes
 - At a cost of \$2 million
 - Request from 40 more property owners for buy-outs
 - Social costs
 - Tax base implications
 - Other issues...

North Canton, Ohio

- *How could this have been prevented?*

Mitigation

Addressing the problem before it starts

Mitigation

- *Strategies*
 - *Don't build in the flood zone!*
 - *If that can't be avoided; build higher than the flood*
 - *If THAT can't be done; floodproof (non-residential only)*
 - *And if it's ALREADY built; mitigate the risk*

Mitigation

Flood Hazard Mitigation

Actions to reduce property damage and threat to life/public health from flooding.

- Prevention
- Property protection
- Natural resource protection
- Emergency services
- Structural projects
- Public information

Mitigation

Community Rating System

- Open Space Preservation
- Outreach Projects
- More Restrictive Floodway Standards
- Deed Restrictions (Non-Conversion Agreements)
- **Freeboard!**
- Understanding the Risk
- StormReady Community
- Channel Debris Removal
- Substantial Damage/Substantial Improvement

Mitigation

Hazard Mitigation Grant Program (HMGP)

[*fema.gov/hazard-mitigation-grant-program*](https://www.fema.gov/hazard-mitigation-grant-program)

- Provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration.
 - Communities apply on behalf of affected individuals and businesses.
 - Must have / develop FEMA-approved mitigation plan.
 - Requires Federal disaster declaration.
 - Open to all areas of affected state, not just declared areas.
 - Includes other natural hazards, not just flooding.

Mitigation

Hazard Mitigation Grant Program (HMGP)

[fema.gov/hazard-mitigation-grant-program](https://www.fema.gov/hazard-mitigation-grant-program)

- Funding is usually 75% Federal, 25% non-Federal.
- Example eligible projects:
 - Acquiring structures from hazard-prone areas.
 - Retrofitting structures to protect them from floods, high winds, earthquakes, or other natural hazards.
 - Constructing certain types of minor and localized flood control projects.
 - Developing State, local, or Tribal mitigation plans.

Mitigation

Hazard Mitigation Grant Program (HMGP)

[fema.gov/hazard-mitigation-grant-program](https://www.fema.gov/hazard-mitigation-grant-program)

- Eligible projects include:
 - Drainage Improvements
 - Streambank Stabilization
 - Property Acquisition
 - Structure Elevation
 - Mitigation Reconstruction
 - Other actions



ATKINS



Mitigation

Other Federal Programs

(Communities apply on behalf of affected individuals and businesses. Not tied to a disaster.)

Flood Mitigation Assistance (FMA) Program

[fema.gov/flood-mitigation-assistance-grant-program](https://www.fema.gov/flood-mitigation-assistance-grant-program)

- Actions that reduce/eliminate long-term risk of flooding to NFIP-insured structures.
- Must be insured; only flooding (not other hazards).

Pre-Disaster Mitigation (PDM) Grant Program

[fema.gov/pre-disaster-mitigation-grant-program](https://www.fema.gov/pre-disaster-mitigation-grant-program)

- Reduce reliance on federal funding if an actual disaster were to occur.
 - Funds awarded on a competitive basis
- Must have / develop FEMA-approved mitigation plan

Mitigation

Other Federal Programs

Community Development Block Grant (CDBG) Program

hud.gov “CDBG”

- Administered by U.S. Department of Housing and Urban Development (HUD)
- Disaster recovery assistance grants to help communities recover from Presidentially declared disasters. Includes other natural hazards, not just flooding. Focus on low-income areas.

Severe Repetitive Loss (SRL) Program

fema.gov “SRL”

- Funding to eliminate long-term risk of flood damage to severe repetitive loss structures; Residential property with four or more claims of more than \$5,000 each or; Repetitive loss property for which total claims exceed market value of structure.

Mitigation

New York Rising Community Reconstruction Program

[*stormrecovery.ny.gov/community-reconstruction-program*](http://stormrecovery.ny.gov/community-reconstruction-program)

- Rebuilding and revitalization assistance
- Communities severely damaged by Hurricanes Sandy and Irene and Tropical Storm Lee.
- Funds allocated to facilitate community redevelopment planning
- Community-driven plans consider current damage, future threats, and economic opportunities.

Questions?



Jacob Tysz

Atkins

Jacob.tysz@atkinsglobal.com

518-371-8523



ROAD
CLOSED