

# A Holistic Approach to Managing Your Floodplain

**FLOODPLAIN MANAGEMENT**  
ENCOURAGING WISE USE TO AVOID FLOOD DAMAGE

**FEDERAL EMERGENCY MANAGEMENT AGENCY FEMA**

**BE FLOOD ALERT**

**NATIONAL FLOOD INSURANCE PROGRAM**

**Rising tides, falling funds**  
The National Flood Insurance Program is officially under water. After record payouts for damages related to Hurricanes Katrina and Sandy, and accumulated smaller storms, the program is nearly \$25 billion in debt.

**In billions**

Year	Total payments made to policyholders	Total written premium
1998	~1.5	~1.5
2000	~1.5	~1.5
2002	~1.5	~1.5
2004	~1.5	~1.5
2005	~17.7	~1.5

\*Year of Hurricanes Katrina, Rita, Wilma  
Source: FEMA

**NFIP/CRS**

**ELEVATION CERTIFICATE**

**National Flood Insurance Program Community Rating System Coordinator's Manual**  
FIA-15/2013

Item	Value	Unit
1	100	sq ft
2	200	sq ft
3	300	sq ft
4	400	sq ft
5	500	sq ft
6	600	sq ft
7	700	sq ft
8	800	sq ft
9	900	sq ft
10	1000	sq ft
11	1100	sq ft
12	1200	sq ft
13	1300	sq ft
14	1400	sq ft
15	1500	sq ft
16	1600	sq ft
17	1700	sq ft
18	1800	sq ft
19	1900	sq ft
20	2000	sq ft
21	2100	sq ft
22	2200	sq ft
23	2300	sq ft
24	2400	sq ft
25	2500	sq ft
26	2600	sq ft
27	2700	sq ft
28	2800	sq ft
29	2900	sq ft
30	3000	sq ft
31	3100	sq ft
32	3200	sq ft
33	3300	sq ft
34	3400	sq ft
35	3500	sq ft
36	3600	sq ft
37	3700	sq ft
38	3800	sq ft
39	3900	sq ft
40	4000	sq ft
41	4100	sq ft
42	4200	sq ft
43	4300	sq ft
44	4400	sq ft
45	4500	sq ft
46	4600	sq ft
47	4700	sq ft
48	4800	sq ft
49	4900	sq ft
50	5000	sq ft

Sponsored by:  
Southwestern Pennsylvania Commission (SPC)  
Water Resource Center  
Fall 2018

## Today's Speaker



- Tony Subbio, CFM
  - Emergency management and community resilience planner
  - Specializes in hazard mitigation and floodplain management services

# Today's Session

- The National Flood Insurance Program (NFIP)
- Regulations
- Public Information Programs
- Flood Damage Reduction/Mitigation
- Flood Preparedness
- The Community Rating System (CRS) Program
- Questions

# The National Flood Insurance Program *A Refresher*



**NATIONAL  
FLOOD  
INSURANCE  
PROGRAM**

# The National Flood Insurance Program (NFIP)

- Federal program that provides flood insurance to participating communities.
- Based on an agreement between local communities and the Federal Government that:
  - ✓ *A community will adopt and enforce a floodplain management ordinance.*
  - ✓ *The Federal Government will make flood insurance available within the community as a financial protection against flood losses.*

## Reasons for the NFIP

- ✓ Reduce emphasis on structural flood control measures; increase emphasis on nonstructural FPM measures
- ✓ Reduce Federal disaster costs: shift burden from general taxpayers to floodplain occupants
- ✓ Provide insurance coverage not generally available on the private market.

# NFIP Participation Requirements

- ✓ Participating communities are required to adopt and enforce a floodplain management ordinance that meets or exceeds requirements specified under 44 CFR 60.3.
- ✓ Continued eligibility is based on maintaining compliance, which is based on enforcement of the provisions of the floodplain management ordinance.
- ✓ Compliance is monitored by FEMA via an audit process called a Community Assistance Visit (**CAV**).

*An ordinance is the key!*

# Roles and Responsibilities

## The Community Role:

- ✓ Issuing or denying floodplain development/building permits.
- ✓ Inspecting all development to assure compliance with the local regulations.
- ✓ Maintaining records of floodplain development.
- ✓ Assisting in the preparation and revision of flood maps.
- ✓ Assisting residents in obtaining information on flood hazards, map data, flood insurance and proper construction measures.



Clark Fork River, outside of Plains, Montana. Originally house was 30-40 feet from river bank and 1" above BFE.



# Compliance

- “*Compliance*” means holding up your end of the agreement, most notable: enforcing your ordinance.
- FEMA has recourse for non-compliance through 3 approaches:
  - 1) Probation
  - 2) Suspension
  - 3) Reclassification under the Community Rating System (CRS).

# Regulations

# Regulations - Stronger

- Freeboard
- Prohibition of Fill
- Cumulative Substantial Damage/Improvement
- Compensatory Storage

# Regulations - Administration

- Elevation Certificates (EC)
  - Do you require them? *Are you sure?*
  - Are they complete?
  - Are they right?
  - Checklist and job aid
  
- Substantial Damage/Improvement Determination
  - How do you do it?
  - Checklist and job aid

U.S. DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
National Flood Insurance Program

2488 No. 1600-0008  
Expiration Date: November 30, 2018

### ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1-6.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

**SECTION A - PROPERTY INFORMATION** FOR INSURANCE COMPANY USE

A1. Building Owner's Name: \_\_\_\_\_ Policy Number: \_\_\_\_\_

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.: \_\_\_\_\_ Company NAC Number: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.): \_\_\_\_\_

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.): \_\_\_\_\_

A5. Latitude/Longitude: Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Horizontal Datum:  NAD 1927  NAD 1983

A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.

A7. Building Diagram Number: \_\_\_\_\_

A8. For a building with a crawlspace or enclosure(s):

a) Square footage of crawlspace or enclosure(s): \_\_\_\_\_ sq ft

b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade: \_\_\_\_\_

c) Total net area of flood openings in A8.b: \_\_\_\_\_ sq in

d) Engineered flood openings?  Yes  No

A9. For a building with an attached garage:

a) Square footage of attached garage: \_\_\_\_\_ sq ft

b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade: \_\_\_\_\_

c) Total net area of flood openings in A9.b: \_\_\_\_\_ sq in

d) Engineered flood openings?  Yes  No

**SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION**

B1. NFIP Community Name & Community Number: \_\_\_\_\_ B2. County Name: \_\_\_\_\_ B3. State: \_\_\_\_\_

B4. Map Panel Number: \_\_\_\_\_ B5. Suffix: \_\_\_\_\_ B6. FIRM Index Date: \_\_\_\_\_ B7. FIRM Panel Effective/Revised Date: \_\_\_\_\_ B8. Flood Zone(s): \_\_\_\_\_ B9. Base Flood Elevation(s) (Zone No., use Base Flood Depth): \_\_\_\_\_

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in item B9:  
 FIS Profile  FIRM  Community Determined  Other/Source: \_\_\_\_\_

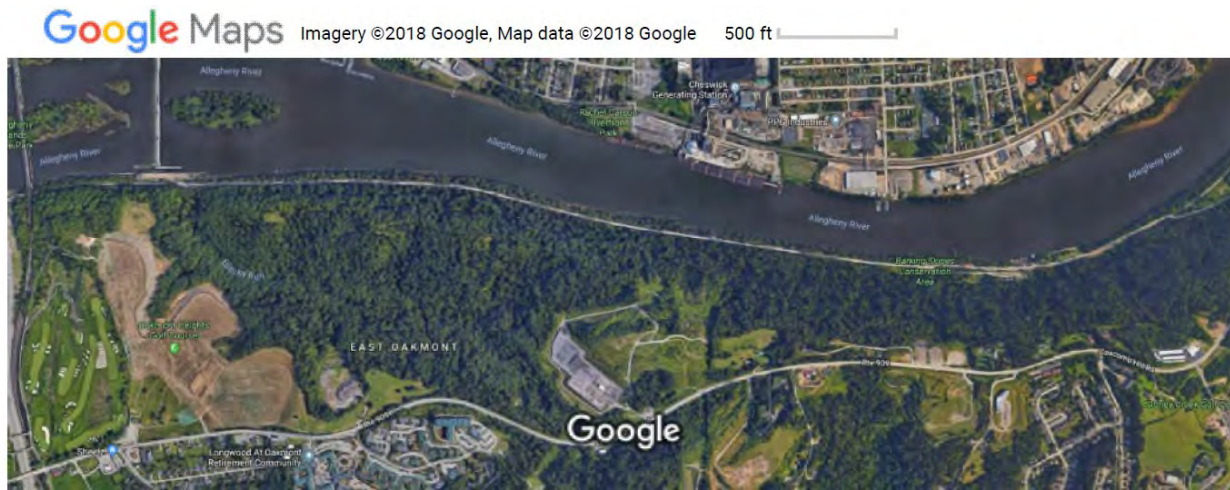
B11. Indicate elevation datum used for BFE in item B9:  NGVD 1929  NAVD 1988  Other/Source: \_\_\_\_\_

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)?  Yes  No  
 Designation Date: \_\_\_\_\_  CBRS  OPA.

FEMA Form 086-0-13 (7/15) Replaces all previous editions. Form Page 1 of 6

# Regulations - Other

- Open Space



# Regulations - Other

- Stormwater Management
  - Size of development
  - Design storms
  - Low-impact development
  - Inspection and maintenance of stormwater facilities
  - Watershed Master Plan
  - Erosion and sedimentation controls
  - Water quality Best Management Practices (BMP)

# Regulations - Other

- Stormwater Management
  - MCM #1 – Public Education and Outreach on Stormwater Impacts
  - MCM #2 – Public Participation/Involvement
  - MCM #4 – Construction Site Runoff Control
    - Erosion and Sedimentation Control
  - MCM #5 – Post-Construction Runoff Control
    - Erosion and Sedimentation Control
  - MCM #6 – Pollution Prevention/Good Housekeeping

# Public Information Programs



# Public Information Programs

- Does your Hazard Mitigation Plan have a table like this?

	Total Population	Chance Event	
		Population in Hazard Area	Percent Population in Boundary
	10,400	41	<1%
	3,776	15	<1%
	3,194	303	9.5%
	3,861	321	8.3%
	2,560	25	1.0%
	7,024	130	1.9%
	10,310	108	1.0%
	7,755	168	2.2%
	3,791	12	<1%
	6,507	118	1.8%
	23,522	634	2.7%
	16,424	185	1.1%

Do they know?

# Public Information Programs

- Does your municipality have:
  - A website?
  - A newsletter?
  - Brochures in the municipal office?
  - A community library?
  - Active community groups that might distribute information?
  - Other ways to provide information to residents and businesses?

# Public Information Programs

- Does your municipality have:
  - A floodplain administrator who can talk to people about:
    - Their risk from flooding?
    - What they can and cannot do on their property in the floodplain?
    - What types of approvals are required for development in the floodplain?
    - What they can do to protect their property?
    - The benefits and cost of flood insurance?

# Public Information Programs

- Possible Topics
  - The flood hazard
  - Flood insurance
  - Protecting people from flooding
    - Turn Around, Don't Drown
  - Protecting property from flooding
  - Building responsibly
    - Permitting requirements
  - Protecting natural floodplain functions
    - Water source(s)

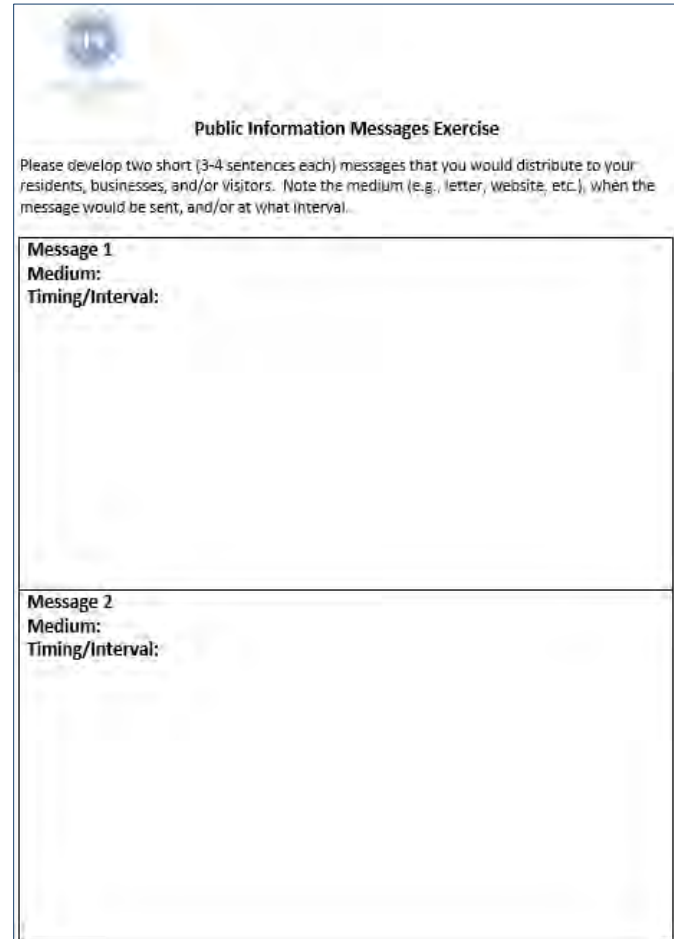
# Public Information Programs

- How often?
  - Monthly?
  - Quarterly?
  - Seasonally?
  - Annually?
  - When a flood is coming?
  - After a flood?

Let's take a break

# Public Information Programs

- **LET'S PRACTICE!**
  - Two short messages (3-4 sentences each)
  - About at least two topics
  - That you would deliver at two different intervals



**Public Information Messages Exercise**

Please develop two short (3-4 sentences each) messages that you would distribute to your residents, businesses, and/or visitors. Note the medium (e.g., letter, website, etc.), when the message would be sent, and/or at what interval.

**Message 1**  
Medium:  
Timing/Interval:

**Message 2**  
Medium:  
Timing/Interval:

# Flood Damage Reduction/Mitigation




# Flood Damage Reduction/Mitigation

- Identify Problem Areas
- Identify Capabilities and Resources
- Identify Projects to Reduce Vulnerability
  - Acquisition
  - Elevation
  - Floodproofing
  - Infrastructure upgrades
  - Backflow preventers
  - Storage facilities




*“At the first sign of a flood, you just push this little button.”*

# Flood Damage Reduction/Mitigation

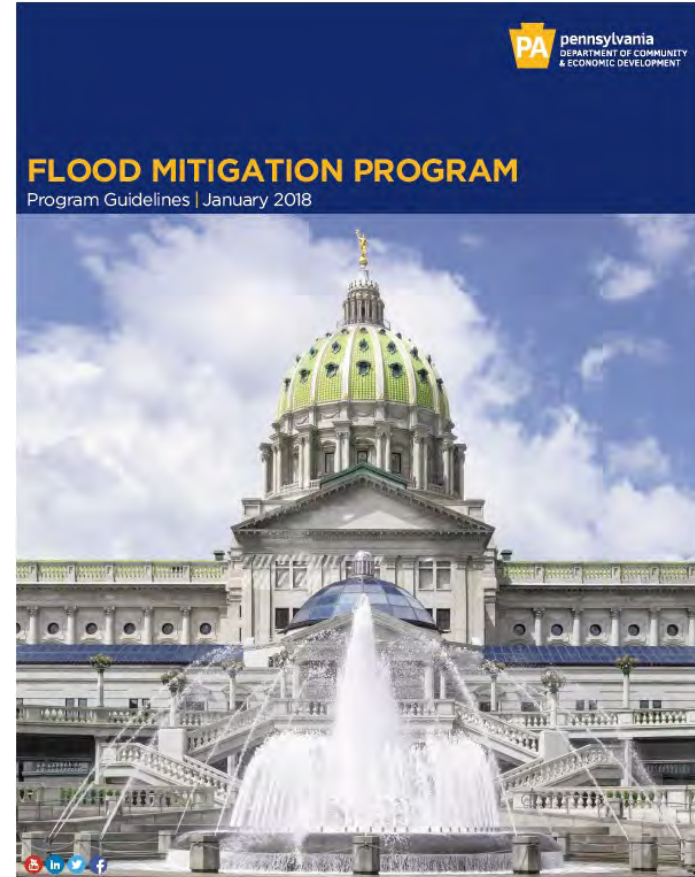


## Hazard Mitigation Assistance Guidance

Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program  
February 27, 2015



Federal Emergency Management Agency  
Department of Homeland Security  
500 C Street, S.W.  
Washington, DC 20472



**PA** pennsylvania  
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT

## FLOOD MITIGATION PROGRAM

Program Guidelines | January 2018

Commonwealth of Pennsylvania | Tom Wolf, Governor  
PA Department of Community & Economic Development | [dced.pa.gov](http://dced.pa.gov)

# Flood Damage Reduction/Mitigation

- FEMA Pre-Disaster Mitigation Grant
  - 75% federal share
- FEMA Flood Mitigation Assistance
  - 75% federal share; higher for repetitive loss or severe repetitive loss property mitigation
- PA DCED Flood Mitigation Program
  - 85% state share



# Flood Damage Reduction/Mitigation

- What is in your Hazard Mitigation Plan (HMP)?

Initiative*	Mitigation Initiative	Applies to New and/or Existing Structures**	Hazard(s) Mitigated	Goals Met	Lead Agency	Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
CaeT-1	Hammertown Road Bridge - Address flood problem at the bridge at 141 Hammertown Road.	Existing	Flood, Flash Flood, and Ice Jams	2	DPW		Medium	High	FEMA HMPG, PDM, FMA; PA DCED FMP; Operating Budget	Short	Low	SIP
CaeT-2	Turkey Hill Road Culvert - Upgrade the culvert at 2051 Turkey Hill Road with one with a higher capacity.	Existing	Flood, Flash Flood, and Ice Jams	2	DPW		Medium	Medium	FEMA HMPG, PDM, FMA; PA DCED FMP; Operating Budget	Short	Low	SIP
ColB-1	Improve stormwater drainage at 10 <sup>th</sup> Street and Ridge Avenue.	Existing	Flood, Flash Flood, and Ice Jams	2	DPW		Medium	Medium	FEMA HMPG, PDM, FMA; PA DCED FMP; Capital Improvement Budget	Short	Low	SIP
ColB-2	Protect the Columbia Municipal Authority WWTP to the 0.2% annual chance flood level.	Existing	Flood, Flash Flood, and Ice Jams	2	DPW	FPA, Municipal EMC	High	High	FEMA HMPG, PDM, FMA; PA DCED FMP; Sewer Grant; Sewer Fees	Short	High	SIP
ColB-3	Provide information at the overlook regarding the potential for wildfires on the hill below, and how visitors can prevent them.	N/A	Wildfire	4	Municipal EMC	Fire Department	Medium	Low	Operating Budget	Short	Low	EAP

# Flood Damage Reduction/Mitigation

- *Speaking of HMPs:*
  - Armstrong County's update is in-process.
  - Westmoreland County's update should be starting soon.
  - Washington County should consider applying for a grant this year.

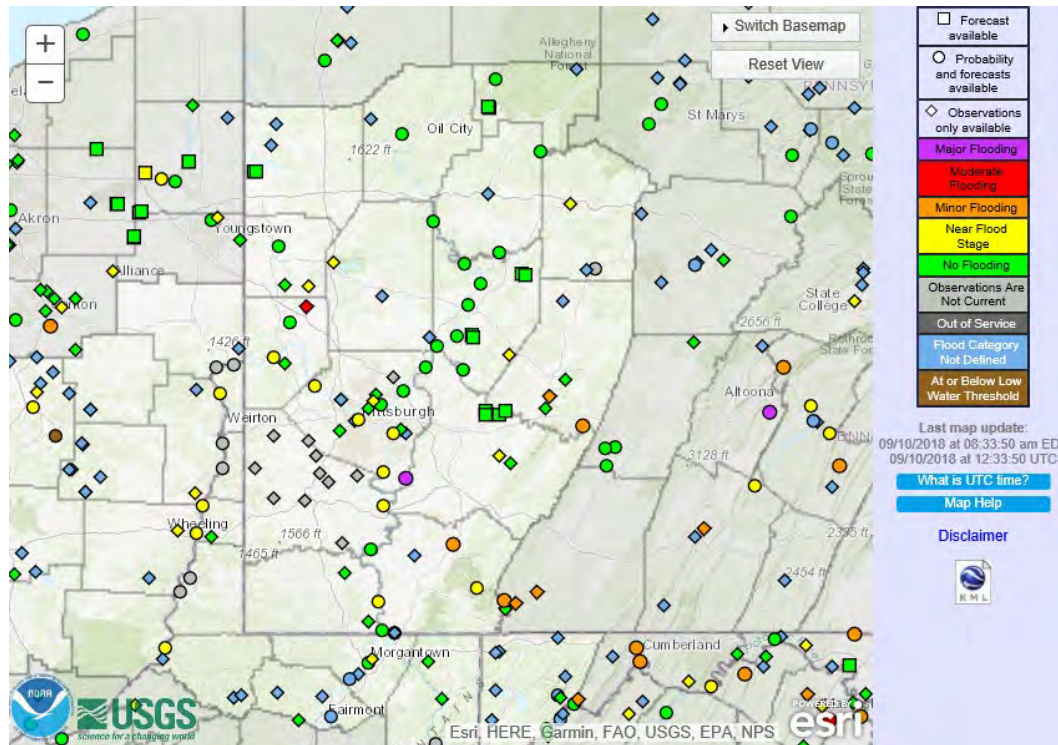
# Flood Preparedness

# Flood Preparedness

- Emergency Operations Plan (EOP)
- Response Operations
- Critical Facilities

# Flood Preparedness

- Inundation Maps
- Warning Systems



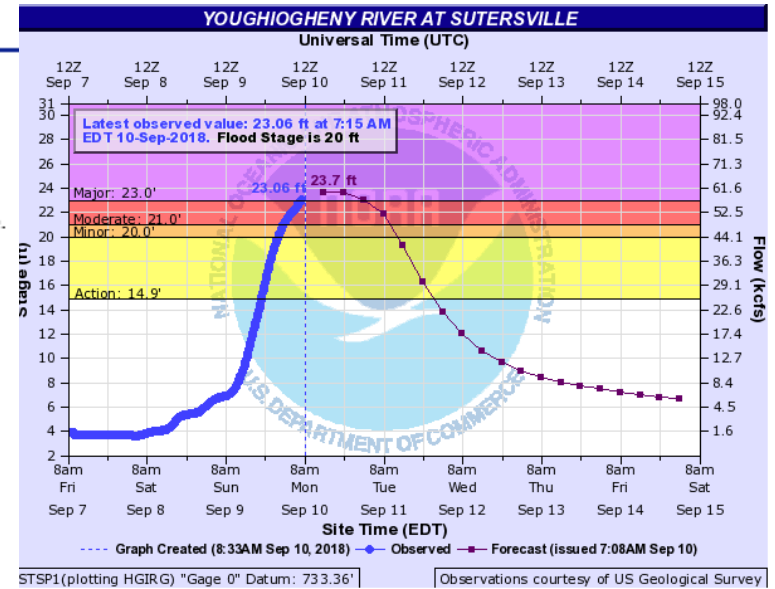


# Flood Preparedness

## Flood Impacts & Photos

If you notice any errors in the below information, please contact our Webmaster

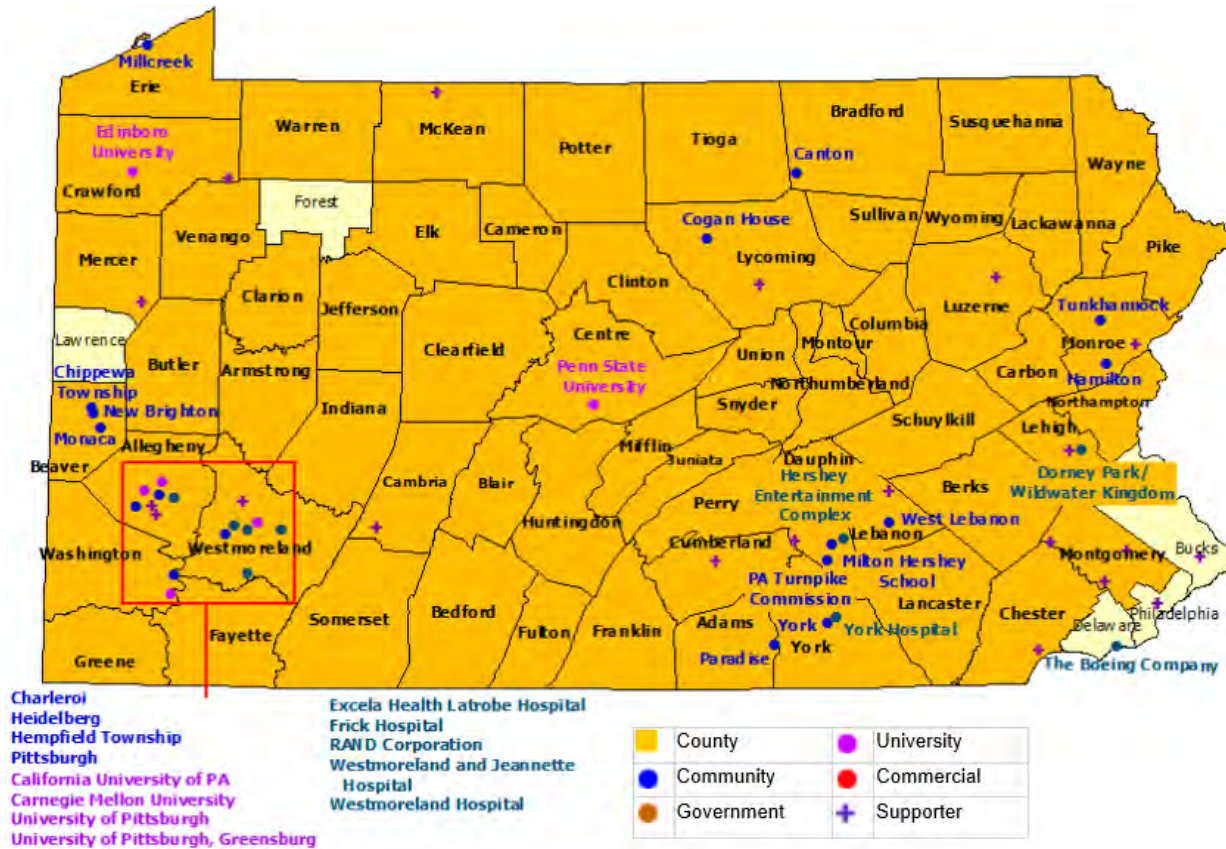
- 32.5 Water reaches the flood of record...October 16, 1954.
- 30.65 Water reaches the level of the St. Patricks Day Flood and crest on March 18, 1936.
- 29.7 Water reaches the level reached during Hurricane Agnes June 23 1972.
- 23 Floodwaters reach the railroad tracks on the left bank.
- 20.7 Water reaches the level reached during Hurricane Ivan September 18, 2004.
- 20.66 Flood reaches the level reached on March 5, 2015.



- <https://water.weather.gov/ahps2/index.php?wfo=pbz>

# Flood Preparedness

- StormReady





OMB No. 1660-0022  
Expires: March 31, 2020

National Flood Insurance Program  
Community Rating System

# Coordinator's Manual

FIA-15/2017



# The Community Rating System (CRS) Program

# The CRS Program

- Part of the National Flood Insurance Program (NFIP)
  - Administered by FEMA
- Provides for reduced flood insurance premiums where there is better floodplain management.
- Promotes floodplain management practices above and beyond the minimum NFIP requirements.
- Administered by the Insurance Services Office (ISO)
  - ISO/CRS Specialist

# The CRS Program

- 19 creditable activities in four categories
- Can get credit from 94 elements
- Flood insurance discounts ranging from 5-45%
- Class 4 and above particularly strenuous requirements

CRS Class	Credit Points (cT)	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000-4,499	40%	10%
3	3,500-3,999	35%	10%
4	3,000-3,499	30%	10%
5	2,500-2,999	25%	10%
6	2,000-2,499	20%	10%
7	1,500-1,999	15%	5%
8	1,000-1,499	10%	5%
9	500-999	5%	5%
10	0-499	0	0

Series 300 Public Information	Series 400 Mapping and Regulations	Series 500 Flood Damage Reduction	Series 600 Flood Preparedness
Elevation Certificates	Floodplain Mapping	Floodplain Mgt. Planning	Flood Warning Program
Map Information Service	Open Space Preservation	Acquisition and Relocation	Levee Safety
Outreach Projects	Higher Regulatory Standards	Flood Protection	Dam Safety
Hazard Disclosure	Flood Data Maintenance	Drainage System Maintenance	
Flood Protection Information	Stormwater Management		
Flood Protection Assistance			
Flood Insurance Promotion			

# Final Questions?

Thank you!



- Tony Subbio, CFM
  - 717-545-3580
  - [tony.subbio@tetrattech.com](mailto:tony.subbio@tetrattech.com)
- Erin Kepple Adams
  - 412-391-5590 x374
  - [ekepple@spcregion.org](mailto:ekepple@spcregion.org)