



Sandbagging the Flood: Floodplain Variance Requests and What You Can Do to Help Reduce Flooding in Your Community

Maryland Planning Commissioners Association (MPCA)
38th Annual Conference

October 27, 2021

Hello

my name is

- **Kevin Wagner**, Community Assistance Program Manager (Natural Resources Planner)
 - Worked with Maryland Dept. of the Environment for 21 years; private sector for 3 years
 - Involved in almost anything flood-related (e.g., mapping, regulations/construction, insurance, grants, etc.) **#MDFloodGuy**
 - Volunteer on the City of Frostburg's, Board of Zoning Appeals

Common Causes of Flooding

- Stormwater runoff
 - “Urban flooding”
- High tides/coastal storm event (hurricane, Nor’easter)
 - King tide
 - “Nuisance flooding”
 - Sea level rise and land subsidence
- Riverine/flash flood
 - Extreme precipitation
- **Other:**
 - Water main break
 - Sewer backup



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Urban Flooding

“...the inundation of property in a built environment, particularly in more densely populated areas, caused by rain falling on increased amounts of impervious surfaces and overwhelming the capacity of drainage systems.”



Nuisance Flooding

“...high tide flooding that causes a public inconvenience.”

Water Main Break



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Source: CBS. (2009, December 17) *Huge Baltimore Water Main Break* [Video]
YouTube. <https://www.youtube.com/watch?v=5VVj6el8yMk>

Topics

- Overview of the National Flood Insurance Program (NFIP)
 - **Know Your Risk** – Maps and Data
 - **Reduce Your Risk** – Floodplain Management & Mitigation Actions
 - **Insure Your Risk** – Flood Insurance
- **Floodplain Variances**



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National Flood Insurance Program

- Created by the National Flood Insurance Act of 1968 (Hurricane Betsy, 1965)
- Administered by the Federal Emergency Management Agency (FEMA)
- Participation is **voluntary**
 - Adopt and enforce regulations
 - Eligible for flood insurance
- **Benefits** of participation:
 - Flood insurance
 - Grants and loans
 - Disaster assistance
 - Federally-backed mortgages
- **Partnership** between FEMA and the “community”



National Flood Insurance Program

Answers to Questions About the NFIP

FEMA F-084 / March 2011



FEMA

“Community”

- **Community** means any State or area or political subdivision thereof, or any Indian tribe or authorized tribal organization, or Alaska Native village or authorized native organization, which has **authority to adopt and enforce flood plain management regulations for the areas within its jurisdiction.**

Source: Title 44, § 59.1, Code of Federal Regulations



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Maryland NFIP Communities

- 147 participating communities
 - 23 counties and Baltimore City
 - 123 municipalities



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Source: Community Status Book, <https://www.fema.gov/cis/MD.html>

Community's Role

- **Adopt and enforce floodplain management regulations**
 - Based on Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS)
- Use FIRMs and FIS for “development” review process
- Issue floodplain permits
- Respond to requests for assistance
- Meet with FEMA and/or State for Community Assistance Visit (CAV) or Community Assistance Contact (CAC)
- Submit technical data to FEMA, etc.



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MDE's Role

- NFIP State Coordinating Office
 - Provide technical assistance on mapping, regulatory requirements, insurance, etc.
 - Assist communities with public outreach and floodplain management ordinance updates
- Cooperating Technical Partner (CTP) with FEMA on floodplain mapping for other counties
 - Developed Base Flood Elevations (BFEs) in Zone A
- Regulate activity in the 100-year nontidal floodplain (use FEMA maps as a minimum)
 - Waterway Construction Permit



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Maryland NFIP Policies

- 64,497 Number Policies
 - 82 V Zone
 - 17,411 A Zone
- **\$16,057,544,600 Total Coverage**
- \$37,967,564 Total Premium
- 19,846 Total Claims Since 1978
- \$314,970,169 Total Paid Since 1978



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Key Components of the NFIP

**Maps and
Data**



**Floodplain
Management &
Mitigation
Actions**

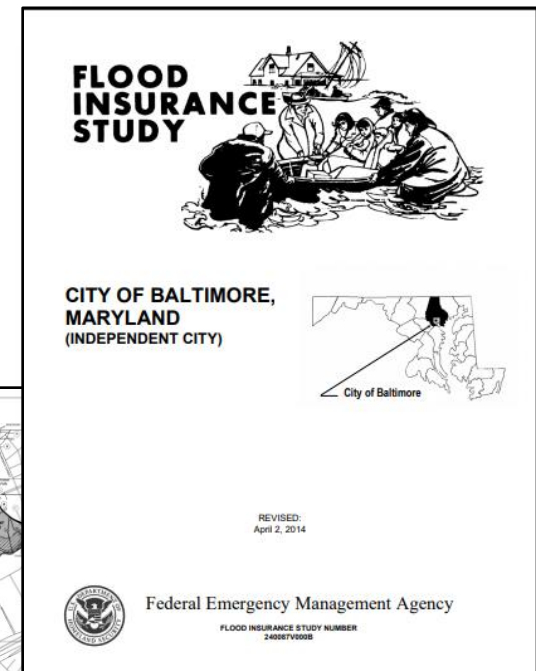
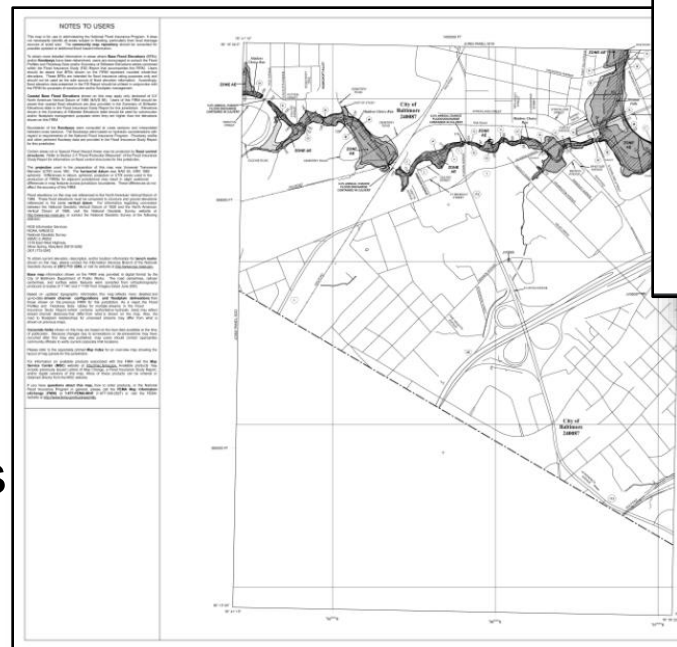
Flood Insurance



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Know Your Risk – Maps and Data

- Flood Insurance Study (FIS)
- Flood Insurance Rate Map (FIRM)
 - Digital FIRM (DFIRM)
- Community Identified Flood Risk:
 - Historic high water marks
 - 2050 and 2100 SLR projections
 - Other?



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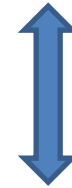
Flood Insurance Rate Map (FIRM)

- Delineates flood risk based on different recurrence intervals (1% and 0.2% annual chance flood)
 - **Floods don't follow map boundaries**
- National standard is the 1% annual chance flood (also known as 100-year flood, or special flood hazard area)
 - Flood insurance rating
 - Floodplain management & development review process



Common Terms

- **Base Flood Elevation (BFE)**
 - Depth of 1% annual chance flood



- **Special Flood Hazard Area (SFHA)**
 - Extent of 1% annual chance flood



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Flood Risk Zones

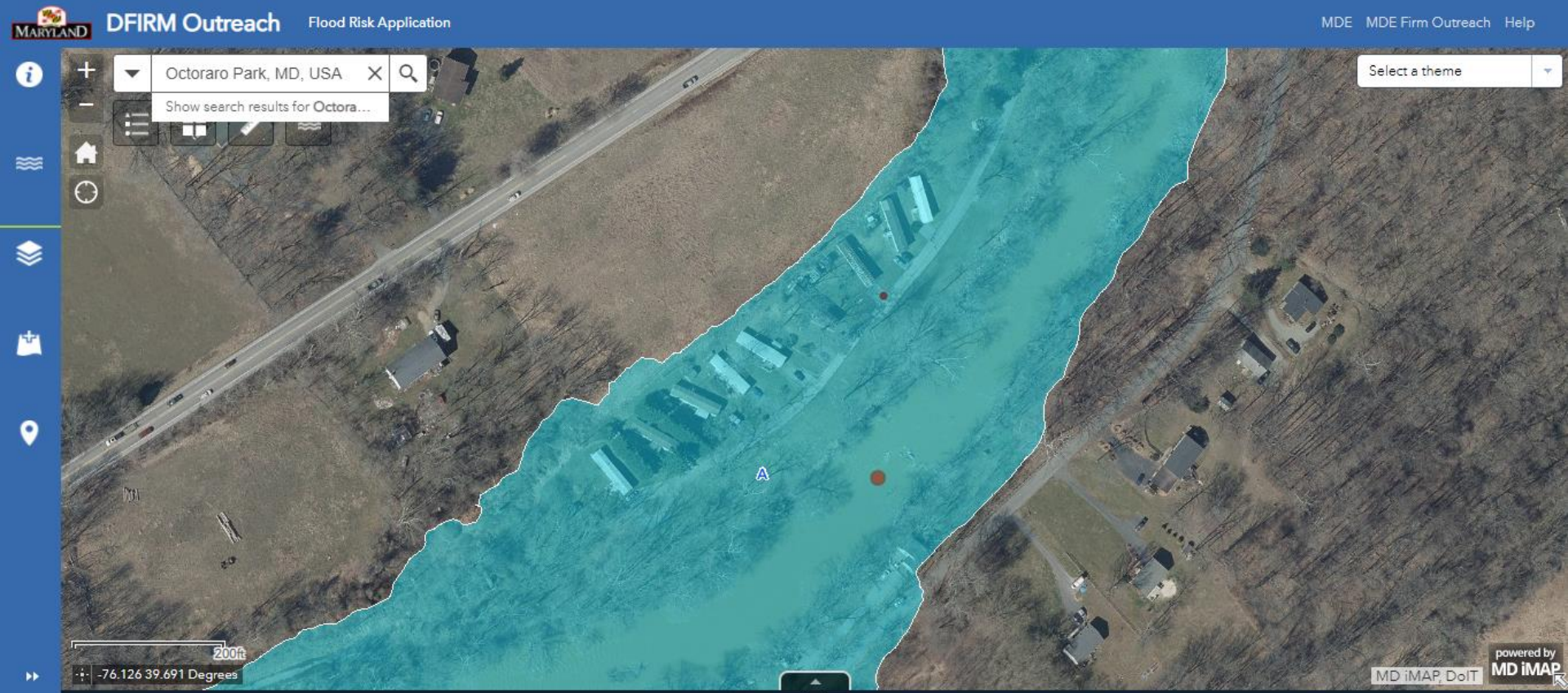
Risk	Zone	Recurrence Interval
Low	X (unshaded)	<0.2%
Moderate	X (shaded)	0.2%
High (Riverine/tidal)*	A, AH, AO, AE	1.0%
High (Coastal)*	VE	1.0%

***Mandatory purchase requirements for flood insurance, and regulatory requirements in high risk areas**



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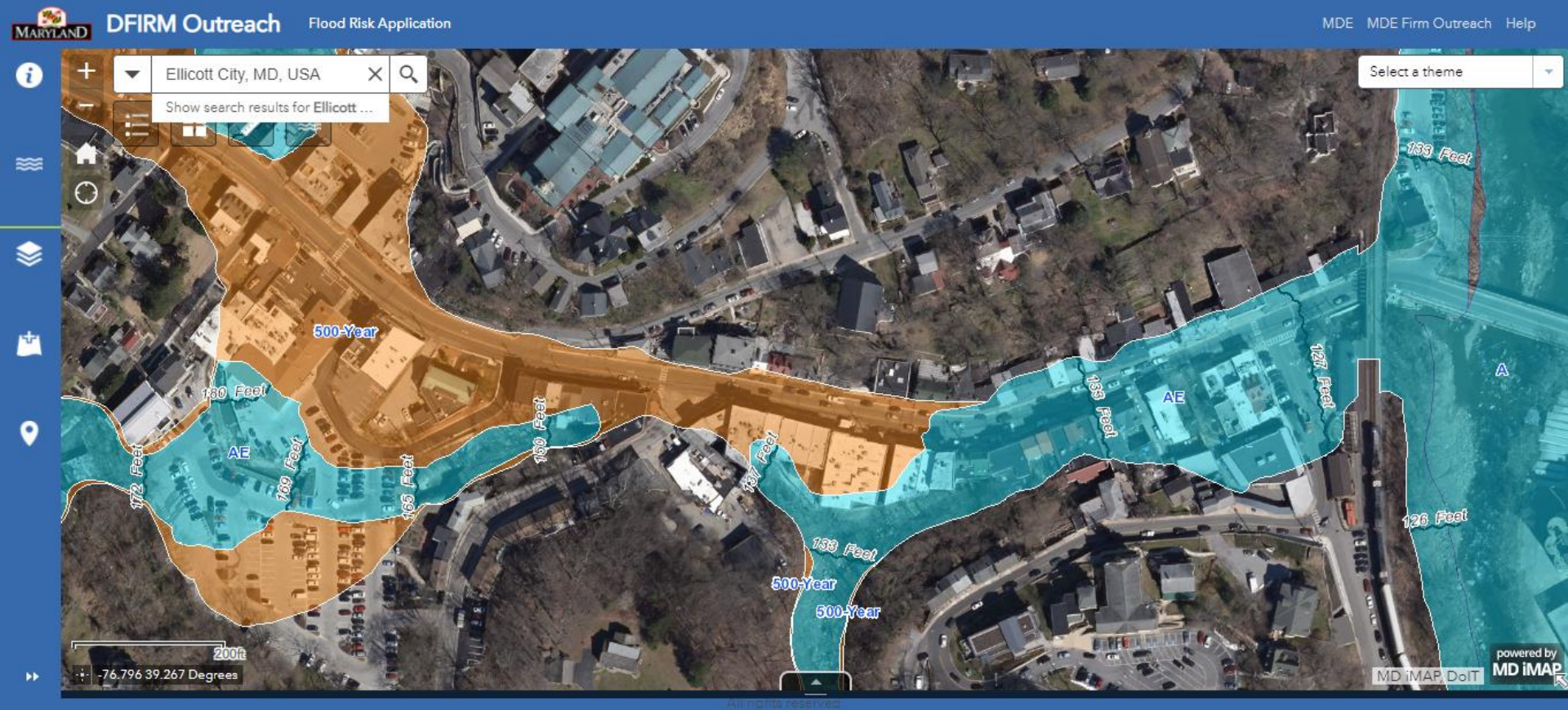
A Zone (Nontidal) – No BFE Shown



AE Zone Tidal



AE Zone Riverine (Nontidal)



Riverine (Nontidal) – Floodway



VE Zone



Floodway

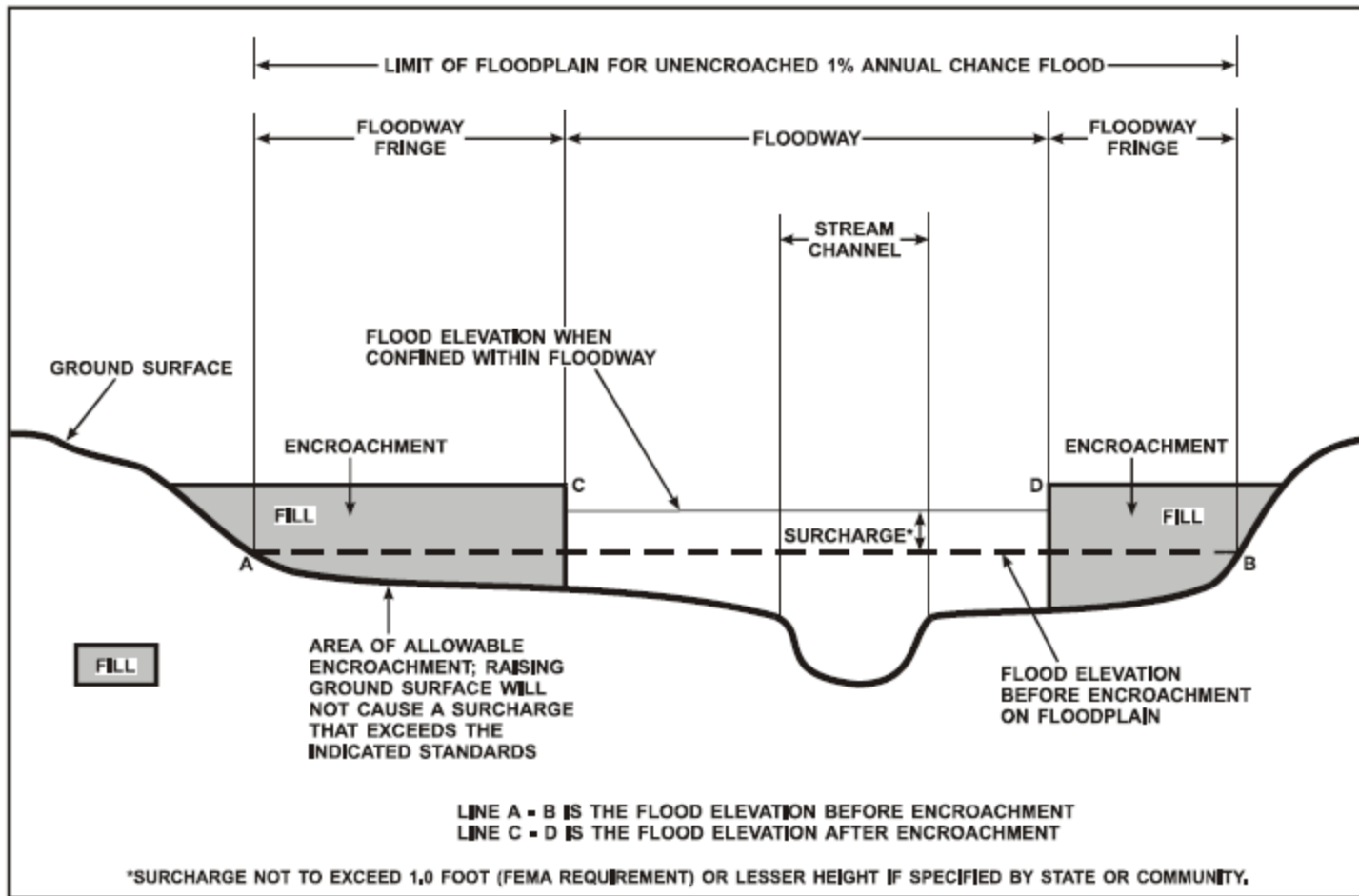
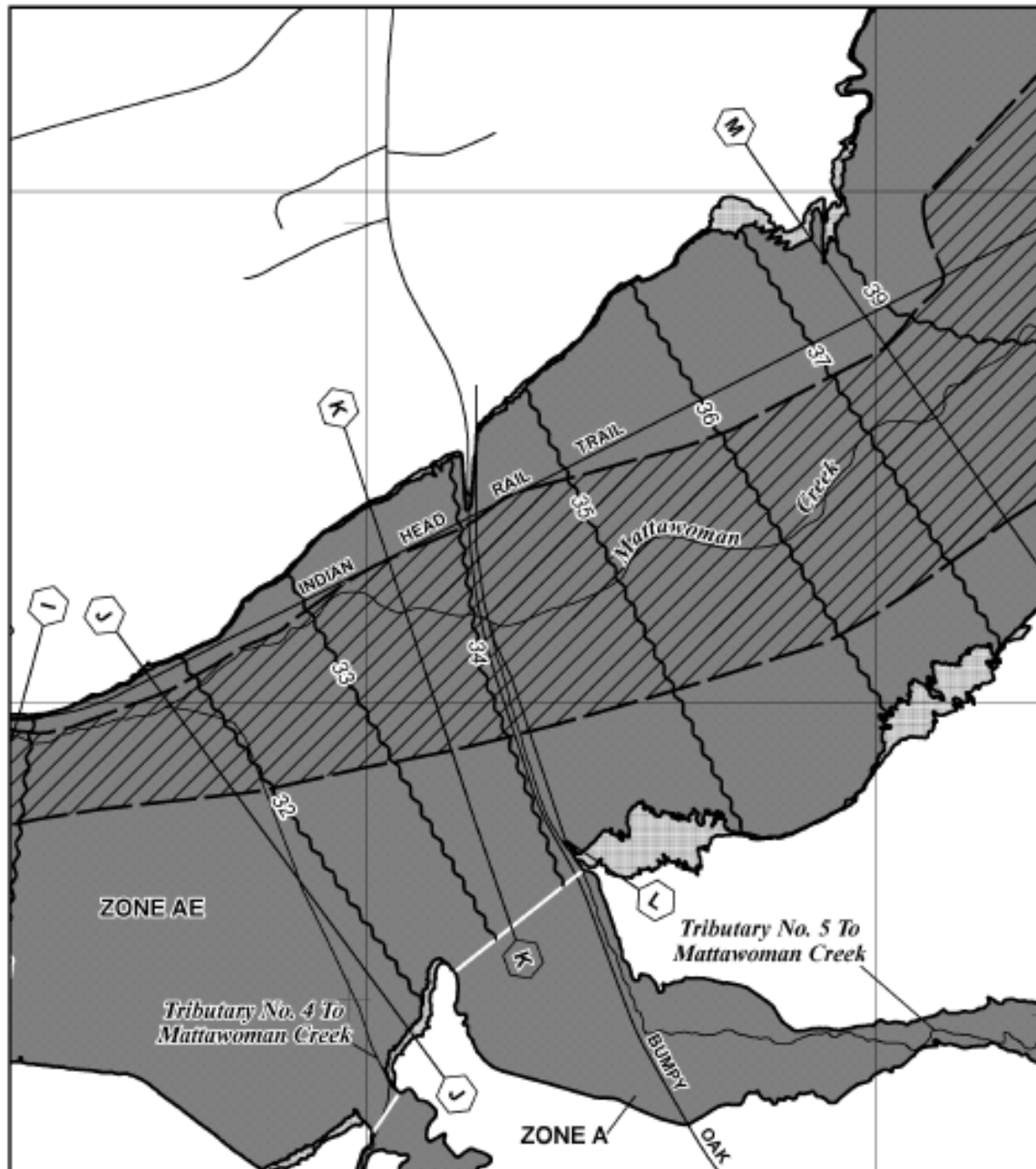
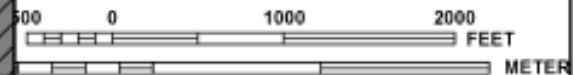


Figure 1 – Floodway Schematic





MAP SCALE 1" = 1000'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0155D

FIRM

FLOOD INSURANCE RATE MAP

CHARLES COUNTY,
MARYLAND
AND INCORPORATED AREAS

PANEL 155 OF 575
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHARLES COUNTY	31008	05A	0

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



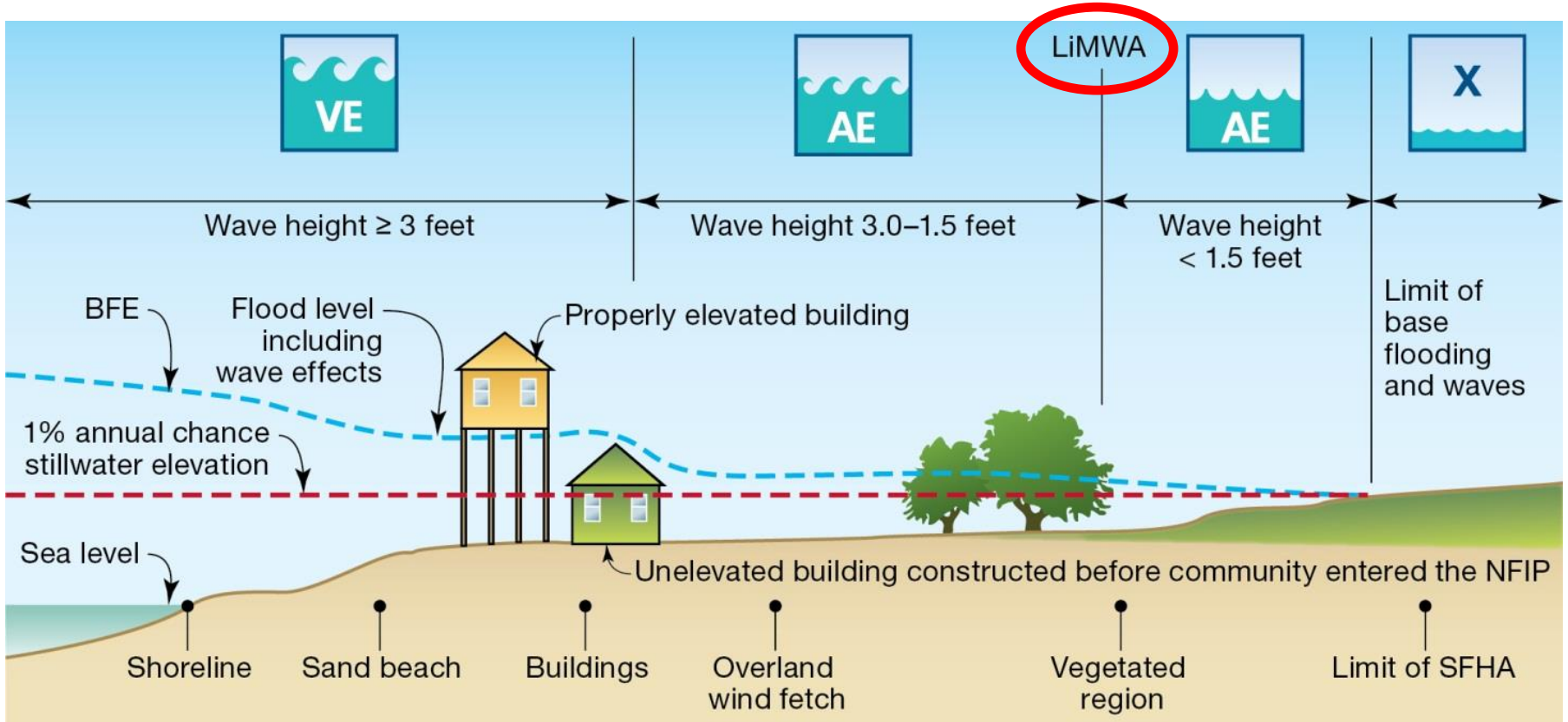
MAP NUMBER
24017C0155D

MAP REVISED
MAY 4, 2015

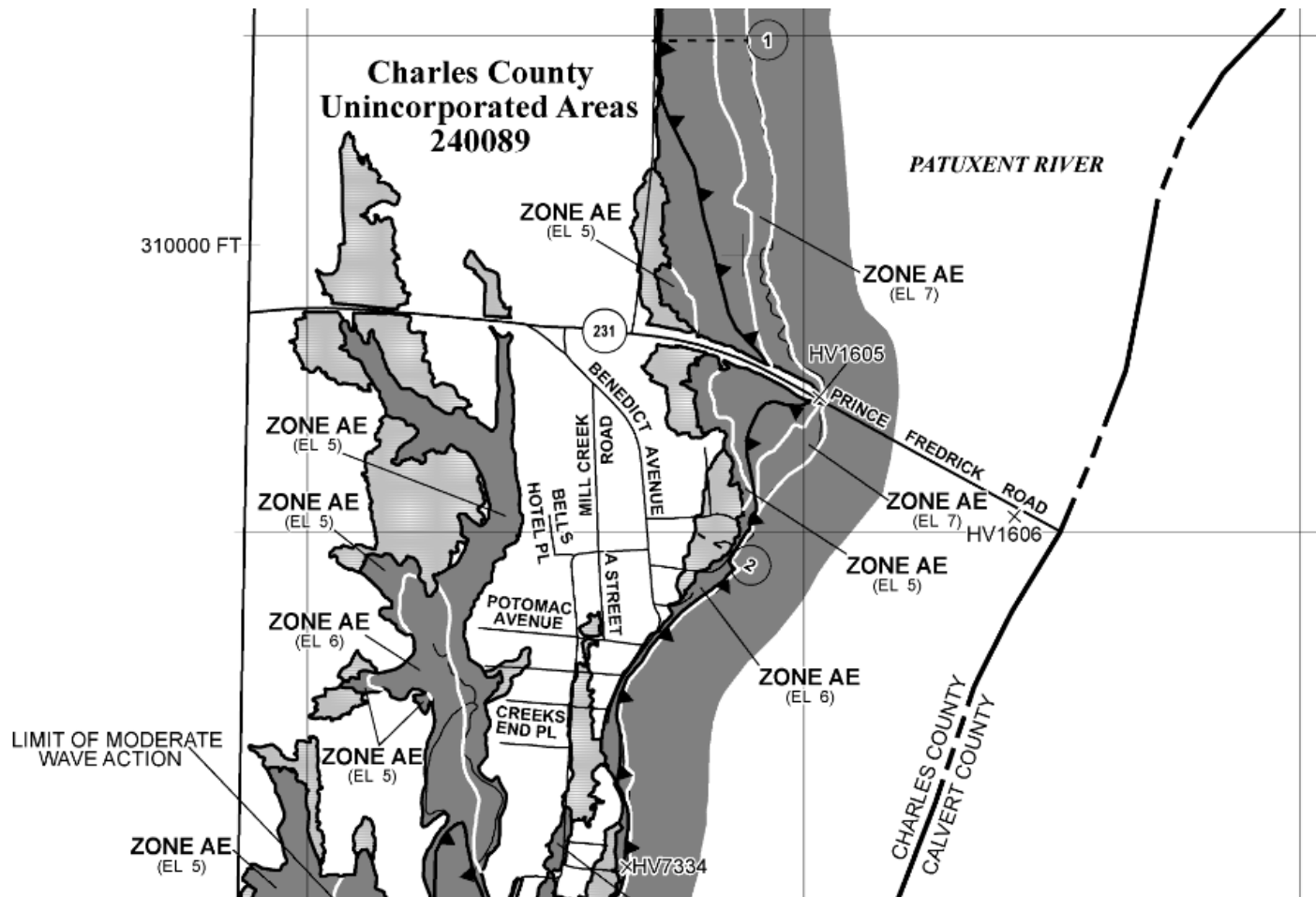
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Coastal A Zone (CAZ)



Limit of Moderate Wave Action (LiMWA) – Benedict



Maryland's Flood Risk Application

<https://mdfloodmaps.net/map/>

The screenshot displays the Maryland's Flood Risk Application web interface. The browser address bar shows the URL mdfloodmaps.net/map/. The page header includes the Maryland state logo, the text "DFIRM Outreach Flood Risk Application", and navigation links for "MDE", "MDE Firm Outreach", and "Help".

The main map area shows an aerial view of a residential neighborhood with a teal-colored flood zone overlaid. The flood zone is labeled with "500-Year" and "AE" (Adapted Flood Hazard) along its perimeter. Specific elevation points are marked along the flood zone boundary, including 244 Feet, 246 Feet, 233 Feet, 227 Feet, 216 Feet, 208 Feet, 202 Feet, 192 Feet, 184 Feet, and 173 Feet. A search bar at the top of the map area contains the text "Find address or place".

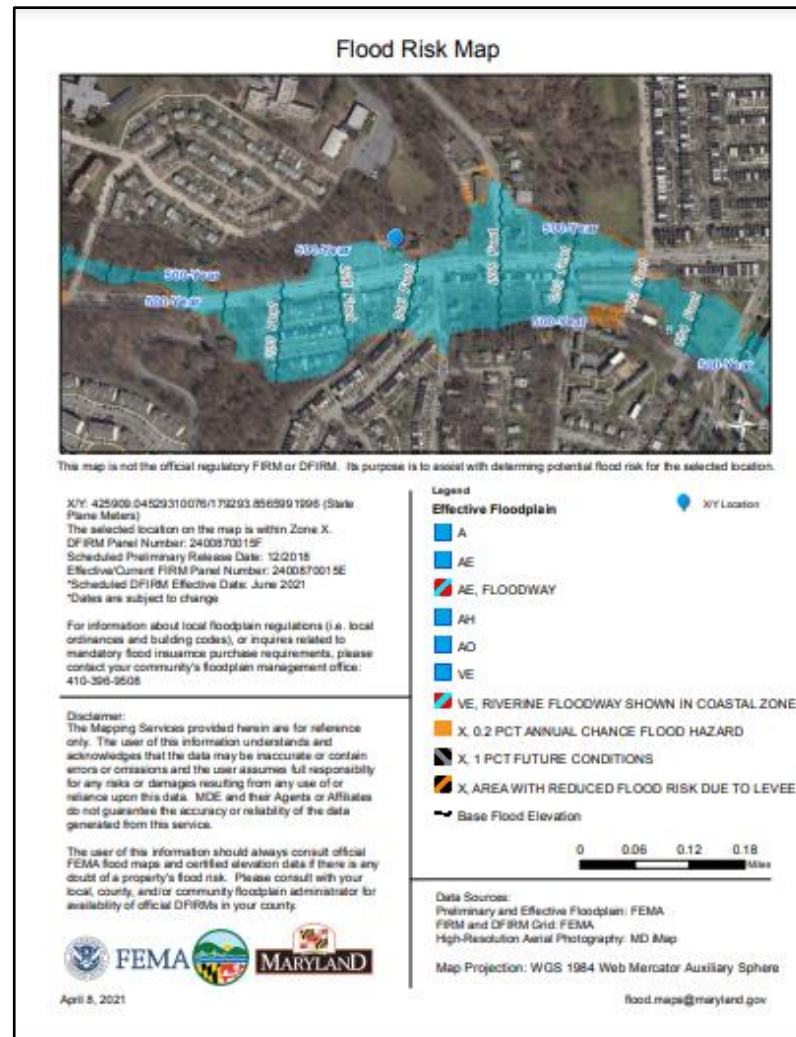
On the left side, a "Layer List" panel is visible, listing various map layers with checkboxes:

- Active Road Closures
- Preliminary Floodplain
- Effective Floodplain
- Effective Panels
- Effective Model
- Flood Lines
- Effective Floodplain
- Bridges and Culverts
- LiMWA
- Discharge Points
- Structure Footprint

At the bottom of the map, there is a scale bar for 300 feet and coordinates: -76.699 39.279 Degrees. The bottom right corner of the map area features the text "powered by MD iMAP, DoIT" and the MD iMAP logo.

Flood Risk Map

Download as
a PDF



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FEMA Flood Map Service Center

- Access Products
 - FIRMs & FIS
 - LOMCs
 - DFIRM Database
 - Historic Products
 - Flood Risk Products
- Access Tools
 - Make a **FIRMette**
 - National Flood Hazard Layer (NFHL) Viewer
- Live Support
 - FEMA Mapping and Insurance eXchange (FMIX)

FEMA Flood Map Service Center : Welcome!

Looking for a Flood Map? 

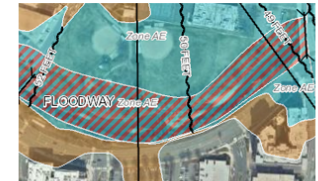
Enter an address, a place, or longitude/latitude coordinates:

Enter an address, a place, or longitude/latitude coordinate:

Search

Looking for more than just a current flood map?

Visit [Search All Products](#) to access the full range of flood risk products for your community.



About Flood Map Service Center

The FEMA Flood Map Service Center (MSC) is the official public source for flood hazard information produced in support of the National Flood Insurance Program (NFIP). Use the MSC to find your official flood map, access a range of other flood hazard products, and take advantage of tools for better understanding flood risk.

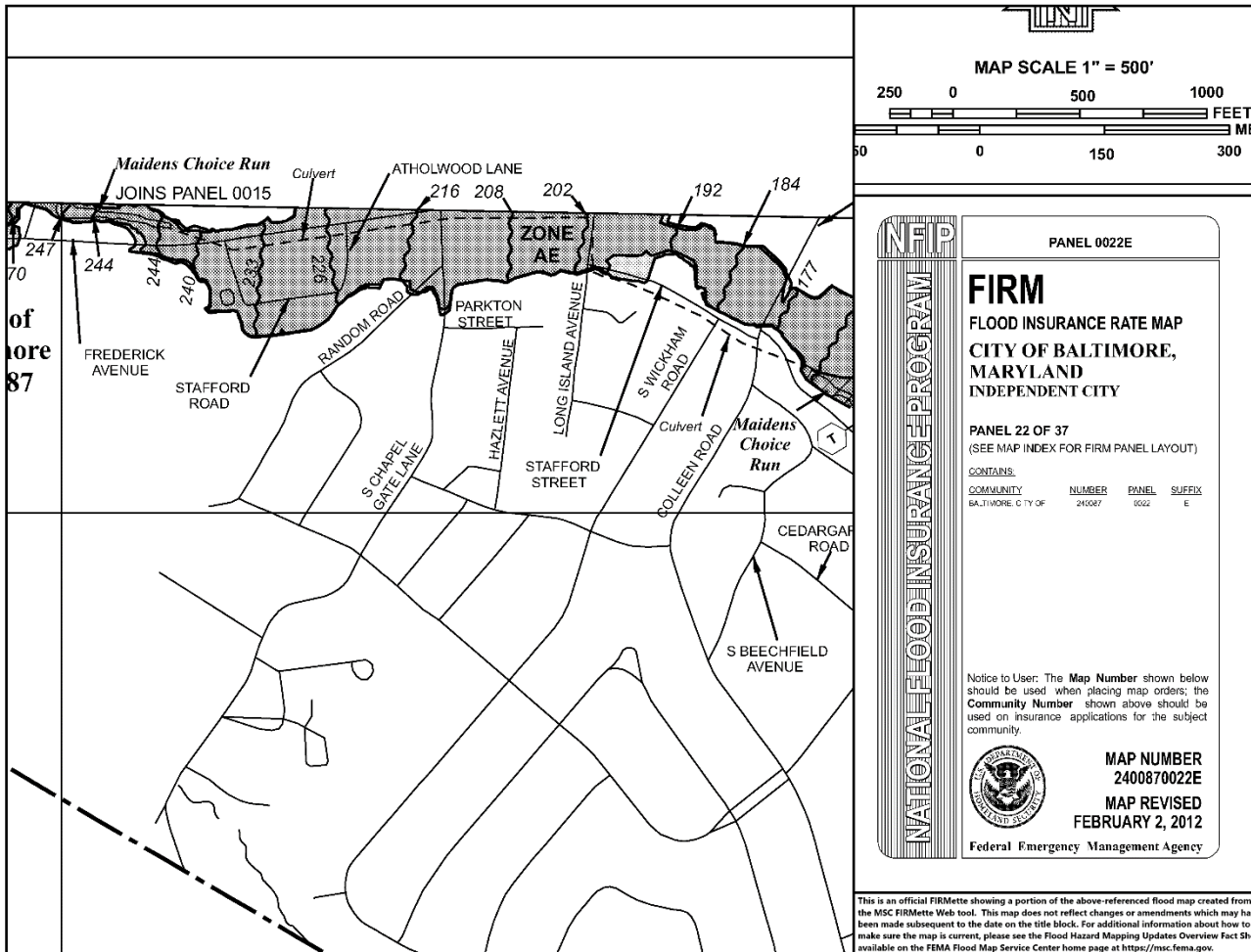
FEMA flood maps are continually updated through a variety of processes. Effective information that you download or print from this site may change or become superseded by new maps over time. For additional information, please see the [Flood Hazard Mapping Updates Overview Fact Sheet](#)

<https://msc.fema.gov/portal/home>



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FIRMette – Web Tool

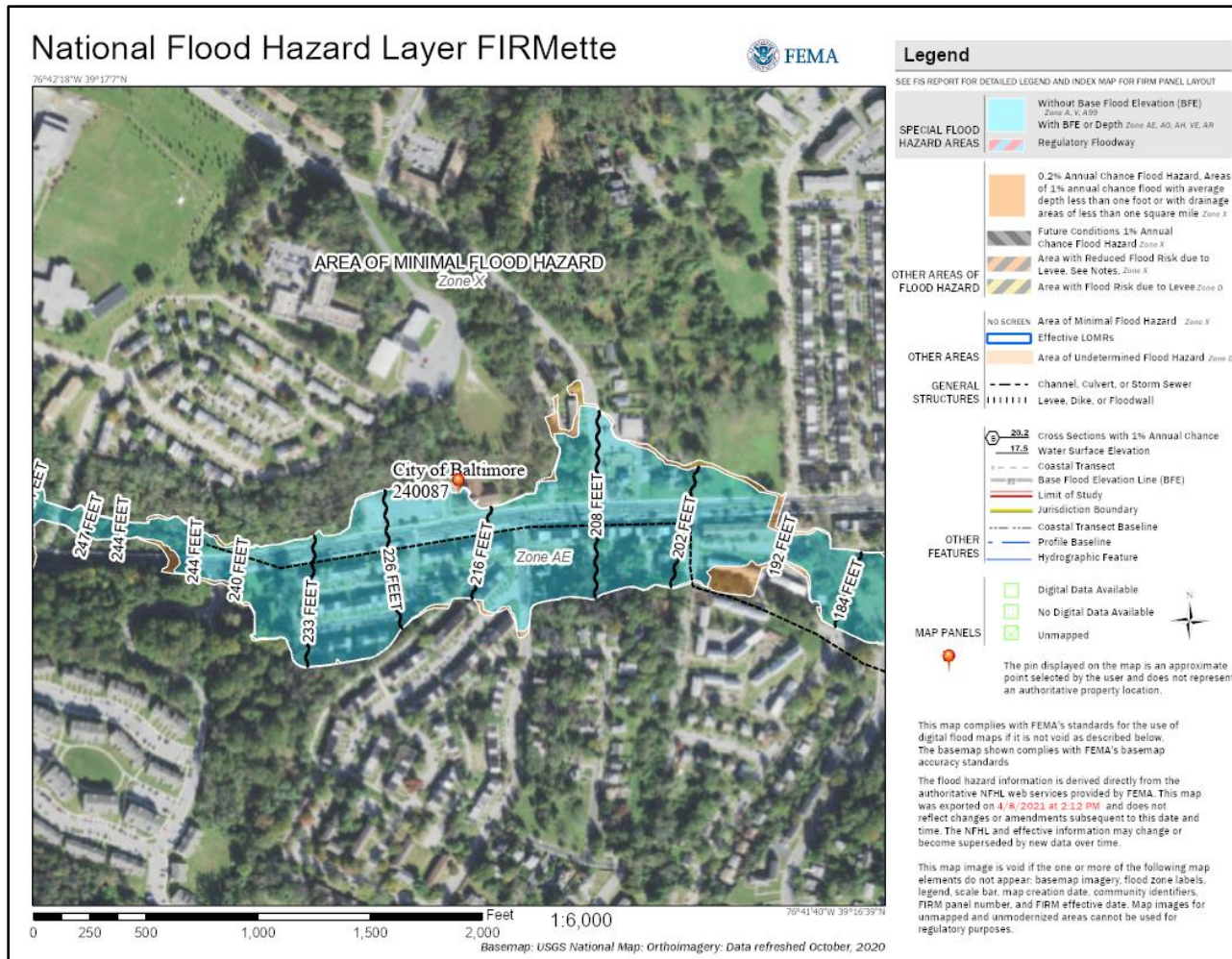


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FIRMette – NFHL Viewer



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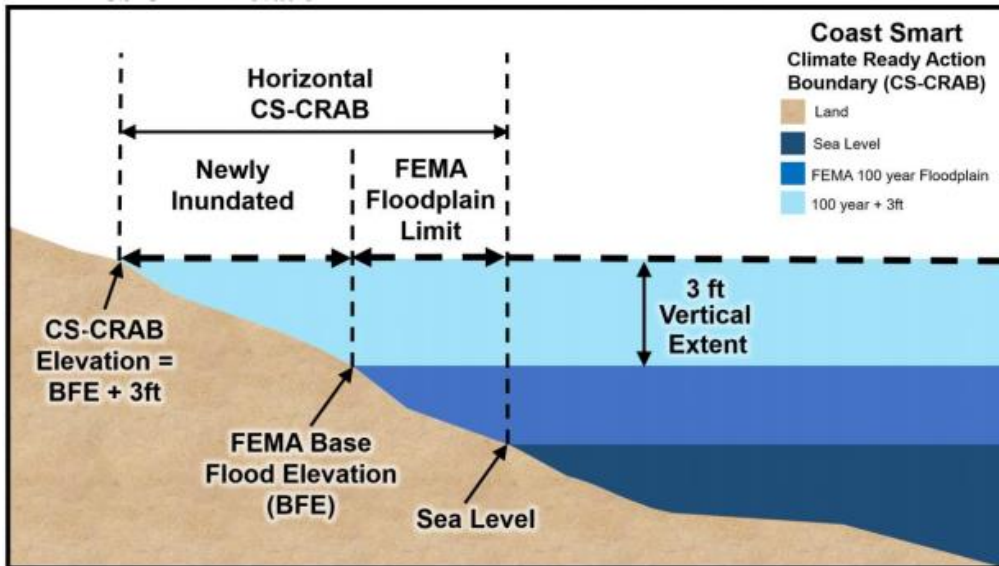
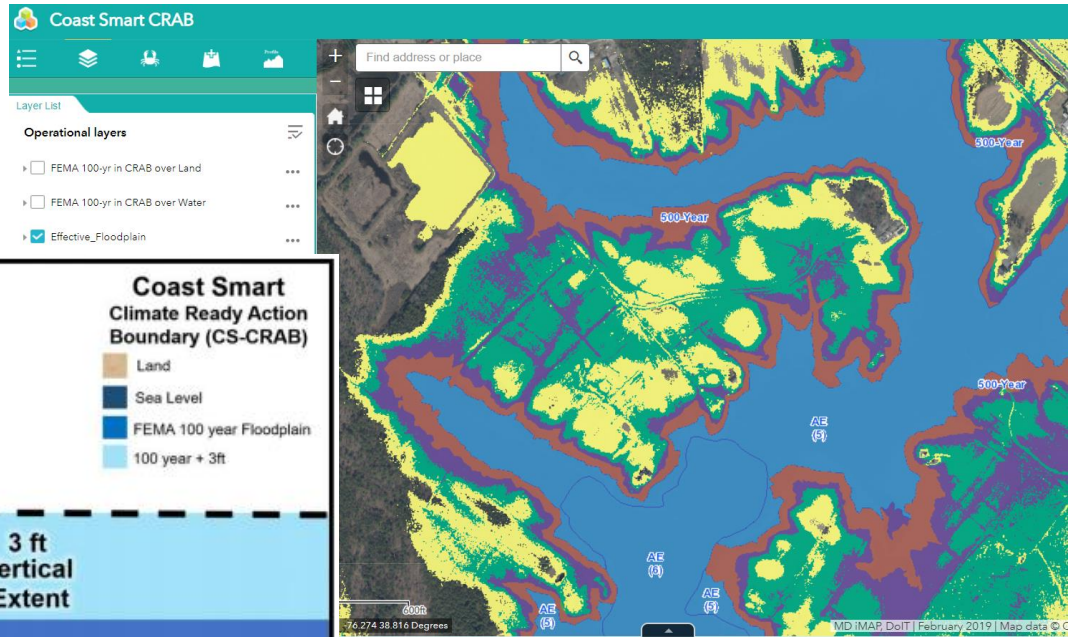
Other Sources of Flood Risk Data

- **Coast Smart Climate Ready Action Boundary (CS-CRAB)**
 - <https://mdfloodmaps.net/crab/>
- **Flood Factor®**
 - <https://floodfactor.com/>
 - Used by realtor.com



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Coast Smart Climate Ready Action Boundary (CS-CRAB)



- Story Map: <https://arcg.is/0HXmjj0>
- Map Viewer: <https://mdfloodmaps.net/CRAB/>



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Flood Factor®

- <https://floodfactor.com/>
- “Past floods, current risks, and future projections based on peer-reviewed research from the world’s leading flood modelers.”
- Free online tool created by the nonprofit First Street Foundation
- Used by REDFIN, realtor.com and Estately
- 1-10 scoring matrix



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<https://www.realtor.com/>

- FEMA and Flood Factor flood risk data



A map interface showing the location of the property in Annapolis, MD. The map includes a 3D tour icon, a Street View icon, and a red location pin. Below the map, there are icons for commute time and noise level (Low). At the bottom, there is a banner for FEMA Zone VE (est.) and Flood Factor 9/10, with a 'NEW' badge.

Flood Risk Information



To help you make informed decisions about this property, we provide two independent flood risk assessments. Be sure to ask your agent as well about local flood risks.

FEMA

VE FLOOD ZONE (EST.)

Within Special Flood Hazard Area and indicates high risk.

The FEMA flood risk model is based on historic flood patterns and covers a general area, not an individual property. It's also used to determine insurance and building code requirements.

[Learn more about FEMA flood maps and zones and what they're used for](#)

Flood Factor



Flood risk is increasing as sea levels rise and weather patterns change.*

Flood Factor identifies the past, present, and future flood risk for a home by identifying risks from rain, rivers, tides and storm surge using advanced modeling techniques.

[Take a closer look at this property's Flood Factor and risk details](#)

[Learn about the differences between FEMA and Flood Factor assessments](#)

[More on how to prepare and protect your home](#)

Flood Insurance

Since this property is located in **FEMA zone VE (est.)***, flood insurance is likely required by federally regulated or insured mortgage lenders.

Select coverage amount

\$250K building and \$100K in contents

Try Flood.com

Estimated Annual Premium

\$--**

[Get Quote](#)

* Flood risk data is provided by Flood Factor™, a product of First Street Foundation®. The Flood Factor model is designed to approximate flood risk and not intended to include all possible risks of flood.

** Most probable FEMA flood zone as estimated by MassiveDart, Inc.

*** This non-binding quotation is not an offer of or a contract for insurance and may be withdrawn for any reason. Price and terms associated with this quote are subject to underwriting review and may change.

Key Components of the NFIP

Maps and
Data



**Floodplain
Management &
Mitigation
Actions**

Flood Insurance



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Reduce Your Risk – Floodplain Management/Regulations

- Minimum NFIP requirements in the Code of Federal Regulations (CFR)
 - Title 44, Subchapter B, Parts 59-60, § 59.1 & § 60.3(a)-(e)
- State Laws, Regulations and Executive Orders
 - Annotated Code of Maryland, Environment Article
 - Code of Maryland Regulations (COMAR)
 - Climate Change and “Coast Smart” Construction Executive Order
- **Community’s Floodplain Management Ordinance**
 - Often based on Maryland Model Floodplain Management Ordinance
 - Higher Regulatory Standards? (ex. **Freeboard**)
- Building Codes/Maryland Building Performance Standards
 - International Codes (I-Codes):
 - *International Building Code (IBC), International Residential Code (IRC), etc.*
 - *ASCE 24: Flood Resistant Design and Construction*
 - *ASCE 7: Minimum Design Loads for Building and Other Structures*



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Maryland Model Floodplain Management Ordinance

- Stand alone “model” ordinance
- Coastal, tidal and nontidal provisions
- Includes the provisions needed to meet NFIP and COMAR
- Also includes suggested higher regulatory standards
- COMAR requirements:
 - Alternatives evaluation for proposed floodway encroachment
 - All new or substantially improved nonresidential buildings in nontidal waters of the State cannot be floodproofed
 - Operations and maintenance plan for nonresidential floodproofing

Maryland Model Floodplain Management Ordinance (January, 2018)

This Model Floodplain Management Ordinance was prepared by the Maryland Department of the Environment (MDE) in response to the requirement that local jurisdictions adopt regulations that are fully compliant with the requirements of the National Flood Insurance Program (NFIP). For most communities, the requirement to update regulations is triggered by revisions to the Flood Insurance Rate Maps (FIRMs) and associated Flood Insurance Study (FIS).

There are two other documents that supplement this Model Ordinance: the Model Resource version and the Model Notes version. The Model Resource version of this Model Ordinance identifies the location where the specific NFIP regulation or Maryland regulation for pertinent provisions can be found, and also notes if a provision has a comparable requirement in the building code or ASCE 24. The Model Resource version also identifies what provisions might qualify for additional points through the Community Rating System (CRS).

In addition, the Model Resource version is cross referenced to explanatory Model Notes that identify if a provision exceeds the NFIP minimum requirements. The Model Notes also provide explanations for some provisions.

Each community should review this model and contact MDE with questions. Please note MDE prepared a “nontidal only” version for communities that do not have tidal flooding sources, and a “tidal only” version for communities that do not have V Zones.

The model must be tailored to each community. Locations where community-specific information must be inserted are noted in [ALL CAPS, WITHIN BRACKETS]. The State NFIP Office can assist the community with the date they joined the regular program of the NFIP as well as their initial FIRM date. Both of these dates are required throughout the model ordinance.

PLEASE NOTE! This model has been reviewed by FEMA. Changes other than inserting the community-specific information MUST be reviewed by MDE prior to adoption. PLEASE USE <TRACK CHANGES> TO FACILITATE OUR REVIEW.

For assistance, please contact:

Kevin G. Wagner
Community Assistance Program Manager
State NFIP Coordinating Office
Maryland Department of the Environment
160 South Water Street
Frostburg, MD 21532
301-689-1495 (office) | 240-362-2143 (cell)
kevin.wagner@maryland.gov

MD Model Floodplain Management Ordinance (January, 2018)

“Development”

- Any manmade change to improved or unimproved real estate, including but not limited to buildings or other *structures*, placement of *manufactured homes*, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

Source: Maryland Model Floodplain Management Ordinance



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Substantial Improvement/Damage

- **Definition:** Cost to restore the structure to its **pre-damaged** condition equals or exceeds **50%** of its **pre-damage market value**



PEMA



PEMA

“Historic Structure”

- Must meet definition
- Two ways of handling substantial improvement in Model Ordinance:
 - “variance method” (ex. City of Annapolis)
 - “definition method” (most communities use this method)



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Source: Maryland Model Floodplain Management Ordinance

Maryland Model Ordinance: Higher Regulatory Standards

- 2 feet of **freeboard** (Flood Protection Elevation, or FPE)
- Flood protection setback
- 3 feet of freeboard or 500-year flood elevation for Critical and Essential facilities
- Declaration of Land Restriction (Non-conversion Agreement)
- Prohibition:
 - Manufactured homes in floodway and V Zone
 - Critical and essential facilities in Coastal A and V Zones and floodway
 - Floodproofing of new and substantially improved nonresidential buildings in Coastal A Zone



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Freeboard



Source: [FEMA Build Back Safer and Stronger Fact Sheet](#)



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Zone AE – Crisfield



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Zone VE – Calvert Co.



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Reduce Your Risk – Mitigation Actions

- Use flood damage-resistant materials
- Install flood openings in enclosures
- Install backflow prevention valves
- Elevate HVAC and utilities
- Anchor fuel tanks, extend vent pipe (oil)
- Anchor accessory structures (ex. sheds)
- **FRED – Floodproof, Relocate, Elevate, Demolish**
- **Purchase flood insurance!**



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Flood Damage-Resistant Materials

- **Acceptable:**
 - Cement board
 - Brick, tile
 - Marine grade plywood
 - Sprayed polyurethane foam insulation
- **Unacceptable:**
 - Gypsum board, greenboard
 - Carpeting
 - Oriented-strand board (OSB)
 - Fiberglass insulation
- **Fasteners and Connectors**
 - Stainless steel or hot-dip galvanized

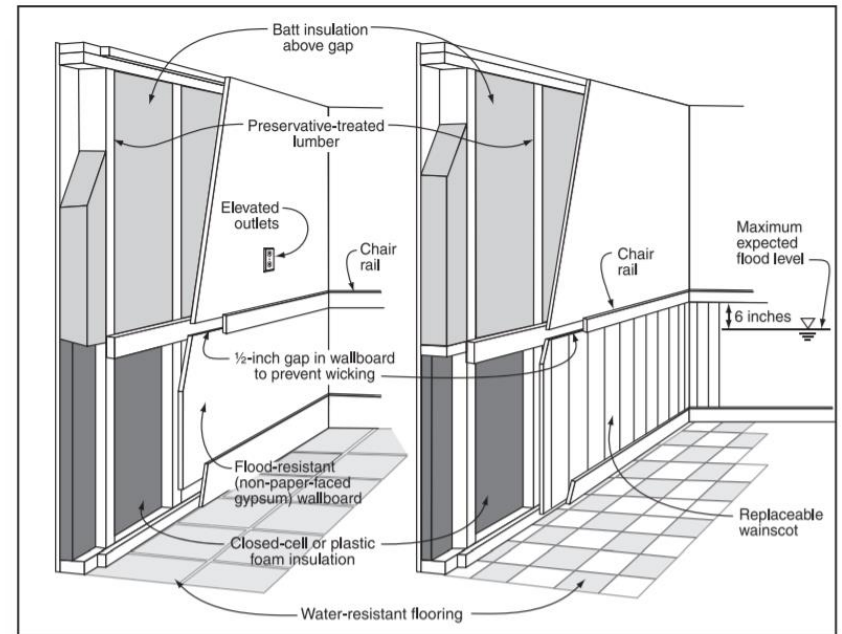


Figure 4. Partial wet floodproofing technique using flood damage-resistant materials for finished wall construction.



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Flood Openings

- Reduce hydrostatic pressure on walls
- Minimum requirements:
 - Bottom of opening must be within 12" of grade (inside or outside)
 - 1 square inch of net open area for every square foot of enclosed area, or use engineered flood openings
 - On at least two different walls



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FLOODPLAIN VARIANCES

“Variance”

- A grant of relief from the strict application of one or more requirements of these regulations.

Source: Maryland Model Floodplain Management Ordinance



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Where Are Floodplain Variance Requests Coming From?

- Washington County
- Town of Bel Air
- Baltimore City
- Somerset County
- Queen Anne's County
- Allegany County
- Talbot County
- Charles County
- Cecil County
- St. Mary's County
- Worcester County
- Dorchester County
- City of Annapolis
- Wicomico County
- Town of Ocean City
- Carroll County



Types of Floodplain Variance Requests

- After-the-fact horizontal addition to remain without flood openings.
- After-the-fact to allow solar panels in the floodway.
- Exceed maximum fill allowed (ordinance limits to 600 cubic yards).
- Allow storage silos below the FPE.
- Allow 2,585 square feet chicken house to be replaced in-kind (ordinance limits to 900 square feet).
- Allow substantial improvement of lower floor of building with dry floodproofing.
- After-the-fact to allow ductwork below the FPE.



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SECTION 7.0 VARIANCES

- **7.1 General**
- **7.2 Application for a Variance**
- **7.3 Considerations for Variances**
 - 12 factors to consider
- **7.4 Limitations for Granting Variances**
 - 6 limitations

Source: Maryland Model Floodplain Management Ordinance



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7.1 General

- May attach conditions to variances
- No variance shall be granted for an accessory structure exceeding 600 square feet.
 - Recent FEMA requirement, not all communities adopted yet
- The cost of Federal flood insurance will be commensurate with the increased risk, with rates up to \$25 per \$100 of insurance coverage.
- A record of all variance actions, including justification for issuance shall be maintained



7.2 Application for a Variance

- Submit application to the Floodplain Administrator
- Application shall contain minimum information
 - name, address, and telephone number of the applicant and property owner; legal description of the property; parcel map; description of the existing use; description of the proposed use; site map showing the location of flood hazard areas, designated floodway boundaries, flood zones, base flood elevations, and flood protection setbacks; description of the variance sought; and reason for the variance request. **Variance applications shall specifically address each of the considerations in Section 7.3.**
- If application for historic structure, will not preclude the structures continued eligibility



7.3 Considerations for Variances

- Danger to life and property
- Alternative locations
- Relationship to the comprehensive plan and local hazard mitigation plan
- Access to the property in times of flood for passenger vehicles and emergency vehicles
- Cost of providing government services during and after flood conditions
- The comments provided by MDE (NFIP State Coordinator).



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7.4 Limitations for Granting Variances

- A showing of good and sufficient cause.
- Exceptional hardship due to the physical characteristics of the property
 - Increased cost or inconvenience does not qualify
- Will not result in increased flood heights
- Protected by methods to minimize flood damages
- Minimum necessary to afford relief



Floodplain Variance Application

- Based on Maryland Model Floodplain Management Ordinance
- Section I. Project Information
- Section II. Considerations for Variances
- Section III. Limitations for Granting Variances
- Section IV. Resources
- Section V. Checklist

Floodplain Variance Application
(Based on the Maryland Model Floodplain Management Ordinance)

For Community Use Only:

Community Name: _____ Community ID No.: _____
Case No.: _____ Date Filed: _____
Comments from State NFIP Office? Yes/No _____ Date Received: _____
Declaration of Land Restriction (Nonconversion Agreement)? Yes/No _____
Elevation Certificate? Yes/No _____

Please include a site map showing the location of flood hazard areas, designated floodway boundaries, flood zones, base flood elevations, and flood protection setbacks.

Section I. Project Information

A. Applicant

Name: _____
Address: _____
Phone: _____ Email: _____

B. Owner

Name: _____
Address: _____
Phone: _____ Email: _____

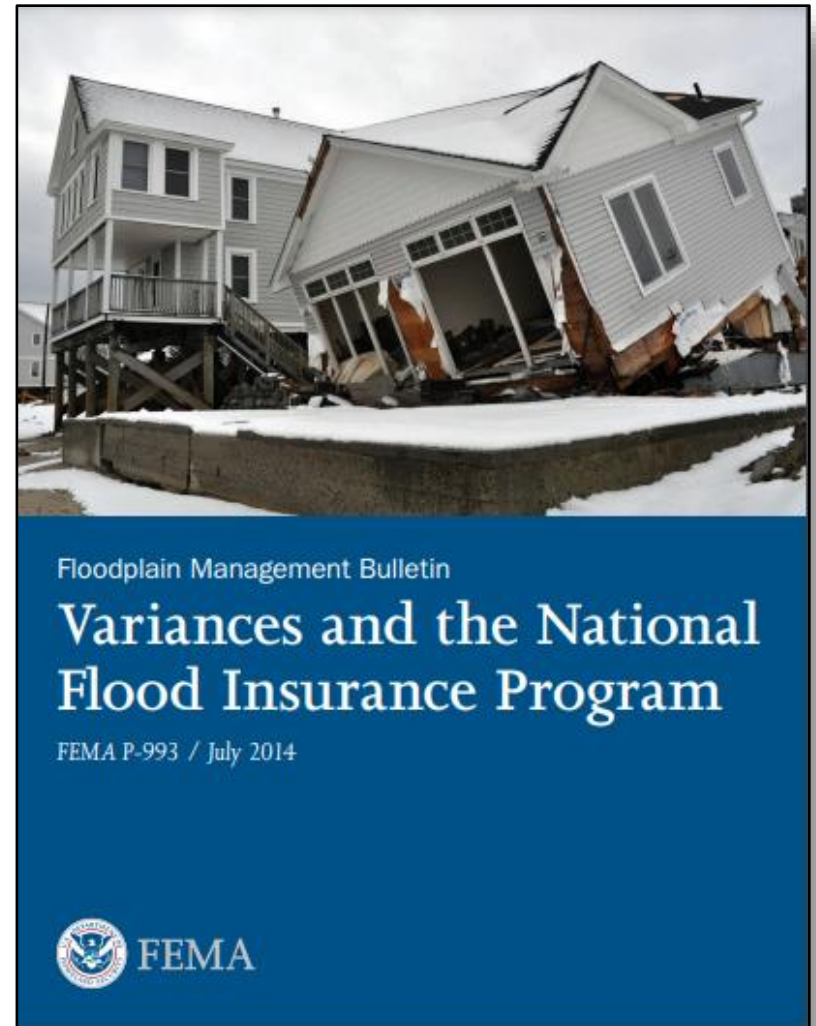
C. Property

SDAT Account Identifier: _____
Map: _____ Grid: _____ Parcel: _____ Lot: _____
Improvement Value: _____ As of Date: _____
Existing Use: _____ Proposed Use: _____

Revised 7/11/2021 Page 1 of 6

Floodplain Variance Publication

- FEMA P-993, Floodplain Management Bulletin, *Variances and the National Flood Insurance Program* (July 2014)
- https://www.fema.gov/sites/default/files/2020-08/FEMA_P-993_FPM-Bulletin_Variance.pdf



Section V. Checklist

- Copy of permit application
- Site map showing the location of flood hazard areas, designated floodway boundaries, flood zones, base flood elevations, and flood protection setbacks.
- Architectural drawings
- Elevation Certificate
- Other: _____



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Key Components of the NFIP

**Maps and
Data**



**Floodplain
Management &
Mitigation
Actions**

Flood Insurance



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Insurance Definition

Flood

A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters;
- Unusual and rapid accumulation or runoff of surface waters from any source; or
- Mudflow

OR

Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood from the overflow of inland or tidal waters, as defined above.



Source: Flood Insurance Manual, Appendix K: <https://www.fema.gov/flood-insurance/work-with-nfip/manuals/current>

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Insure Your Risk – Flood Insurance

- **Check with your insurance agent**
- Building and contents coverage
- Available to homeowners, business owners and renters within the community
- Homeowners insurance doesn't usually cover flood damage
- Can purchase even if structure is located outside a high risk flood hazard area (Preferred Risk Policy)
- Mandatory purchase requirement for structures in a high risk area with a federally-backed mortgage



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NFIP Flood Insurance Basics

- Sold by licensed P&C insurance agents through
 - “Write Your Own” insurance companies
 - FEMA’s Direct Servicing Agent
- Essential elements of rating include
 - Flood Zone
 - Elevation Difference (BFE, LFE)
 - Building/Occupancy Type
 - Construction Date (pre-FIRM vs. post-FIRM)
 - Coverage Limits & Deductible

	Emergency Program	Regular Program
Residential (1-4 family)		
Building	\$35,000	\$250,000
Contents	\$10,000	\$100,000
Other Residential		
Building	\$100,000	\$500,000
Contents	\$ 10,000	\$100,000
Non-Residential		
Building	\$100,000	\$500,000
Contents	\$100,000	\$500,000



Flood Insurance

- Flood insurance typically goes into effect 30 days after your purchase.
- Premium is based on several factors:
 - Certain fees and surcharges
 - Year of building construction
 - Building occupancy
 - Number of floors
 - Location of its contents
 - Flood risk (e.g., it's flood zone)
 - Location of the lowest floor in relation to the Base Flood Elevation on the flood map (**flood openings will determine**)
 - Deductible and amount of building and contents coverage
- A Preferred Risk Policy (PRP) can be purchased for as little as \$325 per year.
- **Read the policy. Know what's covered, and what isn't.**



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Elevation Certificate

1. To ensure compliance with a community's regulations
 - Properly elevated
 - Adequate flood openings
2. Flood insurance rating
 - Proper documentation required
3. Support Letter Of Map Change (LOMC) requests

In Maryland, only a licensed surveyor can certify as-built information

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 NAIC 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: <input type="checkbox"/> NAD 1927 <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> 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) (Zones A-C, use Base Flood Depth)
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

FEMA Form 086-D-33 (7/15) Replaces all previous editions. Form Page 1 of 6

FEMA Floodproofing Certificate

- Non-residential buildings can be **dry floodproofed** as an alternative to elevating to or above the Base Flood Elevation (BFE)
- Must be dry floodproofed at least **one foot above the BFE to receive favorable flood insurance rate**
- Must be certified by a licensed professional
- New non-residential buildings in the nontidal floodplain must be elevated (MD requirement)

FLOODPROOFING CERTIFICATE FOR NON-RESIDENTIAL STRUCTURES (Continued)					
<p>The floodproofing of non-residential buildings may be permitted as an alternative to elevating to or above the Base Flood Elevation; however, a floodproofing design certification is required. This form is to be used for that certification. Floodproofing of a residential building does not alter a community's floodplain management elevation requirements or affect the insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements. The permitting of a floodproofed residential basement requires a separate certification specifying that the design complies with the local floodplain management ordinance.</p>					
BUILDING OWNER'S NAME				FOR INSURANCE COMPANY USE	
STREET ADDRESS (Including Apt., Unit, Suite, and/or Bldg. Number) OR P.O. ROUTE AND BOX NUMBER				POLICY NUMBER	
OTHER DESCRIPTION (Lot and Block Numbers, etc.)				COMPANY NAIC NUMBER	
CITY		STATE	Zip Code		
SECTION I – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
Provide the following from the proper FIRM:					
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM INDEX	FIRM ZONE	BASE FLOOD ELEVATION (in AO Zones, Use Depth)
Indicate elevation datum used for Base Flood Elevation shown above: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
SECTION II – FLOODPROOFED ELEVATION CERTIFICATION (By a Registered Professional Land Surveyor, Engineer, or Architect)					
All elevations must be based on finished construction.					
Floodproofing Elevation Information:					
Building is floodproofed to an elevation of _____ feet (In Puerto Rico only: _____ meters).					
<input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
(Elevation datum used must be the same as that used for the Base Flood Elevation.)					
Height of floodproofing on the building above the lowest adjacent grade is _____ feet (In Puerto Rico only: _____ meters).					
For Unnumbered A Zones Only:					
Highest adjacent (finished) grade next to the building (HAG) _____ feet (In Puerto Rico only: _____ meters).					
<input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
(NOTE: For insurance rating purposes, the building's floodproofed design elevation must be at least 1 foot above the Base Flood Elevation to receive rating credit. If the building is floodproofed only to the Base Flood Elevation, then the building's insurance rating will result in a higher premium. See the Instructions section for information on documentation that must accompany this certificate if being submitted for flood insurance rating purposes.)					
FEMA Form 098-0-34 (8/15)					
Page 2 of 4					

Lowest Floor – Openings Covered



Higher flood insurance!



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Subgrade Crawlspace = Basement



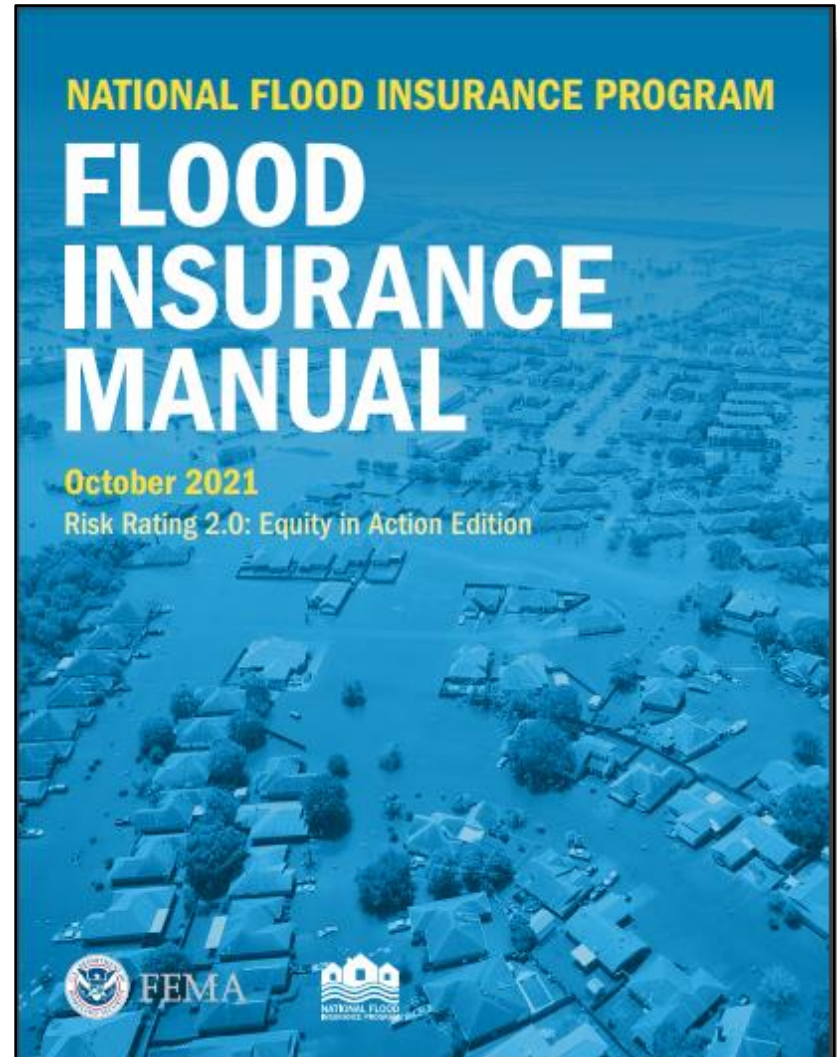
Higher flood insurance!



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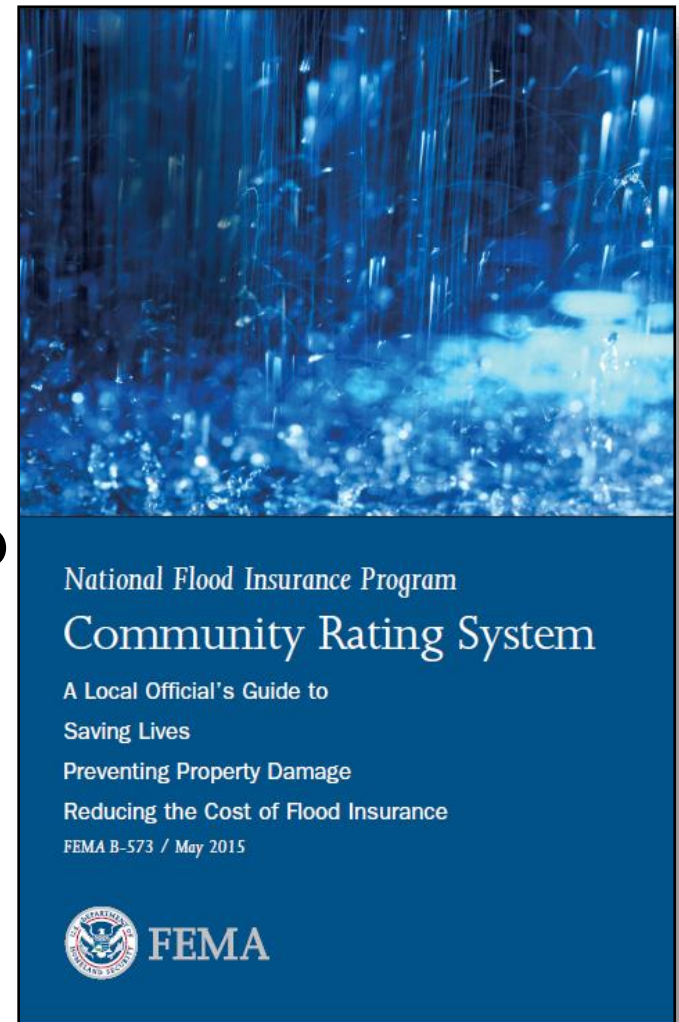
Flood Insurance Rating

- Higher rates for:
 - Subgrade crawlspace
 - HVAC not elevated
 - Lack of flood openings
- Elevation Certificate may improve the rate
- **Agent to use whatever rating method results in lower rate**



Community Rating System (CRS)

- Voluntary incentive program
- Recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements
- For every 500 points earned, up to a 5% reduction in flood insurance
 - Up to 500 points for 3' freeboard (fill prohibited)
 - Up to 650 points for CAZ requirement



Status of MD CRS Communities

- **16 participating**
 - City of Laurel will join as a Class 7 on April 1, 2022!
- **6 in process of applying**
 - Baltimore County (CAV September 2013)
 - St. Mary's County (CAV December 2017)
 - Charles County (CAV January 2019)
 - Somerset County (CAV March 2019)
 - City of Annapolis (CAV July 2019)
 - Queen Anne's County - (CAV started November 2020)



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MD CRS Communities

Community	Class
Baltimore City	5
Bel Air, Town of	6
Calvert County	8
Caroline County	8
Carroll County	7
Cecil County	7
Dorchester County	6
Frederick, City of	7
Harford County	7

Community	Class
Havre de Grace, City of	7
Howard County	6
Laurel, City of	7
Ocean City, Town of	6
Oxford, Town of	7
Prince George's County	5
Talbot County	7



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Risk Rating 2.0: Equity in Action

- FEMA is updating the NFIP's risk rating methodology.
- The methodology leverages industry best practices and cutting-edge technology to enable FEMA to deliver rates that are actuarially sound, equitable, easier to understand and better reflect a property's flood risk.
- New policies beginning Oct. 1, 2021, will be subject to the new rating methodology.
- All remaining policies renewing on or after April 1, 2022, will be subject to the new rating methodology.



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New Pricing Methodology

- Additional data sources
- Cost to rebuild
- Rating Variables:
 - Distance to Coast/Ocean/River
 - River Class
 - Flood Type: Fluvial/Pluvial
 - Ground Elevation
 - First Floor Height
 - Construction Type/Foundation Type
- Broader Range of flood frequencies

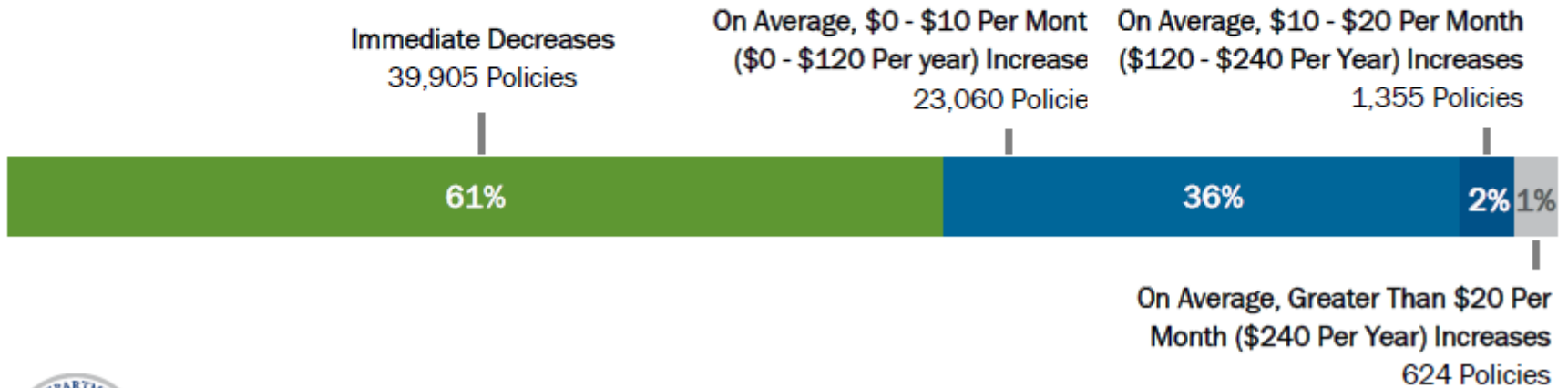


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Maryland – Risk Rating 2.0

NFIP Policies in Force in MD	Properties in MD Not Covered by NFIP Policy	Average NFIP Claim Payout in MD in the Past 10 Years	Average Individual Assistance Claim Payout in MD in the Past 10 Years
65,000	2.1 million	\$14,900	\$3,500

Risk Rating 2.0 in Maryland



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New Pricing Methodology: Building Variables

- Construction Type
- Number of Floors
- First Floor Height
- Foundation Type
- Replacement Cost Value (RCV)
- Mitigation Discounts



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New Pricing Methodology: Mitigation Discounts

- Post, Pile or Pier Construction
- Flood Openings
- Elevation of Machinery & Equipment (M&E)
- Residential Floodproofing
 - **No communities in Maryland received the Basement Exception from FEMA**
- Non-Residential Floodproofing



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New Pricing Methodology: Other Variables

- Prior NFIP claims
 - Rolling 20-year window (1 claim is forgiven)
- Community Rating System (CRS) Discount



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Key Components of the NFIP

**Maps and
Data**



**Floodplain
Management &
Mitigation
Actions**

Flood Insurance



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Final Thoughts/Recommendations

- Rely on staff expertise
 - Community's floodplain administrator
- Read the regulations, and associated definitions, carefully
- There's a difference between a building permit and a floodplain permit
 - There's also a difference between a variance and a floodplain variance
- Consider the flood insurance implications
- Please ensure all floodplain variances are applied consistently throughout the community.



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The Maryland Association of Floodplain and Stormwater Managers

17th ANNUAL CONFERENCE



*Registration
is Open!*

With the increasing number of COVID cases, we have decided to transition from an in-person event to a **VIRTUAL FORMAT**.

We care about your safety, it's not worth the risk!

NOVEMBER 3-4, 2021

**Maryland Association
of Floodplain and
Stormwater Manager
(MAFSM)**

- \$75 for two days
- Over 25 presentations
- 6 CECs for CFMs, 6 CMs for AICPs

Thank you!

- **Kevin G. Wagner**
Community Assistance Program Manager
Maryland Department of the Environment
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