

1

# Presenters

Jacob Levine, Environmental Specialist, Office of Housing, [Jacob.Levine@hud.gov](mailto:Jacob.Levine@hud.gov)

Sara Jensen, Senior Environmental Specialist, Office of Housing, [Sara.Jensen@hud.gov](mailto:Sara.Jensen@hud.gov)

Holly Ravesloot, Program Analyst, Office of Housing, [Holly.D.Ravesloot@hud.gov](mailto:Holly.D.Ravesloot@hud.gov)

2

# Questions



Please put questions in the chat



We will address those related to defining the FFRMS floodplain today



We will respond to other questions outside of this webinar.

3

## Overview

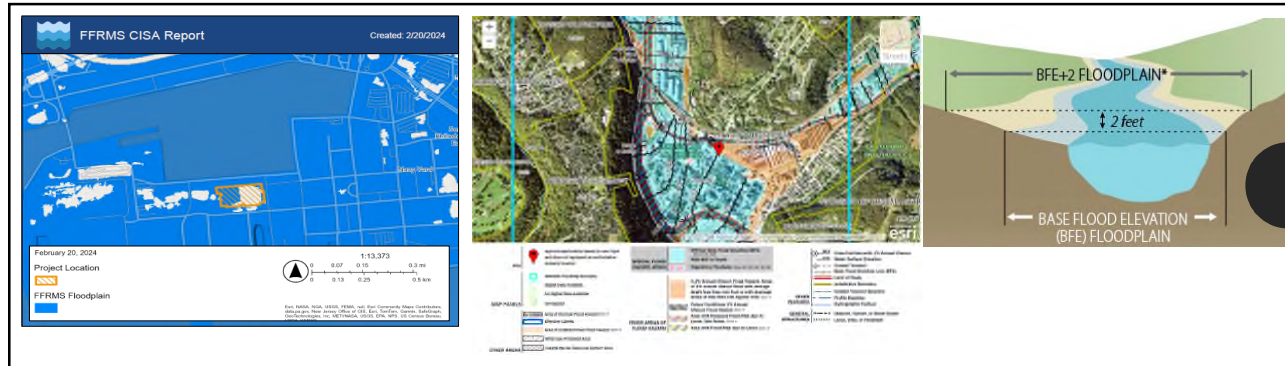
HUD's regulatory floodplain has expanded from the previous 100-year floodplain/500-year floodplain for critical actions

Before, reviewers could just check the FIRM, but now may need to check other sources and deploy new techniques

In Part 1, we reviewed the steps for defining the FFRMS floodplain for a routine analysis with more common flood zones

Today we will review using the Flood Insurance Study (FIS) and navigating less common, more complicated scenarios

4

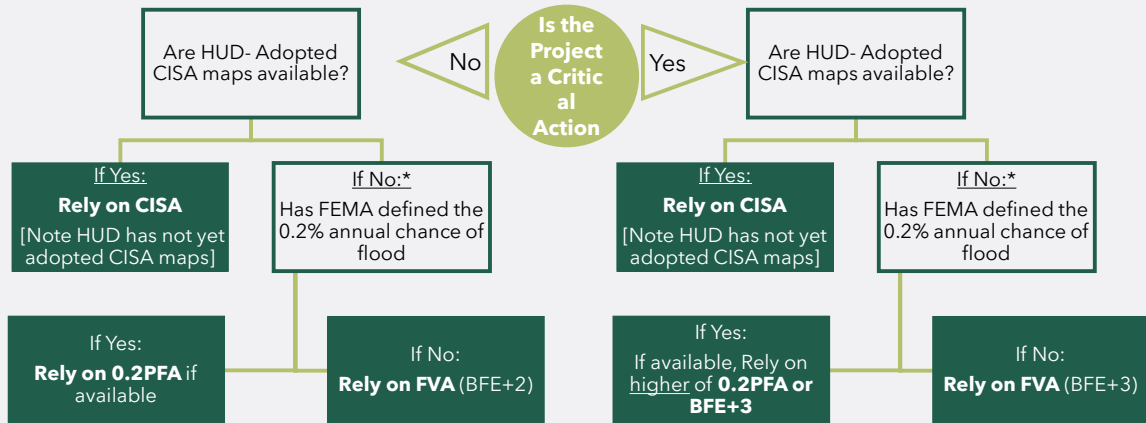


*Three Ways to Define the Floodplain (see 55.7)*

- The Climate Informed Science Approach (CISA): modeling on projected sea level rise incorporated into flood risk mapping
- Use the 500-year floodplain instead of the 100-year floodplain
- Freeboard Value Approach (FVA): two feet, or three feet for critical actions, added to the 100-year flood elevation, floodplain extends to that new elevation

5

## Identifying the FFRMS Floodplain



\*HUD and applicants may elect to use Federal CISA data prior to HUD adoption or state and local CISA data if it meets the requirements at 55.7(f) and is not lower than 0.2PFA or FVA.

6

# Critical Actions

- **\*Critical actions** are defined at 24 CFR 55.2 and are “any activity for which even a slight chance of flooding would be too great” including those that “Are likely to contain occupants who may not be sufficiently mobile to avoid loss of life or injury during flood or storm events, e.g., persons who reside in hospitals, nursing homes, convalescent homes, intermediate care facilities, board and care facilities, and retirement service centers. Housing for independent living for the elderly is not considered a critical action.”



7

# Defining the FFRMS Floodplain Part I



All Documents Associated with the Part I training will be posted in Featured Topics: [Environmental Review Resources for Office of Housing Projects - HUD Exchange](#)



Defining the Floodplain for Office of Housing Environmental Reviews: Instructions and Resources  
[https://www.hud.gov/sites/dfiles/CPD/documents/Defining\\_the\\_FFRMS\\_Floodplain\\_Instructions\\_and\\_Resources.pdf](https://www.hud.gov/sites/dfiles/CPD/documents/Defining_the_FFRMS_Floodplain_Instructions_and_Resources.pdf)



Slides from Defining the FFRMS Floodplain Part I:  
[https://www.hud.gov/sites/dfiles/CPD/documents/Defining\\_the\\_FFRMS\\_Floodplain-Part\\_I-Slides.pdf](https://www.hud.gov/sites/dfiles/CPD/documents/Defining_the_FFRMS_Floodplain-Part_I-Slides.pdf)

8

# Agenda

- Using FIS Flood Profiles
- Unique Floodplain Areas
  - o Levees
  - o Future Conditions 1% Annual Chance Zone (Zone X)
  - o Large 500 Year Floodplains

9

## Checking the FIS

### FLOOD INSURANCE STUDY

**ONEIDA COUNTY, WISCONSIN AND INCORPORATED AREAS**

Community Name	Community Number
LAC DU FLAMBEAU BAND OF LAKE SUPERIOR CHIPPEWA INDIANS	550629
ONEIDA COUNTY (UNINCORPORATED AREAS)	550579
SHUNELANDER, CITY OF	550301

**FLOOD PROFILES**  
WISCONSIN RIVERS

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**ONEIDA COUNTY, WI**  
AND INCORPORATED AREAS


04P

10

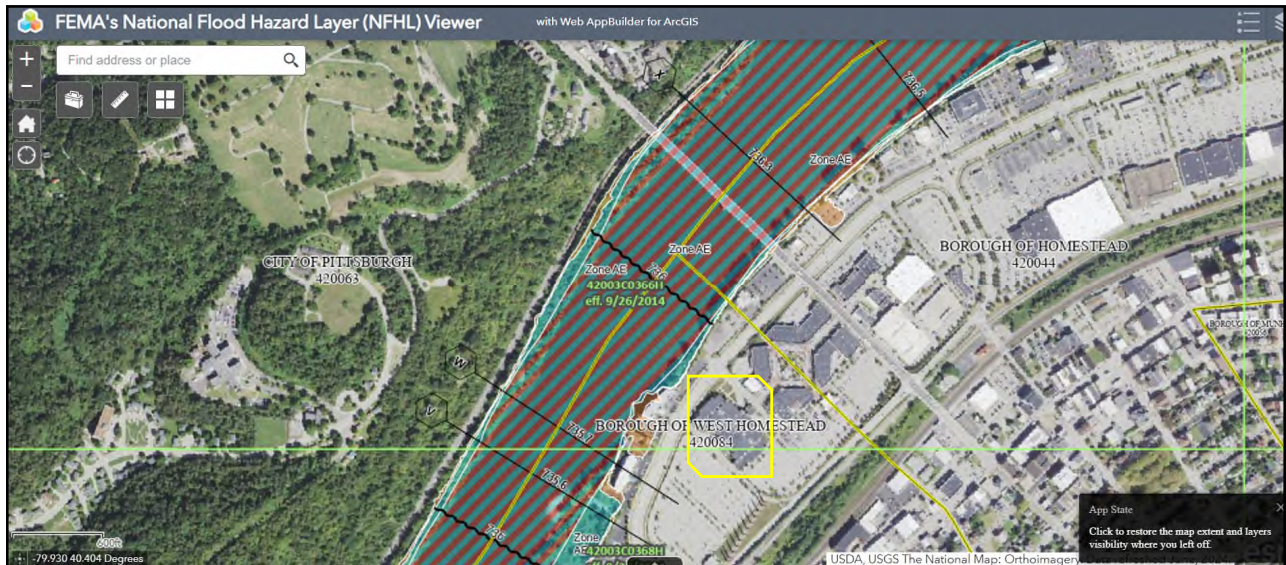


## *When to use the FIS*

- Finding the 500-year flood elevation
- Double-checking for 500-year floodplain when it's not visible on the FIRM
- Getting a more precise base flood elevation



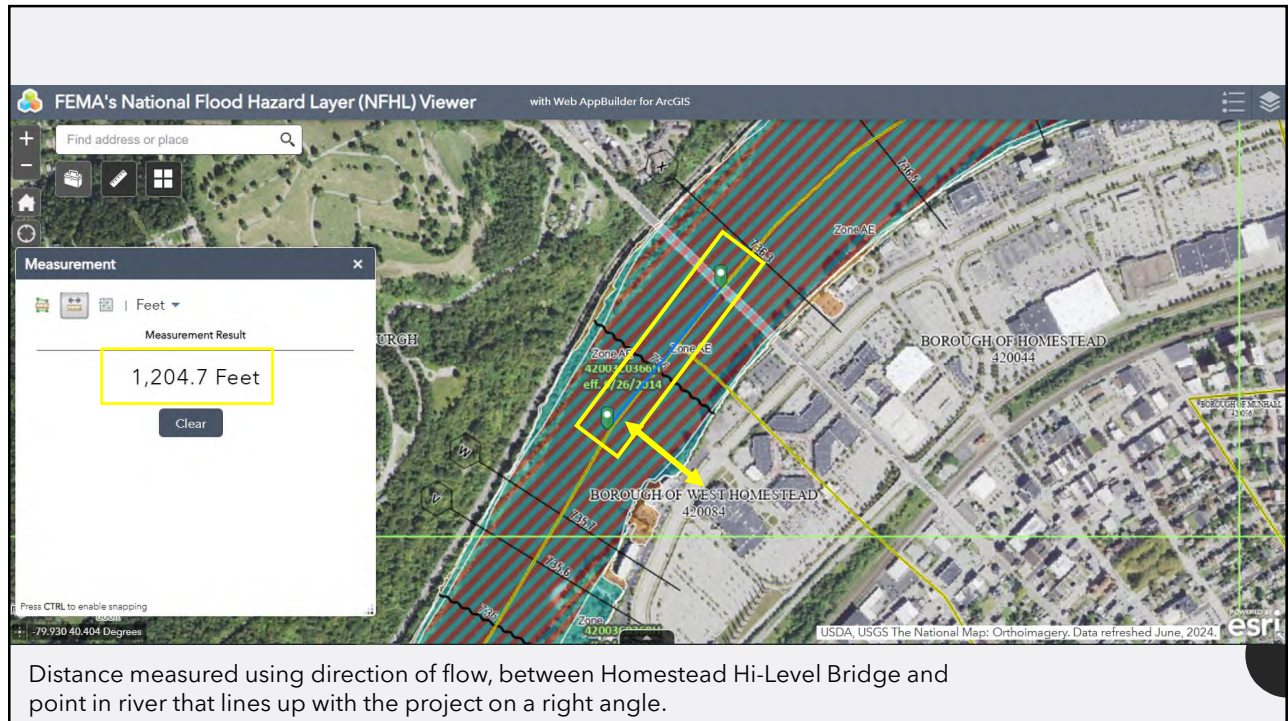
11



For practice using a FIS, consider this building near the Monongahela River in Homestead, Pennsylvania. Please note this would not need the FIS in a real review and is for training purposes only.

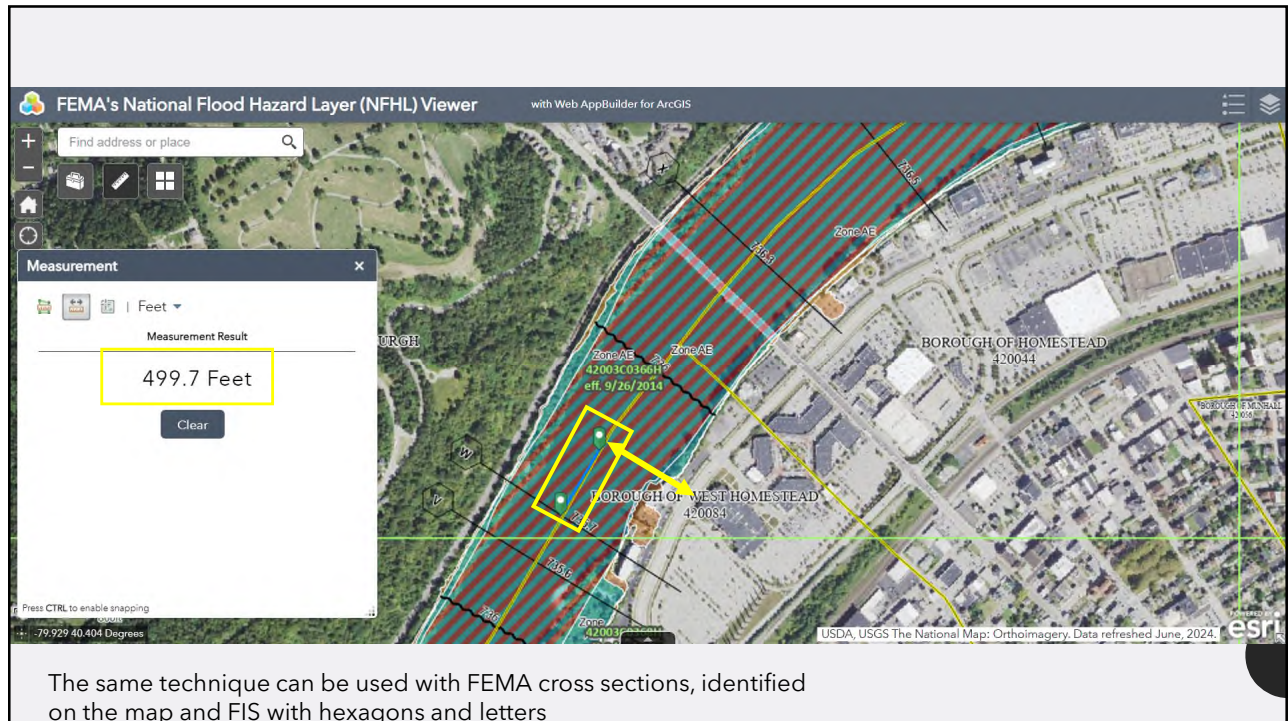
12





Distance measured using direction of flow, between Homestead Hi-Level Bridge and point in river that lines up with the project on a right angle.

13



The same technique can be used with FEMA cross sections, identified on the map and FIS with hexagons and letters

14

**In FEMA's MAP Service Center, enter the project location and select 'Show ALL Products'**

Navigation

Search

MSC Home

MSC Search by Address

MSC Search All Products

MSC Products and Tools

    Hazus

    LOMC Batch Files

    Product Availability

MSC Frequently Asked Questions (FAQs)

MSC Email Subscriptions

Contact MSC Help

Enter an address, place, or coordinates: ?

225 W 7th Ave, Homestead, PA 15120 Search

Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce flood risk damage.

**Search Results—Products for WEST HOMESTEAD, BOROUGH O** Show ALL Products »

The flood map for the selected area is number **42003C0368H**, effective on **9/26/2014**

**DYNAMIC MAP**

PRINT MAP / FIRMette

**MAP IMAGE**

DOWNLOAD FIRM PANEL

**Changes to this FIRM ?**

- Revisions (0)
- Amendments (0)
- Revalidations (0)

[Go To NFHL Viewer »](#)

15

Expand All ?

- Effective Products (17) ?
  - FIRM Panels (9)
  - FIS Reports (6)

Navigate the menu as shown, making sure the Product ID matches the FIRM panel ID. Click the 'Download' icon for the first section listed. (Always check for preliminary studies too!)

**Please note:** Sometimes small portions of the FIS are revised by Letters of Map Revisions (LOMR). When using the FIS report, you should also check LOMR documents listed in the LOMC section below for revisions that affect your specific area of interest.

Product ID	Effective Date	Size	Download
42003CV001B	09/26/2014	1MB	<span style="border: 1px solid red; padding: 2px;"></span>
42003CV002B	09/26/2014	1MB	
42003CV003B	09/26/2014	1MB	
42003CV004B	09/26/2014	1MB	
42003CV005B	09/26/2014	2MB	
42003CV006B	09/26/2014	1MB	

16



monongahela | 1/53

6 / 115 | 90%

Lowes Run	Panels 167P-168P
Long Run	Panels 169P-172P
Lowries Run	Panels 173P-178P
McCaslin Run	Panel 179P
McClarens Run	Panels 180P-181P
McLaughlin Run	Panels 182P-186P

Locate the waterbody in the list of Flood Profiles and note the Panel numbers.

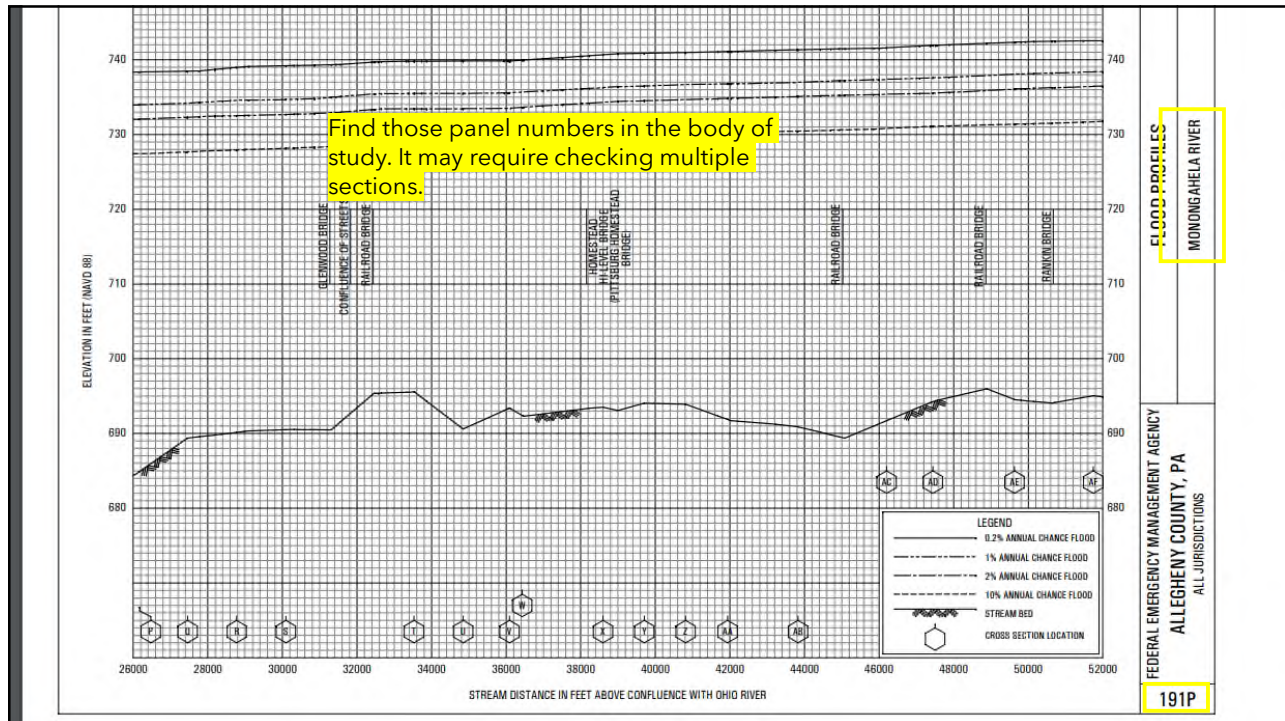
Table of Contents - Volume 5 - September 26, 2014

EXHIBITS - continued

Exhibit 1 - Flood Profiles - continued

Millers Run	Panels 187P-189P
Monongahela River	Panels 190P-197P
Montour Run	Panels 198P-206P
Montour Run No. 1	Panels 207P-208P
Moon Run	Panels 209P-211P
North Branch Robinson Run	Panels 212P-213P
North Fork Montour Run	Panels 214P-215P
Ohio River	Panels 216P-222P
Ohio River Back Channel	Panels 223P-225P
Painters Run	Panel 226P
Peters Creek	Panels 227P-229P
Pidgeon Hollow Run	Panels 230P-231P
Piersons Run	Panel 232P
Pine Creek	Panels 233P-247P
Piney Fork	Panels 248P-249P
Pitt Street Tributary	Panel 250P
Plum Creek	Panels 251P-257P
Pucketa Creek	Panels 258P-261P
Robinson Run	Panels 262P-269P

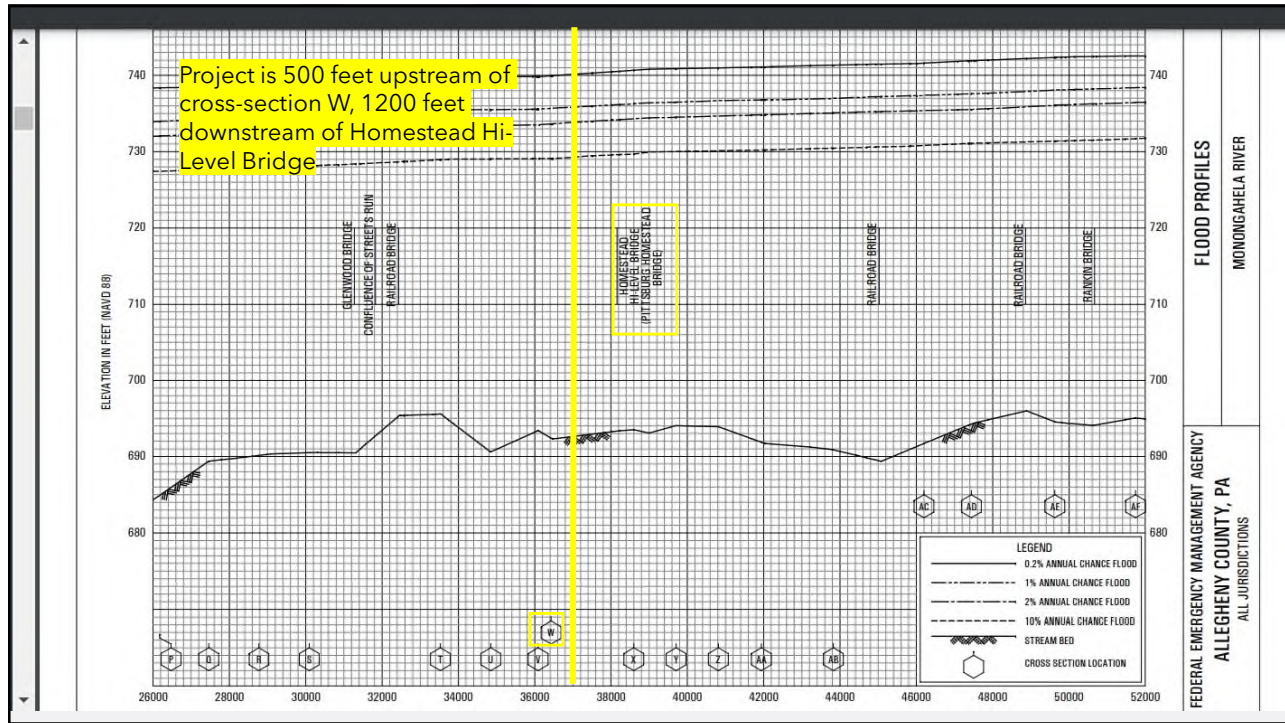
17



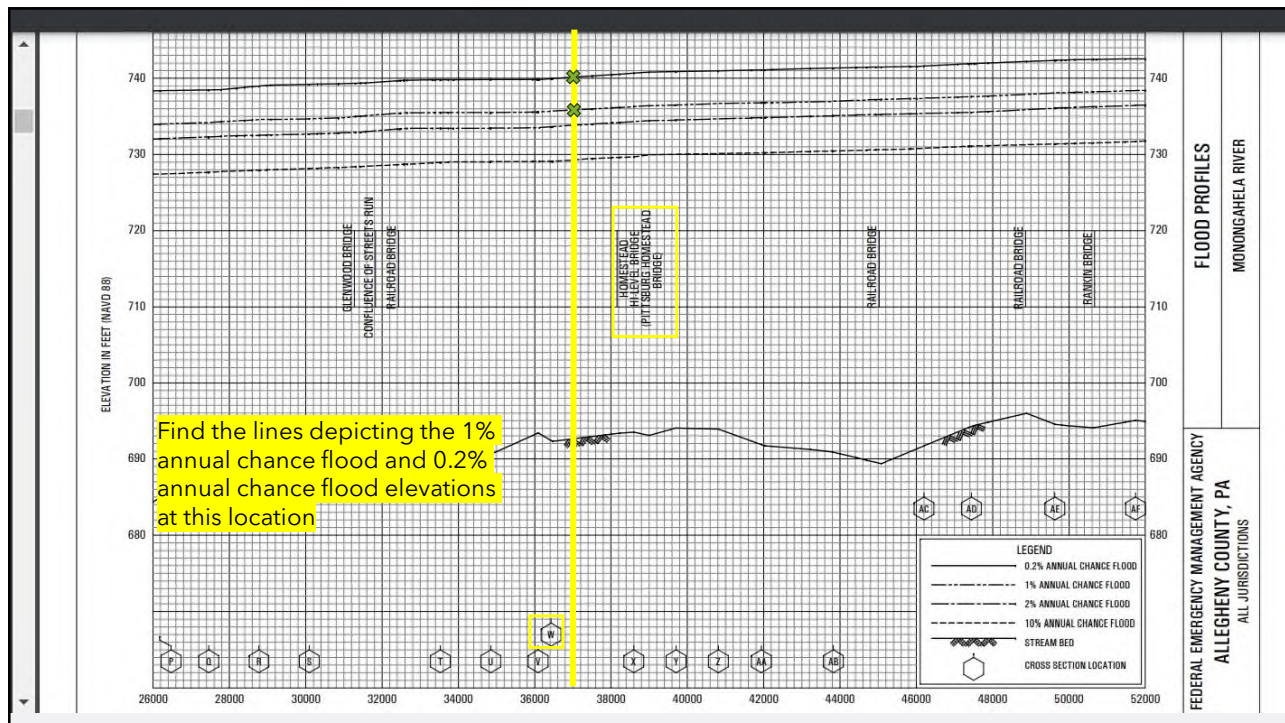
18







21



22







FEMA's National Flood Hazard Layer (NFHL) Viewer with Web AppBuilder for ArcGIS

Find address or place

Zone AE

Zone AE

CITY OF JOHNSTOWN

420231

42021C0383D  
eff. 6/19/2012

Zone AE

Zone AE

TOWNSHIP OF CONEMAUGH

420453

BOROUGH OF DAISYTOWN

422637

App State

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

USGS, USDA, The National Map: Orthoimagery

Now let's consider another site in Johnstown, Pa. This one clearly in the FFMS floodplain based on the 0.2% floodplain. What would the required elevation be for a demo and new construction here?

25

FEMA's National Flood Hazard Layer (NFHL) Viewer with Web AppBuilder for ArcGIS

Find address or place

Zone AE

Zone AE

CITY OF JOHNSTOWN

420231

42021C0383D  
eff. 6/19/2012

Zone AE

Zone AE

TOWNSHIP OF CONEMAUGH

420453

BOROUGH OF DAISYTOWN

422637

App State

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

USGS, USDA, The National Map: Orthoimagery

The site address is 335 Bedford St, Johnstown, PA. The river is the Stonycreek and the bridge is Haynes Street. This section of the river is in between Cross Sections B (off picture) and C.

26

**FEMA**

## FEMA Flood Map Service Center: Search By Address

Enter an address, place, or coordinates: [?](#)

335 Bedford St, Johnstown, PA 15901 Search

Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce flood risk damage.

Search Results—Products for **JOHNSTOWN, CITY OF** Show ALL Products »

The flood map for the selected area is number **42021C0383D**, effective on **6/19/2012**

**DYNAMIC MAP** **MAP IMAGE** **Changes to this FIRM** [?](#)

- Revisions (0)
- Amendments (2)
- Revalidations (0)

27

You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

Expand All [?](#)

- Effective Products (22)** [?](#)
  - FIRM Panels (9) [DL ALL](#)
  - FIS Reports (2) [DL ALL](#)

**Please note:** Sometimes small portions of the FIS are revised by Letters of Map Revisions (LOMR). When using the FIS report, you should also check LOMR documents listed in the LOMC section below for revisions that affect your specific area of interest.

Product ID	Effective Date	Size	Download
42021CV001A	06/19/2012	3MB	<a href="#">DL</a>
42021CV002A	06/19/2012	9MB	<a href="#">DL</a>

- LOMC (9)
- NFHL Data-State (1)
- NFHL Data-County (1)
- Preliminary Products (0) [?](#)

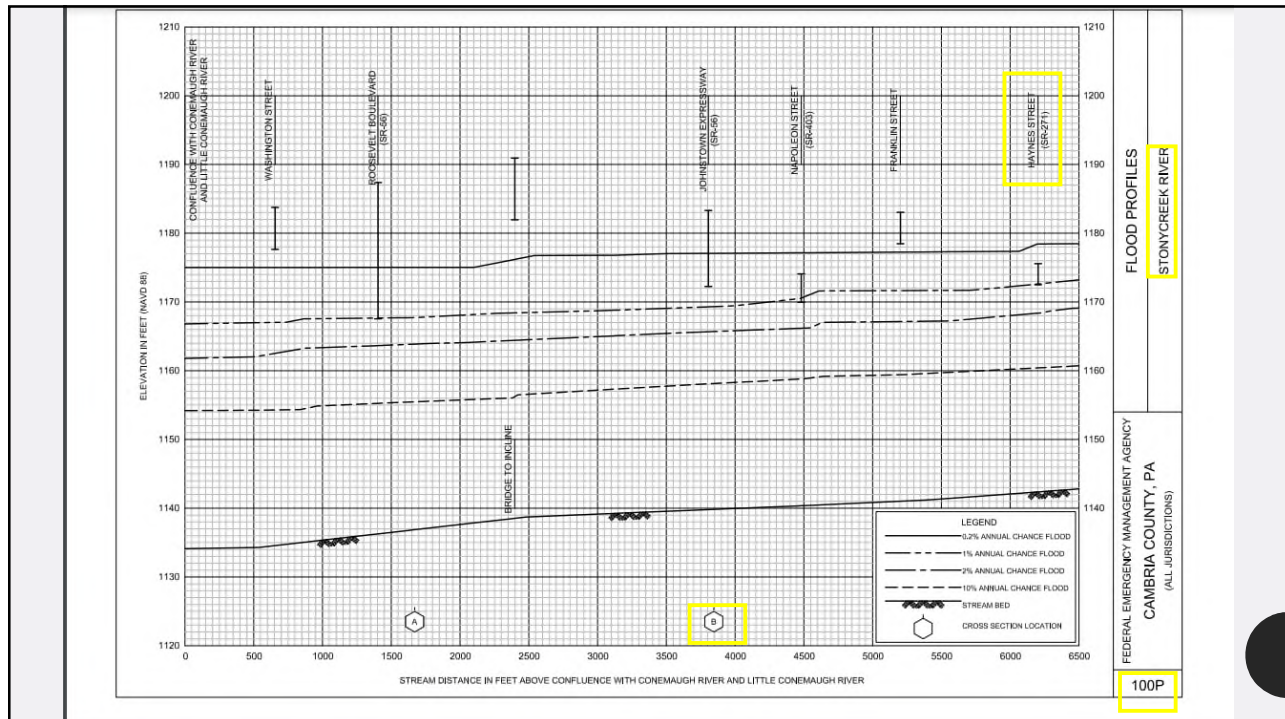
28



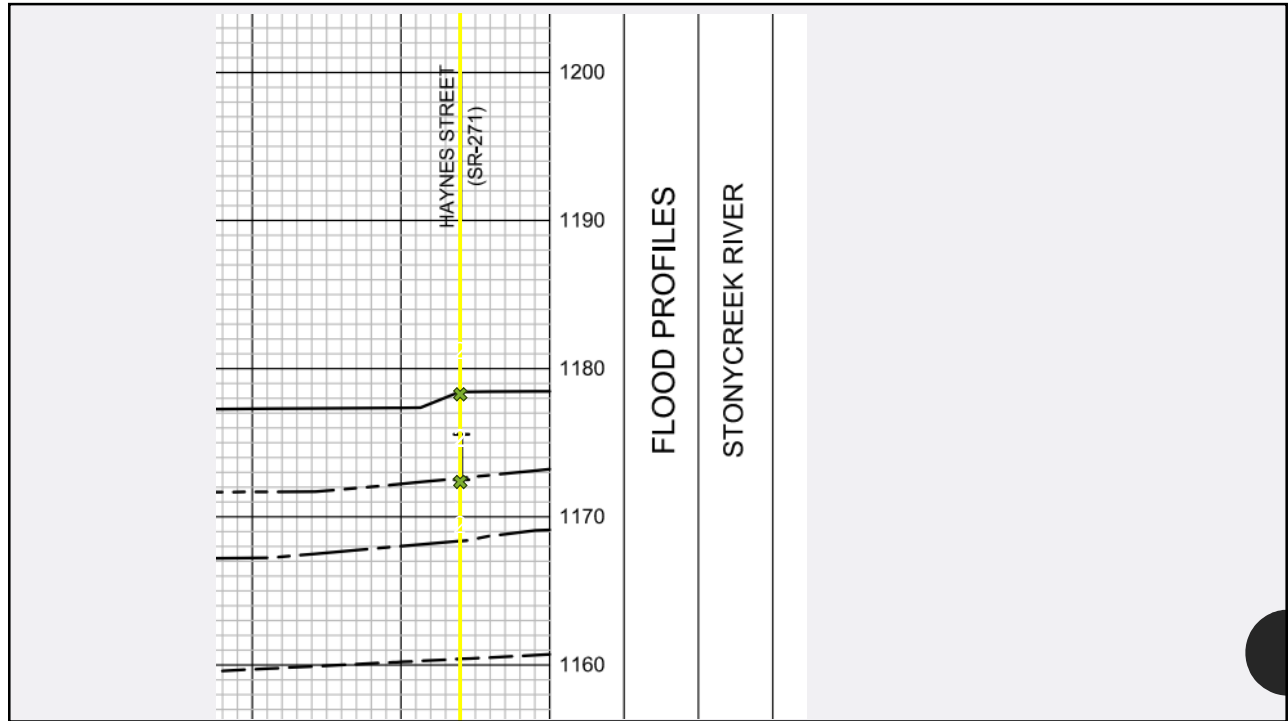
Laurel Run No. 3	Panel	38P
Laurel Run No. 4	Panels	39P-44P
Little Chest Creek	Panel	45P
Little Conemaugh River	Panels	46P-55P
Little Paint Creek	Panels	56P-58P
Mill Creek	Panels	59P-60P
North Branch Little Conemaugh River	Panel	61P
Otto Run	Panel	62P
Paint Creek	Panels	63P-64P
Porter Run	Panel	65P
Powell Run	Panels	66P-67P
Sams Run	Panels	68P-74P
Sandy Run	Panels	75P-76P
Shuman Run	Panel	77P
Solomon Run	Panels	78P-82P
South Branch Blacklick Creek	Panels	83P-85P
South Fork Little Conemaugh River	Panels	86P-92P
South Fork Little Conemaugh River Tributary No. 1	Panel	93P
Spring Run	Panel	94P
St. Clair Run	Panels	95P-99P
Stonycreek River	Panels	100P-106P
Strayer Run	Panel	107P
Trout Run	Panels	108P-111P
Unnamed Tributary to Brubaker Run	Panel	112P
Walnut Run	Panel	113P
West Branch Susquehanna River	Panels	114P-118P

Exhibit 2 – Flood Insurance Rate Map Index  
Flood Insurance Rate Map

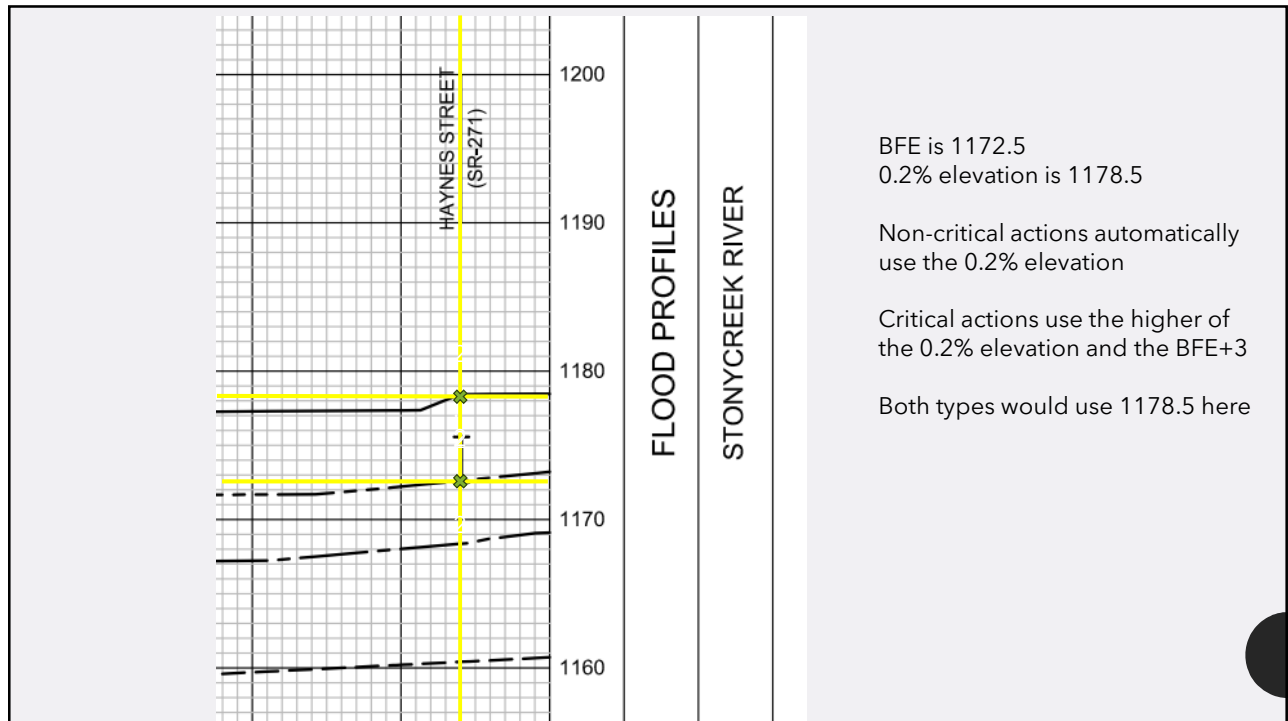
29



30



31



32



## *Unique Floodplain Areas*

33

## Levees

- Accredited levees
- Non-Accredited levees

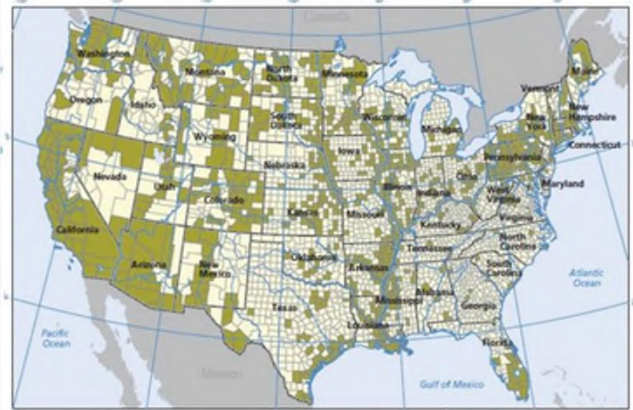


Figure 1. Areas of the United States with Levees (August 2009)

Map from FEMA Fact Sheet [What Is A Levee?](#)

34



# Accredited Levees under NFIP

Mapped as Areas  
with Reduced Flood  
Risk Due to Levee  
(Zone X)

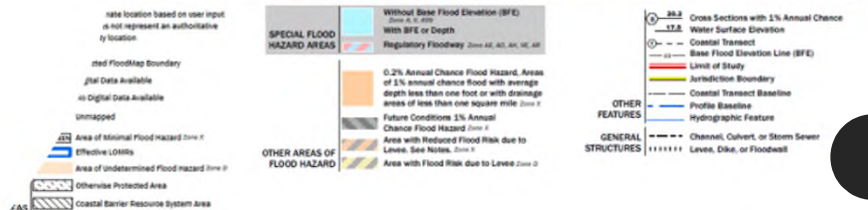
HUD FFRMS behind  
levees limited to  
defined 0.2% and FVA  
from sources not  
protected by levee.

Flood Risk Due to  
Levee (Zone X)  
Guidance Posted on  
hud.gov

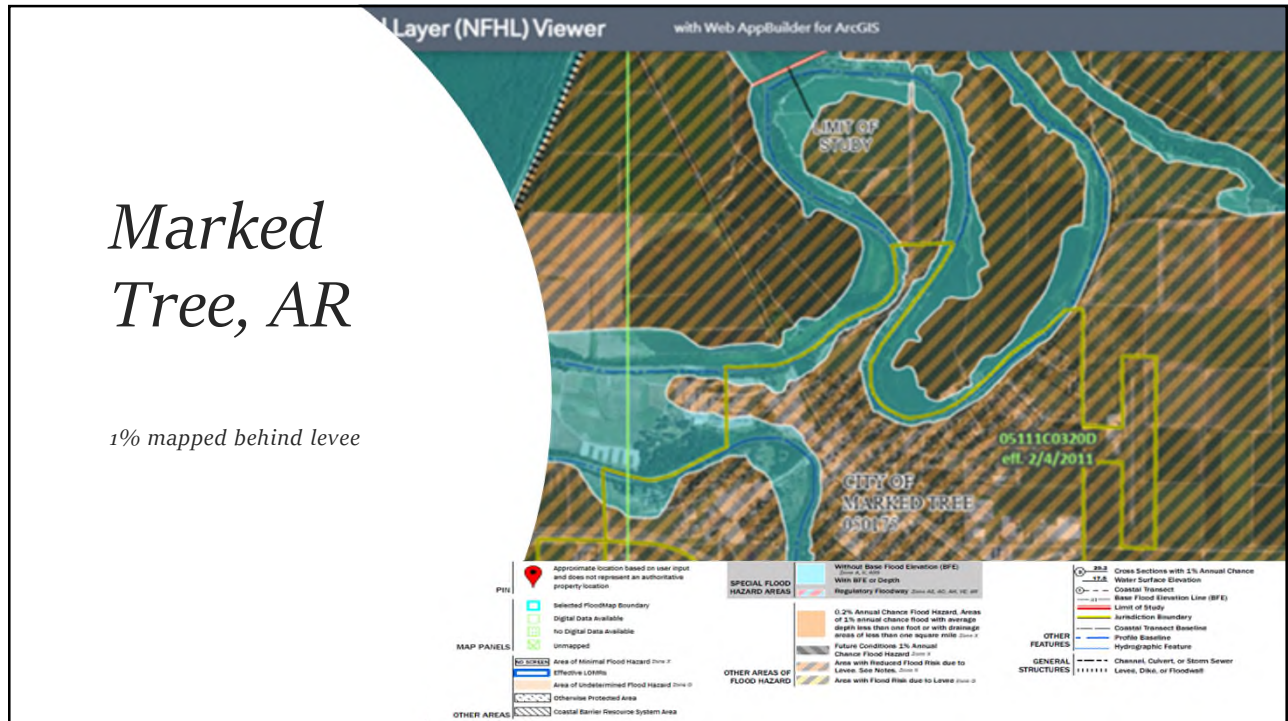
35

# New Orleans, LA

1% and 0.2% mapped behind  
levee



36



37



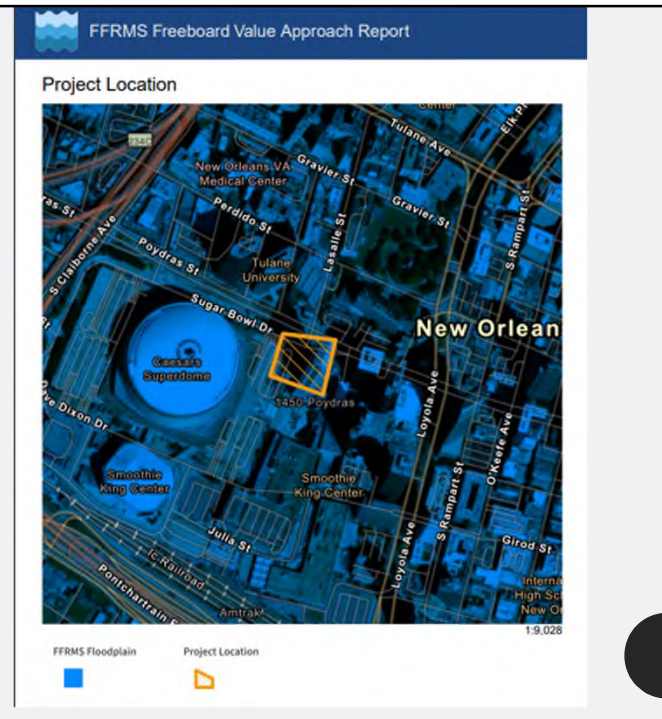
38

## Caution: FFSST Tool

HUD's approach does not align with the FFSST tool, which uses FVA based on the elevation of the river contained by the levee

FFSST shows Project in FFRMS floodplain with FFRMS elevation 20.3 FT under FVA

Site elevation 2 FT



39

## Non- Accredited Levees

Many non-accredited levees mapped as if levee does not exist

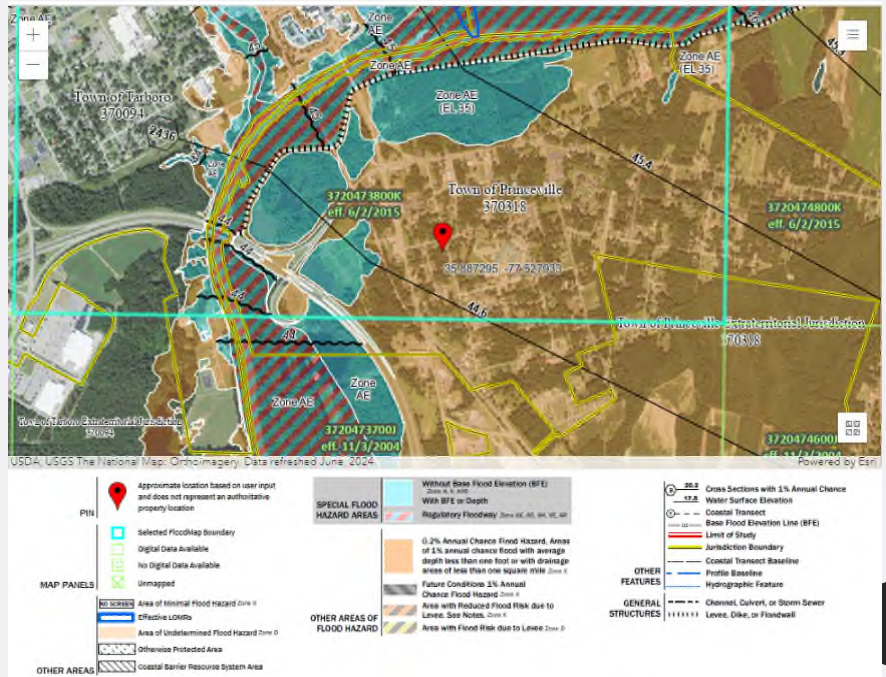
Communities may submit request to FEMA to consider non-accredited levees as "Areas with Flood Risk Due to Levee, Zone D"

40



# Non-Accredited Levees

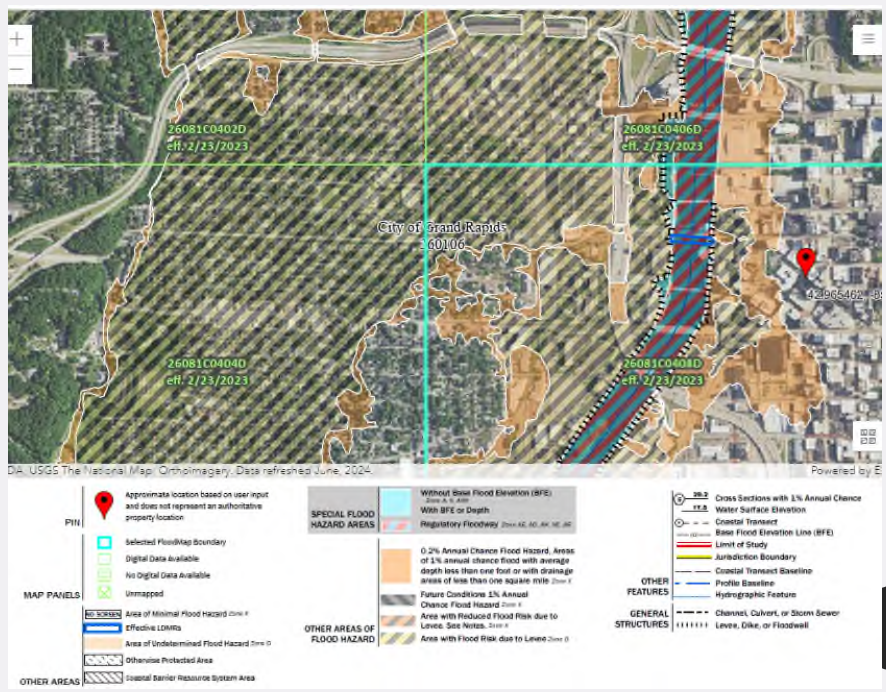
Princeville, NC



41

# Non-Accredited Levees

Grand Rapids, MI  
Areas with Flood Risk Due to Levee, Zone D



42

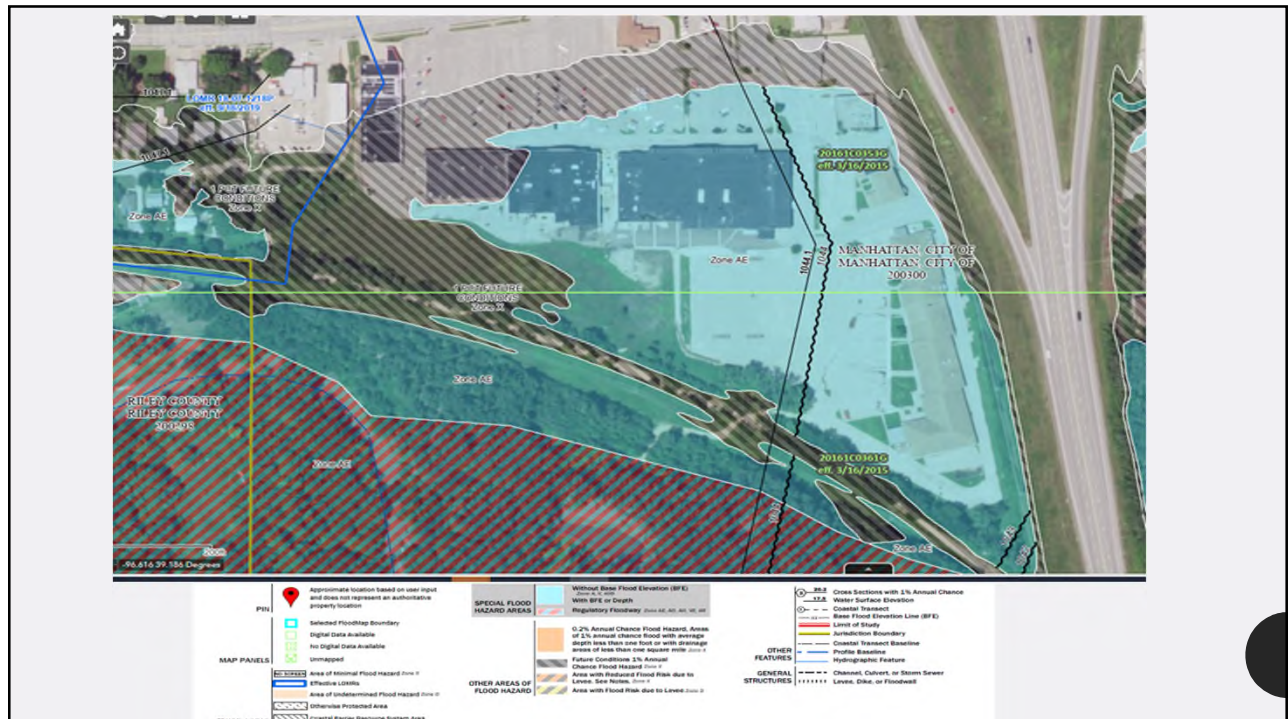
# Future Conditions 1% Annual Chance Flood Hazard

Areas where future construction or infrastructure or changes to planning and zoning ordinances could cause flooding.

Mapped by request of Community, which may impose additional requirements in these zones

HUD FFRRS Floodplain defined by 0.2% or FVA

43



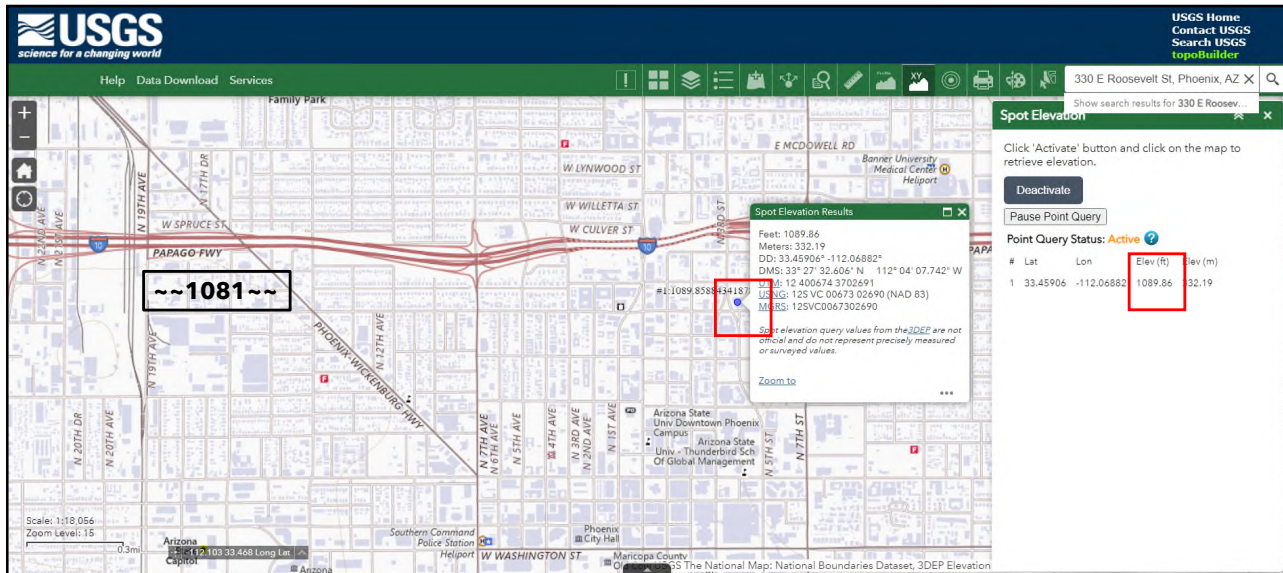
44





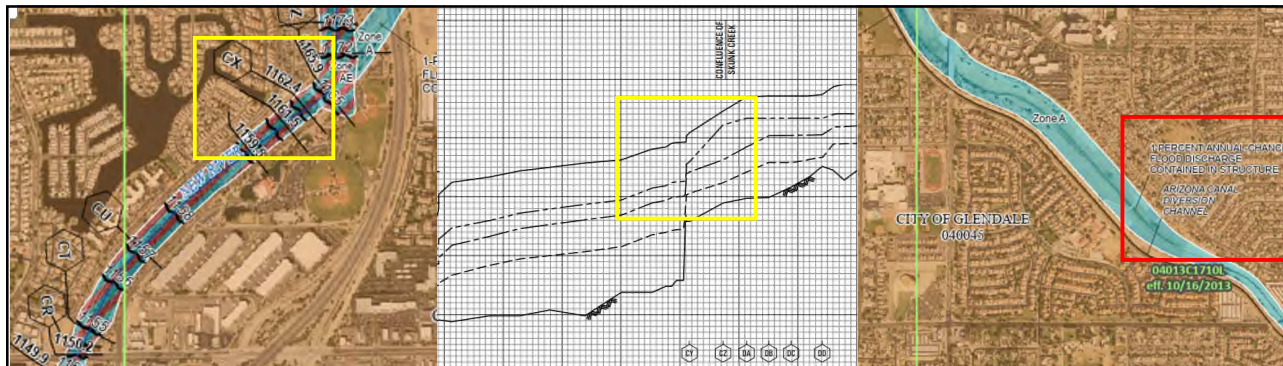






The elevation at the indicated site is ~1089 feet, five or six feet higher than the FFRMS elevation. An 8-step would be required, but this project would not need to elevate above grade.

49



Other sites may be near a flooding source with a 500-year elevation, or near a Zone A that requires consideration of the specific topography or engineering that would direct flood patterns.

50