BACKGROUND

FEMA Maps

Repellitive Loss Properties

- Special Flood Hazard Area (SFHA)
- 0.2% Annual Chance Flood Hazard

EXISTING STRUCTURES: 2,550
EXISTING PARCELS: 3,127
NFIP POLICIES: 3,746
BACKGROUND

Sea Level Rise + Severe storm

- one severe hurricane could cause more than $2 billion in damages citywide
- extreme storms with higher winds and flooding could cause between $20 million and $900 million in damages citywide
- additional $2 to $4 million in roadway maintenance costs
- regional transit system operational costs could rise $2 million per year
BACKGROUND
Infrastructure Flooding
BACKGROUND
Major Floods

Delaware River 1930’s & mid 1950

May 2016, Manayunk neighborhood

Hurricane Floyd 1999
BACKGROUND
Strengths

FRMTF
FLOOD RISK MANAGEMENT TASK FORCE
CITY OF PHILADELPHIA

Vulnerable City Assets

Undeveloped Land Along “edges”
AIRPORTS INCREASINGLY VULNERABLE TO FLOODING

According to the US government’s recent climate change report at least 12 of the country’s 47 largest airports are vulnerable to storm surges and flooding. Those airports include:

San Francisco International (SFO)
Oakland International (OAK)
Honolulu International (HNL)
New Orleans Louis Armstrong International (MSY)
Tampa International (TPA)
Miami International (MIA)
Ft. Lauderdale International (FLL)
Ronald Reagan Washington National (DCA)
Newark Liberty International (EWR)
LaGuardia (LGA)
Philadelphia International (PHL)
John F. Kennedy (JFK)
Proposed Projects

- Venice Island Papermill Site (floodway)
- Development at Navy Yard (including residential)
- Airport Expansion
- Delaware River Development
- Lower Schuylkill (Botanic Ave) PIDC Development
- PRA Redevelopment Plan – Lower Eastwick
- FDR Park
- Port of Philadelphia
- CAP Park
- Penns Landing Development
- Festival Pier Development
- PennDOT I-95/Delaware Ave Extension
- Federal Opportunity Zones - Upper Delaware Riverfront
- Keystone Opportunity Zones - Navy Yard, PES, & lower Schuylkill
Every $1 Invested in Disaster Mitigation Saves $6

Spending to reduce risk saves lives and creates jobs, key study finds

Natural Hazard Mitigation Provides the Nation $6 in Benefit for Every $1 Invested

<table>
<thead>
<tr>
<th>Natural Hazard</th>
<th>Benefit-Cost Ratio (BCR) Per Peril</th>
<th>Beyond Code Requirements</th>
<th>Federally Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riverine Flood</td>
<td>$5:1</td>
<td>$7:1</td>
<td>$6:1</td>
</tr>
<tr>
<td>Hurricane Surge</td>
<td>$7:1</td>
<td>Too few grants</td>
<td></td>
</tr>
<tr>
<td>Wind</td>
<td>$5:1</td>
<td>$5:1</td>
<td></td>
</tr>
<tr>
<td>Earthquake</td>
<td>$4:1</td>
<td>$3:1</td>
<td></td>
</tr>
<tr>
<td>Wildland-Urban Interface Fire</td>
<td>$4:1</td>
<td>$3:1</td>
<td></td>
</tr>
</tbody>
</table>

This Interim Study quantified a number of benefits from mitigation, including reductions in:
- Future deaths, nonfatal injuries, and PTSD
- Repair costs for damaged buildings and contents
- Sheltering costs for displaced households
- Loss of revenue and other business interruption costs to businesses whose properties are damaged
- Loss of economic activity in the broader community
- Loss of service to the community when fire stations, hospitals, or other public buildings are damaged
- Insurance costs other than insurance claims
- Costs for urban search and rescue
Why Risk Rating 2.0?

FEMA is focused on building a culture of preparedness by closing the insurance gap. Recognizing that purchasing flood insurance can be confusing and time-consuming, the National Flood Insurance Program (NFIP) is redesigning its risk rating system to improve the policyholder experience.

Risk Rating 2.0 aims to accomplish this by leveraging industry best practices and current technology to deliver rates that are fair, easy to understand, and better reflect a property’s unique flood risk. Through these efforts, FEMA’s goal is to make flood insurance significantly easier for agents to price and sell policies, and in turn, help customers better understand their flood risk and the importance of flood insurance.

What is Changing?

Risk Rating 2.0 will fundamentally change the way FEMA rates a property’s flood risk and prices insurance. The current rating methodology has not changed since it was first developed in the 1970s. But since then, technology has evolved and so has FEMA’s understanding of flood risk. Additionally, the current rating methodology is heavily dependent on the 1-percent-annual-chance-event, while Risk Rating 2.0 will incorporate a broader range of flood frequencies.

FEMA will be pairing state-of-the-art industry technology with the NFIP’s mapping data to establish a new risk-informed rating plan. Catastrophe models, in combination with the ability to leverage the NFIP’s mapping data, will provide a better and more comprehensive understanding of risk at both the national and local level.

FEMA is building a new rating engine to help agents easily price and sell policies. It will also allow policyholders to better understand their property’s flood risk and how it is reflected in their cost of insurance.

New rates for all single-family homes will go into effect nationwide on October 1, 2020. Risk Rating 2.0 will comply with existing statutory caps on premium increases. This will help transition policyholders who may face otherwise substantial rate increases.

Rating Characteristics

The new risk rating plan will use easy-to-understand rating characteristics for each property, such as:

• Distance to the coast or another flooding source
• Different types of flood risk
• The cost to rebuild a home

By reflecting the cost to rebuild, the new rating plan will also aim to deliver fairer rates for owners of lower-value homes.

What are the benefits of Risk Rating 2.0?

The NFIP is developing Risk Rating 2.0 to deliver the following key benefits to policyholders, communities, and the flood insurance industry:

• Creates an individualized picture of a property’s risk
• Provides rates that are easier to understand for agents and policyholders
• Reflects more types of flood risk in rates
• Uses the latest actuarial practices to set risk-based rates
• Reduces complexity for agents to generate a quote

Learn More

To learn more about Risk Rating 2.0 and to get the most up-to-date information, please visit www.fema.gov/nfiptransformation.

FEMA’s mission is to help people before, during and after disasters.

BENEFITS

• Reduction in flood insurance premiums for residents and businesses
• Enhanced public safety, reduction in damage to property and public infrastructure, avoidance of economic disruption and losses, reduction in human suffering, and protection of the environment
• Flood management program effectiveness evaluation
• Training and technical assistance
• Public information and participation
• Mitigation

Risk Rating 2.0 Overview

May 2019

FEMA:

Who is Risk Rating 2.0?

FEMA’s floodplain management program provides a range of services to help communities across the country identify, analyze, and reduce their risks to flooding. The program also provides financing options to communities that wish to purchase flood insurance for properties within their jurisdiction.

Risk Rating 2.0 is a voluntary program that allows communities to purchase flood insurance for properties within their jurisdiction. The program is designed to help communities identify and reduce their risks to flooding, and to provide financing options to help communities purchase flood insurance for properties within their jurisdiction.

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FLOOD RISK MANAGEMENT TASK FORCE

Background

The City of Philadelphia’s Flood Risk Management Task Force (FRMTF) is a coordinated approach to flood risk management across local government. The formation of the FRMTF followed the American Society of Civil Engineer’s (ASCE) Call for National Flood Risk Management Strategy (2014), which in the wake of Hurricane Katrina and other catastrophic storms, urged all levels of government in the United States to develop and align sustainable flood risk management strategies. Today the FRMTF is comprised of more than 15 City departments/agencies as well as state and federal partners with the goals of providing public information, mapping & regulations, flood damage reduction, and flood preparedness.
FLOOD RISK MANAGEMENT TASK FORCE

Background

History - timeline

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)
The U.S. Congress established the National Flood Insurance Program (NFIP) with the passage of the National Flood Insurance Act of 1968.

FLOODPLAIN REGULATIONS + FIRM MAPS
The City of Philadelphia adopts first floodplain regulations, and enters the NFIP.

FIRM MAPS UPDATE 1978

FLOODPLAIN REGULATION UPDATE
The City of Philadelphia amends its Zoning Code for development in the Special Flood Hazard Area (SFHA) to have a Design Flood Elevation of BFE + 18” rather than BFE+12”

FIRM MAPS UPDATE 1981
FIRM MAPS UPDATE 1996
FIRM MAPS UPDATE (CURRENT EFFECTIVE) 2007

FLOODPLAIN DEVELOPMENT APPLICATION FORMS
Department of L+I further developed administrative processes to adequately enforce floodplain regulations (codes + regulations, checklist, forms, and technical information).

FLOODPLAIN REGULATION UPDATE
Predominantly the areas along the Delaware River.

FIRM MAPS UPDATE (CURRENT EFFECTIVE) 2012

FLOOD RISK MANAGEMENT TASK FORCE
Formed to address the circumstances of flooding as it impacts various Philadelphia neighborhoods, and represents an inter-agency effort to coordinate resources.

FIRM MAPS UPDATE (CURRENT EFFECTIVE) 2015

FUTURE

IMPLEMENTATION OF FLOOD TASK FORCE STRATEGIC PLAN
Through the vision, objective, goals, and initiatives outlined in this plan, the City will position itself to be more resilient to flood hazards, as well as have the availability to apply to the CRS program.

FLOOD TASK FORCE STRATEGIC PLAN
The Floodplain Management Task Force Strategic Plan outlines a strategy to position the City to become a CRS Community in the next three years (2019-2021). The Strategic Plan is informed by insights from data analysis, CRS program framework, and task force member engagement that highlight the strengths, weaknesses, and opportunities that the City faces in terms of flooding.

FLOODPLAIN DEVELOPMENT APPLICATION FORMS

CITY OF PHILADELPHIA FLOODPLAIN MANAGER
Through the advocacy of the Flood Risk Management Task Force, the City hired its first Floodplain Manager.

FEMA COMMUNITY ASSISTANCE VISIT (CAV)
FEMA conducted an “audit” of the City’s compliance as an NFIP community. This is a perquisite to enrollment into the CRS program.
FLOOD RISK MANAGEMENT TASK FORCE

Participants

PROGRAM ADVISORY BOARD
- Department of Licenses + Inspections (L+I)
- Department of Parks and Recreation (PPR)
- Office of Emergency Management (OEM)
- Office of Transportation, Infrastructure & Sustainability (OTIS)
  - Office of Sustainability (OOS)
  - Philadelphia Water Department (PWD)
- Philadelphia City Planning Commission (PCPC)

DECISION MAKERS
- Department of Commerce (DC)
- Department of Public Property (DPP)
- Law Department (LD)
- Mayor’s Office - Grants (MO)
- Office of Public Health (OPH)
- Philadelphia Redevelopment Authority (PRA)
- Streets Department (PSD)
- Office of Risk Management (ORM)

UTILITIES/TRANSPORTATION
- PECO
- PGW
- SEPTA
- Veolia

STATE/FEDERAL AGENCIES
- Department of Environmental Protection (DEP)
- National Weather Service (NWS)
- Federal Emergency Management Administration (FEMA)
- U.S. Army Corps of Engineers (USACE)
- PA Emergency Management Agency (PEMA)

PUBLIC ADVISORY COMMITTEE
- NON-PROFIT ORGANIZATIONS
- PRIVATE INDUSTRY

COLLABORATION
- TECHNICAL ASSISTANCE
- COORDINATORS
In 2018, members of the FRMTF initiated a strategic planning process to map out the direction and priorities for the FRMTF over the next few years. The Flood Management Program (FMP) is the proposed outcome of the strategic plan. Establishing this program will ingrain nationally recognized flood management into the City’s core functions while creating an accessible program for City residents, businesses, developers, and partners around flood resiliency.
Key findings:

- Need “leadership” buy-in
- Repetitive loss properties
- Higher regulations
- Public outreach lacking
- CRS participation
- Need to map and regulation non-FEMA flood areas
Data Sets:

- FEMA FIRM layers
- Sea level rise & severe storm
- Repetitive Loss Properties
- NFIP coverage
- City-owned properties
- Critical facilities
- High Risk facilities
- Historic Designation

Data Sets:

- FEMA (repetitive loss)
- Sea Level Rise + Severe Storm
- City-owned buildings/infrastructure
- 311 Reports
- Police/Fire water emergencies
## Components + Goals = Outcome

### COMPONENTS + GOALS

<table>
<thead>
<tr>
<th>Public Information</th>
<th>Mapping + Regulations</th>
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<tbody>
<tr>
<td>Create a variety of communication tools to promote education around flood hazards.</td>
<td>Develop higher standards and risk mapping for flood hazards.</td>
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<tr>
<th>Flood Preparedness</th>
<th>Flood Damage Reduction</th>
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<td>Prioritize the need to address a variety of flood concerns.</td>
<td>Enhance the City’s resiliency to flooding through mitigation.</td>
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</table>
**PUBLIC INFORMATION**

Create a variety of communication tools to promote education around flood hazards.

**EDUCATION**
- Guides
- Courses
- Training

**TECHNICAL ASSISTANCE**
- Workshops
- One-on-one

**OUTREACH**
- Website
- Newsletter
- Social media
- Press releases
- Public meetings
- Conferences
- Public advisory/stakeholder committee

**ADVOCACY**
- Disclosure
- Notification

---

**MAPPING + REGULATIONS**

Develop higher standards as well as adaptable mapping.

**DEVELOPMENT SERVICES**
- Pre-application consultation
- Training
- Permits
- Inspections

**CODES/REGULATIONS**
- Zoning
- Building
- Plumbing
- Stormwater (PWD lead)

**MAPPING - flood hazard areas**
- FIRM maps
- Sea Level Rise/Inundation
- Community identified flood hazards (existing infrastructure related)

---

**FLOOD PREPAREDNESS**

Prioritize the need to address a variety of flood concerns.

**PLANNING**
- OEM- Philadelphia Severe Weather Response Plan
- OEM- Emergency Operation Plan

**DAMS/LEVEES**
- Maintenance
- Inundation mapping

**MAPPING - planning/analysis**
- Public assets/infrastructure
- Repetitive Loss Properties
- Historic
- Insurance

---

**FLOOD DAMAGE REDUCTION**

Enhance the City’s resiliency to flooding through mitigation.

**PLANNING**
- Repetitive Loss Properties
- Comprehensive Plans
  - Open space/parks
  - Land-use
- OEM- Hazard Mitigation Plan
- OEM- Recovery Planning
- OOS- Growing Stronger: Toward a Climate-Ready Philadelphia

**FLOOD WARNING**
- Pre-storm event protocol

**NATIONAL WEATHER SERVICE (NWS)**

**Philadelphia Water Department**

**OFFICE OF WATERSHEDS**
- Watershed Protection
- Watershed Monitoring & Modeling
- Climate Change Adaptation

**PLANNING AND RESEARCH**
- Capital Projects
- Coordination with Streets Dept.
- Storm Flood Relief Planning
The Flood Management Program (FMP) is the proposed outcome of the Flood Risk Management Task Force’s (FRMTF) strategic plan. Establishing this program will ingrain flood management into the City’s core functions, while creating an accessible program for City residents, businesses, developers, and partners around flood resiliency. Through creating the City’s FMP, the City can choose to enroll into the CRS program by documenting its program initiatives, to reap the NFIP insurance benefits offered by CRS.
Program Structure
Meetings

Keys to success:
• Collaboration + Relationship building
• Point of contact
• Frequency
• Organization
• Incremental wins

Work Groups:
• Public Information
• Flood Preparedness
• Flood Damage Reduction
• Mapping + Regulations
Program Structure
Organization

SharePoint
• Easy Access to all FRMTF files
IMPLEMENTATION
Licenses + Inspections Website

www.phila.gov/li/Pages/FloodplainManagement.aspx
Development Services - Forms

- Zoning
- Existing Buildings
- Building Permits
1 Hour Training -
Development Services
• Background
• NFIP
• FEMA Maps
• Zoning/Building Codes
• Elevation Certificates
• LOMC’s
• Resources

Audience
• Design Professionals
• City Staff
• Developers
• Real Estate Professionals
IMPLEMENTATION
Grants/Partnerships

Grant Projects
• Historic Flood Story Map
• Eastwick A Zone Remapping
• Eastwick Repetitive Loss Planning
• Critical Infrastructure Mitigation Planning

Partnership Projects
• Valley Green Inn Flood Resilience Workshop
• Manayunk Historic Business District Mitigation + Preparedness Planning
• I-95/Delaware Ave Extension Resiliency Planning
• Coastal Effects of Climate Change in Southeastern PA
IMPLEMENTATION
Work Groups/L+I Work

Public Information
• Graphics
• 311 knowledge base scripts
• Flood Awareness Month (March)
• Renter notification

Flood Damage Reduction
• City Infrastructure Resiliency Guidelines
• Leadership flood risk memo

Flood Preparedness
• Flood forecasting

Mapping + Regulations
• Higher Standards - Codes/regulations
• Inundation mapping

L+I: Development Services
• Forms/Guides
• Training
• Auditing
• Policy/Interpretations/Process
THANK-YOU!

Questions and/or comments?

JOSH LIPPERT, CFM
FLOODPLAIN MANAGER
JOSHUA.LIPPERT@PHILA.GOV