

Proposed Floodplain Regulation Updates



Today's Agenda

- The District's Floodplain Management Program
- Defining a floodplain
- Types of flooding in the District
- Flood Risk and Impacts
- Existing Regulation-What We Regulate Now?
- Proposed Regulation-What May Change?
- Next Steps & Overview of Upcoming Workshops

The District's Flood Risk Management Program

The District's Flood Risk Management Program is based on the NFIP Program

In 1968, Congress established the **National Flood Insurance Program (NFIP)** to reduce flood damage, save lives, and protect structures through:

1. Mapping,
2. Regulation, and
3. Flood Insurance

The District's Flood Risk Management Program

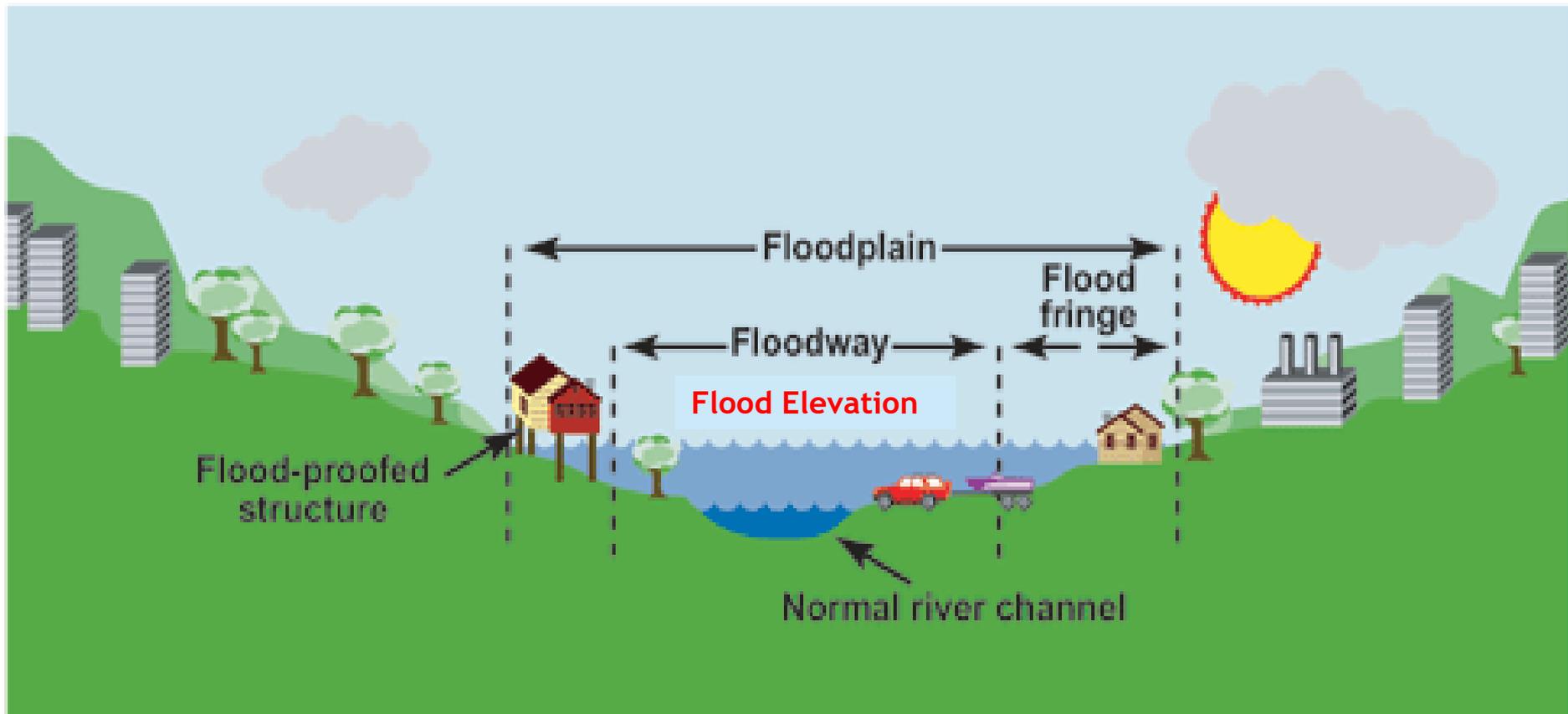
Established in 1985, The District's Flood Risk Management Program aims to reduce flood damage, save lives, and protect assets through:

1. Mapping,
- 2. Regulation**
3. Flood Insurance
4. Mitigation Projects
 - Emergency Preparedness Planning & Projects
 - Outreach, Education, and Engagement
 - Structural Retrofits
 - Flood Risk Reducing Infrastructure

Have you completed
the poll?

What is a floodplain?

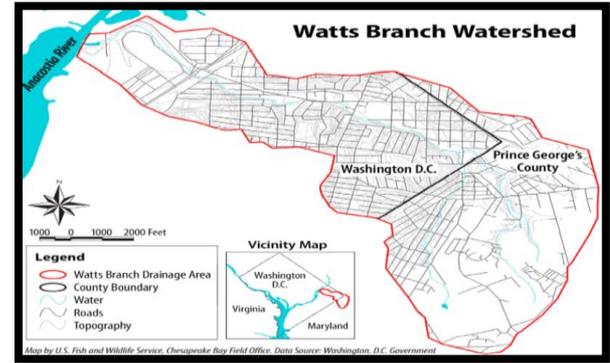
Definition-Any area susceptible to inundation by water from any source



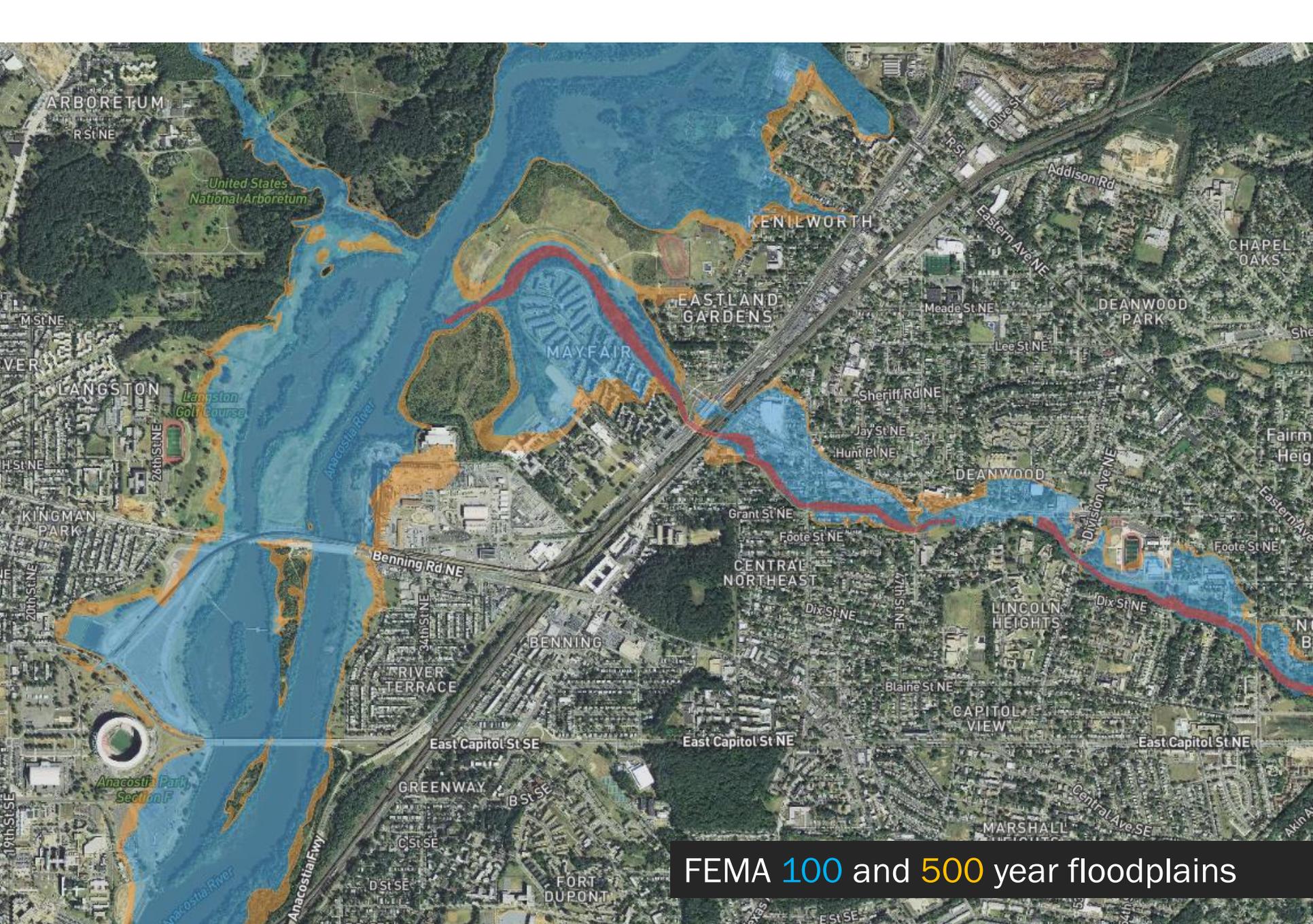
Types of Flooding

3 Types of Flooding in D.C.

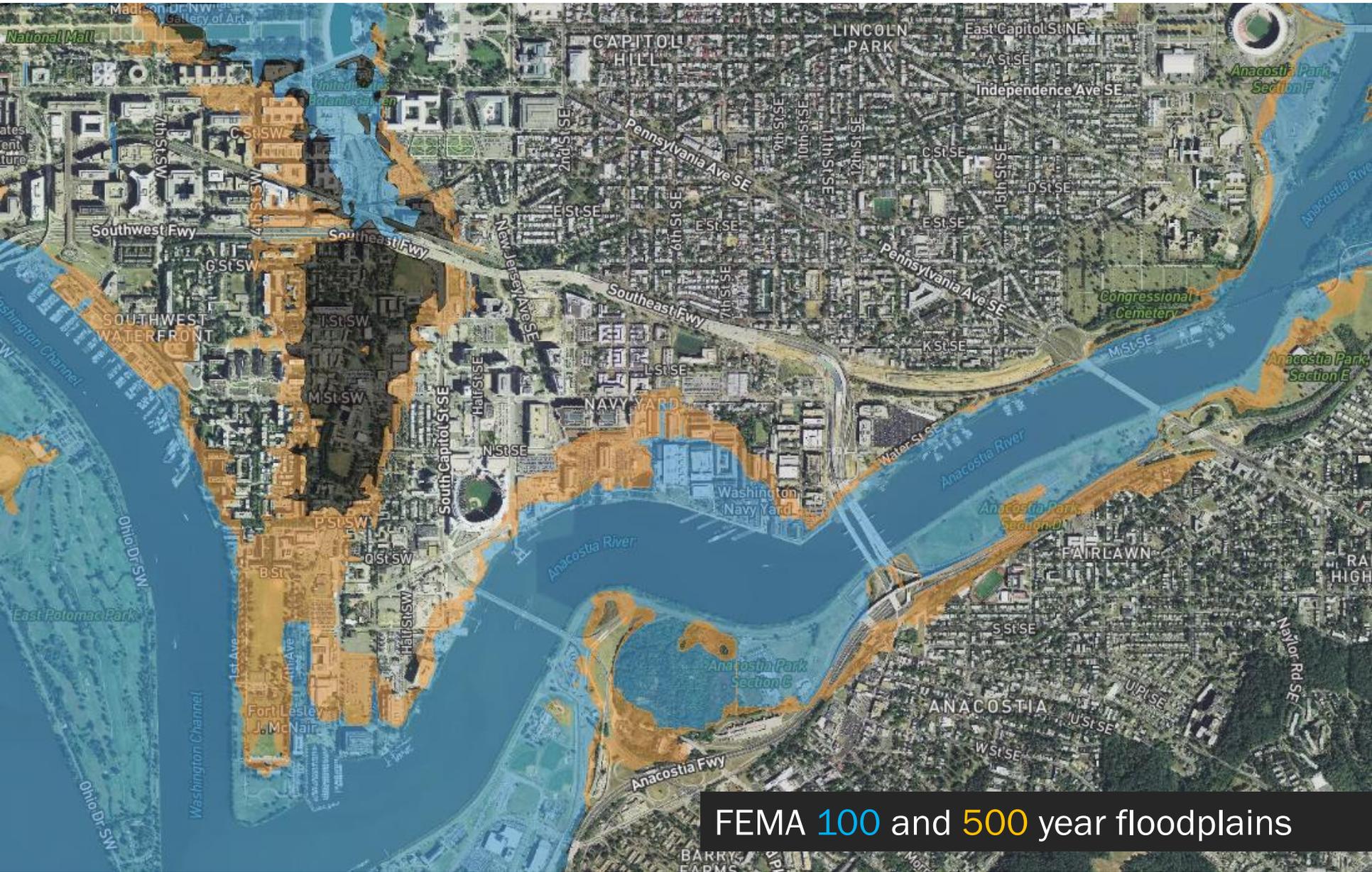
- **Riverine-flooding** caused by the overflow of riverbanks from rainfall within the watershed. FEMA maps.
- **Tidal-flooding** caused by storm surge and wind activity. FEMA Maps.
- **Interior-flooding** caused by heavy rainfall over a short period of time where there is not enough drainage capacity. No FEMA Maps. DOEE is working on mapping via Integrated Flood Model (IFM).



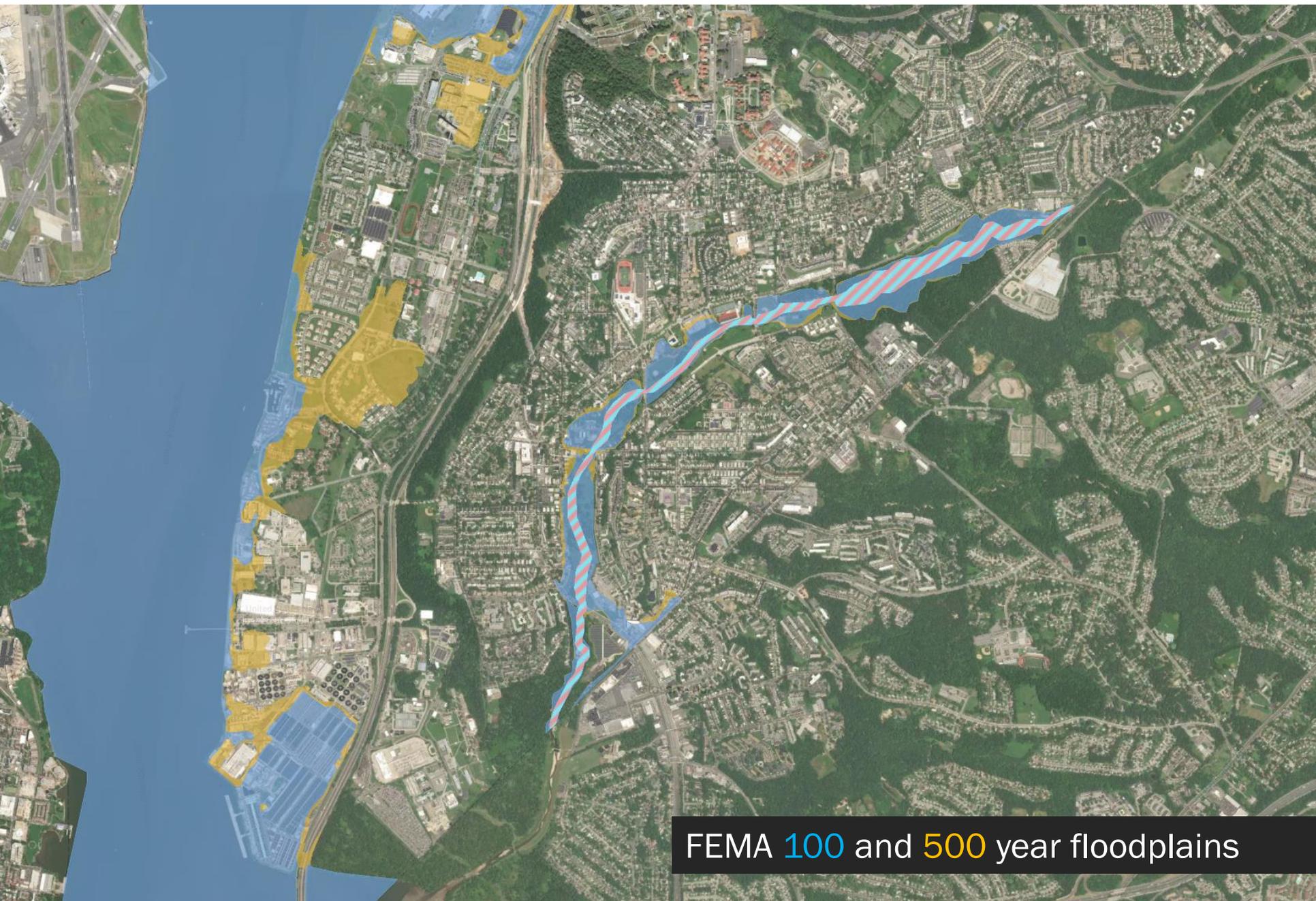
DCfloodrisk.org



FEMA 100 and 500 year floodplains



FEMA 100 and 500 year floodplains



FEMA 100 and 500 year floodplains

DC Flood Risk Tool: <http://dcfloodrisk.org/>

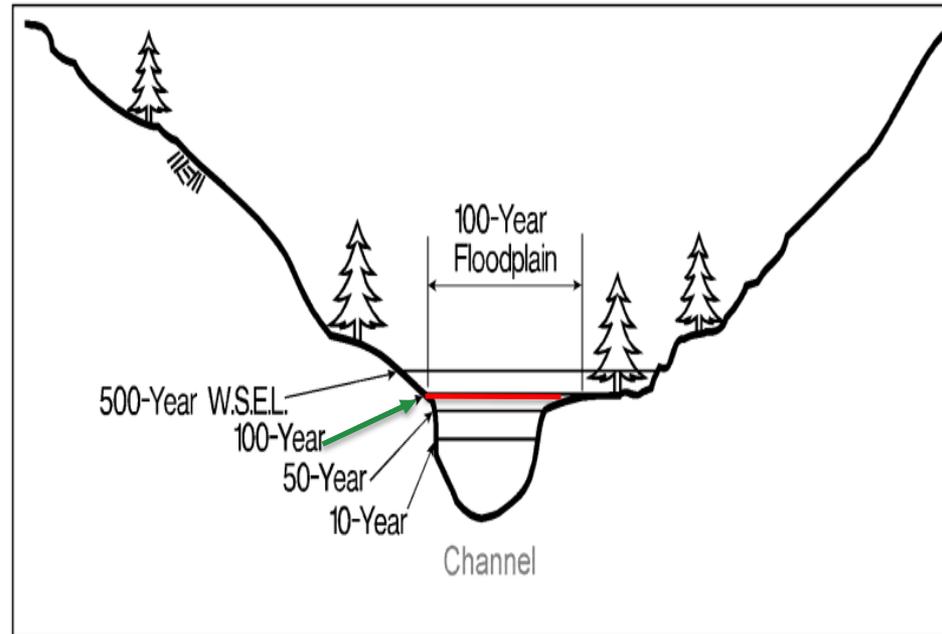
What's The Chance a 100
Year Flood Happens?

What's the Chance or Risk? 1 in 100

100-year flood event has at least a 1 in 100 chance of occurring in any year

Other examples, include:

- 10-year flood = 1 in 10 chance
- 50-year flood = 1 in 50 chance
- 500-year flood = 1 in 500 chance



NOTE: Base Flood Elevation: The elevation of surface water resulting from 100-year flood, or a flood that has a 1% chance of equaling or exceeding that level in any given year.

What are The Potential
Impacts To A Building?

Effects of Flooding – Building Damages

Contents



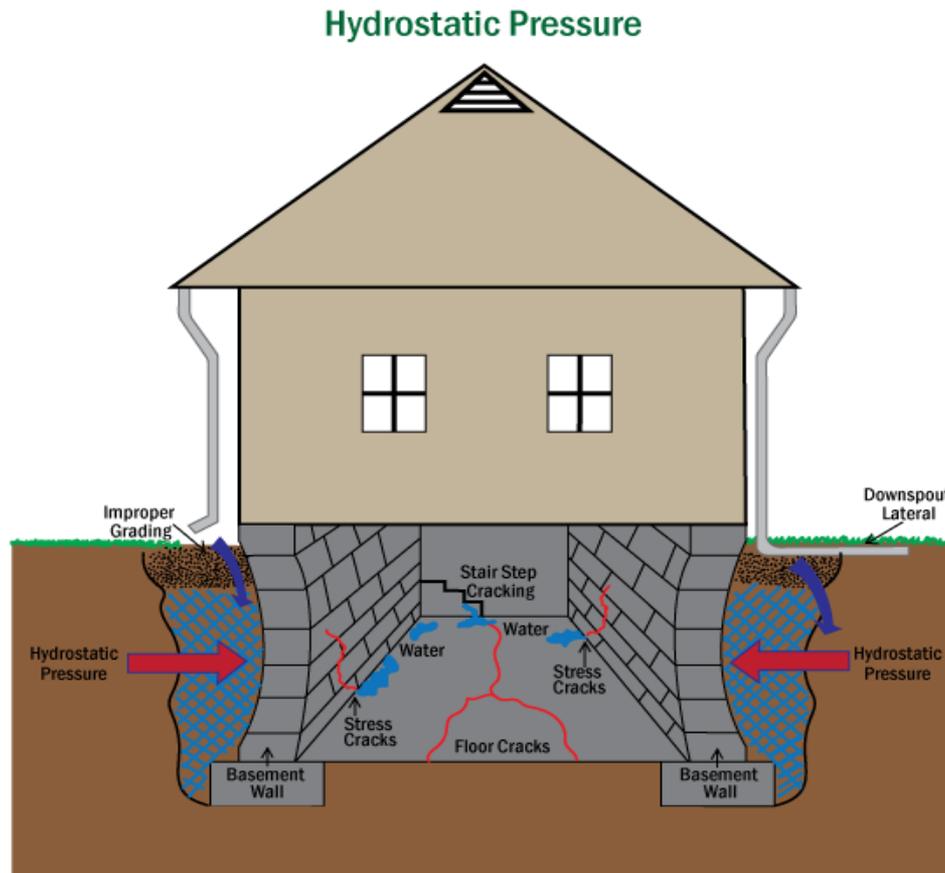
Courtesy of Axios

Floors and Walls



Courtesy Houston Chronicle

Effects of Flooding – Structural



Collapse of basement and structural damage to foundation.

Effects of Flooding - Life Safety



Courtesy of 5 Star Complete Restoration



Courtesy of Service Master RHH

Flooded areas, especially basements, present risks of drowning, electrocution, chemical and sewage exposure, gas leakage, or physical injury from large floating items.

What Areas and Structures
are Impacted by 100 Year
Flooding?

Private Nonresidential Buildings in the 100-Year Floodplain

	Private Nonresidential Structures	Ward % - 100-Year
Ward 1	1	0.2%
Ward 2*	71	14.4%
Ward 3	6	1.2%
Ward 4	8	1.6%
Ward 5	2	0.4%
Ward 6	53	10.7%
Ward 7	211	42.7%
Ward 8*	142	28.7%

*Most are Federal properties and outside the jurisdiction of the Flood Hazard Rules

Private Nonresidential Buildings in the 100-Year Floodplain

ANC	Private Nonresidential Structures
2A	26
2C	13
2D	0
2E	32
6B	22
6D	31
6C	0

ANC	Private Nonresidential Structures
7B	0
7C	69
7D	132
7F	10
8A	22
8B	0
8C	91
8D	29
8E	0
All Others	17

Have you completed
your poll?

What is Regulated
Now?

What is Regulated Now?

- **New Construction**
- **Substantial Improvements/Damage**-development that exceeds 50% of the fair market value of a structure
- **Less than Substantial Improvements/Damage**-development that is less than 50% of the fair market value of a structure
- **Land disturbances**-grading, excavation, paving, mining, etc.

Substantial Improvements Are Regulated Now?

Substantial Improvement/Damage-Renovation exceeds 50% of Building Value

Building Value=\$400,000

Renovation = \$210,000



Cost of improvement is
52.5% of original value

- *Retrofit required include flood barriers*

**Less than Substantial Improvement/Damage-Renovation does not exceed
50% of Building Value**

Building Value= \$200,000

Renovation = \$90,000



Cost of improvement is
45% of original value

- *No retrofit required*

Substantial Improvements Are Regulated Now?

Substantial Improvement/Damage requires:

- Elevating or dry-floodproofing the lowest floor of a structure
- Elevating or floodproofing mechanical and electrical equipment

Less Than Substantial Improvement/Damage:

- Elevating new or replacement mechanical, electric, and plumbing OR make water-tight

New Construction is Regulated Now?

New Construction

- Elevate or dry-floodproof lowest floor
- Elevate or Protect Mechanical, Electrical, and Plumbing



Design Flood Elevation is Regulated Now?



Base Flood Elevation
+
2.0 feet

OR

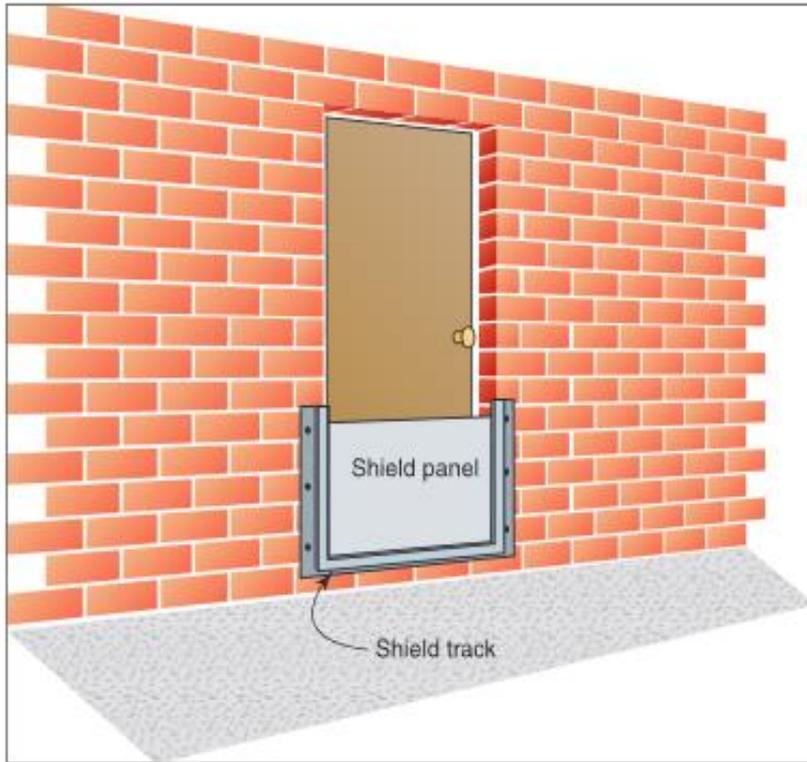
500-year flood
elevation

=

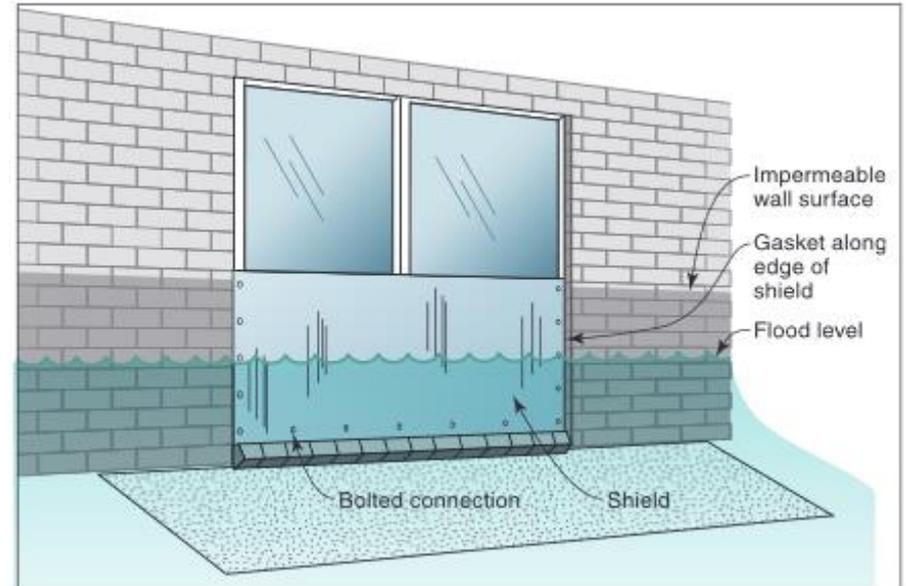
Design Flood Elevation

Examples

Dry Flood Proofing of Non-Residential Buildings



Door with flood shield



Window with flood shield

Diagrams Courtesy of FEMA

Dry Flood Proofing of Non-Residential Buildings



Types of flood shields

Diagrams Courtesy of FEMA

Elevating on Fill, Piles, or Walls

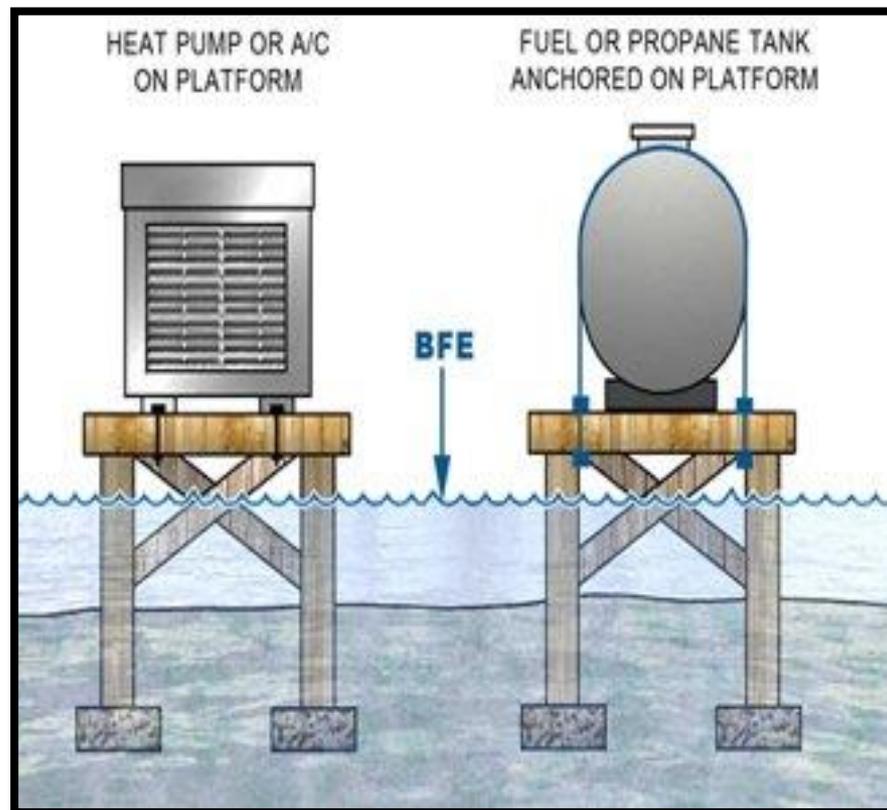
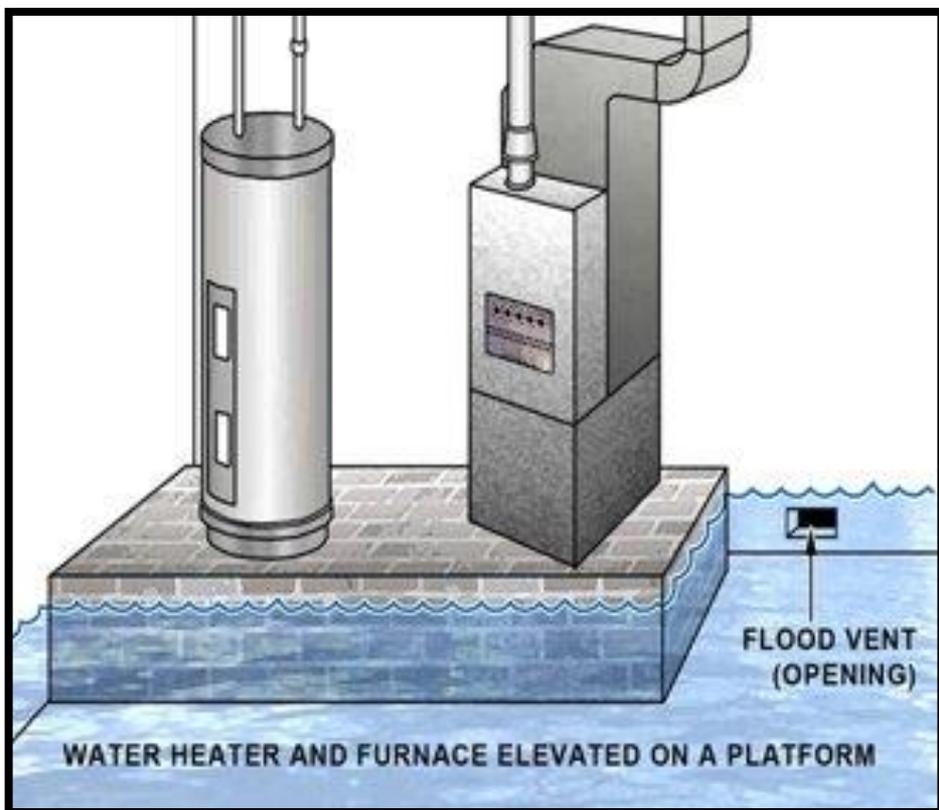


- No enclosed space, or crawl space
- No basement

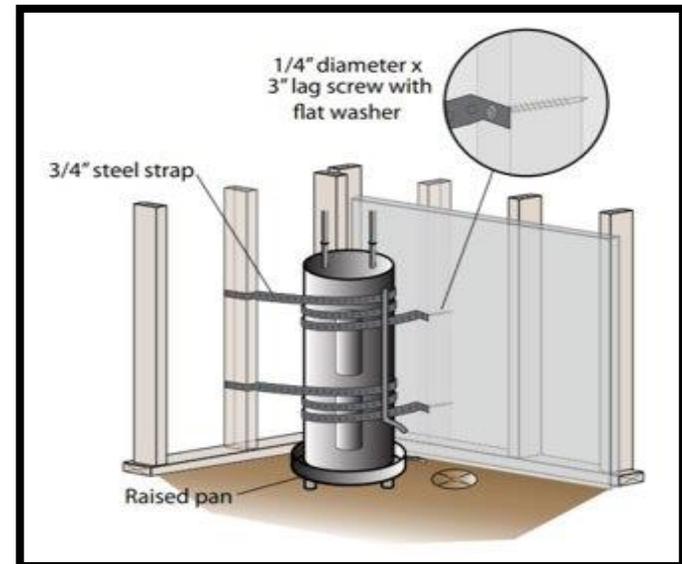
Examples

M.E.P Requirements

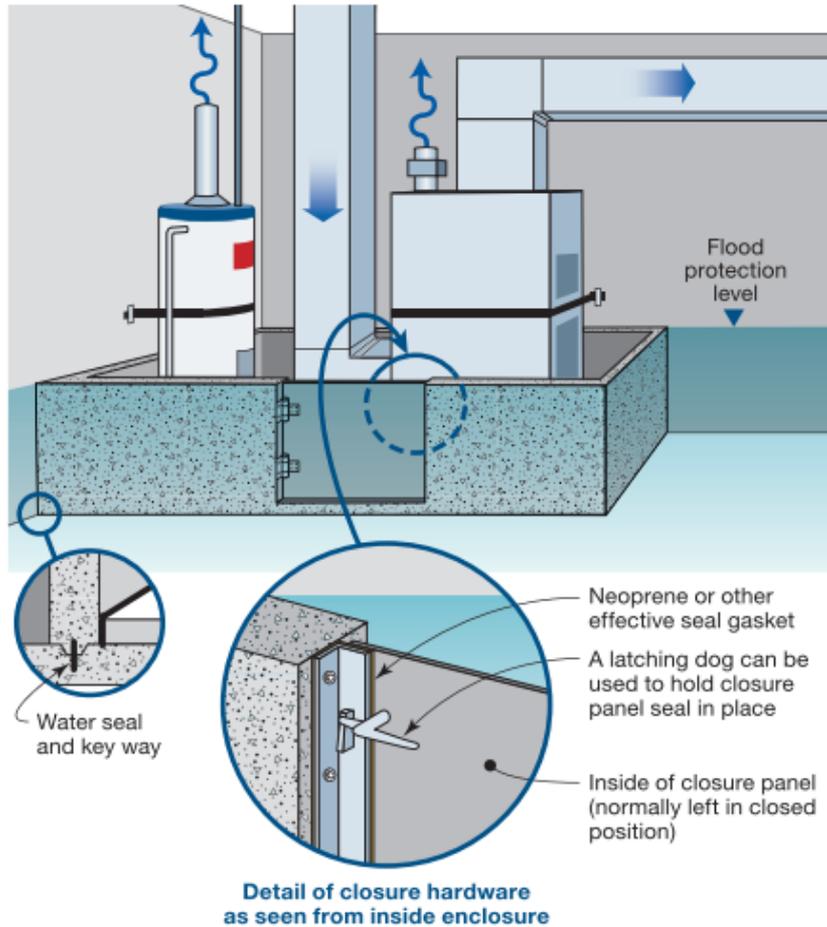
Elevating Mechanical/Electrical/Plumbing



Waterproofing and Anchoring Mechanical/Electrical/Plumbing Requirements



Case Studies – Mechanical/Electrical/Plumbing (MEP)

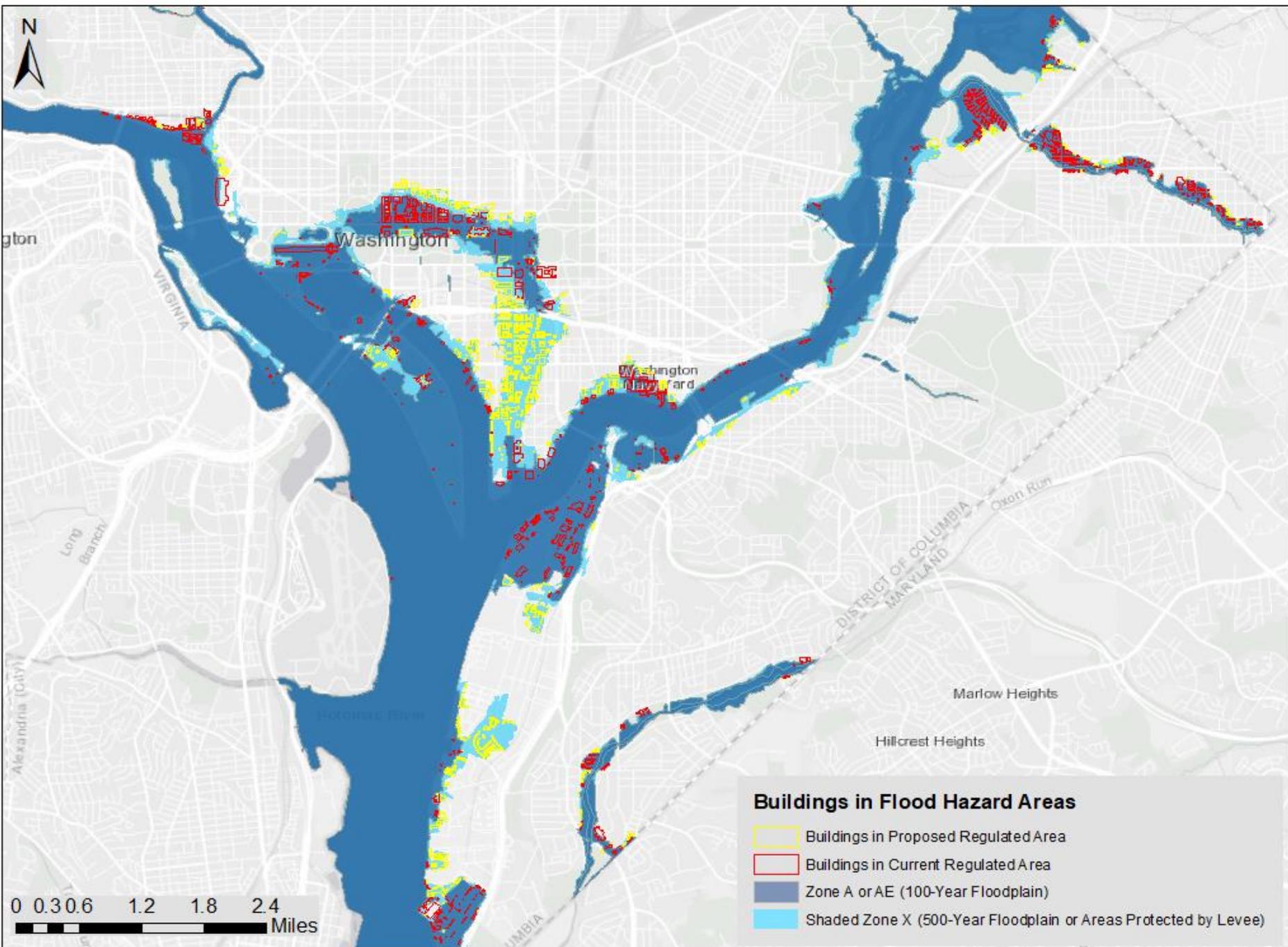


What is Proposed?

Private Nonresidential Structures Newly Added to the Floodplain (500-Year Only)

Ward	Newly Added by 500-Year Floodplain
1	0
2*	43 (10.4%)
3	2 (0.3%)
4	1 (0.2%)
5	0
6	263 (44.1%)
7	45 (7.5%)
8*	243 (40.7%)
Total Nonresidential Structures Added	597

*Most are Federal properties and outside the jurisdiction of the Flood Hazard Rules



What is Proposed? – Design Flood Elevation

**DFE = DESIGN
FLOOD ELEVATION**
**BFE = BASE
FLOOD ELEVATION**



Structures in 500-year should
match current required elevation
in 100-year

100 Year-Base flood elevation + 2 feet

OR

500 Year-Water Surface Elevation,
whichever is higher

What is Proposed? - Critical Facilities

Vulnerable Populations

- Hospitals and health care facilities having surgery or emergency treatment facilities;
- Jails, correctional facilities, and detention facilities;
- Care facilities where residents have limited mobility or ability, including nursing homes but not including care facilities for five or fewer persons;
- Shelters and short-term family housing facilities for individuals experiencing homelessness;
- Elementary and secondary schools
- Preschool and child care facilities not located in one-and two-family dwellings.

Essential Functions

- Fire, rescue, ambulance, and police stations and emergency vehicle garages;
- Designated emergency shelters;
- Designated emergency preparedness, communication, and operation centers and other facilities required for emergency response;
- Power generating stations and other public utility facilities required in emergencies;
- Critical aviation facilities such as control towers, air traffic control centers, and hangars for aircraft used in emergency response;
- Communication towers, electrical substations, fuel or water storage tanks, or other structures required in emergencies.

What is the proposed change for New Construction?

FEMA Requirements for 100-Year Floodplain

- Elevate or dry-floodproof lowest floor
- Elevate or Protect Mechanical, Electrical, and Plumbing

Proposed Local Exemptions in 500-Year Floodplain:

- No Change from 100-Year

What is Proposed for Substantial Improvement?

100-Year Floodplain: Substantial Improvement

- Elevation or dry-floodproofing required
- Elevate or Protect Mechanical, Electrical, and Plumbing

500-Year Floodplain: Substantial Improvement

- No Change from 100-year

What is Proposed? – Hazardous Materials

Current Flood Hazard Rule:

- Existing provision has
 - one threshold (550 gallons)
 - List of 18 substances
- Not enforced

Proposed Update:

- Relies on several hazmat laws (i.e. Tier II reporting) to identify relevant properties that have reporting requirements
- Requires a flood emergency action plan during any permit review
- Draft plan template based on Maryland standards for marina facilities

How Will My Existing Property be Affected By Proposed Regulation?

- **100-Year floodplain:**
 - Limited change, as 100-year floodplain requirements are set primarily by federal rather than local standards.
 - Additional 2' of freeboard for critical facilities
- **500-Year floodplain:**
 - Change in the form of requirements to floodproof or elevate and protect mechanical, electrical, plumbing equipment in the event of a substantial improvement.
 - This change will help make our community more resilient for future generations of residents and stakeholders.

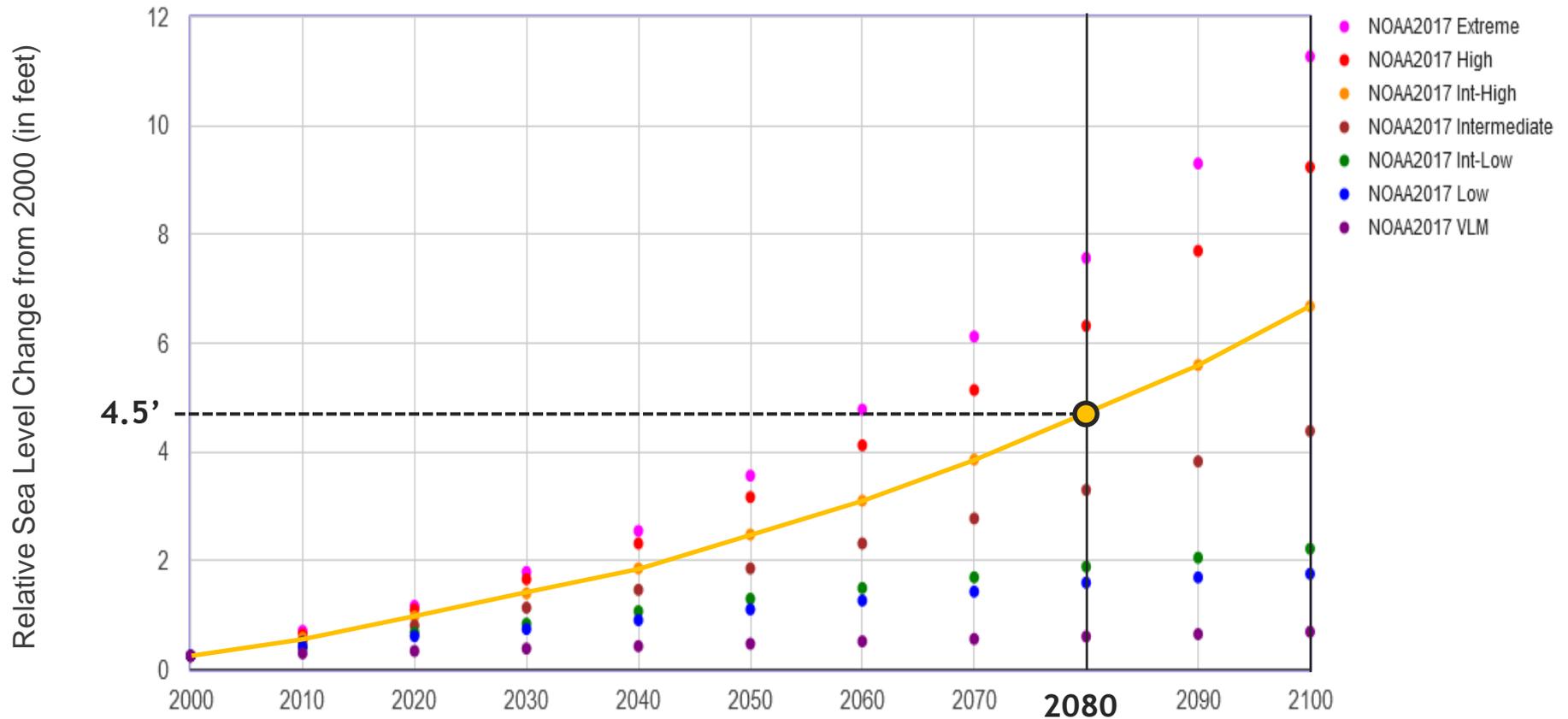
Resources for Flood Mitigation

- **SBA (Small Business Administration) Loans**
- **FEMA Hazard Mitigation Assistance**
 - Flood Mitigation Assistance
 - Building Resilient Infrastructure and Communities
 - Hazard Mitigation Grant Program

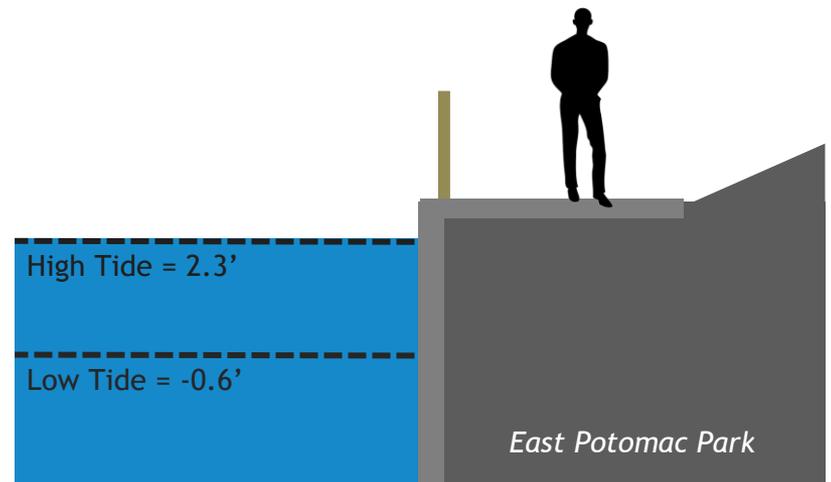
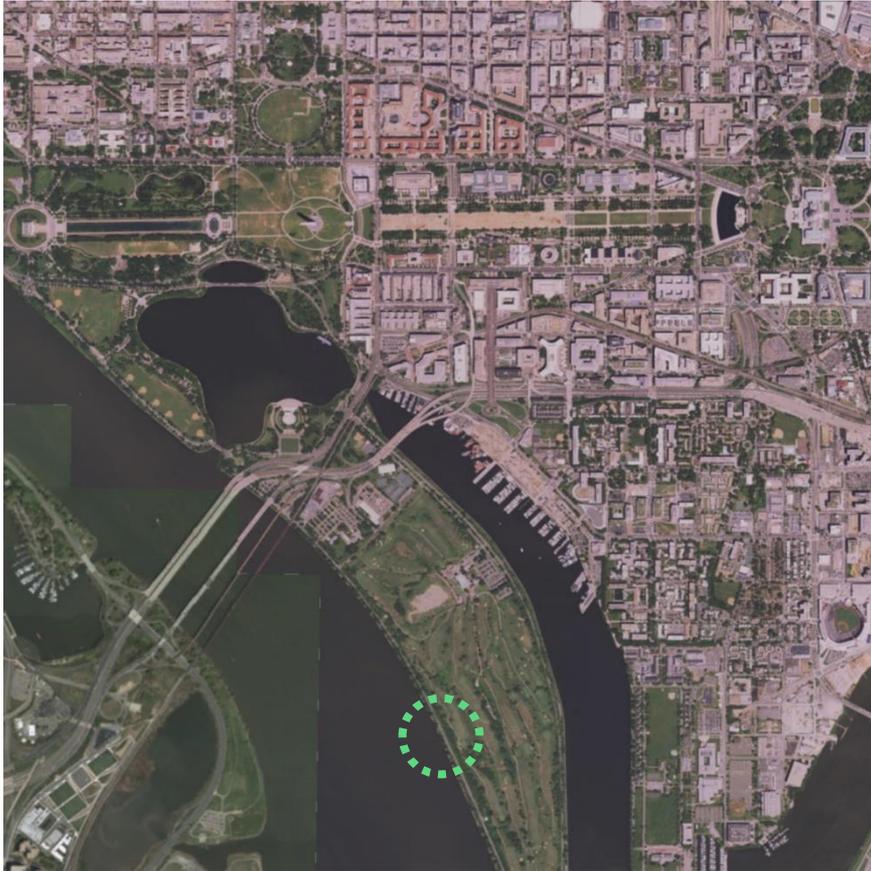
Why Update Now?

Sea Level Rise Projections for DC

NOAA et al. 2017 Relative Sea Level Change Scenarios for : WASHINGTON DC



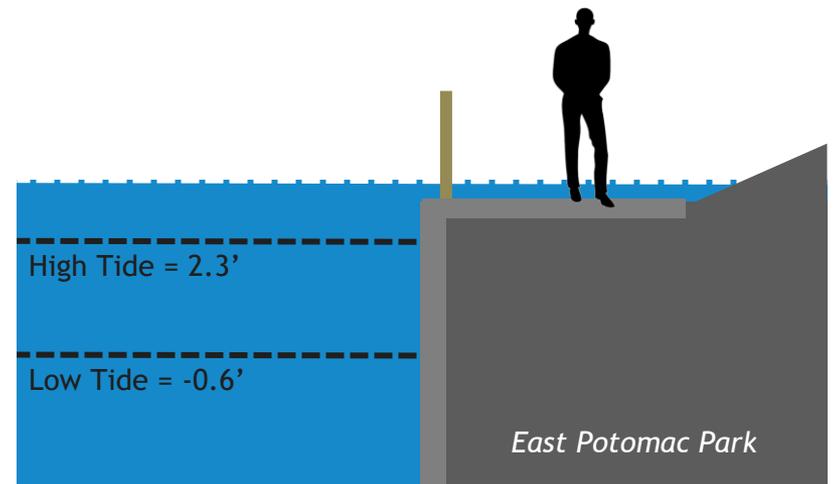
High Tide at East Potomac Park



*Elevations in section are in the NGVD29 datum and are only accurate for the SW Waterfront Gage

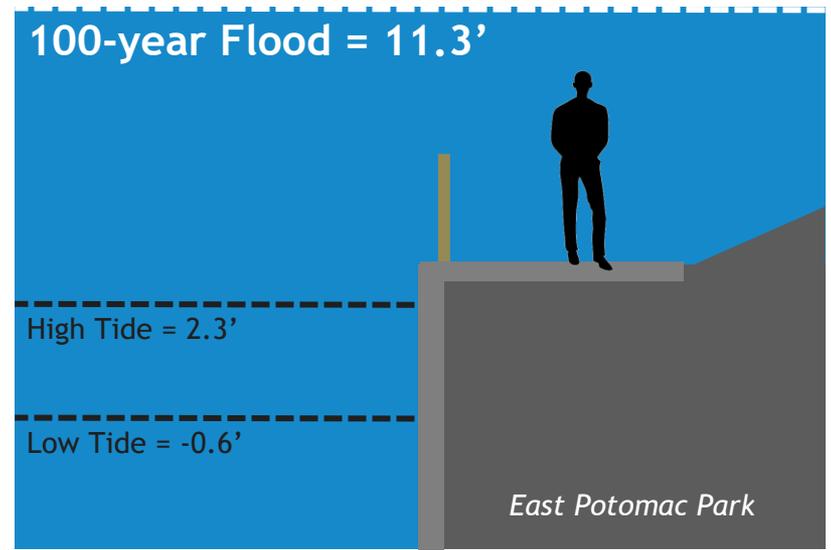
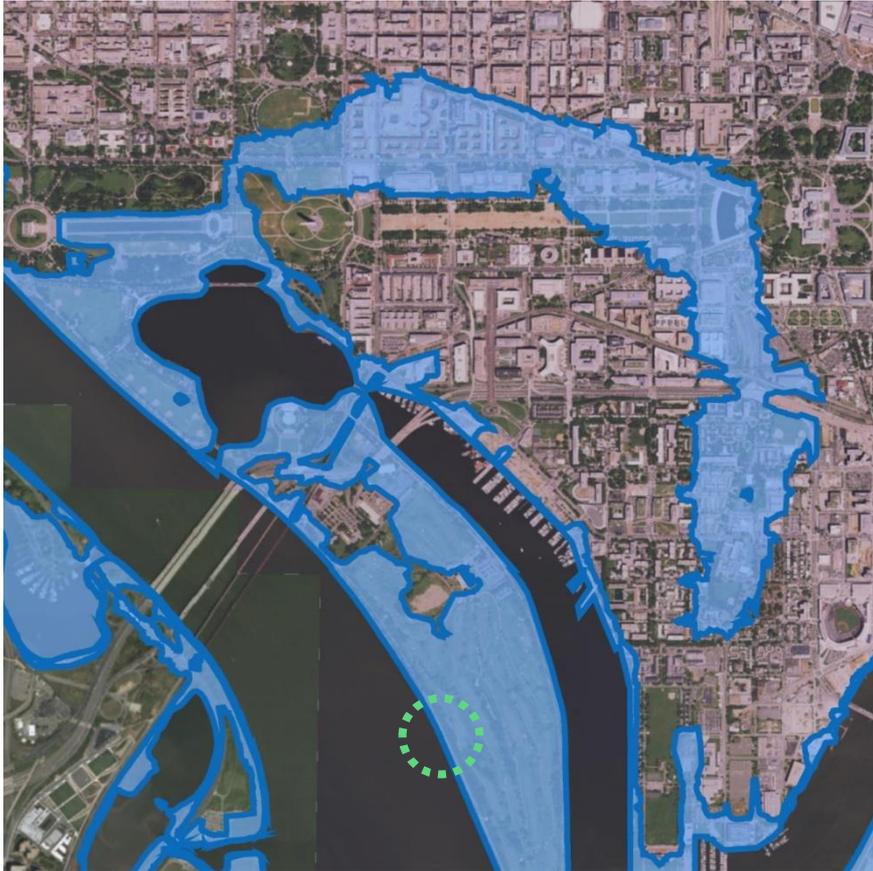
High Tide and Sea Level Rise

Source: Flickr user TrailVoice



*Elevations in section are in the NGVD29 datum and are only accurate for the SW Waterfront Gage

The 100-year Flood **Today***



*Elevations in section are in the NGVD29 datum and are only accurate for the SW Waterfront Gagev

*Assumes the Potomac Park Levee System does NOT exist

The 100-year Flood in 2080



100-year Flood in 2080 ~ 15.8'

100-year Flood = 11.3'

High Tide = 2.3'

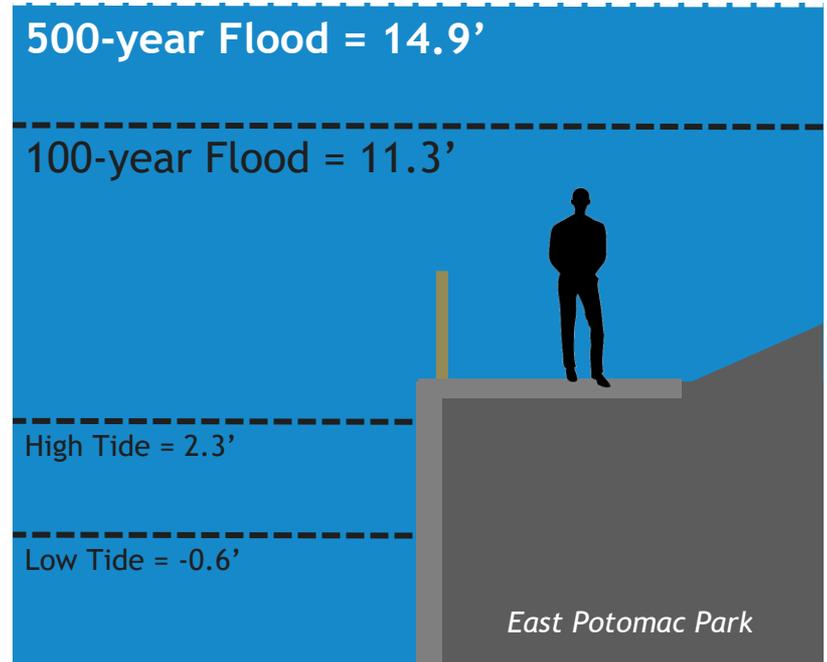
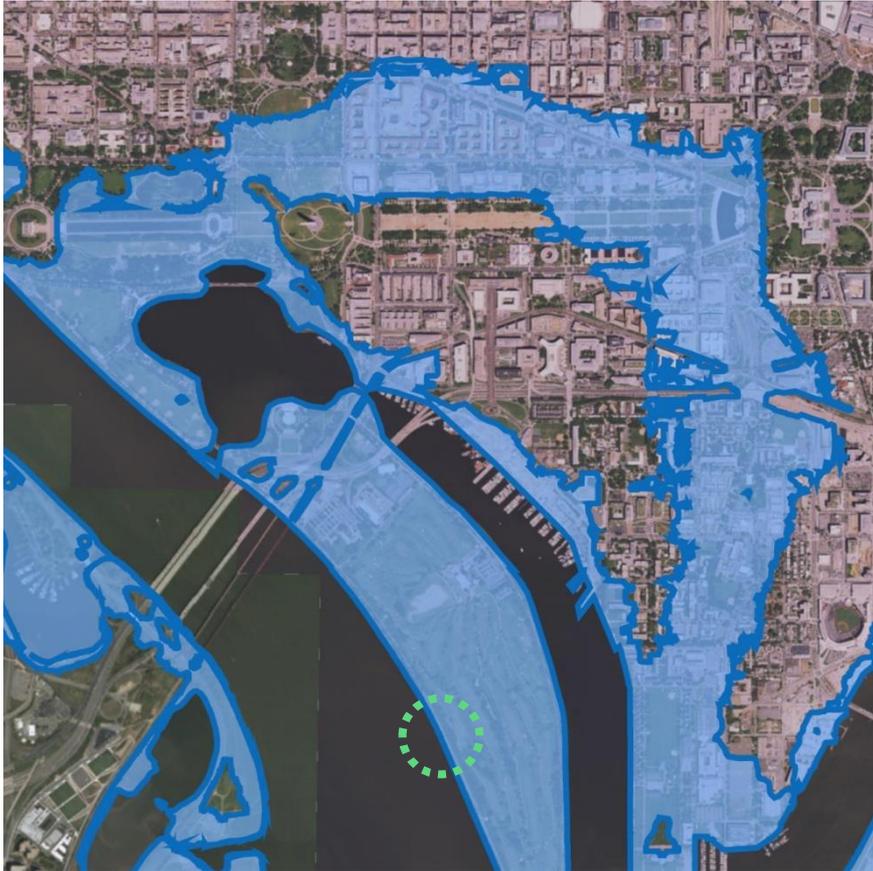
Low Tide = -0.6'



East Potomac Park

*Elevations in section are in the NGVD29 datum and are only accurate for the SW Waterfront Gage

The 500-year Flood **Today** will be more like The 100-year Flood **in 2080**



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Upcoming Meetings and Next Steps

Upcoming Meetings

- **Resident Focused Meetings on Regulations**
 - Meeting #1 - 5:30 p.m. on July 29th
 - Meeting #2 - 6:30 p.m. on August 3rd
- **Business/Non Profit Focused Meetings on Regulations**
 - Meeting #3 - 2:30 p.m. on August 19th
- **Beginning of Sustained Engagement to Reduce Flood Risk**
 - Coming soon to Faunteroy Center!
 - <https://doee.dc.gov/service/watts-branch-neighborhoods-flood-risk-management>

Next Steps for the Regulations

- **Summer 2021:** Resident and local business focused meetings on new regulations.
- **Summer/Fall 2021:** Incorporate feedback into revised draft.
- **2021 and Beyond:** DOEE aims to begin the *formal* public rulemaking process, which includes:
 - DC Government internal approval process
 - Publication of proposed rules in the DC Register
 - A formal comment period available to all stakeholders
 - Consideration of formal public comments
 - Ultimately, publication of final rules in the DC Register
 - Will be a transition period

For More Information

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Find this Presentation & Learn More:

<https://doee.dc.gov/publication/title-20-chapter-31-flood-hazard-rules>

Discussion / Poll Results