FEMA

Bergen and Essex County, NJ Riverine Flood Risk Review and Resilience Meeting

October 28, 2014

RiskMAP

Increasing Resilience Together

Agenda for Today

- **Introduction**
- **Riverine Flood Risk Study and Mapping**
- **Overview of Non-Regulatory Flood Risk Products and Datasets**
- **Hazard Mitigation Planning Process and Mitigation Actions**
- **Mapping Schedule**
- **Breakout Group Sessions**

Objectives

- Build more local capacity for implementing mitigation actions
- We are here to assist Bergen and Essex Counties in:
  - Using flood map products to develop new strategies to reduce your risk
  - Understanding the resources available to help you implement those strategies
  - The importance of and opportunities for communicating flood risk to your constituents
- **This will help you get a jumpstart on thinking about your mitigation strategies for your Hazard Mitigation Plan.**

FEMA's Risk MAP Program

- **Risk Mapping, Assessment and Planning 2010 - 2014**
- **Builds on Map Mod digitized Flood Insurance Rate Map (FIRM) successes**
- **Will deliver quality data that increase public awareness and lead to action that reduces risk to life and property**
- **Regulatory Products: Flood Insurance Study (FIS) and FIRM (Coastal re-mapping)**
- **New Non-Regulatory Products and Datasets**

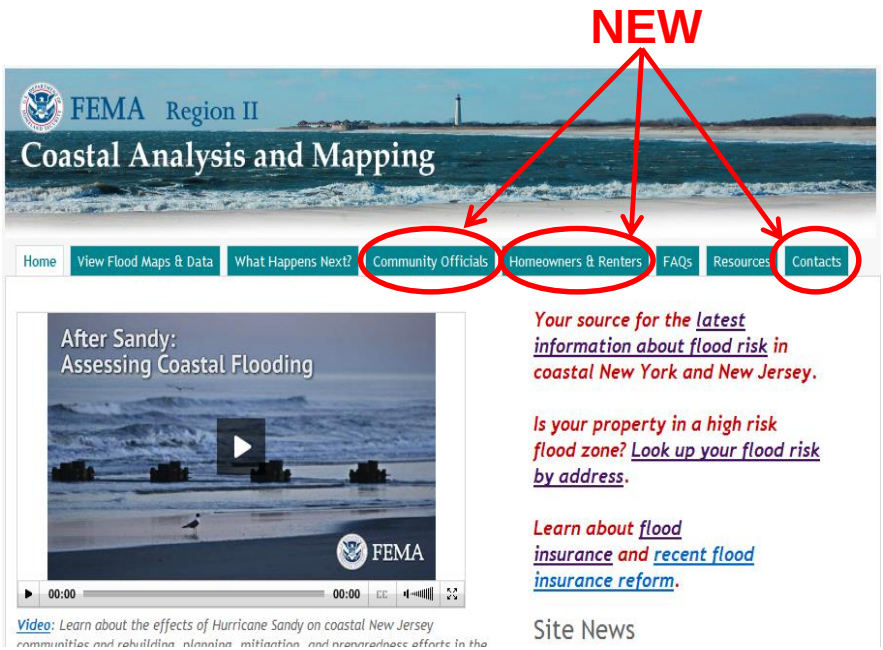
Risk Communications

- **Federal/State/Local goals:**
  - Creating safer communities reducing risk to lives and property
  - Effectively communicate risk and increase public awareness, leading citizens to make informed decisions regarding risk

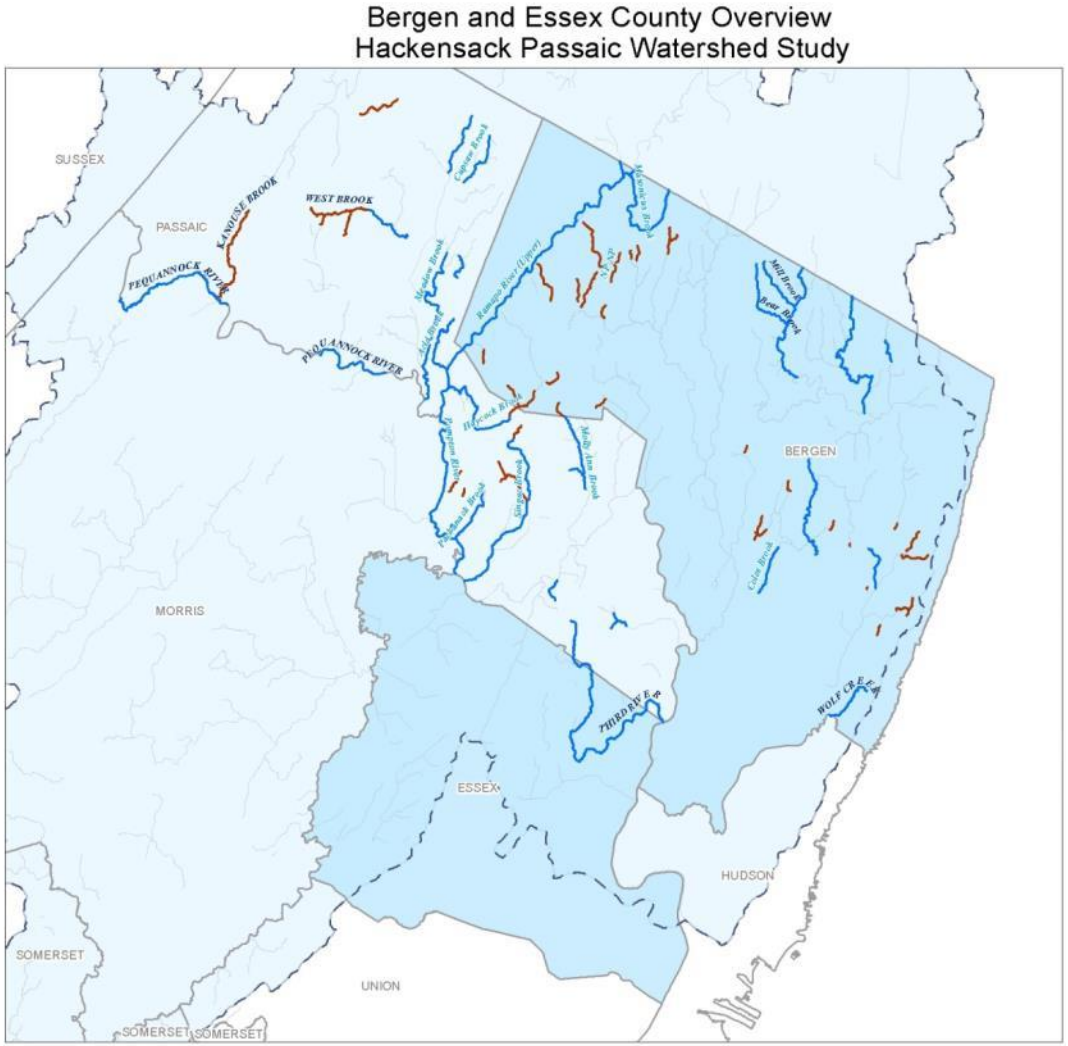
- **Key factors contributing to successful achievement of these goals are:**
  - Community engagement and exchange of flood risk information
  - Effective collaboration through partnerships
  - Strategic communications plan development

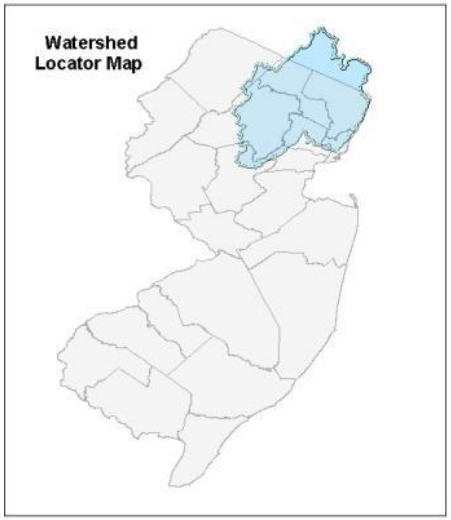
Risk Communciations-Resources

- **Visit our Website: www.region2coastal.com**
- **Outreach factsheets**
- **Frequently Asked Questions**
- **Coastal Risk Educational Videos**
- **Best Available Data (Preliminary FIRMs)**
- **For additional information: www.rampp-team.com/nj/htm**



Hackensack-Passaic Watershed





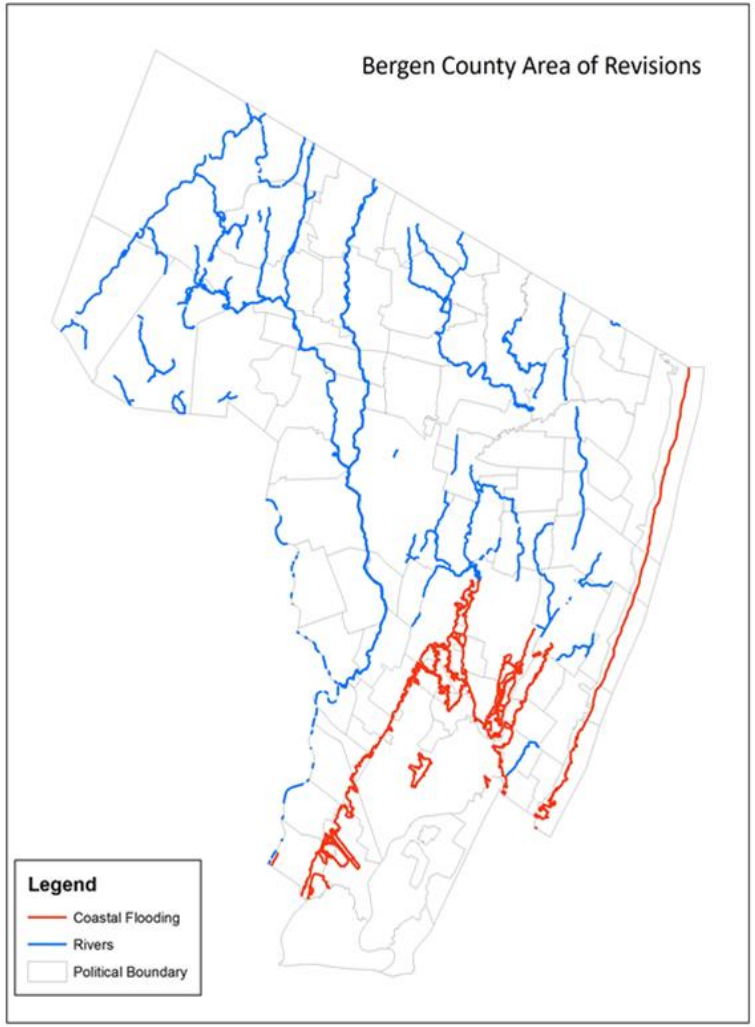
Hackensack Passaic Watershed Overview

- Portions of 8 New Jersey Counties (Bergen, Essex, Hudson, Morris, Passaic, Somerset, Sussex, Union)
- 159 Communities (New Jersey)
- Approximately 1,137 Square Miles
- Approximately 38.2 Miles of Limited Detailed Study **(new/updated Zone A)**
- Approximately 119.9 miles of Detailed Study **(new/updated Zone AE)**

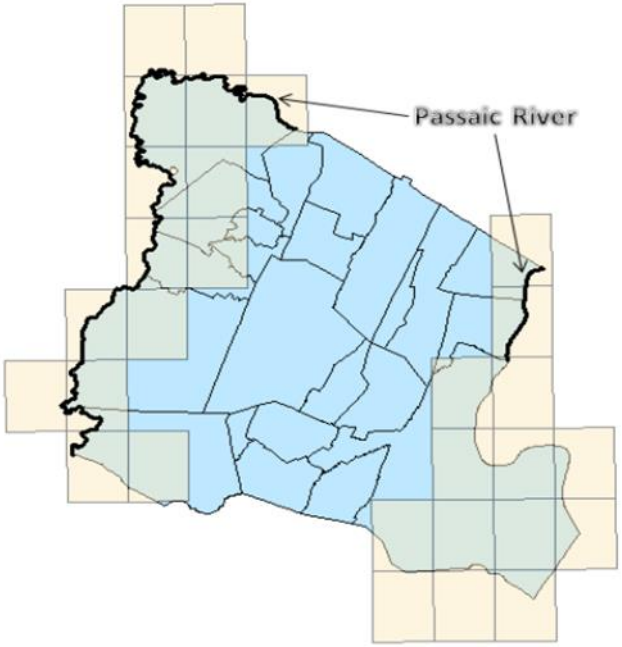
Legend

- Detailed Study
- Limited Detailed Study
- County Boundaries
- Hackensack Passaic Watershed

Bergen and Essex County Revisions



Essex County
Areas of Revisions

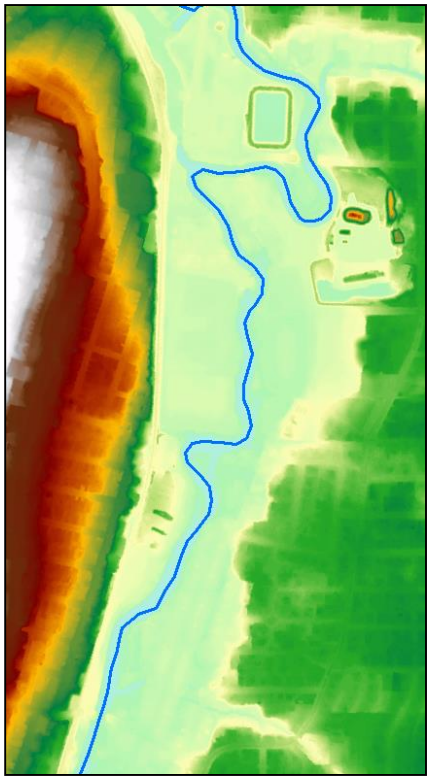


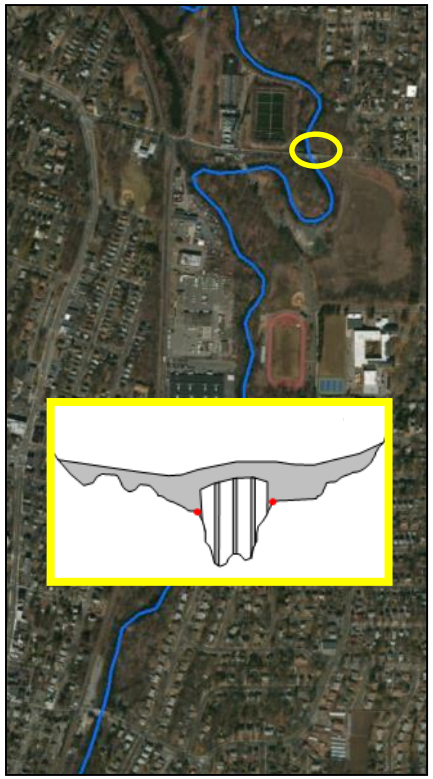
Bergen and Essex County Riverine Study

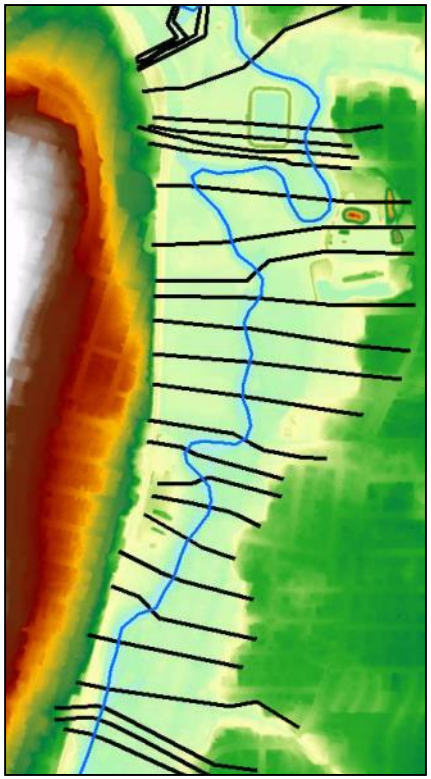
- **New Studies**
  - 160 miles of Zone AE (“Detailed”)
  - 38.2 miles of Zone A (“Limited Detail”)
- **New Study Benefits**
  - Previous studies were at least 10+ years old
  - Takes advantage of much improved, higher resolution topographic data (LiDAR)
  - Updated hydrology
  - Availability of new, non-regulatory Flood Risk Products to help w/ improved risk communication and awareness

Riverine Studies: Methodology

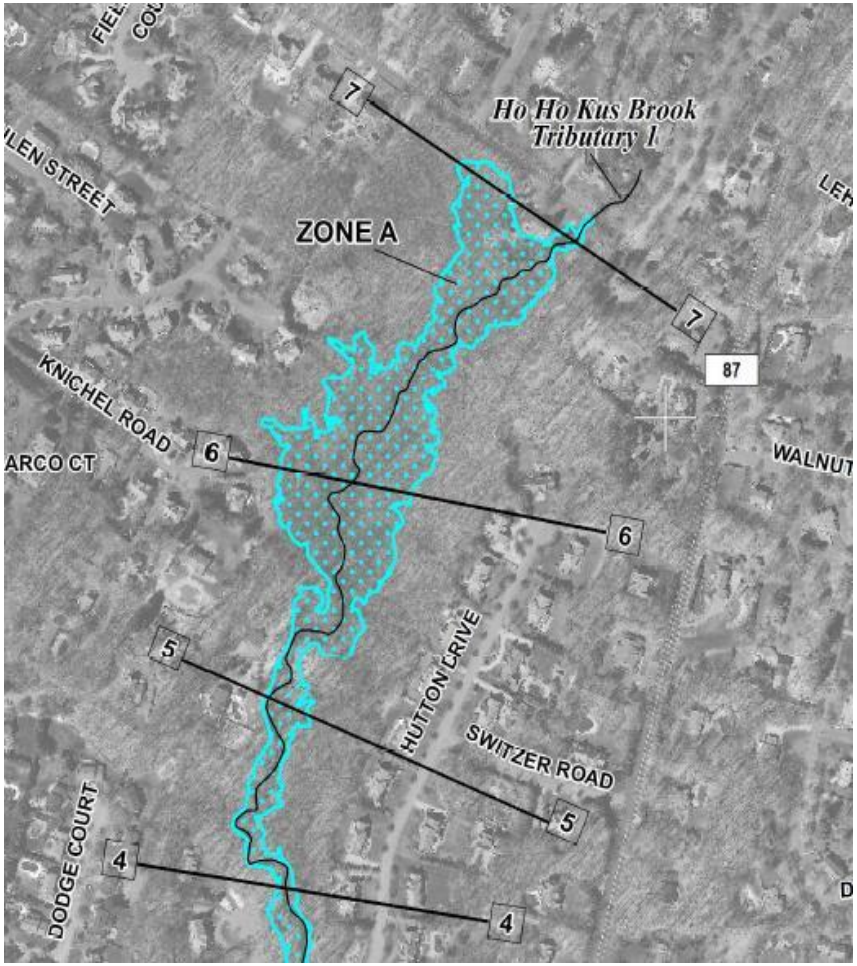
Topographic Data	Survey	Hydrology	Hydraulics
• New 1m DEM processed (LiDAR)	• Field survey (new Zone AE) • Field measurements (new Zone A)	• Calculate discharges (regression equations, gage estimates, or HEC-HMS models)	• Cross-section placement • HEC-RAS model development







Zone A – Limited Detailed Studies



- **New Enhanced Zone A studies were performed using a "Limited Detail" methodology**
- **No Profile, but Advisory Base Flood Elevations provided in Limited Detailed Flood Hazard Data Table**

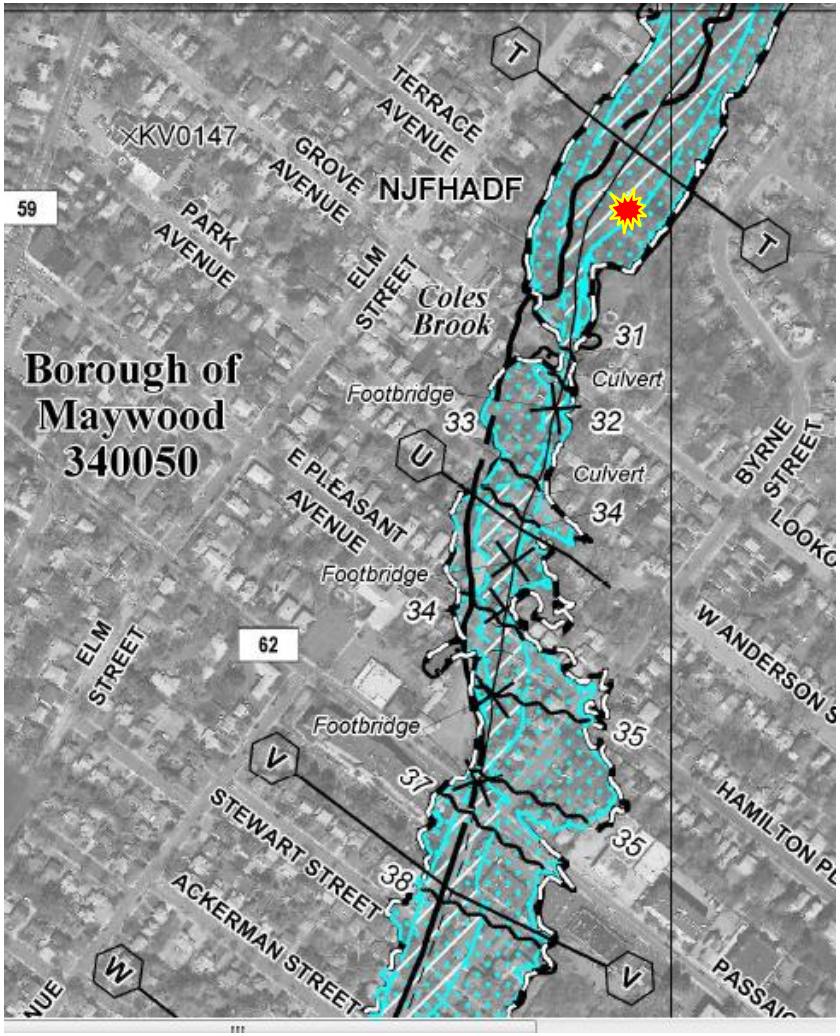
Cross Section	Flood Discharge (CFS)	1% Annual Chance Advisory Base Flood Elevation (Feet NAVD88)	FIRM Panel Number
HO-HO-KUS BROOK TRIBUTARY 1			
1	210	320.0[5]	0068
2	210	324.2	0068
3	210	326.7	0068
4	210	330.0	0066
5	210	336.9	0066
6	152	341.8	0066
7	152	349.7	0066

[5]Backwater from Ho-Ho-Kus Brook

Determining BFEs on Zone AE Streams

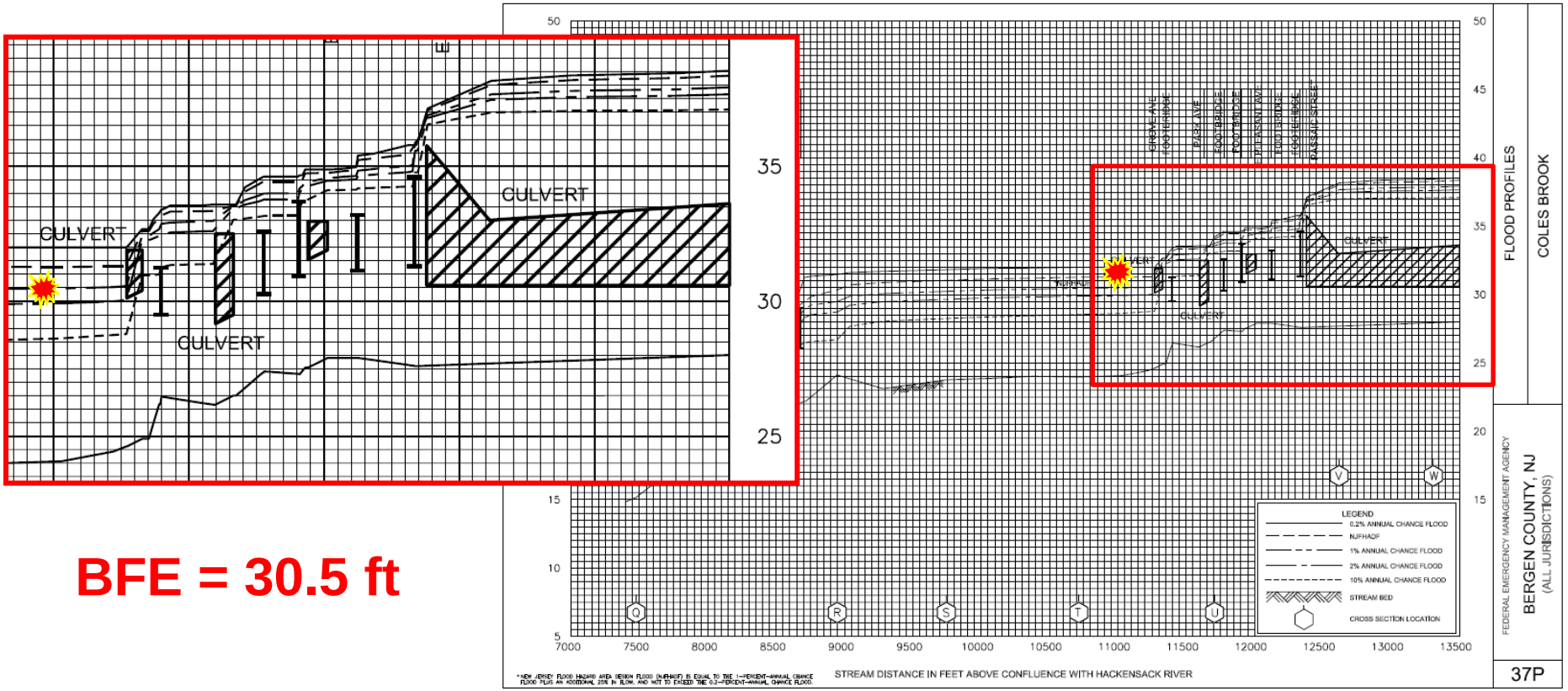
- **Identify Location and Distance from Reference Points on FIRM**

By using cross sections or structures as reference points and measuring along the profile baseline shown on the map, the BFE can be determined by referencing the profile from the FIS report.



Determining BFEs on Zone AE Streams

- **Find Equivalent Location on the Flood Profile in the FIS Report**



BFE = 30.5 ft

Determining BFEs on Zone AE Streams

- **BFEs at cross sections may be found on the Floodway Data Tables, which are also located in the FIS report**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Coles Brook								
A	65	86	419	4.5	7.9	3.8[2]	4.0	0.2
B	730	76	494	3.8	7.9	4.5[2]	4.6	0.1
C	1,335	42	245	7.8	7.9	4.6[2]	4.7	0.1
D	1,720	140	474	4.0	7.9	6.1[2]	6.1	0.0
E	2,120	80	399	4.8	7.9	6.8[2]	6.9	0.1
F	2,470	58	333	5.7	7.9	7.4[2]	7.5	0.1
G	2,790	39	263	7.2	9.8	9.8	9.8	0.0
H	2,970	92	361	5.3	10.0	10.0	10.2	0.2
I	3,220	116	524	3.6	11.2	11.2	11.3	0.1
J	3,850	66	426	4.5	12.8	12.8	12.9	0.1
K	4,020	78	361	5.3	13.7	13.7	13.8	0.1
L	4,610	81	492	3.9	15.0	15.0	15.1	0.1
M	4,900	67	202	4.1	15.1	*	*	*
N	5,400	28	104	8.0	15.1	*	*	*
O	6,240	55	191	4.4	17.2	17.2	17.3	0.1
P	6,845	50	182	4.6	18.4	18.4	18.6	0.2
Q	7,475	44	126	6.6	20.3	20.3	20.5	0.2
R	8,946	86	257	3.0	29.5	29.5	29.6	0.1
S	9,745	134	587	1.2	30.2	30.2	30.4	0.2
T	10,715	195	765	0.9	30.5	30.5	30.6	0.1
U	11,707	125	345	2.1	33.8	33.8	33.9	0.1
V	12,619	120	465	1.7	37.7	37.7	37.9	0.2
W	13,308	122	495	1.3	37.9	37.9	38.1	0.2

[1] Feet above confluence with Hackensack River
[2] Computed without consideration of the backwater effects from Hackensack River
* Data not available

TABLE 15

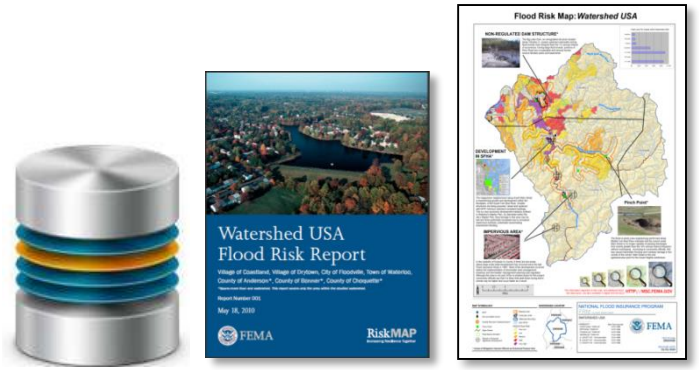
FEDERAL EMERGENCY MANAGEMENT AGENCY

BERGEN COUNTY, NJ
(ALL JURISDICTIONS)

FLOODWAY DATA

COLES BROOK

Non-Regulatory Flood Risk Products and Datasets



- **Flood Risk Products**
  - Flood Risk Report, Map, and Database
- **Flood Risk Datasets**
  - Changes Since Last FIRM (CSLF)
  - 1% Depth Grid
  - Areas of Mitigation Interest (AOMI)
  - Flood Risk Assessment (refined Hazus analysis)

Non-Regulatory Flood Risk Products

Changes Since Last FIRM

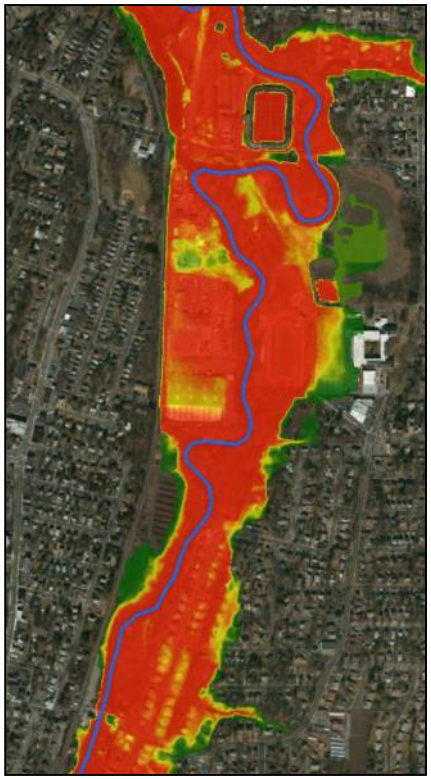
- Highlights areas where floodplain/floodway increased/decreased

Flood Depth Grids

- Show flood depths within the floodplain (for new Zone AE streams)

Flood Probability (% Chance) Grids

- Highlights areas within the floodplain likely to flood more often



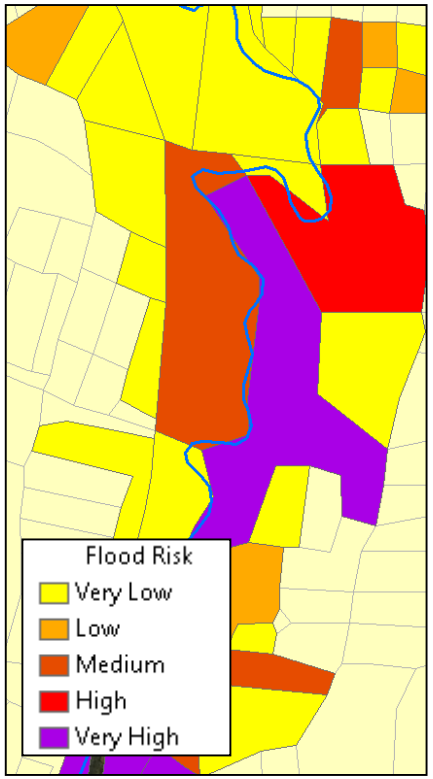
Areas of Mitigation Interest

- Locations of features of interest from a potential mitigation standpoint

Non-Regulatory Flood Risk Products

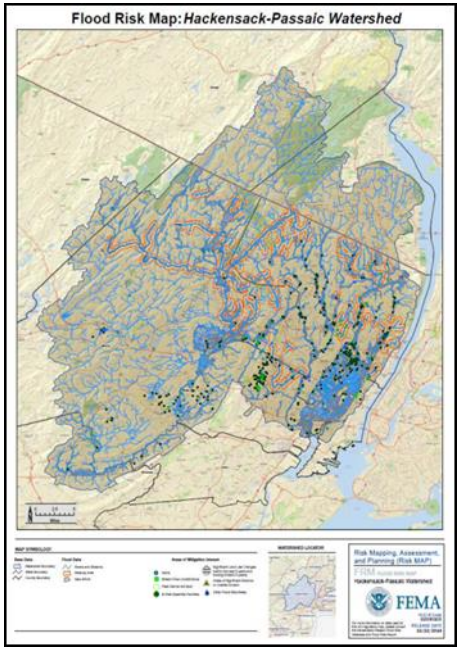
Flood Risk Assessments

- Helps identify locations with highest flood damage potential



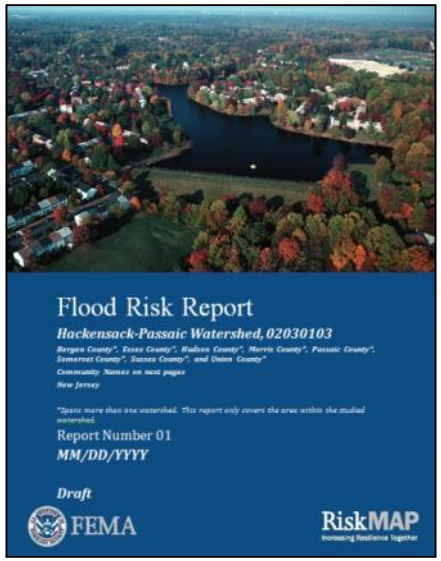
Flood Risk Map

- Overview snapshot of study area



Flood Risk Report

- Summary statistics of flood risk data by community



Applications of Non-Regulatory Products

- **Contributes to a better understanding of current and possible future flood risk in your community**
- **Leads to more informed decisions in higher risk areas**
- **Floodplain managers could use this data for advising the local elected officials (ex. adopting more freeboard)**
- **Provides a new perspective for property owners to view their flood risk**
- **Used to help develop mitigation strategies**

Local Hazard Mitigation Plans (HMPs)

Risk MAP
Risk MAP Products and Datasets

Hazard Mitigation Plan
- Uses Risk Information
- Identifies Projects/Actions
- Integrated with Other Community Plans

Other Community Plans
- Comprehensive plans
- Capital Improvement
- Stormwater Management Plans
- Emergency Operations
- Sustainability / Climate Change Plan

Mitigation Actions/Projects

Mitigation Actions – Types, Examples

STRUCTURE AND INFRASTRUCTURE PROJECTS

Acquisition

Elevation

Retrofits

Drainage

LOCAL PLAN AND REGULATIONS

Zoning

Building Codes

Ordinances

Open Space Plan

COMMUNITY IDENTIFIED PROGRAMS

Firewise

StormReady

NFIP

CRS

NATURAL SYSTEM PROTECTION

Stream and wetland restoration

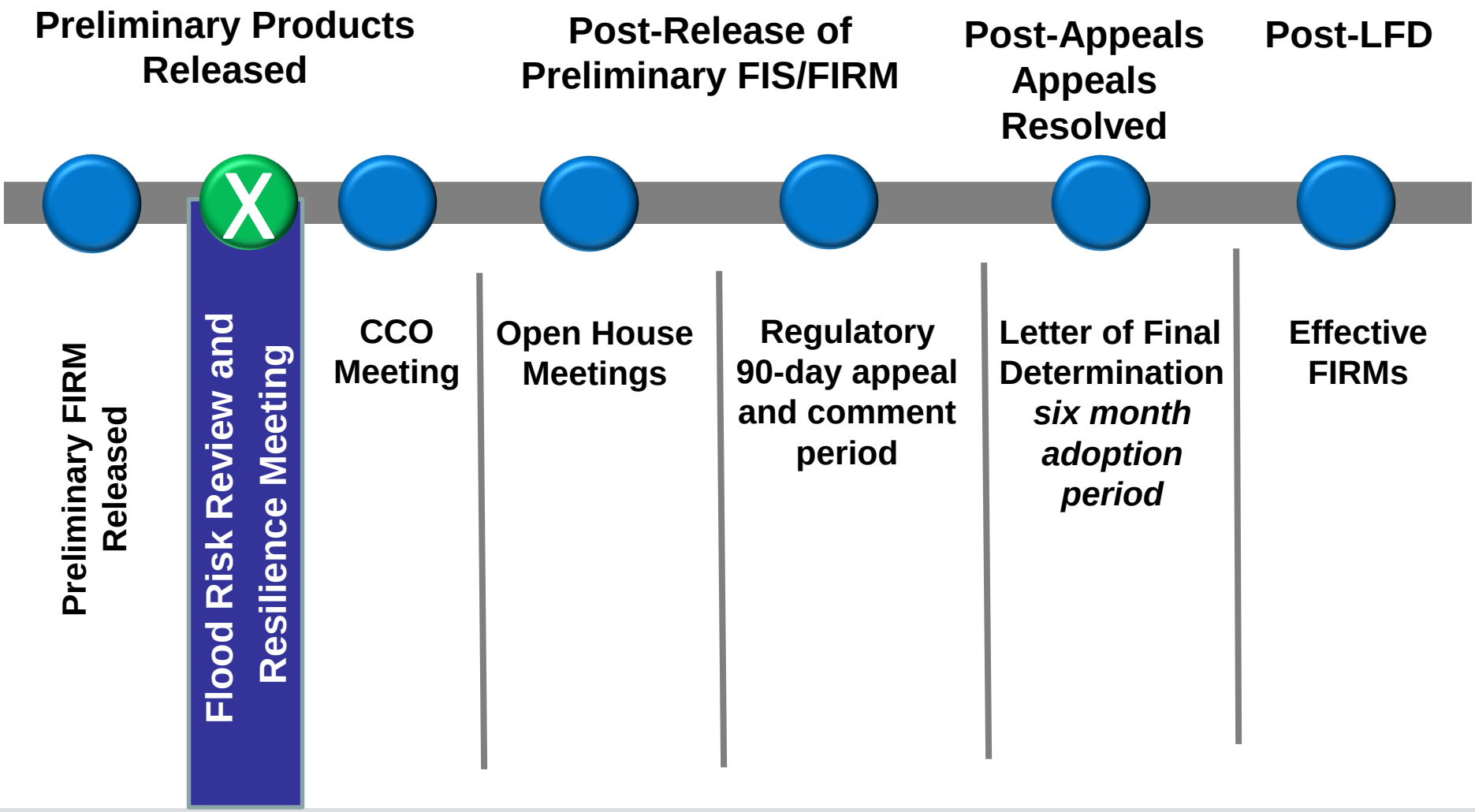
Erosion control

What Action Will You Take?

- **What are some areas of mitigation interest in your community?**
- **Can you think of any potential mitigation projects?**
- **Review draft Areas of Mitigation Interest and provide feedback to representatives during the working session.**




Timeline for Bergen ad Essex County



Conclusion: Community Resilience

Risk Changes Over Time → **FEMA Provides Best Available Data** → **Community Officials Adopt Higher Standards** → **Property Owners Build to Higher Standards** → **More Resilient Communities Created**

Together, we all can create stronger and safer communities

Breakout Groups

- **Modeling/Engineering/Mapping**
- **Non-Regulatory Products**
- **Hazard Mitigation Planning and Actions**
- **New Jersey State DEP**

Thank you for your participation!

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