

# NFIP Training for Floodplain Administrators

## Guidance and Best Practices for Meeting Day to Day Challenges

Taryn Murray, CFM, Resilience Action Partners  
Dan Distler, CFM, Beaver County

October 6, 2017



# Introduction

- **Welcome**
- **Logistics**
  - Attendance Sheet
  - Restrooms
  - Cell phones
  - Exits
  - Interactive/Questions
- **Introductions / Course Expectations**

# Training Objective

Provide community floodplain administrators with additional resources and clarity to effectively perform their duties, including:

- Enhancing community **permitting** process
- **Administering** the floodplain ordinance
- Improving **communication** strategies
- Highlighting **pre- and post-disaster** considerations

# Today's Agenda

- **Introduction and Overview**
- **Section 1:** Accessing and Using Flood Hazard Data
- **Section 2:** Administering Floodplain Ordinances
- **Section 3:** Permitting Process – Overview and Application Review
- **Section 4:** Ordinance Enforcement
- **Section 5:** Pre- and Post-Disaster Considerations
- **Section 6:** Changing FIRMs and FIS Reports
- **Section 7:** Useful Resources
- **Wrap Up**

# National Flood Insurance Program (NFIP) Background

- Created by the National Flood Insurance Act of 1968
- Participation is **voluntary**
  - Adopt and enforce regulations
  - Eligible for flood insurance
- **Benefits** of participation
  - Flood insurance
  - Grants and loans
  - Disaster assistance
  - Federally-backed mortgages
- **Goals** of the NFIP include
  - Save lives and protect property
  - Encourage a comprehensive approach to floodplain management

## ***The Base Flood:***

*The flood having a 1% chance of being equaled or exceeded in any given year. Used by the NFIP as the basis for mapping, insurance rating, and regulating development.*



# NFIP Flood Insurance Basics

- Sold by licensed P&C insurance agents through
  - “Write Your Own” insurance companies
  - FEMA’s Direct Servicing Agent
- Essential elements of rating include
  - Flood Zone
  - Elevation Difference (BFE, LFE)
  - Building/Occupancy Type
  - Construction Date (pre-FIRM vs. post-FIRM)
  - Coverage Limits & Deductible

	Emergency Program	Regular Program
<b>Residential (1-4 family)</b>		
<b>Building</b>	<b>\$35,000</b>	<b>\$250,000</b>
<b>Contents</b>	<b>\$10,000</b>	<b>\$100,000</b>
<b>Other Residential</b>		
<b>Building</b>	<b>\$100,000</b>	<b>\$500,000</b>
<b>Contents</b>	<b>\$ 10,000</b>	<b>\$100,000</b>
<b>Non-Residential</b>		
<b>Building</b>	<b>\$100,000</b>	<b>\$500,000</b>
<b>Contents</b>	<b>\$100,000</b>	<b>\$500,000</b>

# NFIP Flood Insurance Basics



- Increased Cost of Compliance
  - Included in a standard policy to help property owners in the SFHA pay for mitigation measures to bring NFIP-insured structures into compliance
  - Provides up to \$30,000\* for mitigation
    - Floodproofing (non-residential)
    - Relocation
    - Elevation
    - Demolition

*\*Can't exceed total NFIP building limit*

# NFIP Flood Insurance Basics

- Impacts of recent reform legislation
  - Annual premium increase caps of 15-18%
  - Certain pre-FIRM subsidized-rate buildings in Zone A, V, or D will increase 25% annually until they reach their full-risk rate\*:
    - Non-primary residences
    - Commercial buildings
    - Repetitive loss structures
    - Substantially damaged buildings

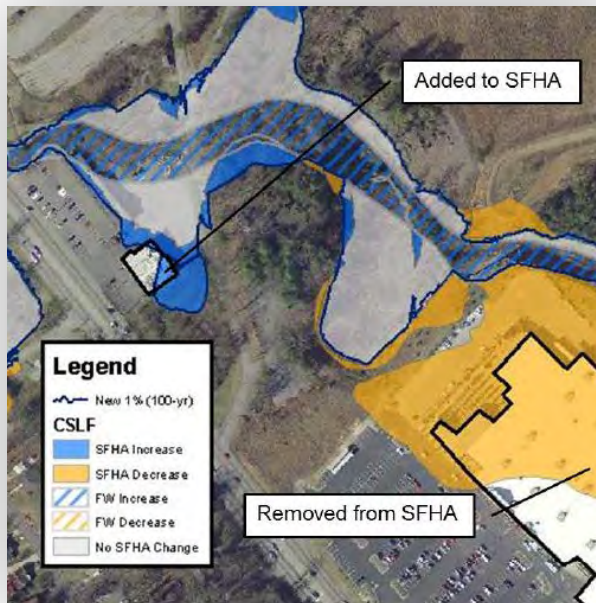


*\*Rate using information from Elevation Certificate*



# NFIP Flood Insurance Basics

- Impacts of recent reform legislation (cont.)
  - As of April 1, 2015, owners of properties newly mapped into an SFHA may be eligible for significant savings with a “newly mapped” policy rating for the first year.
  - They will transition to full-risk rates through average premium increases of 15 percent, but not exceeding 18 percent per policy.



# NFIP Roles: Federal and State

## ▪ Federal

- National program oversight
- Risk identification (mapping)
- Establish development/building standards
- Provide technical assistance to state/communities/agencies
- Provide insurance coverage

## ▪ State

- State program oversight
- Establish development/building standards
- Provide technical assistance to local communities/agencies
- Evaluate and document floodplain management activities

# NFIP Roles: Local

- **Local Officials and Floodplain Administrators**
  - Adopt and enforce a floodplain management ordinance compliant with federal/state laws
  - Issue or deny development
  - Inspect development and maintain records
  - Make substantial damage determinations
- Development oversight is a **local responsibility**

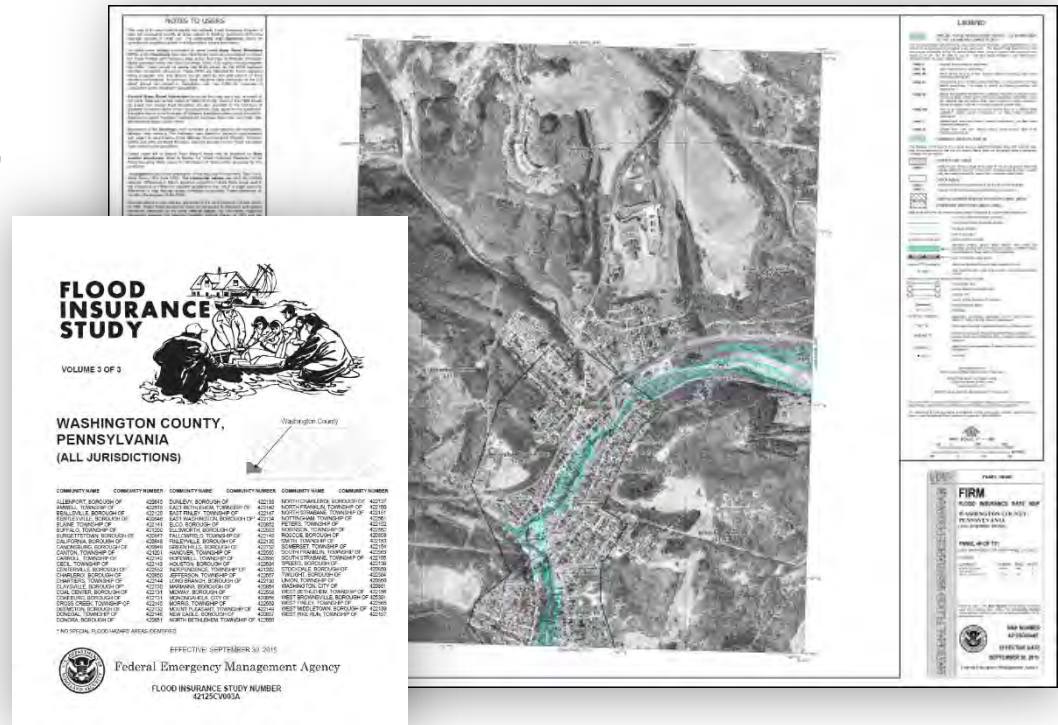
# Accessing and Using Flood Hazard Data

## Section 1



# Key Terms Refresher

- Flood Insurance Rate Map (**FIRM**)
- Flood Insurance Study (**FIS**) Report
- Special Flood Hazard Area (**SFHA**)
- Flood Zone
- Base Flood Elevation (**BFE**)
- Regulatory Floodway
- Cross Section



# Flood Zones on the FIRMs

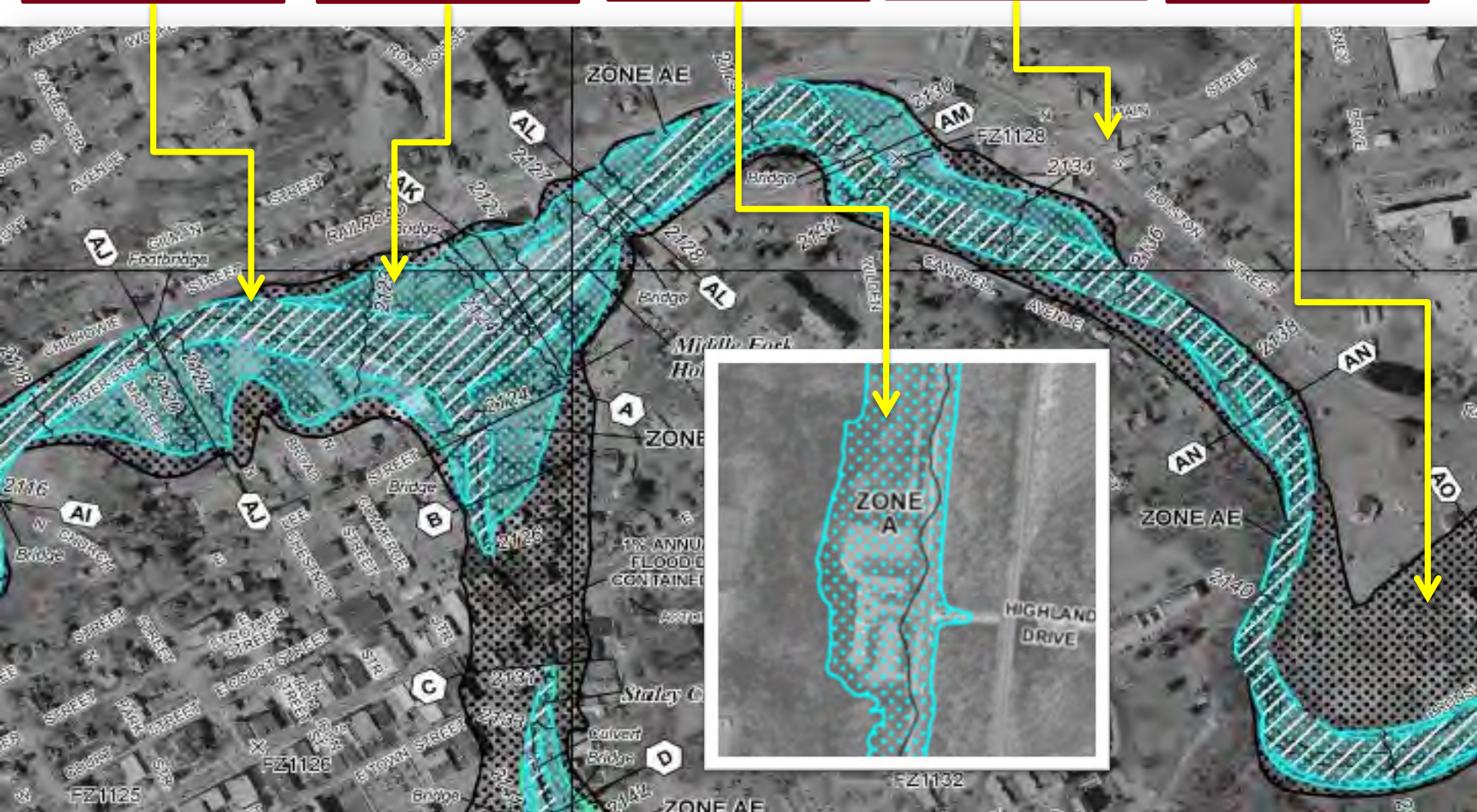
Floodway

Zone AE

Zone A

Zone X

Shaded  
Zone X





# Accessing FIRM and FIS Report Data

- Map Service Center (MSC) – [www.msc.fema.gov](http://www.msc.fema.gov)
  - PDF/hard copy format
  - NFHL Data download

## Search Results for WASHINGTON COUNTY ALL JURISDICTIONS

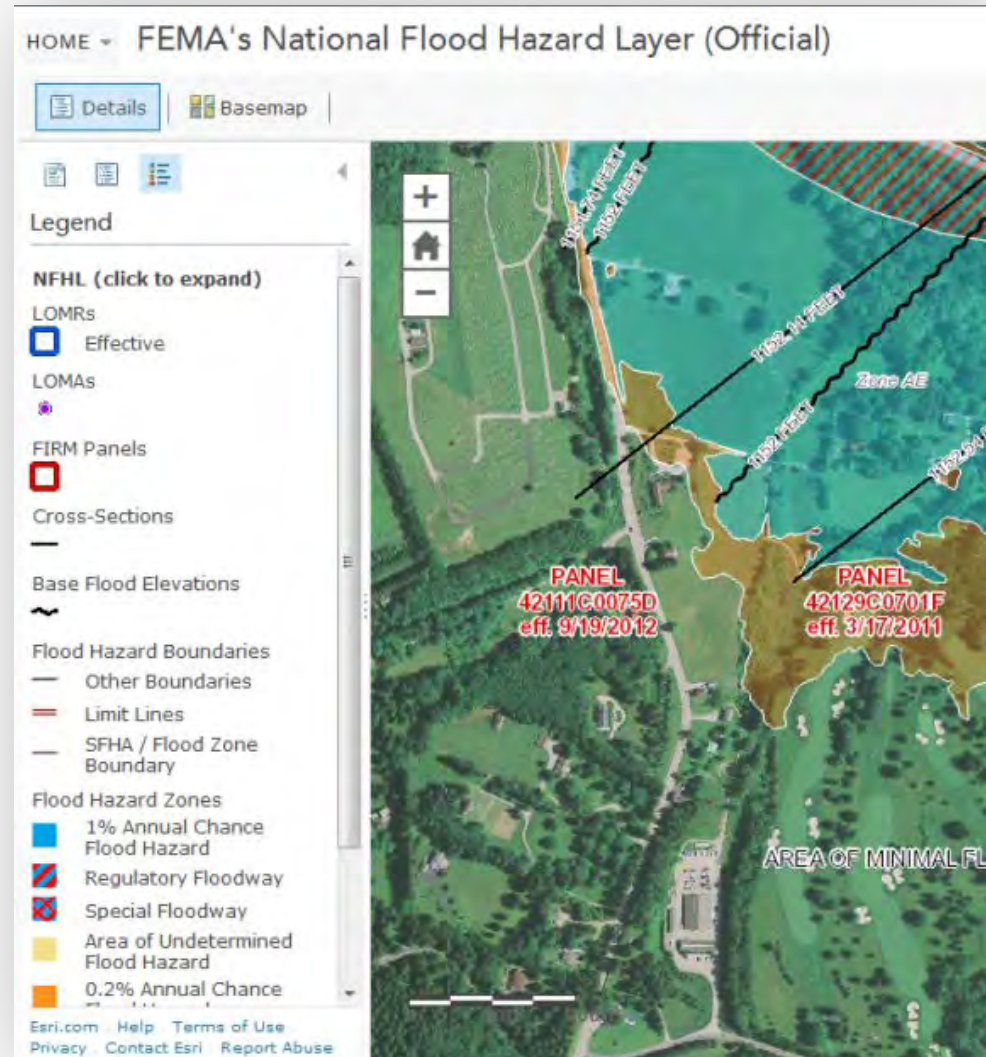
Click [subscribe](#) to receive email notifications when products are updated.

**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 (214) 
-  Preliminary Products (0) 
-  Pending Product (0) 
-  Historic Products (363) 
-  Flood Risk Products (6) 

# The National Flood Hazard Layer (NFHL)

- FEMA's nationwide geospatial database of all digital **effective** FIRM data
  - Integrates FIRM data including Letters of Map Change (LOMCs)
  - Available in GIS format
  - FIRM and FIS are still the official source of data





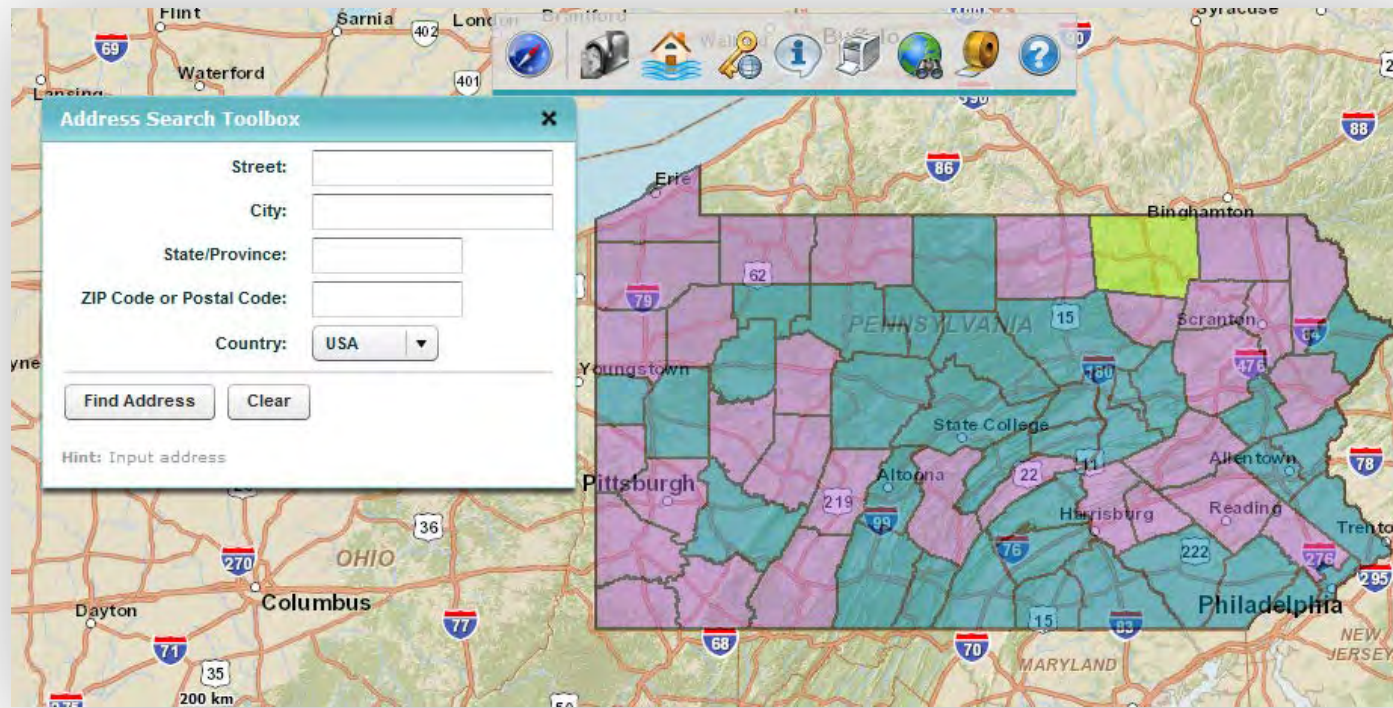
# Summary of NFHL Tool Functionality

	Toggle Layers On/Off	Integrate Community Datasets	Digital Measuring Tools	Detailed X/S Elevation Data	Address Lookup	Perform queries/analysis	Links to PDF Map Panels and LOMCs	Imagery Overlay	View LOMC Points	Add point markers /draw polygons
NFHL GIS Database*	X	X	X	X		X				X
NFHL on Google Earth	X		X		X			X	X	X
NFHL on GeoPlatform	X		X	X	X		X	X	X	

\*Specialized GIS software is required for use

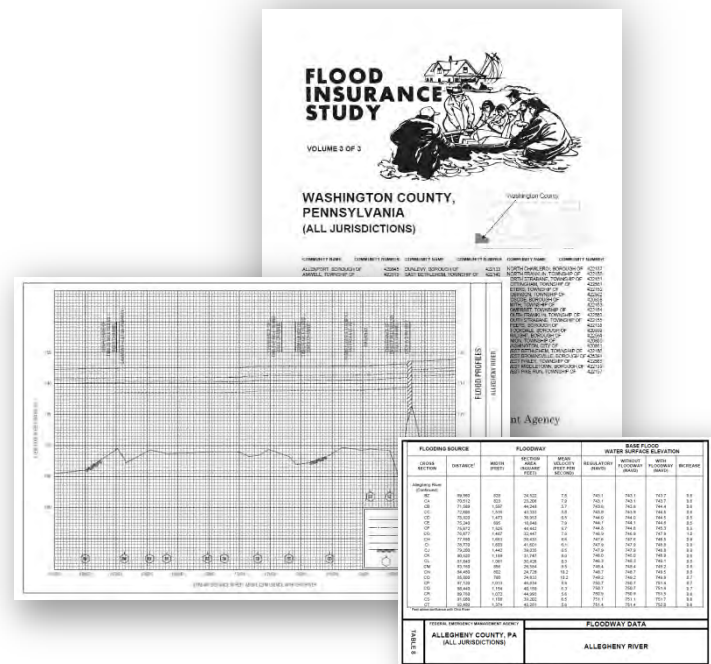
# PA Flood Maps ([pafloodmaps.pa.gov](http://pafloodmaps.pa.gov))

- Flood status tool to aid in determinations
- Map viewer showing preliminary or effective FIRM data allows for a comparison of the two.



# Using the Flood Insurance Study

- Use the FIS report for
  - Flood determinations for specific sites
  - Finding the **most accurate BFE** data
  - **DO NOT** use the FIRM for elevation determinations, except for coastal flooding
  - Red flag when reviewing riverine elevation data from surveyors – whole number BFEs



# Exercise 1: Getting the Most Out of FIRM and FIS Data/Tools

- Using **Google Earth and the handouts** provided, obtain the flood zone and BFE for the building on this property:
  - **120 Valley Street, Floodtown, U.S.A.**
- Goals of the exercise: using Google Earth as a tool and establishing a BFE using the FDT/profile
  - Using NFHL in Google Earth
  - Using FIRM and FIS together
  - Use of a FIRMette (tutorial and more details on MSC at [www.msc.fema.gov](http://www.msc.fema.gov)).

# Exercise 1 – Questions

## 120 Valley Street, Floodtown, U.S.A.

1. Which flood zone is this structure located in?
2. What is the name of the flooding source affecting the structure?
3. Is the structure located in the regulatory floodway?
4. What is the FIRM panel number and suffix that applies to this structure?
5. Determine the Base Flood Elevation (BFE) that applies to this structure and include the value to 1/10 of a foot. Be sure to indicate which datum the elevation is referenced to.

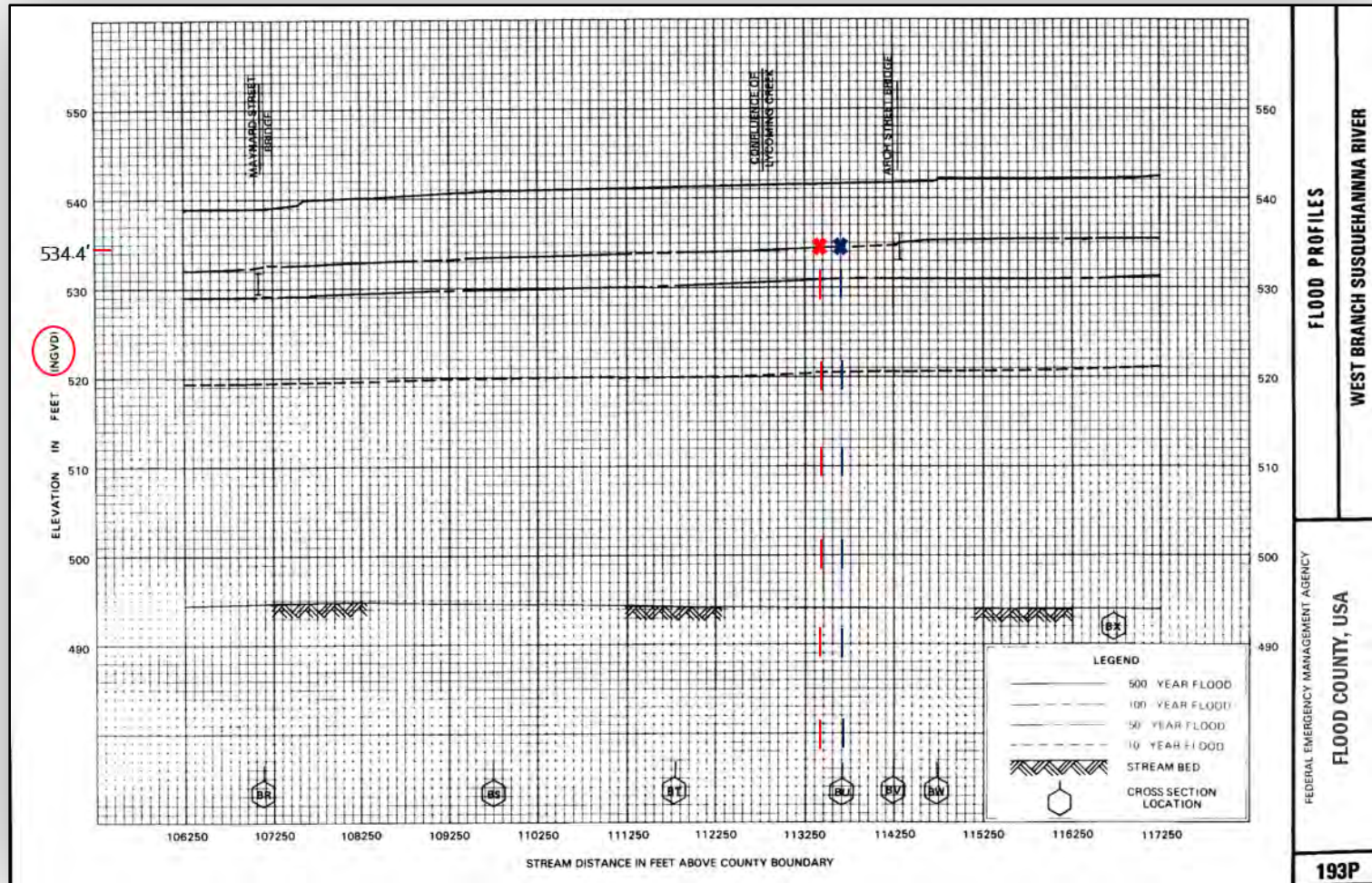
# Exercise 1 – Answers

## 120 Valley Street, Floodtown, U.S.A.

- 1. Which flood zone is this structure located in?**
  - Zone AE
- 2. What is the name of the flooding source affecting the structure?**
  - West Branch Susquehanna River
- 3. Is the structure located in the regulatory floodway?**
  - No. The site is located roughly 500 feet south of the regulatory floodway, which is indicated by cross-hatched area on the FIRM
- 4. What is the FIRM panel number and suffix that applies to this structure?**
  - 42081C043F

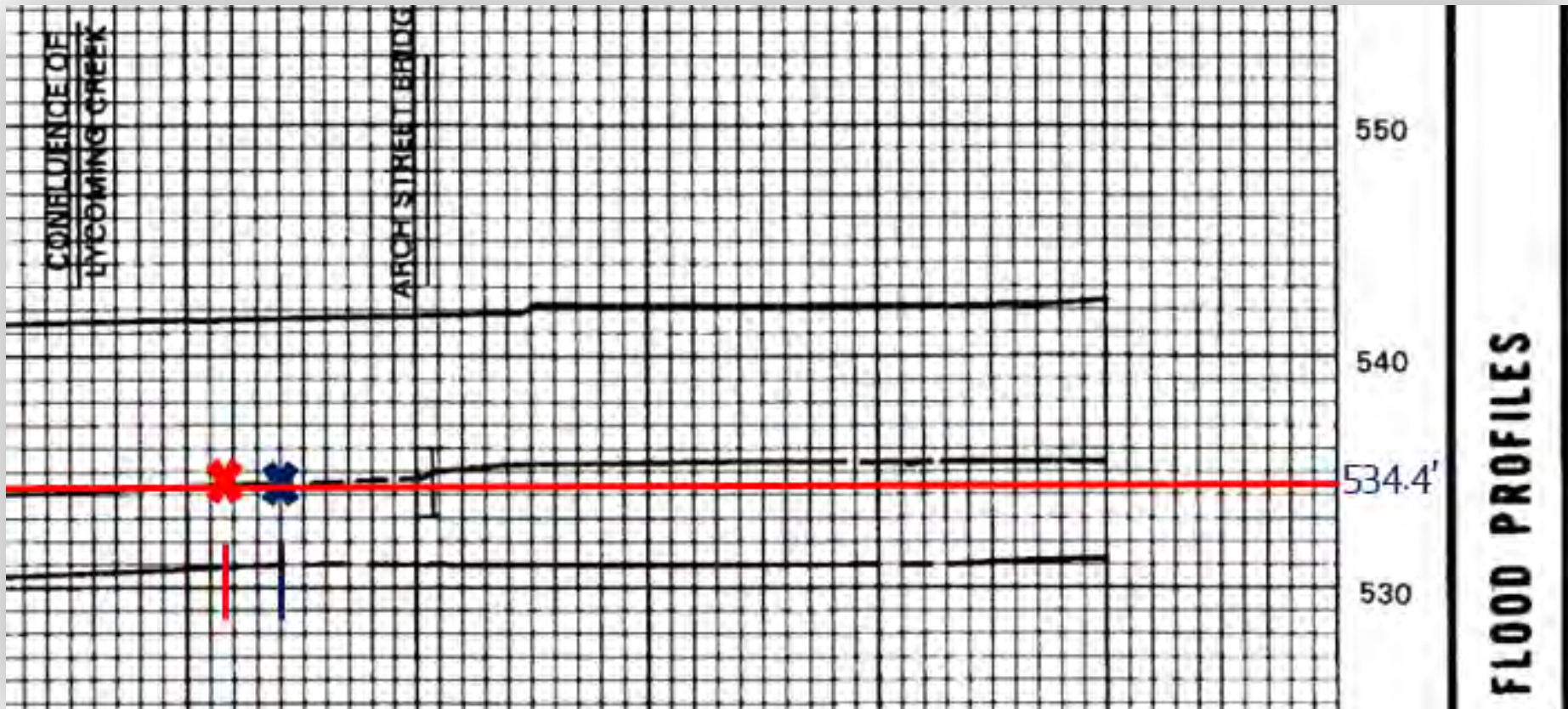
# Exercise 1 – Answers (continued)

## 120 Valley Street, Floodtown, U.S.A.



# Exercise 1 – Answers (continued)

## 120 Valley Street, Floodtown, U.S.A.





# Exercise 1 – Answers (continued)

## 120 Valley Street, Floodtown, U.S.A.

5. Determine the Base Flood Elevation (BFE) that applies to this structure and include the value to 1/10 of a foot. Be sure to indicate which datum the elevation is referenced to.
- BFE = 534.4'
  - Datum = NGVD 29

# Zone A: Estimating a 1% Flood Elevation

## Additional Data May be Available

- Zone A floodplains present a challenge
  - No BFEs are available to inform how high to build
- Automated H&H was run for Zone A
  - Floodplain exists behind the scenes
  - Not detailed enough to be included on the FIRMs, but can be used to approximate a 1% flood elevation
  - Another method to compare estimated methods
- Caveats:
  - Bridges and culverts are not taken into consideration
  - Requires special skills to interpret data

*Zone A cross sections will soon be available online!*



# Accessing and Using Flood Hazard Data

## Questions?

# Administering Floodplain Ordinances

## Section 2



# Floodplain Management Regulations

## The Ordinance

- NFIP participating municipalities in PA agreed to **adopt and enforce** an ordinance meeting the minimum requirements of the NFIP and PA Act 166
- Ordinance must
  - Be legally enforceable
  - Applied uniformly throughout the community
- Floodplain regulations are usually found in one of, or a combination of, five types of regulations: “stand alone”, zoning ordinances, building codes, subdivision regulations, and sanitary regulations

# Stand-alone Ordinances

- May be **easier to enforce**
- One ordinance contains all NFIP requirements for development standards
- Developers and officials can easily see the requirements in **one place**
- Ensure that all offices/agencies are aware of the floodplain standards so there are no internal inconsistencies.
- May not coordinate with other regulations or codes – regulations **could be in conflict**

# Contents of an Ordinance

- **Purpose:** Why was the ordinance adopted? What are its objectives?
- **Definitions:** What technical terms are needed?
- **Adoption of effective flood data**
- **Requirement for a floodplain development permit**
- **Development standards:** Must include provisions for
  - Building protection standards (elevation, floodproofing, anchoring) commensurate with the flood zones in your community
  - Standards for manufactured homes and manufactured home parks
  - Standards for subdivisions
  - Substantial damage/improvements
  - Construction in the floodway and standards for encroachments where floodways are not mapped

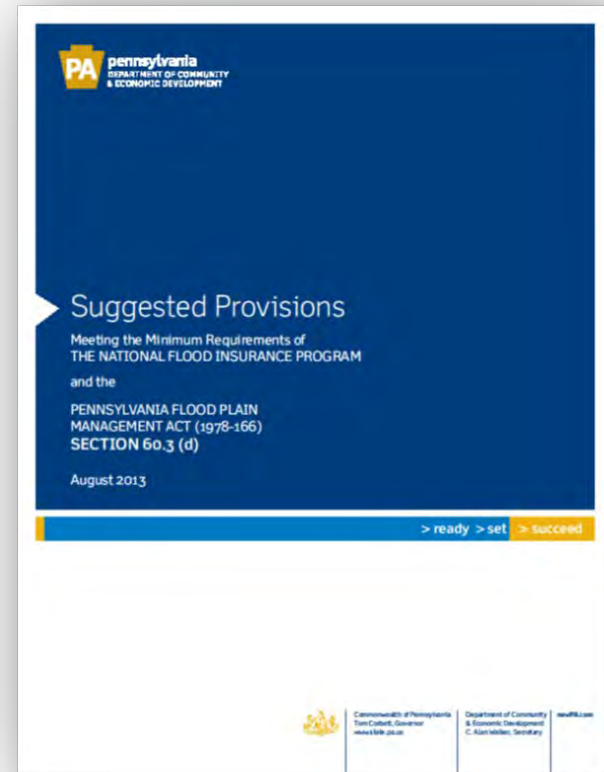
# Contents of an Ordinance

- **Designation of an administrator**
- **Variance and Appeals process**
- **Enforcement:** Clear penalties for violations must be specified
- **Abrogation and greater restriction:** Higher standards take precedence
- **Severability:** One provision ruled invalid does not invalidate the rest



# PA Suggested Provisions

- Stand-alone “model” ordinance
- Includes the provisions needed to meet NFIP and PA Act 166 requirements
- Also includes suggested higher standards
- **PA Act 166 Requirements**
  - Restrictions on hazardous material storage
  - Regulated high-risk land uses (including manufactured homes)
  - 50-foot Setbacks / Buffers



# Higher Standards

- **Recommended higher standards are included in the model ordinance, such as:**
  - 1.5 feet of freeboard
  - Repetitive Loss Provisions
  - Conservation / Open Space Preservation
  - Estimate 1% elevation in Zone A
  - Lower threshold for Substantial Damage



# Common Higher Regulatory Standards

- **Freeboard**
  - **Prohibit development in the floodway or entire floodplain**
  - **Cumulative Substantial Improvement/Damage**
  - **Community Identified Flood Hazard Areas**
  - **Restrictions to Subdivision of Land**
  - **Non-Conversion Agreement**
  - **Location Restrictions**
  - **Prohibition**
    - **Development in SFHA or Floodway**
    - **Manufactured Homes**
    - **Fill**
  - **Flood Protection Setback**
  - **Certificate of Compliance**
  - **Historic Structures**
- 

# Higher Standards Reduce...

...**work** and administrative burden

...**risk** and response/recovery efforts

...**costs** for insurance and rebuilding

# Administrative Requirements

- Generally, the NFIP requires an administrative process, but does not detail what these administrative processes must look like
- Communities must establish administrative procedures that work and are compatible with other regulations and ordinances
- Other requirements not detailed in the regulations
  - Duties of the Floodplain Administrator
  - Appeals process
  - Issuance of variances
  - Permitting systems
  - Recordkeeping systems

# Duties of the Floodplain Administrator

- Review applications
- Make floodplain determinations
- Make Substantial Improvement / Damage determinations
- Issue or deny permits
- Review plans and specifications
- Ensure all other permits are obtained
- Notification of watercourse alterations
- Maintain and help update flood data and maps
- Inspect development
- Recordkeeping
- Remedy violation



Keep good records! A project file should be kept for each development permit application to demonstrate that the project was built in compliance with your regulations.



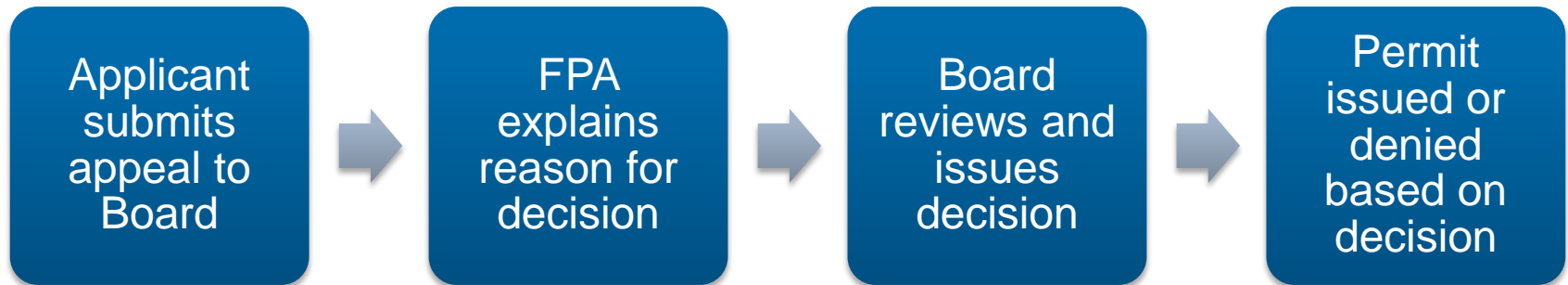
# Duties of the Floodplain Administrator

- **Training and education:** Understand the NFIP regulations, state regulations, and local ordinances
- **Community Outreach:** Educate residents on the need for permits, the benefits of floodplains, the economic sustainability of good floodplain management, and the benefits of flood insurance
- **Coordinate with other agencies:** State agencies, adjacent communities, public works, zoning, code enforcement, or building dept.
- **Apply ordinances consistently:** Get specific guidance from your community's legal counsel, as necessary

Common legal questions and answers about floodplain regulations in the courts can be found in ***Appendix C of ASFPM's No Adverse Impact: A Toolkit for Common Sense Floodplain Management.***

# Appealing a Floodplain Admin's Decision

- Appeals are typically **administrative** in nature (could be to a floodplain determination, substantial improvement/damage determination, etc.)
- Appeals apply to the application of an administrative decision by a floodplain administrator
- Communities must establish **a process** and **an entity** for applicants to appeal an administrative decision when they disagree
- Basic appeals process





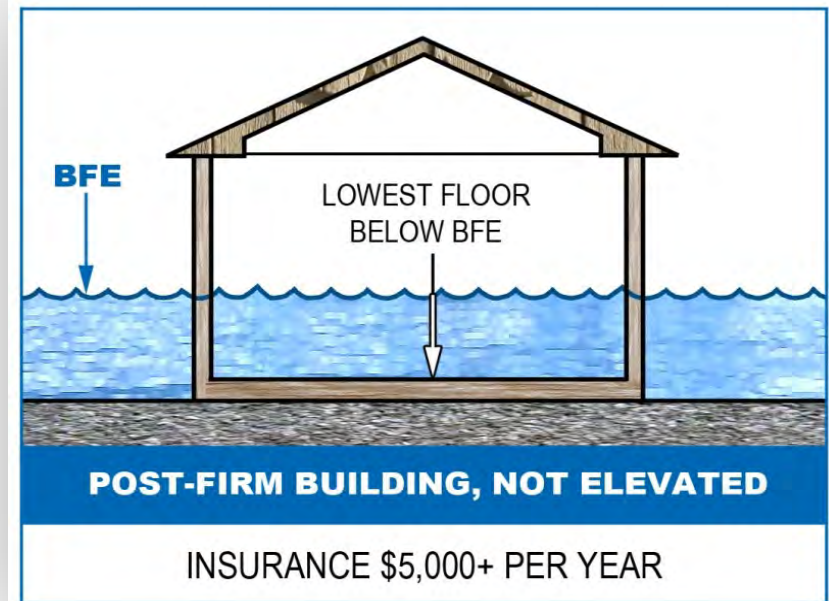
# Issuance of Variances

- Granting relief from ordinance requirements
- Establish a process and an entity for applicants to request variances
- Conditions of the property NOT the person
- Notice of increase to risk and insurance premiums
- Patterns of variances may result in sanctions



# Evaluate the Merits of a Variance

- General rule – **Do not grant variances**
- Very specific conditions must be satisfied to justify a variance
  - Good and sufficient cause
  - Unique site conditions (personal considerations do not apply)
  - Hardship – must be exceptional
  - No threat to public safety
  - Minimum necessary to afford relief



Think carefully before granting a variance to build below the BFE. The property will be more likely to suffer damage and insurance will be costly. Communities with patterns of issuing variances may face sanctions – costing all property owners more!

# Appealing an Appeal/Variance

If you **disagree** with the decision of the board to grant the appeal or variance...

...**appeal** the appeal/variance

- Why appeal? Granted for reasons inconsistent with criteria in ordinance
- Become familiar with the timeframe to file the appeal (30 days?)
- FEMA expects communities to exhaust all legal avenues

# Floodplain Management Ordinance

## Questions?

# The Permitting Process – Overview and Application Review

## Section 3



# Permits are Required for ALL Development

## ALL development in the SFHA requires a permit

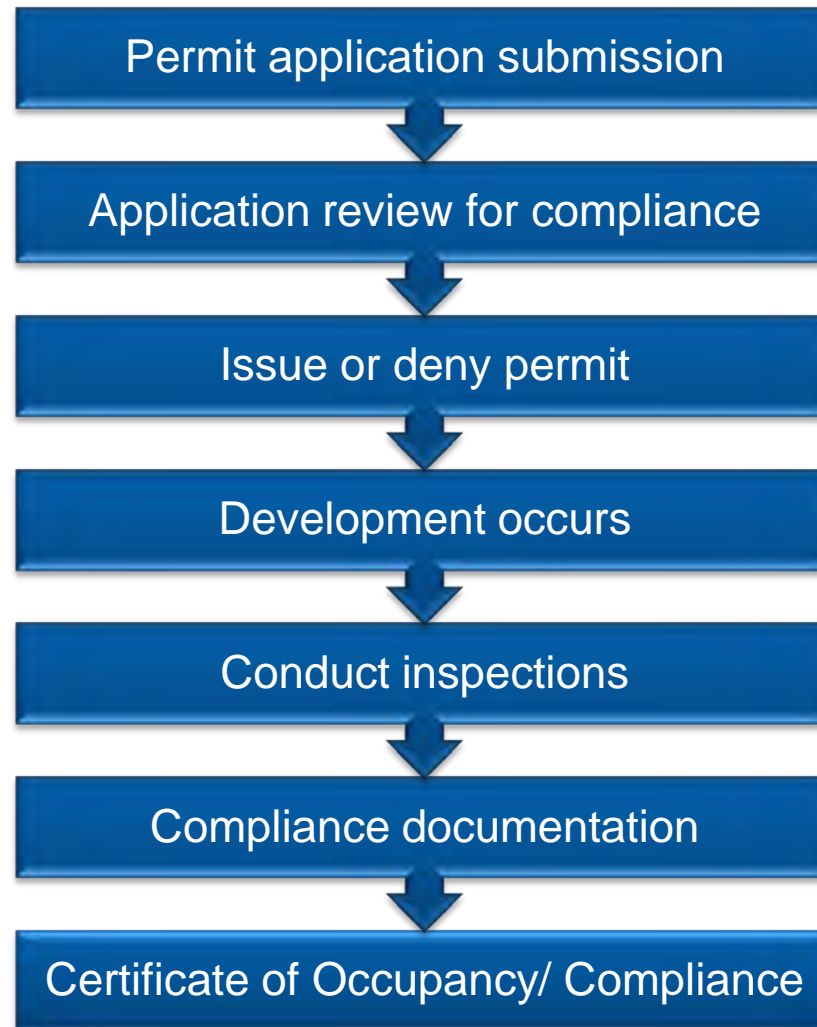
- Definition of development (as per 44 CFR 59)

Any manmade change to improved or unimproved real estate, **including, but not limited to** buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials

**Ensure you have a process for capturing all floodplain development**

Poquoson, VA (from FEMA Region III)

# The Life of a Permit



# Permit Application Submission

## Which activities in the SFHA require a development permit?

- Construction of new buildings
- Additions to existing buildings
- Substantial improvements of existing buildings
- Repair of substantially damaged buildings
- Renovation of existing building interiors
- Installation of manufactured homes
- Subdivision of land
- Placement of temporary buildings and accessory structures
- Construction of roads, bridges, and culverts
- Placement of fill, grading, excavation, and dredging
- Alteration of stream channels
- Construction of a fence
- Paving



# Application Should Include...

- A good permit application should **capture all information** needed to evaluate the proposed work for compliance with required building/development standards
- Application MUST include a **floodplain determination** and a **substantial improvement determination** (for modifications to an existing building)

## For Official Use Only:

Floodplain Determination: \_\_\_\_\_

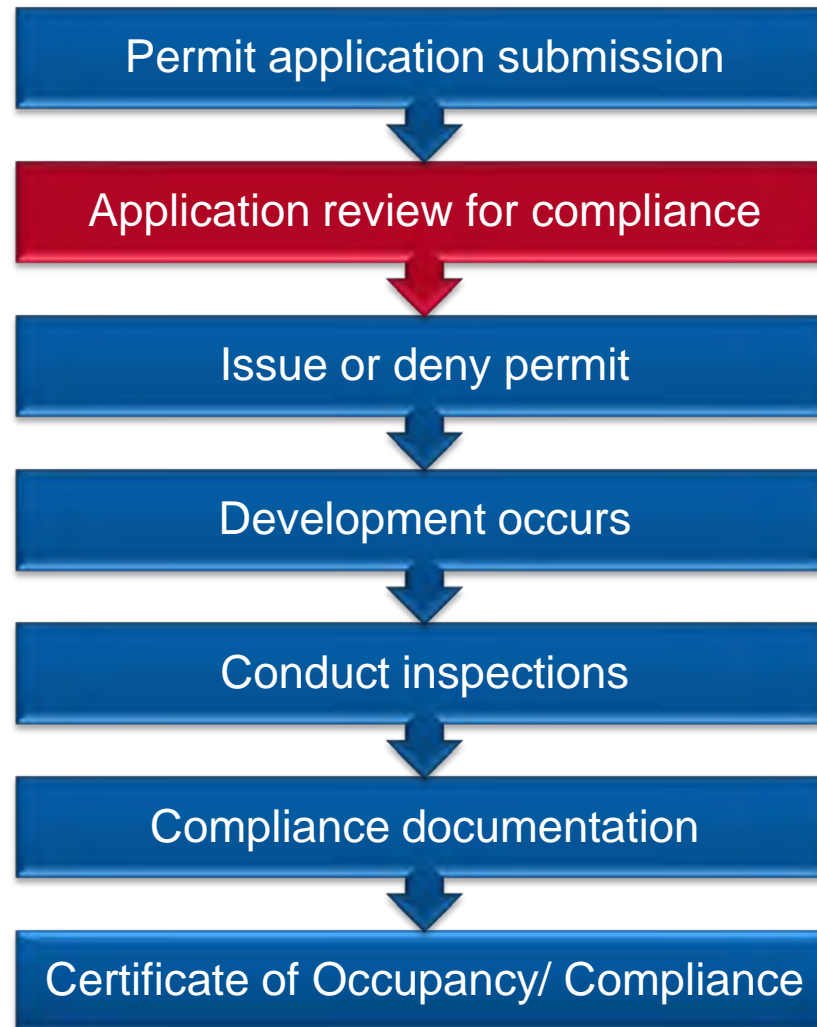
Base Flood Elevation: \_\_\_\_\_

Cost of Improvement: \$ \_\_\_\_\_

Market Value of Structure: \$ \_\_\_\_\_

Improvement Percentage: \_\_\_\_\_ %

# The Life of a Permit



# Application Review

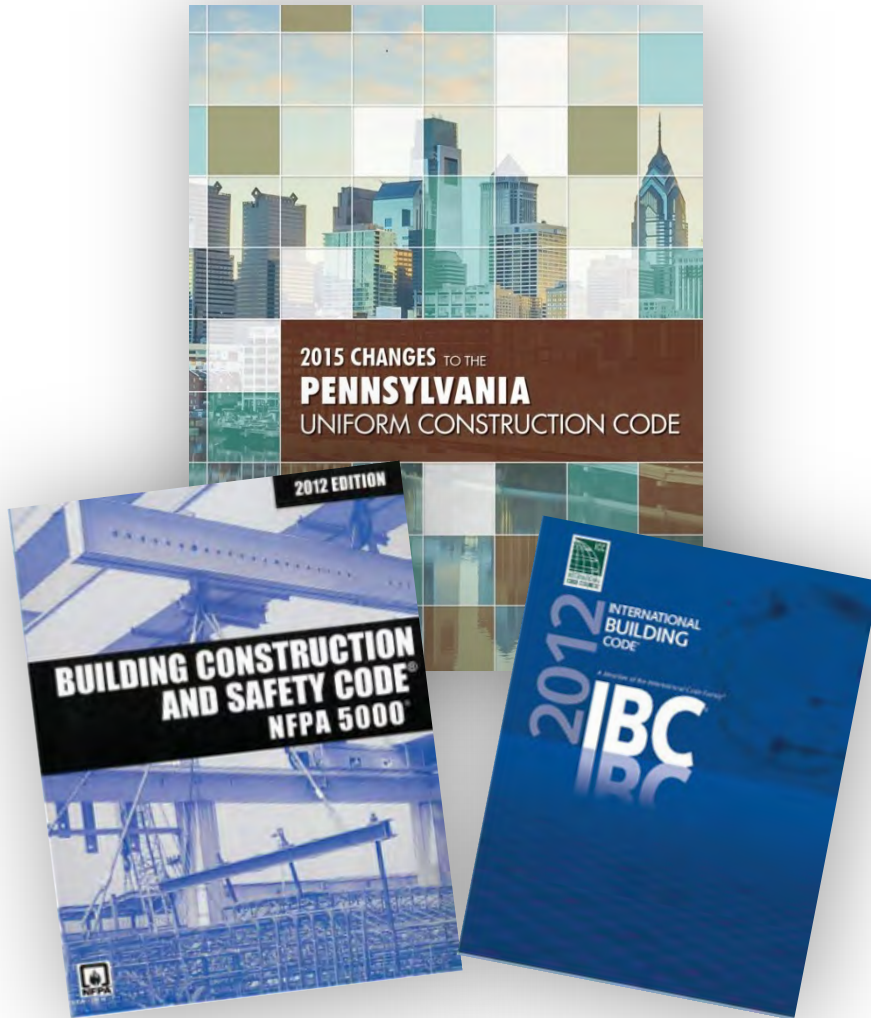
## Who are the people typically responsible for reviewing permits?

- Floodplain Administrator
- Building Code Officer
- Zoning Officer
- Municipal Engineer
- Third-party permitting/inspection company

## Coordination with other reviewers:

- Is one person responsible for all aspects of floodplain development?
- If not, are all parties aware of the floodplain requirements?
- How is the permit application routed and either approved or denied?

# Uniform Construction Code (UCC) and the NFIP



## ▪ **REMEMBER!**

- You must adhere to the most restrictive code, provision, or requirement
- The absence of certain floodplain management requirements from existing building codes does not absolve the municipality from applying the requirements of its floodplain management ordinance and vice versa

# Application Review

## Review for completeness

- Forms filled out
- Site plan
  - Floodplain delineation
  - Elevations
- Building plans
- Certifications
- All other permits obtained

## Review for compliance

- Proposed building elevations
- Proposed design standards
- Building/fill/material placement
- Mechanical elevations
- Compliant openings
- Flood resistant materials



# Review Permits For...

- **Location/Siting**
  - Floodplain determination
  - Zone and BFE identification
- **Use**
  - Residential
  - Non-residential
- **Type of work**
  - New construction/addition
  - Placement of fill, etc.
- **Cost of improvement**
  - Substantial improvement?
- **Design standards**
  - Compliance with minimum and higher standards?
  - Is a variance necessary?



Elevated utilities in Yardley Borough, Bucks County, PA (from PEMA)

# Considerations for Zone A



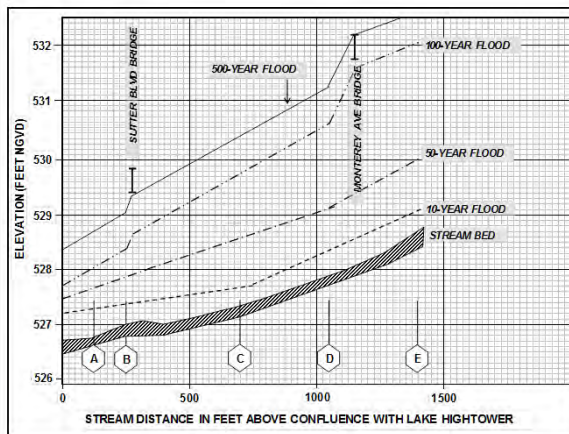
## Possible sources of elevation data

- Check other sources: federal, state, and local
- Contour interpolation: point on boundary
- Data extrapolation: estimating from the FIS
- H&H study may be available – FEMA Engineering library

# Considerations for Zone AE, AH, and AO

## Zone AE

- Provide the necessary elevation data for effective permitting
- Use the flood profile to determine site-specific water-surface elevations



## Zone AH and AO

- Represent areas subject to shallow flooding and sheet flow where average depths range from 1 to 3 feet
- Average whole-foot elevation/depth derived from the FIRM
- Lowest floor  $\geq$  flood depth  
or  
Lowest floor  $\geq$  2' when no depth is specified



# Considerations for Zone AE

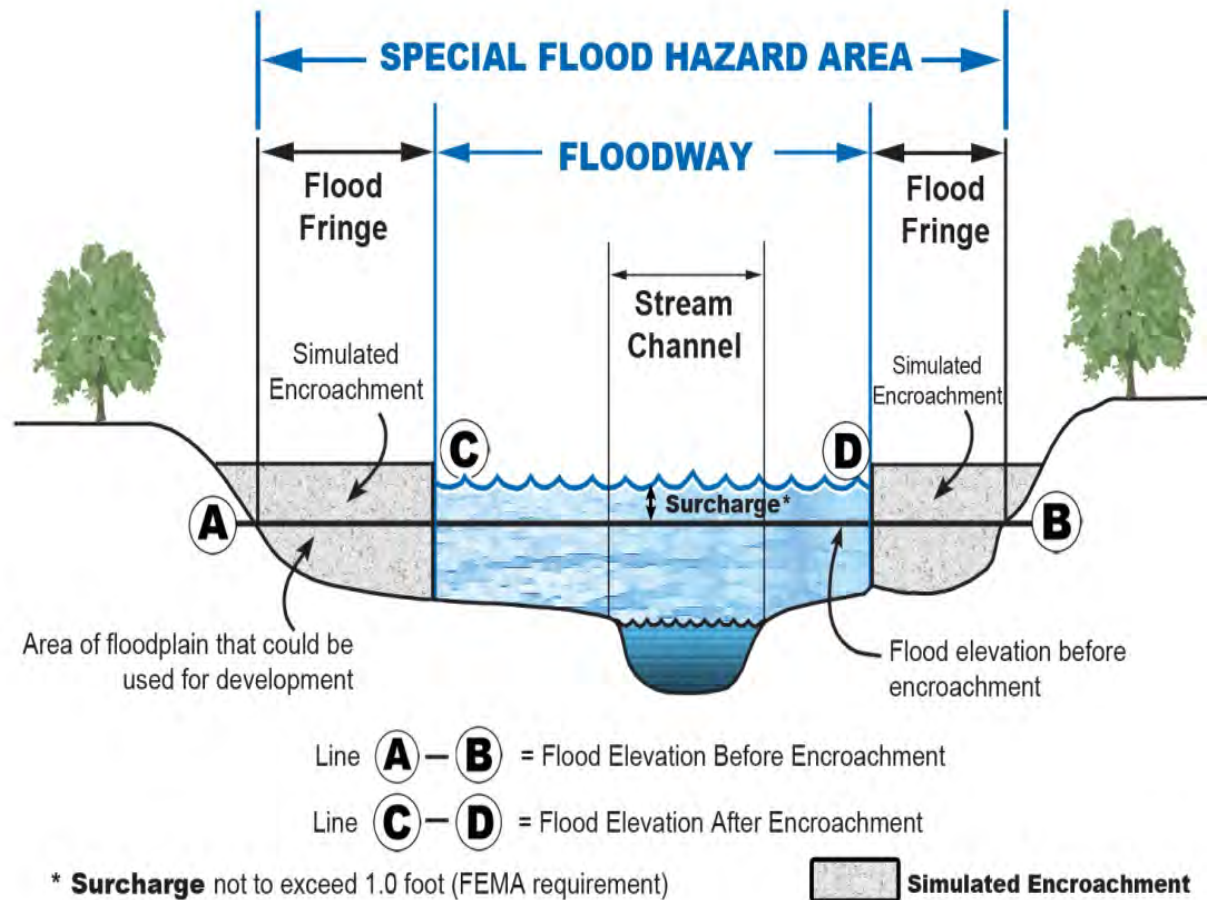
## AE Zones without Floodways

- Where FEMA has provided BFEs but no floodway, the community must review all development to **track cumulative rise**
- Ensure development does not increase the BFE more than 1.0 foot
- Once allowable rise is reached, **no further rise** is permitted
- Administrative procedure to track and collect cumulative impact

# Floodways

The **Floodway** is the channel designated to convey the fastest moving and deepest floodwater during the base flood.

Also designed to help floodplain management – no federal minimum requirement for development outside the floodway to submit studies about BFE impacts.



# Considerations for Floodways

## Development must prove “no rise”

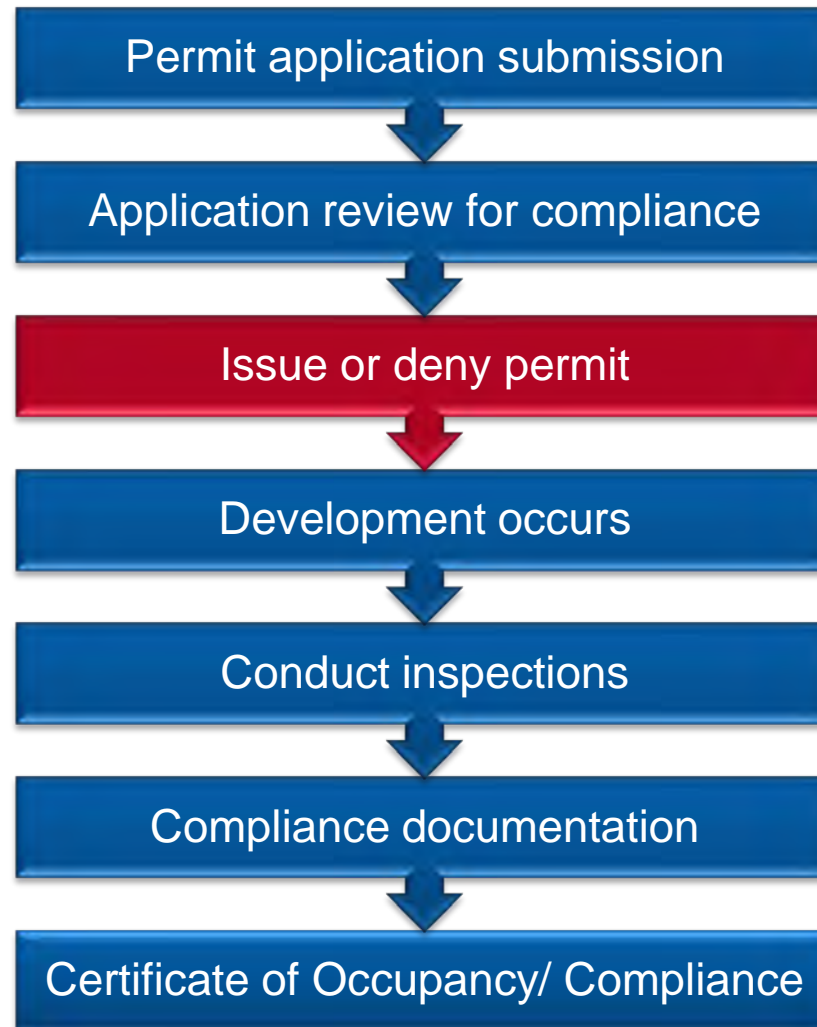
- No rise = zero foot (0.00')
- Rise is tracked both upstream and downstream of the development location

## Documentation requirement

- H&H study
- If an existing structure, the site plan showing the footprint will not expand

Ensure a “no rise” certificate is prepared and certified by a qualified and licensed engineer. Read the certification; ensure it shows no rise.

# The Life of a Permit



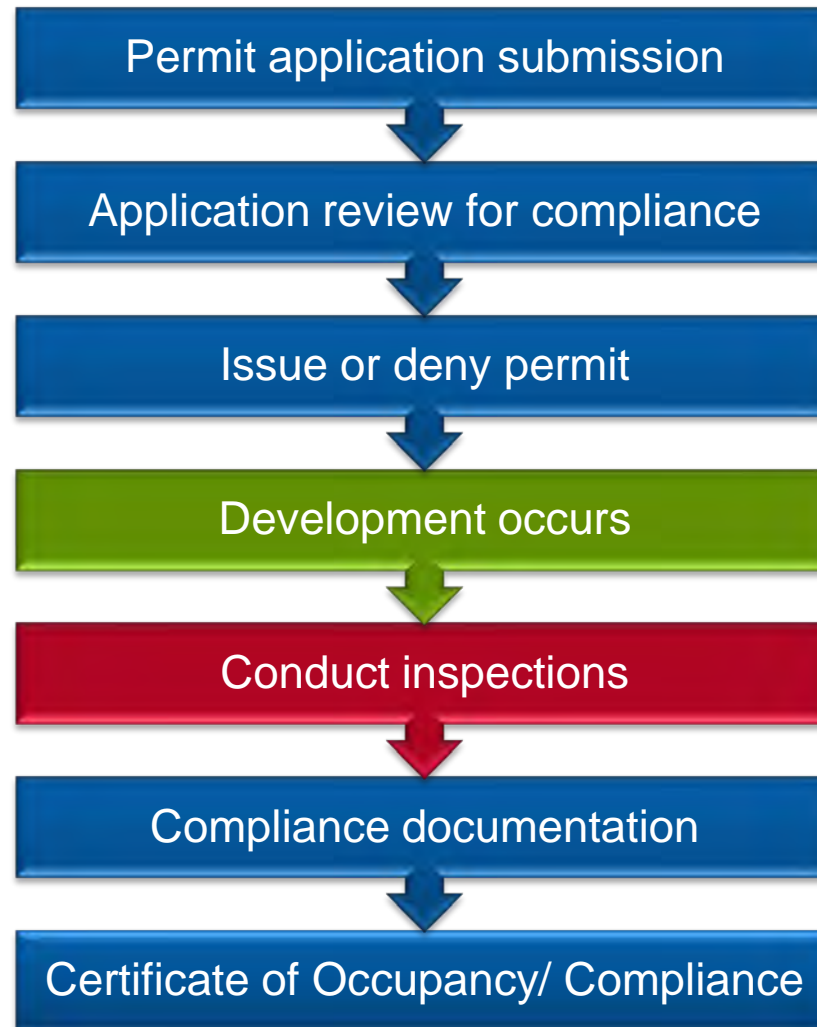
# Issue/Deny Permit

- **Issue the permit**
  - Include any conditions (i.e., required inspections)
  - Start of work must commence within 180 days from the issuance of the permit
- **Deny the permit**
  - Provide a written explanation citing the specific provisions of the ordinance that were not met in the application
  - Citation of specific provisions should point out how to resubmit application in compliance with regulations
  - Provide instructions regarding an appeal or request for variance

# BREAK

- Meet back in 10 minutes!

# The Life of a Permit



# Conduct Inspections

- **Importance of coordination:** Check for compliance with the NFIP minimum standards
  - Inspect frequently during construction
  - Check openings and mechanicals
- Recommend a **minimum** of three inspections
  1. After site is staked, but before permanent foundation work
  2. After foundation is complete
  3. Before issuing certificate of occupancy



Schoharie, N.Y. (FEMA photo library)

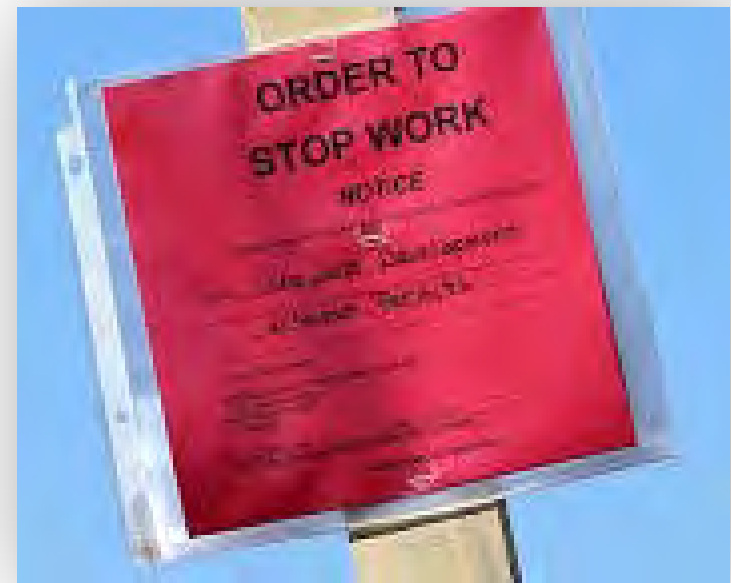
Identifying compliance issues prior to construction will be much easier – and cheaper – to correct than correcting compliance issues post-construction.



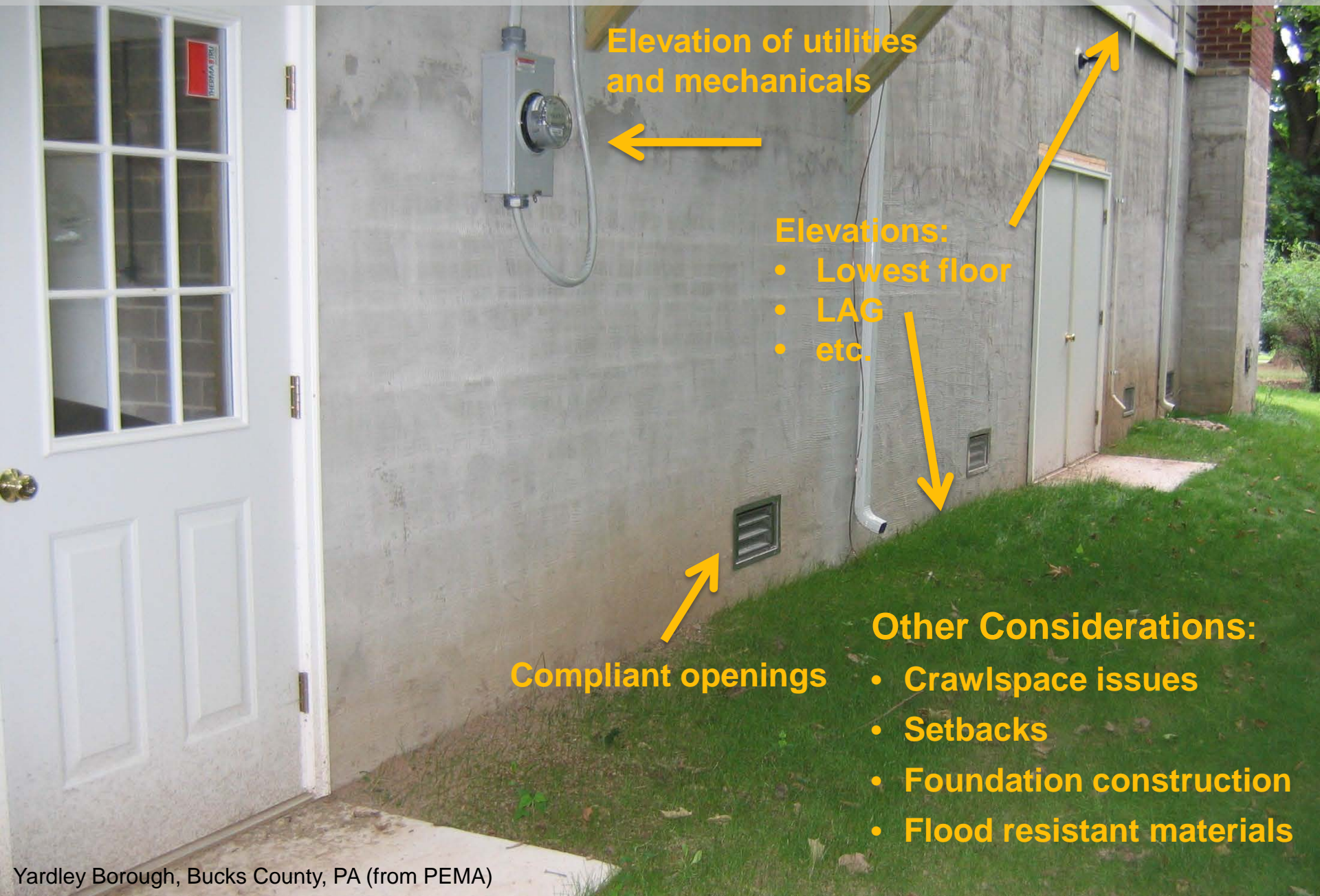
# Considerations During Inspections

## Address Non-Compliance Early

- If inspections reveal violations, take steps to bring into compliance
  - Voluntary option
  - Provide written notice
  - Issue fines or penalties
  - Withhold final approvals
- Refer to the ordinance for specific enforcement procedures
- Insurance for non-compliant structures is available, **but it's very expensive!**



# On-site Changes Can Cause Non-Compliance



Elevation of utilities and mechanicals

Elevations:

- Lowest floor
- LAG
- etc.

Other Considerations:

Compliant openings

- Crawlspace issues
- Setbacks
- Foundation construction
- Flood resistant materials

# Inspections Review



# Inspections Review

- Vents are too high
  - Maximum 12" above grade**
- When in the inspection process could this have been corrected?
  - Foundation inspection**
- Air vents, not flood openings
  - Automatic entry**



# Inspections Review

- Structure is in the SFHA.
- BFE is 1.5 ft above grade



AIR Photo Library

# Inspections Review

- Mechanicals OK
- Living space under the elevated portion of the home is below the BFE
- Lack of openings



AIR Photo Library

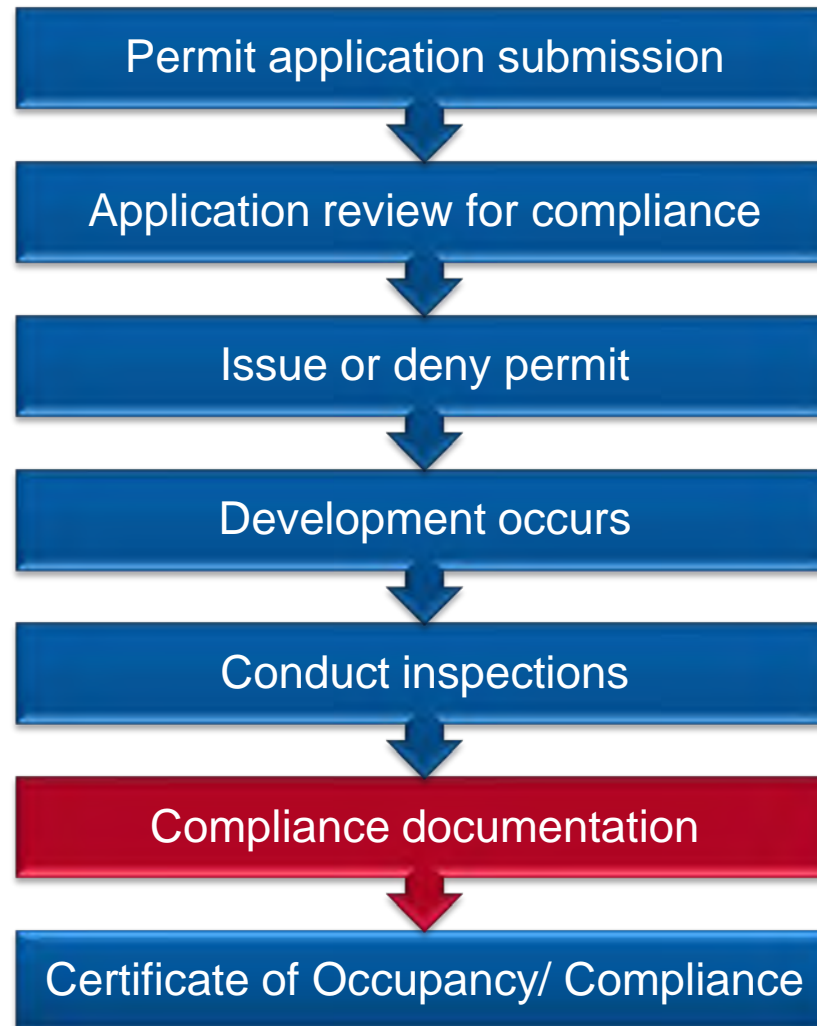
# Inspections Review

## Most significant issues nationwide:

- Insufficient venting
  - Insurance rating heavily impacted
- Equipment not elevated
  - Expensive to replace
- Propane tanks not secured
  - Become explosive projectiles



# The Life of a Permit





# Collecting Compliance Documentation

- Permit file **must contain as-built** or finished construction data for all new structures or substantial improvements in the SFHA
- Required to prove compliance with the floodplain ordinance
- Must be **signed and sealed** by the design or certifying professional
- Examples of compliance documentation
  - Site plans and surveys
  - Building/architectural plans
  - FEMA Elevation Certificate (EC)
  - Floodproofing certificate
  - Engineered openings
  - Non-conversion agreement

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)			
C1 Building elevations are based on:	<input type="checkbox"/> Construction Drawings	<input type="checkbox"/> Building Under Construction	<input checked="" type="checkbox"/> Finished Construction
*A new Elevation Certificate will be required when construction of the building is complete.			
C2 Elevations - Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, ARI/AE, ARI/A1-A30, ARI/AH, ARI/AQ. Complete items C2 a-g below according to the building diagram specified in item A7.	Benchmark Utilized: <u>2-555° Vertical Datum</u> - <u>N/A</u> <u>4555</u>		
Conversion/Comments			
a) Top of bottom floor (including basement, crawl space, or enclosure floor)	<u>627.0</u>	feet	<input type="checkbox"/>
b) Top of the next higher floor	<u>N/A</u>	feet	<input type="checkbox"/>
c) Bottom of the lowest horizontal structural member (V Zones only)	<u>N/A</u>	feet	<input type="checkbox"/>
d) Attached garage (top of slab)	<u>625.0</u>	feet	<input type="checkbox"/>
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment in Comments)	<u>627.0</u>	feet	<input type="checkbox"/>
f) Lowest adjacent (finished) grade (LAG)	<u>625.0</u>	feet	<input type="checkbox"/>
g) Highest adjacent (finished) grade (HAG)	<u>626.0</u>	feet	<input type="checkbox"/>

In this example, the BFE is 625.0 feet.

The slab-on-grade house was elevated on fill 2 feet above the BFE; the vented garage is 2.5 feet below the BFE.

**ELEVATION CERTIFICATE (partial)**

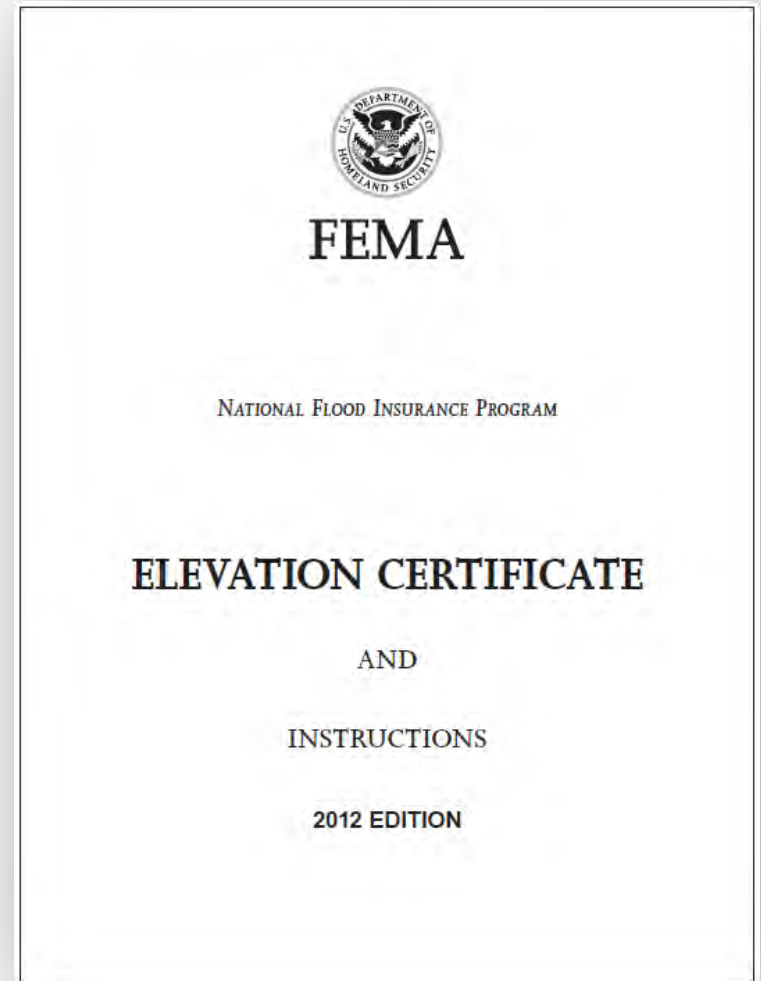
# Non-Conversion Agreement

- For enclosed spaces below the BFE, uses are limited to parking, access, some storage
- Gives community officials authority to revisit potential violations
- Consider requiring in ordinance
- Collect in advance of C.O.
- Attach to deed



# The Elevation Certificate (EC)

- Administrative tool used to provide elevation information necessary to
  - **Ensure compliance with community floodplain management ordinances**
  - Determine the proper insurance premium rate
  - Support requests for certain Letters of Map Change



# Reviewing an Elevation Certificate

- Floodplain Administrators should review for accuracy
- Incomplete form received? Send it back for revision
- **Considerations for EC Review**
  - Lowest floor in comparison to BFE
  - Lowest floor in comparison to LAG and HAG
  - Building diagram
  - Mechanicals elevations
  - Openings requirement (engineered require certification)

A surveyor's mistake can lead to a very expensive insurance rate, and a less safe and non-compliant structure.

# Exercise: What's Wrong with this EC?

## ■ Assumptions

- Structure is Post-FIRM
- Structure has a basement
- Zip code is correct (hypothetical)
- Community, map panel, and dates are correct
- There is a seal for the surveyor
- Form is properly signed
- Datum conversion is -0.7 feet NGVD 29 to NAVD 88
- BFE is 1610.4' NGVD 29 (1609.7' NAVD 88)

# Exercise: What's Wrong with this EC?



Borough of Olyphant, PA - Post-FIRM structure

# Exercise: Answers

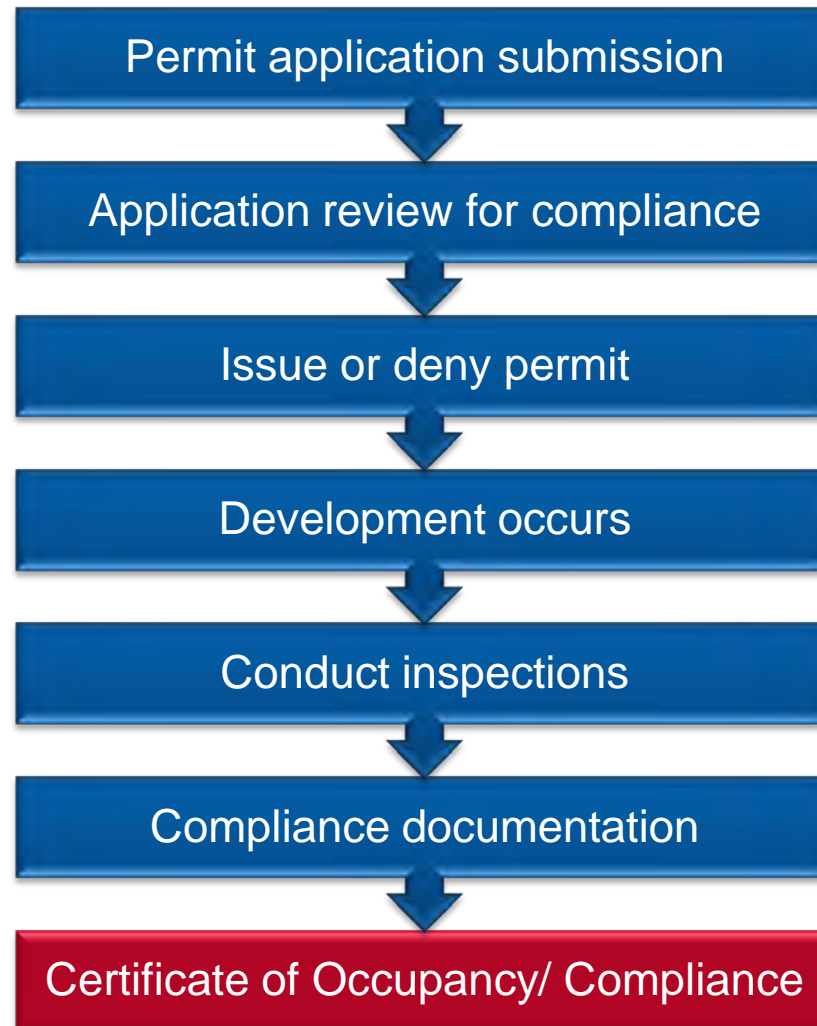
- **A4.** Building use (Building use is blank)
- **A5.** Lat/Long (switched)
- **A6.** Only one photograph is attached
- **A7.** Building diagram (Incorrect building diagram - should be Diagram 2A: basement instead of Diagram 9: below grade crawlspace)
- **A8.** Venting (insufficient venting – 1,300 sq. ft. and 1,000 sq. in. venting and basement issue)
- **B9.** Whole foot BFE for a detailed area (1610' NAVD 88 listed, actual is 1610.4' NGVD 29)
- **B11.** and **C2.** Vertical Datum (Datum different for BFE and Structure elevations)

# Exercise: Answers (cont.)

- **C2a.** Bottom floor (Low floor below BFE; basement at 1603.7' NAVD 88)
- **C2e.** Machinery and equipment (Equipment at 1605.4' NAVD 88, which is below the BFE)
- **C2h.** Deck posts (Attached deck/stair posts at 1607.3' NAVD 88, which is below the BFE)
- **Section D.** License number is missing
- **Section G.** Low floor [Design flood elevation (DFE) is 1611.2' NAVD 88 and low floor listed is 1612.2' NAVD 88, but there is a basement at 1603.7' NAVD 88, which is below the BFE of 1609.7' NAVD 88]



# The Life of a Permit



# Certificate of Occupancy/Compliance

- Final step in the permit process
- After final inspection, construction/development is completed and all as-built compliance documentation is received
- Certificate of Occupancy is key to
  - Utility connection
  - Property sale
  - Occupancy
- Compliance checks do not end with occupancy
  - Periodic “windshield” inspections are encouraged
  - Enclosure/full foundation wall issues

# Record Keeping Requirements

- Requirement to maintain compliance documentation **indefinitely**
- What records?
  - Permit application
  - Inspections
  - As-built documentation
  - Other compliance documentation (for instance, certifications)
  - Flood map changes and updates
- Best practices
  - Store permits by address (rather than property owner name)
  - Use colored file folders to identify floodplain properties



For a structure located in the SFHA, FEMA and the state will require data to prove a potential violation is compliant.

# Permit Process and Review

## Questions?

# Ordinance Enforcement

## Section 4



# Ordinance Enforcement

## Discovering and Investigating Potential Violations

- Violations can be found through
  - Periodic inspections
  - Reports by other government agencies
  - Citizen complaints
- Violations that are not remedied can result in
  - Increased risk to life and property
  - Increased insurance premiums
  - Probation – increased insurance rates for everyone
  - Suspension – NFIP insurance and many grants/loans unavailable

**Investigate potential violations and take appropriate action!**

# Other Types of Development



Dauphin County, PA (from FEMA Region III)  
Floodplain tour revealed unpermitted trailer  
storage in the floodway, about 10 feet from the  
top of bank

- Other types of development require inspections
  - Placement of fill
  - Installation of fences
  - Storage of equipment and materials
  - Placement of recreational vehicles
  - Etc.
- Develop **administrative procedures** to permit for and inspect non-building development

# Other Types of Development

- Develop a permitting and inspection process for manufactured homes and recreational vehicles
- Manufactured homes must be elevated on a permanent foundation and securely anchored
- Recreational vehicles are required to
  - Be licensed and road-ready
  - Be on-site less than 180 days or
  - Meet the requirements of a manufactured home



Tunkhannock Township, Wyoming County, PA  
(from FEMA Region III)  
A recreational vehicle washed into a  
manufactured home.



# Ordinance Enforcement Options

- **Check your ordinance for the enforcement procedures that have already been outlined**
- May include
  - Voluntary compliance by the property owner
  - Written Notice of Violation or stop work order and/or revoke permit
  - Per day fine
  - Withhold certificate of occupancy
  - Record on Deed
  - Injunction – court order to stop non-compliant activity
  - Municipal housing court or building court
  - **Coordinate with your solicitor**

# Community Liability

- Flood problem awareness with no action
- Failure to warn citizens of known flood hazard
- Improper development that increases flood risk
- Inconsistent administration of floodplain provisions



# Legal Backing

State and local governments are more likely to be successfully sued for permitting development that causes increased flooding than they are for prohibiting such development.

**Ordinances that meet the NFIP minimum requirements have not been found to be a “taking.”**

## State laws

- Provide communities with the authority necessary to adopt and enforce floodplain management ordinances
- Establish procedural and other requirements that communities must follow in adopting and implementing land use ordinances
- State floodplain management laws and regulations establish additional requirements that communities must include in their floodplain management ordinances

# When You've Exhausted All Legal Recourse...

Your community can consider the use of **Section 1316**

*No new flood insurance coverage shall be provided for any property that has been declared to be in violation of State or local laws, regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas*

**Denying flood insurance means:**

- Risk of flood losses with no insurance coverage
- Property may be difficult to sell
- Market value of the property may fall
- Lending institutions holding a mortgage could foreclose
- Some disaster assistance will be denied

**Work with your State NFIP Coordinator and FEMA contact**

# Ordinance Enforcement

## Questions?

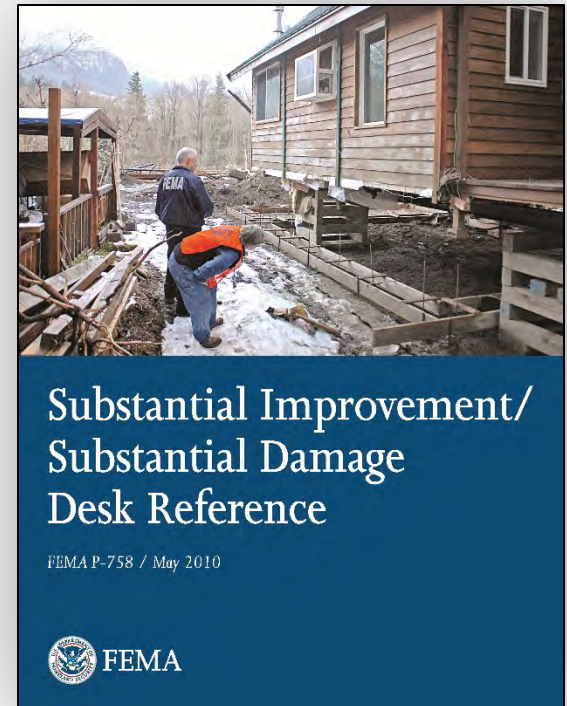
# Pre- and Post-Disaster Considerations

## Section 5



# Increase Your Capacity Pre-Disaster

- Know your areas of risk
- Obtain training (Floodplain management training, SD Estimator)
- Educate residents on the ordinance and substantial damage requirements
- Ensure ordinance is compliant
- Enter into a Mutual Aid Agreement
- Pre-load data onto SDE Tool
- Pre-identify an alternative site for permit office
- Contractor vetting
- Develop a Mitigation Plan



# Post-Flood Disaster Checklist

- Review floodplain management ordinance **Section 2**
- Notify property owners of permit and building requirements **Section 3**
- Require permits for all development, not just for substantial damage **Section 3**
- Make floodplain determinations for permitting using the FIRM **Section 1**
- Determine BFEs using the FIS report **Section 1**
- Perform a substantial damage determination
- Notify property owners of determination results and subsequent building requirements in writing
- Tour floodplain to ensure development/rebuilding is compliant



Middletown Borough, Dauphin County, PA (PEMA)



Allegheny County, PA (from PEMA)



# Permits Are Required

- A permit is required **regardless** of whether the repairs rise to the level of substantial damage.
  - Permits are required for repairs
  - The permit fee can be waived
  - The permit requirement **cannot be waived**
- Non-compliance in the post-disaster phase will have negative insurance implications and could result in sanctions.

# Substantial Improvement/Damage

## Definition:

- Cost to restore the structure to its **pre-damaged** condition equals or exceeds **50%** of its **pre-damage market value**

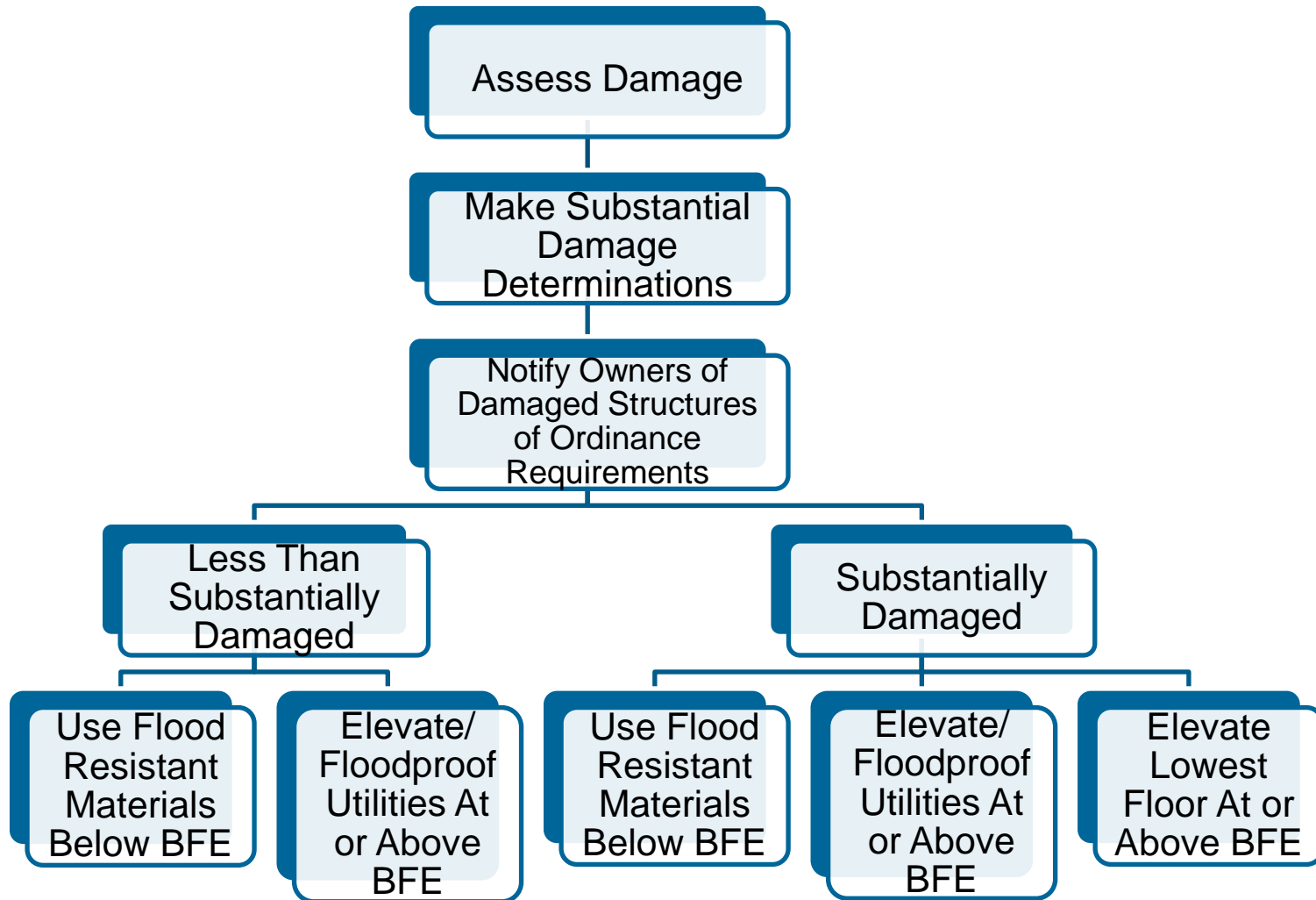


Middletown Borough, Dauphin County, PA (from PEMA)



Town of Bloomsburg, Columbia County, PA (from PEMA)

# Substantial Damage Determination Process



# Making Substantial Damage Determinations

- Substantial damage determinations are a **local responsibility**
- Ways to determine market value:
  - Tax assessed value
  - Appraisal (licensed professional)
  - Actual cash value, including depreciation
  - “Qualified estimates” based on professional judgment of a local official



Foundation failure, West Pittston, PA (from FEMA Region III)

# Substantial Damage Estimator

- Populate property information pre-disaster in preparation for post-disaster substantial damage determinations
  - Basic structure characteristics, market value, etc.
- Downloadable for free at
  - [Substantial Damage Estimator Tool \(2.0\)](http://www.fema.gov/media-library/assets/documents/18692?id=4166)  
(<http://www.fema.gov/media-library/assets/documents/18692?id=4166>)
  - [Substantial Damage Estimator Best Practices](http://www.fema.gov/media-library/assets/documents/26753)  
(<http://www.fema.gov/media-library/assets/documents/26753>)



## Substantial Damage Estimator (SDE) User Manual and Workbook

Using the SDE Tool to Perform Substantial Damage Determinations

FEMA P-784 / Tool Version 2.2 / September 2015



# Substantial Damage Implications

## Benefits

- Reduces exposure to flood risk
- Compliance with local codes
- Fulfills one prerequisite for ICC eligibility
- Cost beneficial for HMGP grants
- Long-term reduction in insurance premiums and damage costs

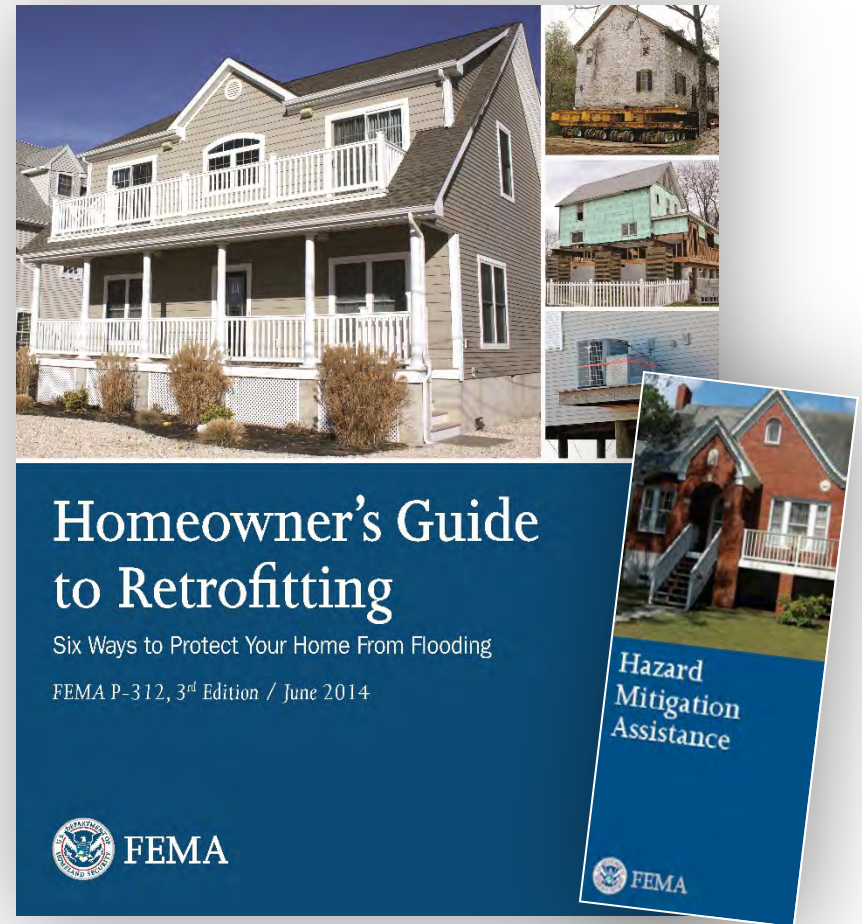
## Challenges

- Long-term increase in insurance premiums and damage costs
- Jeopardizes entire community's participation in the NFIP
- Short-term increase in construction costs
- Typically requires significant changes to the structure's design

# Post-Flood Opportunities

## Mitigation Opportunities

- Increase awareness of flood risk
- Encourage residents to build back safer and stronger
- Share low-cost mitigation actions with property owners
- Distribute information on grant opportunities
- Capture high water marks



# Pre- and Post-Disaster Actions

## Questions?

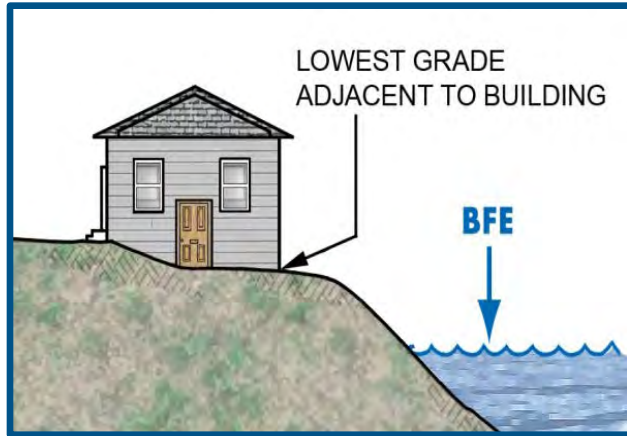


# Changing FIRMs and FIS Reports

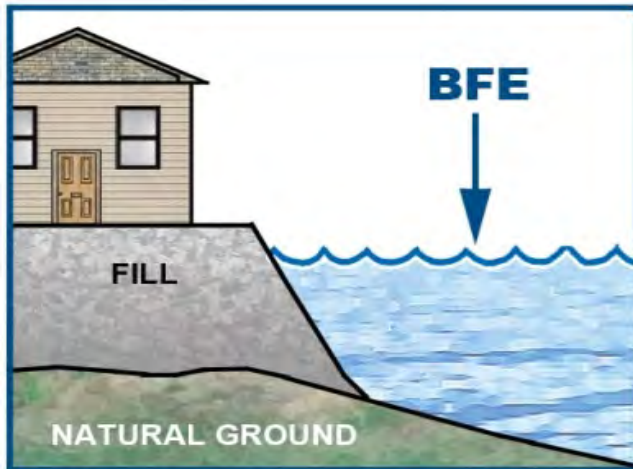
## Section 6



# When to Use the LOMC Process



- To update the map due to better topographic data, a physical change in the floodplain, or better modeling (LOMR)
- To remove the mandatory Federal flood insurance requirement



- Inadvertent inclusions – structures built on natural high ground (LOMA)
- Structures elevated on fill\* (LOMR-F)

\* **Caution:** Placement of fill around an existing foundation to increase the LAG could result in a low floor violation.

# Requirement to Submit New Data

## When is a community **required** to initiate a revision?

- Development occurring in Zones A1-30 and AE without a designated floodway for proposed increases of more than 1.0 foot
- Floodway encroachment (no-rise requirement)
- Alteration or relocation of a stream (including, but not limited to, installing culverts and bridges)
- Submission of new technical or scientific data within 6 months of receipt/completion
  - Proposals greater than 50 lots or 5 acres
  - Better topographic information

*The **Coordinated Needs Management Strategy (CNMS)** (<https://msc.fema.gov/cnms/>) tracking tool is used by FEMA to track map update needs. Communities can share needs with FEMA using this tool.*

# Requirement to Submit New Data

## Role of the FPA

- Review CLOMR and LOMR applications
  - Is revision appropriate and in line with the ordinance?
  - Make use of local resources, such as an engineer or legal counsel
  - Pass the cost along to the applicant
- Make use of a conditional process to ensure compliance
- Clearly communicate to developers their responsibility in the revision process
- Follow up: ensure a LOMR is completed for final projects before issuance of a certificate of occupancy/compliance

# LOMCs and Community Responsibility

- Community Acknowledgement Form- understand your role: you do not have to sign!
- Assist the applicant (review required for CLOMR-F and CLOMR)
- Requirement to submit new technical data within 6 months
- Tracking and storing information
  - LOMC determinations
  - Elevation Data
  - Permit and Inspection Data

DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY <b>COMMUNITY ACKNOWLEDGMENT FORM</b>		O.M.B. NO. 1660-0015 Expires February 28, 2014
<p align="center"><b>PAPERWORK BURDEN DISCLOSURE NOTICE</b></p> <p>Public reporting burden for this data collection is estimated to average 1.38 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and submitting the form. This collection is required to obtain or retain benefits. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collection Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 22206-5005, Paperwork Reduction Project (1660-0015). NOTE: Do not send your completed form to this address.</p> <p>This form must be completed for requests involving the existing or proposed placement of fill (complete Section A) OR to provide acknowledgment of this request to remove a property from the SFHA which was previously located within the regulatory floodway (complete Section B).</p> <p>This form must be completed and signed by the official responsible for floodplain management in the community. The six digit NIPIC community number and the subject property address must appear in the spaces provided below. Incomplete submissions will result in processing delays. Please refer to the MT-1 instructions for additional information about this form.</p> <p>Community Number: <input type="text"/> Property Name or Address: <input type="text"/></p>		
<p><b>A. REQUESTS INVOLVING THE PLACEMENT OF FILL</b></p> <p>As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision Based on Fill (LOMR-F) or Conditional LOMR-F request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a Conditional LOMR-F, will be obtained. For Conditional LOMR-F requests, the applicant has or will document Endangered Species Act (ESA) compliance to FEMA prior to issuance of the Conditional LOMR-F determination. For LOMR-F requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by DHS-FEMA, all analyses and documentation used to make this determination. For LOMR-F requests, we understand that this request is being forwarded to DHS-FEMA for a possible map revision.</p> <p>Community Comments:</p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>		
Community Official's Name and Title: (Please Print or Type)		Telephone No.:
Community Name:	Community Official's Signature: (required)	Date:
<p><b>B. PROPERTY LOCATED WITHIN THE REGULATORY FLOODWAY</b></p> <p>As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this request for a LOMA. We understand that this request is being forwarded to DHS-FEMA to determine if this property has been inadvertently included in the regulatory floodway. We acknowledge that no fill on this property has been or will be placed within the designated regulatory floodway. We find that the completed or proposed project meets or is designed to meet all of the community floodplain management requirements.</p> <p>Community Comments:</p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>		
Community Official's Name and Title: (Please Print or Type)		Telephone No.:
Community Name:	Community Official's Signature (required):	Date:

DHS - FEMA Form 086-0-28B, FEB 11

Community Acknowledgment Form

MT-1 Form 3 Page 1 of 1

# LOMC Exercise: Timing is Critical

## Example

- A permit application is received for a proposed structure currently located on a site shown in the SFHA
- The building site is on naturally high ground and the lowest adjacent grade is above the current BFE
- The applicant is proposing a single-story residential structure with a basement

**Question:** *Since the ground elevations are above the corresponding BFE, can the floodplain management requirements be waived?*

# LOMC Exercise: Importance of Timing

## **Answer:** No

- For both regulatory and insurance purposes, the site is considered to be in the SFHA
- The structure must be constructed in compliance with the floodplain ordinance – no basements (if the lowest floor of the basement will be below BFE)

## **Recommended Action:** Recommend that the applicant obtain a LOMA

- A LOMA for the land will remove the structure from the SFHA and the requirements of the floodplain ordinance will not apply
- A LOMA for the land will remove the requirement to purchase flood insurance, and insurance will be available at reduced rates
- Single and multiple lot or structure LOMA applications are no cost

# Exercise LOMC: Importance of Timing

## Example 2

- A permit application is received for a proposed structure on a site currently located within the SFHA. Structural fill will be placed, elevating the structure above the corresponding BFE.
- A CLOMR-F has been received by the applicant stating the property, including the building pad, will be above the BFE if built as proposed. There is no floodway and no other fill restrictions.

**Question:** *Since the applicant has a conditional letter from FEMA stating the property will be outside of the SFHA when filled as proposed, they want to waive the low floor requirement for structures built within the SFHA and propose adding a basement. Is this allowable?*



# Exercise LOMC: Importance of Timing

## **Answer:** No

- For both regulatory and insurance purposes, the site is considered to be in the SFHA until a LOMR-F is issued. Even then, having a lowest floor below the adjacent BFE is strongly discouraged.
- The structure must be constructed in compliance with the floodplain ordinance – no basements

**Recommended Action:** If the LOMR-F is received removing the land from the SFHA, use FEMA Technical Bulletin 10-01 to ensure the structure is reasonably safe from flooding.

## **Potential issues:**

- Flood insurance covers limited damages in basements from overland flow
- Foundation damage/collapse from subsurface flow could occur

# Changing FIRMs and FIS Reports

## Questions?

# Useful Resources

## Section 7



# Elevating Above the BFE Saves Money

- NFIP premiums based on April 2016 rates
- One-floor, post-FIRM residential structure with no basement in the SFHA
- \$200,000 coverage for the building and \$80,000 for contents
- At BFE Insurance Premium: \$2,136

Zone AE	Annual NFIP Insurance Savings	Savings Over 30 Year Mortgage*
1 ft. below BFE	-\$2,650	-\$79,500
At BFE	0	0
1 ft. freeboard	\$1,063 (50%)	\$31,890
2 ft. freeboard	\$1,426 (67%)	\$42,780
3 ft. freeboard	\$1,545 (72%)	\$46,350

*\*Estimate based on April 2016 rates only*

# The Community Rating System (CRS)

- Voluntary program for communities participating in the NFIP
- Recognizes activities beyond the minimum NFIP requirements by **reducing the cost of flood insurance from 5 to 45%**
- Goals
  - Reduce flood damage to insurable property
  - Encourage a comprehensive approach to floodplain management
  - Strengthen/support the insurance aspects of the NFIP



# Map and Data Sources

## Preliminary FIRM Viewing Tools

- FEMA Map Service Center
  - Preliminary, effective, and historic maps
  - [www.msc.fema.gov](http://www.msc.fema.gov)
- PA Flood maps
  - <http://www.pafloodmaps.com>

## Other Data Sources

- PA Spatial Data Access
  - Flood Depth Grids
  - Imagery
  - Elevation data/LiDAR
  - <http://www.pasda.psu.edu/>
- FEMA Engineering Library
  - Back-up engineering data from FEMA flood studies
  - <https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library>
- Approximate Zone A Manual
  - <http://www.fema.gov/media-library/assets/documents/7273?id=2215>

# Floodplain Ordinance Resources

- PADCED website: ***Suggested Provisions: Meeting the Minimum Requirements of the NFIP and PA Act 166***
  - <http://www.newpa.com/local-government/insurance>
- FEMA 480, NFIP Floodplain Management Requirements
  - [http://www.floods.org/ace-files/documentlibrary/CFM-Exam/FEMA\\_480\\_Complete.pdf](http://www.floods.org/ace-files/documentlibrary/CFM-Exam/FEMA_480_Complete.pdf)
- FEMA Building Code Resource page
  - <http://www.fema.gov/building-code-resources>
- Free Assistance for Updating an Ordinance
  - **Leslie Rhoads, Floodplain Ordinance Update Coordinator**  
(717) 516-1630  
[FloodplainUpdate@gmail.com](mailto:FloodplainUpdate@gmail.com)

# LOMC and Permit Resources

- Application Forms and Instructions: <http://www.fema.gov/forms>
- Elevation Certificate: <http://www.fema.gov/media-library/assets/documents/160?id=1383>
- LOMC Tutorials: <http://www.fema.gov/online-tutorials#4>
- FEMA Map Service Center (MSC): <http://msc.fema.gov>
- FIRMette Resources: <https://www.fema.gov/media-library/assets/documents/34930>
- VERTCON: [http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert\\_con.prl](http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl)



# Resources: Help is Available!

- **PADCED Municipal Assistance Program**

[www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/municipal-assistance-program-map](http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/municipal-assistance-program-map)

- **FEMA Map Information Exchange (FMIX)** 1-877-FEMA MAP

[FEMAMapSpecialist@riskmapcdfs.com](mailto:FEMAMapSpecialist@riskmapcdfs.com)

- **FloodSmart**

1-888-379-9531, [FloodSmart.gov](http://FloodSmart.gov)

- **FEMA Map Service Center**

[www.msc.fema.gov](http://www.msc.fema.gov)

- **FEMA Contact**

Darlene Messina, CFM

Mitigation Planning Specialist

215-931-5667

[darlene.messina@fema.dhs.gov](mailto:darlene.messina@fema.dhs.gov)

- **Acting PA State NFIP Coordinator**

Fred Chapman

PA Department of Community & Economic Development (PADCED)

717-720-7396

[Frchapman@pa.gov](mailto:Frchapman@pa.gov)



# FEMA