



# DOEE Flood Hazard Rules

*Proposed Update Published  
July 19, 2024*

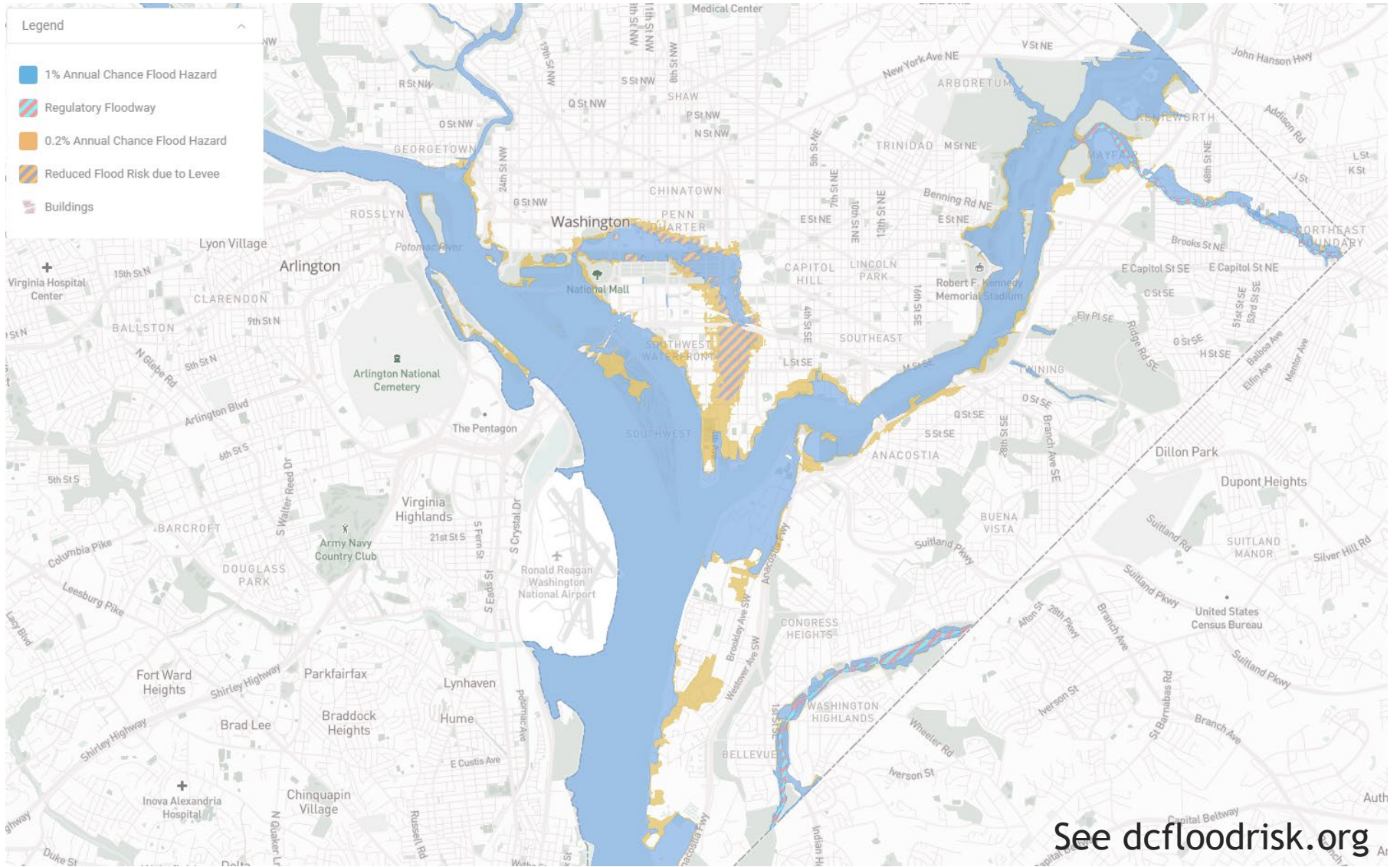
# Agenda

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- **Why Update Floodplain Regulations?**
  - DC's Flood Risk Now and in the Future
- **What's Changing in the Regulations**
  - Unique Local Provisions
- **Outreach to Date and Next Steps**

# Why Update Floodplain Regulations?

# The District's Floodplains



See [dcfloodrisk.org](http://dcfloodrisk.org)

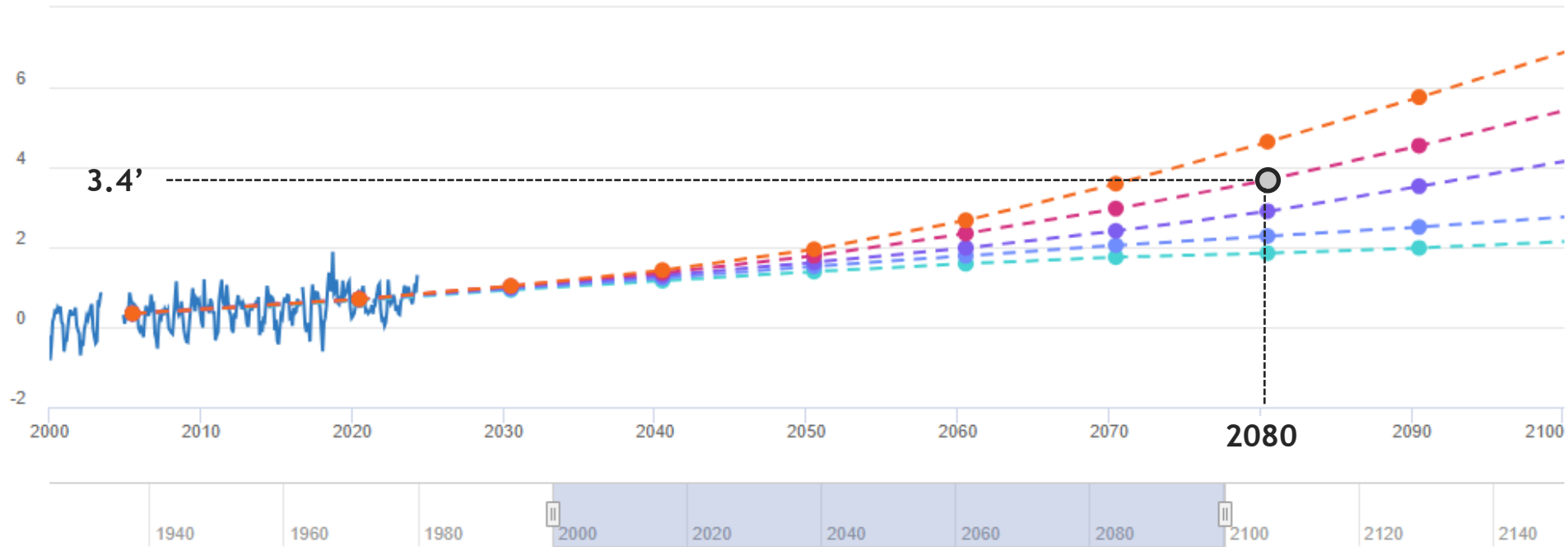
# Sea Level Rise

## Sea Level Data and Projections: Washington, DC (8594900)



### NOAA Tide Gauge

Feet above North American Vertical Datum of 1988  
(1983-2001 epoch)

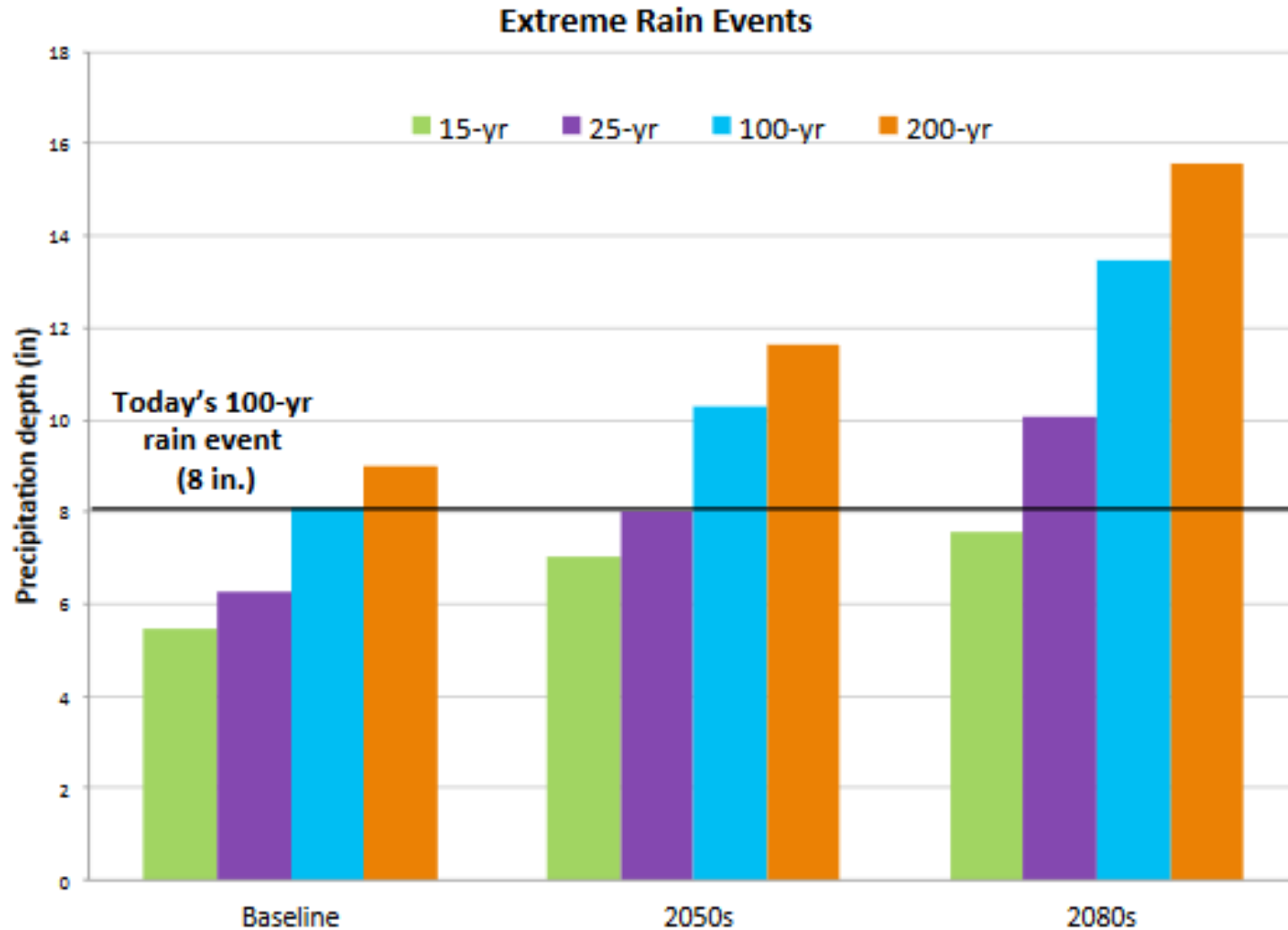


Click on legend items to hide/show them in the plot

- MSL - Monthly Value
- MSL - NOAA et al. 2022 - Intermediate-Low
- MSL - NOAA et al. 2022 - Intermediate
- MSL - NOAA et al. 2022 - Intermediate-High
- MSL - NOAA et al. 2022 - Low
- MSL - NOAA et al. 2022 - High

**MSL record span:** 1924 to 2024 (100 years)  
**NOAA et al. 2022 datum-to-start-year offset** (est. SLC from 1992 to 2005): 0.193 ft.

# Rainfall Projections – Climate Ready DC



# What is Changing?

# What Would Change? – Regulated Areas

## Current Flood Hazard Rule:

- Special Flood Hazard Areas
  - FEMA 100-year floodplain

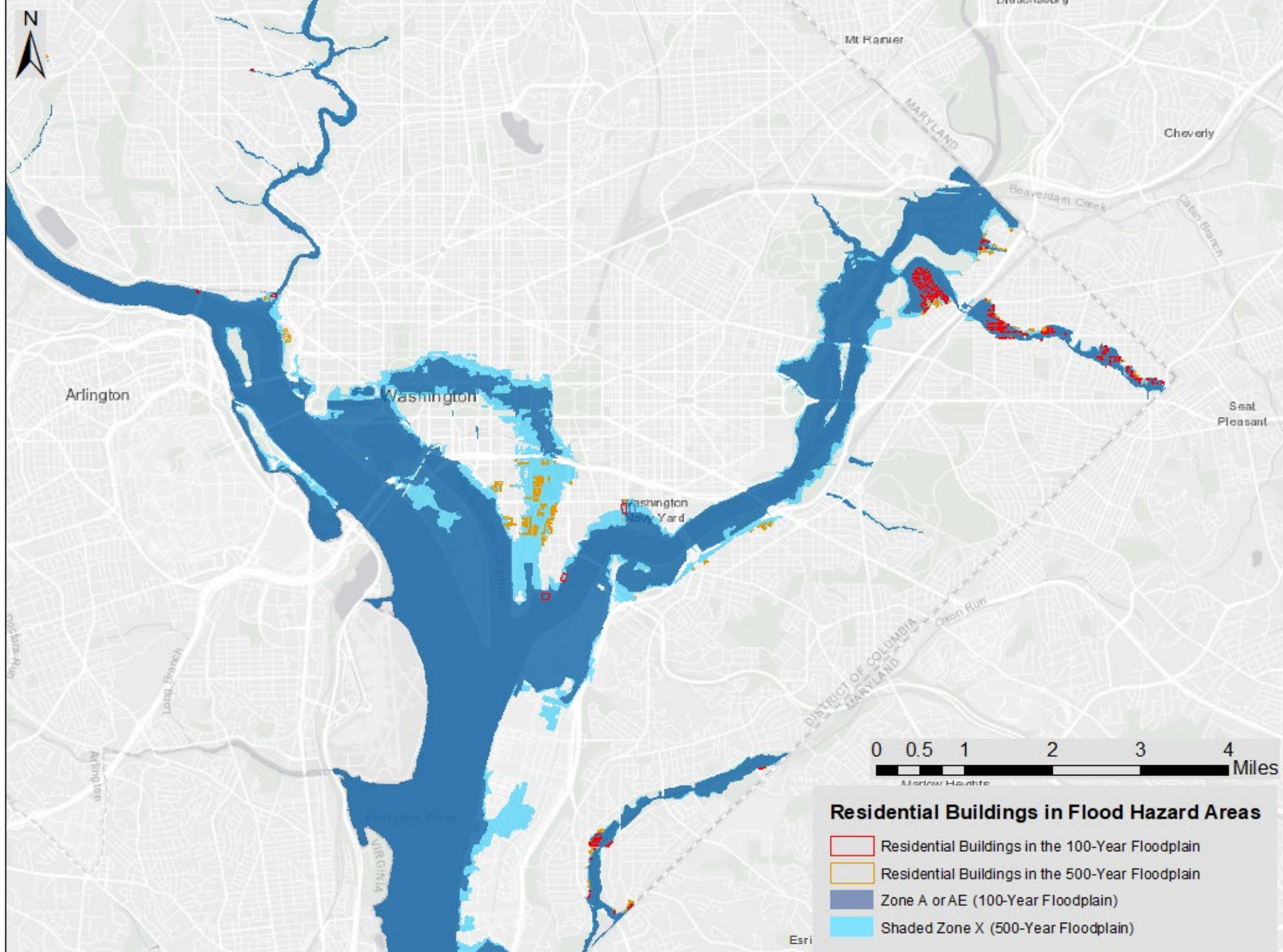
## Proposed Update:

- Flood Hazard Areas
  - FEMA 100-year floodplain
  - FEMA 500-year floodplain
    - Precedents in Baltimore, Houston, Austin, etc.
  - Rhode Island Ave Underpass Area
  - Areas removed from FEMA's 500-year floodplain by LOMR-F

# Property and Structures in Regulated Areas

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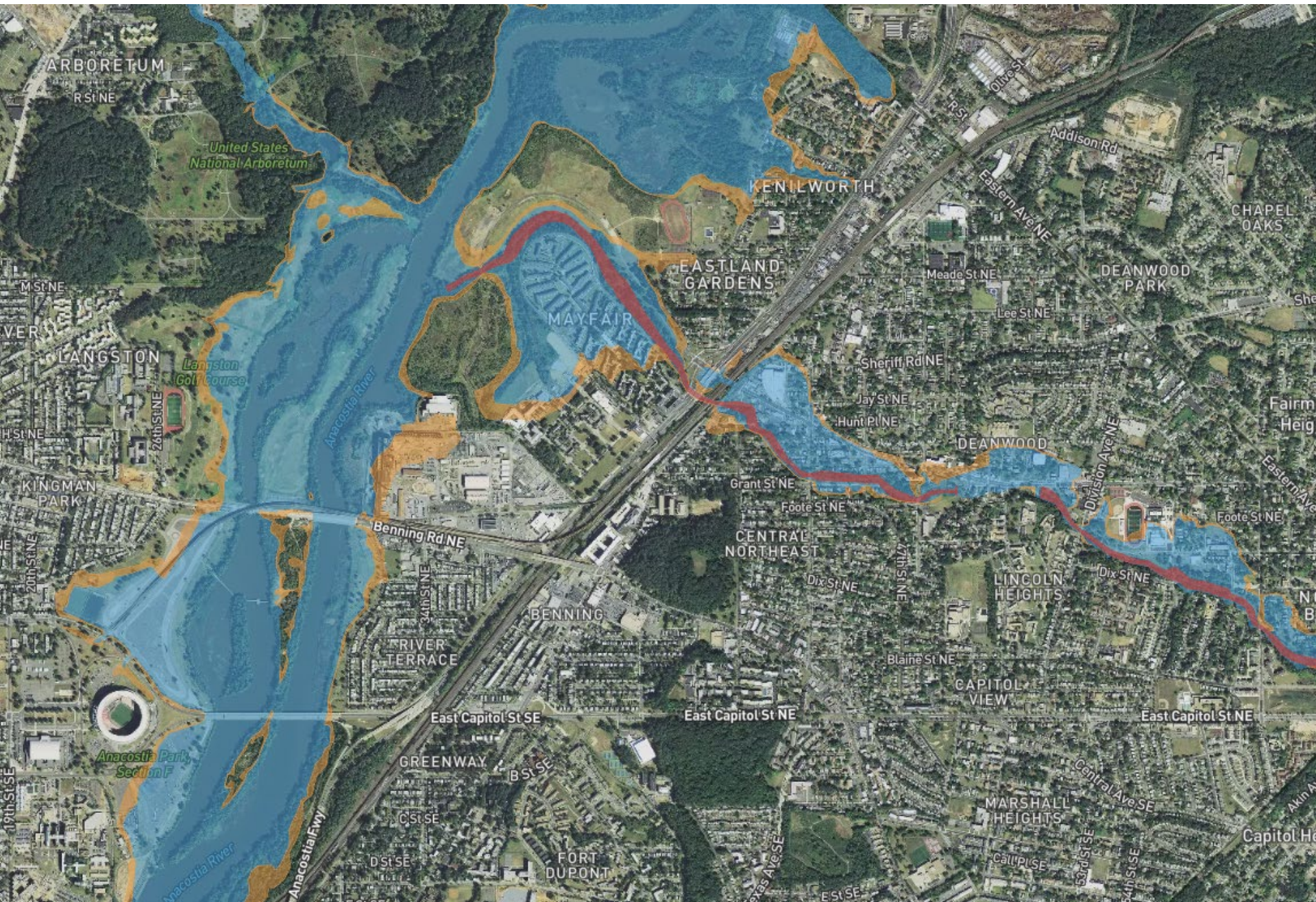
	Total in DC (Estimate)	Current Regulated Area	Proposed Regulated Area	% of Total in Regulated Area - Current	% of Total in Regulated Area - Proposed	Source
<b>Structures</b>	162,648	1,354	2,471 (+1,117)	0.8	1.5	DC Open Data: Planimetric 2017, "Building Footprints 2017"
<b>Common Ownership Lots</b>	137,099	1,780	2,696 (+916)	1.3	2.0	<a href="#">DC Open Data</a>
<b>Acres</b>	43,854	7,723	8,877 (+1,154)	17.6	20.2	DCfloodrisk.org



### Residential Buildings in Flood Hazard Areas

- Residential Buildings in the 100-Year Floodplain
- Residential Buildings in the 500-Year Floodplain
- Zone A or AE (100-Year Floodplain)
- Shaded Zone X (500-Year Floodplain)

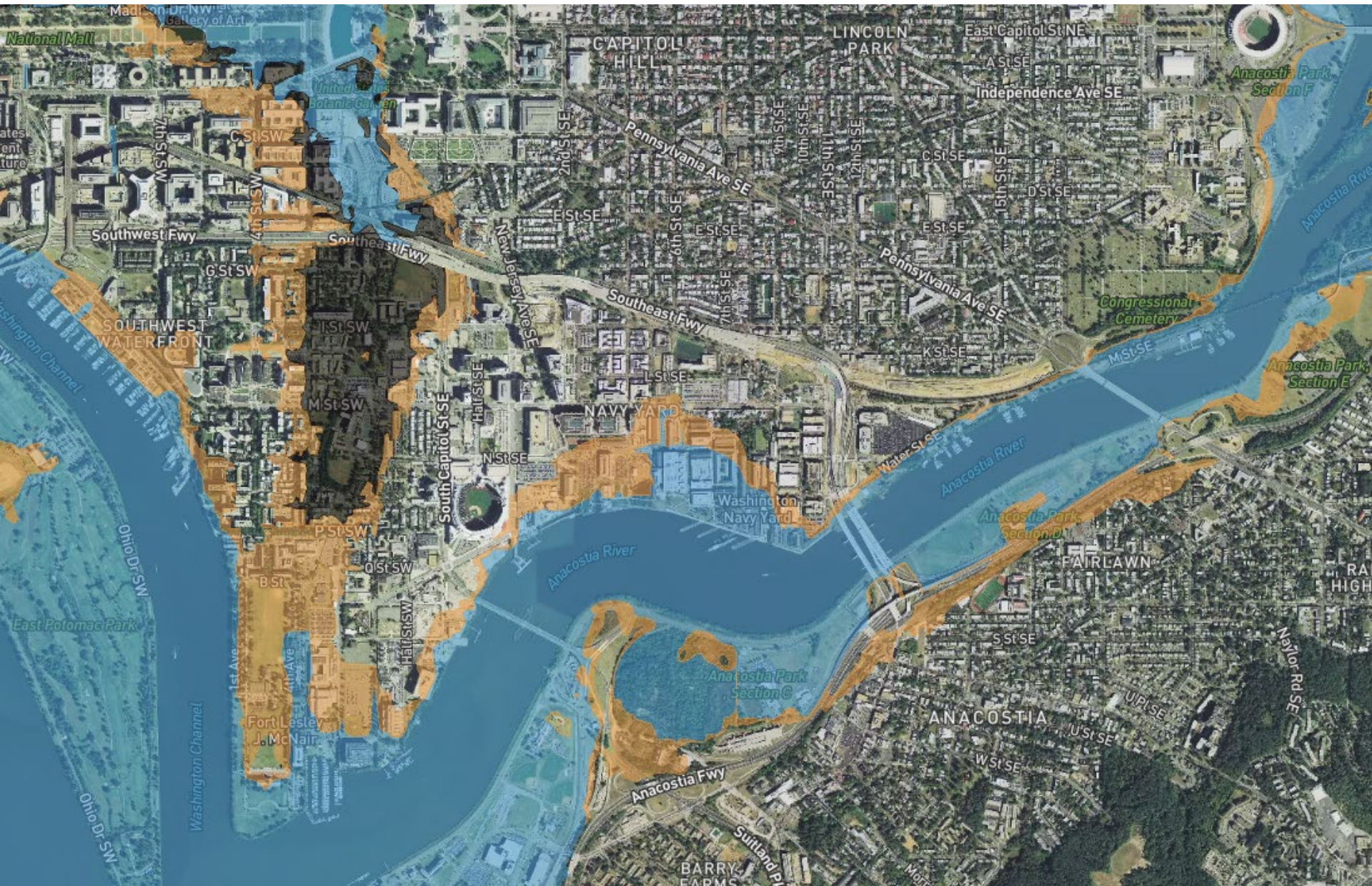
Esri



FEMA 100 and 500 year floodplains

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





# Newly Regulated – RI Ave Metro Underpass

Legend

Topography Northeast DC - 2022

Elevation (in meters)

- > 28.8 = 94.5'
- 28.2 = 92.5'
- < 27.6 = 90.5'

Building Footprints

District Dogs



See the contours at this link:  
[https://opendata.dc.gov/datasets/02d3370c7cee4b1d8928a7aecfacea25\\_1/explore?location=38.920316%2C-76.998087%2C18.45](https://opendata.dc.gov/datasets/02d3370c7cee4b1d8928a7aecfacea25_1/explore?location=38.920316%2C-76.998087%2C18.45)

# Newly Regulated – Areas Removed by LOMR-F

## Example:

- You add fill on your property to remove it from the 100- and 500-year floodplain, where the DFE is 14 feet, and get a LOMR-F
- You are officially outside the FEMA floodplains
- When you apply for a building permit, it will still come to DOEE for review
- There are no use restrictions for portions of building below 14 feet
- Still need a dry floodproofing certificate documenting that all building areas and utilities were protected from the 500-year flood elevation and designed with the floodplain soils

# Local Exemption – Dry Floodproofing

## FEMA Requirements for 100-Year Floodplain

- Below-grade enclosures prohibited at all residential structures
- Ancillary residential uses (i.e. mailroom, gym, lobby) must be elevated

## Proposed Local Exemptions in 500-Year Floodplain:

- Multifamily residential buildings can install dry-floodproofed underground parking garages
- Ancillary residential uses can be elevated or dry-floodproofed

# New Construction Multifamily Building Uses 100-Year Floodplain

	Parking allowed below grade?	Uses below the Design Flood Elevation (DFE)?
Residential	No.	Wet-floodproofed parking, access storage, or ONLY.
Mixed-Use	Yes, if dry floodproofed in accordance with ASCE 24-14.	Areas must be non-residential* and dry-floodproofed in accordance with ASCE 24-14.

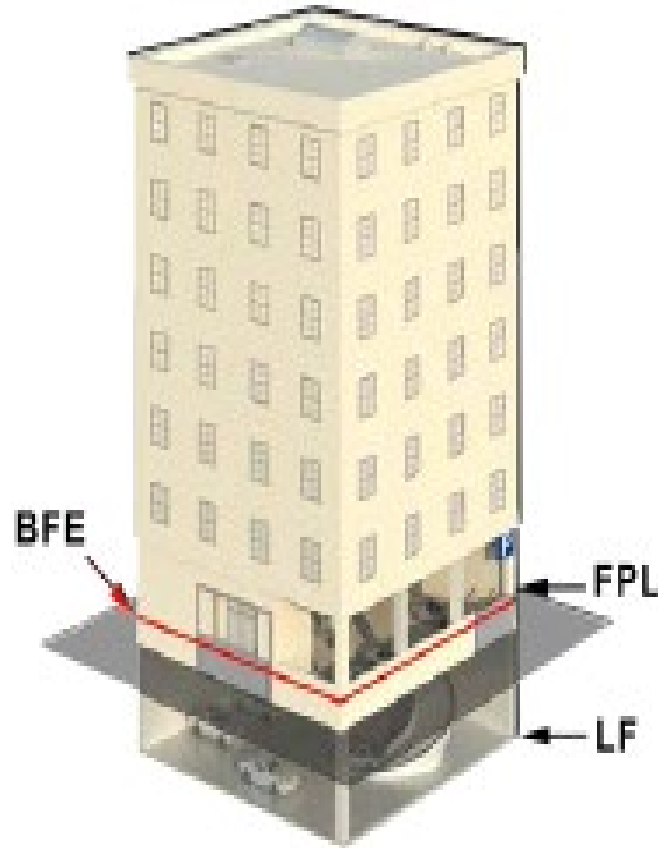
\*a gym accessible only to tenants, or lounge accessible only to tenants are considered residential, and would have to be above the DFE.

# New Construction Multifamily Building Uses 500-Year Floodplain

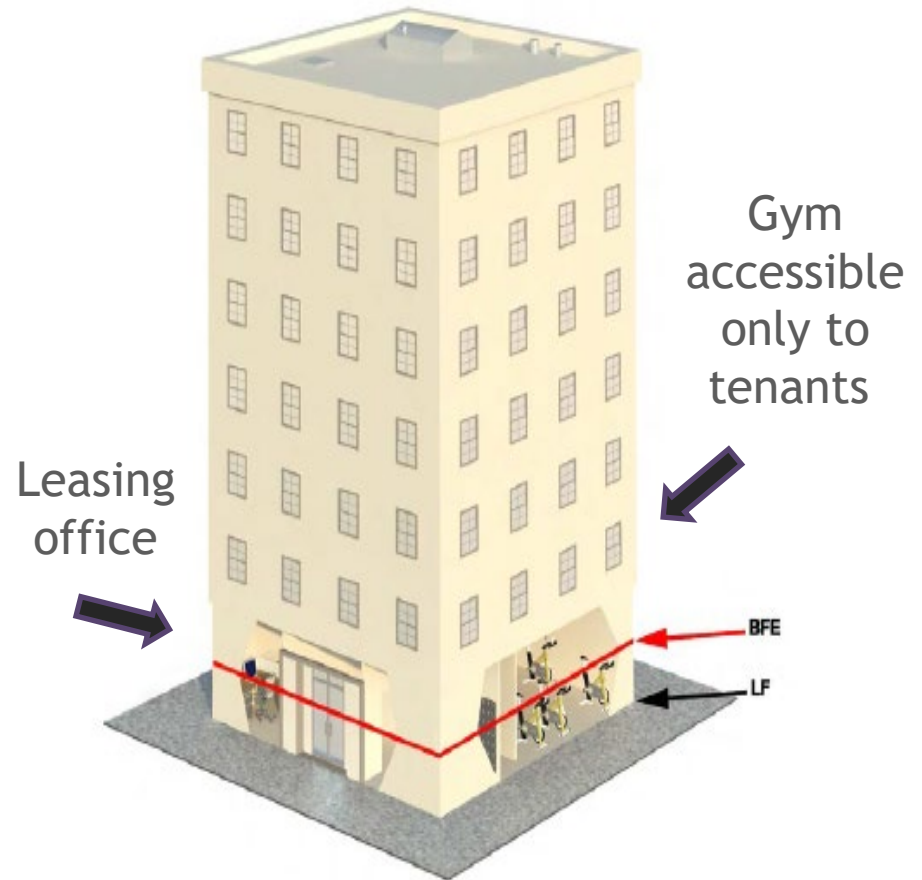
	Parking allowed below grade?	Uses below the Design Flood Elevation (DFE)?
Residential	Yes, if dry floodproofed in accordance with ASCE 24-14.	Wet-floodproofed parking, access, storage.  Ancillary residential uses dry-floodproofed in accordance with ASCE 24-14.
Mixed-Use	Yes, if dry floodproofed in accordance with ASCE 24-14.	Wet-floodproofed parking, access, storage.  Non-residential uses dry-floodproofed in accordance with ASCE 24-14.

*\*Dry-floodproofed ancillary residential uses also allowed.*

Uses that Are **Compliant** in **500-Year** but **Noncompliant** in **100-Year** Based on Local Performance Standards



Dry-floodproofed underground parking at residential-only building.



Dry-floodproofed ancillary residential uses at residential or mixed-use building.

# Local Exemption – Substantial Improvement

## FEMA Requirements for 100-Year Floodplain

- 50% substantial improvement/substantial damage (SI/SD) threshold

## Local Exemptions in 500-Year Floodplain:

- Improvement/repair work at existing homes (structures regulated by the International Residential Code) up to \$200,000 excluded from SI/SD calculations
- All other structure types use 50% rule

# What Would Change? Substantial Improvement

## Current Flood Hazard Rule:

- any repair, reconstruction, rehabilitation, addition, or improvement of a building or structure...
- the cost of which equals or exceeds fifty percent (50%) of the **market value** of the structure before the start of construction

## Proposed Update to Flood Hazard Rule:

- Any combination of repairs, reconstruction, rehabilitation, additions, modifications, or improvements of a building or structure made **during the 5-year period immediately preceding a permit application....**
- equals or exceeds fifty percent (50%) of the **tax assessed** value of the structure before the start of construction.

# What Would Change? – Design Flood Elevation

## Current Flood Hazard Rule:

All new and substantially improved buildings must be elevated or floodproofed to the:

- Base flood elevation (BFE) + 1.5 feet

## Current DC Construction Codes:

All new and substantially improved buildings must be elevated or floodproofed to the:

- Base flood elevation + 2 feet
- or 500-year flood elevation, whichever is higher

## Proposed Update to Flood Hazard Rule:

All new and substantially improved buildings must be elevated or floodproofed to the:

- Base flood elevation + 2 feet
- or 500-year flood elevation, whichever is higher

# Summary – Required Elevations

<i>Structure Type</i>	<i>Regulations</i>	<i>Design Flood Elevation</i>	<i>Notes</i>
General	Current Flood Hazard Rules	<b>100-Year Flood Elevation + 1.5 feet</b>	Residential structures must be elevated, while nonresidential structures can be elevated or dry floodproofed.
General	Current DC Construction Codes and Proposed Updated Flood Hazard Rules	<b>Whichever is higher of:</b> <ul style="list-style-type: none"> <li>• <b>100-Year Flood Elevation + 2 feet,</b></li> <li>or</li> <li>• <b>500-Year Flood Elevation</b></li> </ul>	Residential structures must be elevated, while nonresidential structures can be elevated or dry floodproofed.
Critical Facility	Proposed Updated Flood Hazard Rules	<b>500-Year Flood Elevation + 2 feet</b>	Residential structures must be elevated, while nonresidential structures can be elevated or dry floodproofed.
Structure Located Within the Tidal Shoreline Buffer	Proposed Updated Flood Hazard Rules	<b>500-Year Flood Elevation + 3.4 feet</b>	Residential structures must be elevated, while nonresidential structures can be elevated or dry floodproofed.

# What would change? – No Adverse Impact

## Current Flood Hazard Rule:

- Allows no increase in 100-year flood elevations in floodway
- Allows an increase in 100-year flood elevations up to 1-ft

## Proposed Update:

- Allows no increase in 100-year flood elevations in floodway
- Allows *no increase* in 100-year or 500-year flood elevations on anyone else's property.

# What would change? – Historic Structures

## Current Flood Hazard Rule:

- Not addressed

## Proposed Update:

- Requires coordinated review with SHPO
- Must show that flood proofing is achieved to the maximum extent practicable while still maintaining historic designation

# What would change? – Critical Facilities

## Current Flood Hazard Rule:

- Not addressed
- references ASCE design standard (ASCE 24)

## Proposed Update:

- Critical Facilities defined
  - Flood Design Class 4 structures (ASCE 24)
  - Some Flood Design Class 3 structures (ASCE 24)
- Prohibit new or substantially improved critical facilities in flood hazard areas without variance or alternatives analysis
- If variance granted, requires more stringent protective measures
  - DFE = 500 year +2'
  - Emergency Plans

# Critical Facilities during Sandy and Harvey



Photo courtesy CNN

Assisted living facility in 100-year floodplain during Hurricane Harvey.



Photo courtesy FEMA

Hoboken University Medical Center after Hurricane Sandy

# Proposed Critical Facilities List

## 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;
- Ancillary structures such as communication towers, electrical substations, fuel or water storage tanks, or other structures necessary to allow continued functioning of a critical facility during and after an emergency.

# Case Study – Engine 33 FEMS Station

## 101 Atlantic St. SE

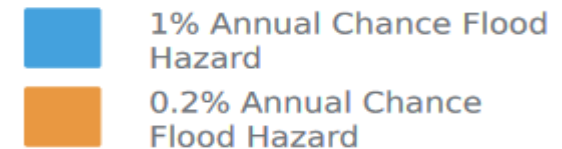
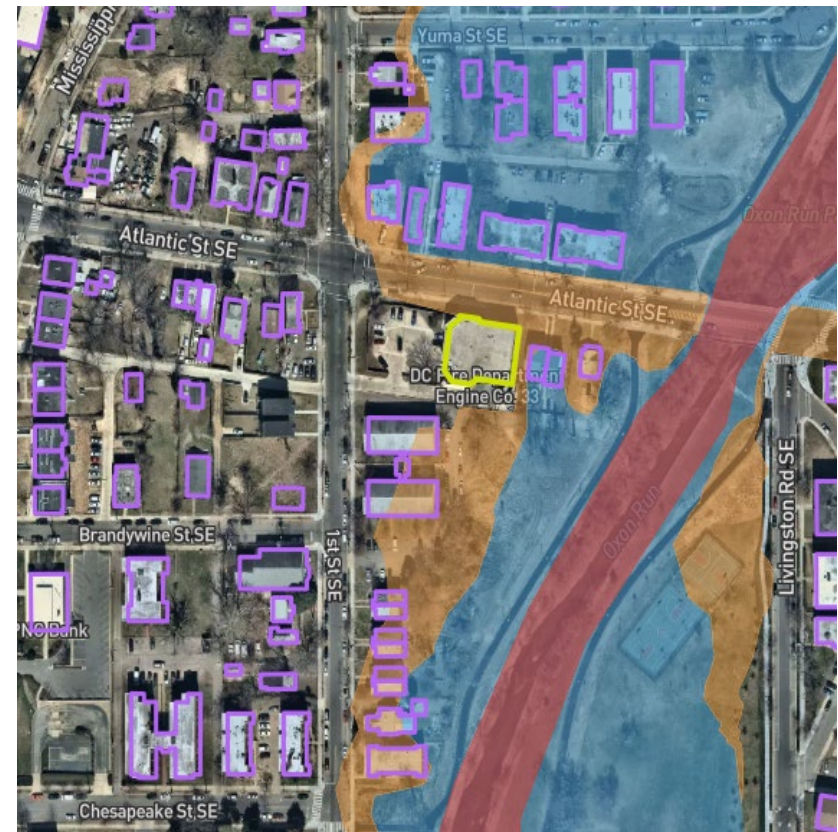
High Flood Elevation = 50.0 ft.

+ 2 ft. (Critical Facility Freeboard)

-> Design Flood Elevation = 52.0 ft.

LiDAR-Estimated Lowest Adjacent Grade = 50 ft.

Elevation Necessary for Sleeping Quarters; Dry Floodproofing Necessary for Other Components



# What would change? – Hazardous Materials

## Current Flood Hazard Rule:

- Existing provision has
  - one threshold (550 gallons)
  - List of 18 substances

## Proposed Update:

- Same list
- Treats facilities with hazardous materials like Critical Facilities
- Requires property owners to protect materials from floodwaters, even if stored outside the structure.

# What Would Change? – Buffer Areas

## Current Flood Hazard Rule:

- No buffers

## Proposed Update:

- Tidal Shoreline Buffer
  - Areas projected to be inundated by sea level rise by 2080
  - New development must be protected to **High flood + 3.4** ft. to account for NOAA predicted sea level rise.

# TSB - *Refined* Tidal Shoreline Buffer Calculation

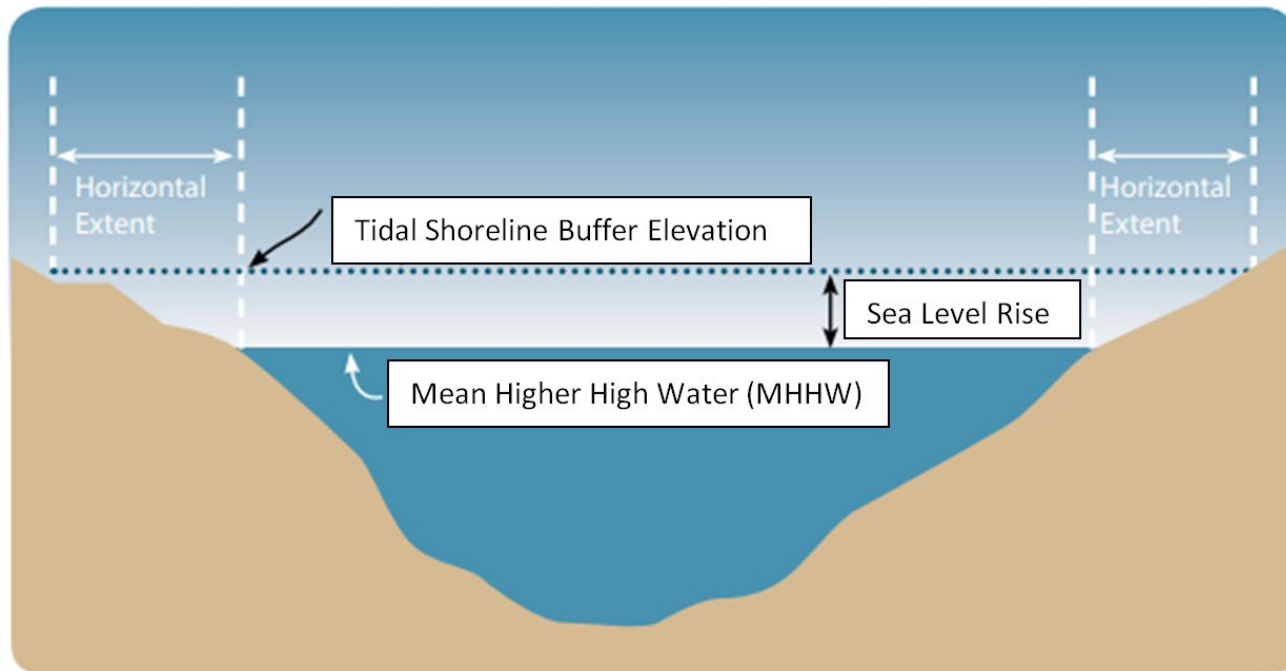
Mean Higher High Water (MHHW) in the year 2000: 2.0' NAVD88

+

Relative Sea Level Rise between the year 2000 and 2080: 3.4'

=

Tidal Shoreline Buffer Elevation (MHHW in the year 2080): 5.4' NAVD88



# TSB - NOAA 2022 Sea Level Rise Scenarios (in feet)

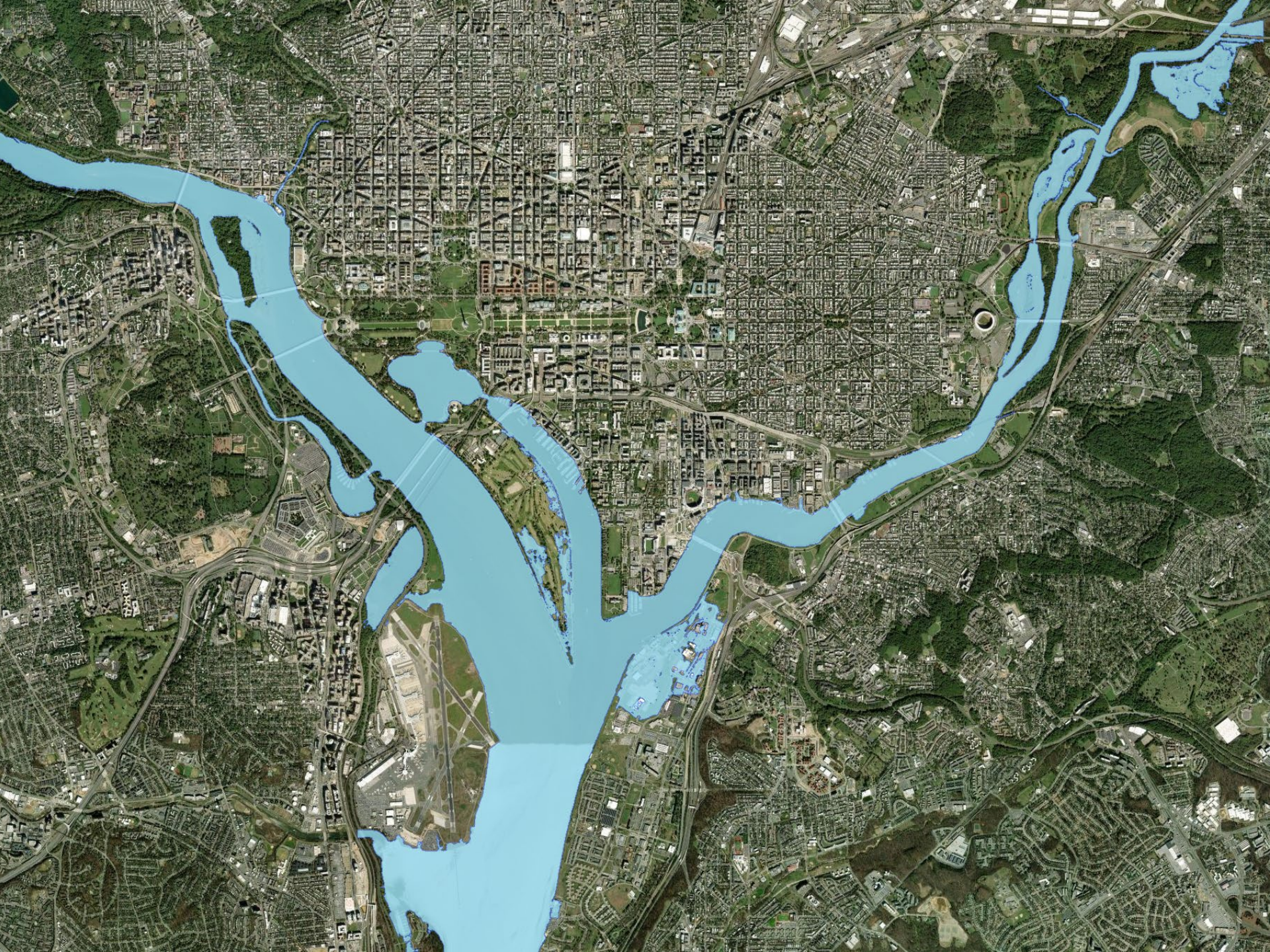
Year	Low	Int-Low	Int	Int-High	High	
2000	0.0	0.0	0.0	0.0	0.0	
2010	0.2	0.2	0.3	0.3	0.4	
2020	0.4	0.4	0.4	0.4	0.4	
2030	0.7	0.7	0.7	0.8	0.8	
2040	0.9	1.0	1.0	1.1	1.1	
2050	1.1	1.2	1.3	1.5	1.7	
2060	1.3	1.5	1.7	2.1	2.4	
2070	1.5	1.8	2.1	2.7	3.3	
2080	1.6	2.0	2.6	3.4	4.4	
2090	1.7	2.2	3.2	4.3	5.5	
2100	1.9	2.5	3.9	5.2	6.7	

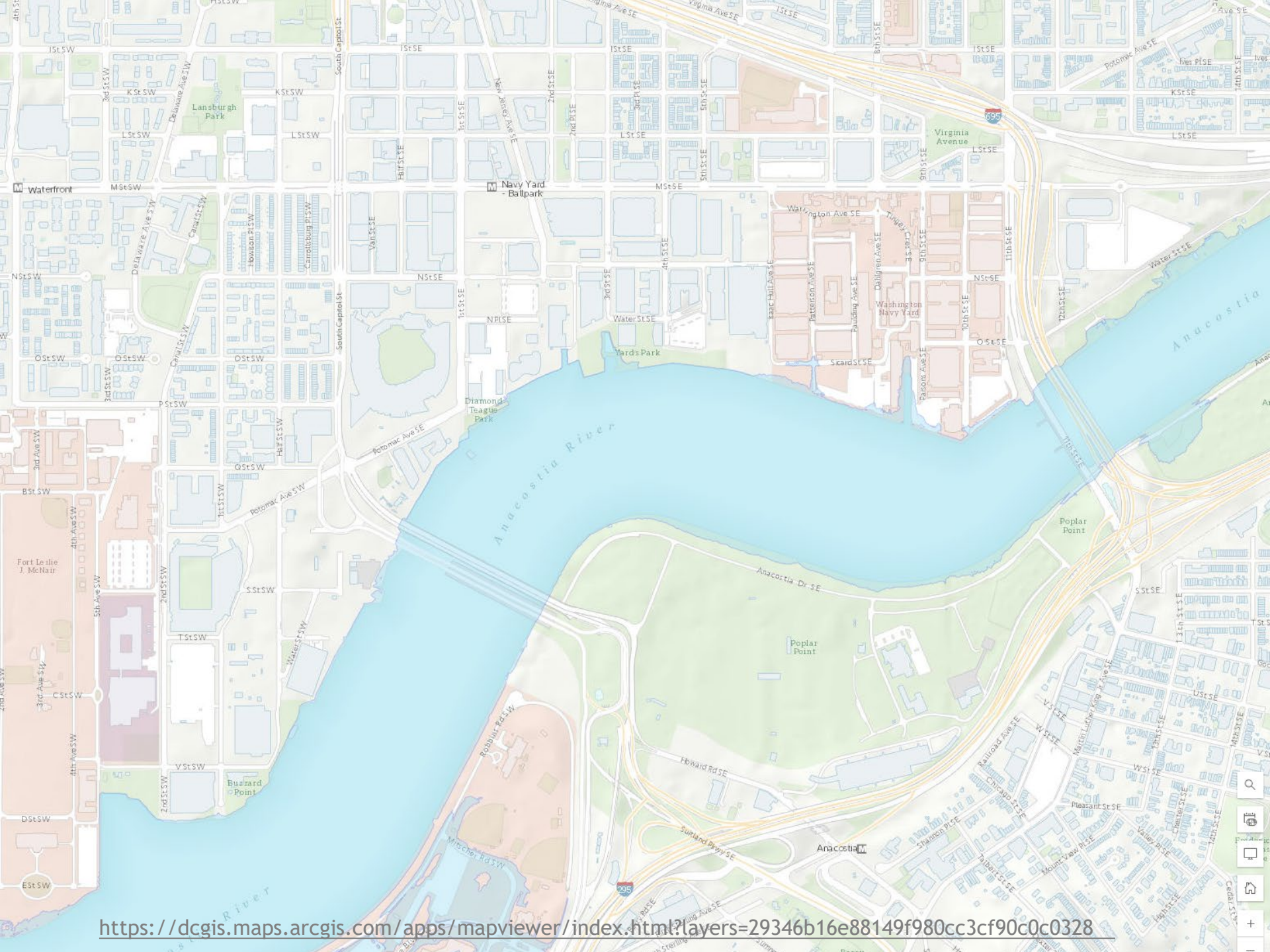
These numbers were sourced from:

<https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-data.html#slr-report-data>

# Service life of buildings – Research Summary

- Estimates cluster around 30-60 years from construction until substantial improvement.
  - Median age for many categories (e.g. homes, offices, schools, federal (DOE) facilities) is approximately 30 years
- Although some estimates were below 50 years, New York City Mayor's Office of Recovery and Resiliency, U.S. Green Building Council, and DOE Resilient Design Guidelines use a 60-year timeframe to promote sustainability in the built environment
  - Highest estimate reached 120 years
- State of NJ uses 75-year lifespan (2100 benchmark year), while VA uses 50-year lifespan





# What Would Change? – Fees

## Current Flood Hazard Rule:

- Unclear when certain fees applied
- Primary charges were for review of studies and reports

## Proposed Update:

- All permit applications (excepting small residential) will have initial and final plan review fees.
- Fees depend on type of project (substantial improvement vs. new construction) and size/use of project.
- Additional fees for unique scenarios

# What Would Change? – Fees

**Table 1. DOEE Review Fees for 1–2 Unit Dwellings or Accessory Structures in Flood Hazard Areas**

Permit Type	Trade / Postcard Permit or Interior Work (Not SI)	Substantial Improvement (SI)	New Construction or Addition with Footprint Change
Initial plan review fee due upon submittal to permitting database	\$0	\$0	\$600.00
Final plan review fee due before issuance of approval	\$0	\$0	\$200.00

**Table 2. DOEE Review Fees for Residential-Only Apartment Building with 5 or Fewer Units in Flood Hazard Areas**

Permit Type	Interior Work (Not SI)	Substantial Improvement	New Construction or Addition with Footprint Change
Initial plan review fee due upon submittal to permitting database	\$0	\$0	\$1,200.00
Final plan review fee due before issuance of approval	\$0	\$0	\$600.00

# What Would Change? – Fees

**Table 3. DOEE Review Fees for Minor Development (Nonresidential Structures or Mixed-Use Buildings with 3 or Fewer Floors and/or 5 or Fewer Residential Units) in Flood Hazard Areas**

Permit Type	Interior Work (Not SI)	Substantial Improvement	New Construction or Addition with Footprint Change
Initial plan review fee due upon submittal to permitting database	\$200	\$3,000.00	\$3,000.00
Final plan review fee due before issuance of approval	\$0	\$1,500.00	\$1,500.00

**Table 4. DOEE Review Fees for Major Development (4 or More Floors and/or 6 or More Residential Units) in Flood Hazard Areas**

Permit Type	Interior Work (Not SI)	Substantial Improvement	New Construction or Addition with Footprint Change
Initial plan review fee due upon submittal to permitting database	\$500	\$6,000.00	\$6,000.00
Final plan review fee due before issuance of approval	\$0	\$4,000.00	\$4,000.00

# What Would Change? – Fees

**Table 6. Additional DOEE Fees for Flood Hazard Areas**

<b>Additional Fees (any development) due upon submission or when determined a requirement</b>	<b>1-2 Unit Dwellings /Accessory Structures</b>	<b>Other Building Work (as shown in Tables 2-4)</b>	<b>Nonstructural Land-Disturbing Activity</b>
Predevelopment Meeting (per hour after five free hours)	\$100	\$100	\$100
Resubmission Fee (Beginning on Fourth Resubmission)	25% of initial plan review fee	25% of initial plan review fee	25% of initial plan review fee
Determination of Flood Hazard Zone and Elevation	\$100	\$100	\$100
Review of a Hydrologic and Hydraulic (H&H) Study involving culverts or in-channel structures	\$3,000 + \$500 per crossing structure more than one	\$3,000+ \$500 per crossing structure more than one	\$3,000+ \$500 per crossing structure more than one

Review of all other H&H studies	\$100	\$800	\$800
Processing/Review of a CLOMR or LOMR (each submission)	\$0	\$800	\$800
Review of a Proposed Code Modification or Variance	\$100	\$800	\$800

# What Would Change? – Mixed Use

## Current Flood Hazard Rule:

- Not defined - treated like residential only
- No underground parking allowed in 100-year

## Proposed Update:

- New sections with requirements for
  - Residential only
  - Mixed Use
  - Nonresidential
- In 100-year floodplain DOEE will allow mixed-use buildings to include an underground parking garage without a variance or code modification
- (still not allowed for residential only)

# What Would Change? – Covenants

## Current Flood Hazard Rule:

- Only required as necessary in variances

## Proposed Update:

- Owner must record responsibility to maintain the dry floodproofing system in declaration of covenants
- Owner must record a non-conversion agreement stating that they will not convert non-residential space below the DFE to residential

# Transition

- Any permits submitted after 30 days of final rulemaking must comply with the updated rules, with one exception (next slide).
- Any permits submitted 6 months after the final rulemaking must comply; no exceptions.

# Transition - Exception

- Applications with an approval listed below **that also conflicts with the flood regulations:**
  - (a) Final approval by the Historic Preservation Review Board
  - (b) Final approval by the Commission on Fine Arts;
  - (c) Final approval by the National Capital Planning Commission;
  - (d) Variance or special exception from the Board of Zoning Adjustment;
  - (e) Stage 2 or Consolidated Planned Unit Development review by the District Office of Planning; or
  - (f) Design review by the District Office of Planning
- No exceptions for applications submitted 6 months after the final rulemaking.

# Outreach to Date

# External Outreach Efforts

- **March 2020:** Initial overview of proposed updates
- **Spring 2021:** Four technical working groups to address mapping, vesting and transition, and commercial/mixed use/multifamily development
- **Spring/Summer 2021:** Three community meetings (two for homeowners and one for commercial/institutional building owners)
  - Promotion via mailed postcard to each address in the floodplain
- **Throughout:** Collaboration with Construction Codes Coordinating Board

# Evolution of the Regs Based on Feedback / Data

- Removed public housing from critical facility list
- Made it easier to develop in 500-year floodplains
- Added the substantial improvement exemption for small homes with projects less than \$200,000.
- Lowered the projected Sea Level Rise from 4.5 ft to 3.4
- Simplified the hazardous material facility requirements
- Removed the requirement to purchase flood insurance
- Grandfathered projects that have completed certain interagency approval milestones to continue to use old flood regs.

# Next Steps

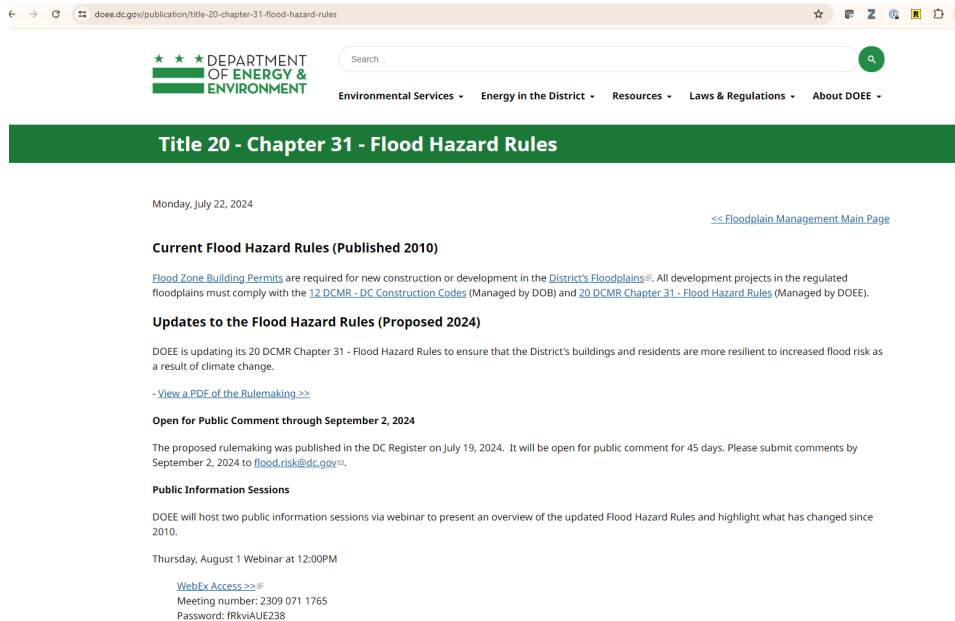
- Publication of proposed rules in the DC Register July 19, 2024
- Public comments accepted through September 2, 2024
- DOEE will consider the formal public comments and make changes
- DOEE to submit for internal DC Government Review and either...
  - Publish a Final Rulemaking in the DC Register
  - Or Publish a Second Proposed Rulemaking in the DC Register

# Please Submit Comments by Sep 2!

[Flood.Risk@dc.gov](mailto:Flood.Risk@dc.gov)

Stay up to date via this webpage:

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



The screenshot shows a web browser window displaying the Department of Energy & Environment (DOEE) website. The page title is "Title 20 - Chapter 31 - Flood Hazard Rules". The date is "Monday, July 22, 2024". The page content includes a search bar, navigation links for "Environmental Services", "Energy in the District", "Resources", "Laws & Regulations", and "About DOEE". The main content area is titled "Title 20 - Chapter 31 - Flood Hazard Rules" and contains the following information:

- Current Flood Hazard Rules (Published 2010)**  
Flood Zone Building Permits are required for new construction or development in the District's Floodplains. All development projects in the regulated floodplains must comply with the 12 DCMR - DC Construction Codes (Managed by DOB) and 20 DCMR Chapter 31 - Flood Hazard Rules (Managed by DOEE).
- Updates to the Flood Hazard Rules (Proposed 2024)**  
DOEE is updating its 20 DCMR Chapter 31 - Flood Hazard Rules to ensure that the District's buildings and residents are more resilient to increased flood risk as a result of climate change.  
- [View a PDF of the Rulemaking >>](#)
- Open for Public Comment through September 2, 2024**  
The proposed rulemaking was published in the DC Register on July 19, 2024. It will be open for public comment for 45 days. Please submit comments by September 2, 2024 to [flood.risk@dc.gov](mailto:flood.risk@dc.gov).
- Public Information Sessions**  
DOEE will host two public information sessions via webinar to present an overview of the updated Flood Hazard Rules and highlight what has changed since 2010.  
Thursday, August 1 Webinar at 12:00PM  
[WebEx Access >>](#)  
Meeting number: 2309 071 1765  
Password: fRkVIAUEZ38

# Thank You!

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