



# **Pennsylvania Emergency Management Agency**

## **HAZARD MITIGATION DIVISION**

### **DR-4408 Columbia County Workshop**

**Orange Township Municipal Building**

**February 8, 2019 1300-1600**

#### **Topics:**

**Hazard Mitigation Grant Program**

**Floodplain Management**

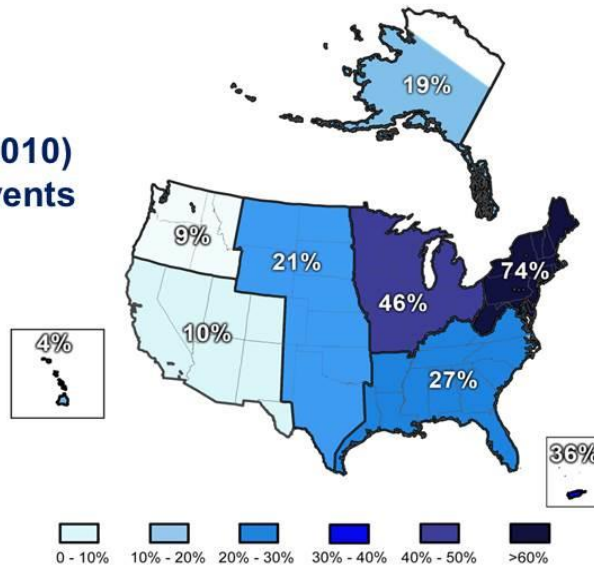
**National Flood Insurance Program**



# Heavy Rain Events are Increasing

Regardless of Shifts in Total Annual Rain  
More of It Is Coming in Heavy Downpours

Percent Increase (1958-2010)  
in Heavy Precipitation Events  
(>2inch/48 hr)



NOAA, provided by A. DeGaetano, NERCC, Cornell

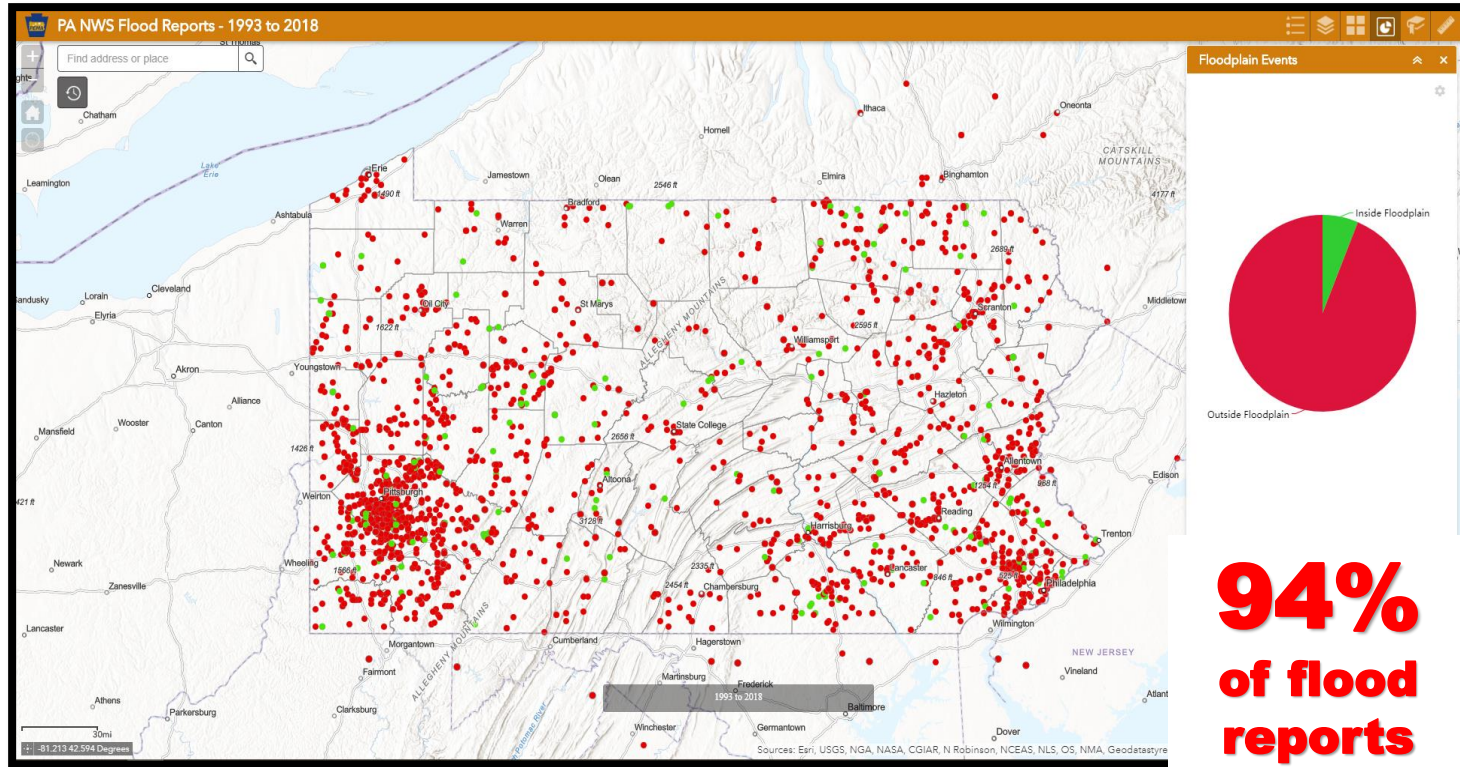
- **The Northeast U.S. leads the country with a 74% increase in heavy rain events over the past five decades**
- Heavy downpours are increasing nationally, especially over the last three to five decades, with the largest increases in the Northeast
- Increases in extreme precipitation are projected for all U.S. regions
- All reasons to for flood insurance **both inside and outside flood plains**

Sources: A. DeGaetano, Global Change.gov

# Pennsylvania Flood Reports

- Red dots are flood reports outside the 100-year floodplain
- Green dots are flood reports inside the 100-year floodplain

Green dots are flood reports inside the 100-year floodplain



[Interactive map link](#)

Flood reports to the NWS from 1993-2018  
Some locations may be approximate

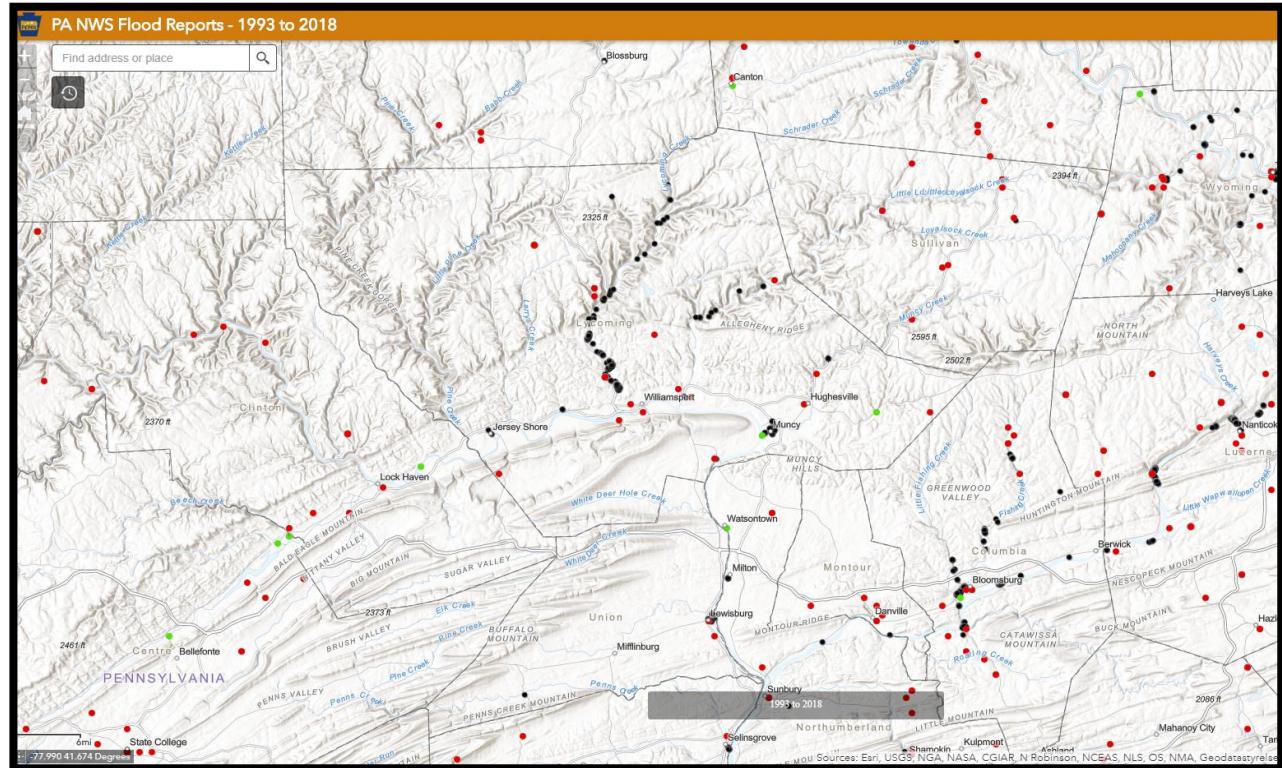
**94%**  
**of flood reports**  
**are**  
**OUTSIDE**  
**the 100-**  
**year**  
**floodplain**

# Pennsylvania Flood Mitigation

Red dots are flood reports outside the 100-year floodplain

Green dots are flood reports inside the 100-year floodplain

Black dots are flood mitigation projects completed to reduce flood hazards and damages



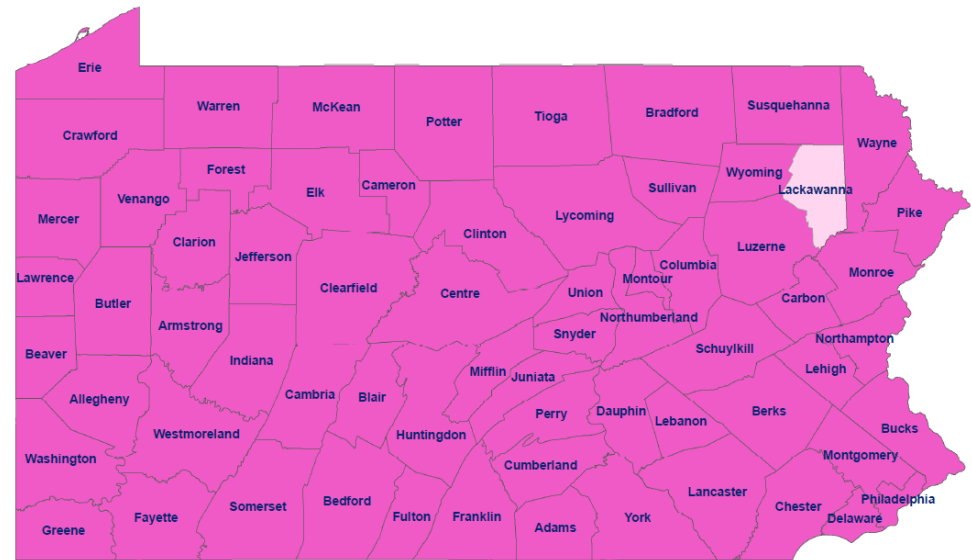
[Interactive map link](#)

Flood reports to the NWS from 1993-2018  
Some locations may be approximate

# Maps

- **Map Modernization**
  - Digital Flood Insurance Rate Map (DFIRMs)
- Digitized representation of the floodplain overlaid on the most recent available topography

## AVAILABLE COUNTY FLOOD HAZARD LAYERS, DEP REGIONS & ONLINE PARCEL/GIS DATABASES



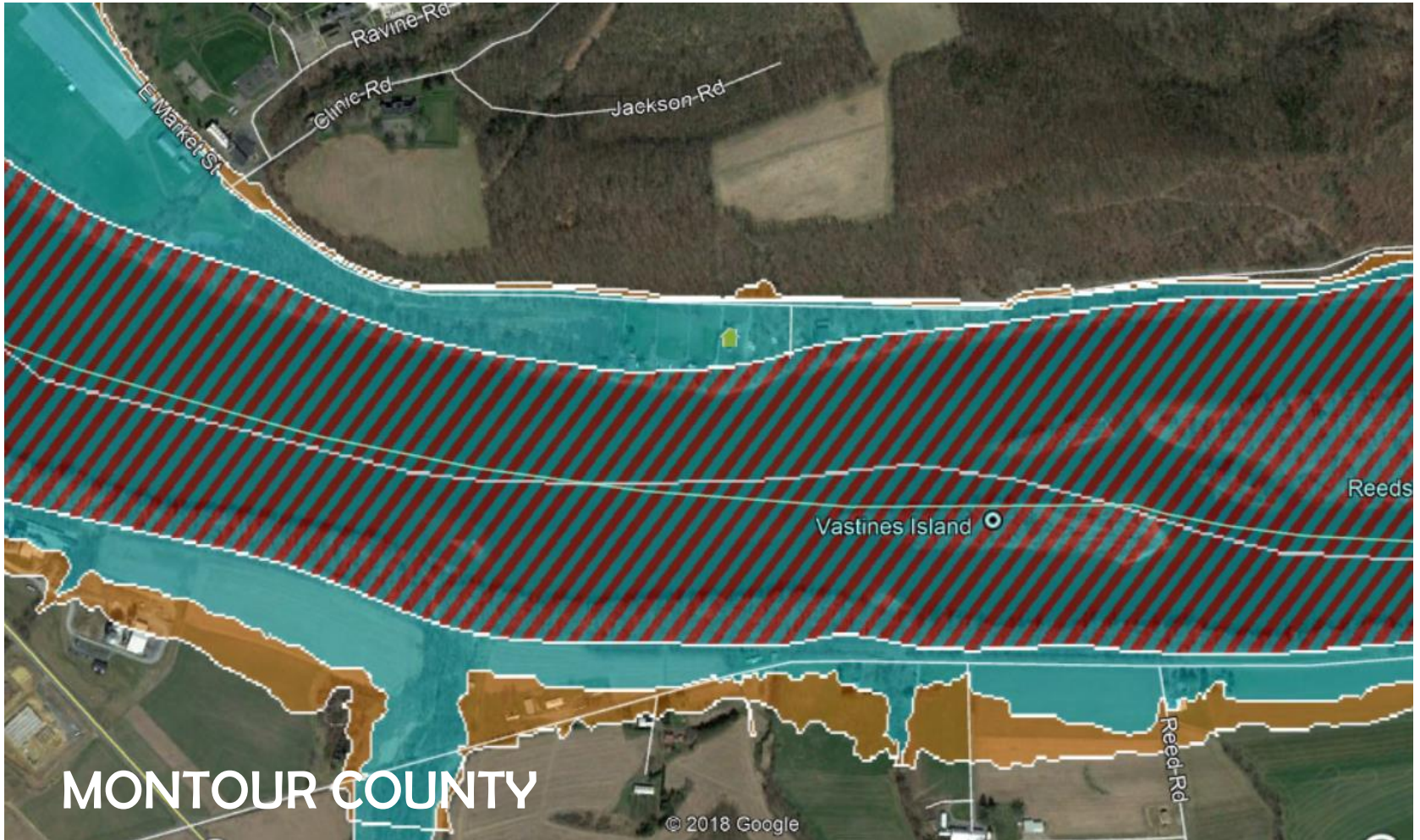
PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY

Bureau of Recovery & Mitigation  
Hazard Mitigation Division



Map Type  
Natl Flood Hazard Layers  
NFHL  
Preliminary Map





**MONTOUR COUNTY**

© 2018 Google

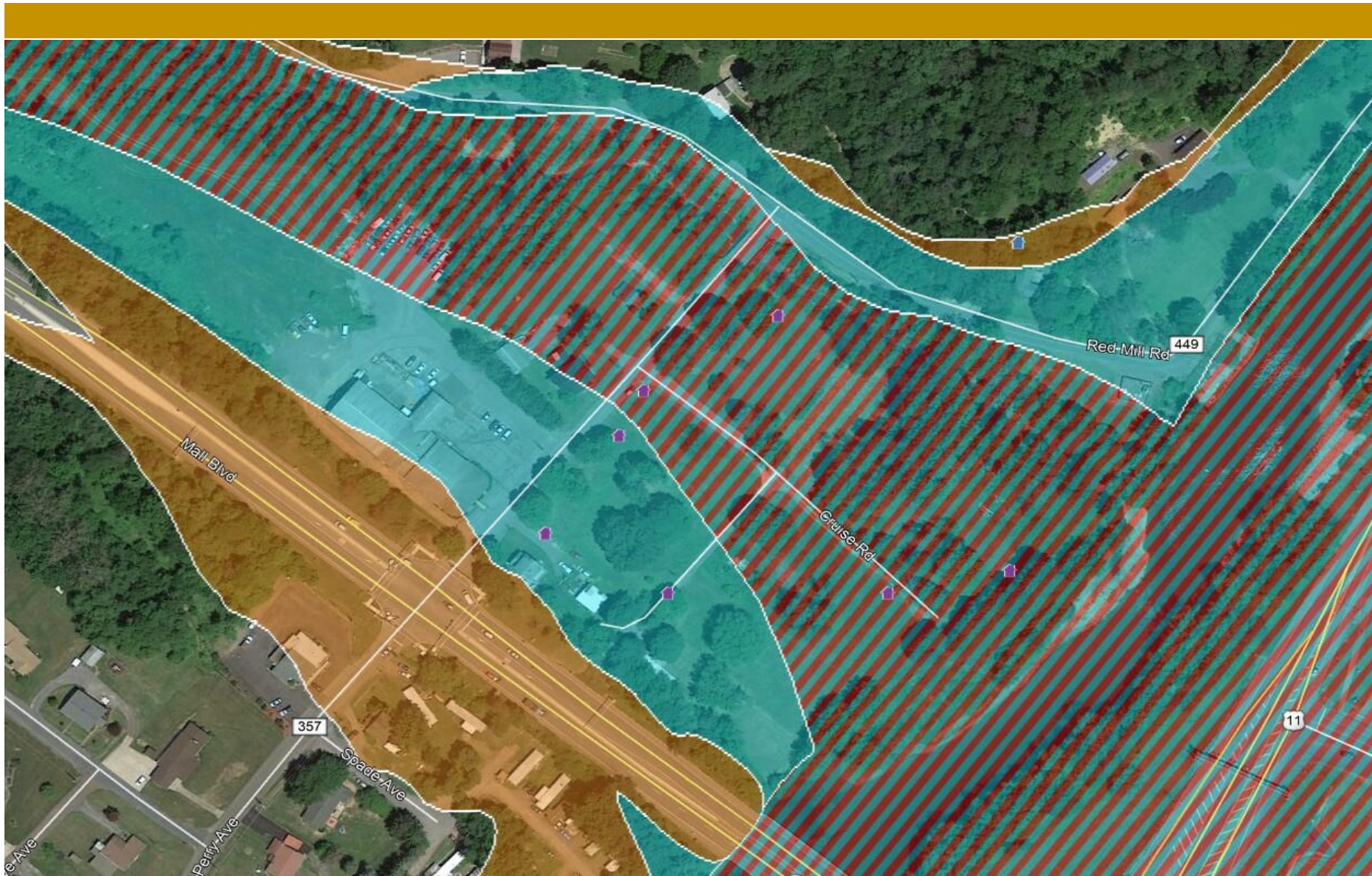
# Acquisition of Flood Risk Homes

## Catawissa Borough (Columbia)



# Acquisition of Flood Risk Homes

## Montour Township (Columbia)



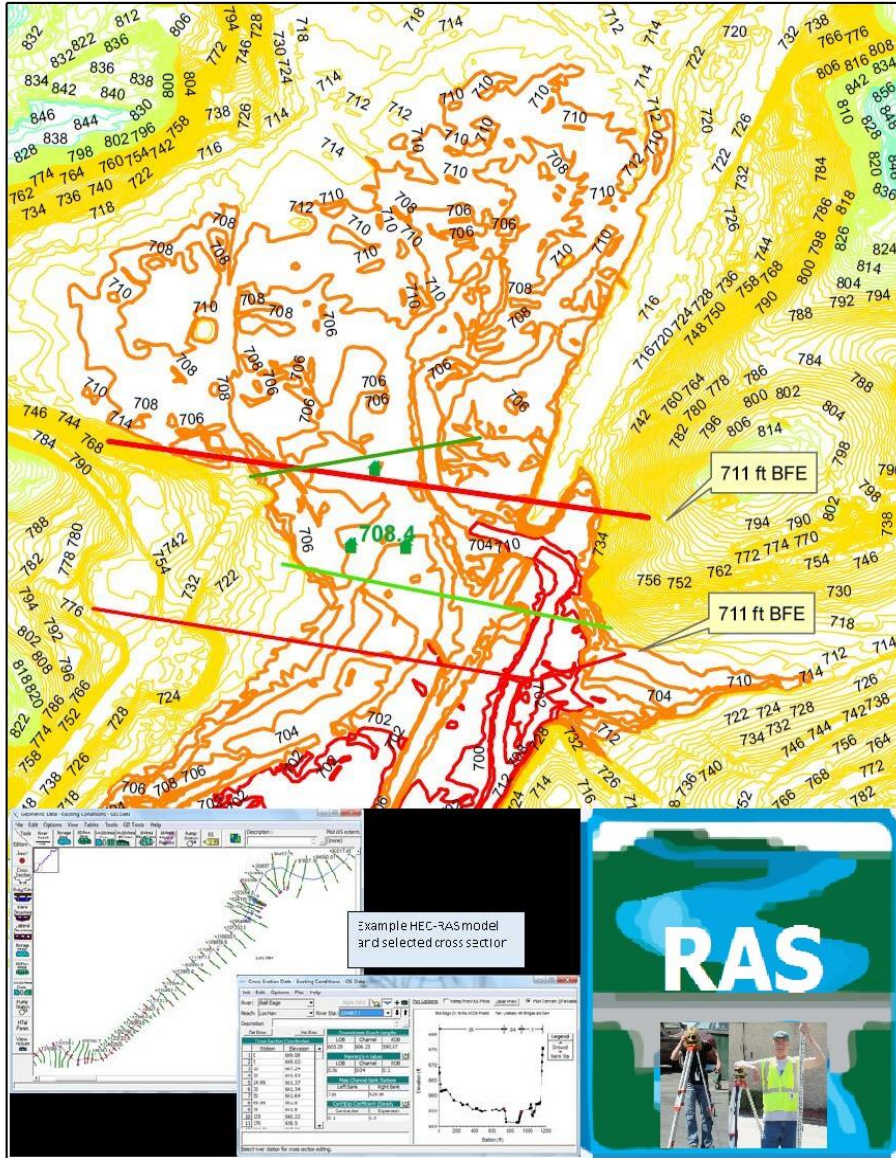


# Acquisition of Flood Risk Homes

## Scott Township, Columbia County (Eastern Area)

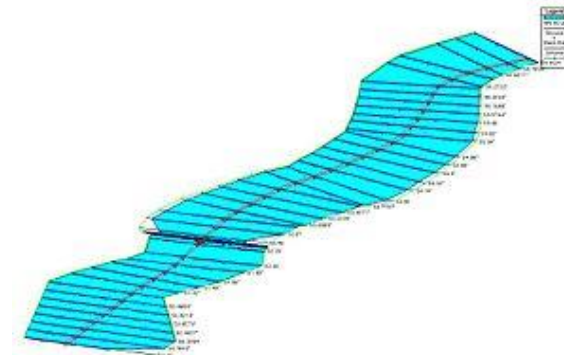


# HEC-RAS



**HEC-RAS** is a computer program that models the hydraulics of water flow through natural rivers and other channels. ... The Hydrologic Engineering Center (**HEC**) in Davis, California developed the River Analysis System (**RAS**) to aid hydraulic engineers in channel flow analysis and floodplain determination.

Topography  
Hydrology  
Hydraulics  
Field Survey



# Hazard Mitigation Grant Program (HMGP)

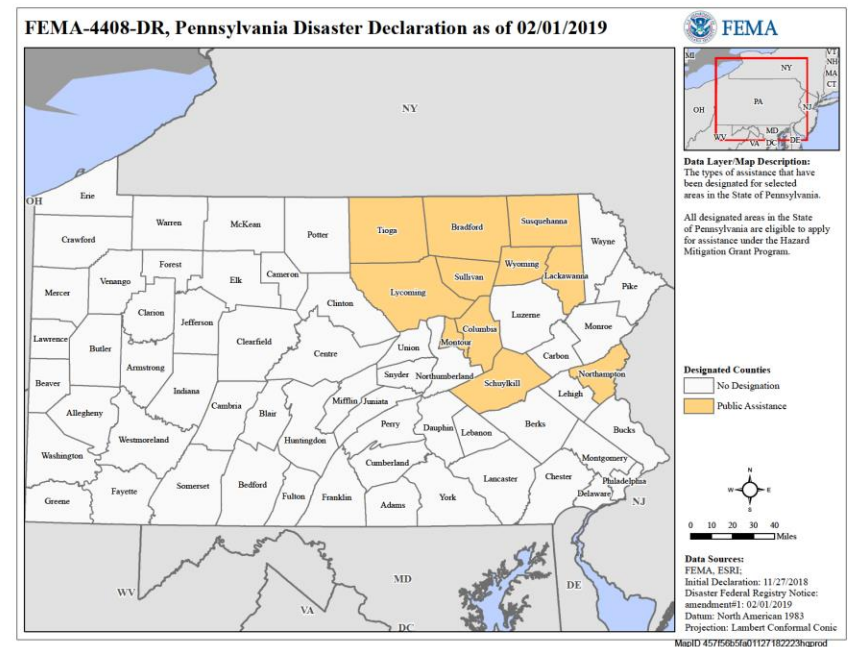
For

**FEMA-4408-DR-PA**

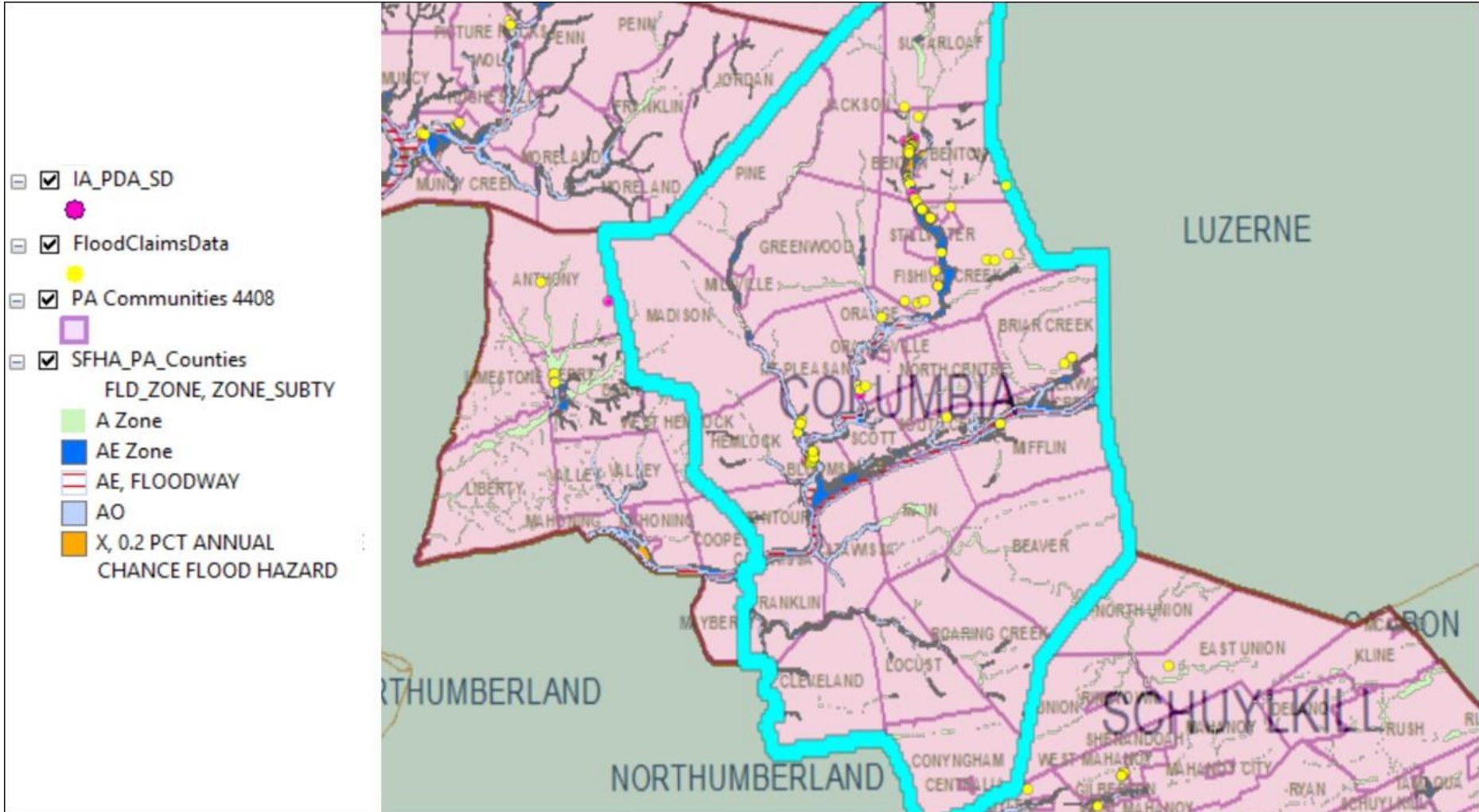
**(August 2018 Flooding)**

**August 10 – 15, 2018**

All Counties &  
Municipalities Eligible  
for HMGP



# Preliminary Damage Assessment/Claims Data



# What is Mitigation?

**Hazard Mitigation is:**

***“any cost-effective action taken to eliminate or reduce the long term risk to life and property from natural and technological hazards and to protect sense of place.”***

# What is the Hazard Mitigation Grant Program?

**HMGP – a federal disaster assistance program administered by PEMA to provide funding for specialized projects that reduce or eliminate disaster-related losses to life and property.**

**Created in 1988 by the Stafford Act**

**FEMA provides 75% match funds to States to fund post-disaster hazard mitigation measures.**

**For this disaster, State will provide 25% of total cost.**

**There will NOT be a Local match requirement**

**Overall Goal: Reduce vulnerability to natural hazards**

# How is the HMGP funded?

**Funding under the HMGP is based on 15% of the federal funds that are spent on the Individual Assistance (IA) and Public Assistance (PA) Programs for each declared disaster.**

**For example, for every \$1 million in IA & PA funding, HMGP gets \$150,000.**

**For HMGP-4408 there will be about \$10 million in State and Federal HMGP funds available.**

# What are the HMGP's objectives?

- **To prevent future loss of life and property due to natural disasters.**
- **To provide funding for previously identified mitigation measures that benefit the disaster area.**
- **To implement State, County, and Municipal Hazard Mitigation Plans.**



# Who is eligible?

**State, County, and Municipal Governments**

**Certain private non-profit organizations or institutions that own or operate a private non-profit facility**

# ▶ What About Buyouts (Acquisition Projects)?

- Local government is the applicant, *not homeowners.*
- Must be *voluntary participation.*
- Homes are demolished, land is owned by local government and must remain in “open space” use forever.
- PEMA recommends State certified appraisals of pre-flood value for purchase price.
- Some homeowner disaster assistance may be deducted from the final purchase price.

# Are private citizens eligible to apply for the HMGP?

Projects on private property may be eligible for funding under the HMGP only if submitted by a local government entity.

- (County, City, Township, Borough, etc.).

Participation in an HMGP project by a private citizen ***MUST BE VOLUNTARY!***

# What types of projects can be funded?

- **Acquisition/Demolition or relocation of structures in hazard-prone areas**
- **Flood-proofing or retrofitting to protect structures from future damage**
- **Detention/Retention and debris basins, etc.**
- **Development of standards to protect new and substantially damaged structures from disaster damage**

# Prerequisites

- **County must have an approved and adopted All Hazard Mitigation Plan.**
- **Municipality must have participated and adopted the approved county plan.**
- **Projects must meet the FEMA, State, and local municipal strategies.**
- **Requested project funding must have been identified as a mitigation activity in the county plan.**

# Do you have a plan/listed where?

The 2018 Pennsylvania state HM Plan is located at <https://pahmp.com/>

<u>County</u>	<u>Location of Hazard Mitigation Plan</u>			
Bradford	<a href="http://bradfordcountypa.org/wp-content/uploads/2017/02/12-Public-Safety-2-HMP-Final.pdf">http://bradfordcountypa.org/wp-content/uploads/2017/02/12-Public-Safety-2-HMP-Final.pdf</a>			
Columbia	<a href="http://ema.columbiapa.org/public/hm/FINALCCHMPU2017WOAPPEN.pdf">http://ema.columbiapa.org/public/hm/FINALCCHMPU2017WOAPPEN.pdf</a>			
Lackawanna and Luzerne	<a href="https://www.lackawannacounty.org/uploads/planning/2015_Lackawanna_Co_Plan_Update_20150515.pdf">https://www.lackawannacounty.org/uploads/planning/2015_Lackawanna_Co_Plan_Update_20150515.pdf</a>			
Lycoming	<a href="http://www.lyco.org/Departments/Planning-and-Community-Development/Hazard-Mitigation">http://www.lyco.org/Departments/Planning-and-Community-Development/Hazard-Mitigation</a>			
Montour	<a href="http://www.montourema.org/hazardmitigationplan.html">http://www.montourema.org/hazardmitigationplan.html</a>			
Northampton and Lehigh	<a href="http://ncem-pa.org/hazard-mitigation/">http://ncem-pa.org/hazard-mitigation/</a>			
Schuylkill	<a href="https://www.scema.org/hazard-mitigation-plan-update-2019/">https://www.scema.org/hazard-mitigation-plan-update-2019/</a> (DRAFT)			
Sullivan	Only public notice online			
Susquehanna	<a href="http://susqco.com/county-government/emergency-management/hazard-mitigation-plan/">http://susqco.com/county-government/emergency-management/hazard-mitigation-plan/</a>			
Tioga	<a href="http://www.tiogacountypa.us/Departments/Emergency_Services/Pages/Hazard-Mitigation-Plan.aspx">http://www.tiogacountypa.us/Departments/Emergency_Services/Pages/Hazard-Mitigation-Plan.aspx</a>			
Wyoming	<a href="http://www.wycopa.org/Offices/EMA/Documents/2018%20Wyoming%20County%20Hazard%20Mitigation%20Plan%20Update.pdf">http://www.wycopa.org/Offices/EMA/Documents/2018%20Wyoming%20County%20Hazard%20Mitigation%20Plan%20Update.pdf</a>			

# Eligible HMGP Projects

- Hazard Mitigation Projects
  - Property Acquisition and Structure Demolition
  - Structure Relocation
  - Dry Floodproofing of Historic Residential Structures
  - Dry Floodproofing of Non-residential Structures
  - Minor Localized Flood Reduction Projects
  - Structural Retrofitting of Existing Buildings
  - Non-structural Retrofitting of Existing Buildings and Facilities
  - Safe Room Construction
  - Infrastructure Retrofit
  - Structure Elevation
  - Soil Stabilization
  - Wildfire Mitigation
  - Post-disaster Code Enforcement
  - 5% Initiative Projects
  - Hazard Mitigation Planning (counties)



# State Mitigation Project

- Acquisition/Demolition of damaged, substantially damaged, or destroyed homes
- Small structural projects using FEMA Benefit Cost Analysis (BCA) Software
- Other eligible State Initiative flood mitigation opportunities (up to 5% of the grant total)
- Development of County Hazard Mitigation Plans (allowable amount up to 7% of the grant total)
- Home elevation projects
- Eligible business mitigation activities, e.g. flood-proofing or other resilient mitigation retrofitting measures

**Note: Other federal and state programs are available for structural projects  
– see link to PA Silver Jackets Guide ahead**



# How To Apply & Review Process

- **Municipality sends in Letter of Intent/Pre-Application.**
  - *(available on the PEMA website)*
- **PEMA reviews pre-applications.**
- **PEMA sends out an application packet if it meets eligibility criteria**
  - *(municipality is notified of eligibility determination either way).*
- **Applicant completes the HMGP application.**
- **State HM Application Review Team review & ranking**
- **Applications must be sent to FEMA Region III within 1 year of the disaster declaration date.**

# What goes in an application?

- **Basic application information:**
  - For buyouts: homeowner/property information, appraisals, latitude & longitude, site elevations
  - For structural projects: design, engineering, latitude & longitude, site elevations
  - Total hazard mitigation project budget
  - Damage information
  - Photos, Maps, FEMA Flood Insurance Study (FIS) data
  - Local Mitigation Plan information

# Application Development Costs

- **Local costs in developing and submitting an application, like appraisals, elevation surveys, personnel costs, etc. If included in the application under project costs, can be reimbursed only if the project is approved by FEMA.**
- **PEMA may provide some technical assistance like elevation surveys and proposed site visits in some cases based on PEMA staff & resource availability.**

# How are HMGP projects selected for funding?

- **The eligibility criteria, contained in the Commonwealth's HMGP Administrative Plan states that:**
  - **Projects that are cost-effective, substantially reduce risk, and have multi-hazard application will have the advantage.**
  - **A State Hazard Mitigation Team applies this criteria in its review and ranking of all project applications.**

# 2013 FEMA Cost-Effectiveness Policy

- For properties in the 100-year floodplain
- Acquisitions, if cost is \$276,000 or less\*
- Elevations, if cost is \$175,000 or less\*:
- The project is considered cost-effective and no further Benefit-Cost Analysis (BCA) is required.
- For all other project types or properties that do not meet thresholds above, BCA is required

**\*(average cost per property in the project)**

# Cost Effectiveness

## What is a Benefit Cost Analysis?



**BENEFIT**

**(Reduced Damage)**

----- = 1.0 +  
**PROJECT COST**

100 yr flood

50 yr flood

10 yr flood

Where a house sits in the floodplain predicts how often and how much damage will occur over time.

# What is a BCA and BCR?

**BCA – Benefit Cost Analysis** is the federally required method of determining the cost effectiveness of a hazard mitigation measure using a standardized method of determining avoided future damages (that is, the Benefit) as compared to the Cost of a project.

- A BCA is based on the expected damages to a structure located in the floodplain or the actual damages incurred in past disaster events.

# BCA and BCR (Continued)

**BCR – the **B**enefit **C**ost **R**atio is a numerical expression of the cost effectiveness of a project calculated as the net present value of total project benefits divided by the net present value of total project cost – that is, the derived Benefit divided by the Cost.**

- **A minimum BCR score of above 1.0 or is required to meet FEMA's cost-effectiveness requirement for a project to be eligible for funding.**



# BCA and BCR (Continued)

- **Example: A single home acquisition has a total cost of \$300,000.**

**BCA – Benefits of \$450,000 over 100 years**

**BCR – Benefits divided by cost of project  
(450,000 ÷ \$300,000 = 1.50) = Passing BCR**

- **The project is cost-effective & eligible.**

# Acquisitions/Elevations Special Concerns

- All homes must be primary residences
- Owners must be U.S. citizens/legal aliens
- Environmental & Historic Preservation (EHP) Reviews
- Acquisitions may be rentals but tenant relocation costs must be included (Uniform Relocation Act)
- Mineral rights, gas drilling leases for acquisitions
- Federal Duplication of Benefits deductions (IA & NFIP)
- Open space uses, post-acquisition transfer of property
- Payments to owners are exempt from Federal Income Tax
- Only basic elevation costs to minimum level\* eligible.

\* Minimum level is 100 year flood level plus 1.5 feet.

# Environmental & Historic Review (EHP)

- **All projects submitted to FEMA must be reviewed for Environmental considerations.**
- **Structures 50 years old or more must be reviewed for Historic consideration.**
- **Potential EHP impacts can require additional review time to determine eligibility prior to FEMA's decision on project approval.**

# Uniform Relocation Act (URA)

- **Displaced tenants of rental properties acquired under the HMGP are entitled to URA assistance and may be eligible for relocation costs up to \$7,200.**
- **Relocation costs should be included in the HMGP application project cost budget.**
- **URA procedures and provisions are the responsibility of the local community.**

# Duplication of Benefits (DOB)

**Federal disaster assistance and other damage-related claims paid to the homeowner following the most recent disaster that have not been expended for the intended purposes are deducted from the final purchase price of the home at closing. FEMA will not pay pre-damage value on a home if repair claim funds were not used appropriately.**

- This process is called Duplication of Benefits (DOB) and is the responsibility of local community with PEMA/FEMA to resolve as required.**

# Open Space Uses/Transfer of Property

- Once acquired, a property must remain undeveloped as “open space in perpetuity” and in the possession of the local community.
- Some uses, consistent with the location’s performance as open floodplain, are allowed but only with written pre-approval from PEMA & FEMA (**44 CFR Part 80**).
- Transfer of the property to some governmental, environmental or conservancy entities is permitted with similar State & Federal pre-approvals.



# What Isn't Eligible for HMGP?

- **Repair or Replacement of Existing Infrastructure, Roads, Facilities, Deferred maintenance , etc.**
- **Debris/snow removal, Stream-related work**
- **Bridge replacement**
- **Major structural projects – levees, dams, etc.**
- **Phased or contingent projects**
- **Mitigation for damaged infrastructure that can be funded under Public Assistance**
- **Designs, studies or plans not directly related to HM projects**

# When will I know if my application is approved?

Once an application is sent to FEMA,  
the approval process usually takes  
**90-120 days\***

Certain aspects of a project can add to review time: historic buildings or sites, special environmental concerns, archaeological studies.

**\*If no catastrophic disasters have occurred elsewhere in the United States (2018 TX, FL, VI, PR)**



# What do I need to do now?

**As a local official – you will need to:**

- **Decide if there is a mitigation project in your community that should be completed;**
- **Complete the HMGP Letter of Intent (LOI);**
- **Mail, email or fax your LOI/Pre-Application to:**

**Pennsylvania Emergency Management Agency**

**State Hazard Mitigation Officer**

**Bureau of Recovery & Mitigation/Hazard Mitigation Division**

**1310 Elmerton Avenue**

**Harrisburg, PA 17110**

**Fax 717-651-2150**

**or email [RA-shazmitoff@pa.gov](mailto:RA-shazmitoff@pa.gov)**

# The HMGP Letter of Intent & Pre-Application

- Must be signed by a local official.
- Is not binding.
- Identifies the single Contact Person for HMGP (Applicant's Agent).
- Describes problem & the proposed mitigation project.
- Must be submitted to receive an HMGP application.

Hazard Mitigation Grant Program (HMGP)  
Letter of Intent Pre-application

SUBJECT: Hazard Mitigation Program (HMGP) Letter of Intent  
TO: State Hazard Mitigation Officer (SHMO)  
Pennsylvania Emergency Management Agency  
3605 Independence Drive  
Harrisburg, PA 17110

Dear SHMO:  
The purpose of this letter is to inform you of our interest in participating in the Hazard Mitigation Grant Program for Federally declared disaster #        -        - DR-      .

Signature: \_\_\_\_\_  
DATE: \_\_\_\_\_ DESK/PHONE NUMBER: \_\_\_\_\_  
APPLICANT COMMUNITY: \_\_\_\_\_  
COUNTY: \_\_\_\_\_

**PROJECT CONTACT**

NAME: \_\_\_\_\_  
TITLE: \_\_\_\_\_  
AGENCY: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
PHONE: \_\_\_\_\_

**TYPE OF ORGANIZATION**

Municipal Government:  Private Nonprofit:   
County Government:  State Agency:

LOCATION OF PROJECT: \_\_\_\_\_  
BRIEF DESCRIPTION OF PROJECT: \_\_\_\_\_  
BRIEF DESCRIPTION OF PROBLEM TO BE SOLVED: \_\_\_\_\_

TOTAL ESTIMATED COST: \_\_\_\_\_  
SOURCE OF FUNDING FOR NON-FEDERAL SHARE: \_\_\_\_\_

FAX to PEMA at 717-651-2150 or email to:  
State Hazard Mitigation Office  
PEMA  
3605 Independence Drive  
Harrisburg, Pennsylvania 17110

# Letter of Intent (LOI) on PEMA website

HMGP Letter of Intent/Pre-Application can be downloaded from the PEMA website at <http://www.pema.pa.gov>

Hover Cursor over:

**RESPONSE AND RECOVERY**

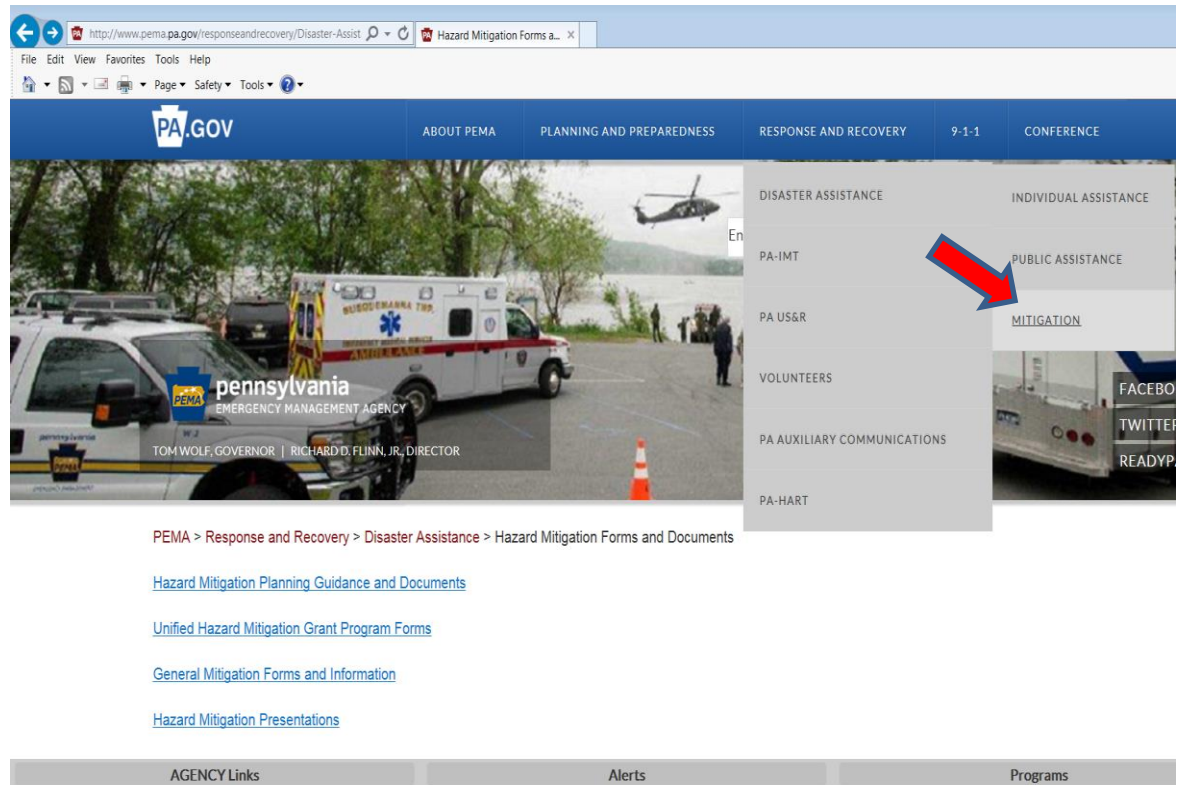
- **DISASTER ASSISTANCE'**

- **Click on MITIGATION**

- **Hazard Mitigation Forms, Presentations, and Other Docs**

- **Unified HM Grant Program Forms**

**SELECT '00-HMGP-Letter of Intent/Pre-App**



The screenshot shows a web browser window with the URL <http://www.pema.pa.gov/responseandrecovery/Disaster-Assist>. The page features a blue header with the PEMA logo and navigation tabs: ABOUT PEMA, PLANNING AND PREPAREDNESS, RESPONSE AND RECOVERY, 9-1-1, and CONFERENCE. Below the header is a large image of an ambulance and a helicopter. A dropdown menu is open under the 'RESPONSE AND RECOVERY' tab, listing options: DISASTER ASSISTANCE, PA-IMT, PA US&R, VOLUNTEERS, PA AUXILIARY COMMUNICATIONS, PA-HART, INDIVIDUAL ASSISTANCE, PUBLIC ASSISTANCE, and MITIGATION. A red arrow points to the 'MITIGATION' option. Below the image, the breadcrumb trail reads: PEMA > Response and Recovery > Disaster Assistance > Hazard Mitigation Forms and Documents. A list of links is provided: [Hazard Mitigation Planning Guidance and Documents](#), [Unified Hazard Mitigation Grant Program Forms](#), [General Mitigation Forms and Information](#), and [Hazard Mitigation Presentations](#). At the bottom, there are sections for AGENCY Links, Alerts, and Programs.

Or go directly to:

<http://www.pema.pa.gov/responseandrecovery/Disaster-Assistance/Pages/Unified-Hazard-Mitigation-Grant-Program.aspx>

# IMPORTANT HMGP DEADLINES

- Your Letter of Intent/Pre-Application form must be returned to PEMA by: **February 28, 2019**
- HMGP DR-4408 applications must be submitted to PEMA by: **May 24, 2019**
- State Hazard Mitigation Team Application Review:
  - **June 17 – 21, 2019**

*\*PEMA & the State Hazard Mitigation Team reserve the right to alter the dates at their discretion. \**

# Other FEMA Grant Programs

## Flood Mitigation Assistance (FMA) Pre-Disaster Mitigation (PDM) programs

- FMA – includes Repetitive Loss (RL) & Severe Repetitive Loss(SRL) property acquisitions & elevation, current NFIP insurance required on all properties
- Funding varies – 75% for FMA, up to 90% for RL, 100% for SRL (may use ICC funds for local match)
- Annually funded, nationwide competitive grants
- Application is made on FEMA's eGrant website.
- <https://www.pema.pa.gov/responseandrecovery/Disaster-Assistance/Documents/Disaster%20Assistance%20Documents/FY17%20FMA-PDM%20NOFO%20Webinar.pptx>

**The 2019 grant application period has closed. Link above is for program information only. For additional info contact Julie Yu at [juyu@pa.gov](mailto:juyu@pa.gov)**

# OTHER POSSIBLE FUNDING SOURCES

## Silver Jacket Initiative



**SILVER JACKETS**

Many Agencies One Solution

### INTERAGENCY FLOOD MITIGATION PROGRAM GUIDE

Updated by our Pennsylvania team in 2015

Used across the country as a Best Practices Reference Document

On the Silver Jackets website at:

- [Pennsylvania Interagency Flood Mitigation Program Guide, 2015](#)

For more about Pennsylvania Silver Jackets program:

- <http://silverjackets.nfrmp.us/State-Teams/Pennsylvania>

# Contact Information

Tom Hughes, State Hazard Mitigation Officer  
(717) 651-2726 or [thughes@pa.gov](mailto:thughes@pa.gov)

Jen Carle, HMGP Project Coordinator  
(717) 651-7072 or [jcarle@pa.gov](mailto:jcarle@pa.gov)

Don Smith, Senior Project Officer  
(717) 651-2279 or [dowsmith@pa.gov](mailto:dowsmith@pa.gov)

**PEMA, 1310 Elmerton  
Avenue, Harrisburg PA  
17110**

**Our best advice is to email your  
scanned Letters of Intent (LOI)  
directly to Jen Carle at  
[jcarle@pa.gov](mailto:jcarle@pa.gov).**

**PEMA Fax# is: 717-651-2150**

## **PEMA WEBSITE:**

**<http://www.pema.pa.gov>**

For a copy of this presentation “HMGP-4408 Initial Briefing” go to:

<http://www.pema.pa.gov/responseandrecovery/Disaster-Assistance/Pages/Hazard-Mitigation-Presentations.aspx>

# Questions







# National Flood Insurance Program & Floodplain Management

# National Flood Insurance Program (NFIP) Background

- Created by 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



# Risk and Floodplains

## Know the Risk

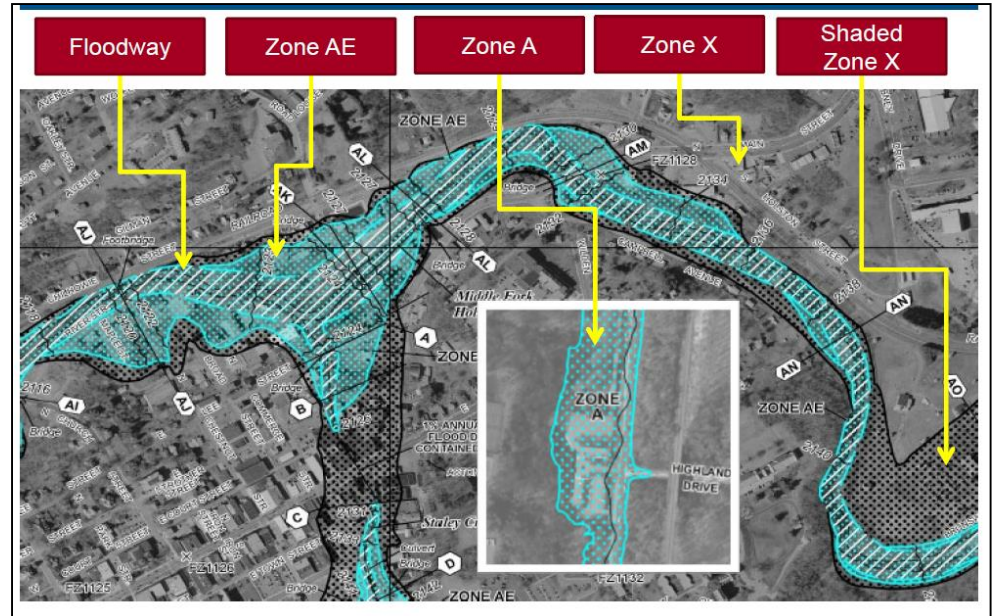
- Flood Insurance Rate Maps (FIRMs)
- Flood Insurance Studies (FIS)
- High Water Marks

## Mitigate the Risk

- Floodplain Ordinances
- Hazard Mitigation Plans
- Hazard Mitigation Grant Programs

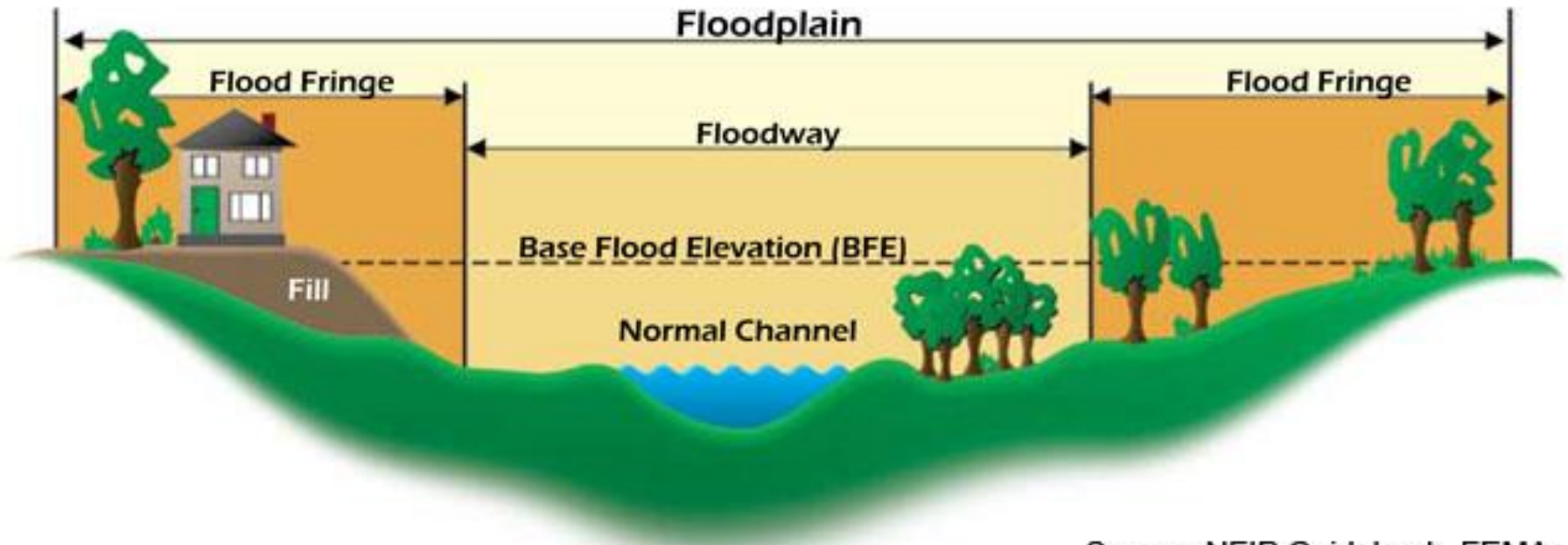
## Insure the Risk

- Flood Insurance



# Floodplain – What Does It Mean?

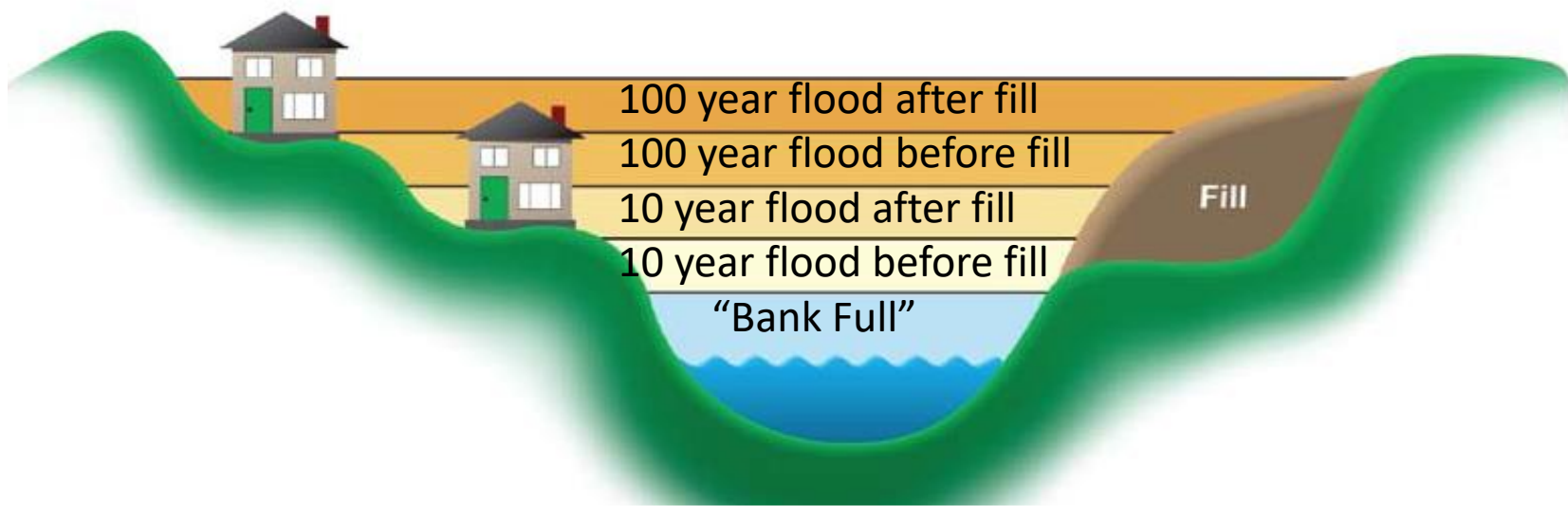
## Characteristics of a Floodplain



Source: NFIP Guidebook, FEMA

# The Effects of Fill on a Floodplain

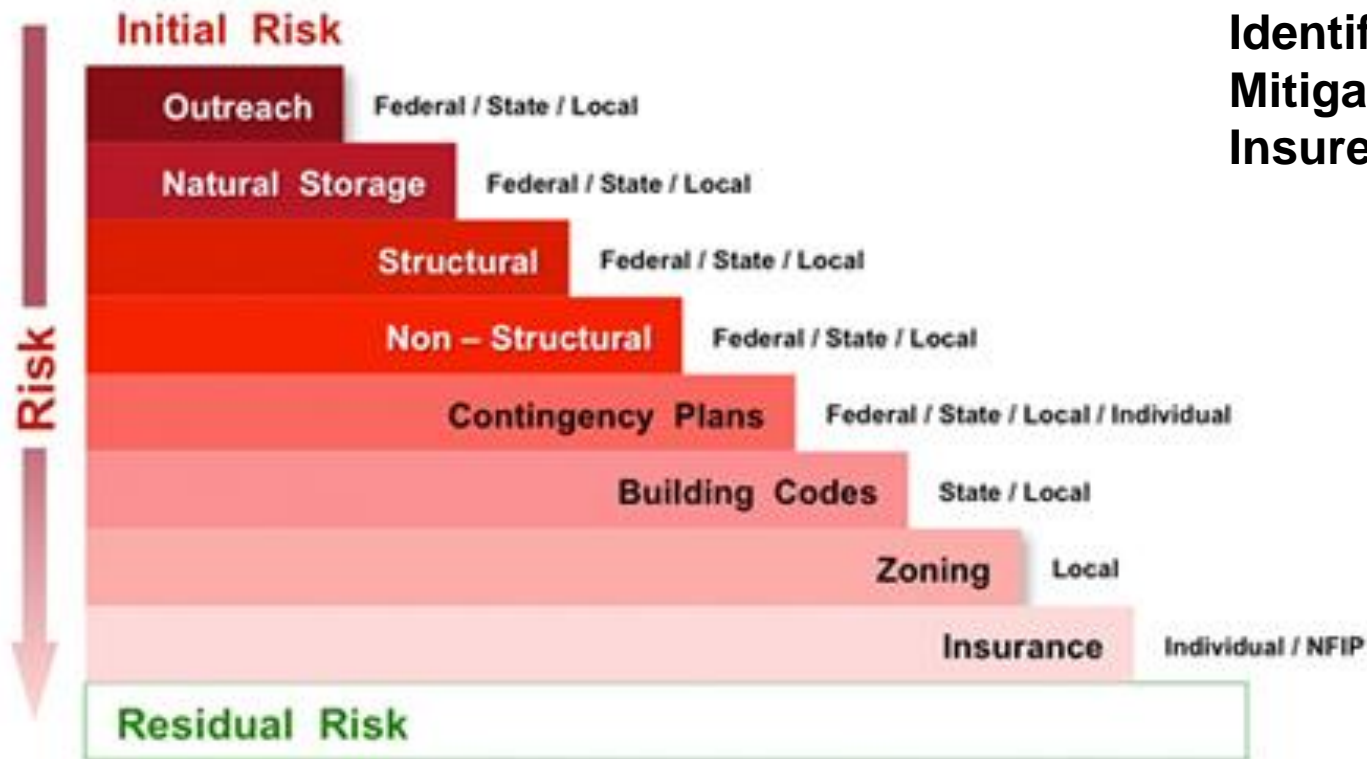
This house never flooded before the fill was placed on the riverbank



# Risk = Initial & Residual Risk

## Planned Strategies and Actions

Identify the Risk  
Mitigate the Risk  
Insure to the Risk



# Floodplain Management

- **Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage.**
- **A community does this by adopting and enforcing floodplain management ordinances, particularly with respect to new construction, is an important element in making flood insurance available to home and business owners.**
  - **Could also include zoning, building codes, and other land-use ordinances.**
- **Currently over 20,100 U.S. communities voluntarily adopt and enforce local floodplain management ordinances that provide flood loss reduction building standards for new and existing development.**

# PA Model Ordinance Components

- Pennsylvania Floodplain Management Act (1978-166).
- FEMA 44 CFR 60.3
- Article I – Statutory Authorization & Purpose
- Article II – General Provisions
- **Article III – Administration – D&R of FP Administrator, Permitting**
- Article IV – Provisions for Hazard Reduction – Standards for Construction, Sub-Divisions, Utilities, Development that may endanger life
- Article V – High Risk Land Uses – Hospitals, Nursing Homes, Jails or Prisons
- Article VI - Definitions





# Duties of the Floodplain Administrator

- Review applications
- Make floodplain determinations
- Make Substantial Improvement / Damage determination
- 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 violations



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.***

# Permits Are Required For All Types of 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)

# Other Types of Development



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

# 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 of proposed work
- 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: \_\_\_\_\_ %

# 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?

# Application Review

## Review for completeness

- Forms filled out
- Site plan
  - Floodplain delineation
  - Elevations
- Building plans
- Certifications
- All other permits obtained (see PA model)

## 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?

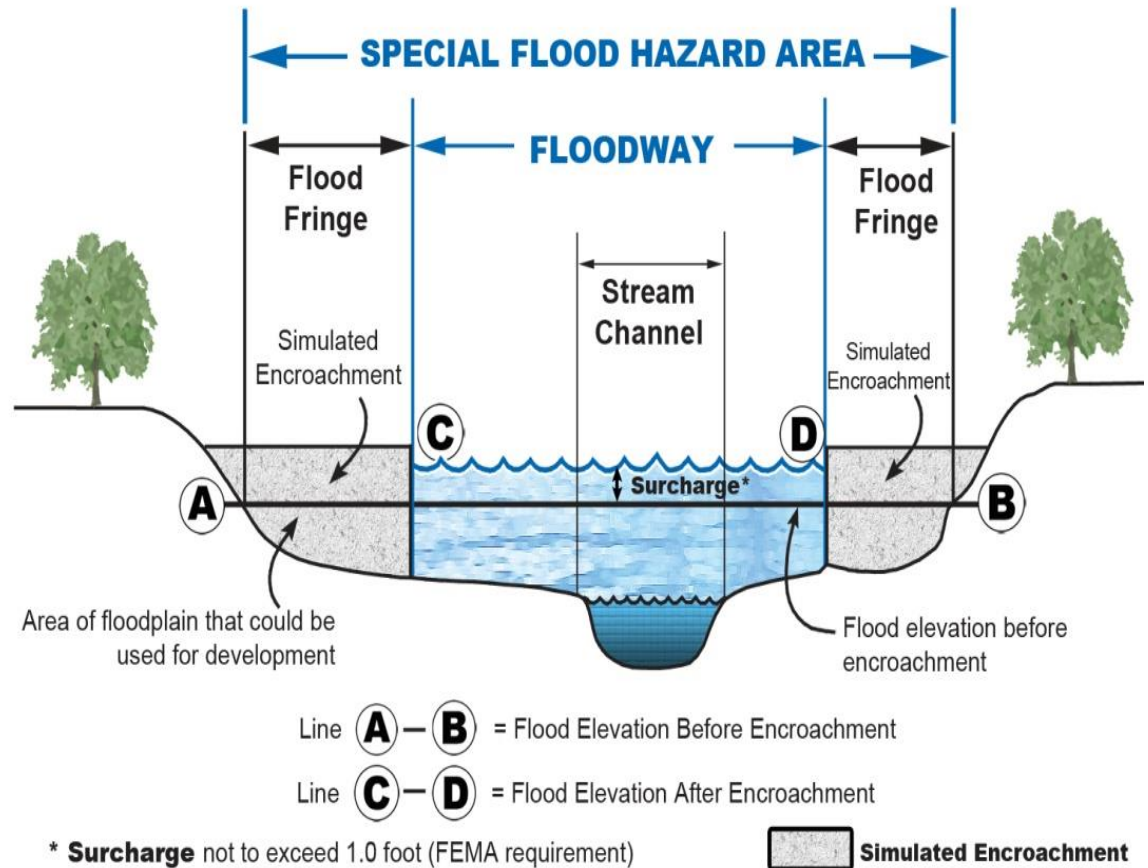


Elevated utilities in Yardley Borough, Bucks County, PA (from PEMA)

# Floodways

**Floodway** is the channel designated to convey the fastest deepest moving waters 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 development location

## Documentation requirement

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

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

# 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 written explanation citing the specific provisions of the ordinance not met in the application
  - Citation of specific provisions point out how to resubmit application in compliance with regulations
  - Provide instructions regarding appeal or a variance

# 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.

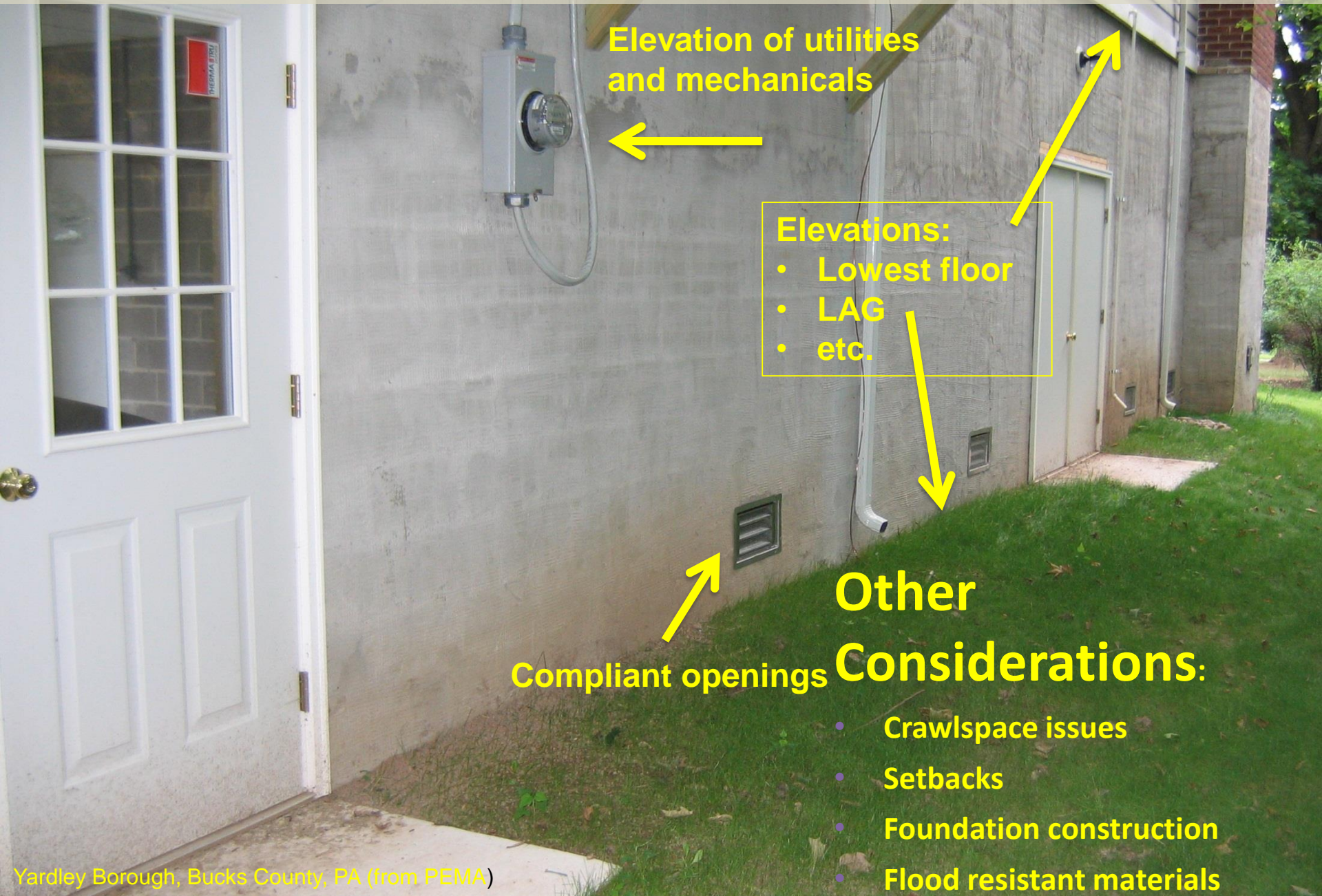
# Considerations During Inspections

## 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 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.

Compliant openings

Other  
Considerations:

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

# Collecting Compliance Documentation

- Permit file **must contain as-built** or finished construction data for all new structures or substantial improvements in 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:  Construction Drawings\*  Building Under Construction\*  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, ARIA, ARIAE, ARIA1-A30, ARIAH, ARIAQ. Complete items C2 a-g below according to the building diagram specified in Item A7.  
Benchmark Utilized: NAVD 88 Vertical Datum: NAVD 88

Conversion/Comments: \_\_\_\_\_

a) Top of bottom floor (including basement, crawl space, or enclosure floor),	<u>627.0</u>	<input checked="" type="checkbox"/> feet
b) Top of the next higher floor	<u>N/A</u>	<input type="checkbox"/> feet
c) Bottom of the lowest horizontal structural member (V Zones only)	<u>N/A</u>	<input type="checkbox"/> feet
d) Attached garage (top of slab)	<u>625.0</u>	<input checked="" type="checkbox"/> feet
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment in Comments)	<u>627.0</u>	<input checked="" type="checkbox"/> feet
f) Lowest adjacent (finished) grade (LAG)	<u>622.0</u>	<input checked="" type="checkbox"/> feet
g) Highest adjacent (finished) grade (HAG)	<u>626.0</u>	<input checked="" type="checkbox"/> feet

PLACE SEAL HERE

**ELEVATION CERTIFICATE (partial)**

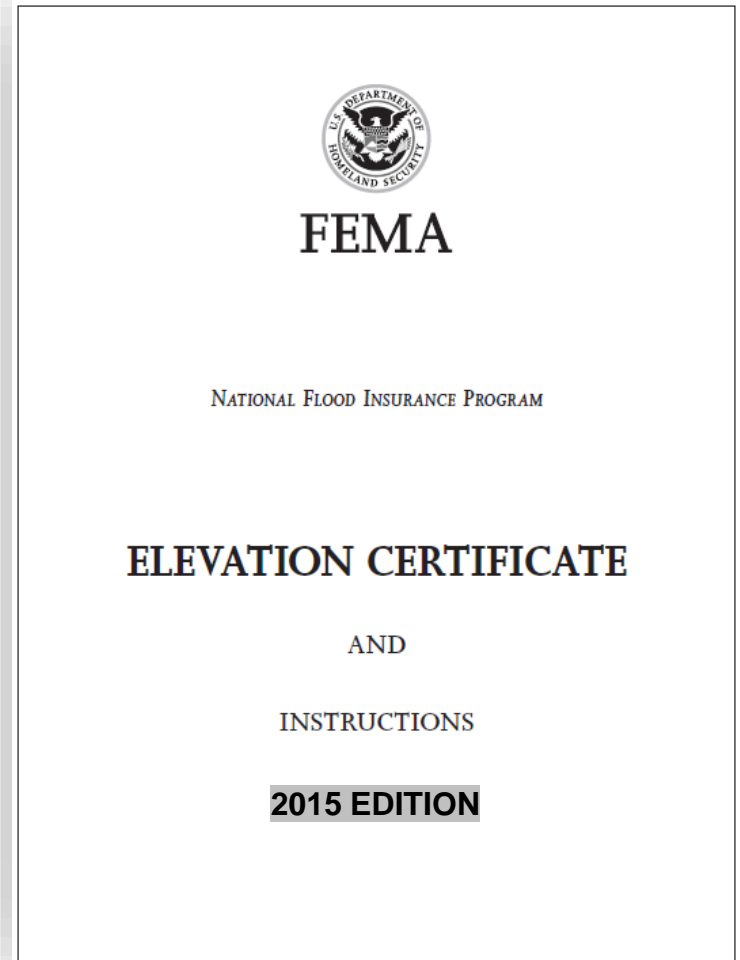
In this example, the BFE is 625.0 feet.

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

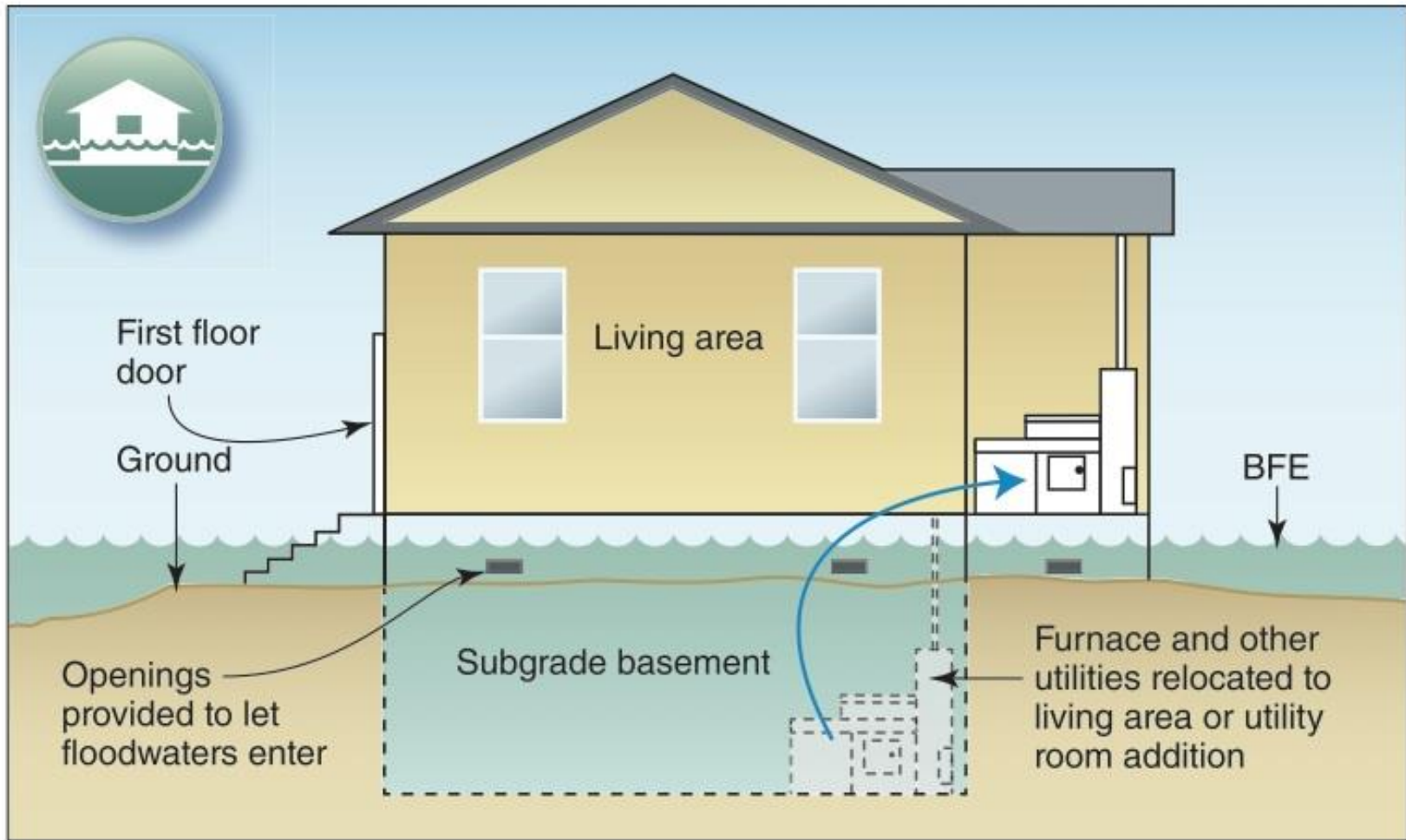


# The Elevation Certificate (EC)

- 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



# Elevation Certificate, FFE, BFE, LAG



# 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.

# Ordinance Enforcement

## Discovering and Investigating Potential Violations

- Violations can be found through
  - Periodic inspections
  - Reports by other government agencies
  - Citizen's complaint
- Violations 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!**

# Ordinance Enforcement Options

- **Check your ordinance for the enforcement procedures that have already been outlined**
- May include
  - Voluntary compliance by 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**

## Full Compliance

Risk and liability reduction  
Greatest insurance savings  
Ensures continued participation in NFIP

Can be expensive  
Can be time consuming

Elevation/Floodproofing of lowest floor and utilities  
Installation of openings  
Proper anchoring  
Flood resistant materials

## Partial Mitigation

Often less expensive  
Less time consuming

Jeopardizes participation in NFIP  
Risk and liability increase  
Increase in insurance costs  
Transfer of increased risk & costs to future owners

Note on deed citing violations  
Partial elevation and/or floodproofing

## Non-Compliance

Cheapest (short term)  
Least time consuming

Surcharge existing and no new policies  
Loss of disaster assistance  
Loss of federal grants/loans  
Increase in risk and insurance costs

Take no corrective actions

# 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



# Post-Flood Event 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 determination for permitting using FIRMs **Section 1**
- Determine BFEs using FIS **Section 1**
- Perform 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 Post-Event

- A permit is required **regardless** of whether or not 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 post-disaster 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**

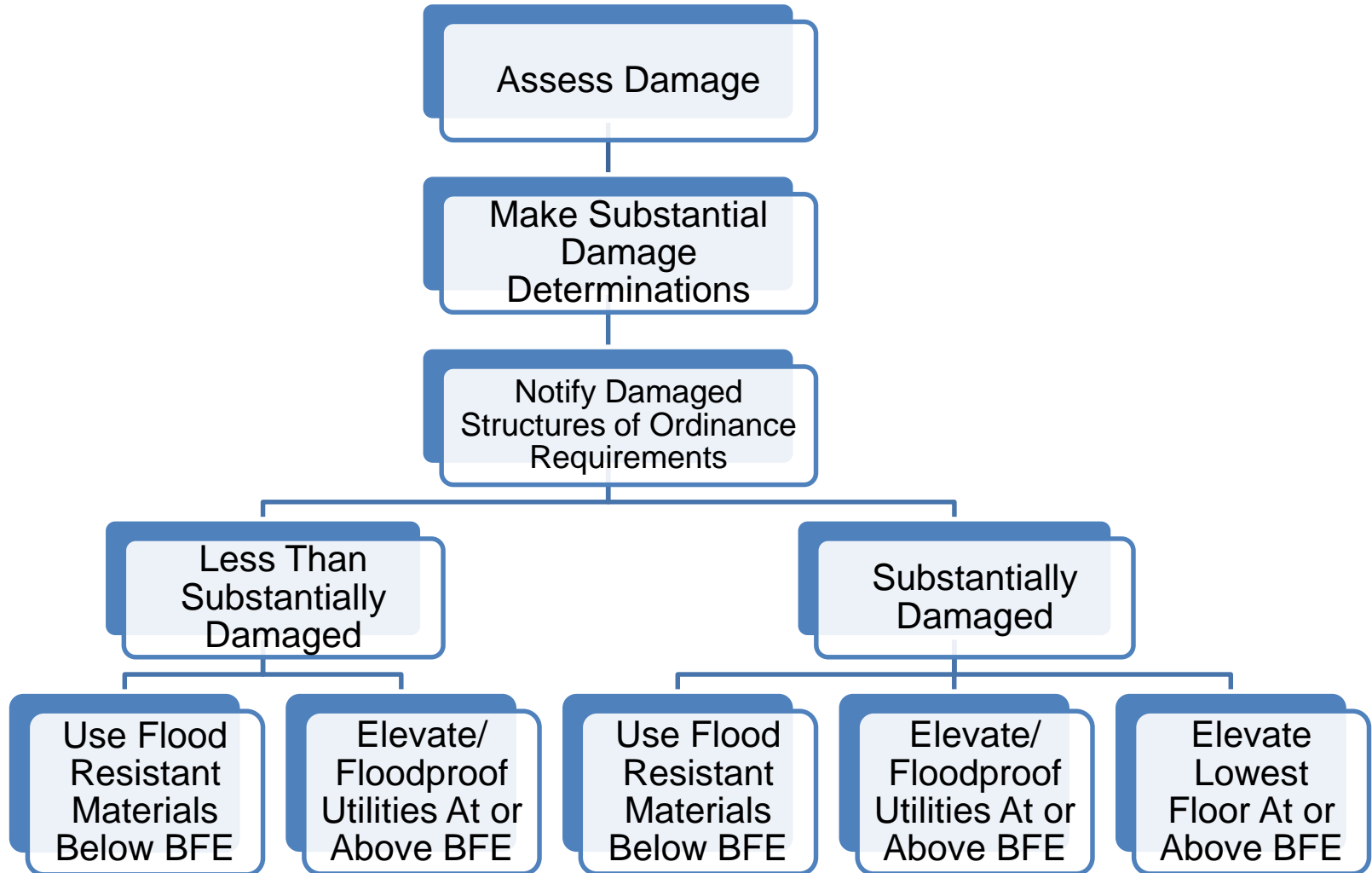


Middletown Borough, Dauphin County, PA (from PEMA)



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 local official



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

# Substantial Damage Determinations

## Compliance

- 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

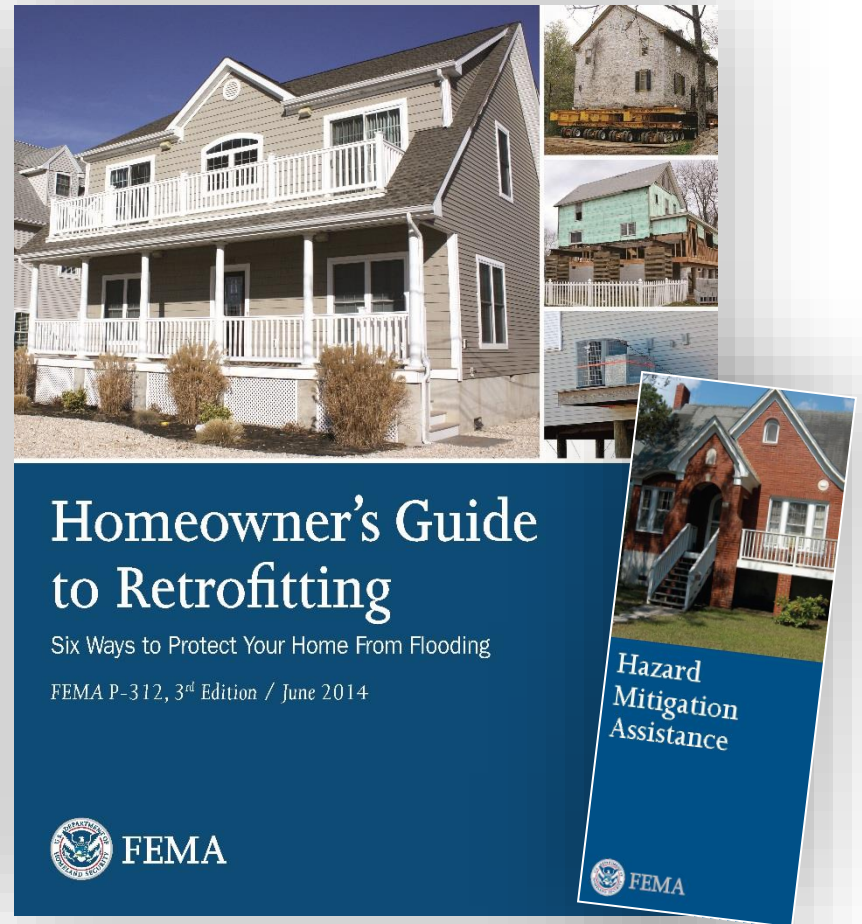
## Mitigating non-compliance

- 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 design of structure

# 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



# Obtaining Flood Insurance

- **Flood Insurance is provided in the US by the federal government via the National Flood Insurance Program (NFIP), in two ways.**
  - First, the government directly provides coverage for some properties.
  - Second, the government works in concert with around 90 private insurers who function as servicing contractors.
- **For more information see:**  
<https://www.floodsmart.gov/floodsmart/>
- **DCED Flood Insurance Information (on Floodplain Maps and NFIP):** <http://www.pafloodmaps.com/Pages/default.aspx#.V6N9tSfD-po>

# Flood Insurance Information Resources

## What NFIP related questions have you been asked?

PA Silver Jackets Flood Risk Management Resources – Before the Flood, During the Flood and After the Flood <https://www.nab.usace.army.mil/Home/Silver-Jackets>

### Pennsylvania Emergency Management Agency

<https://www.pema.pa.gov/planningandpreparedness/floodplainmanagement/Pages/default.aspx>

- <https://www.fema.gov/information-state-local-officials>

[RA-FLOODPLAINMGTTNS@pa.gov](mailto:RA-FLOODPLAINMGTTNS@pa.gov)

**FOR MUNICIPAL USE ONLY** - *Not Residents or Businesses*

For general public information about the National Flood Insurance Program (NFIP):

<http://www.fema.gov/national-flood-insurance-program>



# Flood Insurance Information Resources

Map specialists are available at the **FEMA Map Information eXchange (FMIX)** to assist customers. **FMIX** also connects stakeholders with a wide range of technical subject matter experts.



**1-877-FEMA MAP**  
(1-877-336-2627)



**FEMAMapSpecialist@riskmapcds.com**

**Online Chat:**

**[www.floodmaps.fema.gov/fhm/fmx\\_main.html](http://www.floodmaps.fema.gov/fhm/fmx_main.html)**

# Flood Insurance Information Resources

**Recently other Flood Insurance has appeared in the market**

**For additional information or questions about this insurance you can find additional information on the Pennsylvania Department of Insurance website at:**

- <https://www.insurance.pa.gov/Coverage/Pages/Flood.aspx>  
[https://www.insurance.pa.gov/Coverage/Documents/Flood/Outreach Toolkit 2007- Why You Need Flood Insurance Brochure.pdf](https://www.insurance.pa.gov/Coverage/Documents/Flood/Outreach_Toolkit_2007-Why_You_Need_Flood_Insurance_Brochure.pdf)  
[https://www.insurance.pa.gov/Coverage/Documents/Flood/Outreach Toolkit 2007- Flood Preparation and Safety Brochure.pdf](https://www.insurance.pa.gov/Coverage/Documents/Flood/Outreach_Toolkit_2007-Flood_Preparation_and_Safety_Brochure.pdf)