Floodplain Management Workshop

Rappahannock-Rapidan Regional Commission

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October 11, 2017
Culpeper, VA

FEMA

DCR
Virginia Department of Conservation & Recreation

Introduction

- **DCR Staff Introductions**
- **Community Introductions**
  - **Name**
  - **Community name**
  - **Title**
  - **What you hope to gain from the workshop**

Workshop Goals

- **Remind communities of the basics of the National Flood Insurance Program, addressing community-specific questions and comments.**
- **Ensure that communities understand their roles and responsibilities in floodplain management.**
- **Provide communities with NFIP and DCR program updates.**
- **Establish a closer relationship between DCR and PDCs, to facilitate future collaboration.**

Agenda

- **Overview of the NFIP**
- **Floodplain Ordinances and Permitting**
  - Floodplain Management Regulations
  - Accessory Structures
  - Floodplain Ordinances and Administrative Procedures
  - Permitting Development
  - Elevation Certificates
- **Flood Hazard Maps and Data**
  - Flood Insurance Rate Maps and Flood Insurance Studies
  - Accessing and Using Flood Hazard Data
  - Changing FIRMs and FIS Reports
  - Non-regulatory Products and Other Resources
- **Pre- & Post-Disaster Considerations**
- **Community Rating System**
- **DCR Division of Dam Safety and Floodplain Management Update**
  - Floodplain Management Program Overview
  - Dam Safety Database

Overview of the National Flood Insurance Program

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National Flood Insurance Program (NFIP) Milestones

- **1968** – National Flood Insurance Act
- **1969, 1972** – Tropical Storms Camille and Agnes
- **1973** – Flood Disaster Protection Act of 1973 – mandatory purchase
- **1979** – FEMA created – NFIP moved
- **1988** – Stafford Act
- **1994** – National Flood Insurance Reform Act – creates Flood Mitigation Assistance grants, codifies mandatory purchase, lender penalties established
- **2003** -- DHS created, FloodSmart program, Hurricane Isabel
- **2004** – FIRA 2004 (BBB Act) – Reformed claims process, plain language mailings, appeals process, Florida hurricanes
- **2005** – Katrina, Rita, Wilma – $14 billion in the hole
- **2012** – Biggert-Waters Flood Insurance Reform Act, Hurricane Sandy - $20 billion in the hole
- **2014** – Homeowner Flood Insurance Affordability Act of 2014

NFIP Background

- Created by National Flood Insurance Act of 1968
- Participation is **voluntary**
  - Adopt and enforce regulations
  - Eligible for flood insurance
- **Benefits** of participation
  - Flood insurance
  - Grants and loans
  - Disaster assistance
  - Federally-backed mortgages
- **Goals** of the NFIP include
  - Save lives and protect property
  - Encourage a comprehensive approach to floodplain management

***The Base Flood**:*
The flood having a 1% chance of being equaled or exceeded in a given year. Used by the NFIP as the basis for mapping, insurance rating, and regulating development.

NATIONAL FLOOD INSURANCE PROGRAM

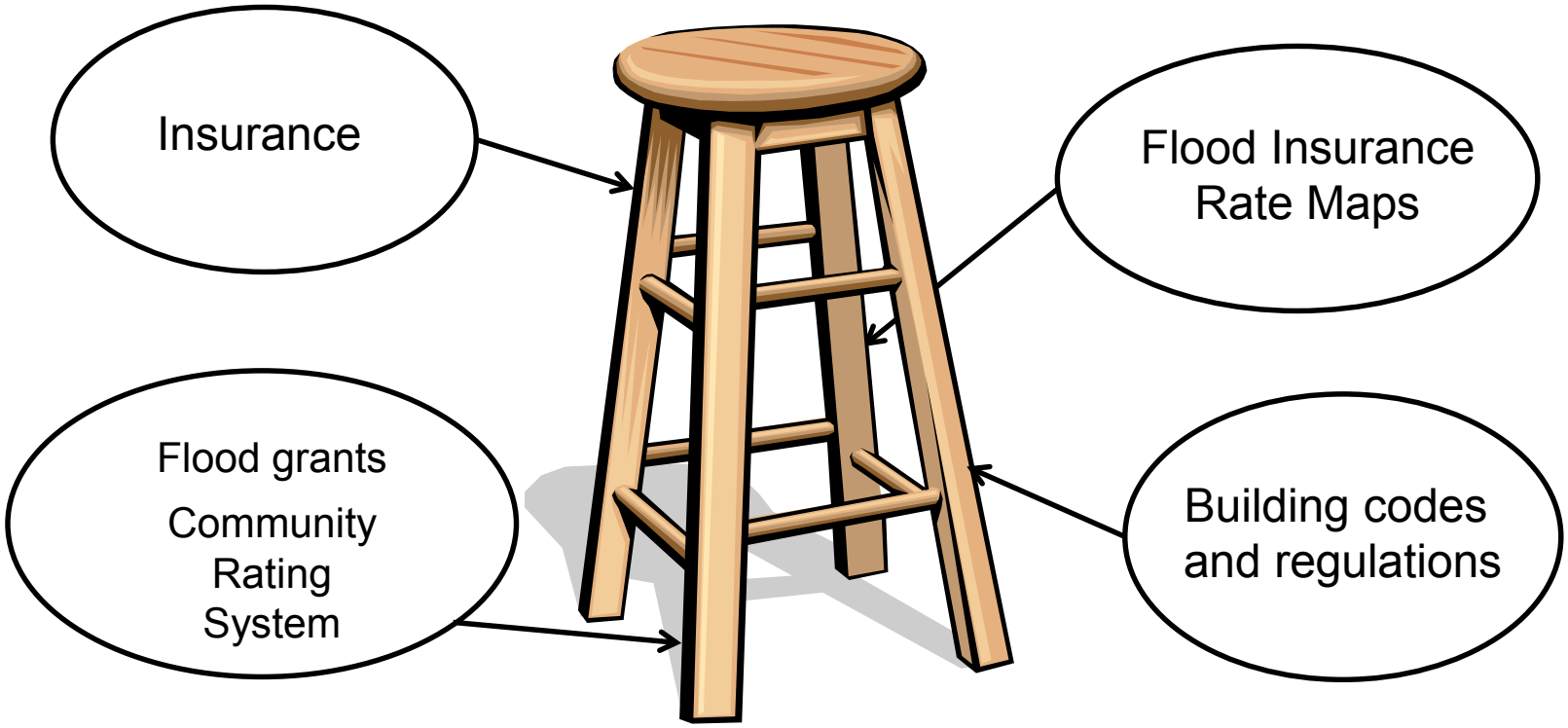
NFIP Background

- The NFIP is a **voluntary program**
  - Voluntary agreement between FEMA and the local government.
  - Elements and requirements of the program are in 44 CFR 59 – 75.
  - A locality complies with **44 CFR 60.3** by adopting a floodplain ordinance that meets or exceeds the minimum requirements and by implementing proper floodplain management. FEMA then provides the flood insurance rate maps (FIRMs) and authorizes the sale of flood insurance in the community.

Joining the NFIP

- Without mapped SFHA (NSFHA)
  - Resolution to join the NFIP Process
  - Submit application to DCR → FEMA
- With mapped SFHA
  - Resolution to join the NFIP Process
  - Adopt floodplain ordinance in compliance with 44 CFR
  - Submit application to DCR → FEMA
    - Communities have one year after their first FIRM to join the NFIP
    - If a community applies after that year, a Community Assistance Visit is required to ensure that all post-FIRM development in the SFHA complies with 44 CFR

NFIP Background



NFIP Flood Insurance Basics

- Sold by licensed 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

NFIP Flood Insurance Basics

- Increased Cost of Compliance
  - Included in policy to help property owners in SFHA to pay for mitigation measures to bring NFIP insured structures into compliance
  - Provides up to $30,000* for mitigation
    - Floodproofing (non-residential)
    - Relocation
    - Elevation
    - Demolition

**ICC coverage applies solely to buildings and only covers the cost of the compliance measures undertaken.*

NFIP Roles: Federal and State

- **Federal**
  - National program oversight
  - Risk identification (mapping)
  - Establish development/building standards
  - Provide technical assistance to state/communities/agencies
  - Provide insurance coverage
- **State**
  - State program oversight
  - Establish development/building standards
  - Provide technical assistance to local communities/agencies
  - Evaluate and document floodplain management activities

NFIP Roles: Local

- **Local Officials and Floodplain Administrators**
  - Adopt and enforce floodplain management ordinance compliant with Federal/State laws
  - Permit or deny development
  - Inspect development and maintain records
  - Make substantial damage/substantial improvement determinations

- Development oversight is a local responsibility

NFIP in Virginia

- There is no state-level floodplain regulation. The VA USBC contains standards for buildings in flood-prone areas and a statement that the local floodplain ordinance is not superseded by the VA USBC.
- VA Flood Damage Reduction Act, Section 10.1-600 to 10.1-603 of the Code of Virginia directs all state agencies to comply with floodplain regulations.
- Executive Memo 2-97 requires state projects in the SFHA to comply with the local floodplain ordinance.

NFIP in Virginia

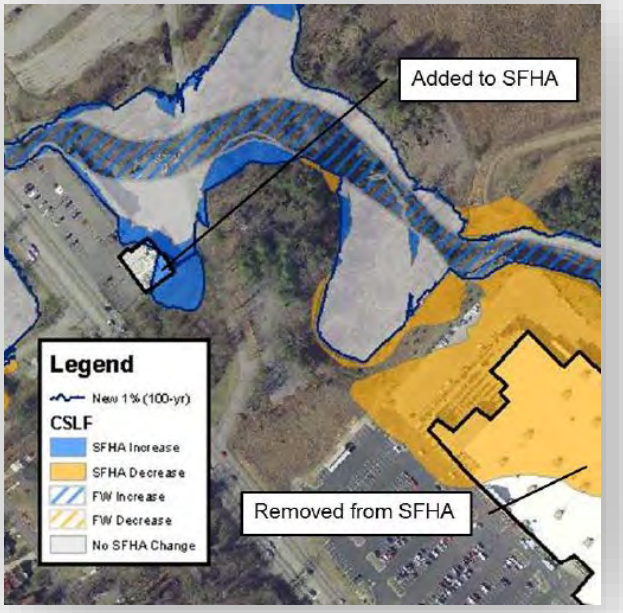
- Currently, 290 Virginia communities participate in the NFIP.
- DCR is charged by the General Assembly in the VA Flood Damage Reduction Act, Section 10.1-600 to 10.1-603 of the Code of Virginia, to be the liaison between FEMA and communities.
- DCR assists communities with their floodplain ordinances and maps, and provides floodplain workshops and guidance.

NFIP Program Updates

- Impacts of recent reform legislation
  - Annual premium increase caps of 15-18%
  - Certain pre-FIRM subsidize-rated buildings in Zone A's, and V's increase 25% until reach full-risk rate*:
    - Non-primary residences
    - Commercial buildings
    - Repetitive loss structures
    - Substantially damaged buildings

**Rate using information from Elevation Certificate*

NFIP Program Updates



- Impacts of recent reform legislation (cont.)
  - Properties newly mapped into SFHA can get lower-cost Preferred Risk Policy (PRP) rates first year if purchased within 12 months of map change
    - Will then increase no more than 15-18% until reach standard Zone X rate or rated using current map, whatever is cheaper
  - Lapsed policies more than 90 days will be rewritten using full-risk rates
    - This affects pre-FIRM subsidize-rated and Newly Mapped policies

NFIP Program Updates

- **Premium Increases and Surcharges**
  - Overall, premiums will increase from an estimated $827 per policy to $878, for an average increase of 6.3%
  - When the HFIAA surcharge and the Federal Policy Fee are included, the total amount billed to the policyholder will increase from $953 to $1,005, an average of 5.4%
  - Annual premium increases continue to comply with all the requirements of BW-12 and HFIAA 2014
    - No less than 5%-no more than 15% per rating class
    - Individual PH premiums no more than 18%-some exceptions
    - Specific 25% mandatory increase for certain categories

NFIP Program Updates

- **Premium Increases and Surcharges-Pre-FIRM Subsidized Policies**
  - Primary Residences: The combined premium increase for all primary residence policies in SFHA is 5%, with a total increase of 5%
  - Non-Primary Residences: The combined premium increase for non-primary residence policies in SFHA is 24%, with a total increase of 21%
  - Pre-FIRM subsidized policies subject to 25% annual increases as required by BW-12 (non-primary residential, business, SRL, and SD/SI) will increase slightly less than 25%

Overview of the National Flood Insurance Program

Questions?

Floodplain Ordinances and Permitting

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Floodplain Ordinances and Permitting

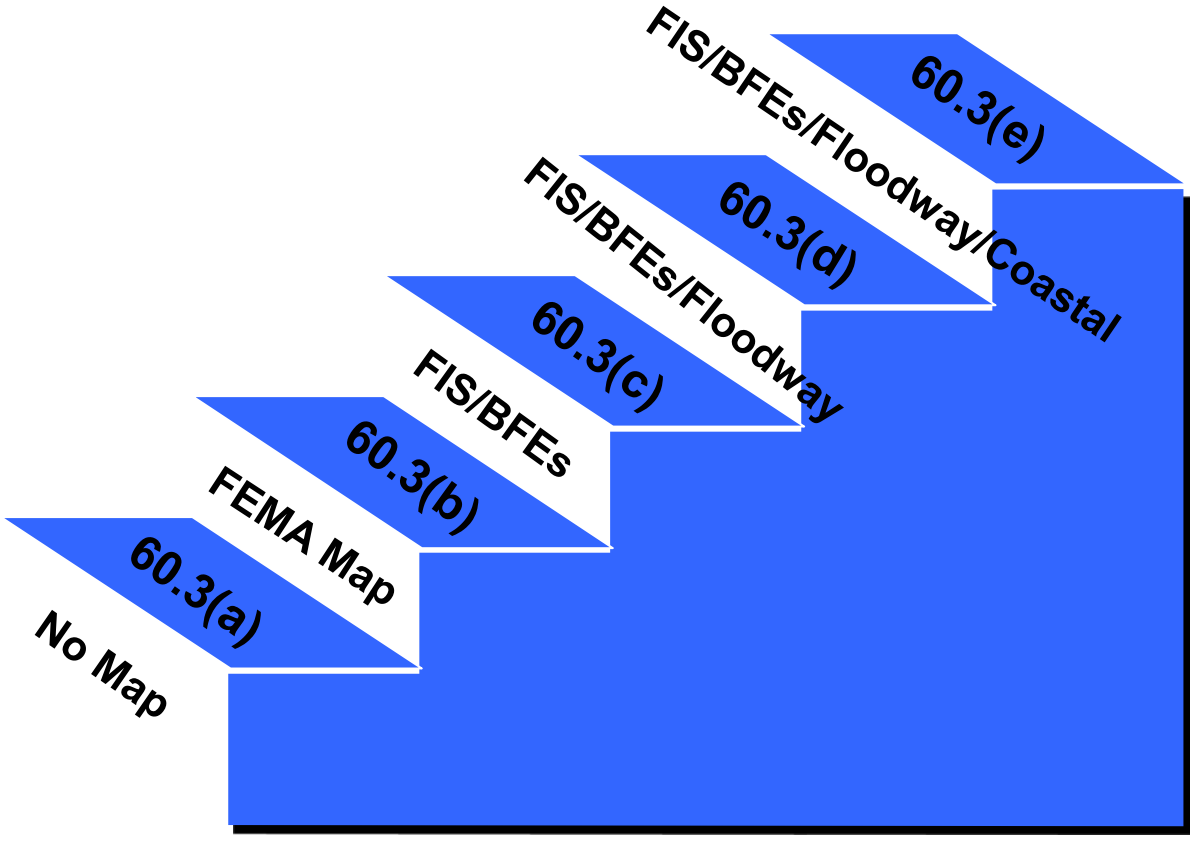
FLOODPLAIN MANAGEMENT REGULATIONS

Floodplain Management Regulations

- Minimum NFIP requirements are found in the Code of Federal Regulations, Title 44, Chapter 1, Subchapter B
  - Definitions: 44 CFR 59.1
  - Development Standards for flooding: 44 CFR 60.3
  - Variances: 44 CFR 60.6
- Land use authority granted to localities by the state (VA Code §15.2-2280 and §10.1-600 et seq.)
- Designed to address public health, safety, and welfare of citizens

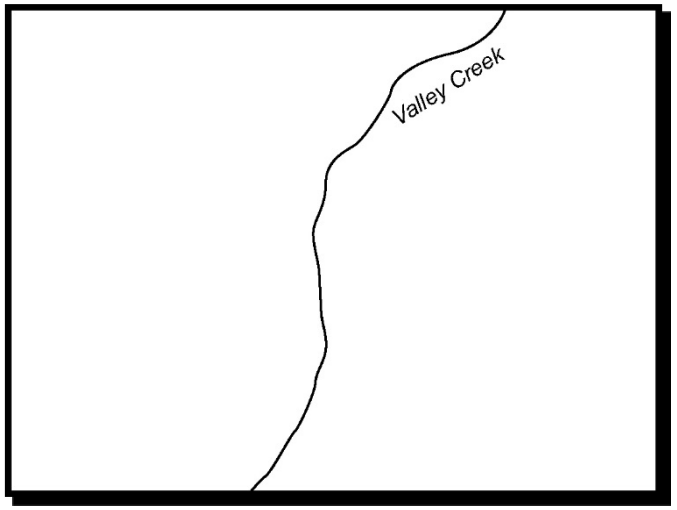
Regulation "Staircase"

- Regulations build cumulatively in increments according to mapping and flood zone designations.
- Each step adds more stringent requirements as risk increases.



44 CFR §60.3(a): No Flood Map

- Applies to communities for which FEMA:
  - Identified no Special Flood Hazard Areas.
  - Prepared no flood map.



60.3(a) Floodplain Management Criteria

- The community shall:
  1. Require permits for all proposed development.
  2. Ensure all necessary permits are received.
  3. Review permit applications for building sites to be reasonably safe from flooding.

60.3(a) New Construction Criteria

- All new construction/substantial developments:
  - Are designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement.
  - Are constructed with flood-resistant materials.
  - Use methods and practices to minimize flood damage.
  - Protect utilities and other service facilities from intrusion of floodwaters.

Protecting Utilities

- Raise HVAC components.
- Install backflow valve.
- Elevate electrical components.
- Anchor fuel tanks.
- Waterproof veneer.

New Development: 60.3(a)(4) and (5)

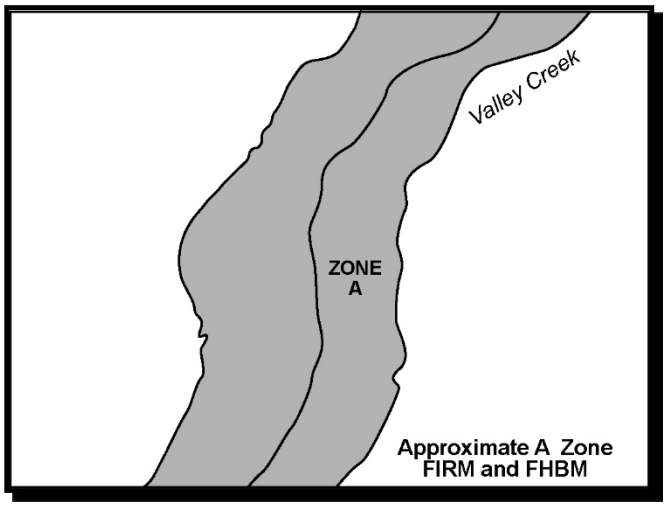
- (4) Review subdivision and other new development proposals for:
  i. Need to minimize flood damage.
  ii. Location/construction of public utilities/facilities.
  iii. Adequate drainage.
- (5) Require new and replacement water supply systems be designed to minimize or prevent infiltration of flood waters.

Sewage/Waste Disposal Systems: 60.3(a)(6)

- Within floodprone areas, require:
  i. New/replacement sewage systems that minimize or eliminate infiltration of floodwaters.
  ii. Location of onsite waste disposal systems to avoid impairment to them or contamination from them.

60.3(b): Approximate Zone A

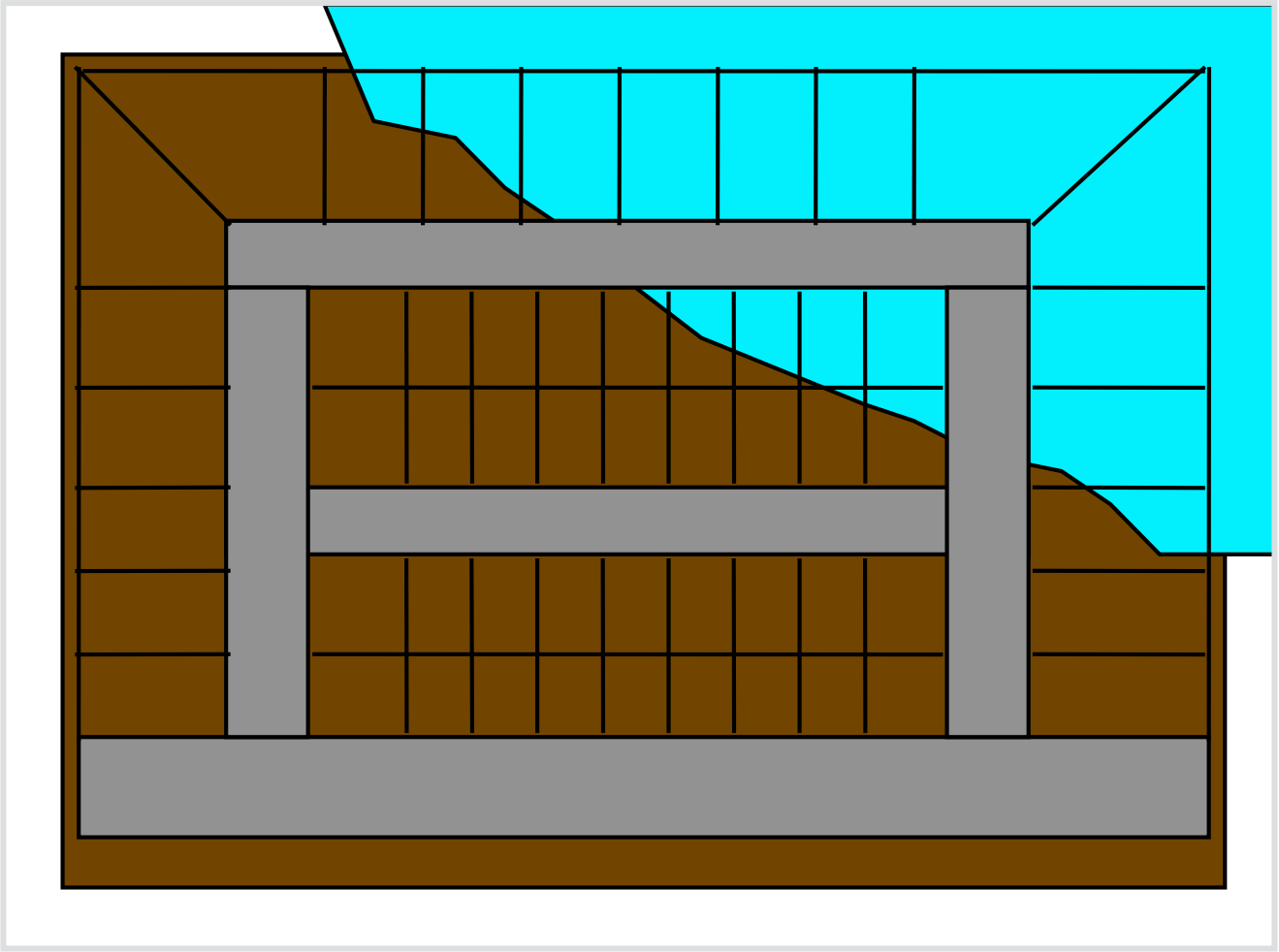
- FIRMs identify edges of Special Flood Hazard Areas (approximate Zone A).
- No maps/studies to determine:
  - Base Flood Elevations.
  - Regulatory floodways.
  - Coastal high hazard areas.



60.3(b) Requirements (1)–(4)

1. Require permits for ALL development in mapped SFHAs.
2. Apply 60.3(a) (2)–(6) standards to development.
3. Require that subdivision and other development proposals include BFE data.
   - Subdivisions: 50 lots or 5 acres
4. Use available BFE and floodway data.

Review Subdivision Proposals: 60.3(b)(3)



Zone A

(can the project be designed differently?)

60.3(b) Requirements (5) - (8)

5. Document lowest floor or floodproofing elevation.
6. Provide notification of watercourse alterations.
7. Ensure the flood-carrying capacity within an altered watercourse is maintained. (proper permits and adjacent jurisdiction/owner notification required)
8. Require that manufactured homes be elevated and anchored.

60.3(b) Requirements: Review

- Meet 60.3(a) requirements.
- Obtain BFE and floodway data.
- Elevate lowest floor to or above BFE.
- Install openings in enclosed spaces below lowest floor.
- Include BFE in subdivision proposals over 50 lots or 5 acres.

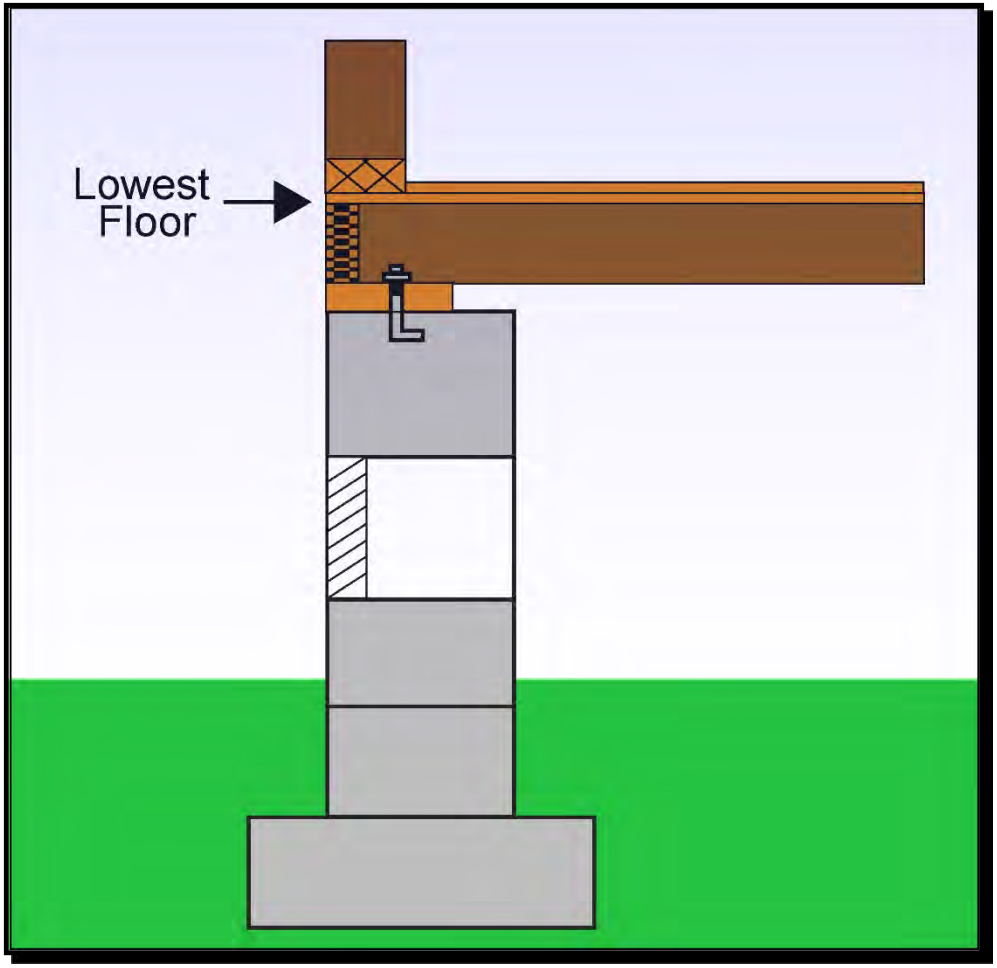
60.3(c): A Zones With BFEs

- FIRMs identify:
  - Special Flood Hazard Areas
  - Base Flood Elevations
- Not determined by maps or studies:
  - Regulatory floodways
  - Coastal High Hazard Areas

A Zones With BFEs

- 1-percent flood:
  - AO: Shallow sheet flow, depths 1–3 feet, average depths shown on FIRM
  - AH: Shallow ponding, depths 1–3 feet, BFE shown on FIRM
  - A1–A30, AE: BFEs determined
  - A99: Protected by flood protection system under construction

Lowest Floor, Zone AE: 60.3(c)(2) and(3)



Manufactured Homes

- Difference between 60.3(c)(6) and (12)
  - (6) Anywhere; manufactured home has been substantially damaged; replacement is required to be at or above the BFE.
  - (12) Only in a manufactured home park with no substantial damage from flooding; new or replacement can be on 3’ reinforced piers regardless of the BFE.

Recreational Vehicles, 60.3(c)(14)

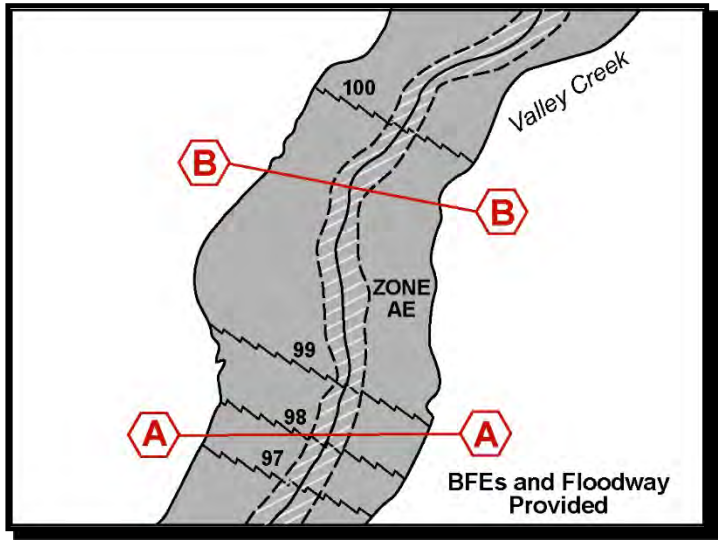
- Must be on site for less than 180 consecutive days,
- Be fully licensed and ready for highway use(wheels & tires, quick disconnects, no attached decks), or
- Meet the elevation and anchoring requirements for manufactured homes [60.3(c)(6)].

60.3(c) Requirements: Review

- Apply 60.3(b) requirements, including:
  - Elevate lowest floor to or above BFE.
  - Install openings in enclosed spaces below lowest floor.
- Development cannot cumulatively raise the BFE by more than 1 foot
  - 1 foot of rise includes existing and anticipated development
  - Community-wide
  - If development will increase the BFE by more than a foot, apply for a CLOMR (and subsequent LOMR).

60.3(d): A Zones With BFE and Floodway

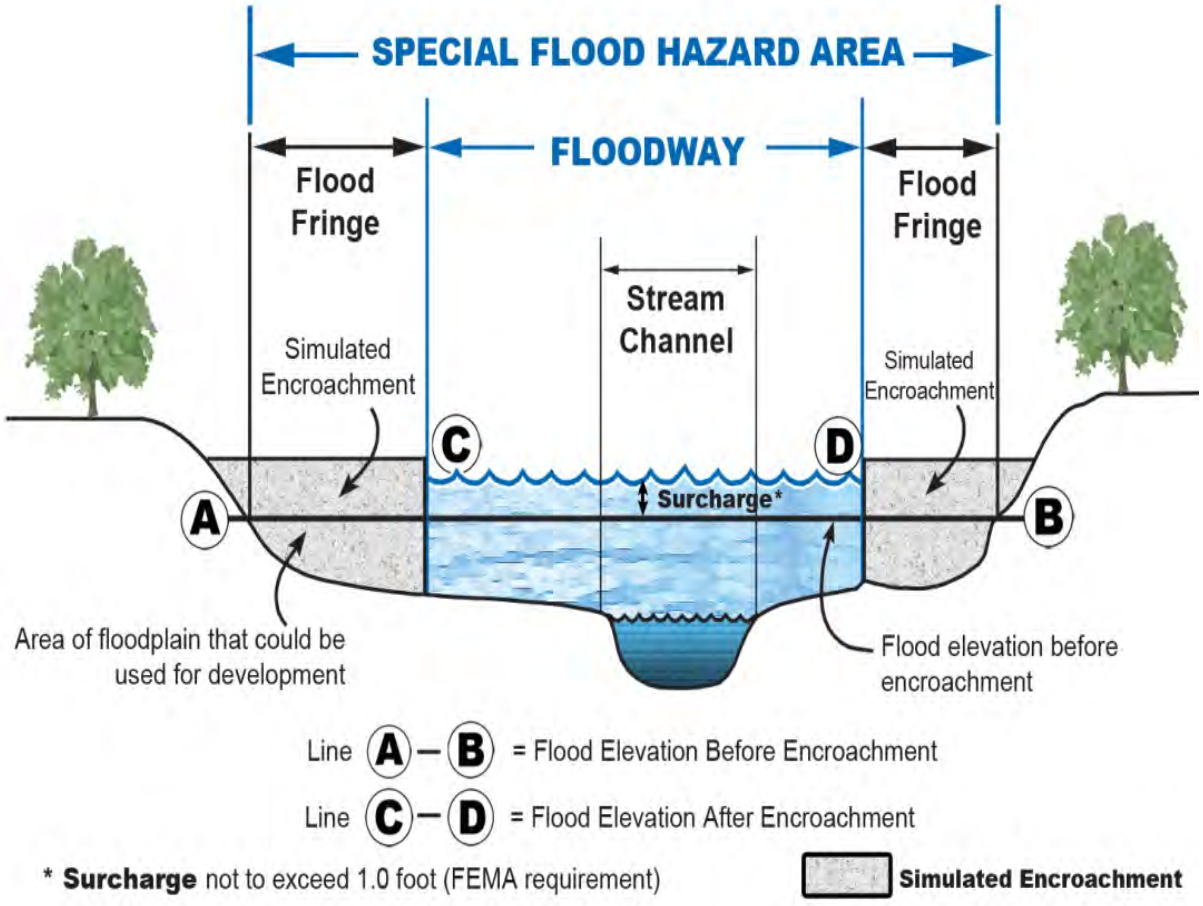
- FIRMs/FIS identify:
  - Special Flood Hazard Areas.
  - Base Flood Elevations.
  - Floodways.



Floodways

Floodway is the channel designated to convey the fastest deepest moving waters during the base flood.

Also designed to help floodplain management – no federal minimum requirement for development outside the floodway to submit studies about BFE impacts.

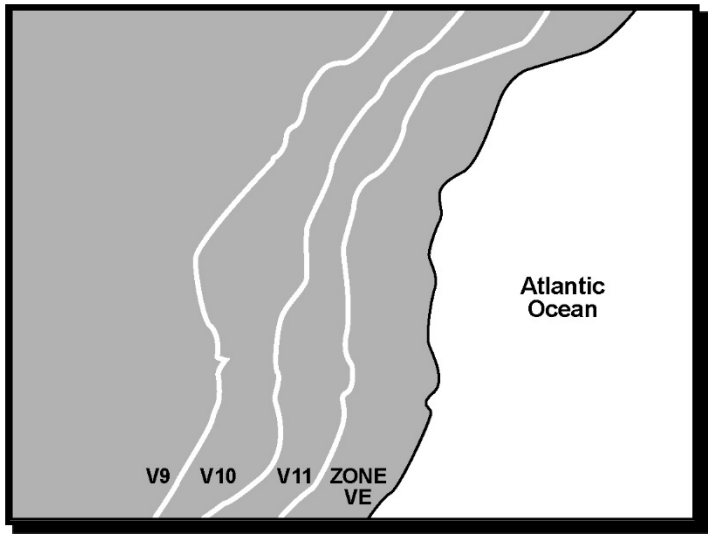


60.3(d) Requirements: Review

- Meet 60.3(c)(1)-(14) requirements
- Prohibit encroachments in the floodway, unless shown to cause no increase in BFE.
  - If development will increase the BFE, apply for a CLOMR (and subsequent LOMR).

60.3(e): Zones VE and V1–30

- FIRMs/studies identify:
  - Special Flood Hazard Areas.
  - Base Flood Elevations.
  - Coastal High Hazard Areas.



Zones VE and V1–30

- SFHA
- Areas of 1-percent chance coastal flood with velocity hazards (wave action >3 feet or seaward of landward toe of primary frontal dune)
- Base Flood Elevations and flood hazard factors determined

Transect Schematic

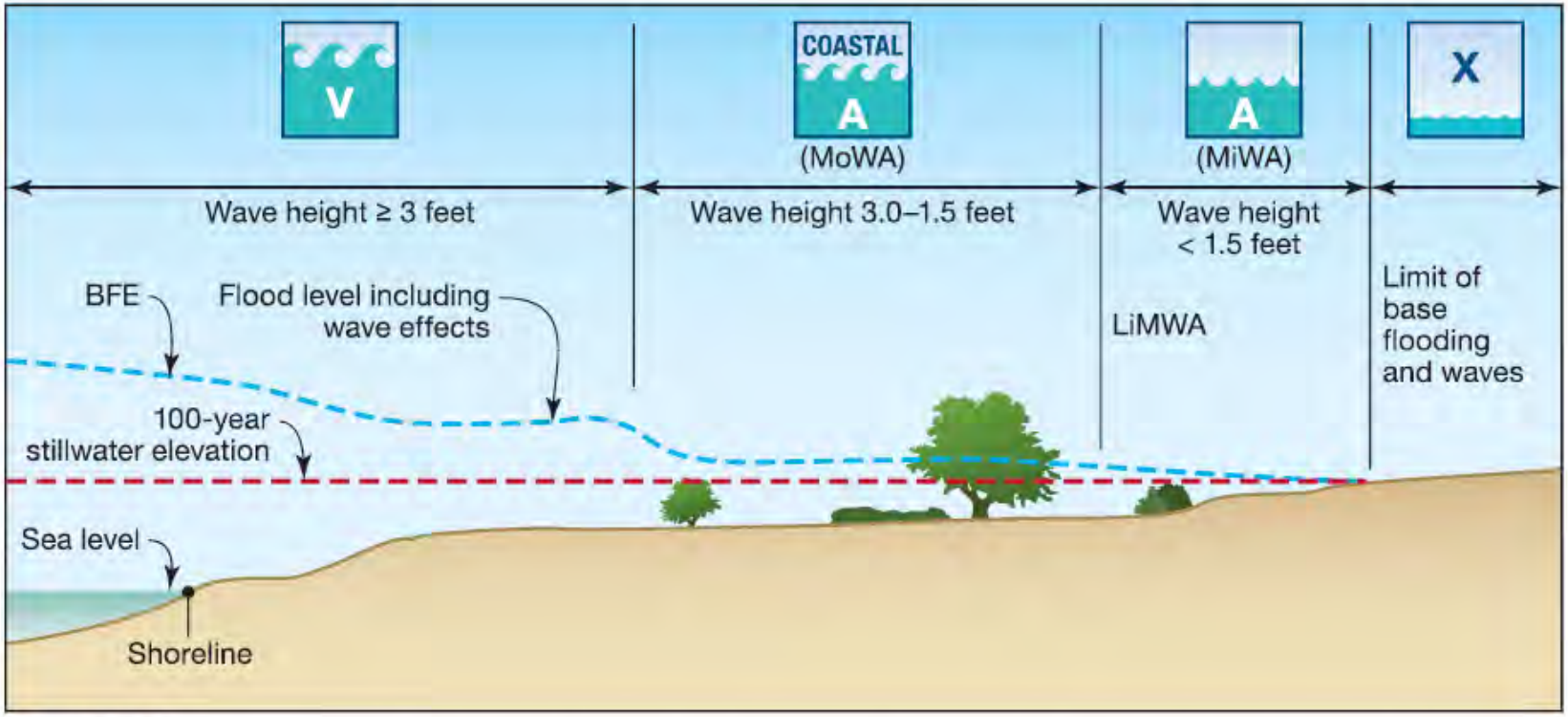
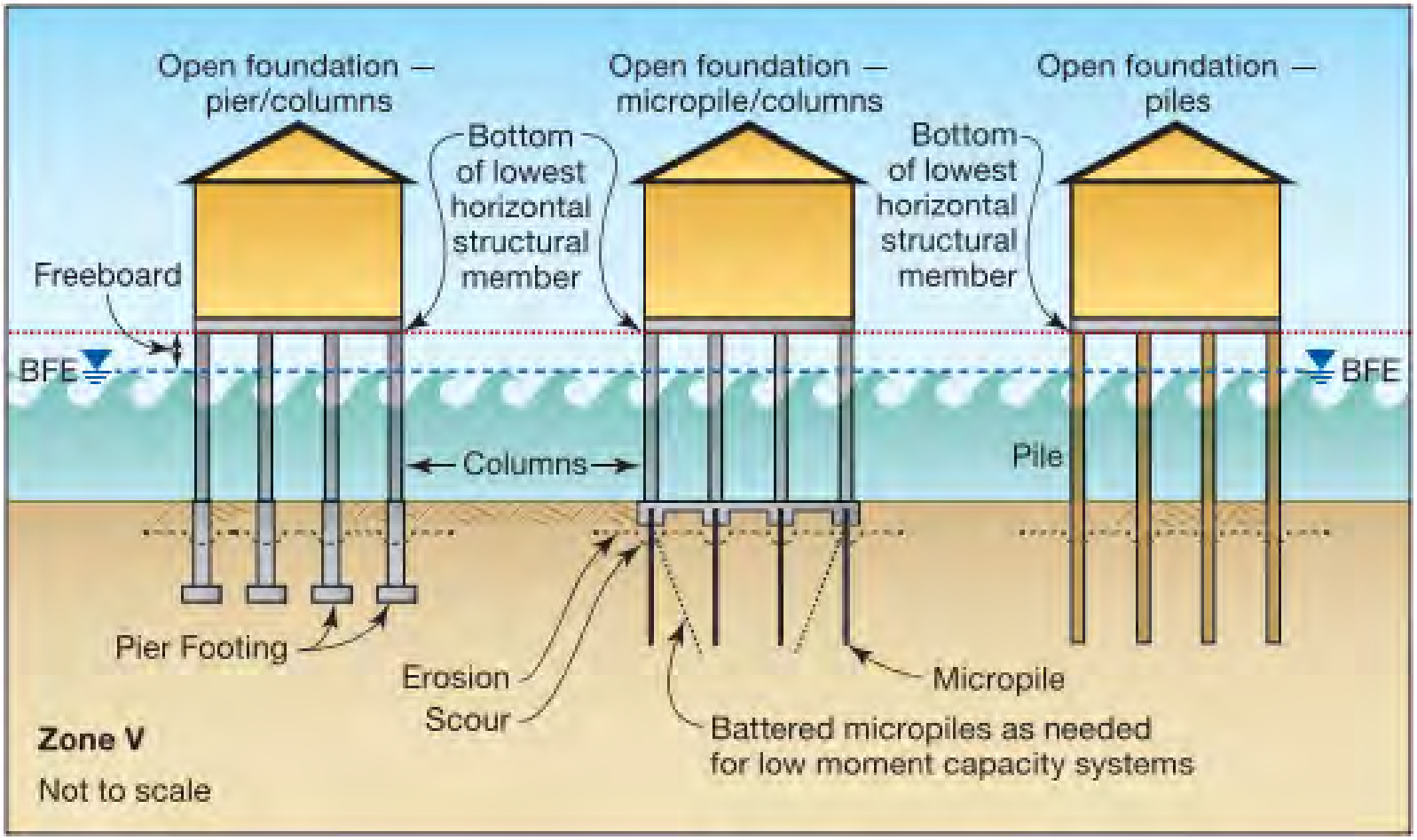
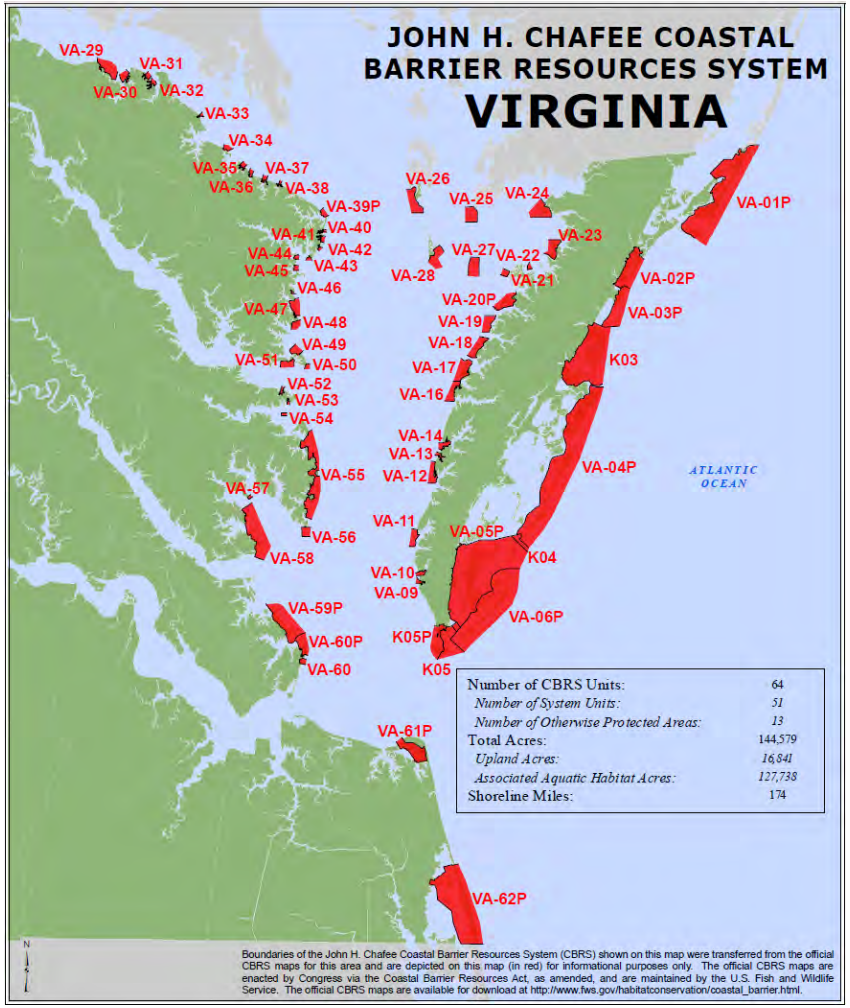


Figure 3-53.
Typical shoreline-perpendicular transect showing stillwater and wave crest elevations and associated flood zones

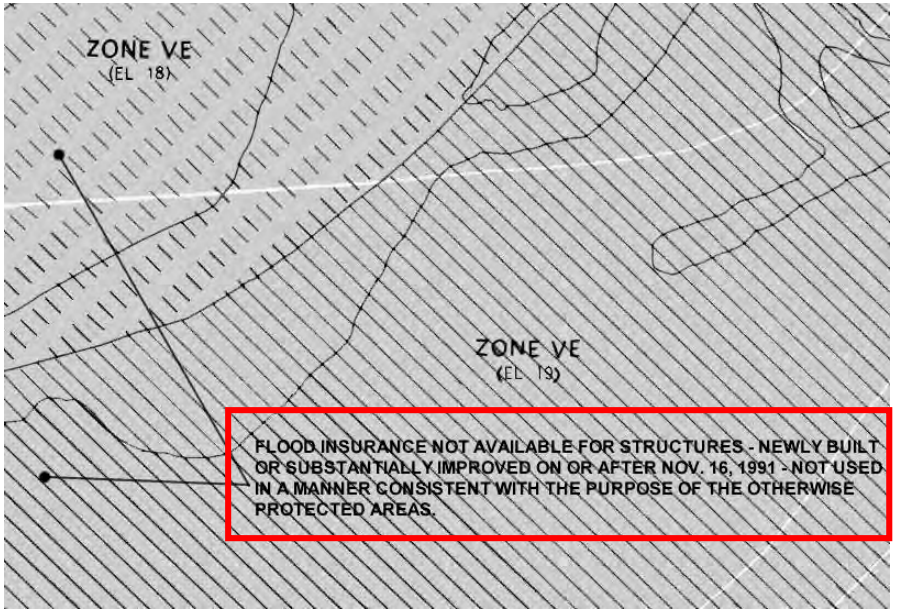
Lowest Horizontal Structural Member: 60.3(e)(2)



Coastal Barrier Resources Act (CBRA)



Federal law discourages development in these coastal areas by severely restricting federal assistance (flood insurance, disaster assistance).



60.3(e) Requirements: Review

- Meet 60.3(c)(1)-(14) requirements
- Elevate the bottom of the lowest structural member to or above BFE
- Certify that structures are anchored to resist floatation, collapse, and lateral movement resulting from both high velocity wind and water loads
- Require that the space below the lowest floor be free of obstruction (except for break away walls, lattice, etc.)
- Prohibit the use of structural fill
- Prohibit man-made alterations to sand dunes

NFIP Sanctions of program deficiencies and violations

- Probation
  - $50 surcharge per policy
  - Help offset future claims
  - Apply pressure to comply
- Suspension
  - No new policies or renewals
  - No Federally related financing
  - No Federal financial assistance or aid

Floodplain Ordinances and Permitting

ACCESSORY STRUCTURES

Types of Development

- Residential Development
- Non-Residential Development
- Other Development

- *APPURTENANT STRUCTURE: A structure which is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure. (44CFR 59.1)*

Accessory or Appurtenant Structures

- Considered non-residential structures
- 44 CFR 60.3(c)(3) & (e)(1) requires:
  - Must be at or above the BFE, or
  - Dry flood-proofed

Wet-Floodproofing Exception

- FEMA guidance has been that small, low cost accessory structures can be wet-floodproofed
  - TB 7-93
  - TB 5-08
  - FEMA 480
- PROBLEM: What is small and low cost?

What is Small & Low Cost?

- FEMA Region 3 has recently defined accessory structures as **600 ft^2 or less**.
- Wet-floodproofing Exception:
  - Certain conditions must be met.
  - Variances may be required.
  - Variances may not be issued for an accessory structure exceeding 600 ft^2.

Accessory Structure Requirements

1. Not for human habitation
1. Be limited to no more than 600 ft^2 in total floor area
2. Be useable only for parking of vehicles or limited storage
3. Be constructed with flood damage-resistant materials below the base flood elevation
4. Be constructed and placed to offer the minimum resistance to the flow of floodwaters

Accessory Structure Requirements (cont.)

6. Be anchored to prevent flotation
7. Have electrical service and mechanical equipment elevated to or above the base flood elevation
8. Shall be provided with flood openings (specific standards defined)
9. *A signed Declaration of Land Restriction (Non-Conversion Agreement) shall be recorded on the property deed*

Accessory Structure Requirements (cont.)

- Variances
  - Not allowed for accessory structures exceeding 600 ft^2
- Higher Standards
  - A community could choose a higher standard and limit accessory structures to a size less than 600 ft^2, such as 200 ft^2
  - In that case, a variance could be issued for larger accessory structures, not to exceed 600 ft (i.e. between 200 ft^2 -600 ft^2)

Ordinance Compliance

- Local ordinances must be in compliance with this accessory structure definition.
- Three options for compliance
  - Prohibit accessory structures in the SFHA
  - Allow accessory structures in the SFHA and identify minimum requirements in your ordinance
  - Don’t address accessory structures and require a variance for all accessory structures

NOTE: This is only for wet-floodproofing. You can still permit these structures in the SFHA if they meet the requirements of a non-residential structure (elevated or dry-floodproofed).

Model Ordinance Update

- New Definition
  - **Appurtenant or accessory structure** - A non-residential structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures are not to exceed *600 square feet*
- Two options for compliance
  - Prohibit accessory structures
  - Address accessory structures and limit to 600 square feet

Floodplain Ordinances and Permitting

FLOODPLAIN ORDINANCES AND ADMINISTRATIVE PROCEDURES

Floodplain Management Ordinance

The Ordinance

- NFIP participating municipalities in VA agreed to **adopt and enforce** an ordinance meeting the minimum requirements of the NFIP
- Ordinance must
  - Be legally enforceable
  - Applied uniformly throughout the community
- Floodplain regulations are usually found in one of, or a combination of, five types of regulations: “stand alone”, zoning ordinances, building codes, subdivision regulations, and sanitary regulations

Stand Alone Ordinances

- One ordinance contains all NFIP requirements for development standards
- Developers and officials can easily see the requirements in **one place**
- Ensure that all offices/agencies are aware of floodplain standards when inconsistent
- May not be coordinated with other regulations or codes – regulations **could be in conflict**

Contents of an Ordinance

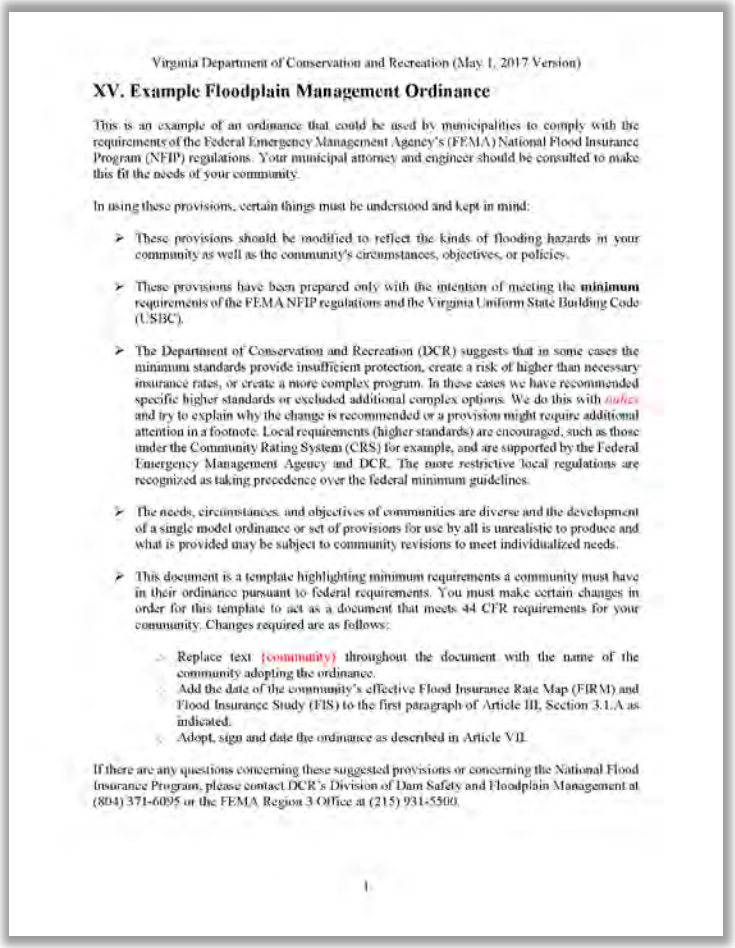
- **Purpose:** Why was the ordinance adopted? What are its objectives?
- **Definitions:** What technical terms are needed?
- **Adoption of effective flood data**
- **Requirement for a floodplain development permit**
- **Development standards:** Must include provisions for
  - Building protection standards (elevation, floodproofing, anchoring) commensurate to the flood zones in your community
  - Standards for manufactured homes and manufactured home parks
  - Standards for subdivisions
  - Substantial damage/improvements
  - Construction in the floodway and standards for encroachments where floodways are not mapped

Contents of an Ordinance

- **Designation of an administrator**
- **Variance and Appeals process**
- **Enforcement**: Clear penalties for violations must be specified
- **Abrogation and greater restriction**: Higher standard takes precedence
- **Severability**: One provision ruled invalid does not invalidate the rest

VA Model Floodplain Management Ordinance

- Includes the provisions to comply with the NFIP
- Also includes recommended higher standards
- Refers to the VA Uniform Statewide Building code and other sources



Virginia Department of Conservation and Recreation (May 1, 2017 Version)

XV. Example Floodplain Management Ordinance

This is an example of an ordinance that could be used by municipalities to comply with the requirements of the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP) regulations. Your municipal attorney and engineer should be consulted to make this fit the needs of your community.

In using these provisions, certain things must be understood and kept in mind:

- These provisions should be modified to reflect the kinds of flooding hazards in your community as well as the community's circumstances, objectives, or policies.
- These provisions have been prepared only with the intention of meeting the **minimum** requirements of the FEMA NFIP regulations and the Virginia Uniform State Building Code (USBC).
- The Department of Conservation and Recreation (DCR) suggests that in some cases the minimum standards provide insufficient protection, create a risk of higher than necessary insurance rates, or create a more complex program. In these cases we have recommended specific higher standards or excluded additional complex options. We do this with *italics* and try to explain why the change is recommended or a provision might require additional attention in a footnote. Local requirements (higher standards) are encouraged, such as those under the Community Rating System (CRS) for example, and are supported by the Federal Emergency Management Agency and DCR. The more restrictive local regulations are recognized as taking precedence over the federal minimum guidelines.
- The needs, circumstances, and objectives of communities are diverse and the development of a single model ordinance or set of provisions for use by all is unrealistic to produce and what is provided may be subject to community revisions to meet individualized needs.
- This document is a template highlighting minimum requirements a community must have in their ordinance pursuant to federal requirements. You must make certain changes in order for this template to act as a document that meets 44 CFR requirements for your community. Changes required are as follows:
  - Replace text {community} throughout the document with the name of the community adopting the ordinance.
  - Add the date of the community's effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) to the first paragraph of Article III, Section 3.1.A as indicated.
  - Adopt, sign and date the ordinance as described in Article VII.

If there are any questions concerning these suggested provisions or concerning the National Flood Insurance Program, please contact DCR's Division of Dam Safety and Floodplain Management at (804) 371-6095 or the FEMA Region 3 Office at (215) 931-5500.

1

Common Higher Regulatory Standards

- **Freeboard**
- **Community Identified Flood Hazard Areas**
- **Restrictions to Subdivision of Land**
- **Non Conversion Agreement**
- **Location Restrictions**
- **Prohibition**
  - **Development in SFHA or Floodway**
  - **Manufactured Homes**
  - **Fill**
- **Flood Protected Setback**
- **Certificate of Compliance**
- **Historic Structures**

Higher Standards

- **Recommended higher standards in the model ordinance**
  - 1.5 feet (18”) of freeboard for residential and nonresidential construction
  - Manufactured homes required to meet new construction standards
  - Prohibition of manufactured homes outside of existing manufactured home parks
  - Size limit for enclosed space below lowest floor in VE Zone
  - Cumulative substantial damage
  - Different elevation requirements in Coastal A and VE Zones
  - Prohibition of critical facilities in Shaded X Zone
  - Non-conversion agreement requirement for accessory structures

Higher Standards Reduce…

…work and administrative burden

…risk and response/recovery efforts

…costs for insurance and rebuilding

Elevating Above the BFE Saves Money

- NFIP premiums based on April 2016 rates
- One-floor residential structure with no basement built Post-FIRM in SFHA
- $200,000 coverage for the building and $80,000 for contents
- At BFE Insurance Premium: $2,136

Zone AE	Annual NFIP Insurance Savings	Savings Over 30 Year Mortgage*
1 ft. below BFE	**-$2,650**	**-$79,500**
At BFE	0	0
1 ft. freeboard	$1,063 (50%)	$31,890
2 ft. freeboard	$1,426 (67%)	$42,780
3 ft. freeboard	$1,545 (72%)	$46,350

**Estimate based on April 2016 rates only*

Ordinance Enforcement

Discovering and Investigating Potential Violations

- Violations can be found through
  - Periodic inspections
  - Reports by other government agencies
  - Citizen's complaint
- Violations not remedied can result in
  - Increased risk to life and property
  - Increased insurance premiums
  - Probation – increased insurance rates for everyone
  - Suspension – NFIP insurance and many grants/loans unavailable

Investigate potential violations and take appropriate action!

Ordinance Enforcement Options

- **Check your ordinance for the enforcement procedures that have already been outlined**
- May include
  - Voluntary compliance by property owner
  - Written Notice of Violation or stop work order and/or revoke permit
  - Per day fine
  - Withhold certificate of occupancy
  - Record on Deed
  - Injunction – court order to stop non-compliant activity
  - Municipal housing court or building court
  - Coordinate with your solicitor

Community Liability

- Flood problem awareness with no action
- Failure to warn citizens of known flood hazard
- Improper development that increases flood risk
- Inconsistent administration of floodplain provisions

(PEMA)

Legal Backing

State and local governments are more likely to be successfully sued for permitting development that causes increased flooding than they are for prohibiting such development.

Ordinances that meet the NFIP minimum requirements have not been found to be a "taking."

State laws

- Provide communities with the authorities necessary to adopt and enforce floodplain management ordinances
- Establish procedural and other requirements that communities must follow in adopting and implementing land use ordinances
- State floodplain management laws and regulations establish additional requirements that communities must include in their floodplain management ordinances

When You've Exhausted All Legal Recourse…

Your community can consider the use of Section 1316

No new flood insurance coverage shall be provided for any property that has been declared to be in violation of State or local laws, regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas

Denying flood insurance means:

- Risk of flood losses with no insurance coverage
- Property may be difficult to sell
- Market value of the property may fall
- Lending institutions holding a mortgage could foreclose
- Some disaster assistance will be denied

Work with your State NFIP Coordinator and FEMA contact

Floodplain Ordinance Resources

- VA DCR website
  - Floodplain Management
- FEMA 480, NFIP Floodplain Management Requirements
  - http://www.floods.org/ace-files/documentlibrary/CFM-Exam/FEMA_480_Complete.pdf
- Virginia Uniform Statewide Building Code:
  - http://www.dhcd.virginia.gov/index.php/va-building-codes/building-and-fire-codes/regulations/uniform-statewide-building-code-usbc.html
- FEMA Building Code Resource page
  - http://www.fema.gov/building-code-resources

Administrative Requirements

- Generally, the NFIP requires an administrative process but does not detail what these administrative processes must look like
- Communities must establish administrative procedures that work and are compatible with other regulations and ordinances
- Other requirements not detailed in the regulations
  - Duties of the Floodplain Administrator
  - Appeals process
  - Issuance of variances
  - Permitting systems
  - Recordkeeping systems

Duties of the Floodplain Administrator

- Review applications
- Make floodplain determinations
- Make Substantial Improvement / Damage determination
- Issue or deny permits
- Review plans and specifications
- Ensure all other permits are obtained
- Notification of watercourse alterations
- Maintain and help update flood data and maps
- Inspect development
- Recordkeeping
- Remedy violations

Keep good records! A project file should be kept for each development permit application to demonstrate that the project was built in compliance with your regulations.

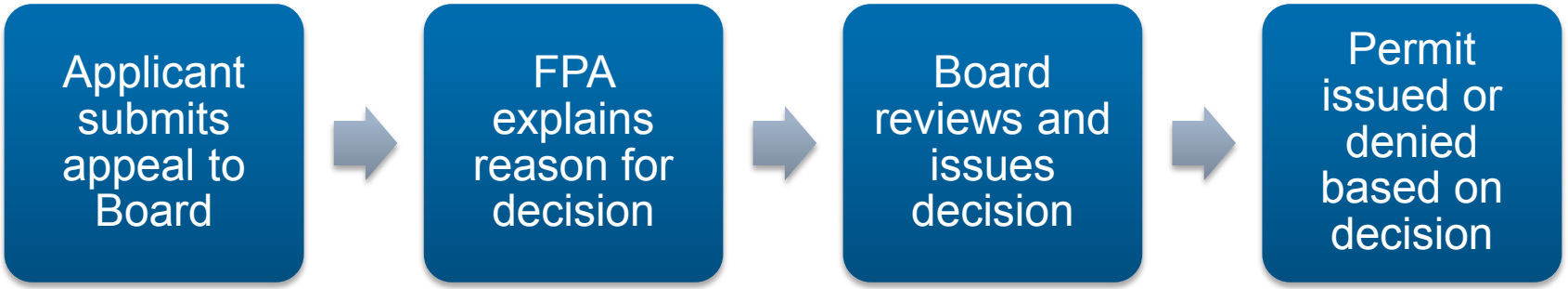
Duties of the Floodplain Administrator

- **Training and education:** Understand the NFIP regulations, State regulations, and local ordinances
- **Community Outreach:** Educate residents on the need for permits, the benefits of floodplains, the economic sustainability of good floodplain management, and the benefits of flood insurance
- **Coordinate with other agencies:** State agencies, adjacent communities, public works, zoning, code enforcement, or building dept.
- **Apply ordinances consistently:** Get specific guidance from your community's legal counsel as necessary

Common legal questions and answers about floodplain regulations in the courts can be found in ***Appendix C of ASFPM's No Adverse Impact: A Toolkit for Common Sense Floodplain Management.***

Appealing a Floodplain Admin's Decision

- Appeals are typically administrative in nature (could be to a floodplain determination, substantial improvement/damage determination, etc.)
- Appeals apply to the application of an administrative decision of a floodplain administrator ordinance
- Communities must establish a process and an entity for applicants to appeal an administrative decision when they disagree
- Basic appeals process



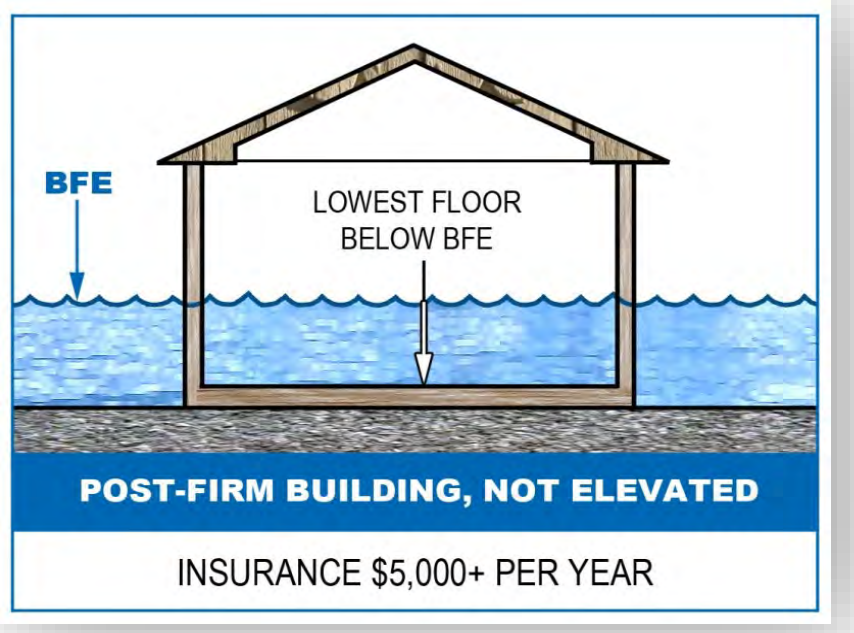
Issuance of Variances

- Granting relief from ordinance requirements
- Establish a process and an entity for applicants to request variances
- Conditions of the property NOT the person
- Notice of increase to risk and insurance premiums
- Patterns of variances may result in sanctions


Galveston, TX (FEMA photo library)

Evaluate the Merits of a Variance

- General rule – **Do not grant variances**
- Very specific conditions must be satisfied to justify a variance
  - Good and sufficient cause
  - Unique site conditions (personal considerations do not apply)
  - Hardship – must be exceptional
  - No threat to public safety
  - Minimum necessary to afford relief



Think carefully before granting a variance to build below the BFE. The property will be more likely to suffer damage and insurance will be costly. Communities with patterns of issuing variances may face sanctions – costing all property owners more!

Appealing an Appeal/Variance

If you **disagree** with the decision of the board to grant the appeal or variance…

…**appeal** the appeal/variance

- Why appeal? Granted for reasons inconsistent with criteria in ordinance
- Become familiar with the timeframe to file the appeal (30 days?)
- FEMA expects communities to exhaust all legal avenues

Record Keeping Requirements

- Requirement to maintain compliance documentation **indefinitely**
- What records?
  - Permit application
  - Inspections
  - As-built documentation
  - Other compliance documentation (for instance, certifications)
  - Flood map changes and updates
- Best practices
  - Store permits by address (rather than property owner name)
  - Use colored file folders to identify floodplain properties

For a structure located in the SFHA, FEMA and the State will require data to prove a potential violation is compliant.

Floodplain Ordinances and Permitting

PERMITTING DEVELOPMENT

Permits are Required for ALL Development

ALL development in the SFHA requires a permit

- Definition of development (as per 44 CFR 59)

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

- Before any kind of development in the SFHA is allowed, the project must be permitted by the local floodplain administrator.

- **Ensure you have a process for capturing all floodplain development**

Permits are Required for ALL Development

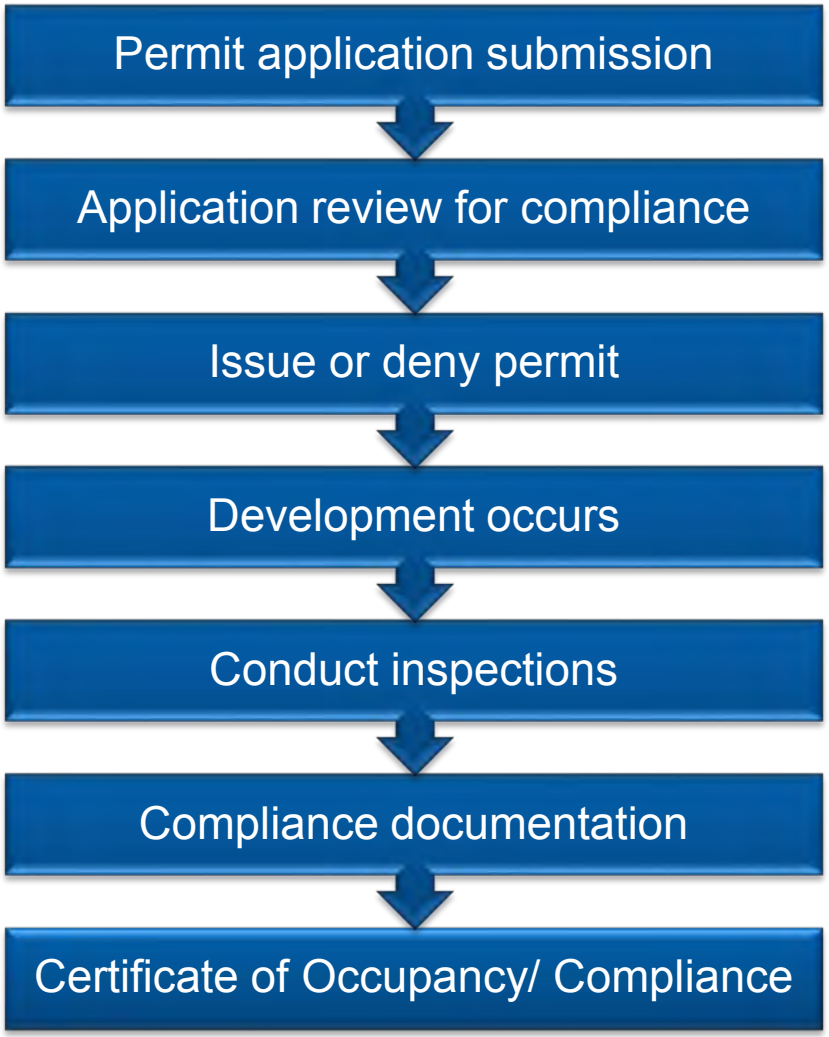
- Federal, state, and local government agencies must also adhere to floodplain management requirements.

- Executive Memorandum 2-97 requires:

  - State projects in the SFHA must comply with the local floodplain ordinance, if working in a participating community. This means obtaining permits from the community's floodplain administrator.

  - When doing a project in a community that does not participate in the NFIP, state agencies are still required to meet the minimum NFIP criteria as outlined in 44 CFR 60.3.

The Life of a Permit



Application Should Include…

- A good permit application should **capture all information** needed to evaluate the proposed work for compliance with required building/development standards of proposed work
- Application MUST include a **floodplain determination** and a **substantial improvement determination** **(for modifications to an existing building)**

For Official Use Only:

Floodplain Determination: _____

Base Flood Elevation: _____

Cost of Improvement: $_____

Market Value of Structure: $_____

Improvement Percentage: _____%

Application Review

Who are the people typically responsible for reviewing permits?

- Floodplain Administrator
- Building Code Officer
- Zoning Officer
- Community Engineer
- Third-party permitting/inspection company

Coordination with other reviewers:

- Is one person responsible for all aspects of floodplain development?
- If not, are all parties aware of the floodplain requirements?
- How is the permit application routed and either approved or denied?

Building Codes and the NFIP

- VA Uniform Statewide Building Code establishes building standards for new and substantially-improved buildings
- VA USBC incorporates parts of the ICC Codes
- **Not all** NFIP requirements appear in the VA USBC
  - Does not establish site or location requirements
  - Other types of development (non-structures)

- **Challenges of Administration**
  - Regulating development beyond buildings
  - Designate responsible party for meeting **all** NFIP requirements
  - Establish administrative procedures to assure coordination
  - **Do not assume** that the flood provisions of the VA USBC will be carried out by the community building official or third party

Building Codes and the NFIP

- **REMEMBER!**
  - You must adhere the most restrictive code, provision, or requirement
  - The absence of certain floodplain management requirements from existing building codes does not absolve the community from applying the requirements of its floodplain management ordinance and vice versa

VA Uniform Statewide Building Code

- The 2012 USBC (adopted in 2015) is currently in place.
- The 2015 USBC will likely be adopted in the spring of 2018.
  - The new USBC is expected to include some additional higher standards for building construction in floodplains, based on the 2015 International Codes.
- While the USBC excludes certain types of smaller development from requiring a building permit (section 108.6), this does not exclude them from needing a floodplain permit of some kind.
  - Currently, because these 15 activities are exempt from building permit requirements, a building permit may not be used for these types of development. Communities must use a different kind of permit to capture this development (such as a zoning or floodplain permit).

Application Review

Review for completeness

- Forms filled out
- Site plan
  - Floodplain delineation
  - Elevations
- Building plans
- Certifications
- All other permits obtained

Review for compliance

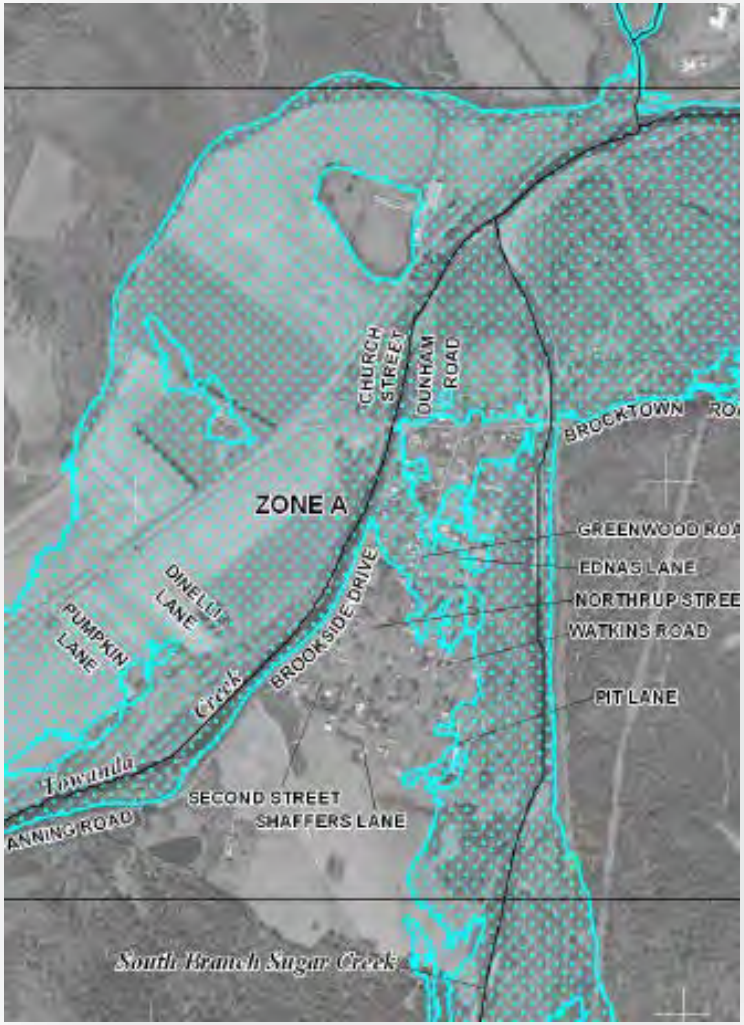
- Proposed building elevations
- Proposed design standards
- Building/fill/material placement
- Mechanical elevations
- Compliant openings
- Flood resistant materials

Review Permits For…

- **Location/Siting**
  - Floodplain determination
  - Zone and BFE identification
- **Use**
  - Residential
  - Non-residential
- **Type of work**
  - New construction/addition
  - Non-structural development
  - Placement of fill, etc.
- **Cost of improvement**
  - Substantial improvement?
- **Design standards**
  - Compliance with minimum and higher standards?
  - Is a variance necessary?

Elevated utilities (PEMA)

Considerations for Zone A



Benefits of Requiring Detailed studies:

- Properly elevating structures to or above the BFE will reduce future flood losses, and will provide savings to the individual, community, and NFIP.
- Having a BFE determined will likely lower insurance premiums.
  - Simplified methods of BFE estimation are not suitable for insurance rating.
- Determining the BFE may allow the property to be removed from the requirement to obtain flood insurance, if it is elevated about the BFE.
- This is less work and less liability for floodplain administrators.
- Communities can get CRS credit for requiring detailed studies.

FEMA

DCR Virginia Department of Conservation & Recreation

Considerations for Zone A

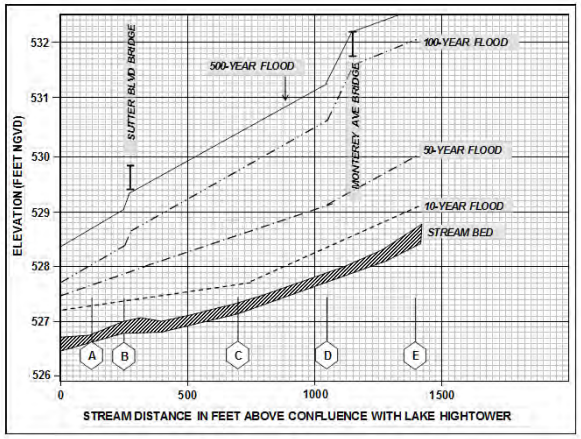
Other possible sources of elevation data:

- Check other sources: federal, state, and local
- H&H study may be available – FEMA Engineering library
- Simplified methods of estimation:
  - Contour interpolation: point on boundary
  - Data extrapolation: estimating from the FIS
- In some cases, FEMA may be able to provide a BFE for a property when a LOMA is submitted.
  - Property must be less than 50 lots or 5 acres
  - The property owner may be asked to have their property surveyed.

Considerations for Zone AE, AH, and AO

Zone AE

- Provide the necessary elevation data for effective permitting
- Use the flood profile to determine site-specific water surface elevations



Zone AH and AO

- Represent areas subject to shallow flooding and sheet flow where average depths range from 1-3 feet
- Average whole-foot elevation/depth derived from the FIRM
- Lowest floor ≥ flood depth

  or

  Lowest floor ≥ 2’ when no depth is specified

Considerations for Zone AE

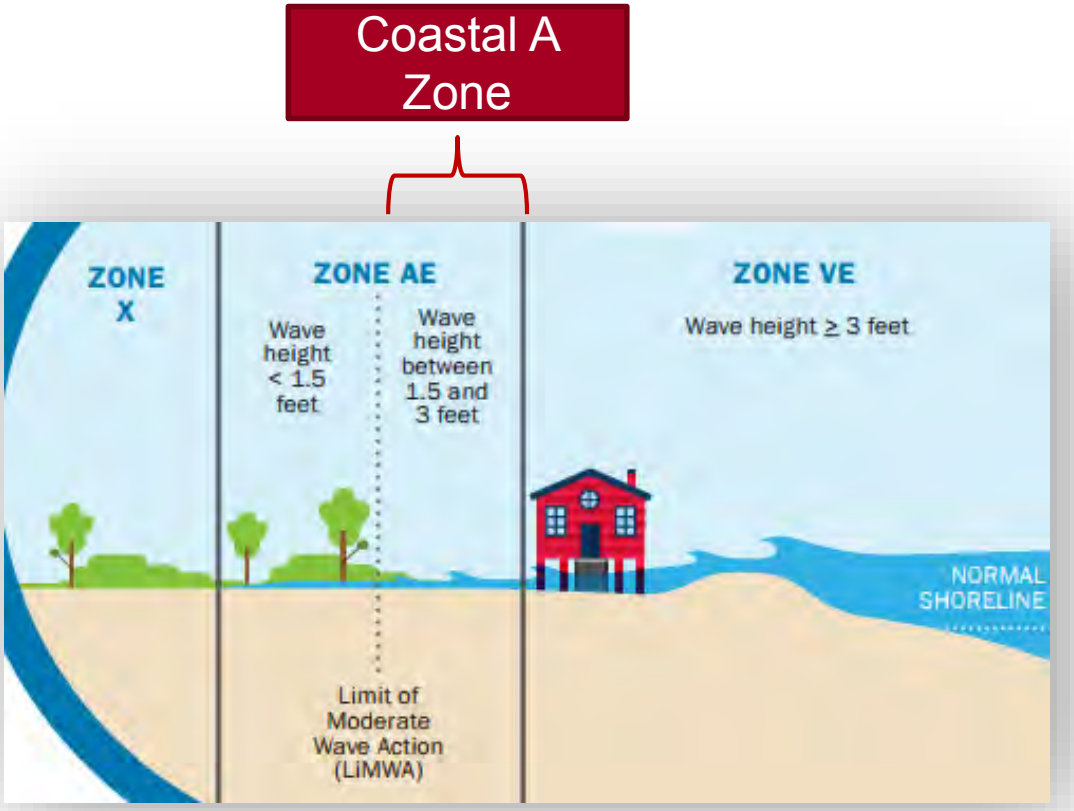
AE Zones without Floodways

- Where FEMA has provided BFEs but no floodway, the community must review all development to **track cumulative rise**
- Ensure development does not increase the BFE more than 1.0 foot
- Once allowable rise is reached, **no further rise** is permitted
- Administrative procedure to track and collect cumulative impact

Considerations for Zone AE

Zone AE in Coastal Areas

- Use LiMWA to identify Coastal A Zone
- NFIP regulations do not have provisions for Coastal A Zones
- The 2015 VA USBC will include standards for Coastal A Zone construction



Considerations for Zone VE

Zone VE

- Fill for structural support of buildings is prohibited
- Man-made alteration of sand dunes and mangrove stands that would increase potential flood damage is prohibited
- Buildings must to be elevated on pilings with space below lowest floor free from obstructions
- Bottom of lowest structural member of lowest flood must be at or above BFE
- For construction and/or floodplain management purposes use elevations in the FIS Coastal Transect Parameters table when they are higher than the whole-foot elevation on the FIRM, otherwise use whole-foot BFE on FIRM

Considerations for Floodways

Development must prove "no rise"

- No rise = zero foot (0.00')
- Rise is tracked both upstream and downstream of development location

Documentation requirement

- H&H study
- If existing structure, site plan showing footprint will not expand

Ensure "no rise" certificate is prepared and certified by a qualified and licensed engineer. Read the certification; ensure it shows no rise.

Issue/Deny Permit

- **Issue the permit**
  - Include any conditions (i.e. required inspections)
  - Start of work must commence within 180 days from the issuance of the permit
- **Deny the permit**
  - Provide written explanation citing the specific provisions of the ordinance not met in the application
  - Citation of specific provisions point out how to resubmit application in compliance with regulations
  - Provide instructions regarding appeal or a variance

Conduct Inspections

- **Importance of coordination:** Check for compliance with the NFIP minimum standards
  - Inspect frequently during construction
  - Check openings and mechanicals
- Recommend a **minimum** of three inspections
  1. After site is staked but before permanent foundation work
  2. After foundation is complete
  3. Before issuing certificate of occupancy

Schoharie, NY (FEMA photo library)

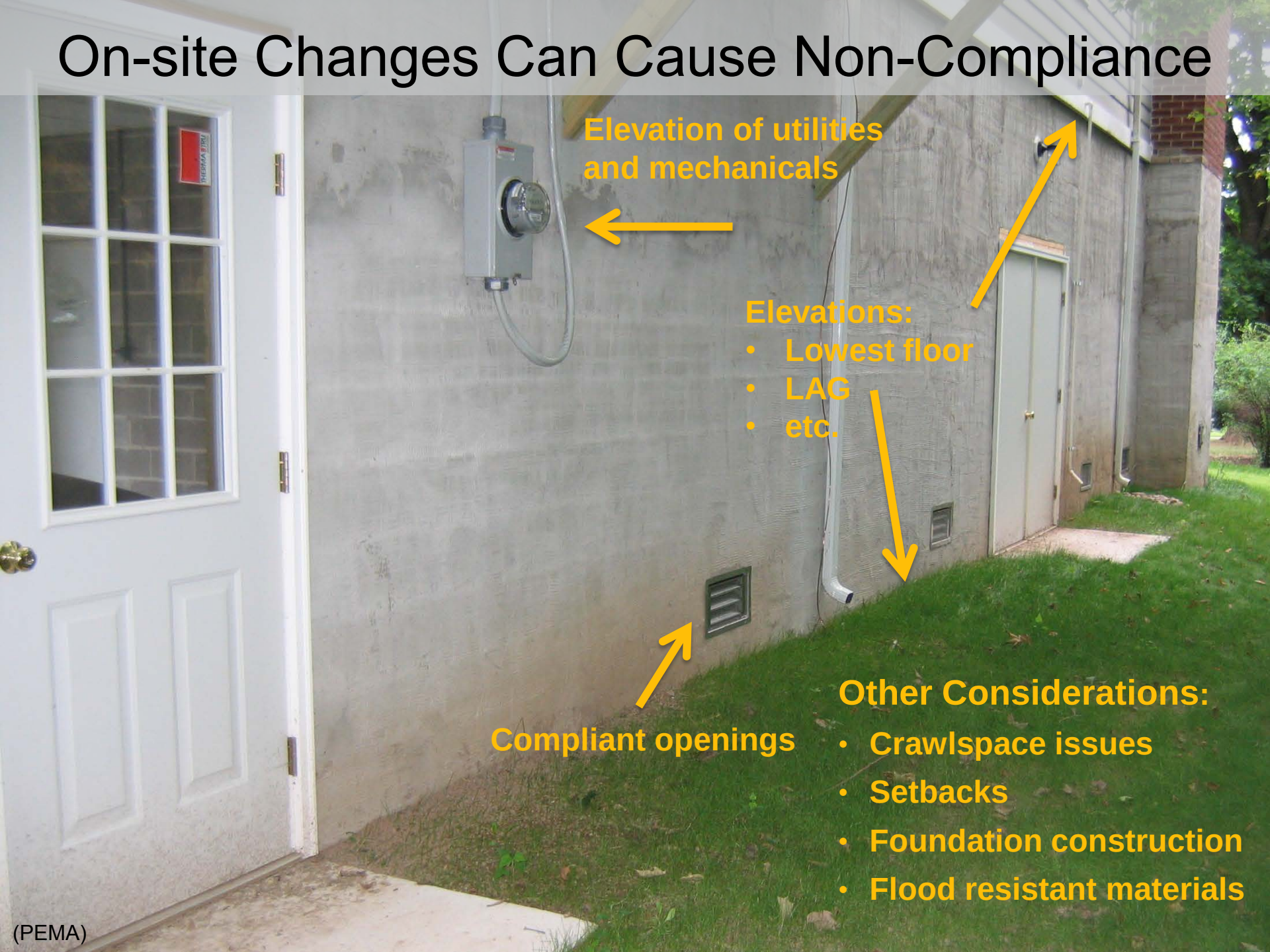
Identifying compliance issues prior to construction will be much easier – and cheaper – to correct than correcting compliance issues post-construction.

Considerations During Inspections

Address Non-Compliance Early

- If inspections reveal violations, take steps to bring into compliance
  - Voluntary option
  - Provide written notice
  - Issue fines or penalties
  - Withhold final approvals
- Refer to ordinance for specific enforcement procedures
- Insurance for non-compliant structures is available, **but it's very expensive**!

On-site Changes Can Cause Non-Compliance



(PEMA)

Exercise: Inspections Review

Exercise: Inspections Review

- Vents are too high

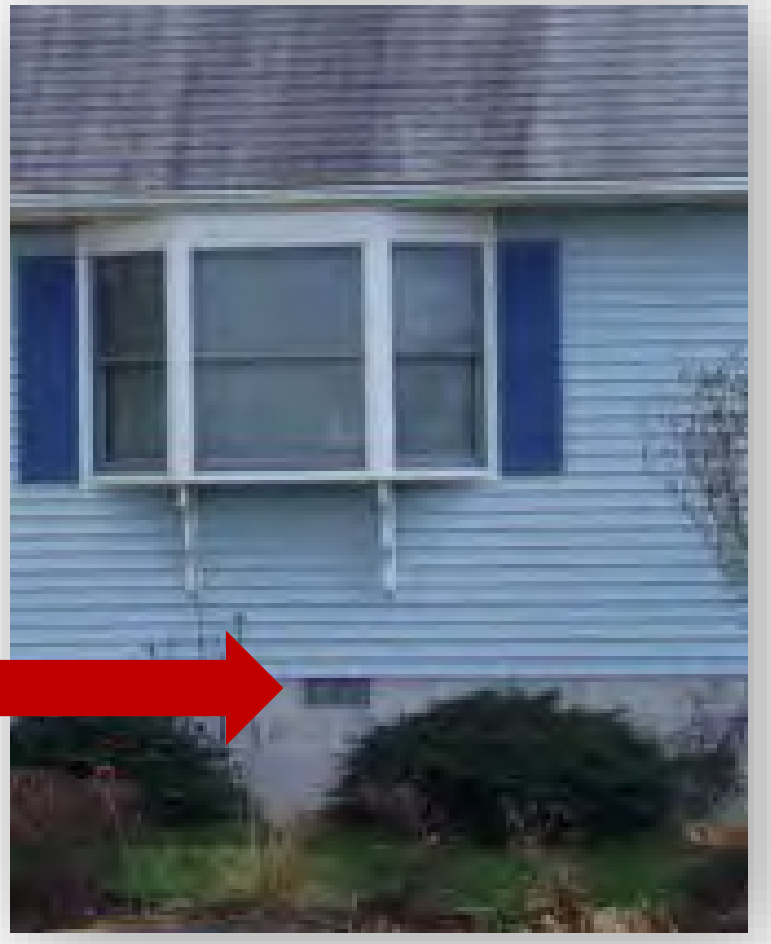
  Maximum 12” above grade

- When in the inspection process could this have been corrected?

  Foundation inspection

- Air vents, not flood openings

  Automatic entry



Exercise: Inspections Review

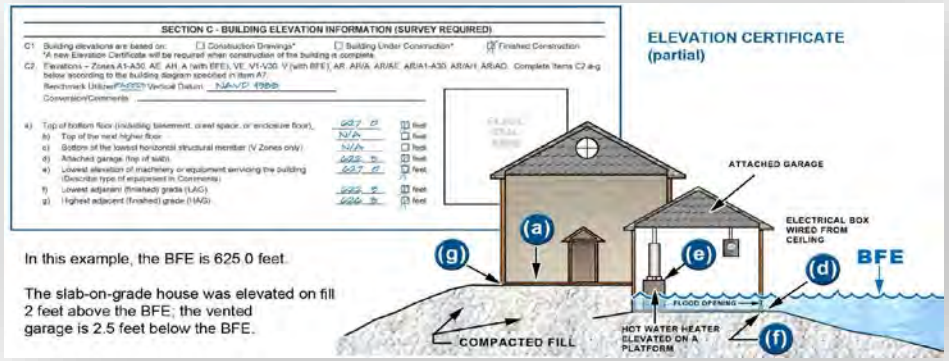
Most significant issues nationwide:

- Insufficient venting
  - Insurance rating heavily impacted
- Equipment not elevated
  - Expensive to replace
- Propane tanks not secured
  - Become explosive projectiles

Collecting Compliance Documentation

- Permit file **must contain as-built** or finished construction data for all new structures or substantial improvements in SFHA
- Required to prove compliance with the floodplain ordinance
- Must be **signed and sealed** by the design or certifying professional

- Examples of compliance documentation
  - Site plans and surveys
  - Building/architectural plans
  - FEMA Elevation Certificate (EC)
  - Floodproofing certificate
  - Engineered openings
  - Non-conversion agreement



Non-Conversion Agreement

- For enclosed spaces below BFE, uses are limited to parking, access, some storage
- Gives community official authority to revisit potential violations
- Consider requiring in ordinance
- Collect in advance of C.O.
- Attach to deed
- Example non-conversion agreements on FEMA's website

Other Types of Development

(FEMA Region III)
Floodplain tour revealed unpermitted trailer storage in floodway, about 10 feet from top of bank.

- Other types of development require inspections
  - Placement of fill
  - Installation of fences
  - Storage of equipment and materials
  - Placement of recreational vehicles
  - Etc.
- Develop **administrative procedures** to permit for and inspect non-building development

Other Types of Development

- Develop a permitting and inspection process for manufactured homes and recreational vehicles
- Manufactured homes must be elevated on a permanent foundation and securely anchored
- Recreational vehicles are required to
  - Be licensed and road-ready
  - Be on site less than 180 days **or**
  - Meet the requirements of a manufactured home

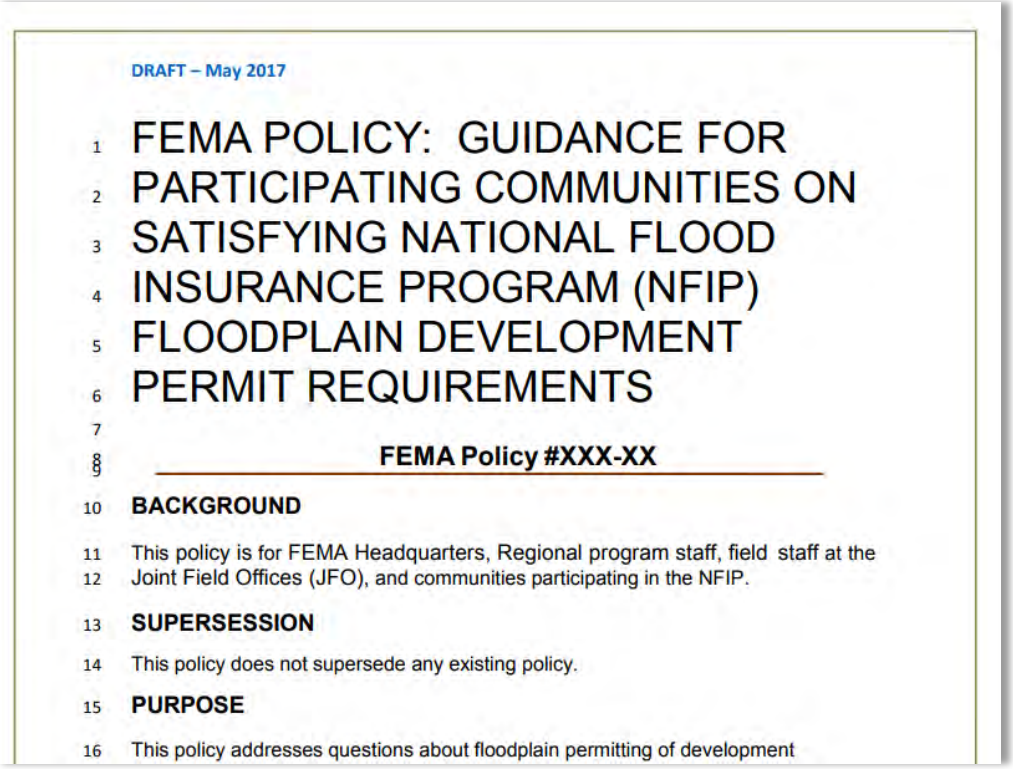
(FEMA Region III)
A recreational vehicle washed into a manufactured home unit

Certificate of Occupancy/Compliance

- Final step in the permit process
- After final inspection, construction/development is completed, and all as built compliance documentation is received
- Certificate of Occupancy is key to
  - Utility connection
  - Property sale
  - Occupancy
- Compliance checks do not end with occupancy
  - Periodic “windshield” inspections are encouraged
  - Enclosure/full foundation wall issues

FEMA Draft Permitting Policy

- FEMA draft policy is available online.
- Public comment period has ended. FEMA received comments from 37 entities.
  - Comments are currently being reviewed and adjudicated.



DRAFT – May 2017

FEMA POLICY: GUIDANCE FOR PARTICIPATING COMMUNITIES ON SATISFYING NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS

FEMA Policy #XXX-XX

BACKGROUND

This policy is for FEMA Headquarters, Regional program staff, field staff at the Joint Field Offices (JFO), and communities participating in the NFIP.

SUPERSESSION

This policy does not supersede any existing policy.

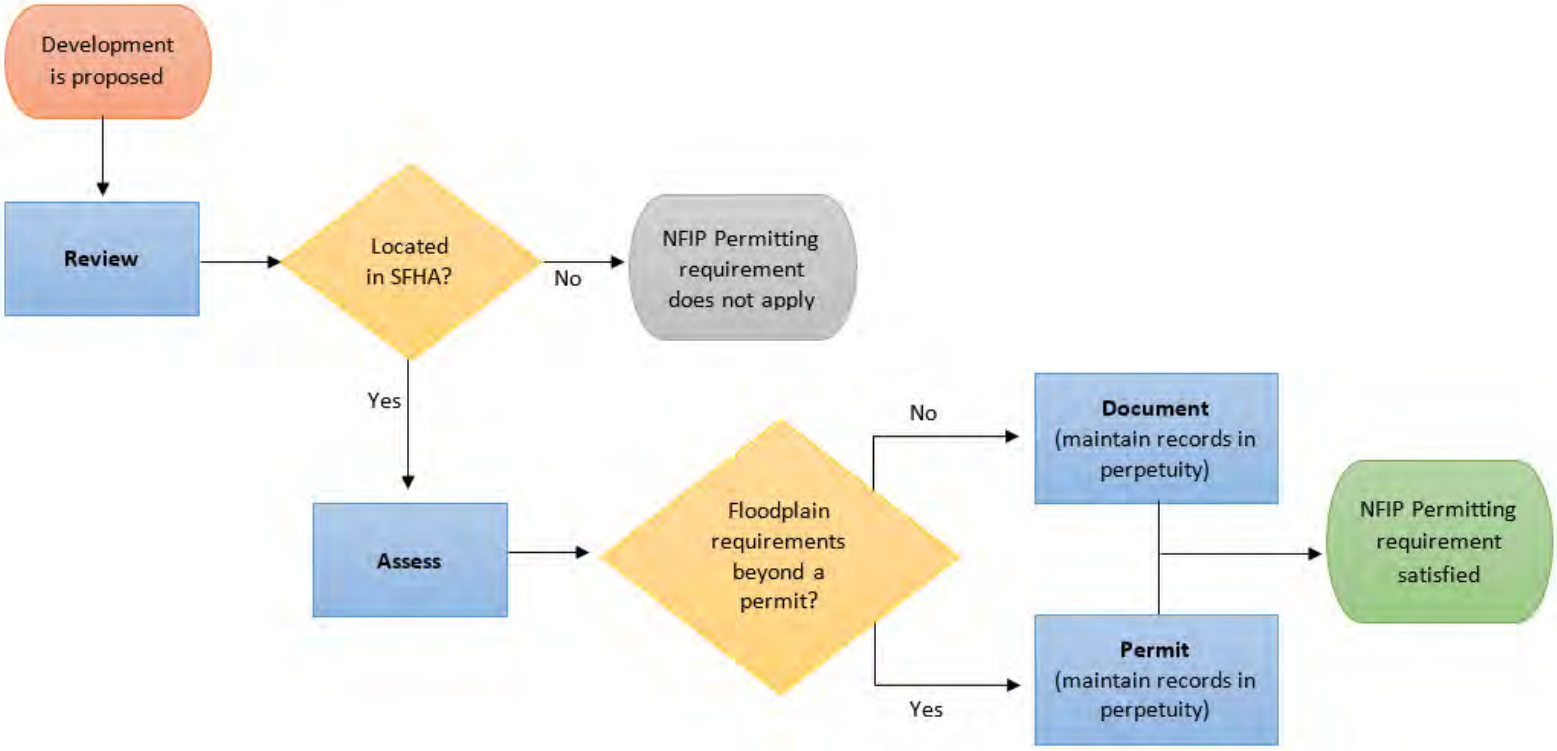
PURPOSE

This policy addresses questions about floodplain permitting of development

https://www.fema.gov/media-library/assets/documents/131010

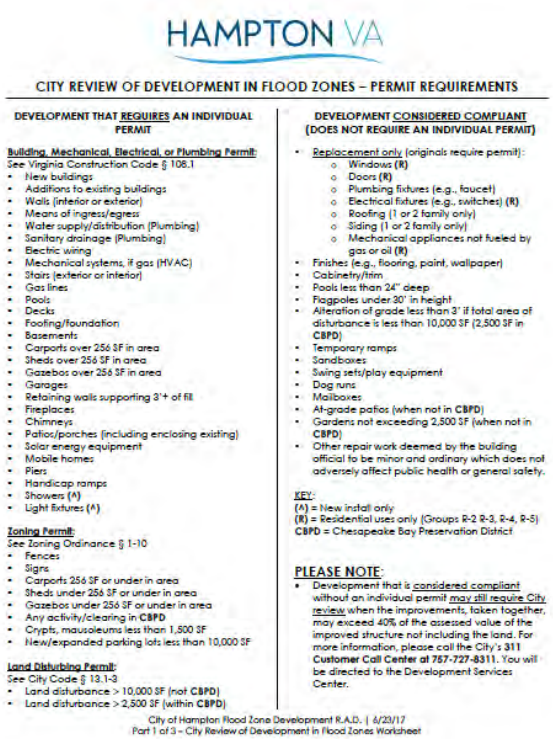
FEMA Draft Permitting Policy

- FEMA draft policy requires that development be reviewed, assessed, and documented.



FEMA Draft Permitting Policy

- Classes of activities may be reviewed upfront and considered to be permitted, without requiring an individual permit for each case.



HAMPTON VA

CITY REVIEW OF DEVELOPMENT IN FLOOD ZONES – PERMIT REQUIREMENTS

DEVELOPMENT THAT REQUIRES AN INDIVIDUAL PERMIT

Building, Mechanical, Electrical, or Plumbing Permit:
See Virginia Construction Code § 108.1
- New buildings
- Additions to existing buildings
- Walls (interior or exterior)
- Means of ingress/egress
- Water supply/distribution (Plumbing)
- Sanitary drainage (Plumbing)
- Electric wiring
- Mechanical systems, if gas (HVAC)
- Stairs (exterior or interior)
- Gas lines
- Pools
- Decks
- Footing/foundation
- Basements
- Carports over 256 SF in area
- Sheds over 256 SF in area
- Gazebos over 256 SF in area
- Garages
- Retaining walls supporting 3'+ of fill
- Fireplaces
- Chimneys
- Patios/porches (including enclosing existing)
- Solar energy equipment
- Mobile homes
- Piers
- Handicap ramps
- Showers (A)
- Light fixtures (A)

Zoning Permit:
See Zoning Ordinance § 1-10
- Fences
- Signs
- Carports 256 SF or under in area
- Sheds under 256 SF or under in area
- Gazebos under 256 SF or under in area
- Any activity/clearing in CBPD
- Crypts, mausoleums less than 1,500 SF
- New/expanded parking lots less than 10,000 SF

Land Disturbing Permit:
See City Code § 13.1-3
- Land disturbance > 10,000 SF (not CBPD)
- Land disturbance > 2,500 SF (within CBPD)

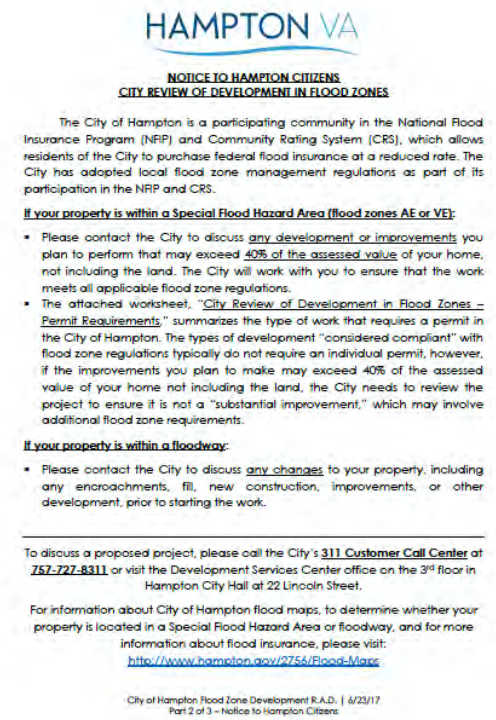
DEVELOPMENT CONSIDERED COMPLIANT (DOES NOT REQUIRE AN INDIVIDUAL PERMIT)

- Replacement only (originals require permit):
  - Windows (R)
  - Doors (R)
  - Plumbing fixtures (e.g., faucet)
  - Electrical fixtures (e.g., switches) (R)
  - Roofing (1 or 2 family only)
  - Siding (1 or 2 family only)
  - Mechanical appliances not fueled by gas or oil (R)
- Finishes (e.g., flooring, paint, wallpaper)
- Cabinetry/trim
- Pools less than 24" deep
- Flagpoles under 30' in height
- Alteration of grade less than 3' if total area of disturbance is less than 10,000 SF (2,500 SF in CBPD)
- Temporary ramps
- Sandboxes
- Swing sets/play equipment
- Dog runs
- Mailboxes
- At-grade patios (when not in CBPD)
- Gardens not exceeding 2,500 SF (when not in CBPD)
- Other repair work deemed by the building official to be minor and ordinary which does not adversely affect public health or general safety.

KEY:
(A) = New install only
(R) = Residential uses only (Groups R-2 R-3, R-4, R-5)
CBPD = Chesapeake Bay Preservation District

PLEASE NOTE:
- Development that is considered compliant without an individual permit may still require City review when the improvements, taken together, may exceed 40% of the assessed value of the improved structure not including the land. For more information, please call the City's 311 Customer Call Center at 757-727-8311. You will be directed to the Development Services Center.

City of Hampton Flood Zone Development R.A.D. | 6/23/17
Part 1 of 3 – City Review of Development in Flood Zones Worksheet



HAMPTON VA

NOTICE TO HAMPTON CITIZENS
CITY REVIEW OF DEVELOPMENT IN FLOOD ZONES

The City of Hampton is a participating community in the National Flood Insurance Program (NFIP) and Community Rating System (CRS), which allows residents of the City to purchase federal flood insurance at a reduced rate. The City has adopted local flood zone management regulations as part of its participation in the NFIP and CRS.

If your property is within a Special Flood Hazard Area (flood zones AE or VE):

- Please contact the City to discuss any development or improvements you plan to perform that may exceed 40% of the assessed value of your home, not including the land. The City will work with you to ensure that the work meets all applicable flood zone regulations.
- The attached worksheet, "City Review of Development in Flood Zones – Permit Requirements," summarizes the type of work that requires a permit in the City of Hampton. The types of development "considered compliant" with flood zone regulations typically do not require an individual permit, however, if the improvements you plan to make may exceed 40% of the assessed value of your home not including the land, the City needs to review the project to ensure it is not a "substantial improvement," which may involve additional flood zone requirements.

If your property is within a floodway:

- Please contact the City to discuss any changes to your property, including any encroachments, fill, new construction, improvements, or other development, prior to starting the work.

To discuss a proposed project, please call the City's **311 Customer Call Center** at **757-727-8311** or visit the Development Services Center office on the 3rd floor in Hampton City Hall at 22 Lincoln Street.

For information about City of Hampton flood maps, to determine whether your property is located in a Special Flood Hazard Area or floodway, and for more information about flood insurance, please visit:
http://www.hampton.gov/2756/Flood-Maps

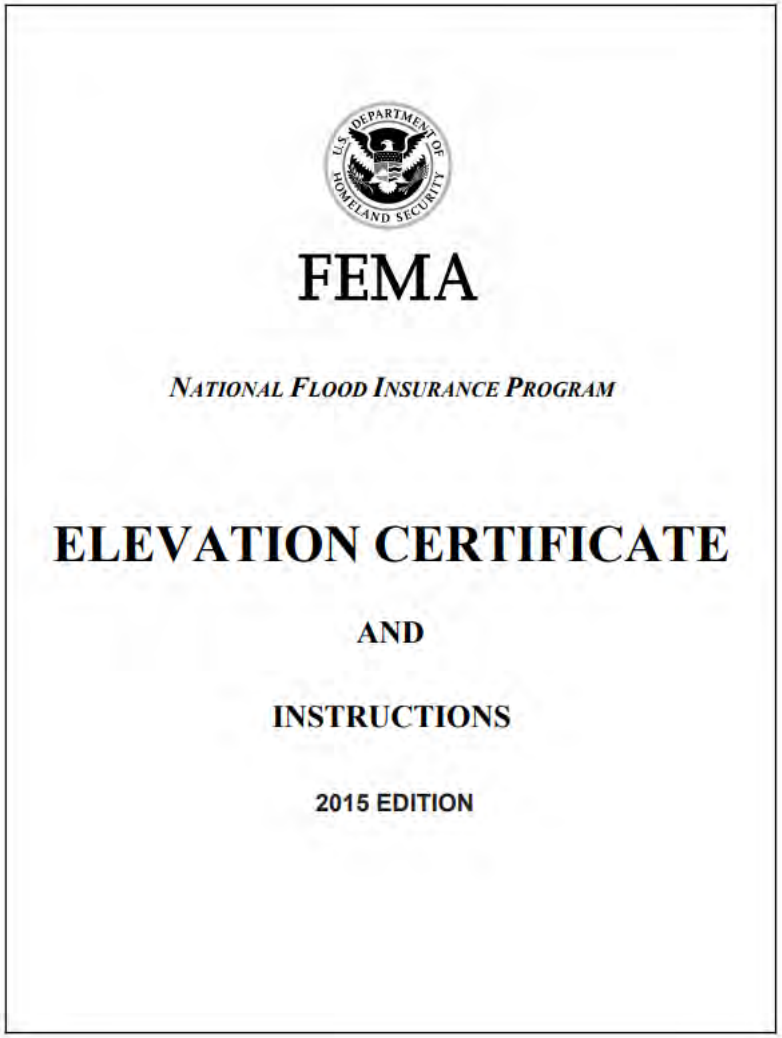
City of Hampton Flood Zone Development R.A.D. | 6/23/17
Part 2 of 3 – Notice to Hampton Citizens

Floodplain Ordinances and Permitting

ELEVATION CERTIFICATES

The Elevation Certificate (EC)

- Administrative tool used to provide elevation information necessary to
  - **Ensure compliance with community floodplain management ordinances**
  - Determine the proper insurance premium rate
  - Support requests for certain Letters of Map Change

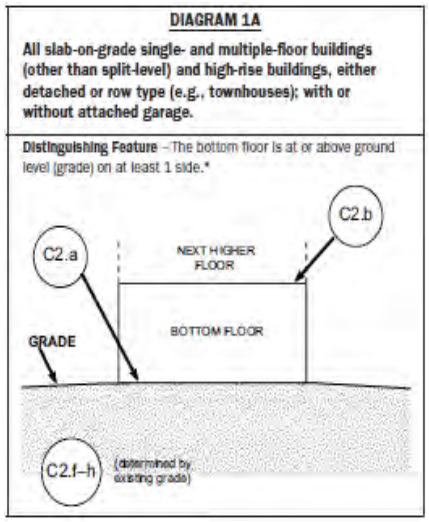


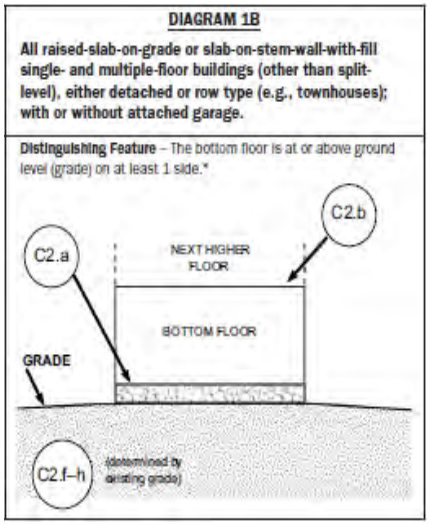
Reviewing an Elevation Certificate

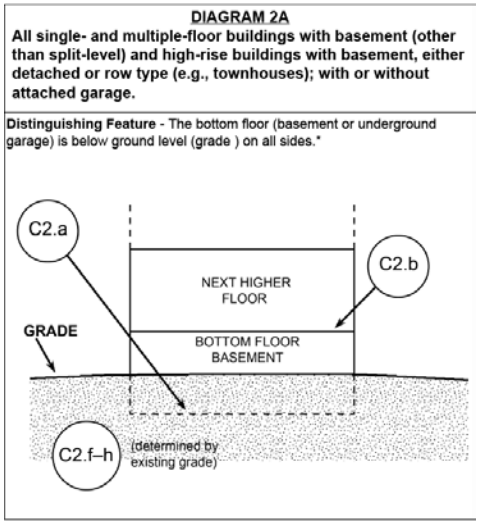
- Floodplain Administrators should review for accuracy
- Incomplete form received? Send it back for revision
- **Considerations for EC Review**
  - Lowest floor in comparison to BFE
  - Lowest floor in comparison to LAG and HAG
  - Bottom of lowest horizontal structural member (Zone VE)
  - Building diagram
  - Mechanicals elevations
  - Openings requirement (engineered require certification)

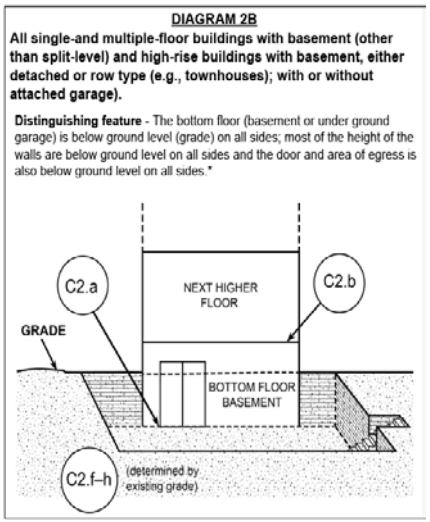
A surveyor's mistake can lead to a very expensive insurance rate, and a less safe and non-compliant structure.

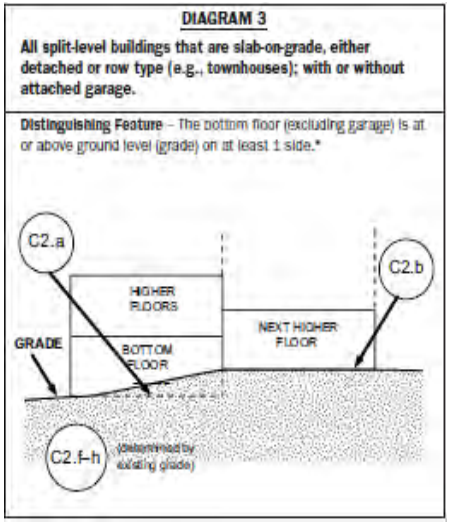
Building Diagrams

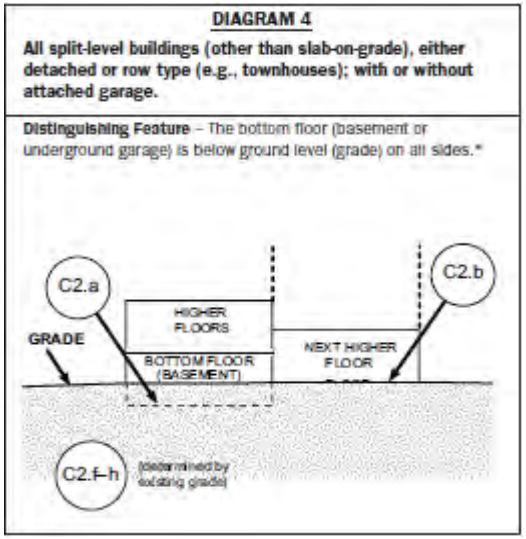












Building Diagrams

DIAGRAM 5

All buildings elevated on piers, posts, piles, columns, or parallel shear walls. No obstructions below the elevated floor.

Distinguishing Feature – For all zones, the area below the elevated floor is open, with no obstruction to flow of floodwaters (open lattice work and/or insect screening is permissible).

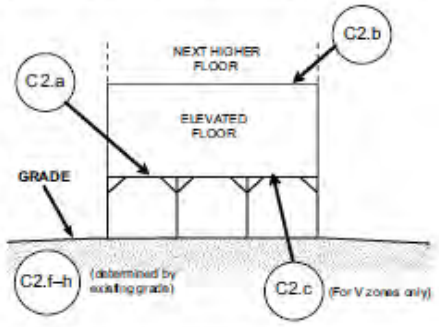


DIAGRAM 6

All buildings elevated on piers, posts, piles, columns, or parallel shear walls with full or partial enclosure below the elevated floor.

Distinguishing Feature - For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings ** present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A - Property Information.

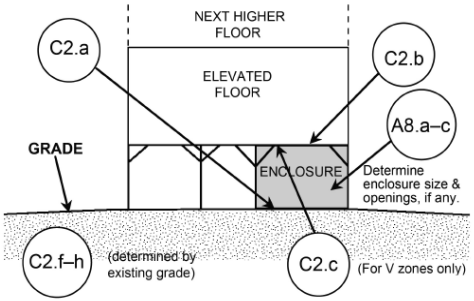


DIAGRAM 7

All buildings elevated on full-story foundation walls with a partially or fully enclosed area below the elevated floor. This includes walkout levels, where at least one side is at or above grade. The principal use of this building is located in the elevated floors of the building.

Distinguishing Feature – For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings* present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A – Property Information.

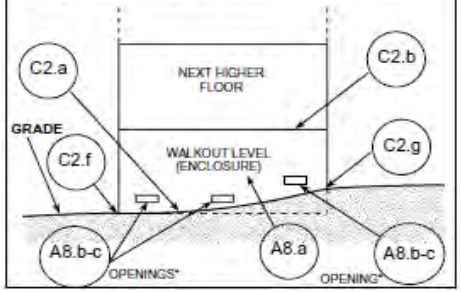


DIAGRAM 8

All buildings elevated on a crawlspace with the floor of the crawlspace at or above grade on at least 1 side, with our without an attached garage.

Distinguishing Feature - For all zones below the first floor is enclosed by solid or partial perimeter walls. In all A zones, the crawlspace is with or without openings** present in the walls of the crawlspace. Indicate information about crawlspace size and openings in Section A - Property Information.

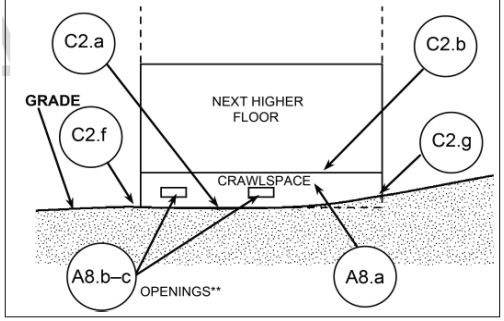
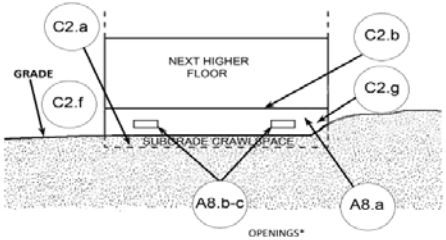


DIAGRAM 9

All buildings (other than split-level) elevated on a sub-grade crawlspace, with or without attached garage.

Distinguishing Feature - The bottom (crawlspace) floor is below ground level (grade) on all sides. * (If the distance from the crawlspace floor to the top of the next higher floor is more than 5 feet, or the crawlspace floor is more than 2 feet below the grade (LAG) on all sides, use Diagram 2.)



Section A: Property Information

Who can fill out Section A?

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
ELEVATION CERTIFICATE
IMPORTANT: FOLLOW THE INSTRUCTIONS ON PAGES 9-16

OMB Control Number: 1660-0008
Expiration: 11/30/2018

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A - PROPERTY INFORMATION	FORM 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: ○ NAD 1927 ○ 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):		A9. For a building with an attached garage:	
a) Square footage of crawlspace or enclosure(s)	sq ft	a) Square footage of attached garage	sq ft
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade		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 A8.b	sq in	c) Total net area of flood openings in A9.b	sq in
d) Engineered flood openings? ○ Yes ○ No		d) Engineered flood openings? ○ Yes ○ No	

Section B: FIRM Information

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) (Zone AO, use base flood depth

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:
FIS Profile FIRM Community Determined Other/Source:

B11. Indicate elevation datum used for BFE in Item B9: NGVD 1929 NAVD 1988 Other/Source:

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? Yes No
Designation Date: CBRS OPA

Who can fill out Section B?

Section C: Building Elevation Information

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ○ Construction Drawings* ○ Building Under Construction* ○ Finished Construction

C2. Elevations - Zones A1 - A30, AE, AH, A (with BFE), VE, V1 - V30, V (with BFE), AR, AR/A, AR/AE, AR/A1 - A30, AR/AH, AR/AO. Complete Items C2.a -h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

* A new Elevation Certificate will be required when construction of the building is complete.

Benchmark Utilized: Vertical Datum:

Indicate elevation datum used for the elevations in items a) through h) below. ○ NGVD 1929 ○ NAVD 1988

○ Other/Source:

Datum used for building elevations must be the same as that used for the BFE.		Check the measurement used.
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	-	○ feet ○ meters
b) Top of the next higher floor	-	○ feet ○ meters
c) Bottom of the lowest horizontal structural member (V Zones only)	-	○ feet ○ meters
d) Attached garage (top of slab)	-	○ feet ○ meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	-	○ feet ○ meters
f) Lowest adjacent (finished) grade next to building (LAG)	-	○ feet ○ meters
g) Highest adjacent (finished) grade next to building (HAG)	-	○ feet ○ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	-	○ feet ○ meters

Who can fill out Section C?

Section D: Certification

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. *I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.*

☐ Check here if attachments.

Were latitude and longitude in Section A provided by a licensed land surveyor?
○ Yes ○ No

Certifier's Name		License Number	
Title	Company Name		
Address	City	State	Zip Code
Signature	Date	Telephone	

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location , per C2(e), if applicable)"

Who can fill out Section D?

Signature Date

Section E: Elevations Without Survey

SECTION E - BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1 -E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B,and C. For Items E1 -E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).

a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ - _____ ○ feet ○ meters ☐ above or ☐ below the HAG.

b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ - _____ ○ feet ○ meters ☐ above or ☐ below the LAG.

E2. For Building Diagrams 6 -9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 8 -9 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ - _____ ○ feet ○ meters ☐ above or ☐ below the HAG.

E3. Attached garage (top of slab) is _____ - _____ ○ feet ○ meters ☐ above or ☐ below the HAG.

E4. Top of platform of machinery and /or equipment servicing the building is _____ - _____ ○ feet ○ meters ☐ above or ☐ below the HAG.

E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? ○ Yes ○ No ○ Unknown. The local official must certify this information in Section G.

Who can fill out Section E?

Section F: Owner's Certification

SECTION F - PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION			
The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.			
Property Owner or Owner's Authorized Representative's Name:			
Address	City	State	ZIP Code
Signature	Date	Telephone	
Comments			
			☐ Check here if attachments.

Who can fill out Section F?

Section G: Community Information

SECTION G - COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in items G8 - G10. In Puerto Rico only, enter meters.

G1. ☐ The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. ☐ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. ☐ The following information (Items G4 -G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate of Compliance/Occupancy Issued

G7. This permit has been issued for: ☐ New Construction ☐ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: ____ - ____ ☐ feet ☐ meters Datum ____

G9. BFE or (in Zone AO) depth of flooding at the building site: ____ - ____ ☐ feet ☐ meters Datum ____

G10. Community's design flood elevation: ____ - ____ ☐ feet ☐ meters Datum ____

Local Official's Name	Title
Community Name	Telephone
Signature	Date

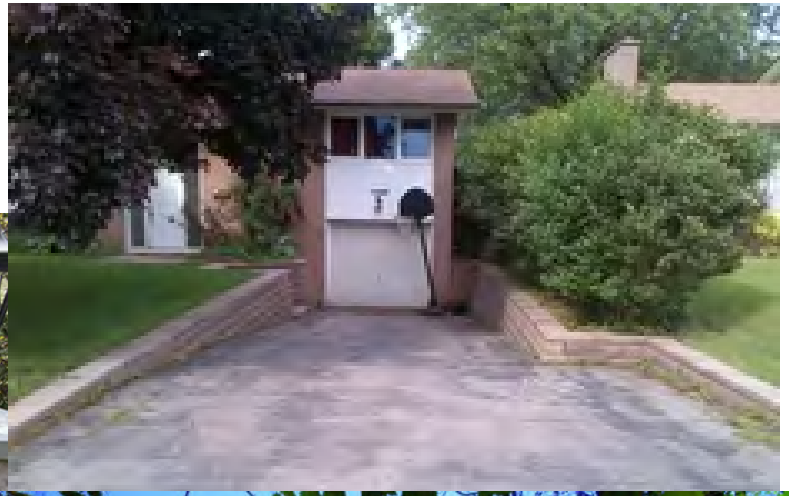
Comments

Who can fill out Section G?

Exercise: What Building Diagram is this?

Exercise: What Building Diagram is this?

Building Diagram 2B



Exercise: What Building Diagram is this?

Exercise: What Building Diagram is this?

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Exercise: What Building Diagram is this?

Exercise: What Building Diagram is this?

Floodplain Ordinances and Permitting

Questions?

Flood Hazard Maps and Data

FEMA

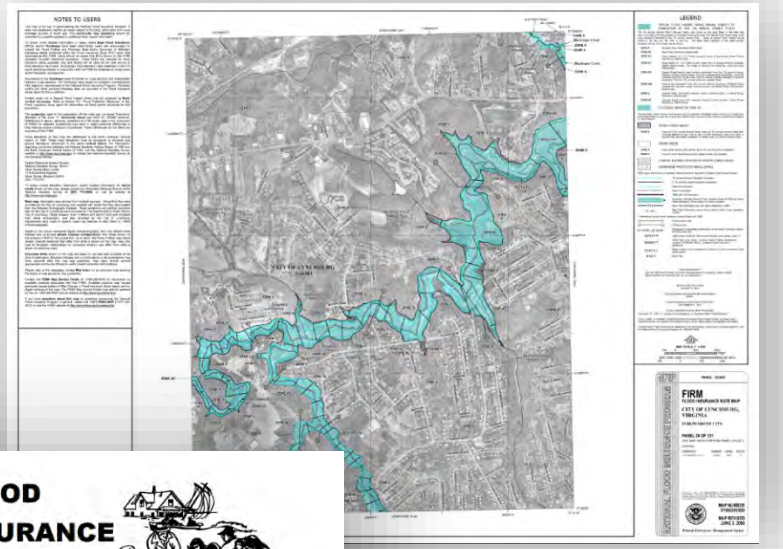
DCR
Virginia Department of Conservation & Recreation

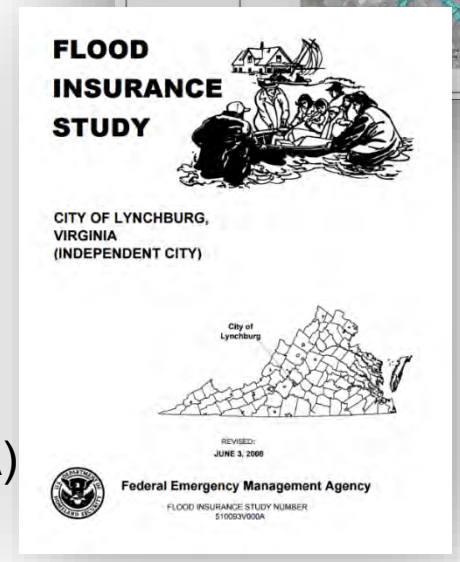
Flood Hazard Maps and Data

FLOOD INSURANCE RATE MAPS AND FLOOD INSURANCE STUDIES

Key Terms Refresher

- Flood Insurance Rate Map (**FIRM**)
- Flood Insurance Study (**FIS**) Report
- Special Flood Hazard Area (**SFHA**)
- Flood Zone
- Base Flood Elevation (**BFE**)
- Regulatory Floodway
- Cross Section
- Coastal High Hazard Zone (Zone V and VE)
- Limit of Moderate Wave Action (**LiMWA**)





Flood Insurance Rate Maps

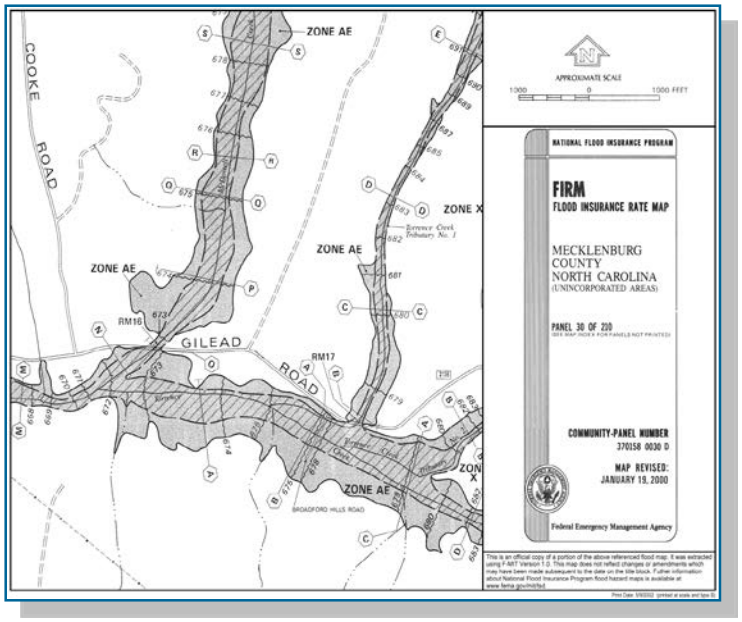
- FEMA identifies flood hazards from rivers, coasts, ponding, lakes, etc., through scientific and engineering methods. Computer models consider the size of the watershed, roughness coefficient, etc.

- FEMA maps those hazards on a Flood Insurance Rate Map (FIRM).

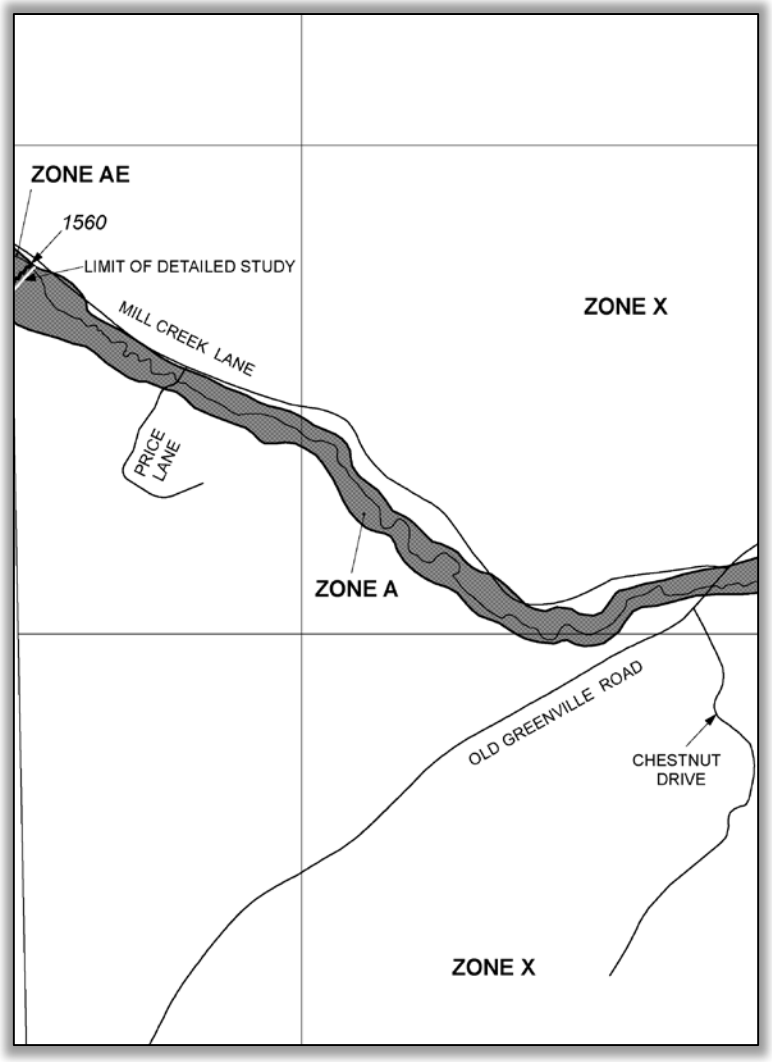
- The FIRM is used for floodplain management, flood insurance, and to help communicate flood risk to communities and the public.

Special Flood Hazard Area

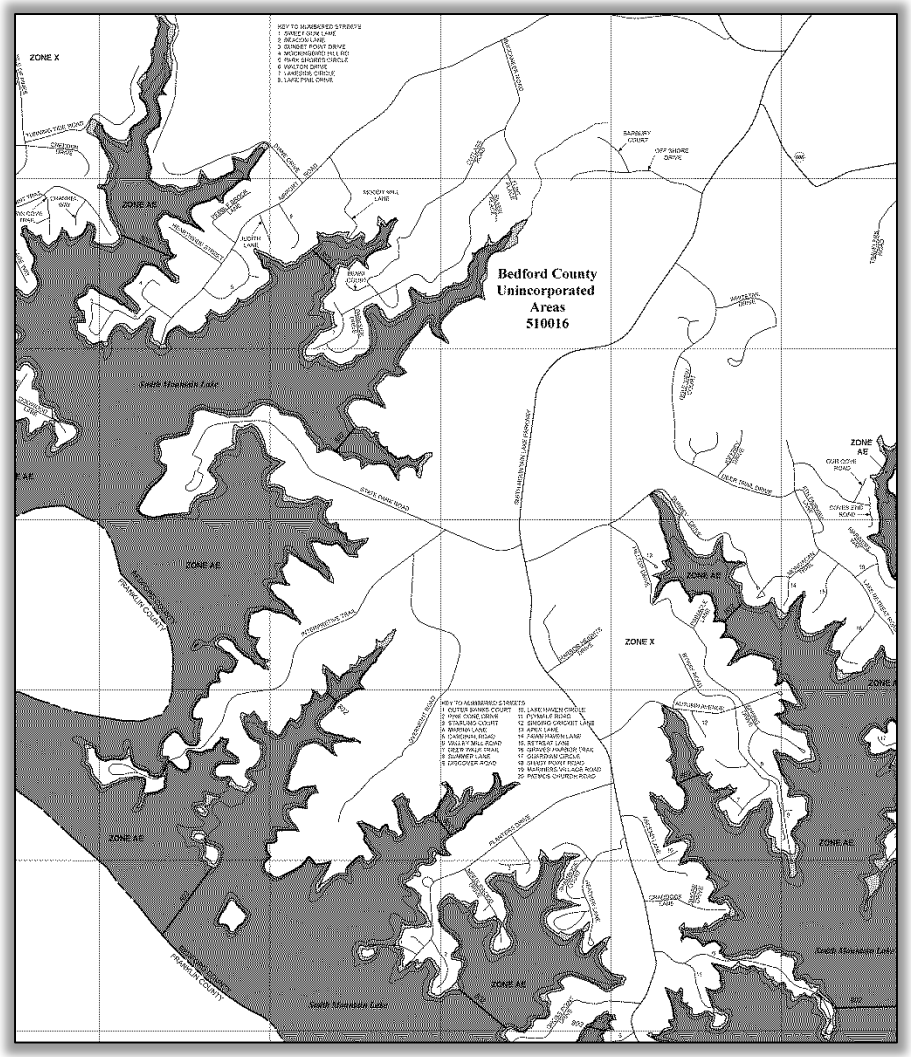
- The special flood hazard area (SFHA) is the land in the floodplain subject to a 1% percent or greater chance of being flooded in any given year.
  - Also referred to as 100-year floodplain.
- The elevation of 1% chance flood is the base flood elevation (BFE).
- Zoning and building code requirements are tied to the special flood hazard area.
- During the average 30-year mortgage, there is a 26% chance of a base flood occurring.



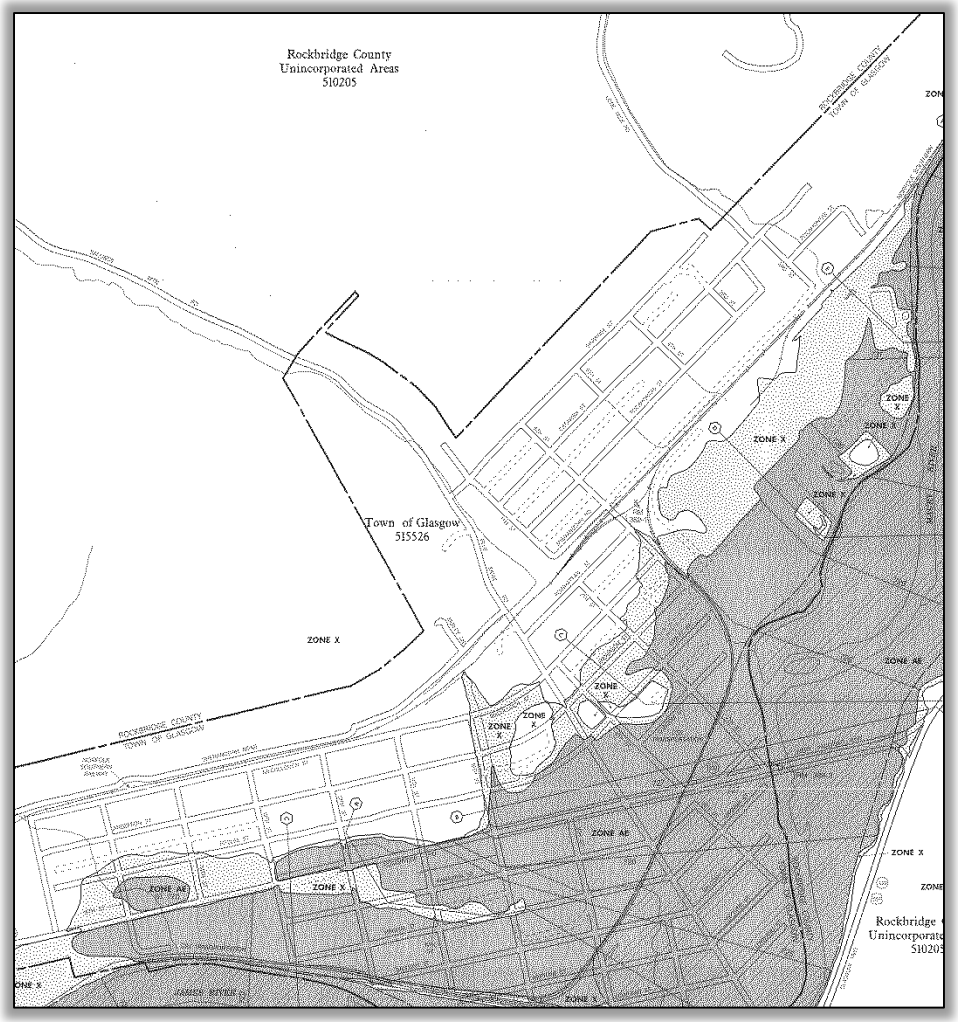
FIRM – Zone A


ZONE AE
1560
LIMIT OF DETAILED STUDY
MILL CREEK LANE
ZONE X
PRICE LANE
ZONE A
OLD GREENVILLE ROAD
CHESTNUT DRIVE
ZONE X

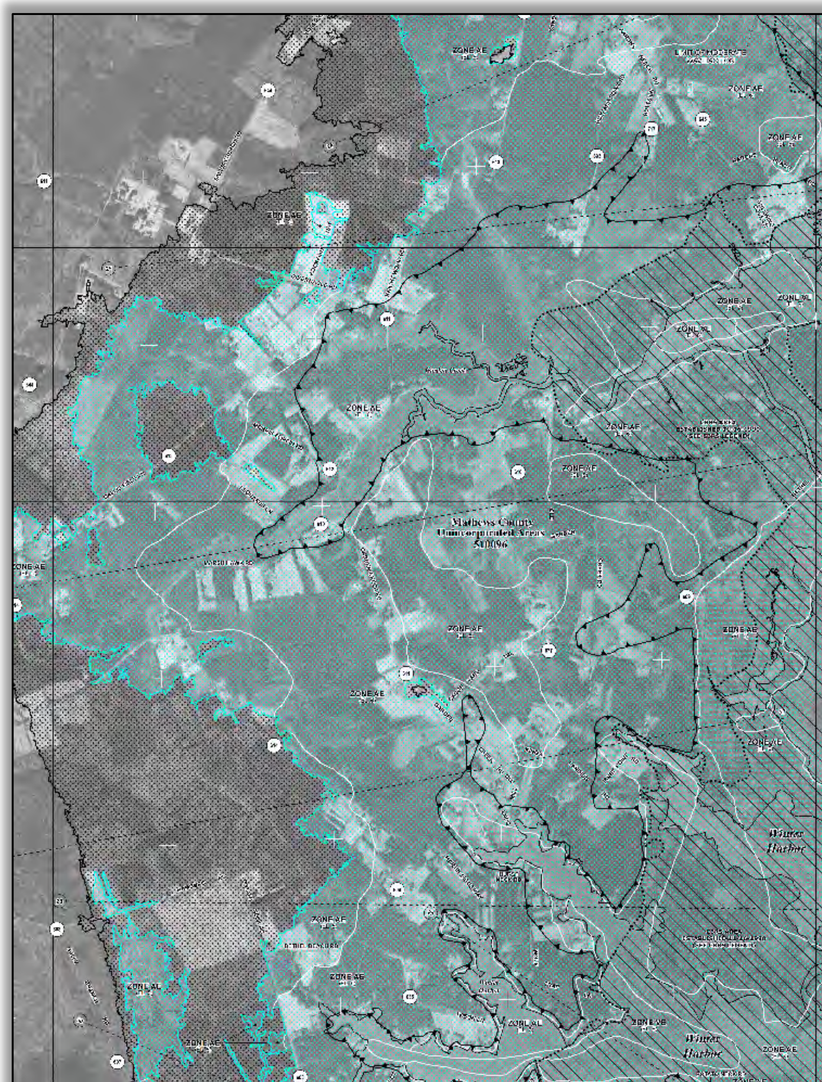
FIRM With Elevations – Zone AE



FIRM With Floodway



FIRM - V Zones

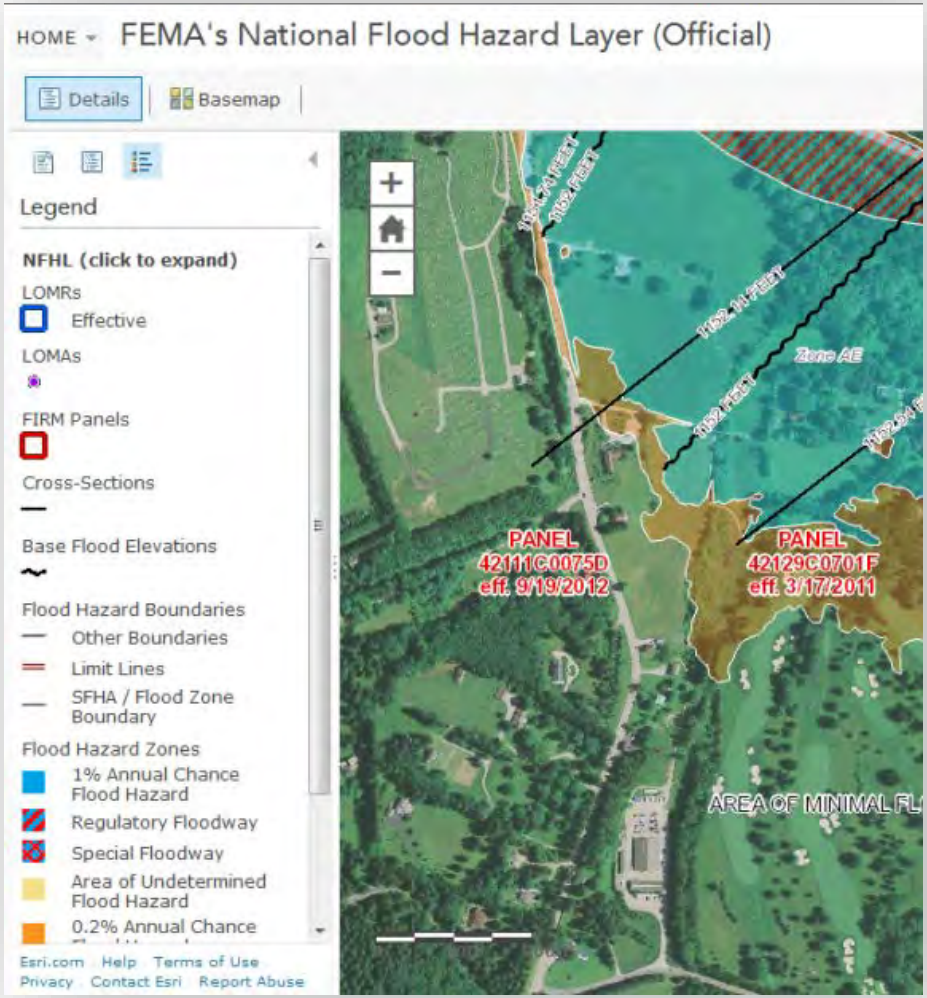

Mathews County
Unincorporated Areas
510096
ZONE AE
ZONE VE
Winter Harbor

Flood Hazard Maps and Data

ACCESSING AND USING FLOOD HAZARD DATA

The National Flood Hazard Layer (NFHL)

- FEMA's nationwide geospatial database of all digital **effective** FIRM data
  - National Flood Hazard Layer
  - Integrates FIRM data including LOMCs
  - Available in GIS format
  - FIRM and FIS are still the official source of data



Virginia Flood Risk Information System (VFRIS)

BACKGROUND

- In March 2015, the General Assembly amended §10.1-602 of the Code of Virginia, tasking DCR to develop a web-based flood protection plan for the Commonwealth that includes (among other things):
  - An inventory of flood-prone areas
  - The collection and distribution of information relating to flooding and floodplain management
  - Assist localities in their management of floodplain activities

What is VFRIS?

- Interactive map tool that brings together information from FEMA, FWS, ESRI, VGIN, and others to provide an understanding of flood risk.
- Developed by the Virginia Institute of Marine Science and DCR.
- No longer managed by the State of North Carolina.

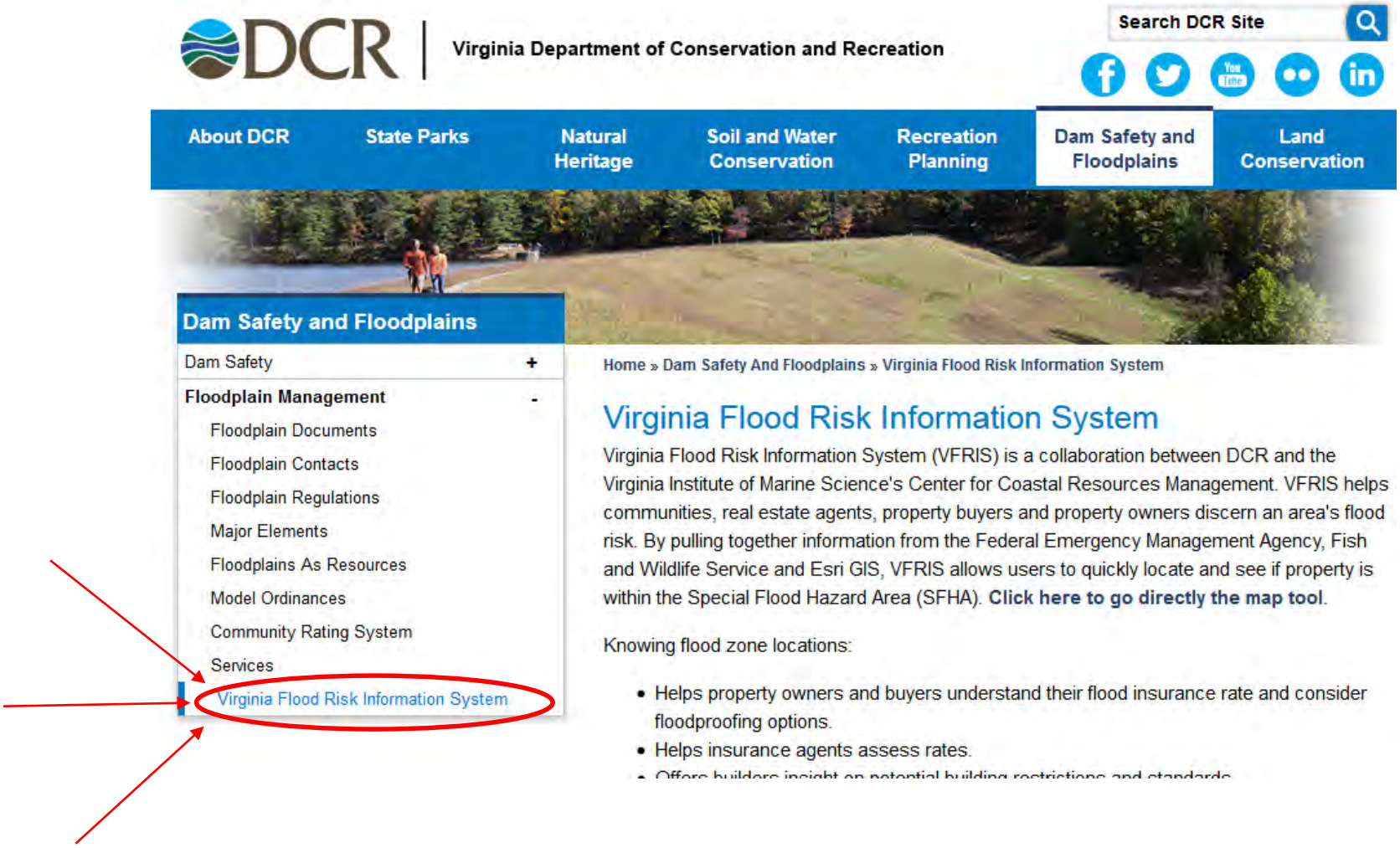
VFRIS Goals

- Provide local officials, home owners, realtors, and developers with an understanding of a property's flood risk.
- Create a mapping tool that is more flexible and current than what was afforded on the old VFRIS, maintained by the State of North Carolina.
- Develop a mapping tool that is specific to Virginia and can be customized to the needs of the commonwealth.

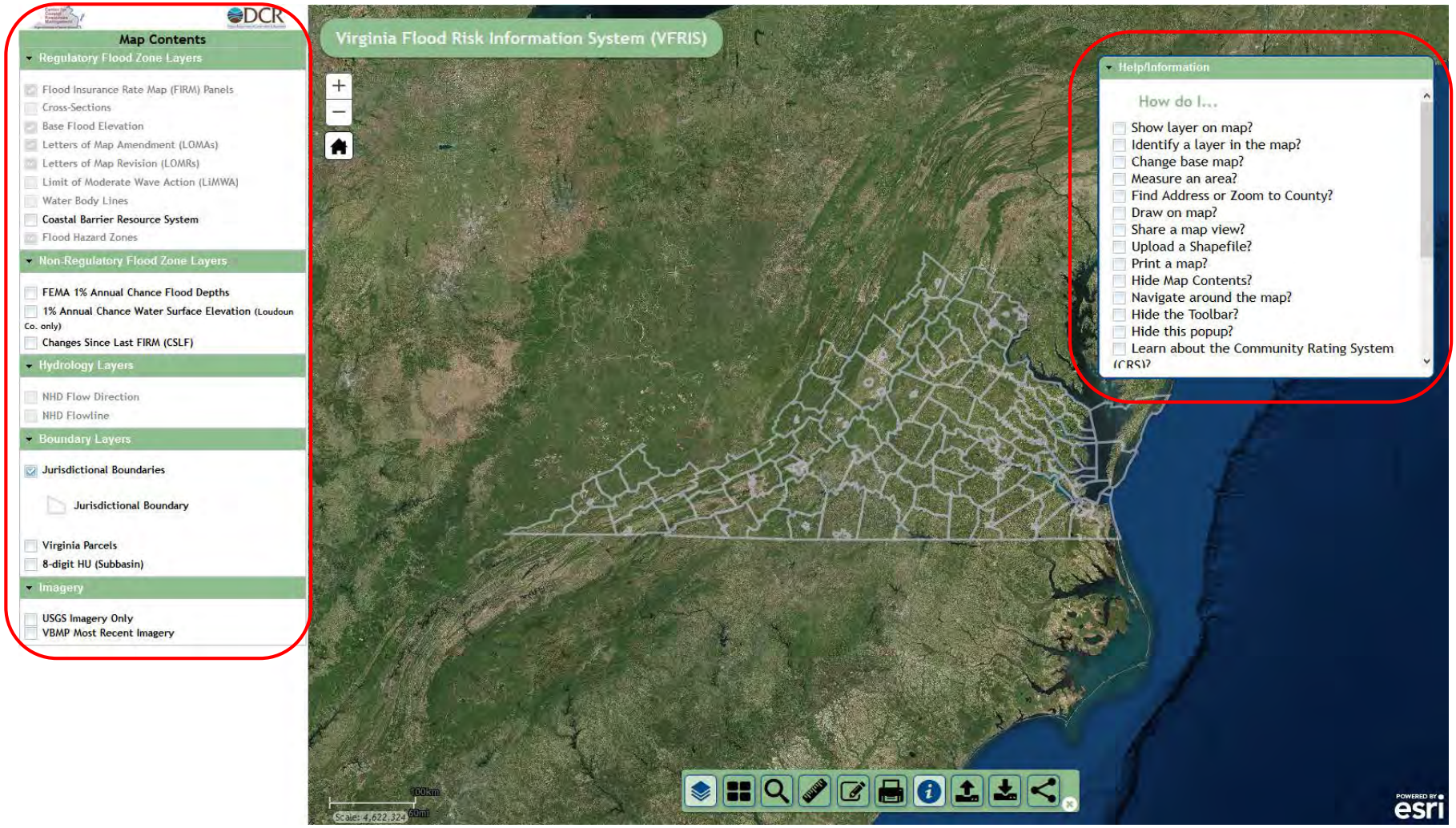
VFRIS Timeline

- Phase I of VFRIS was rolled out in February, 2017.
- Phase II was completed in October, 2017.
- An additional phase or two expected, in addition to continued maintenance over the lifetime of VFRIS.

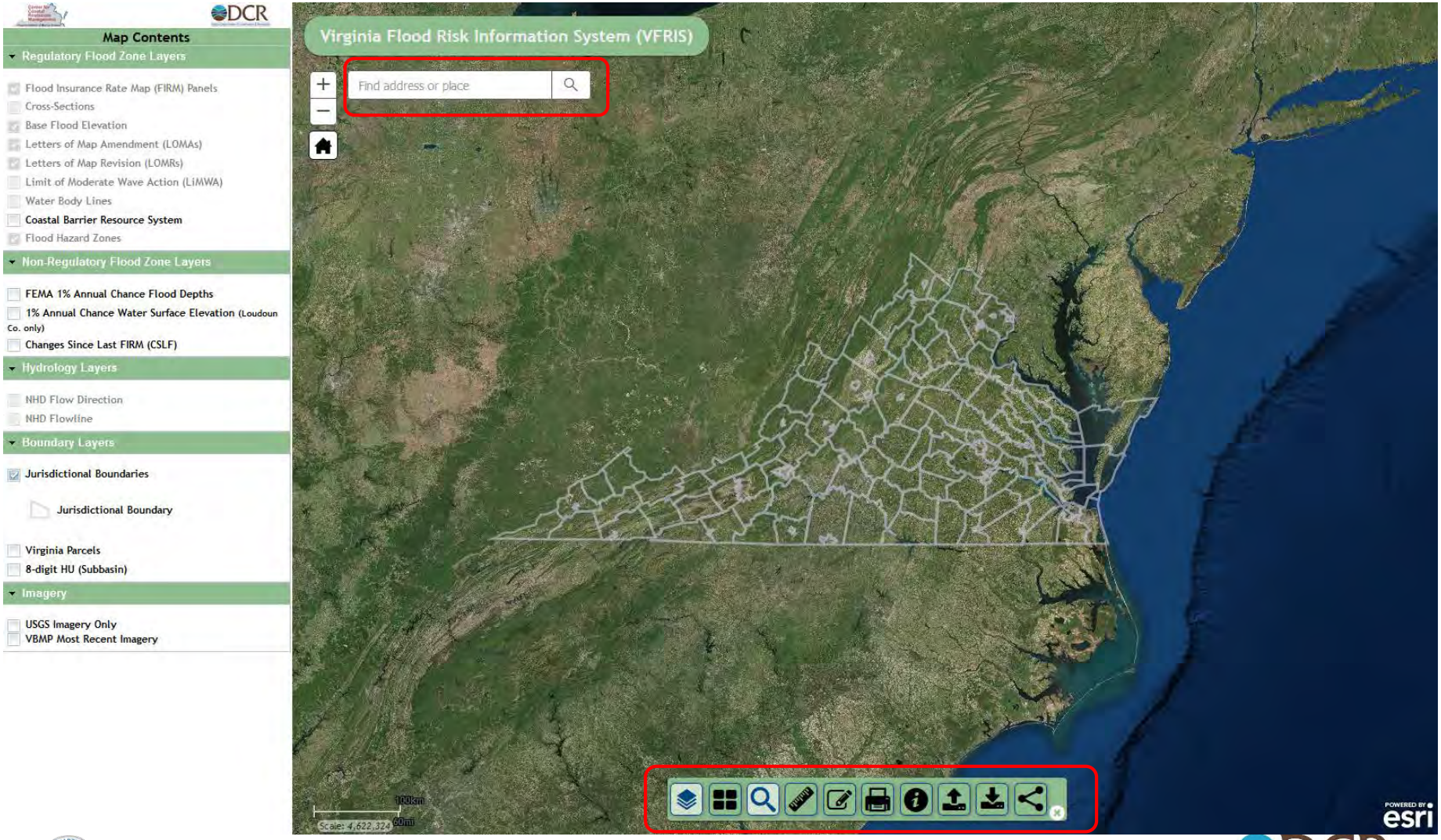
Access to VFRIS



VFRIS Tour


Map Contents
Regulatory Flood Zone Layers
Flood Insurance Rate Map (FIRM) Panels
Cross-Sections
Base Flood Elevation
Letters of Map Amendment (LOMAs)
Letters of Map Revision (LOMRs)
Limit of Moderate Wave Action (LiMWA)
Water Body Lines
Coastal Barrier Resource System
Flood Hazard Zones
Non-Regulatory Flood Zone Layers
FEMA 1% Annual Chance Flood Depths
1% Annual Chance Water Surface Elevation (Loudoun Co. only)
Changes Since Last FIRM (CSLF)
Hydrology Layers
NHD Flow Direction
NHD Flowline
Boundary Layers
Jurisdictional Boundaries
Jurisdictional Boundary
Virginia Parcels
8-digit HU (Subbasin)
Imagery
USGS Imagery Only
VBMP Most Recent Imagery
Virginia Flood Risk Information System (VFRIS)
Help/Information
How do I...
Show layer on map?
Identify a layer in the map?
Change base map?
Measure an area?
Find Address or Zoom to County?
Draw on map?
Share a map view?
Upload a Shapefile?
Print a map?
Hide Map Contents?
Navigate around the map?
Hide the Toolbar?
Hide this popup?
Learn about the Community Rating System
Scale: 4,622,324
esri

VFRIS Tour


Map Contents
Regulatory Flood Zone Layers
Flood Insurance Rate Map (FIRM) Panels
Cross-Sections
Base Flood Elevation
Letters of Map Amendment (LOMAs)
Letters of Map Revision (LOMRs)
Limit of Moderate Wave Action (LiMWA)
Water Body Lines
Coastal Barrier Resource System
Flood Hazard Zones
Non-Regulatory Flood Zone Layers
FEMA 1% Annual Chance Flood Depths
1% Annual Chance Water Surface Elevation (Loudoun Co. only)
Changes Since Last FIRM (CSLF)
Hydrology Layers
NHD Flow Direction
NHD Flowline
Boundary Layers
Jurisdictional Boundaries
Jurisdictional Boundary
Virginia Parcels
8-digit HU (Subbasin)
Imagery
USGS Imagery Only
VBMP Most Recent Imagery
Virginia Flood Risk Information System (VFRIS)
Find address or place
Scale: 4,622,324
100km
60mi
POWERED BY esri

VFRIS Tour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Flood Hazard Zones
Show Labels
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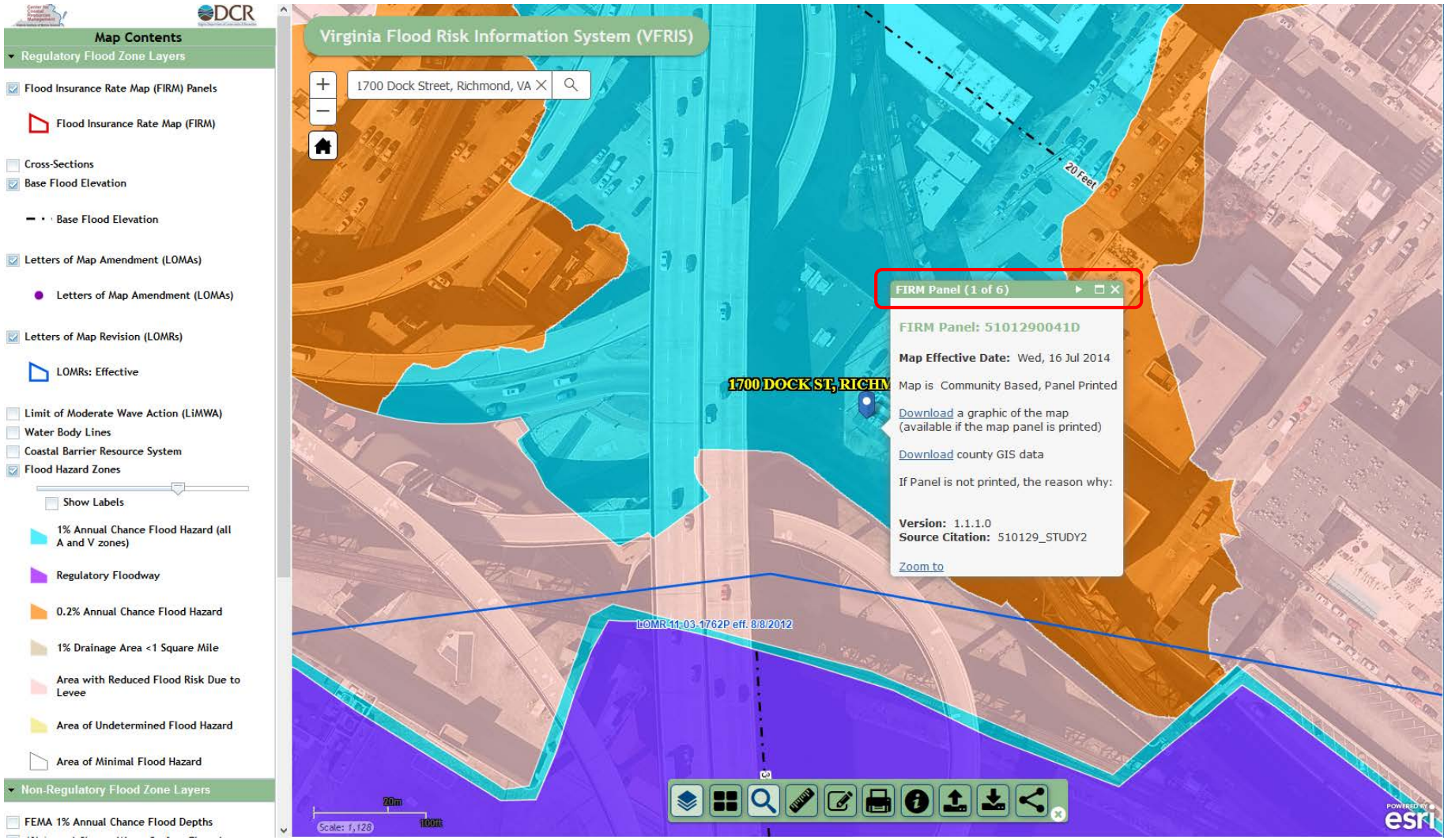
Regulatory Floodway
0.2% Annual Chance Flood Hazard
1% Drainage Area <1 Square Mile
Area with Reduced Flood Risk Due to Levee
Area of Undetermined Flood Hazard
Area of Minimal Flood Hazard
Non-Regulatory Flood Zone Layers
FEMA 1% Annual Chance Flood Depths
Virginia Flood Risk Information System (VFRIS)
1700 Dock Street, Richmond, VA
20 Feet
1700 DOCK ST, RICHMOND, VA, 23223
LOMR 11-03-1762P eff. 8/8/2012
20m
100ft
Scale: 1:128
esri

VFRIS Tour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Area of Minimal Flood Hazard
Non-Regulatory Flood Zone Layers
FEMA 1% Annual Chance Flood Depths
Virginia Flood Risk Information System (VFRIS)
1700 Dock Street, Richmond, VA
20 Feet
FIRM Panel (1 of 6)
FIRM Panel: 5101290041D
Map Effective Date: Wed, 16 Jul 2014
Map is Community Based, Panel Printed
Download a graphic of the map (available if the map panel is printed)
Download county GIS data
If Panel is not printed, the reason why:
Version: 1.1.1.0
Source Citation: 510129_STUDY2
Zoom to
1700 DOCK ST, RICHM
LOMR 11-03-1762P eff. 8/8/2012
20m
100ft
Scale: 1:128
esri

VFRIS Tour


FIRM Panel (1 of 6)
FIRM Panel: 51012900410
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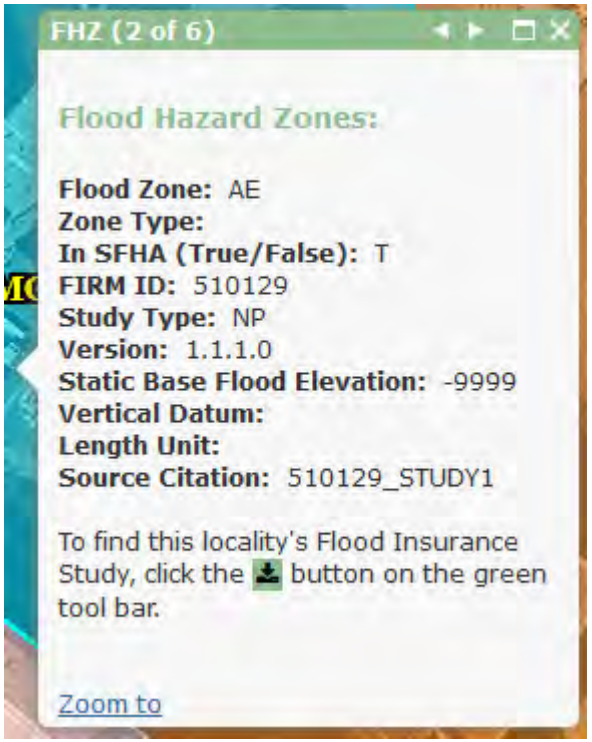
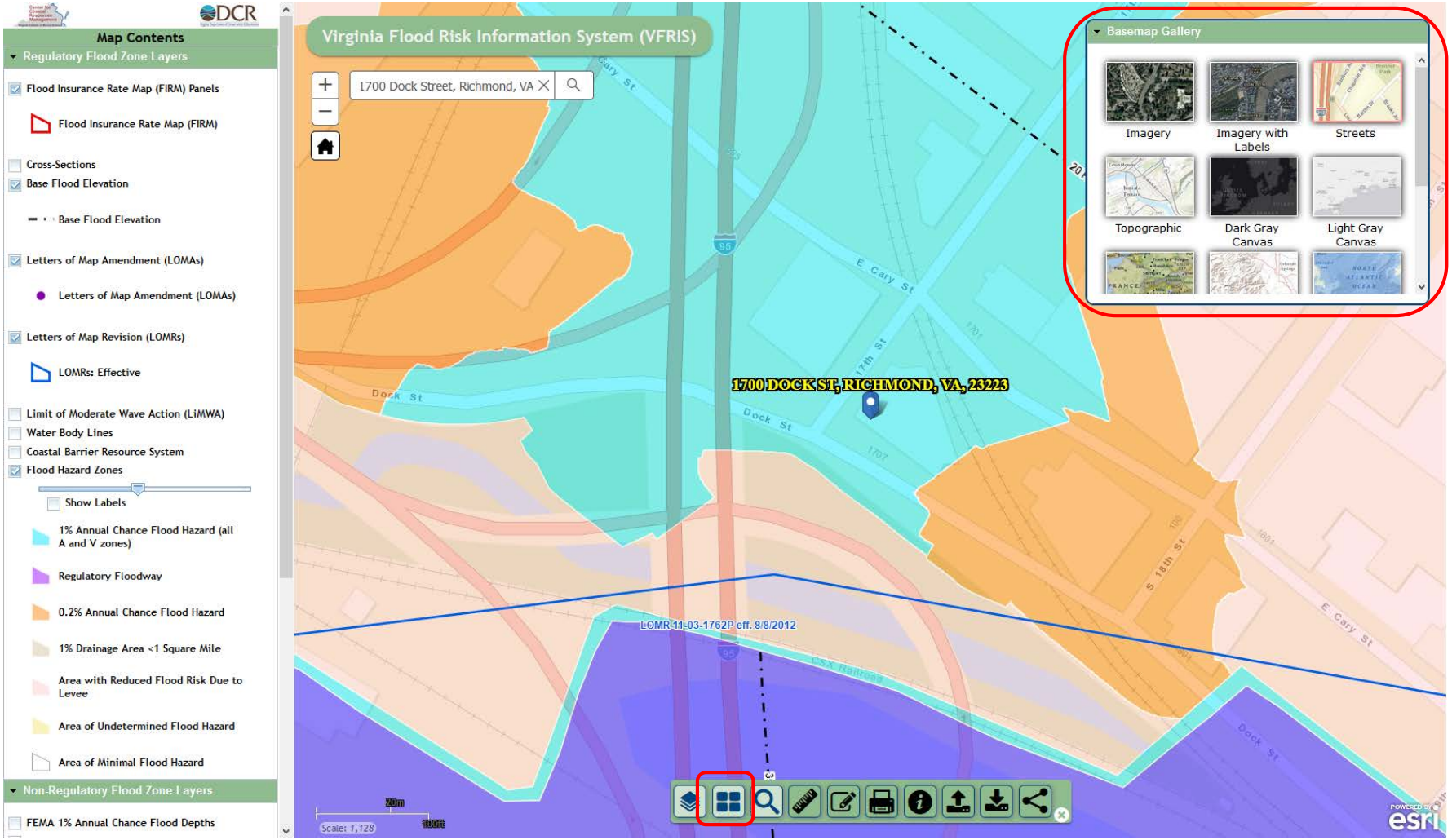
Source Citation: 510129_STUDY2
Zoom to


FHZ (2 of 6)
Flood Hazard Zones:
Flood Zone: AE
Zone Type:
In SFHA (True/False): T
FIRM ID: 510129
Study Type: NP
Version: 1.1.1.0
Static Base Flood Elevation: -9999
Vertical Datum:
Length Unit:
Source Citation: 510129_STUDY1
To find this locality's Flood Insurance Study, click the button on the green tool bar.
Zoom to


Jurisdiction (6 of 6)
Local Jurisdiction:
County/City Name: Richmond
Jurisdiction: Richmond City
Geometry Source: Local Government source
Local Data Adoption: Yes
Calculated Square Miles: 62
Last Updated: Fri, 23 Jun 2017
Zoom to

VFRIS Tour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1700 Dock Street, Richmond, VA
Basemap Gallery
Imagery
Imagery with Labels
Streets
Topographic
Dark Gray Canvas
Light Gray Canvas
1700 DOCK ST, RICHMOND, VA, 23223
LOMR 11-03-1762P eff. 8/8/2012
Dock St
E Cary St
S 18th St
CSX Railroad
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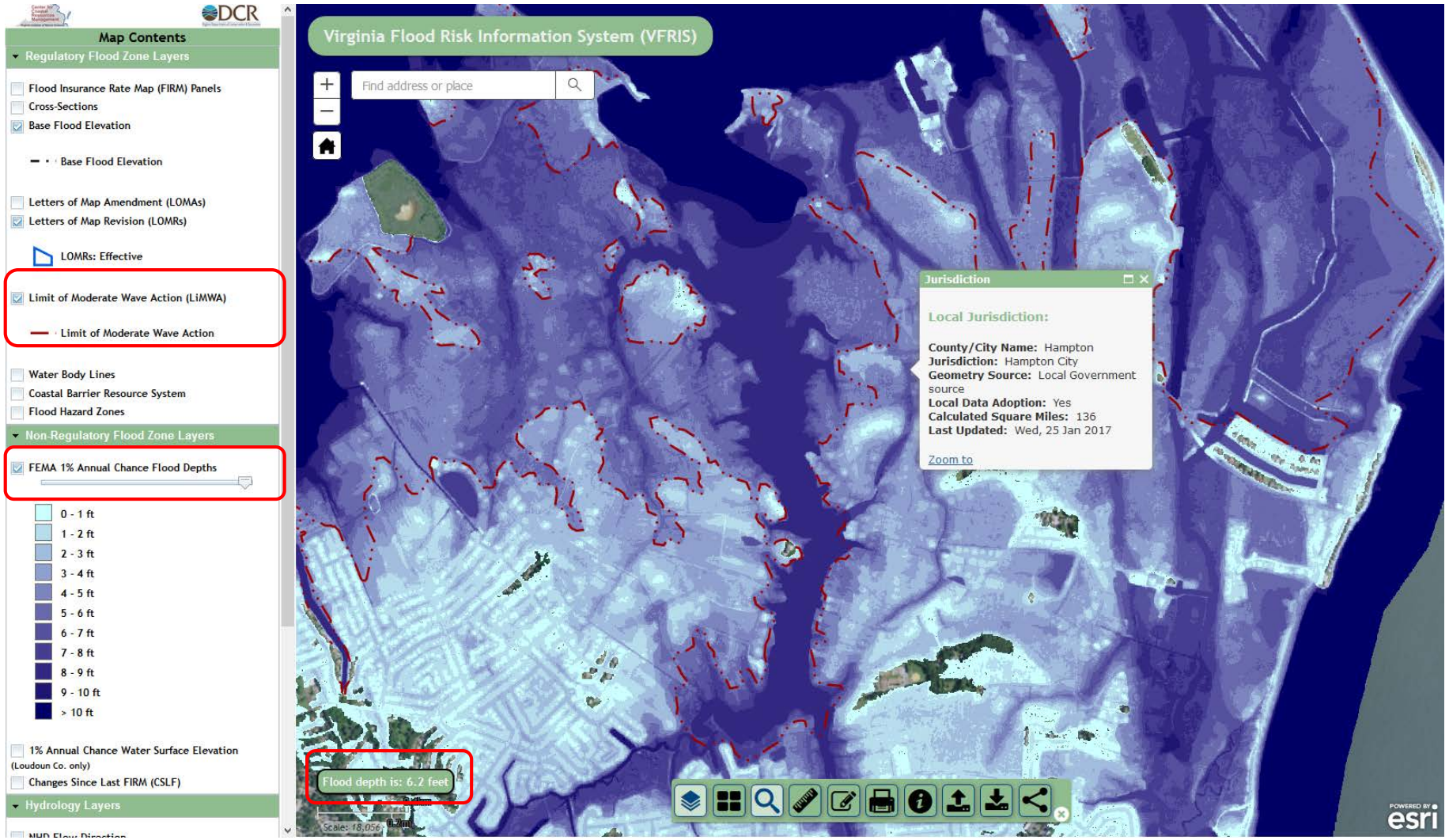
esri

VFRIS Tour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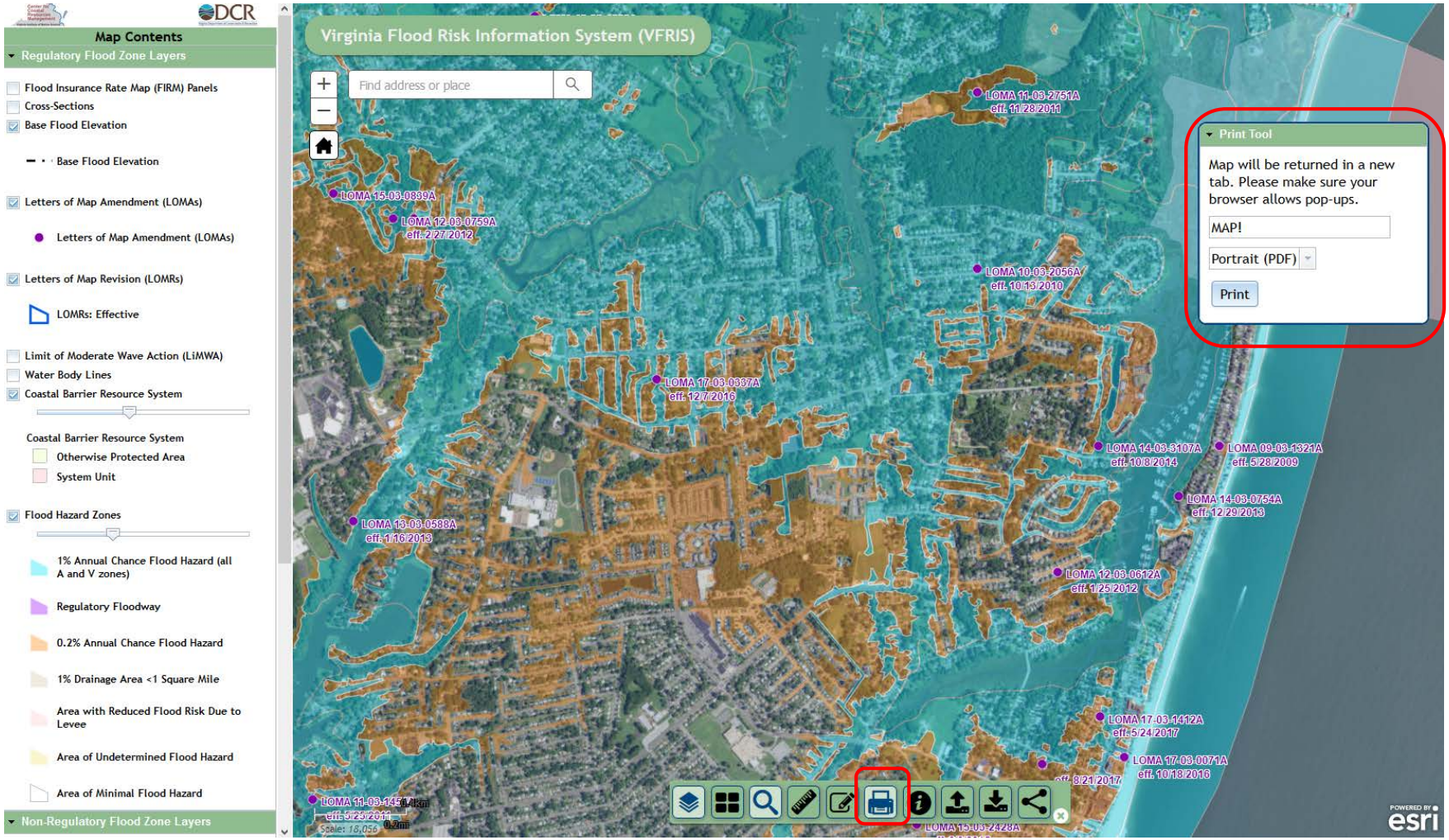
FEMA 1% Annual Chance Flood Depths
0 - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5 - 6 ft
6 - 7 ft
7 - 8 ft
8 - 9 ft
9 - 10 ft
> 10 ft
1% Annual Chance Water Surface Elevation
(Loudoun Co. only)
Changes Since Last FIRM (CSLF)
Hydrology Layers
Virginia Flood Risk Information System (VFRIS)
Find address or place
Jurisdiction
Local Jurisdiction:
County/City Name: Hampton
Jurisdiction: Hampton City
Geometry Source: Local Government source
Local Data Adoption: Yes
Calculated Square Miles: 136
Last Updated: Wed, 25 Jan 2017
Zoom to
Flood depth is: 6.2 feet
Scale: 18,056
POWERED BY esri

VFRIS Tour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LOMRs: Effective
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Water Body Lines
Coastal Barrier Resource System
Coastal Barrier Resource System
Otherwise Protected Area
System Unit
Flood Hazard Zones
1% Annual Chance Flood Hazard (all A and V zones)
Regulatory Floodway
0.2% Annual Chance Flood Hazard
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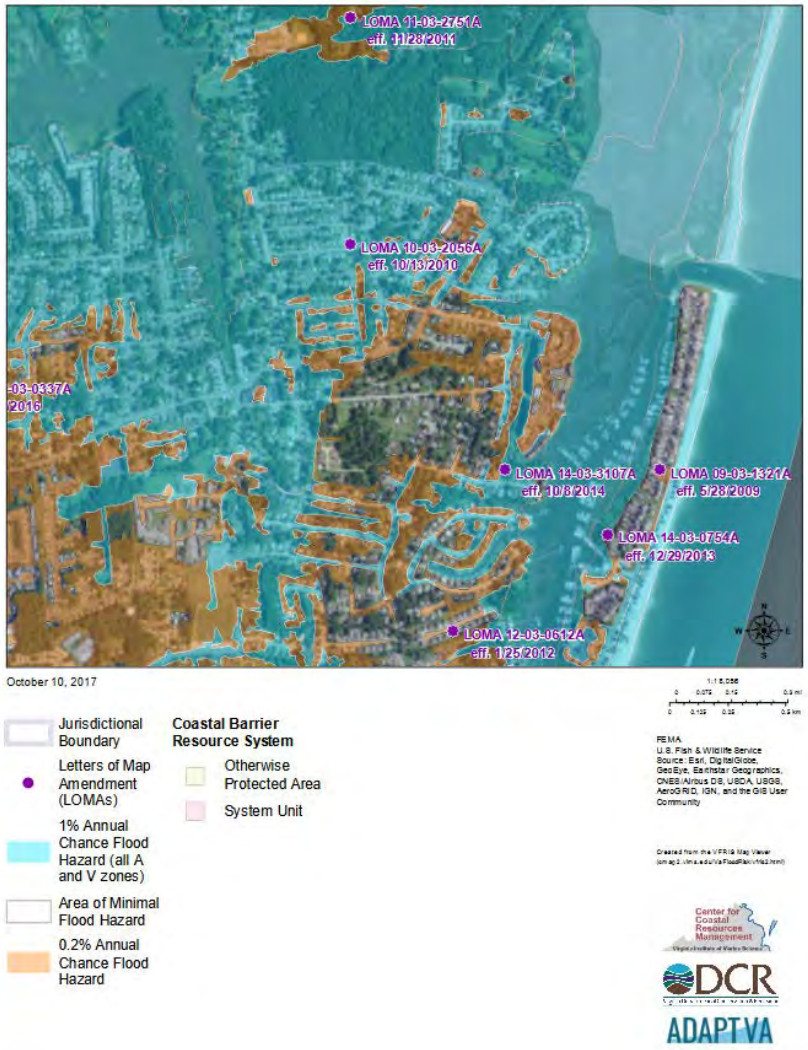
Area with Reduced Flood Risk Due to Levee
Area of Undetermined Flood Hazard
Area of Minimal Flood Hazard
Non-Regulatory Flood Zone Layers
Virginia Flood Risk Information System (VFRIS)
Find address or place
Print Tool
Map will be returned in a new tab. Please make sure your browser allows pop-ups.
MAP!
Portrait (PDF)
Print
LOMA 11-03-2751A eff. 11/28/2011
LOMA 15-03-0839A
LOMA 12-03-0759A eff. 2/27/2012
LOMA 10-03-2056A eff. 10/13/2010
LOMA 17-03-0337A eff. 12/7/2016
LOMA 14-03-3107A eff. 10/8/2014
LOMA 09-03-1321A eff. 5/28/2009
LOMA 14-03-0754A eff. 12/29/2013
LOMA 13-03-0588A eff. 1/16/2013
LOMA 12-03-0612A eff. 1/25/2012
LOMA 17-03-1412A eff. 5/24/2017
LOMA 17-03-0071A eff. 10/18/2016
LOMA 11-03-145
LOMA 15-03-2428A
POWERED BY esri

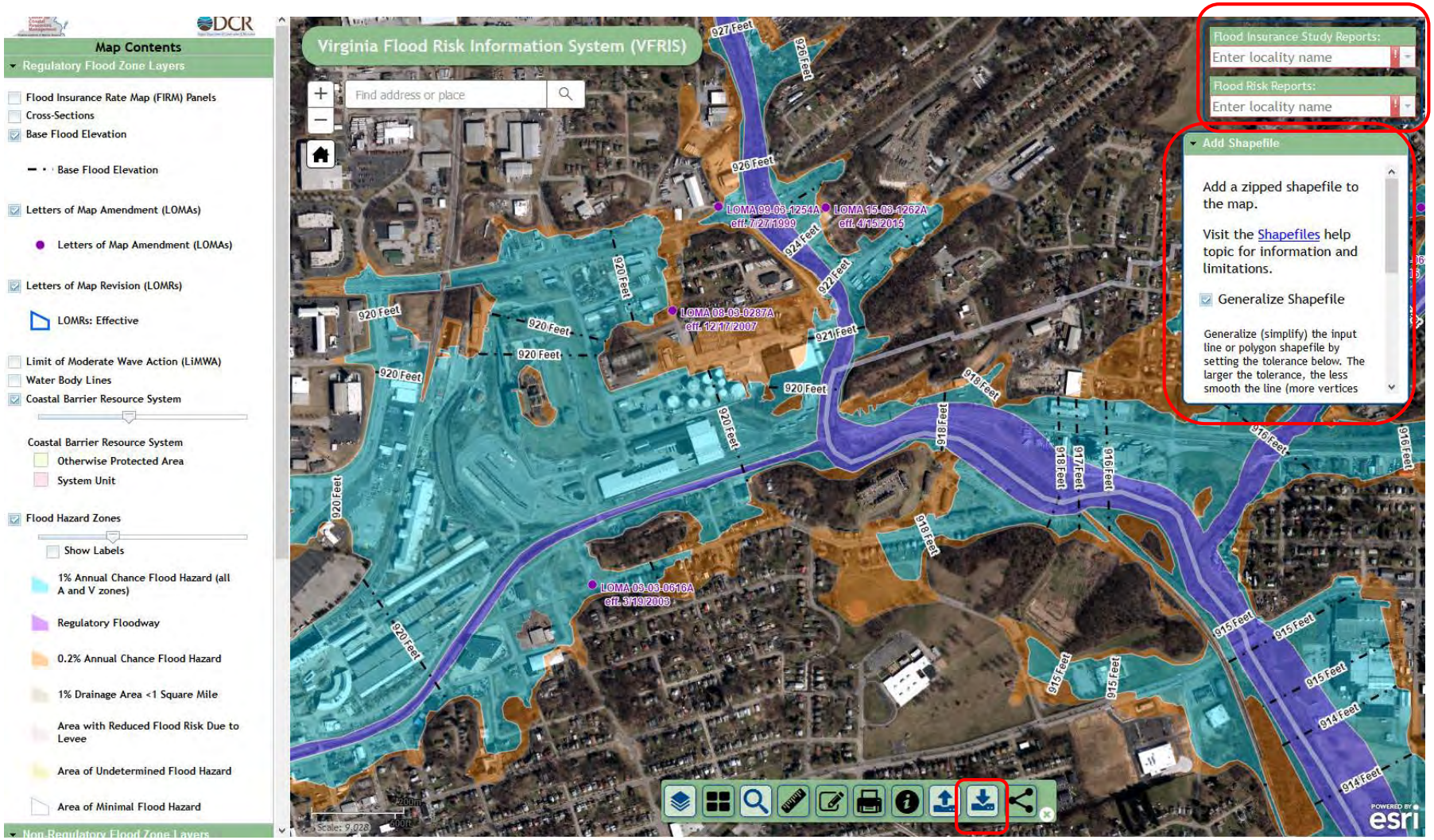
VFRIS Tour


LOMA 11-03-2751A
eff. 11/28/2011
LOMA 10-03-2056A
eff. 10/13/2010
LOMA 14-03-3107A
eff. 10/8/2014
LOMA 09-03-1321A
eff. 5/28/2009
LOMA 14-03-0754A
eff. 12/29/2013
LOMA 12-03-0612A
eff. 1/25/2012
October 10, 2017
Jurisdictional Boundary
Letters of Map Amendment (LOMAs)
1% Annual Chance Flood Hazard (all A and V zones)
Area of Minimal Flood Hazard
0.2% Annual Chance Flood Hazard
Coastal Barrier Resource System
Otherwise Protected Area
System Unit
FEMA
U.S. Fish & Wildlife Service
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Center for Coastal Resources Management
DCR
ADAPT VA

VFRIS Phase II

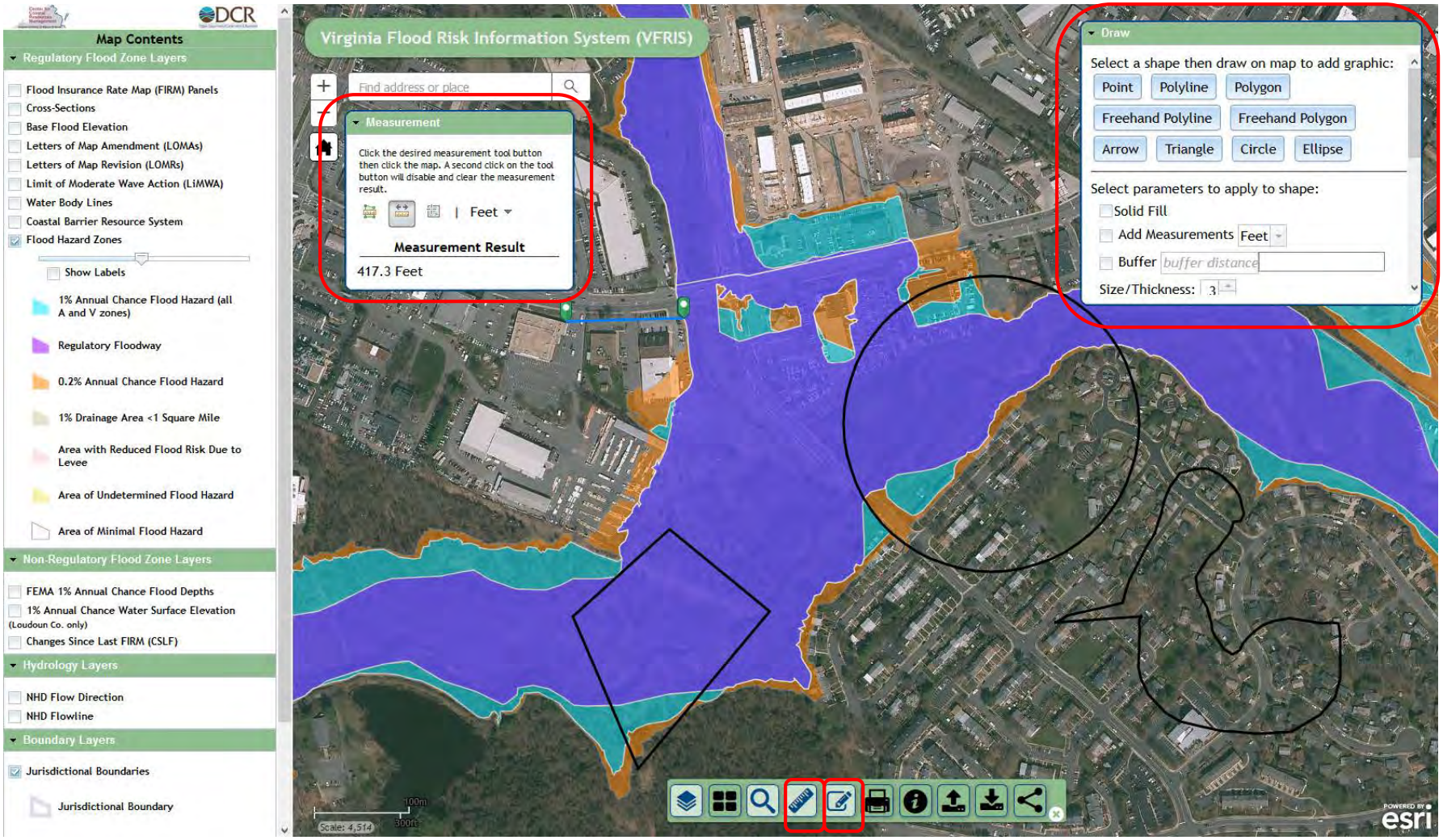
- Additional information from the NFHL/FEMA Map Service Center
  - Limit of Moderate Wave Action
  - Flood Insurance Study Reports
- VGIN Parcel Boundaries
- Additional Non-Regulatory FEMA data
  - Changes since last FIRM
  - Preliminary Maps
  - Water surface elevation grids in model-backed A Zones (Loudoun County as prototype)
  - HEC-RAS models (Loudoun County as prototype)
- Map capabilities
  - Link to map views
  - Upload shapefiles
  - Mark ups

VFRIS Phase II



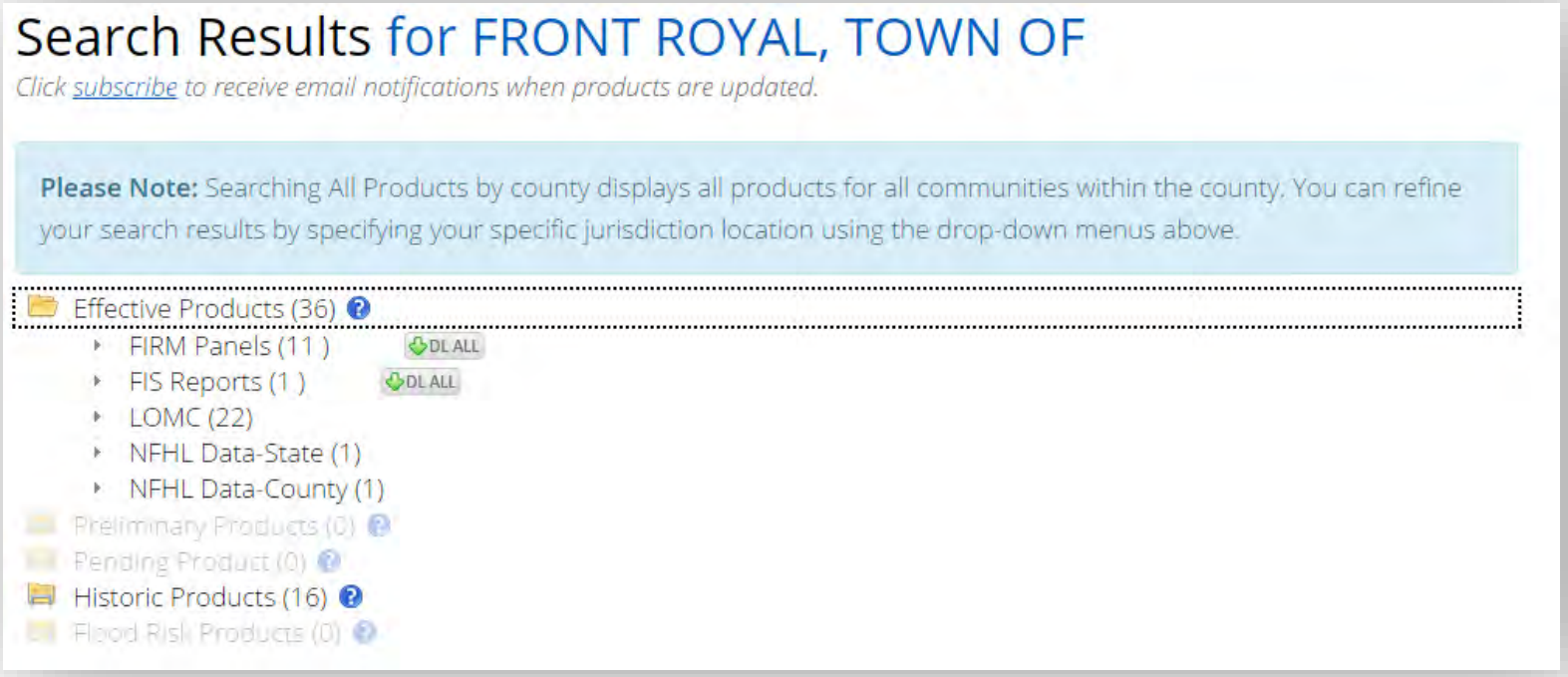
VFRIS Phase II

VFRIS Phase II



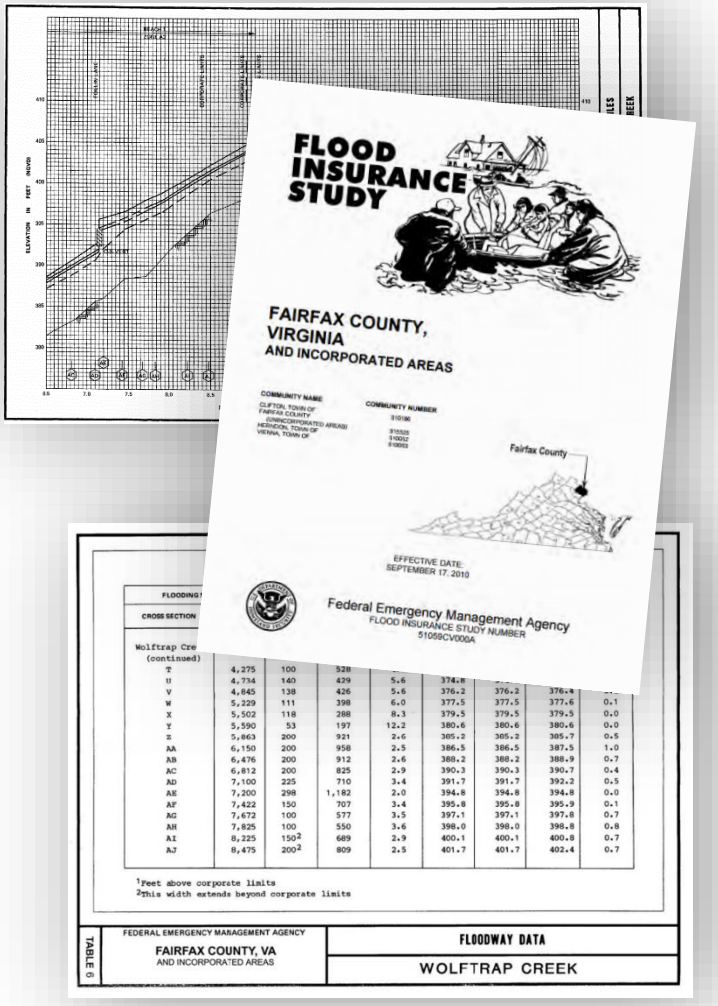
Accessing FIRM and FIS Report Data

- Map Service Center (MSC) – www.msc.fema.gov
  - PDF/hard copy format
  - NFHL Data download



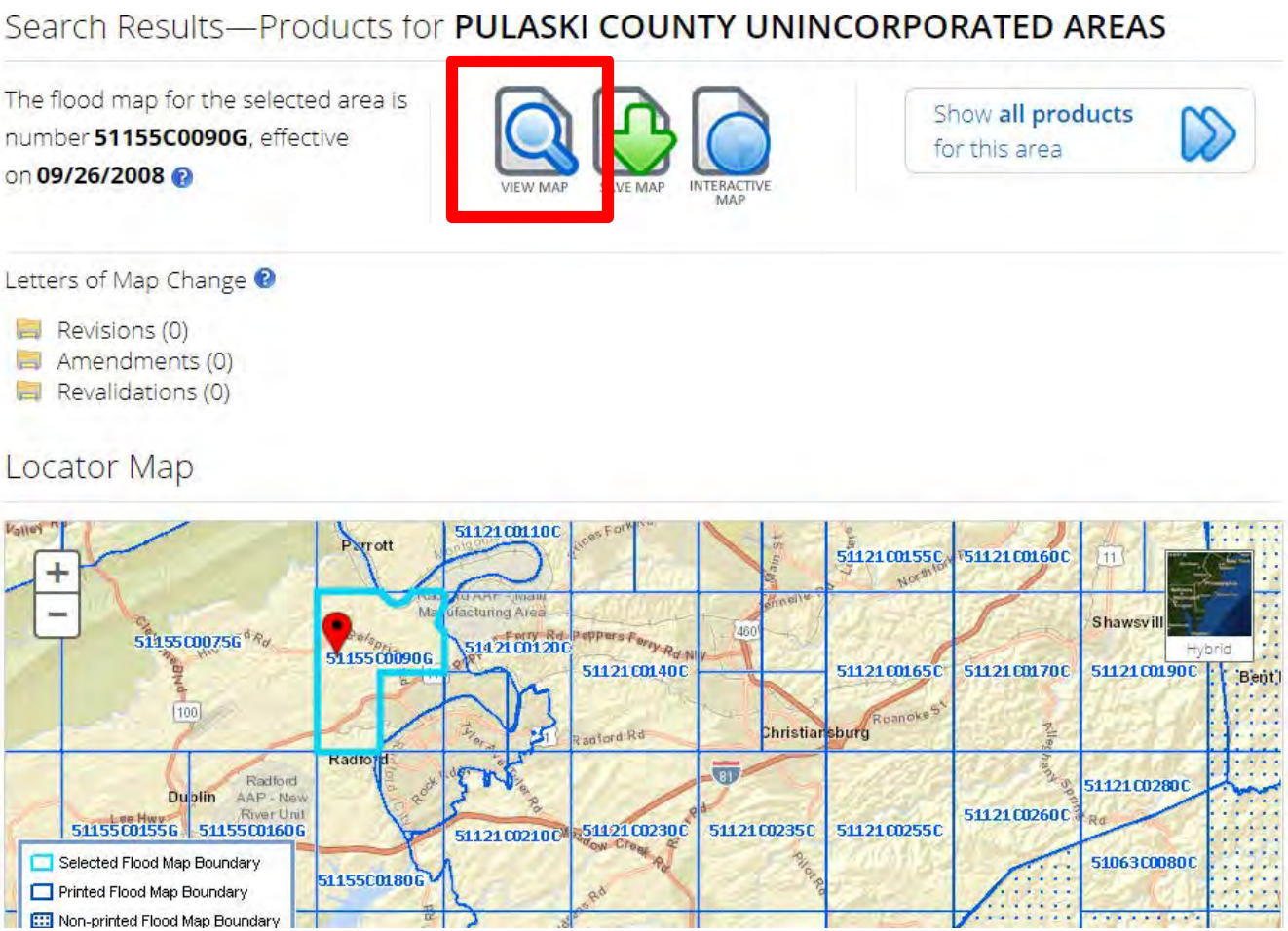
Using the Flood Insurance Study

- Use the FIS report for
  - Flood determinations for specific sites
  - Finding the **most accurate BFE** data
  - **DO NOT** use the FIRM for riverine elevation determinations. **DO** use the FIRM for coastal flooding elevation determinations.
  - Red flag when reviewing riverine elevation data from surveyors – whole number BFEs

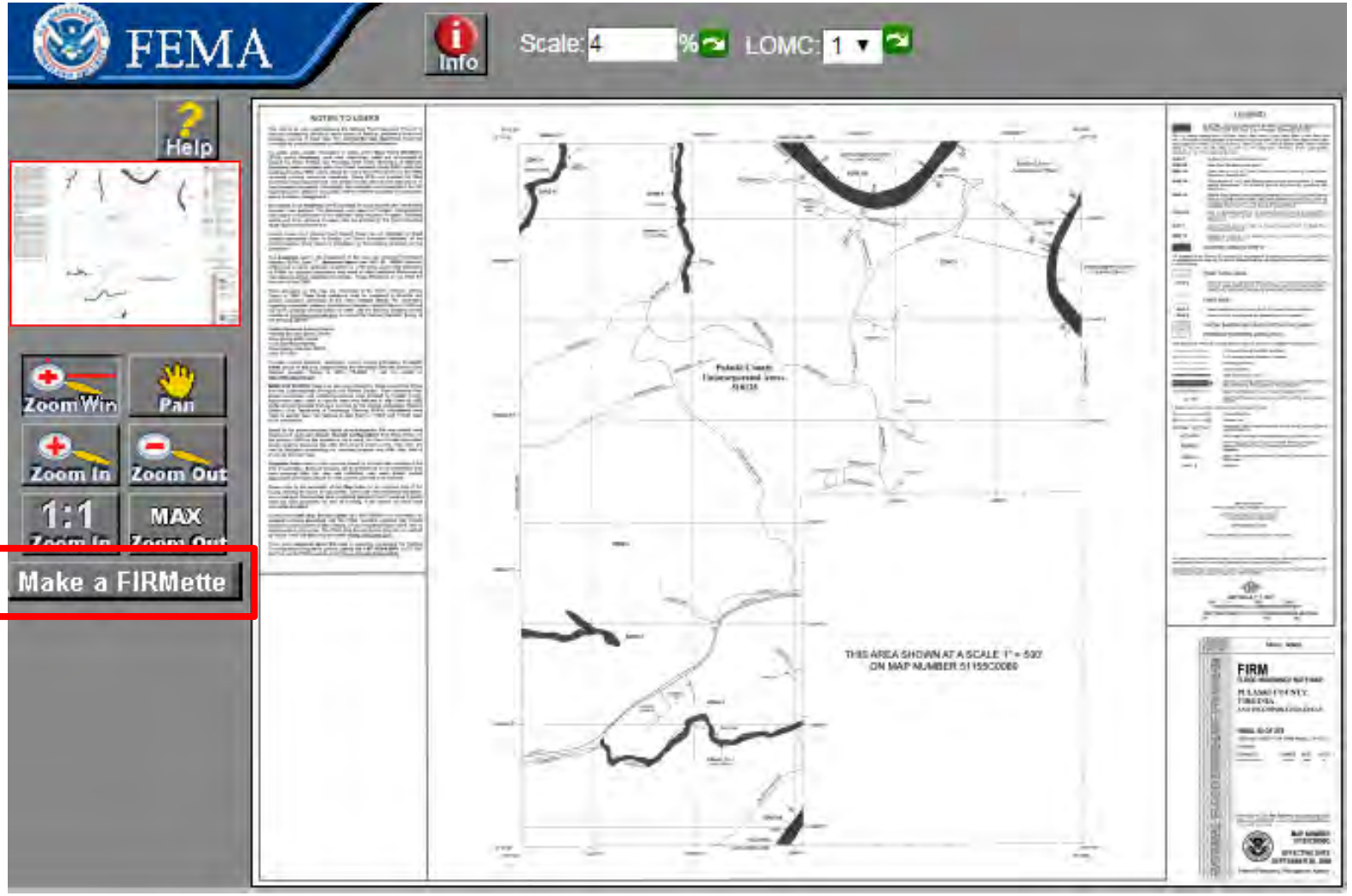


Making a FIRMette

- Map Service Center (MSC) FIRMette – www.msc.fema.gov



Making a FIRMette



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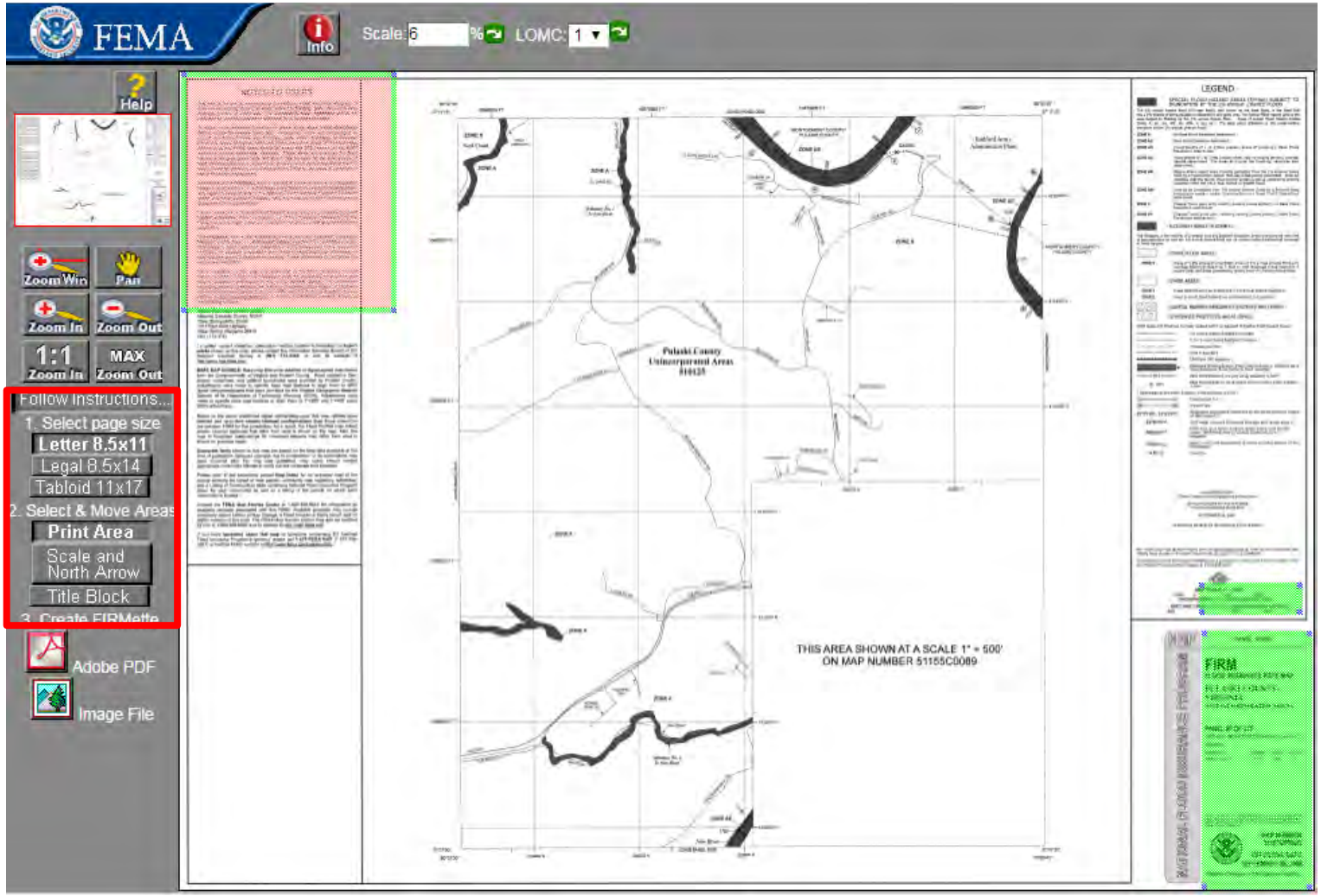
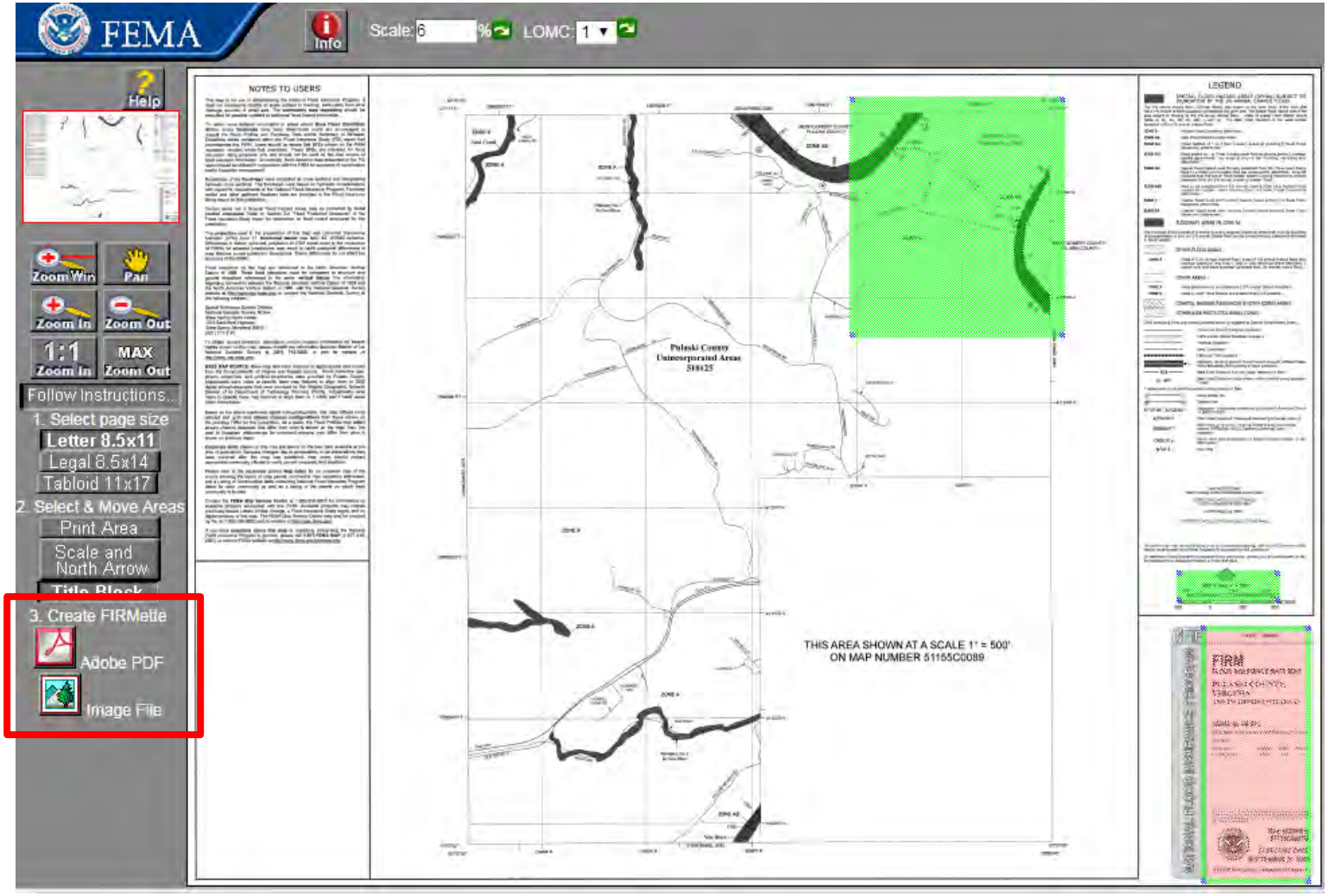
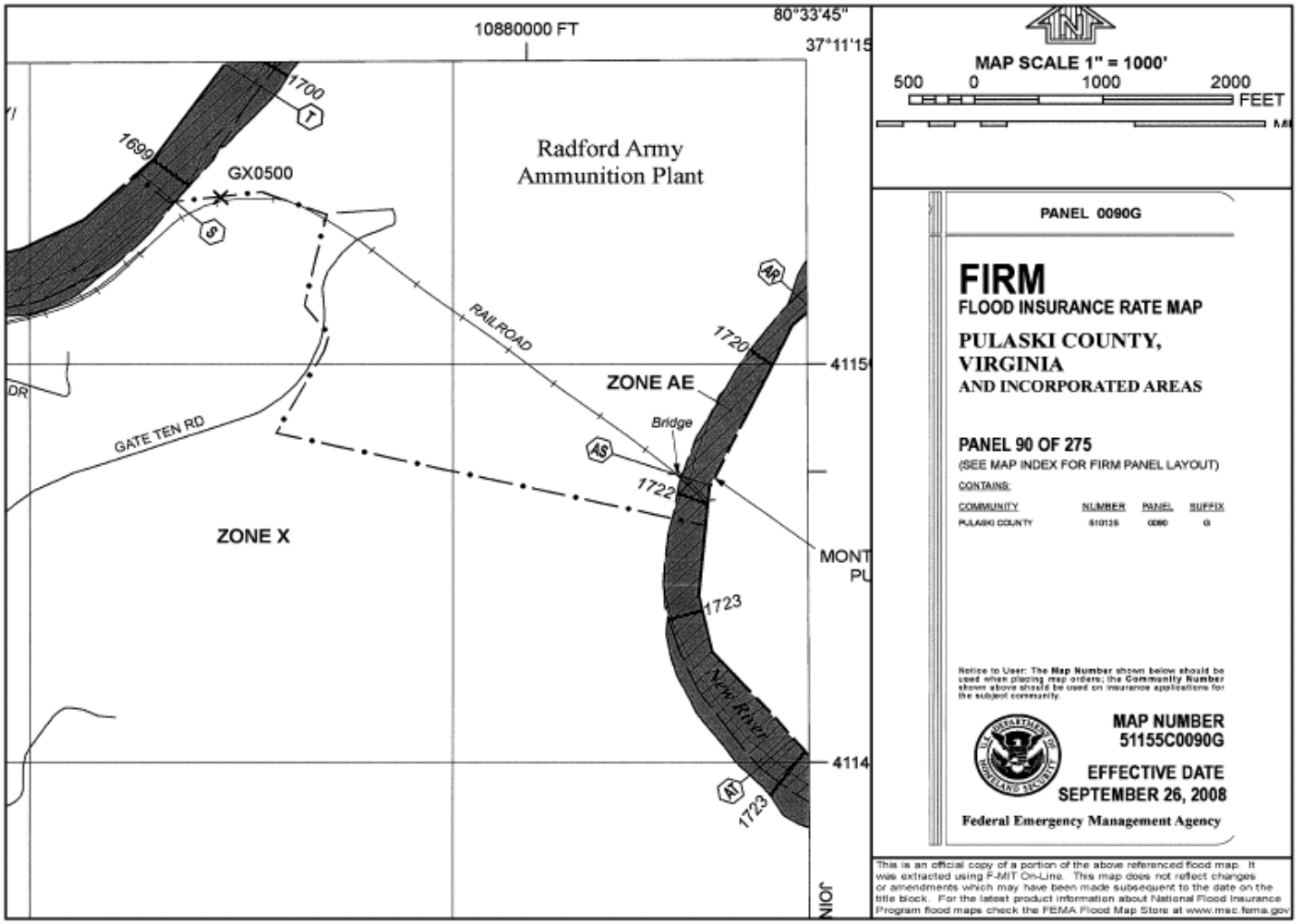


Making a FIRMette

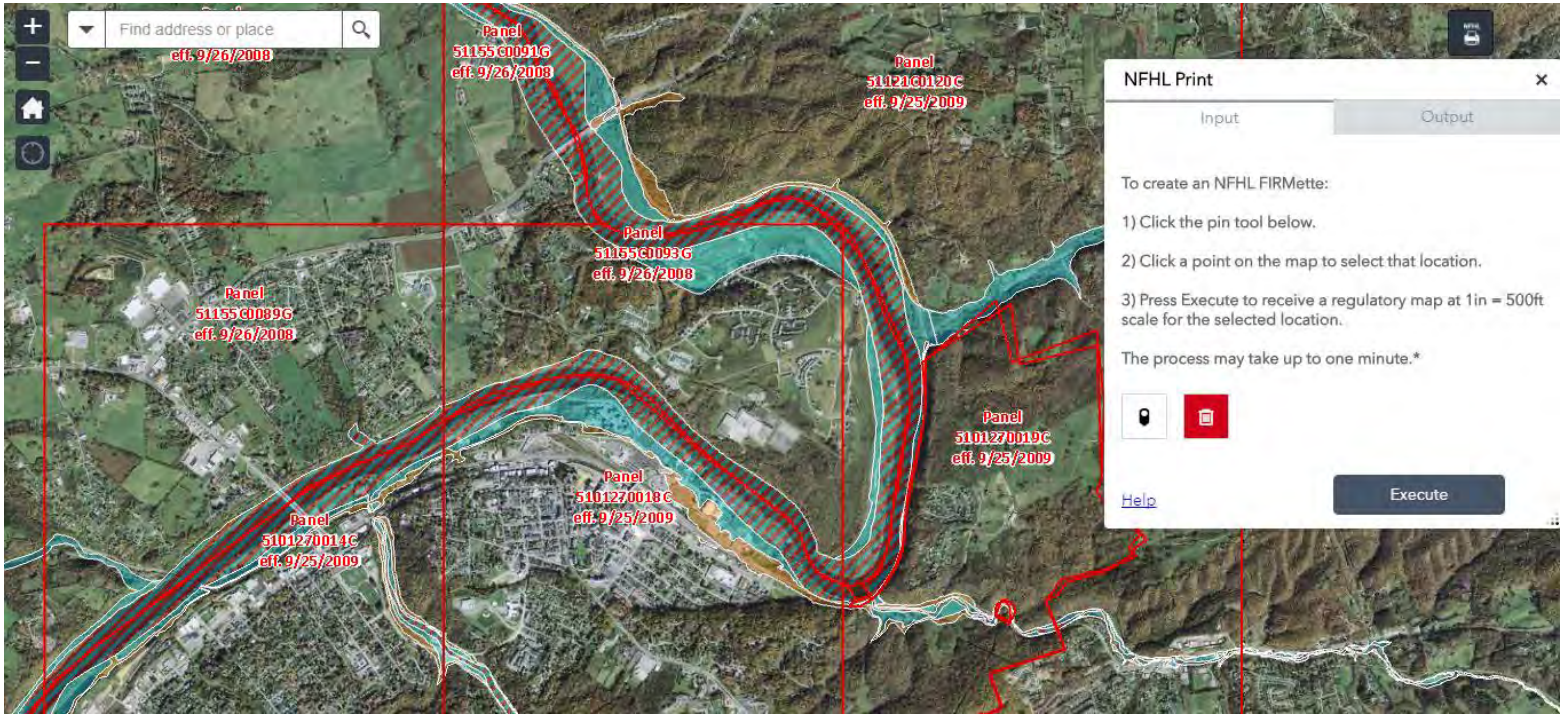


Making a FIRMette



Making a FIRMette

- NFHL FIRMette builder – http://fema.maps.arcgis.com/apps/webappviewer/index.html?id=49069b91c14a411fa8defccf5c1f6266



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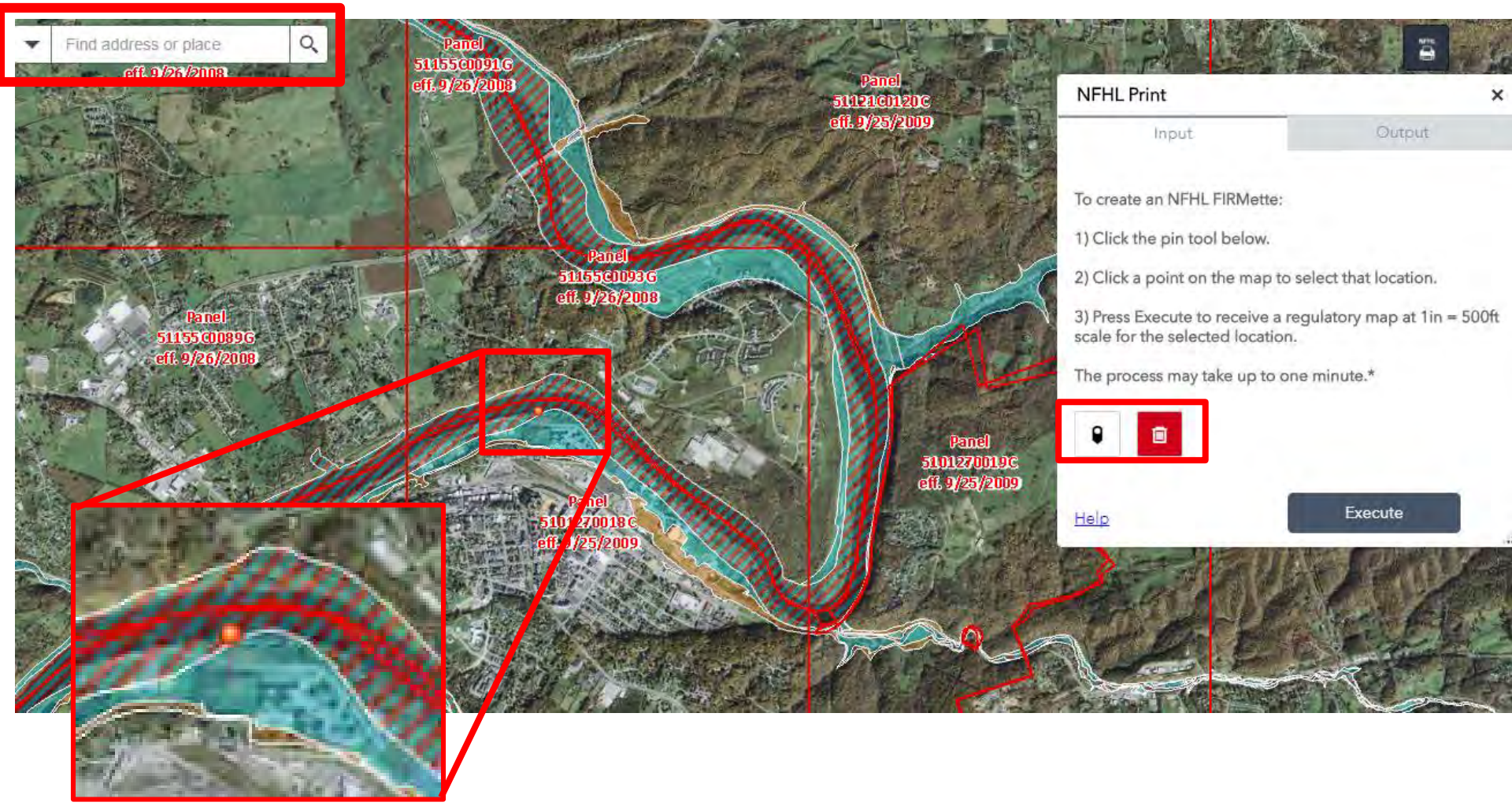

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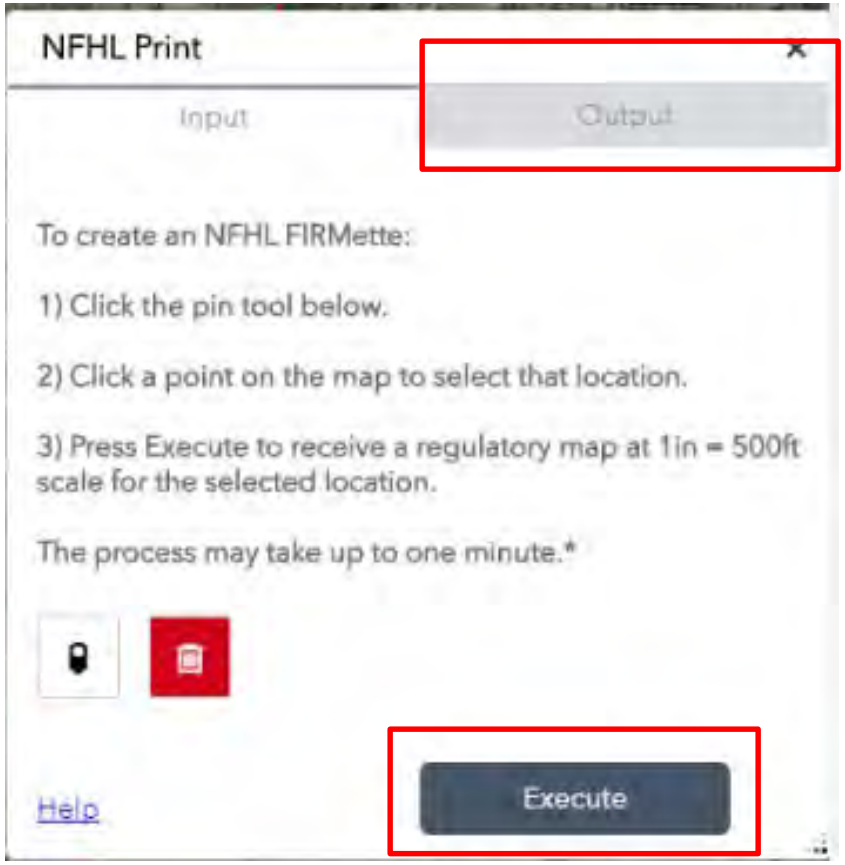
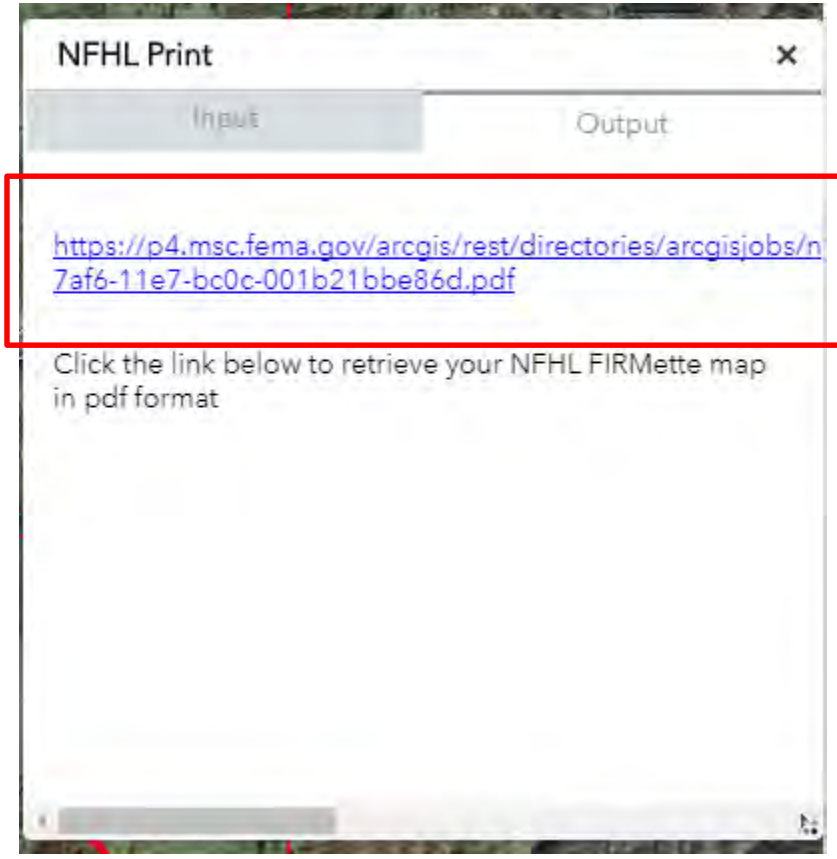
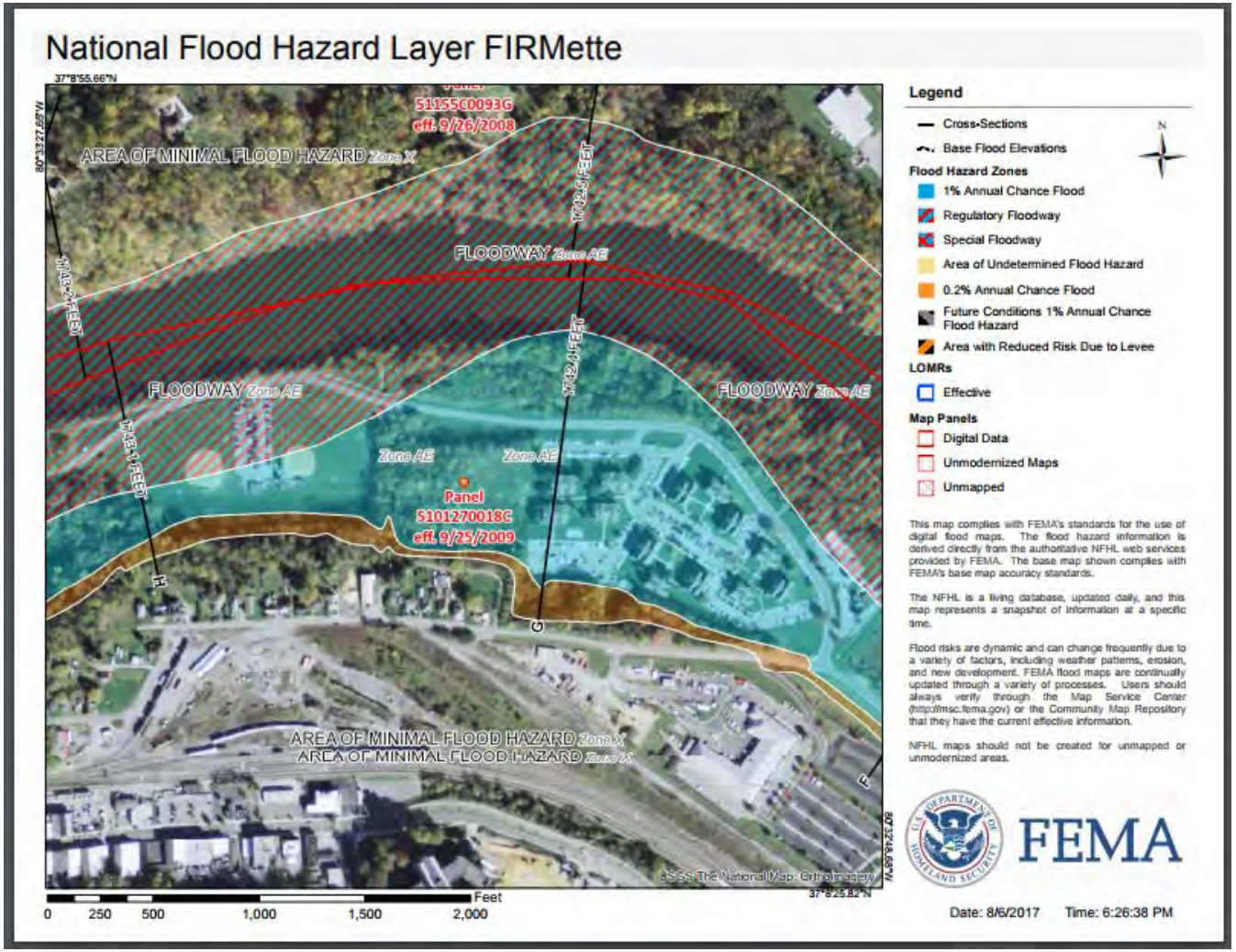




Making a FIRMette



Approximate A Zone Elevations

- Detailed studies are not available.
- Simplified methods can provide estimated BFEs.
- If you lack confidence in simplified estimation methods, require property owners to provide BFEs based on detailed studies.
- Simplified methods:
  - Contour interpolation
  - Data extrapolation (rarely applicable)

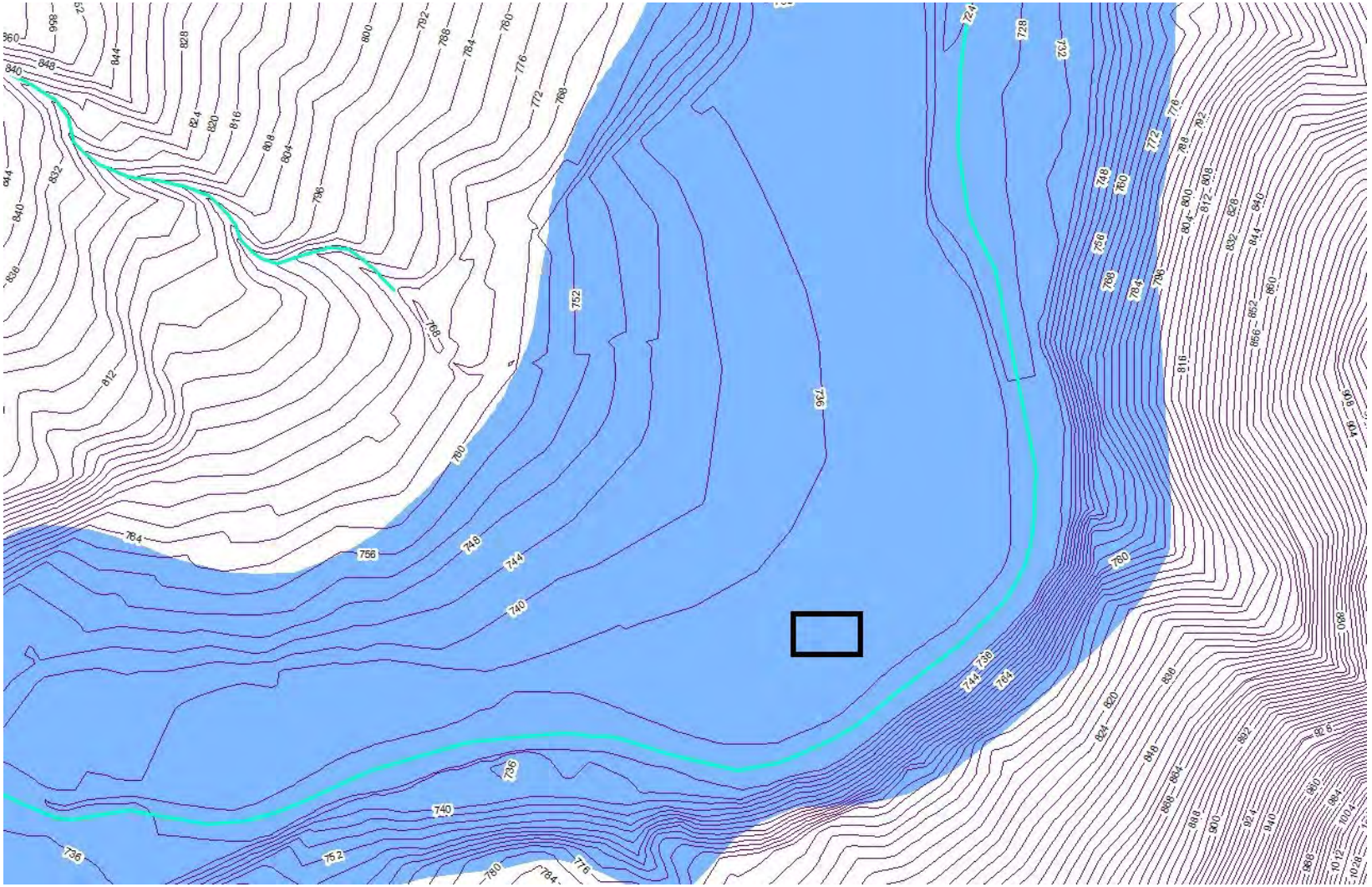
Contour Interpolation & Data Extrapolation

- Both are simplified methods, and cannot be used to support LOMA and LOMR-F applications.
- Contour interpolation overlays topographic maps on the FIRM.
- Data extrapolation extends flood profiles beyond the detailed study area.
- At least one other method plus previous flooding history should be used.
- See FEMA 265.

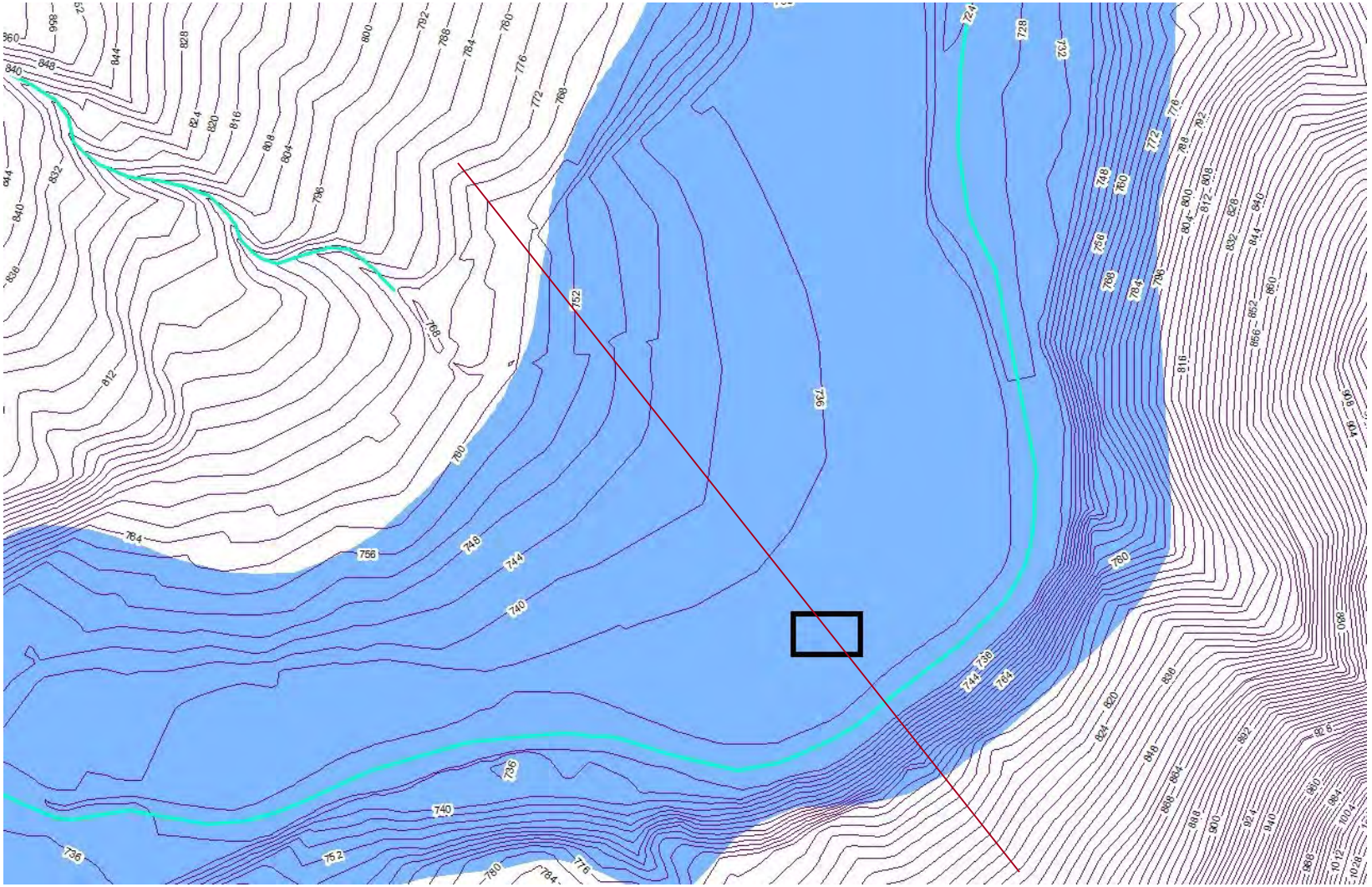
Contour Interpolation Steps

- Identify the contour interval.
  - Note that a smaller contour interval will yield a more accurate BFE estimate.
- Draw a line through the SFHA at the site of the structure, perpendicular to the river.
- Identify the elevation where this line crosses each side of the SFHA.
- Determine if this method is appropriate.
  - The floodplain boundary must generally conform with the contour lines along the flooding source.
  - The difference between the elevation on both sides of the SFHA must be equal to or less than ½ of the contour interval.
- If acceptable, estimate the BFE by adding half of the contour interval to the elevation of the lower side of the SFHA.

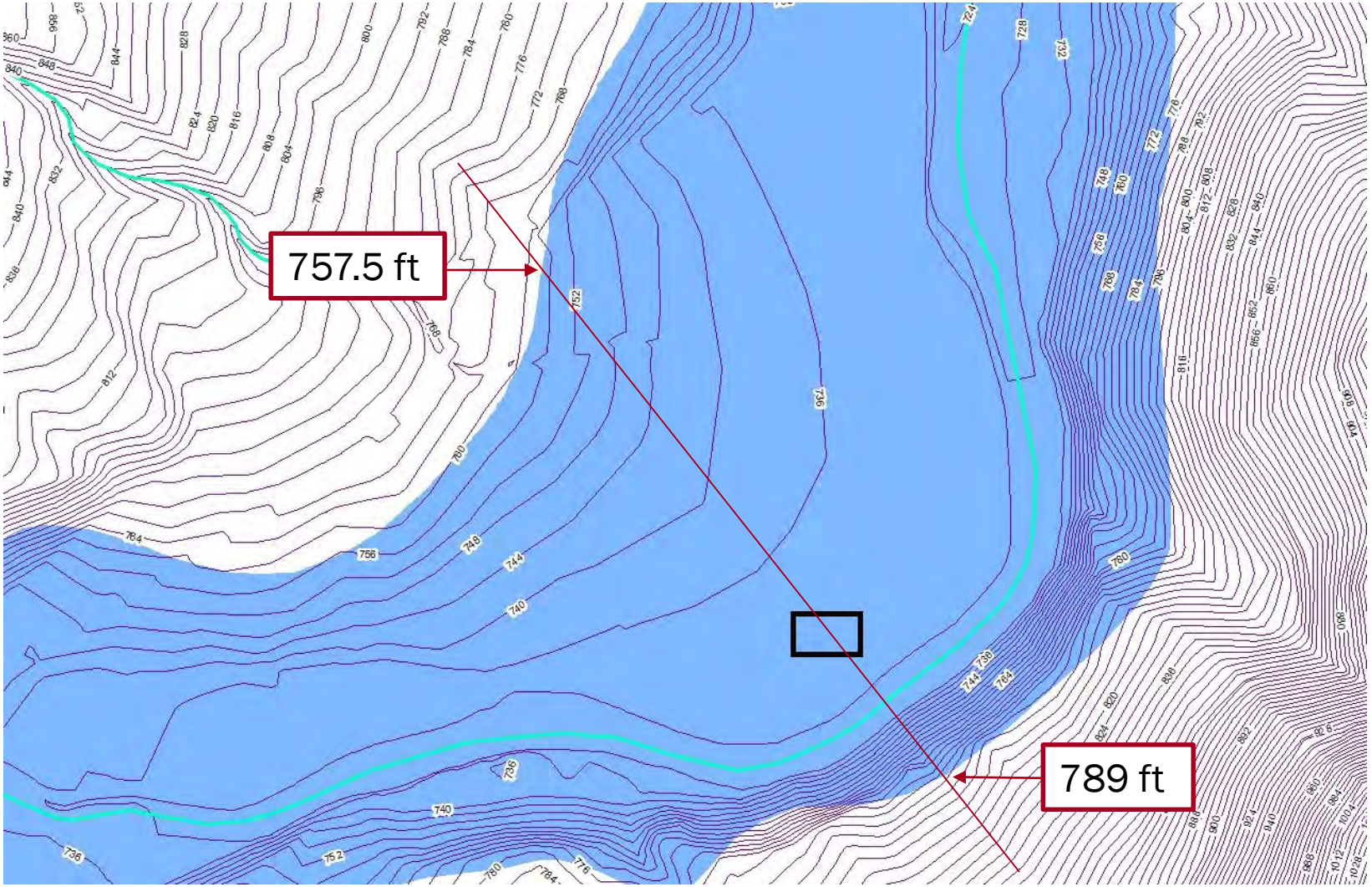
Contour Interpolation Example 1



Contour Interpolation Example 1



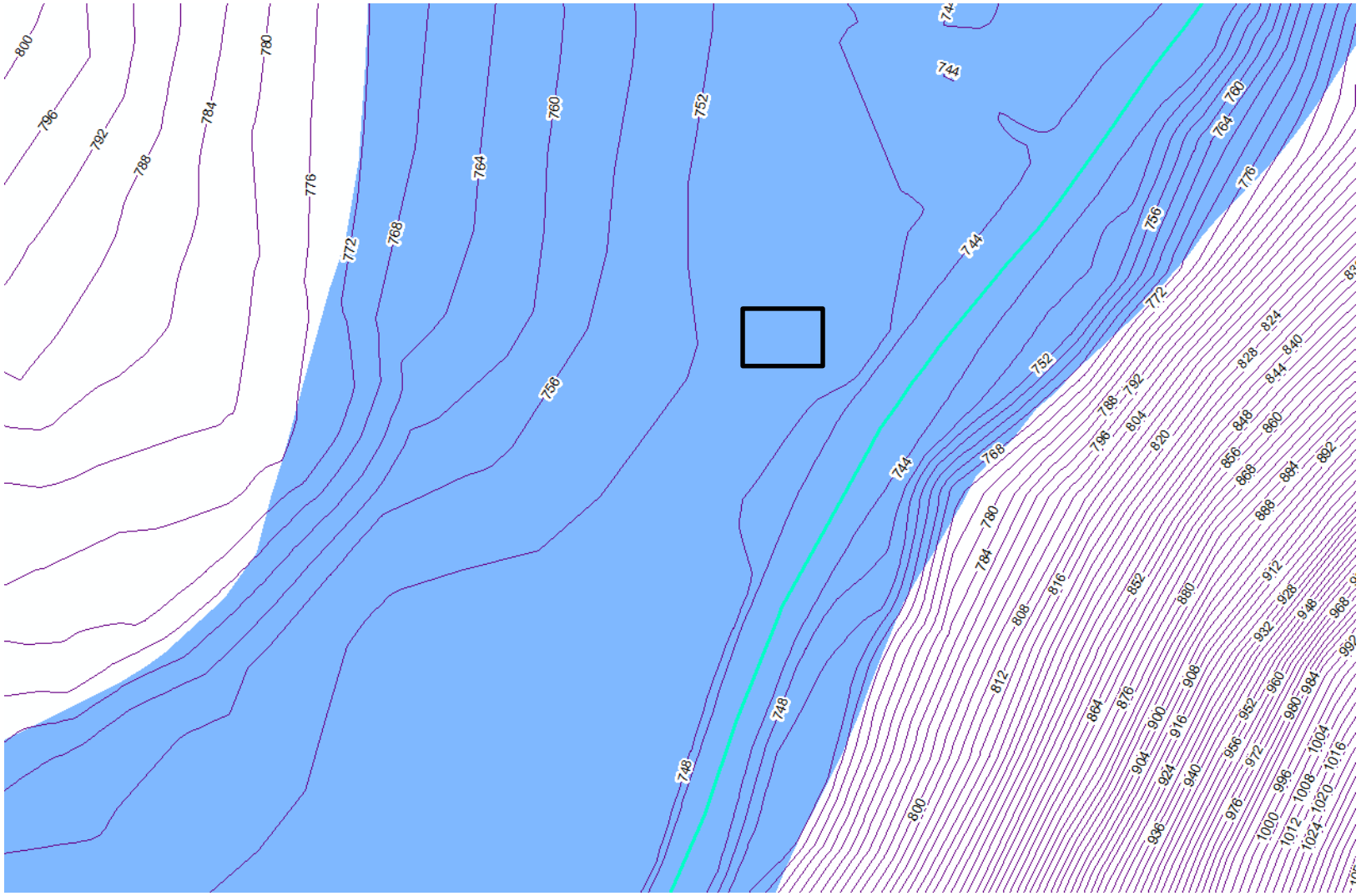
Contour Interpolation Example 1



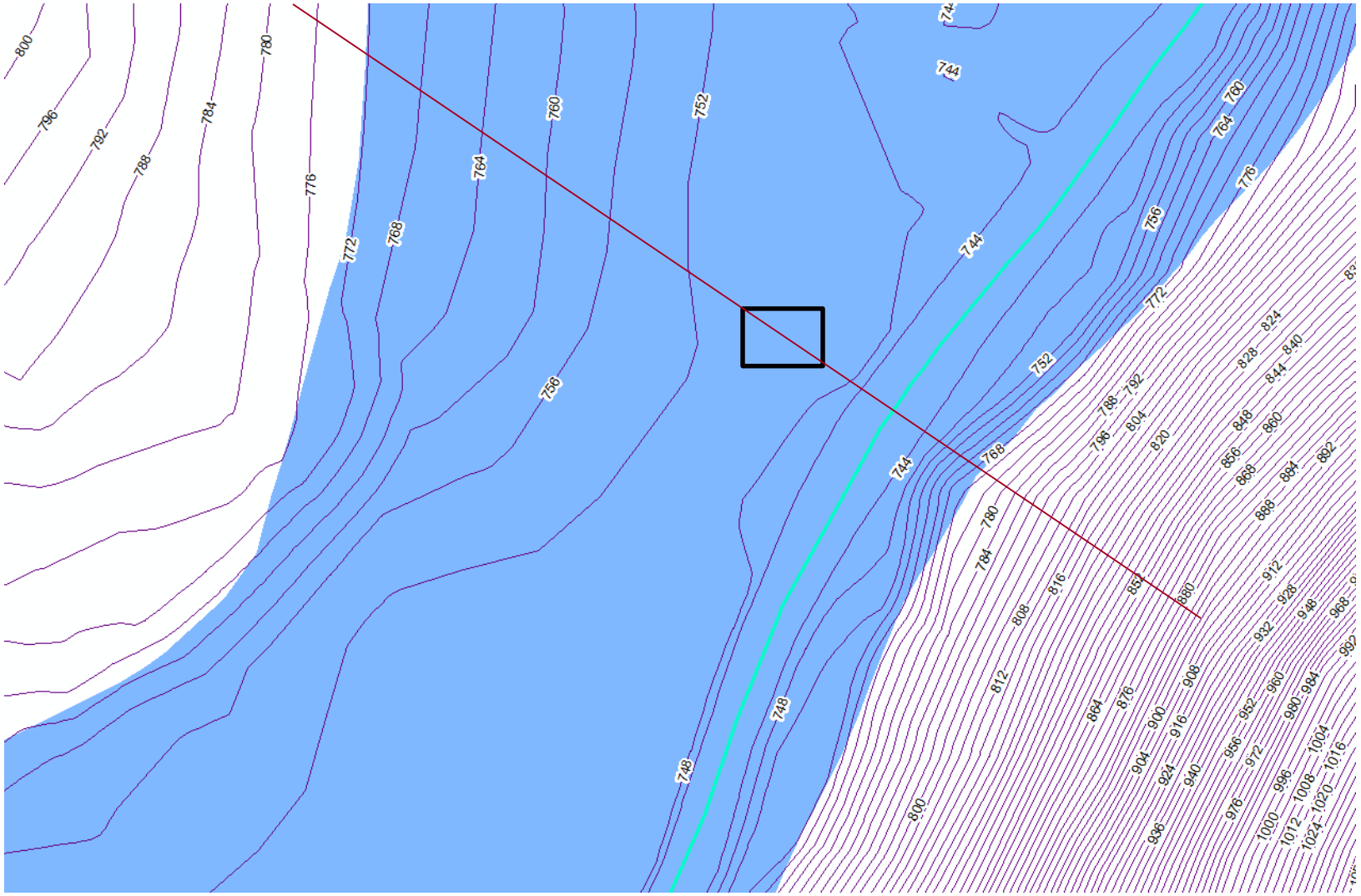
Contour Interpolation Example 1 Answers

- Contour interval: 4 ft
  - ½ contour interval: 5 ft / 2 = 2 ft
- Elevation of the northwest SFHA boundary: 757.5 ft
- Elevation of the southeast SFHA boundary : 789 ft
- Difference between elevations: 789-757.5= 31.5 ft
- Method acceptable?: 31.5 > 2 ft, so method is not acceptable

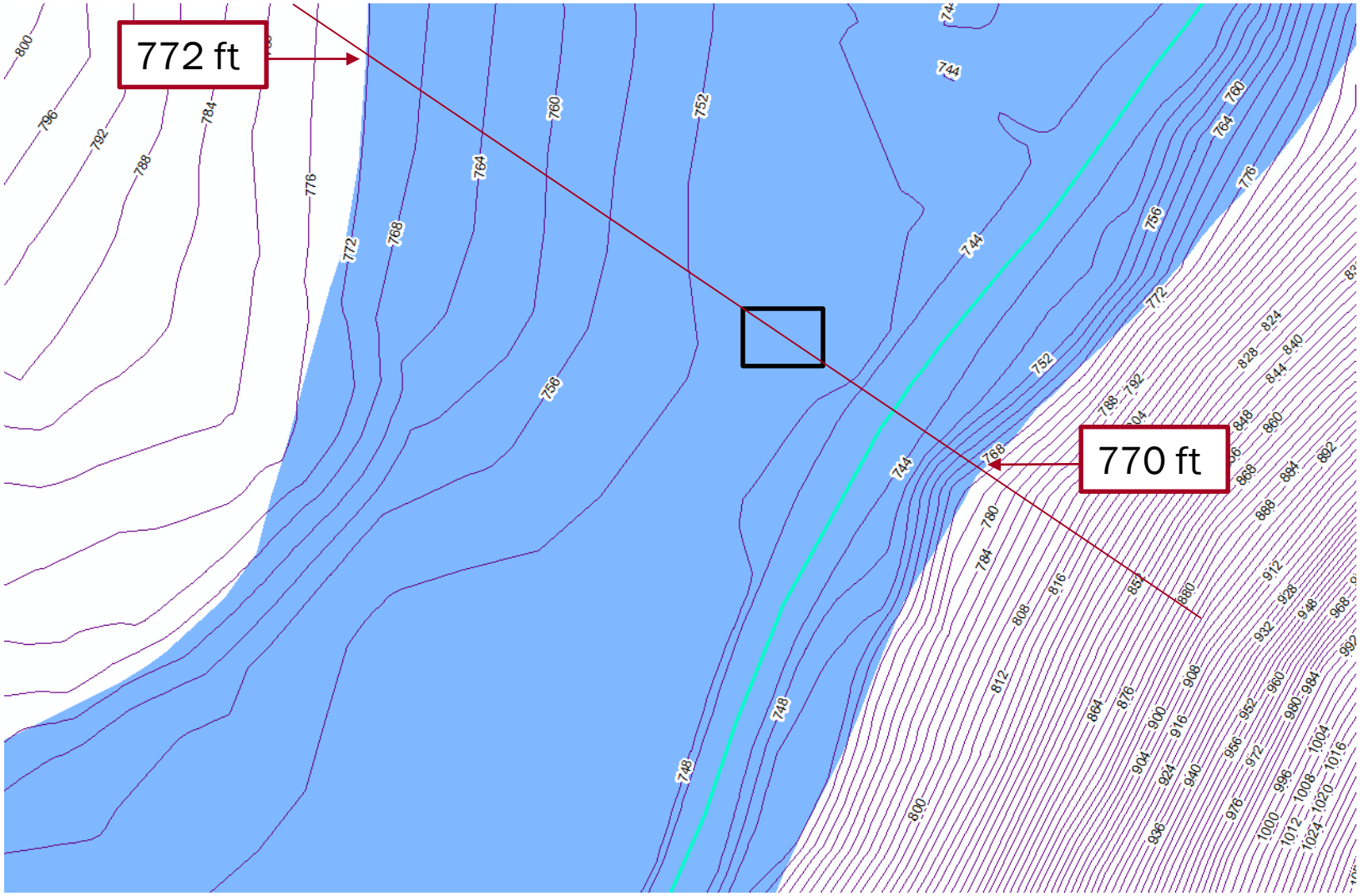
Contour Interpolation Example 2



Contour Interpolation Example 2



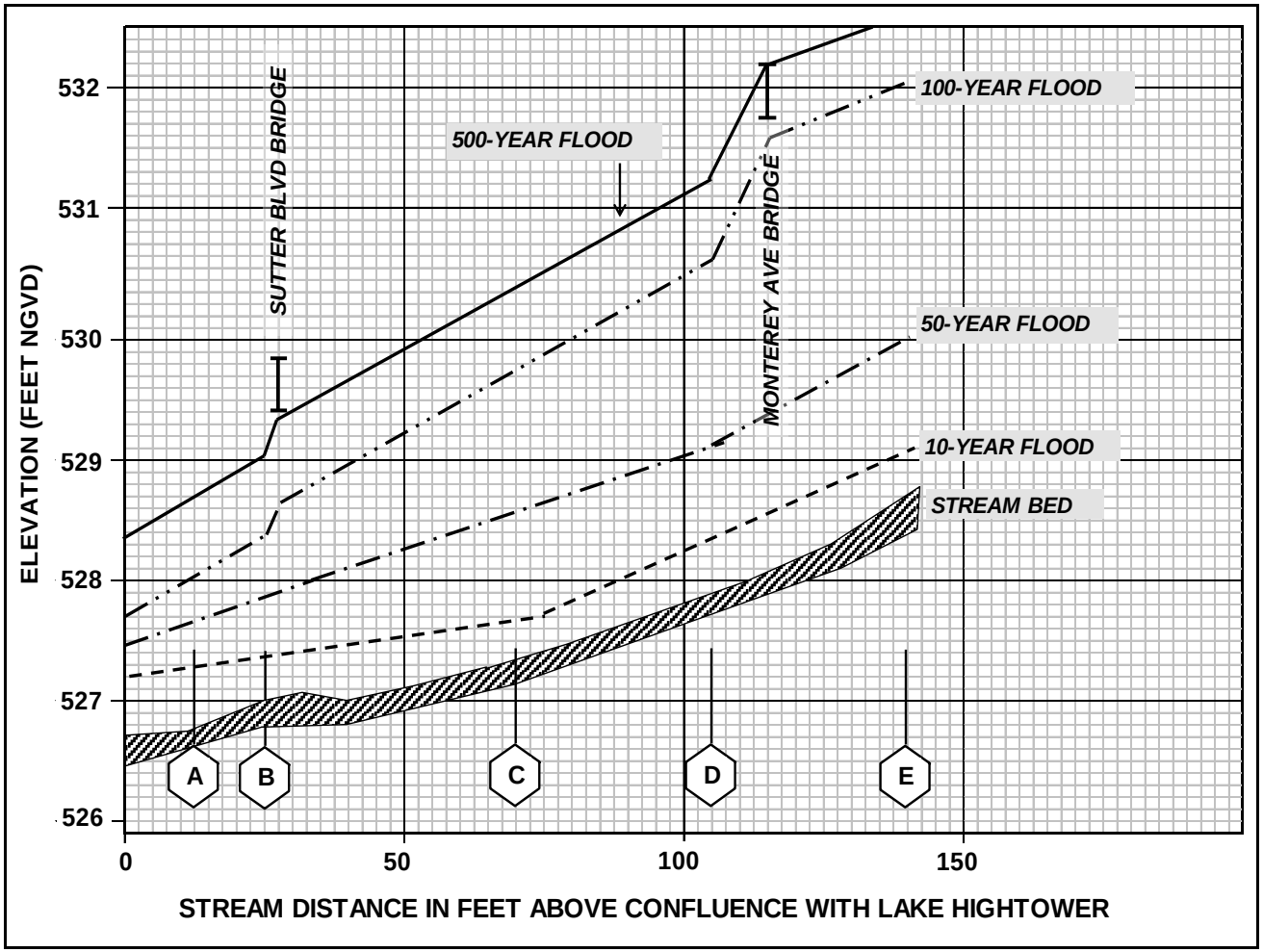
Contour Interpolation Example 2



Contour Interpolation Example 2 Answers

- Contour interval: 4 ft
  - ½ contour interval: 5 ft / 2 = 2 ft
- Elevation of the northwest SFHA boundary: 772 ft
- Elevation of the southeast SFHA boundary : 770 ft
- Difference between elevations: 772-770= 2 ft
- Method acceptable?: 2 ft = 2 ft, so method is acceptable
- Estimated BFE: 770 ft + 2 ft = 772 ft

Data Extrapolation: Extend Profile



Data Extrapolation Criteria

- Site must:
  - Be within 500 feet of the detailed study area.
  - Have floodplain characteristics similar to the detailed study area—for example:
    - The valley does not narrow rapidly upstream.
    - There is no waterfall.
  - Have no hydraulic structures such as dams and bridges.

Data Extrapolation Steps

- Determine the location of the site on the flood profile for the detailed study area.
- Extrapolate the last segment of the flood profile that has a constant slope to the location of the site.
- Determine the BFE from the extrapolated profile.

Data Extrapolation – Figures 11 and 12

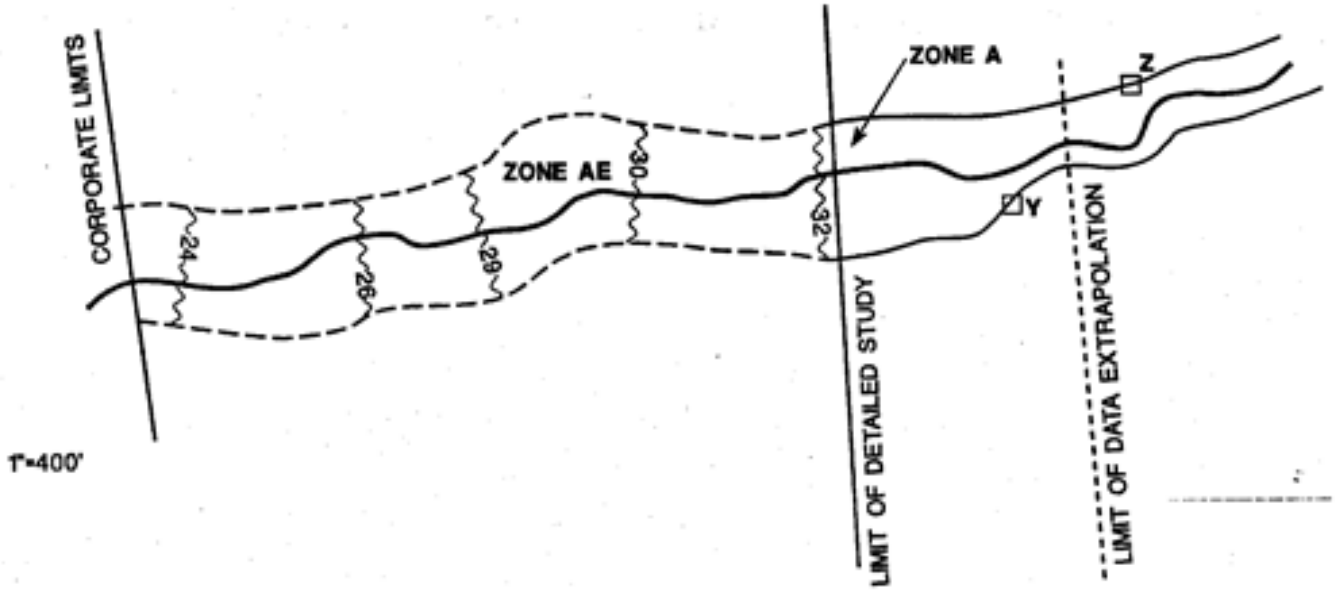


Figure 12 - Data Extrapolation Method - Plan View

-Property Y is approximately 370' upstream of the limit of detailed study (as measured along the streamline). Using the profile below, we can extrapolate the 100-year flood profile to determine that the BFE for property Y is equal to 33'.

-Property Z is approximately 700' upstream of the limit of detailed study (as measured along the streamline), and is therefore beyond the limit of data extrapolation.

Data Extrapolation – Figures 11 and 12

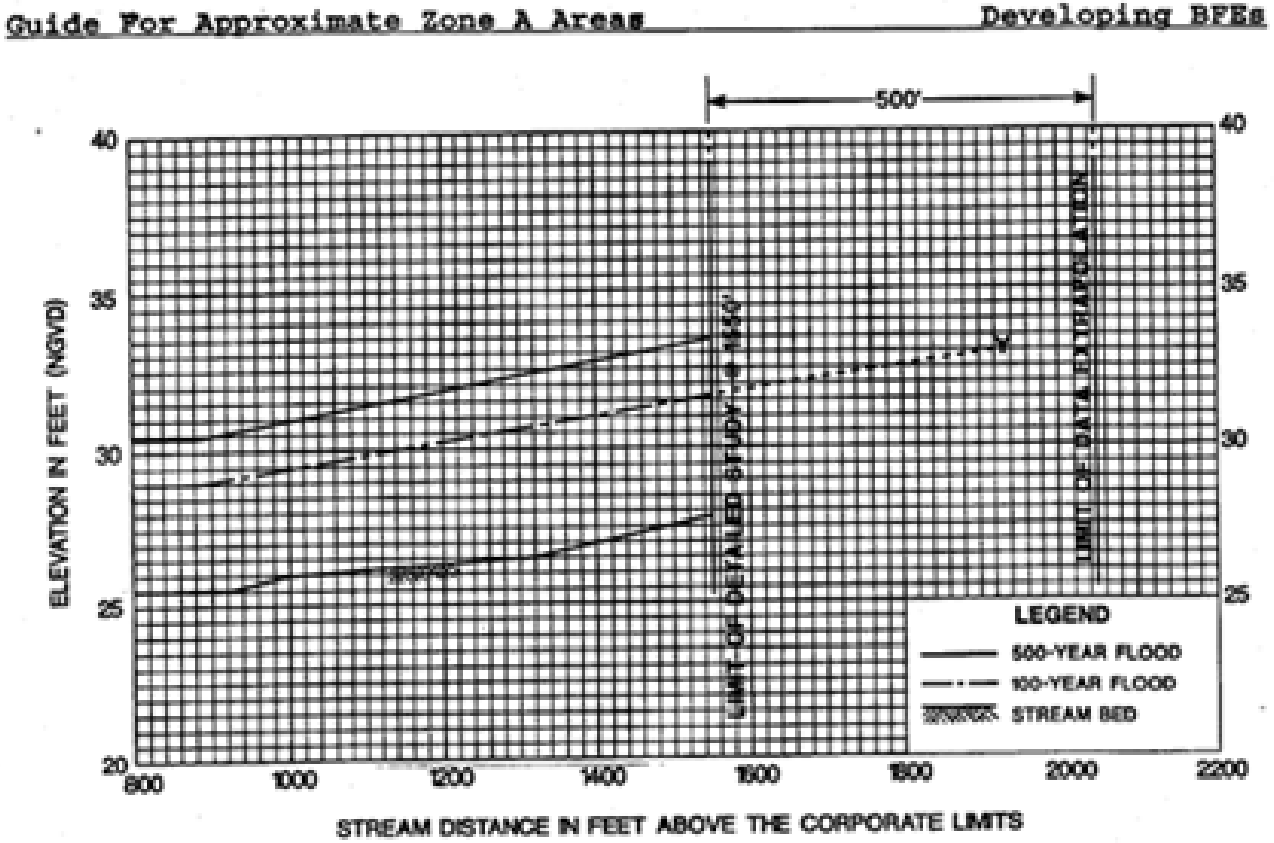


Figure 11 - Data Extrapolation Method - Profile

Data Extrapolation – Figures 13 and 14

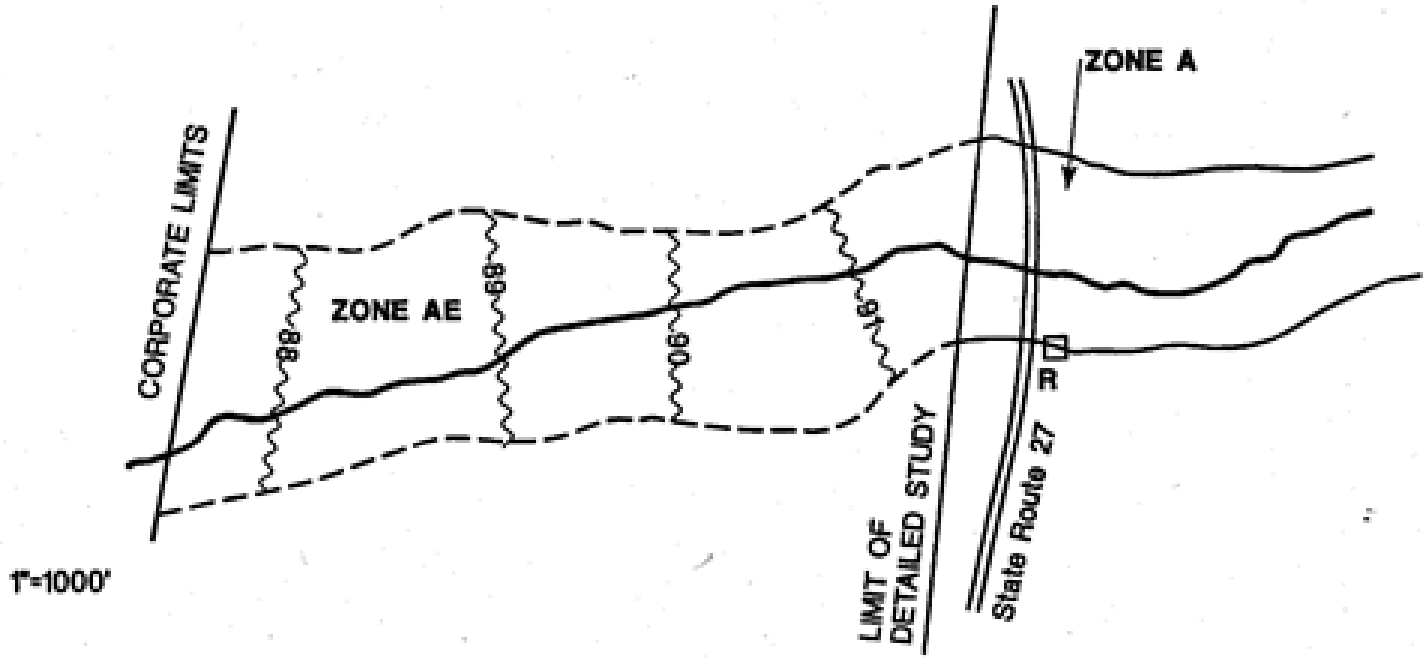


Figure 14 - Data Extrapolation Method - Plan View

-State Route 27 may have an effect on the 100-year water-surface elevations. Therefore, data extrapolation should not be used to obtain a BFE for property R.

Data Extrapolation Steps

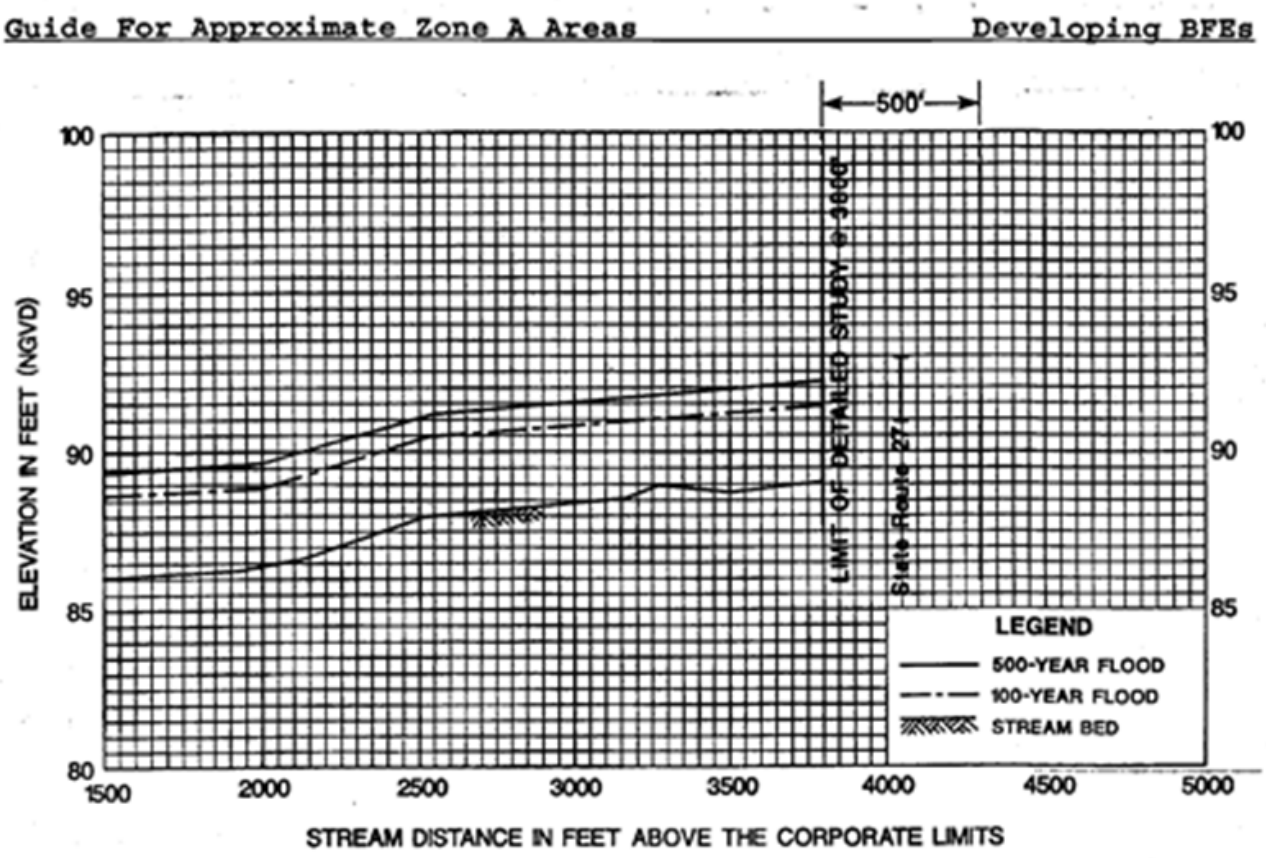


Figure 13 - Data Extrapolation Method - Profile

New Model-Backed A Zones

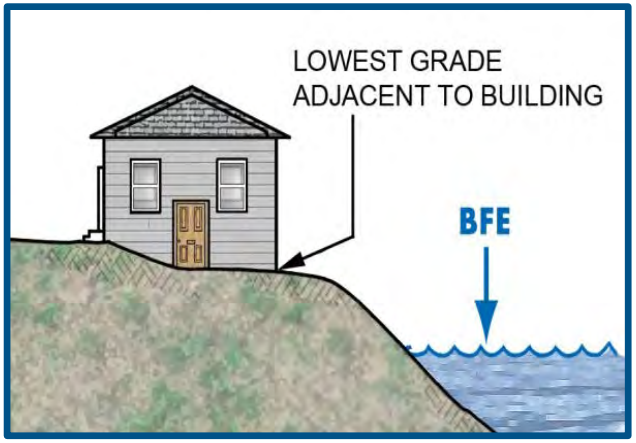
- FEMA is starting to provide communities with model-backed A Zones
- To generate these, automated H&H studies are run for A Zones
  - Not detailed enough to be included on the FIRMs but can be used to approximate a 1% flood elevation
  - Another method to compare estimated methods
- Caveats:
  - Bridges and culverts not taken into consideration
  - Requires special skills to interpret data

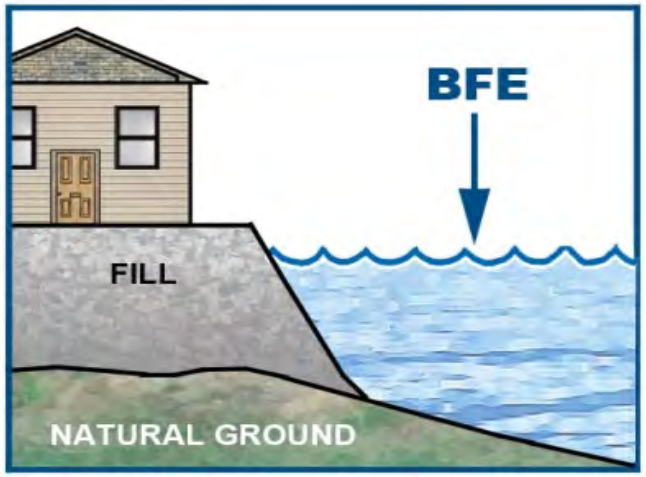
Zone A cross sections will be available in the future

Flood Hazard Maps and Data

CHANGING FIRMS AND FIS REPORTS

When to Use the LOMC Process





- To update the map due to better topographic data, a physical change in the floodplain, or better modeling (LOMR)
- To remove the mandatory federal flood insurance requirement
  - Inadvertent inclusions – structures built on natural high ground (LOMA)
  - Structures elevated on fill* (LOMR-F)

* **Caution:** Placement of fill around an existing foundation to increase the LAG could result in a low floor violation.

Note: LOMAs are not issued in Zone VE based on Primary Frontal Dune

Requirement to Submit New Data

When is a community required to initiate a revision?

- Development occurring in Zones A1-30 and AE without a designated floodway for proposed increases of more than 1.0 foot
- Floodway encroachment (no rise requirement)
- Alteration or relocation of a stream (including but not limited to installing culverts and bridges)
- Submission of new technical or scientific data within 6 months of receipt/completion
  - Proposals greater than 50 lots or 5 acres
  - Better topographic information

*The **Coordinated Needs Management Strategy (CNMS)** (https://msc.fema.gov/cnms/)tracking tool is used by FEMA to track map update needs. Communities can share needs with FEMA using this tool.*

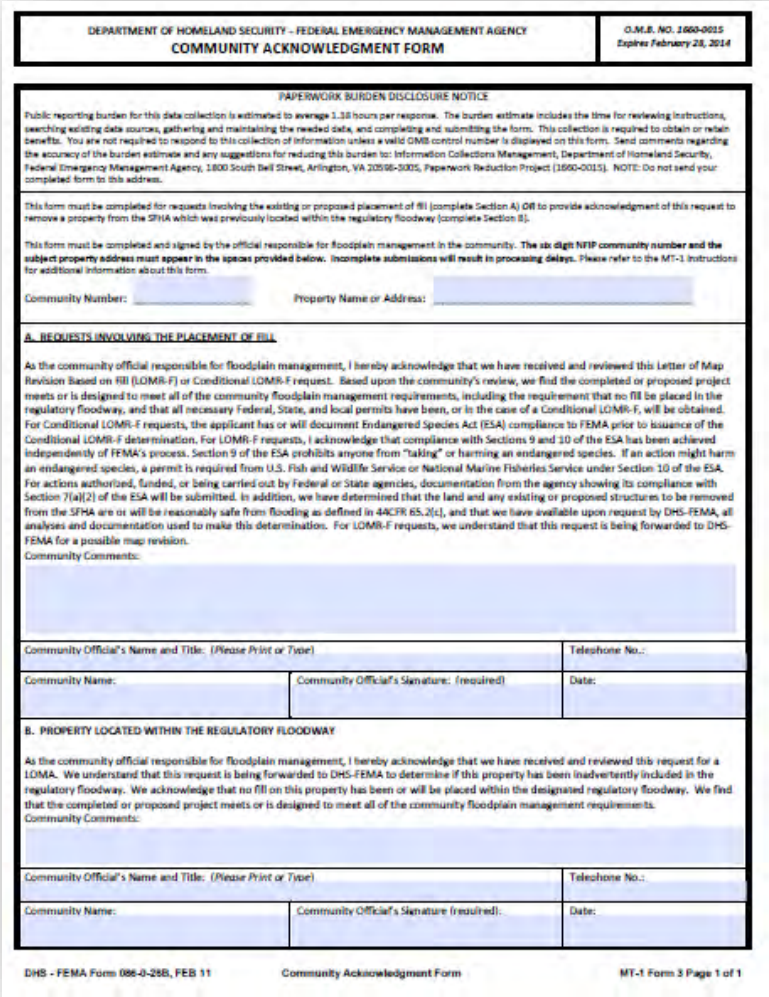
Requirement to Submit New Data

Role of the Floodplain Administrator

- Review CLOMR and LOMR applications
  - Appropriate revision and in line with ordinance?
  - Make use of local resources, such as an engineer or legal counsel
  - Pass the cost along to the applicant
- Make use of conditional process to ensure compliance
- Clearly communicate to developers their responsibility in the revision process
- Follow-up: ensure a LOMR is completed for final projects before issuance of certificate of occupancy/compliance

LOMCs and Community Responsibility

- Community Acknowledgement Form
  - FEMA requires the community acknowledgement for approval of a LOMR-F and may request it for other LOMCs.
  - But…you do not have to sign!
  - Consider signing for projects that the community supports.
- Assist applicant (review required for C/LOMR-F and C/LOMR)
- Requirement to submit new technical data within 6 months
- Tracking and storing information
  - LOMC determinations
  - Elevation Data
  - Permit and Inspection Data



DEPARTMENT OF HOMELAND SECURITY – FEDERAL EMERGENCY MANAGEMENT AGENCY
COMMUNITY ACKNOWLEDGMENT FORM

O.M.B. NO. 1660-0015
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this data collection is estimated to average 1.18 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and submitting the form. This collection is required to obtain or retain benefits. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0015). NOTE: Do not send your completed form to this address.

This form must be completed for requests involving the existing or proposed placement of fill (complete Section A) OR to provide acknowledgment of this request to remove a property from the SFHA which was previously located within the regulatory floodway (complete Section B).

This form must be completed and signed by the official responsible for floodplain management in the community. **The six digit NFIP community number and the subject property address must appear in the spaces provided below. Incomplete submissions will result in processing delays.** Please refer to the MT-1 Instructions for additional information about this form.

Community Number: _____ Property Name or Address: _____

A. REQUESTS INVOLVING THE PLACEMENT OF FILL

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision Based on Fill (LOMR-F) or Conditional LOMR-F request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a Conditional LOMR-F, will be obtained. For Conditional LOMR-F requests, the applicant has or will document Endangered Species Act (ESA) compliance to FEMA prior to issuance of the Conditional LOMR-F determination. For LOMR-F requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by DHS-FEMA, all analyses and documentation used to make this determination. For LOMR-F requests, we understand that this request is being forwarded to DHS-FEMA for a possible map revision.

Community Comments:

Community Official's Name and Title: *(Please Print or Type)*		Telephone No.:
Community Name:	Community Official's Signature: (required)	Date:

B. PROPERTY LOCATED WITHIN THE REGULATORY FLOODWAY

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this request for a LOMA. We understand that this request is being forwarded to DHS-FEMA to determine if this property has been inadvertently included in the regulatory floodway. We acknowledge that no fill on this property has been or will be placed within the designated regulatory floodway. We find that the completed or proposed project meets or is designed to meet all of the community floodplain management requirements.

Community Comments:

Community Official's Name and Title: *(Please Print or Type)*		Telephone No.:
Community Name:	Community Official's Signature (required):	Date:

DHS - FEMA Form 086-0-28B, FEB 11 Community Acknowledgment Form MT-1 Form 3 Page 1 of 1

LOMC Exercise: Timing is Critical

Example

- A permit application is received for a proposed structure currently located on a site currently shown in the SFHA
- The building site is on naturally high ground and the lowest adjacent grade is above the current BFE
- The applicant is proposing a single-story residential structure with a basement

Question: *Since the ground elevations are above the corresponding BFE can the floodplain management requirements be waived?*

LOMC Exercise: Importance of Timing

Answer: No

- For both regulatory and insurance purposes the site is considered to be in the SFHA
- The structure must be constructed in compliance with the floodplain ordinance – no basements (if the lowest floor of the basement will be below BFE)

Recommended Action: Recommend that the applicant obtain a LOMA

- A LOMA for the land will remove the structure from the SFHA and the requirements of the floodplain ordinance will not apply
- A LOMA for the land will remove the requirement to purchase flood insurance, and insurance will be available at reduced rates
- Single and multiple lot or structure LOMA applications are no cost

Exercise LOMC: Importance of Timing

Example 2

- A permit application is received for a proposed structure on a site currently located within the SFHA. Structural fill will be placed, elevating the structure above the corresponding BFE.
- A CLOMR-F has been received by the applicant stating the property, including the building pad, will be above the BFE if built as proposed. There is no floodway and no other fill restrictions.

Question: *Since the applicant has a conditional letter from FEMA stating the property will be outside of the SFHA when filled as proposed, they want to waive the lowest floor requirement for structures built within the SFHA and propose adding a basement. Is this allowable?*

Exercise LOMC: Importance of Timing

Answer: No

- For both regulatory and insurance purposes the site is considered to be in the SFHA until the effective map is officially revised through a LOMR-F. Even then, having a lowest floor below the adjacent BFE is strongly discouraged.
- The structure must be constructed in compliance with the floodplain ordinance – no basements

Recommended Action: If the LOMR-F is received removing the land from the SFHA, use FEMA Technical Bulletin 10-01 to ensure the structure is reasonably safe from flooding.

Potential issues:

- Flood insurance covers limited damages in basements from overland flow
- Foundation damage/collapse from subsurface flow

LOMC and Permit Resources

- Application Instructions: https://www.fema.gov/letter-map-changes
- Elevation Certificate: http://www.fema.gov/media-library/assets/documents/160?id=1383
- LOMC Tutorials: https://www.fema.gov/online-lomc-training
- FEMA Map Service Center (MSC): http://msc.fema.gov
- FIRMette Resources: https://www.fema.gov/media-library/assets/documents/34930
- Orthometric Height Conversion (VERTCON): http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl

Flood Hazard Maps and Data

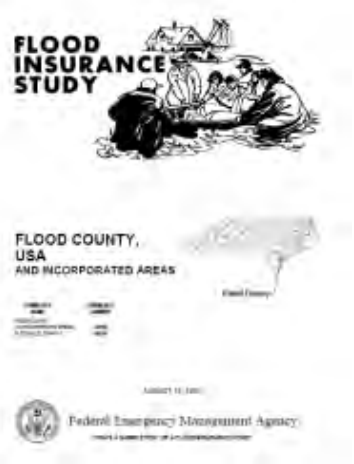
NON-REGULATORY PRODUCTS AND OTHER RESOURCES

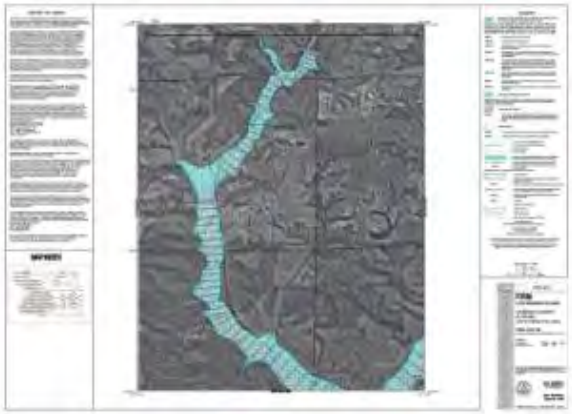
Non-Regulatory Products and Other Resources

- Through the Risk Mapping Assessment and Planning (Risk MAP) Program, FEMA provides communities with both regulatory and non-regulatory products.
- Traditional regulatory products:

FIRM Database

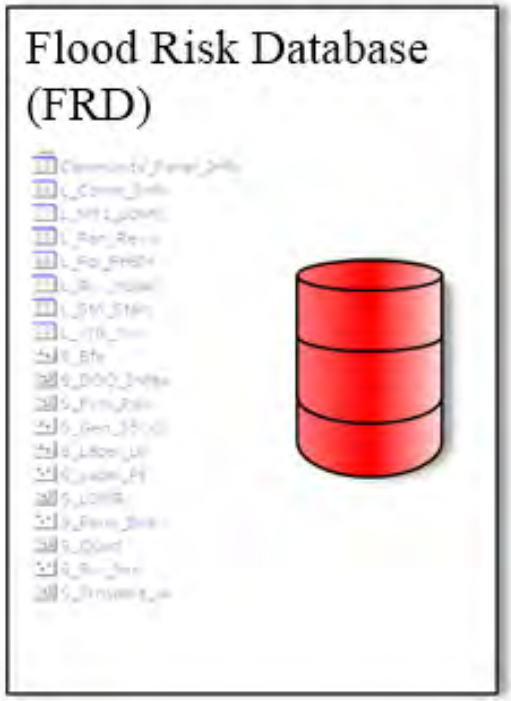
- Flood_Hazard_Data
- Political_Boundaries
- Public_Land_Survey_System
- TopoData
- Community_Panel_Info
- L_Comm_Info
- L_MT1_LOMC
- L_Pan_Revis
- L_Pol_FHBM
- L_Riv_Model
- L_Stn_Start
- L_Wtr_Nm
- S_Bfe
- S_DOQ_Index
- S_Firm_Pan
- S_Gen_Struct
- S_Label_Ld
- S_Label_Pt
- S_LOMR
- S_Perm_Bmk
- S_Quad
- S_Riv_Mrk
- S_Trnsport_Ar

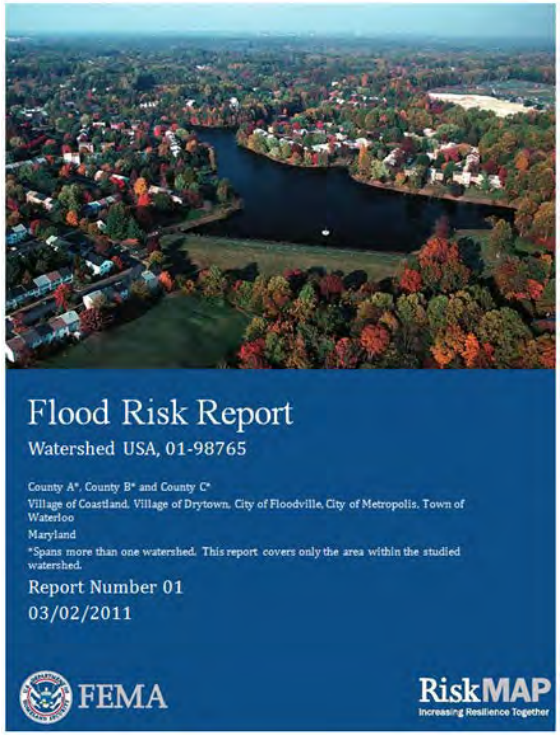


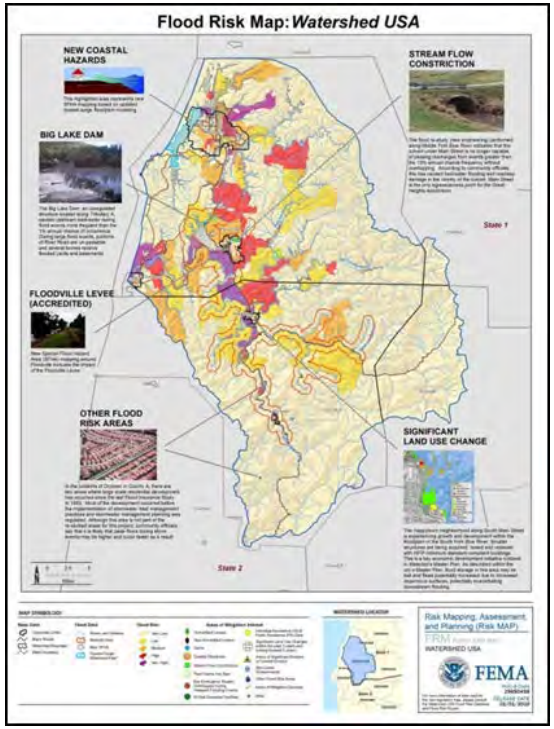


Non-Regulatory Products and Other Resources

- New non-regulatory products:

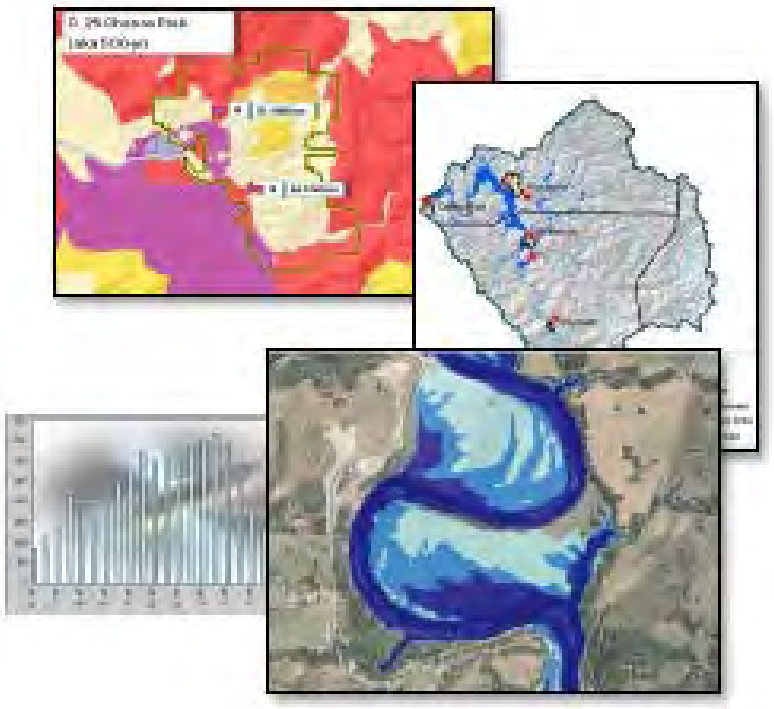






Non-Regulatory Products and Other Resources

- The Flood Risk Database includes 4 datasets:
  - Changes Since Last FIRM
  - Flood Depth & Analysis Grids
  - Flood Risk Assessments
  - Areas of Mitigation Interest

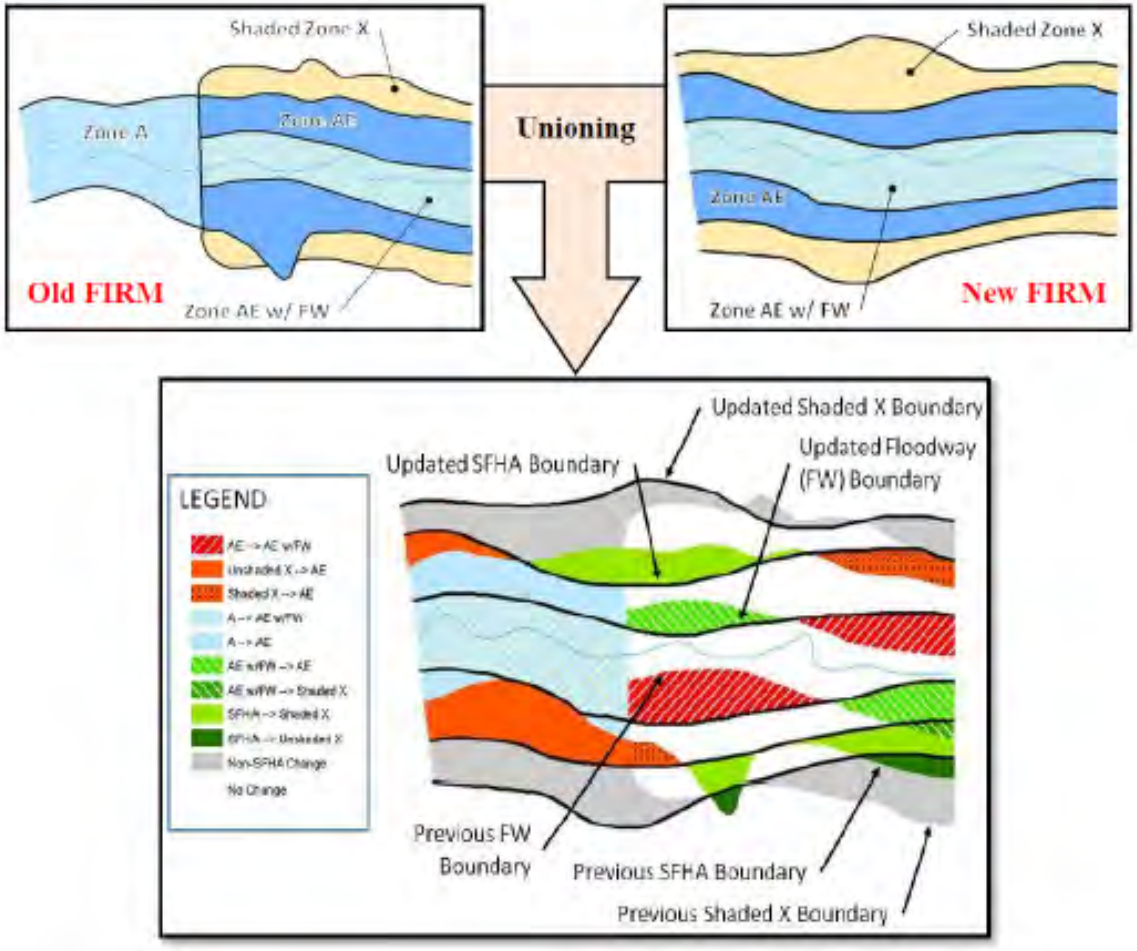


Flood Risk Database

- **Changes Since Last FIRM**
  - Horizontal Changes and Results
  - Structure/Population counts impacted by change
- **Depth & Analysis Grids**
  - Depth (10, 04, 02, 01, 0.2 percent chance)
  - Percent Annual Chance
  - Percent 30-Year Grid
  - Delivery of Water Surface Elevation (multi-freq)
  - Water Surface Elevation Change Grid (1%)
  - Velocity Grids
  - Multi Freq Grids for Coastal Areas, etc.
- **Flood Risk Assessment**
  - Average Annualized Loss – 2010
  - Refined Flood Risk Assessment
  - HAZUS or Non-HAZUS with improved data/assumptions
- **Areas of Mitigation Interest**
  - Areas of Mitigation Opportunity or Awareness

*Red = Enhanced Flood Risk Database

Changes Since Last FIRM

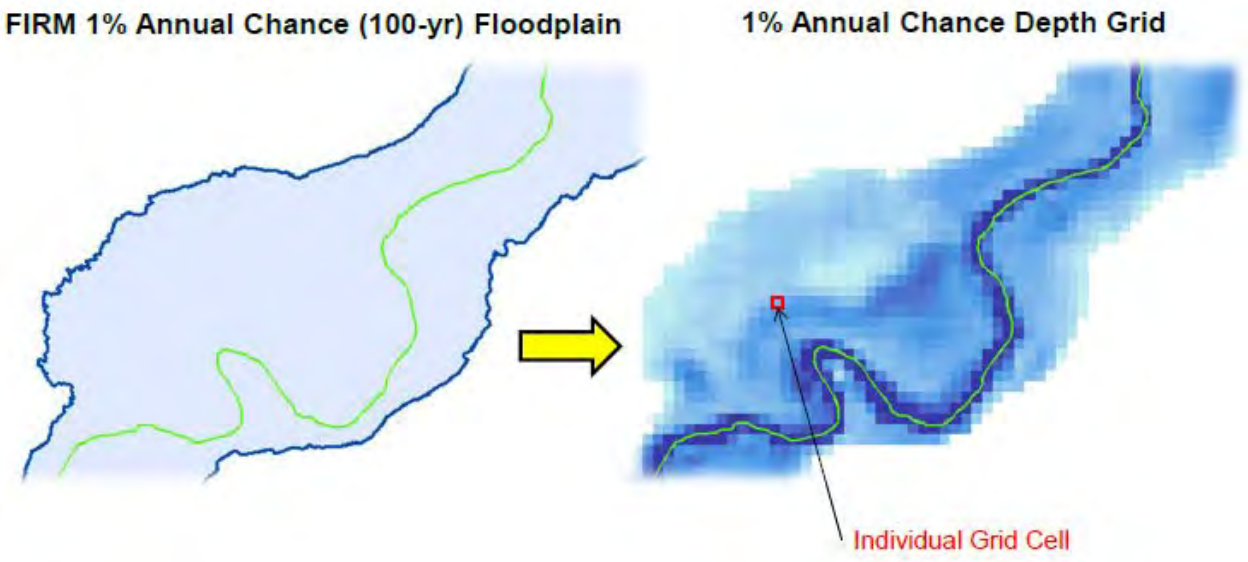


Flood Depth and Analysis Grids

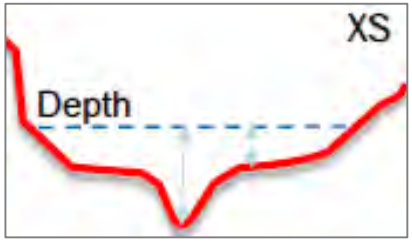
- Flood Depth and Analysis Grids include:
  - Flood Depths for multiple flood frequencies
  - Water Surface Elevation for multiple flood frequencies
  - Water Surface Elevation Change Since Last FIRM (1%)
  - Percent Annual and 30-yr Percent Chance of Flooding
  - Velocity
  - Hillshade

Flood Depth and Analysis Grids

- Each square of the Flood Depth and Analysis Grid has a value:

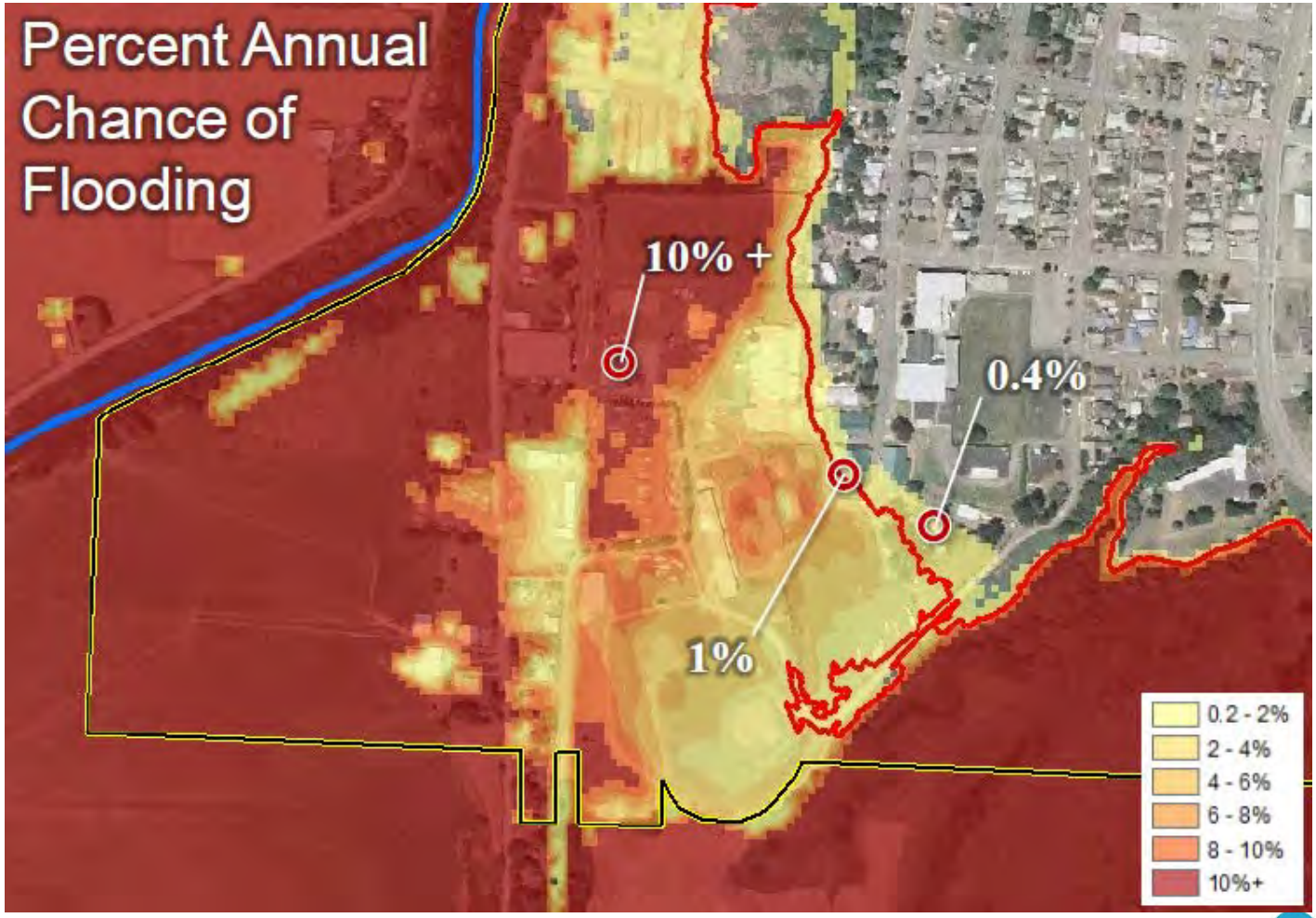


- Calculated by subtracting the elevation of the ground from the elevation of the water surface during a given flood event.



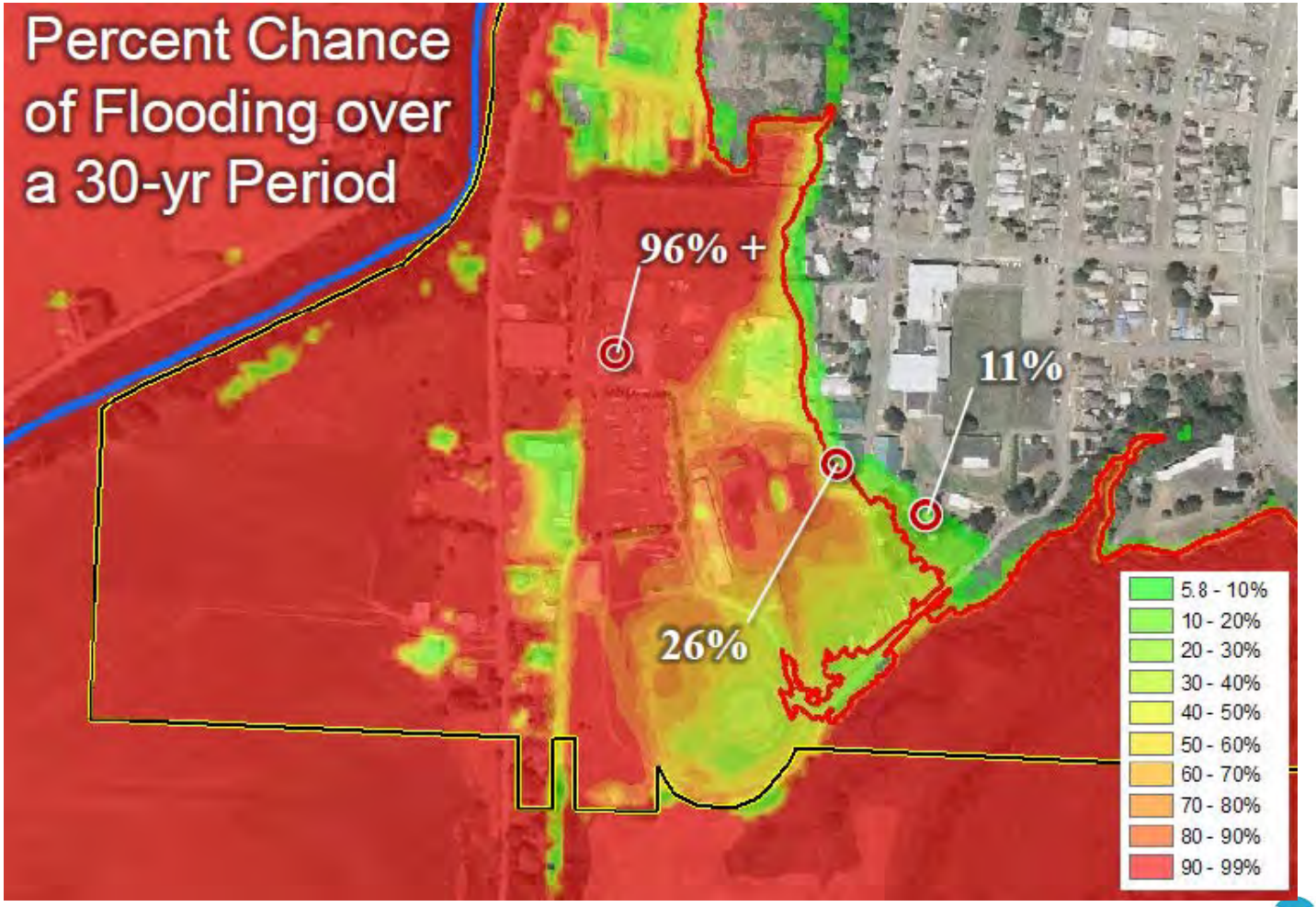
Percent Chance of Flooding Grids

- Percent annual chance of flooding



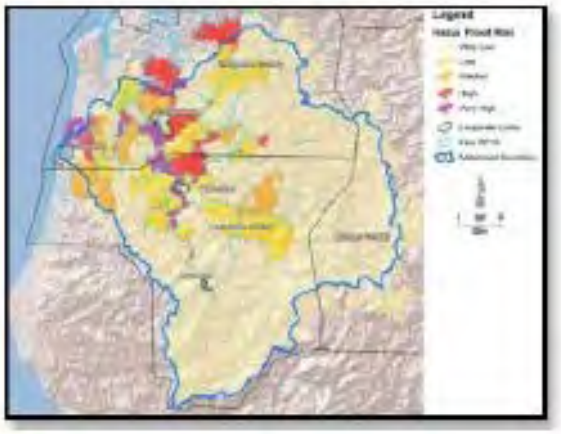
Percent Chance of Flooding Grids

- Percent chance of flooding over a 30-year period



Flood Risk Assessment Datasets

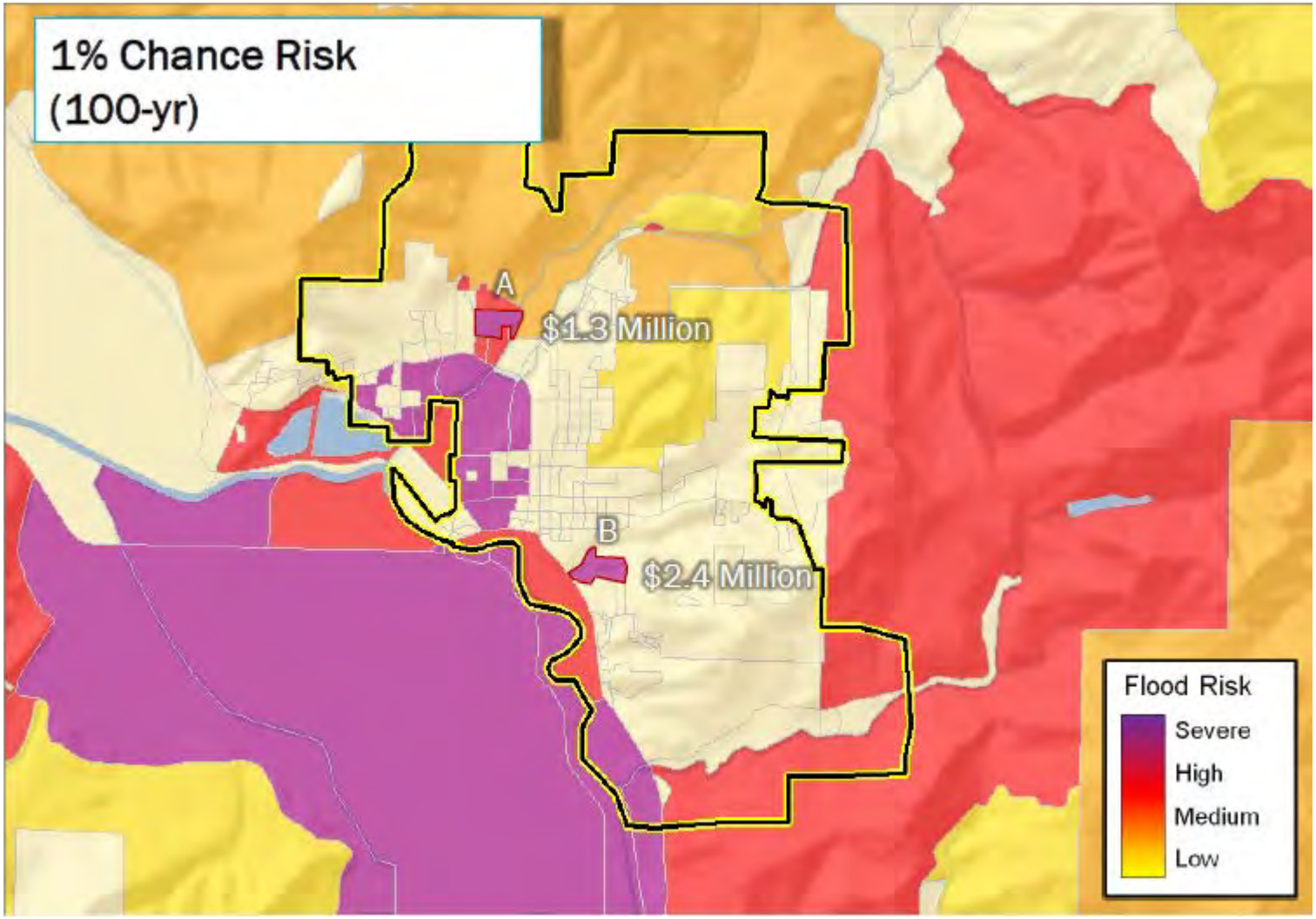
- 2010 HAZUS Average Annualized Loss (AAL) Study Data
- Refined HAZUS and Other Risk Analyses Data
- Composite Data



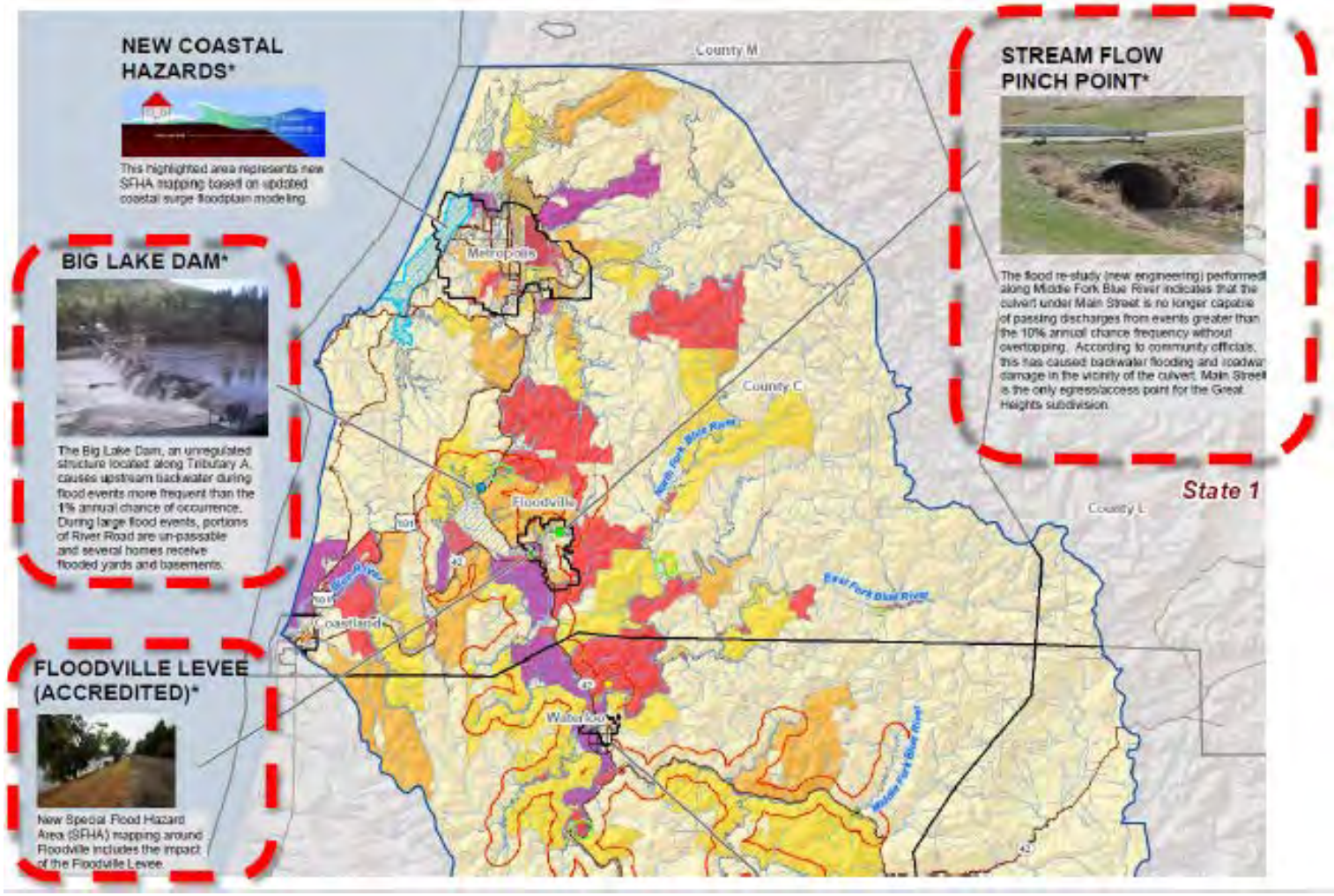
Flood Risk Assessment Datasets

- Identify Areas and Communicate Relative Flood Risk:
  - Flood prone areas
  - Vulnerable people and property
- Provide Flood Risk $:
  - Potential damage severity for different flood frequencies
  - Identify locations with possible cost effective mitigation options
- Improve Estimates for Flood Risk $:
  - Losses from Average Annualized Loss (AAL) Study
  - Refined losses from new flood study depth grids
  - Refined general building stock data from local sources

Flood Risk Assessment Datasets

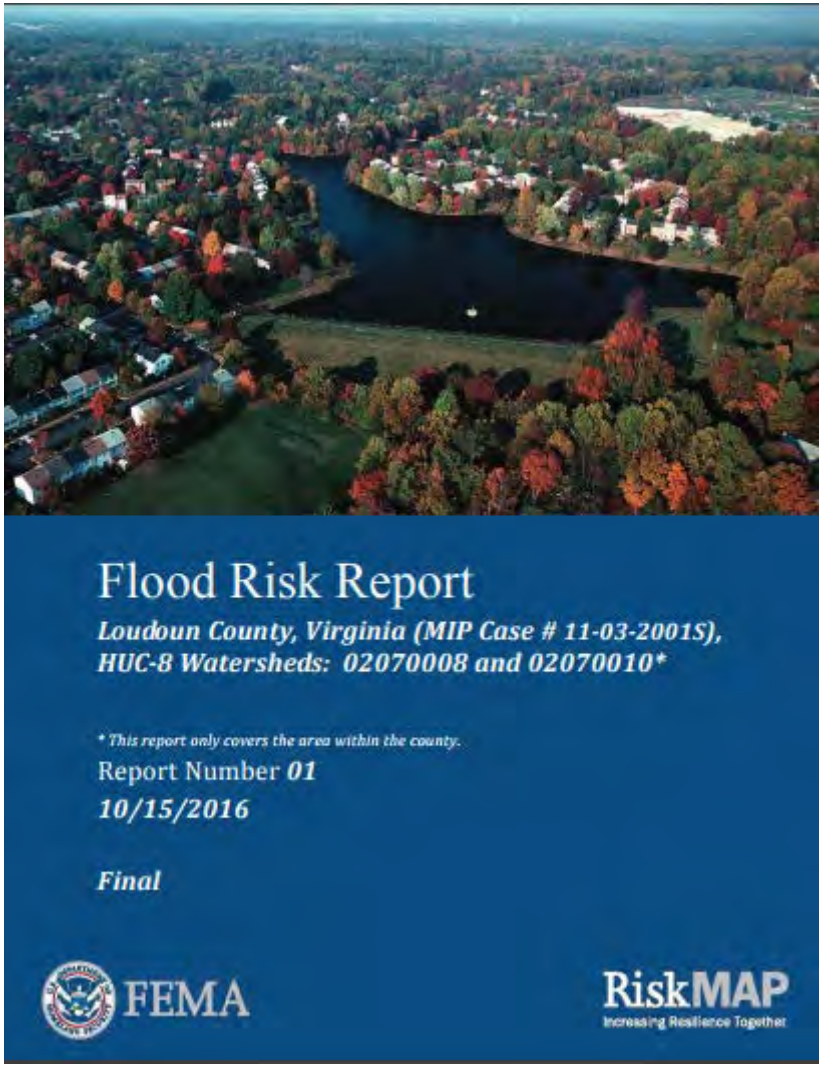


Areas of Mitigation Interest



Flood Risk Report

- Background:
  - Purpose, Methods
  - Risk Reduction Practices
- Project Results
  - Changes Since Last FIRM
  - Depth & Analysis Grids
  - Flood Risk Assessment
  - Areas of Mitigation Interest
- Summarized by Locations
  - Communities and Watersheds



Where to Find Non-Regulatory Products

- FEMA Map Service Center: Search All Products - https://msc.fema.gov/portal/advanceSearch

FEMA Flood Map Service Center: Welcome!

Looking for a Flood Map?

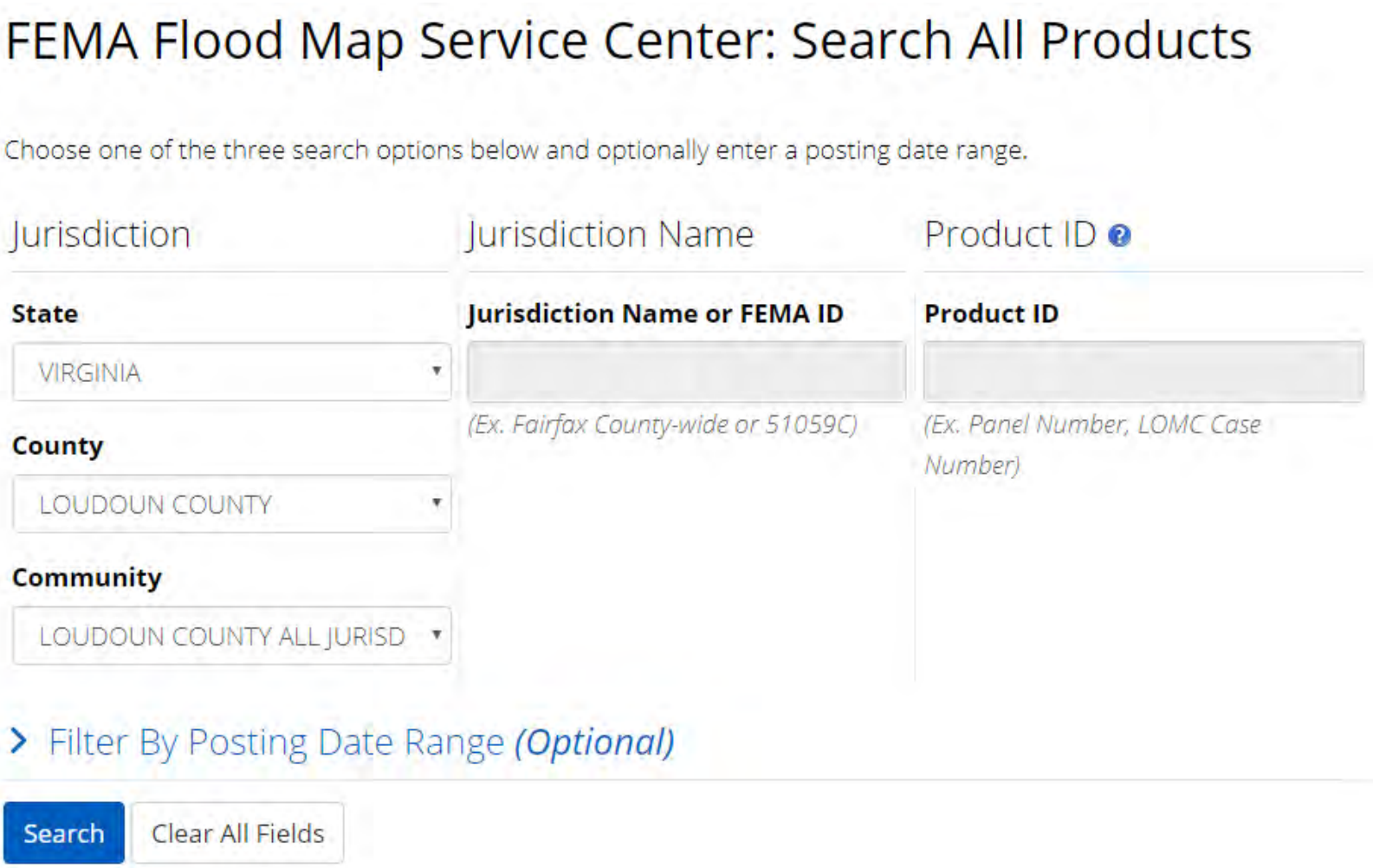
Enter an address, a place, or longitude/latitude coordinates:

Enter an address, a place, or longitude/latitude coordir | 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.

Where to Find Non-Regulatory Products



Where to Find Non-Regulatory Products

Search Results for LOUDOUN COUNTY ALL JURISDICTIONS

Click subscribe to receive email notifications when products are updated.

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (85)
- Preliminary Products (0)
- Pending Product (0)
- Historic Products (211)
- Flood Risk Products (5)

Please note: Flood Risk Products have purposes that are different from regulatory flood hazard products (i.e., FIRM, FIS Report, and FIRM Database). Regulatory flood hazard products are mandated by law and used by the National Flood Insurance Program (NFIP) for rating flood insurance policies and enforcing the federal mandatory insurance purchase requirements. Flood Risk Products are supplementary resources for communicating flood risk to communities and may not entirely align with the regulatory flood maps. The information in these products reflect what was produced by the FEMA Risk MAP study in that area. Depending on the requirements of the study, the Flood Risk Products available for your community may consist of a Flood Risk Map, Flood Risk Report or Flood Risk Database.

- Flood Risk Maps (1)
- Flood Risk Reports (1)
- Flood Risk Database (3)

Product ID	File Format	MSC Posting Date	Size	Download
FRD_51107C_GeoDatabase	GeoDatabase	10/15/2016	395MB	DL
FRD_51107C_GeoTIFFs	GeoTIFFs	10/15/2016	344MB	DL
FRD_51107C_ShapeFiles	ShapeFiles	10/15/2016	38MB	DL

Flood Hazard Maps and Data

Questions?

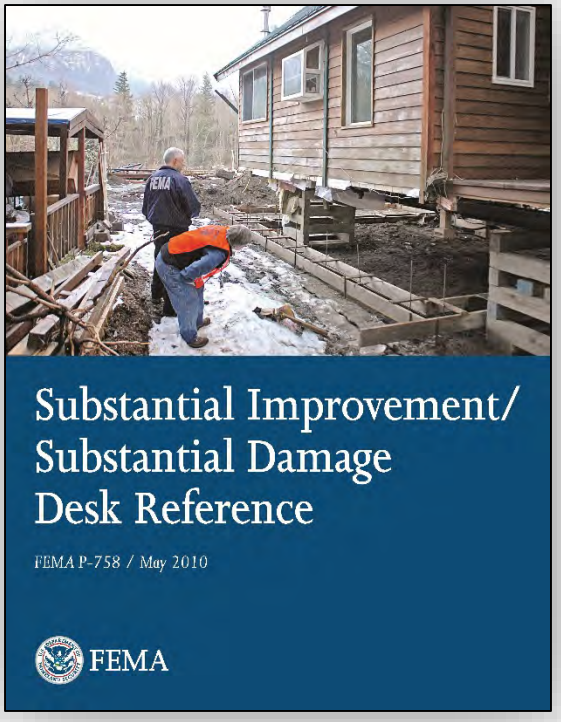
Pre- and Post-Disaster Considerations

FEMA

DCR
Virginia Department of Conservation & Recreation

Increase Your Capacity Pre-Disaster

- Know your areas of risk
- Obtain training (Floodplain management training, SD Estimator)
- Educate residents on the ordinance and substantial damage requirements
- Ensure ordinance is compliant
- Enter into a Mutual Aid Agreement
- Pre-load data onto SDE Tool
- Pre-identify an alternative site for permit office
- Contractor vetting
- Develop a Mitigation Plan



Hazard Mitigation Plans

- Hazard mitigation plans help to prepare communities for disasters and guide post-disaster response and recovery efforts.
- The Federal Disaster Mitigation Act of 2000 requires localities to adopt a local or regional hazard mitigation plan in order to be eligible for funding through FEMA's Hazard Mitigation Grant Program and Pre-Disaster Mitigation Grant Program.
  - VDEM provides PDCs with funding to assist their member localities in developing regional hazard mitigation plans.
  - Most communities in Virginia choose to participate in regional hazard mitigation plans.
- Hazard mitigation plans are required to be updated every five years, but should be reviewed annually and after each disaster.
  - Floodplain managers should be included in annual reviews, to advocate for mitigation projects and help identify what mitigation has occurred.

Hazard Mitigation Plans

- Almost universally, flooding is the number one disaster facing communities. Floodplain managers are the local experts on flooding and should be involved in gathering and vetting the data that will be included in the hazard mitigation plan.
- Hazard mitigation plans are required to include the number of NFIP policies and repetitive loss/severe repetitive loss claims. Floodplain managers should play a key role in increasing NFIP participation and reducing the number of vulnerable structures in the community.
- In CRS communities, the floodplain managers and CRS coordinator should work together closely to make sure that the hazard mitigation plans gets as much CRS credit as possible.
  - Communities wishing to get CRS credit for their hazard mitigation plans need to meet additional requirements.

Post-Flood Disaster Checklist

- Review floodplain management ordinance
- Tour floodplain to ensure development/rebuilding is compliant
- Require permits for all development, not just for substantial damage
- Notify property owners of permit and building requirements
- Perform substantial damage determination
- Notify property owners of determination results and subsequent building requirements in writing

(PEMA)

(PEMA)

Permits Are Required

- **A permit is required regardless of whether or not the repairs rise to the level of substantial damage.**
  - Permits are required for repairs
  - The permit fee can be waived
  - The permit requirement **cannot be waived**
- Non-compliance post-disaster will have negative insurance implications and could result in sanctions.

Substantial Improvement/Damage

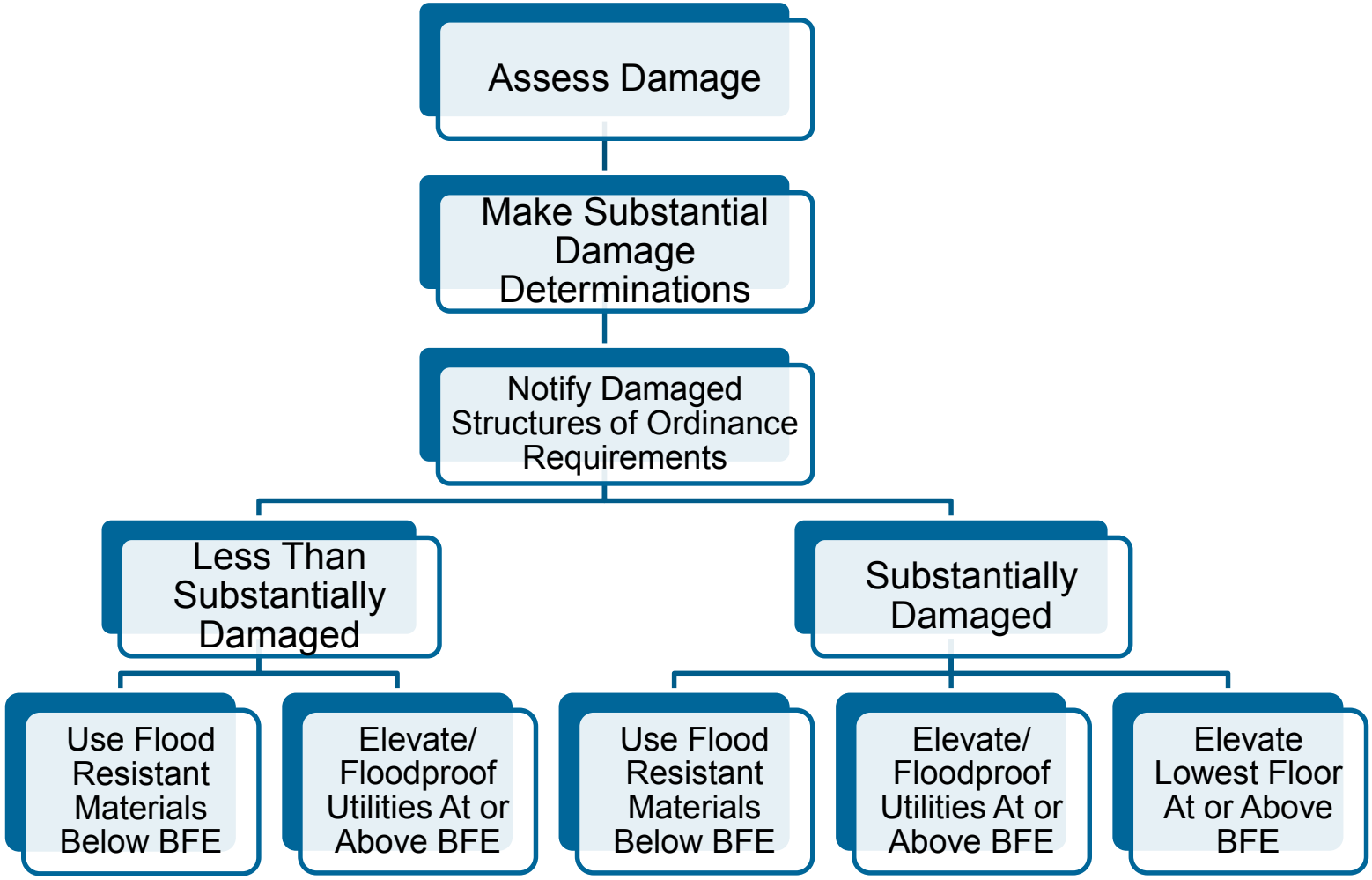
Definition:

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

(PEMA)

(PEMA)

Substantial Damage Determination Process



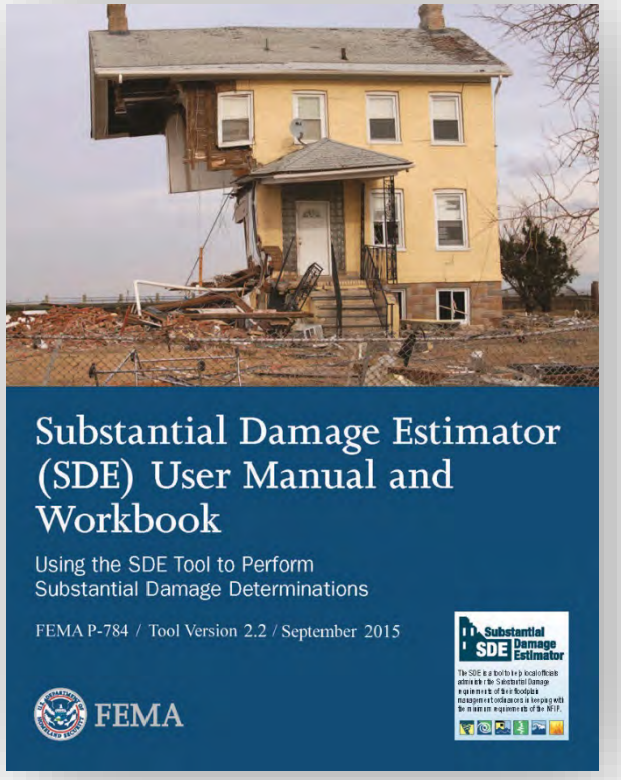
Making Substantial Damage Determinations

- Substantial damage determinations are a **local responsibility**
- Ways to determine market value:
  - Tax assessed value
  - Appraisal (licensed professional)
  - Actual cash value, including depreciation
  - Qualified estimates based on professional judgment of local official
- Look at the Substantial Improvement/Substantial Damage Desk Reference (FEMA P-758) for guidance on what costs to include

Foundation failure (FEMA Region III)

Substantial Damage Estimator

- Pre-populate property information pre-disaster in preparation for post-disaster substantial damage determinations
  - Basic structure characteristics, market value, etc.
- Downloadable for free at
  - Substantial Damage Estimator Tool (2.0) (http://www.fema.gov/media-library/assets/documents/18692?id=4166)
  - Substantial Damage Estimator Best Practices (http://www.fema.gov/media-library/assets/documents/26753)



Substantial Damage Implications

Benefits of bringing structures into compliance with current codes:

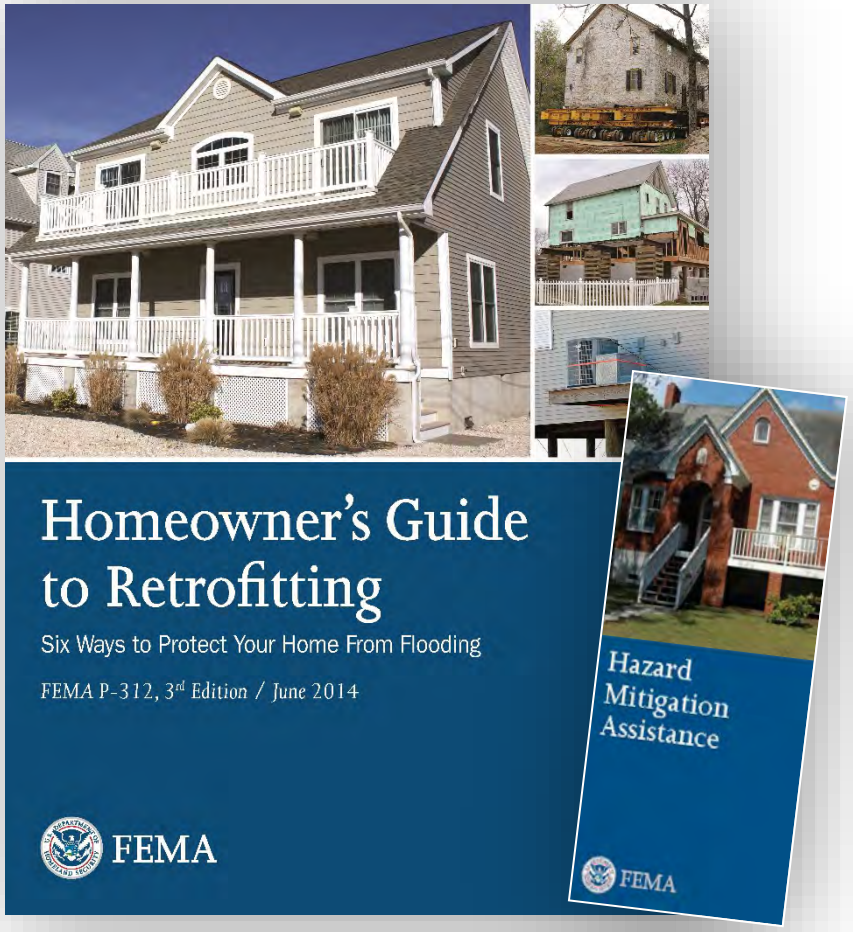
- Reduces exposure to flood risk
- Reduces the cost of flood insurance and future damages
- Fulfills one prerequisite for ICC eligibility
- Cost beneficial for HMGP grants

Challenges to achieving compliance:

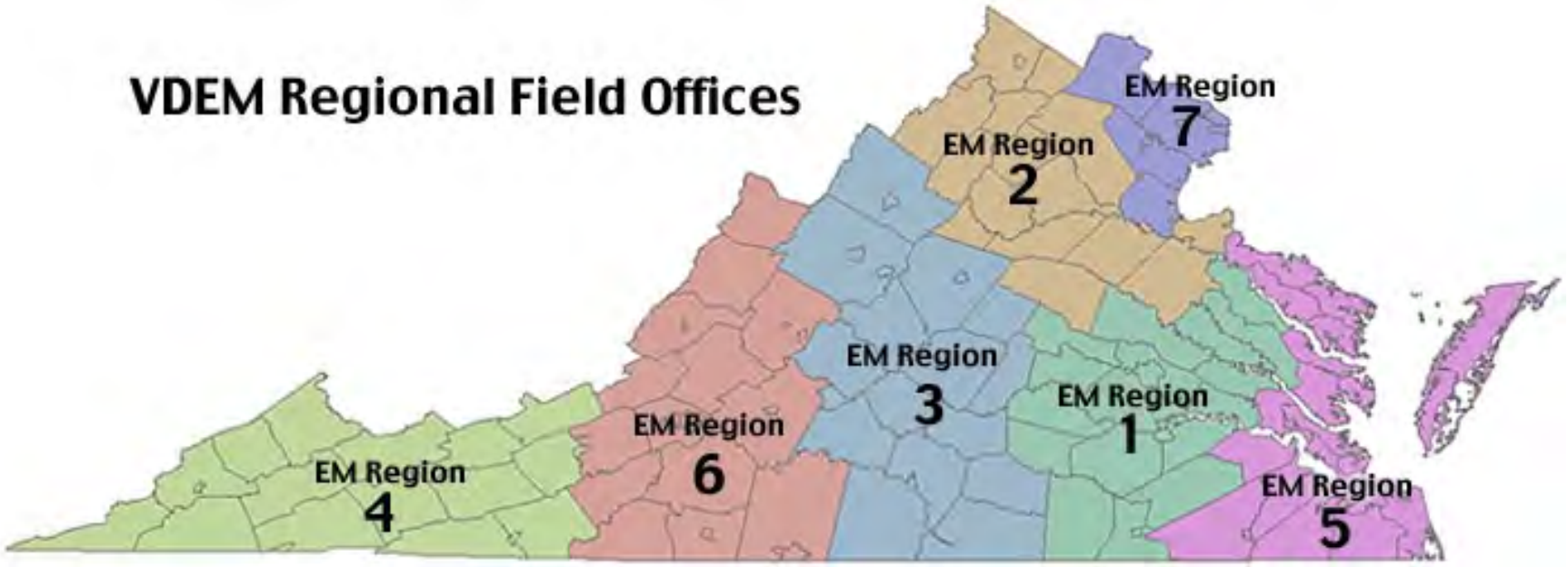
- Cost of addressing compliance issues
- Typically requires significant changes to design of structure

Post-Flood Opportunities

- Increase awareness of flood risk
- Encourage residents to build back safer and stronger
- Share low cost mitigation actions with property owners
- Distribute information on grant opportunities
- Capture high water marks



VDEM Regional Contacts



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Pre- and Post-Disaster Considerations

Questions?

The Community Rating System (CRS)

FEMA

DCR
Virginia Department of Conservation & Recreation

The Community Rating System (CRS)

- Voluntary program for communities participating in the NFIP
- Recognizes activities beyond the minimum NFIP requirements by **reducing the cost of flood insurance from 5 to 45 %**
- Goals
  - Reduce flood damage to insurable property
  - Encourage a comprehensive approach to floodplain management
  - Strengthen/support the insurance aspects of the NFIP

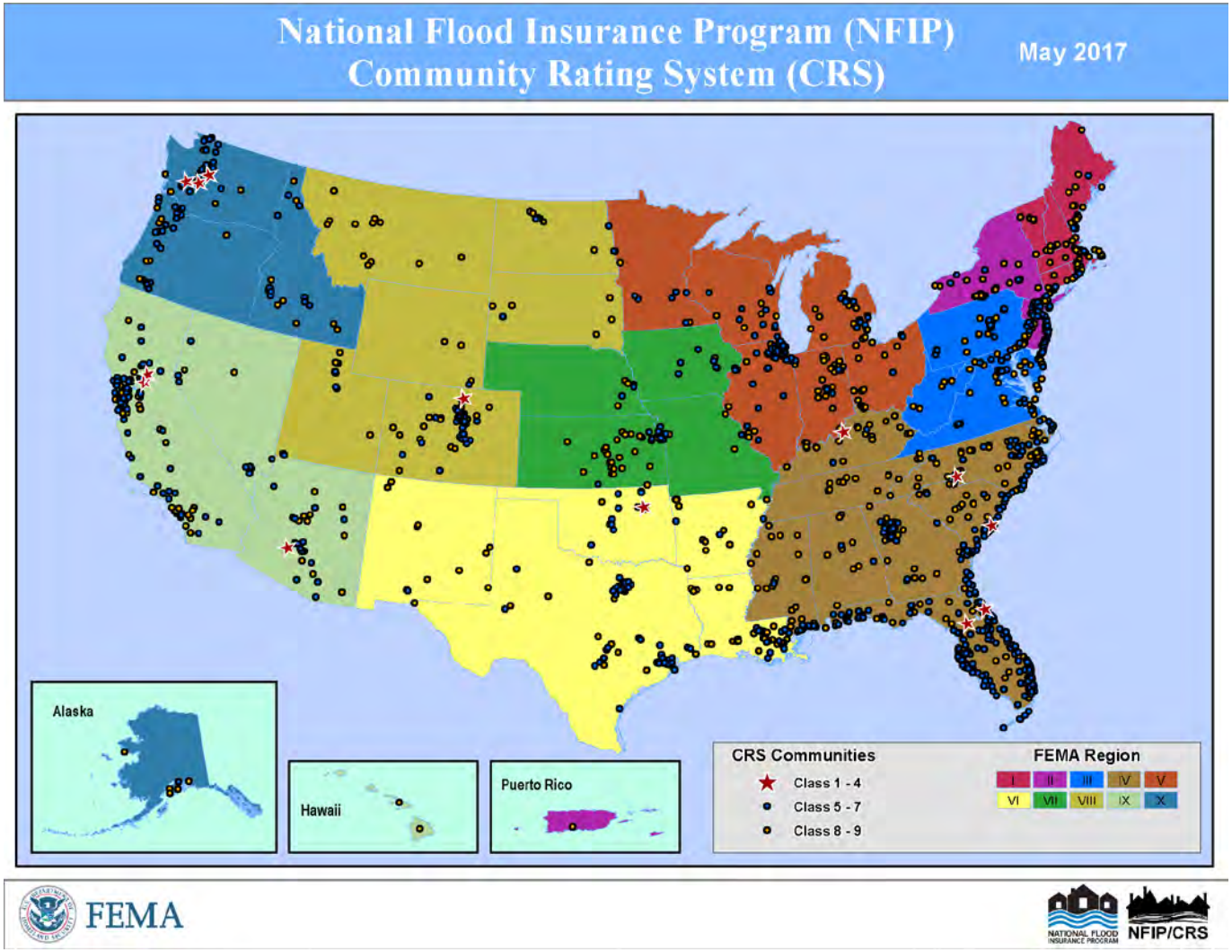
Benefits of CRS

- Money stays in the community
- Insurance savings offset costs
- Improved flood protection
- Better organized programs
- Technical assistance
- Public information builds constituency
- Incentive to keep implementing

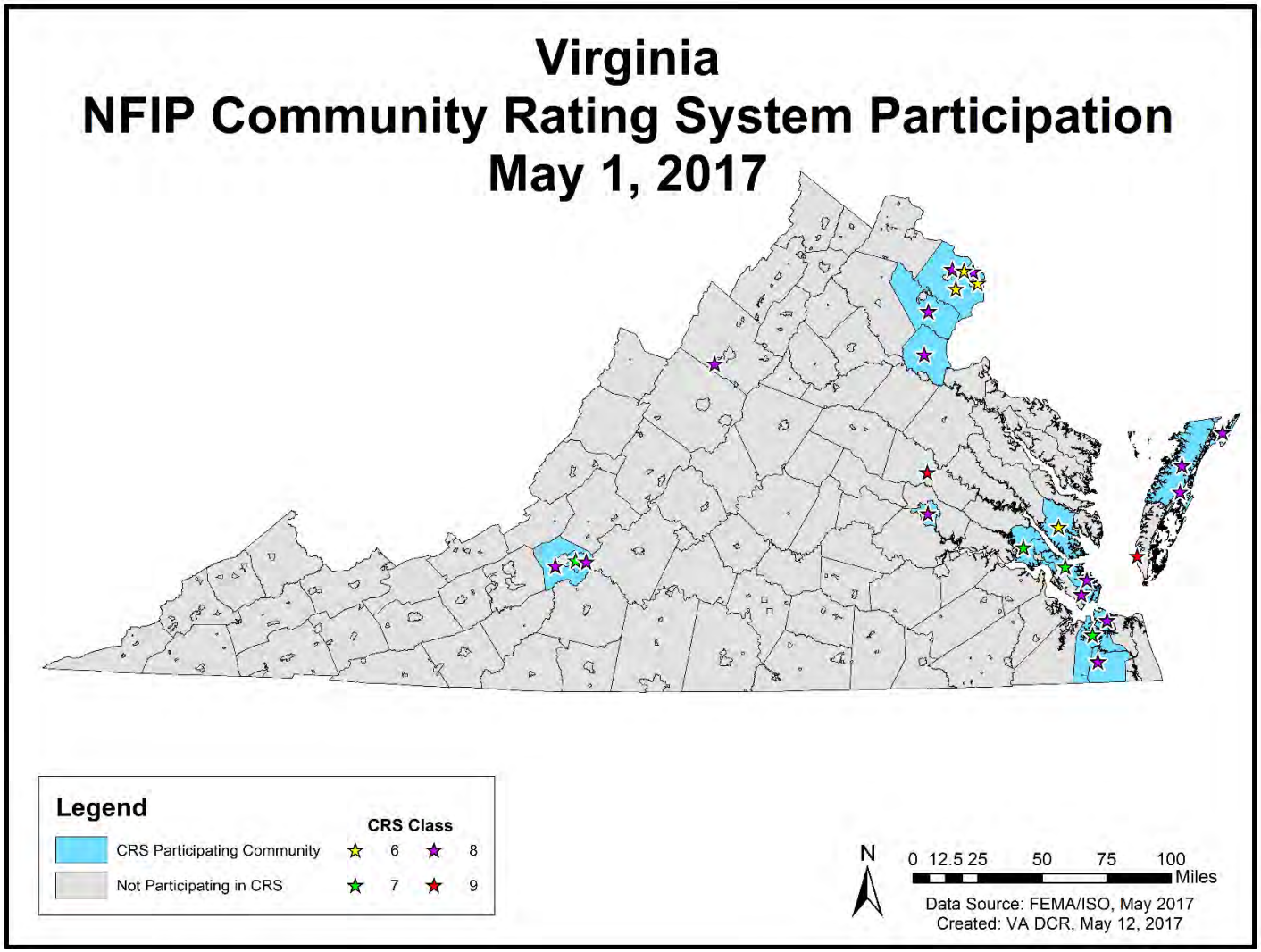
CRS Premium Savings

CRS Classes, Credit Points, and Premium Discounts			
CRS Class	Credit Points	Premium Reductions	
		In SFHA	Outside SFHA
1	4,500 +	45%	10%
2	4,000 – 4,499	40%	10%
3	3,500 – 3,999	35%	10%
4	3,000 – 3,499	30%	10%
5	2,500 – 2,999	25%	10%
6	2,000 – 2,499	20%	10%
7	1,500 – 1,999	15%	5%
8	1,000 – 1,499	10%	5%
9	500 – 999	5%	5%
10	0 – 499	0	0

CRS Communities in the US



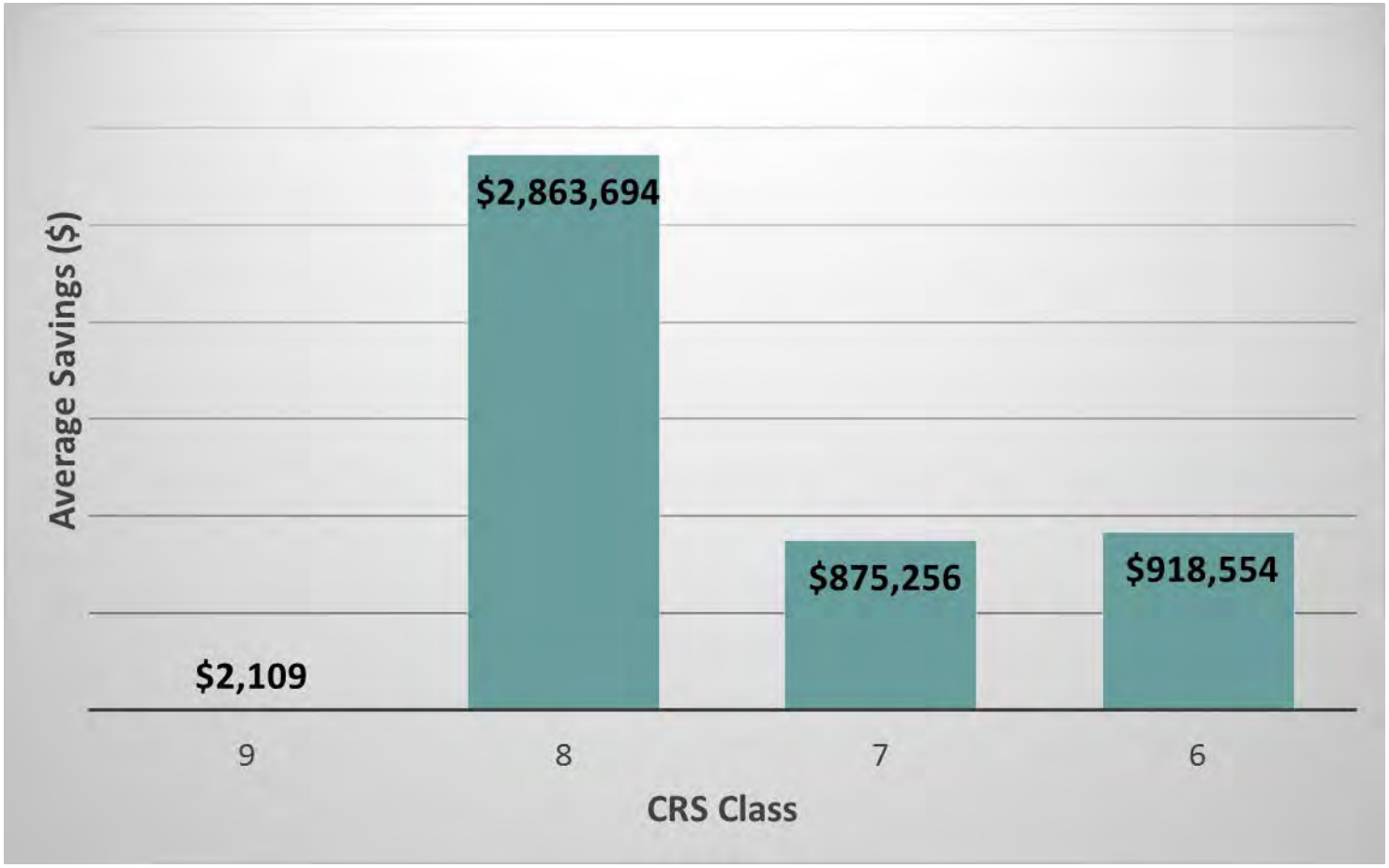
CRS Communities in Virginia



CRS Communities in Virginia

- ACCOMACK COUNTY
- CITY OF ALEXANDRIA
- ARLINGTON COUNTY
- TOWN OF ASHLAND
- TOWN OF BRIDGEWATER
- TOWN OF CAPE CHARLES
- CITY OF CHESAPEAKE
- TOWN OF CHINCOTEAGUE
- FAIRFAX COUNTY
- CITY OF FALLS CHURCH
- GLOUCESTER COUNTY
- CITY OF HAMPTON
- JAMES CITY COUNTY
- CITY OF NORFOLK
- CITY OF POQUOSON
- CITY OF PORTSMOUTH
- PRINCE WILLIAM COUNTY
- CITY OF RICHMOND
- CITY OF ROANOKE
- ROANOKE COUNTY
- STAFFORD COUNTY
- TOWN OF VIENNA
- TOWN OF VINTON
- TOWN OF WACHAPREAGUE
- YORK COUNTY

CRS Classes & Savings in Virginia



Number of Communities per Class	4	15	4	4

What If – Example

		TOTAL	SFHA *	X-STD/AR/A99 **	PRP ***
	PIF	11,935	6,924	1,390	3,621
	PREMIUM	$9,361,008	$7,066,212	$862,600	$1,432,196
	AVERAGE PREMIUM	$784	$1,021	$621	$396
CRS Class					
09	Per Policy	$35	$54	$33	$0
	Per Community	$417,309	$371,909	$45,400	$0
08	Per Policy	$66	$107	$33	$0
	Per Community	$789,211	$743,811	$45,400	$0
07	Per Policy	$97	$161	$33	$0
	Per Community	$1,161,120	$1,115,720	$45,400	$0
06	Per Policy	$132	$215	$65	$0
	Per Community	$1,578,429	$1,487,628	$90,800	$0
05	Per Policy	$163	$269	$65	$0
	Per Community	$1,950,331	$1,859,530	$90,800	$0
04	Per Policy	$195	$322	$65	$0
	Per Community	$2,322,239	$2,231,439	$90,800	$0
03	Per Policy	$226	$376	$65	$0
	Per Community	$2,694,141	$2,603,341	$90,800	$0
02	Per Policy	$257	$430	$65	$0
	Per Community	$3,066,050	$2,975,250	$90,800	$0
01	Per Policy	$288	$483	$65	$0
	Per Community	$3,437,959	$3,347,159	$90,800	$0

Costs to Community

- Pass a Community Assistance Visit
  - Letter of Good Standing
- Designate a CRS Coordinator
- Implement activities
- Maintain records
- Recertify each year
- Participate in verification visits

Prerequisites to Participate

1. Be in Regular Phase of the NFIP at least 1 year
2. In full compliance with the NFIP
3. Agree to maintain Elevation Certificates
4. Assess and address repetitive loss properties
5. Maintain all flood insurance policies required for community-owned buildings
6. Coastal communities agree to show LiMWA on FIRM

Higher Class Prerequisites

- Class 6
  - Receive and maintain a classification of 5/5 or better Building Code Effectiveness Grading Scale (BCEGS)
- Class 4
  - Receive and maintain a classification of 4/4 or better BCEGS
  - Demonstrate programs that minimize flood losses, minimize increases in future flooding, protect natural floodplain functions, and protect people from the dangers of flooding.
- Class 1
  - Successful CAV within the previous 12 months
  - Demonstrate that it has a “no adverse impact” program

NOTE: Each class must meet the prerequisites required for the class(es) below it

Application Process

- Program Prerequisites
  - Activity Credit Points
- CRS Quick Check
- Letter of Interest
- ISO Verification Visit & Report
- FEMA approval
- Effective May 1 or October 1

NOTE: This process may take several months or even a year.

Maintaining CRS

- Recertify annually
- Cycle verification visits every 3-5 years
  - By ISO/CRS Specialist
- Modifications
  - Follow cycle verification process

Four Categories of Activities

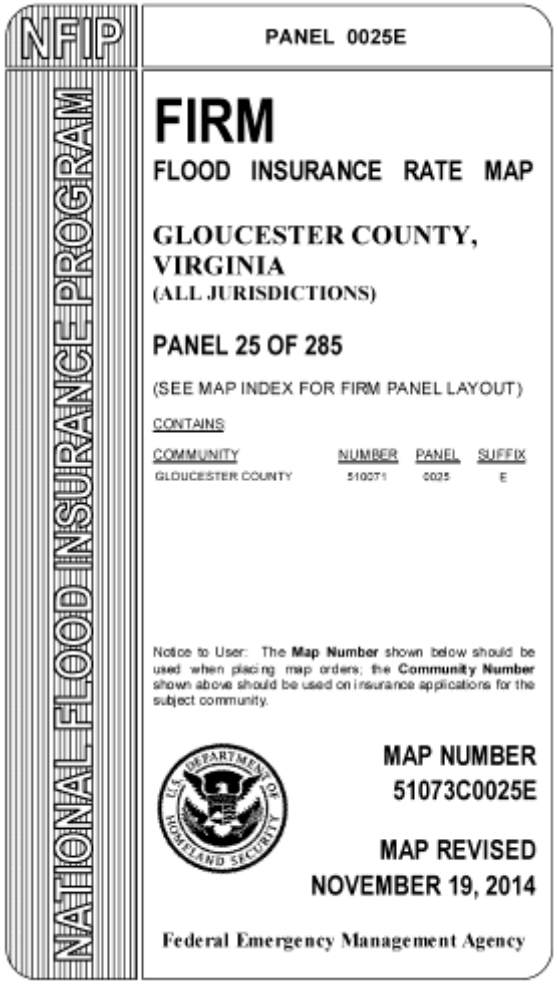
- 300 Series – Public Information
- 400 Series – Mapping and Regulations
- 500 Series – Flood Damage Reduction
- 600 Series – Warning and Response

19 Activities

94 Elements

Public Information Activities

- 310 – Elevation Certificates
- 320 – Map Information Service
- 330 – Outreach Projects
- 340 – Hazard Disclosure
- 350 – Flood Protection Information
- 360 – Flood Protection Assistance
- 370 – Flood Insurance Promotion


NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0025E

FIRM

FLOOD INSURANCE RATE MAP

GLOUCESTER COUNTY, VIRGINIA
(ALL JURISDICTIONS)

PANEL 25 OF 285

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
GLOUCESTER COUNTY	510071	0025	E

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.

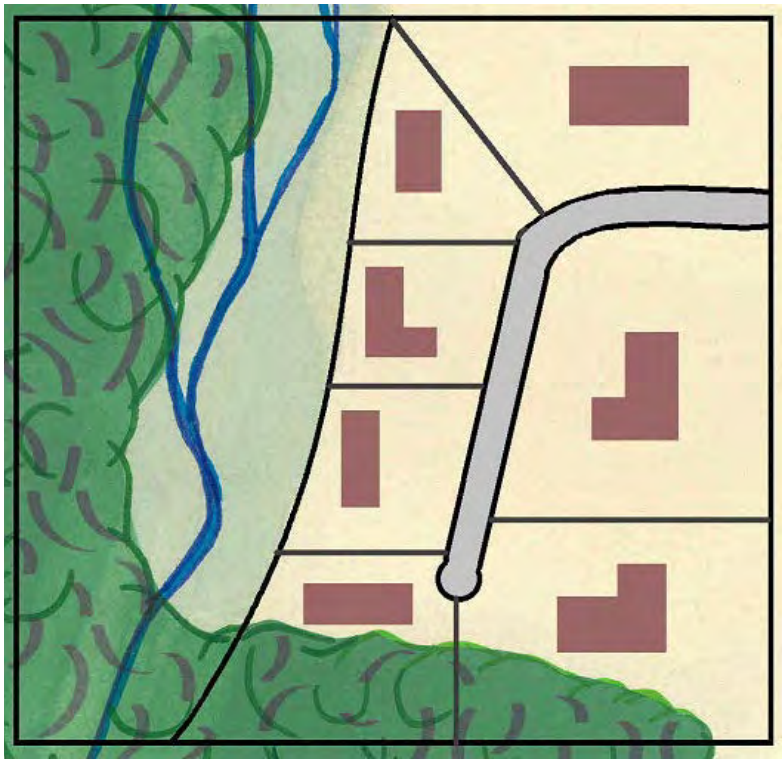
MAP NUMBER
51073C0025E

MAP REVISED
NOVEMBER 19, 2014

Federal Emergency Management Agency

Mapping and Regulations Activities

- 410 – Additional Flood Data
- 420 – Open Space Preservation
- 430 – Higher Regulatory Standards
- 440 – Flood Data Maintenance
- 450 – Stormwater Management



Flood Damage Reduction Activities

- 510 – Floodplain Management Planning
- 520 – Acquisition and Relocation
- 530 – Flood Protection
- 540 – Drainage System Maintenance

Warning and Response Activities

- 610 – Flood Warning & Response
- 620 – Levee Safety
- 630 – Dam Safety

CRS Activity Examples

- Preserving open land in the floodplain
- Having/enforcing statewide building codes
- Adding freeboard provision to ordinance
- Low density zoning
- Letters to property owners in floodprone areas
- Retrofitting floodprone buildings
- Removing floodprone buildings from floodplain
- Having/enforcing stormwater management regulations
- Maintaining drainage systems

Helpful Hints

- Most communities apply for credit for activities that they're already implementing
- Most communities can join as a Class 8 based on existing activities
- "New" community CRS initiatives for additional credit are often less expensive, public information activities
- To be successful, all the offices and departments that are responsible for flood-related activities should be involved

The Community Rating System

Questions?

DCR Division of Dam Safety and Floodplain Management Update

FEMA

DCR
Virginia Department of Conservation & Recreation

DCR Division of Dam Safety and Floodplain Management Update

FLOODPLAIN MANAGEMENT PROGRAM OVERVIEW

Floodplain Management Program Overview

- DCR is charged by the General Assembly in the VA Flood Damage Reduction Act, Section 10.1-600 to 10.1-603 of the Code of Virginia, to serve as the coordinator of all flood protection programs and activities in the Commonwealth.
- DCR acts as a liaison between FEMA and communities for the National Flood Insurance Program.
- DCR assists communities with their floodplain ordinances and maps, provides floodplain workshops and trainings, and provides technical assistance and guidance.
- DCR works closely with FEMA Region III, VA state agencies, other state NFIP offices in the Region, and the VA Silver Jackets team.

Silver Jackets Program Goals

- Facilitate strategic life-cycle flood risk reduction.
- Create or supplement a continuous mechanism to collaboratively solve state-prioritized issues and implement or recommend those solutions.
- Improve processes, identifying and resolving gaps and counteractive programs.
- Leverage and optimize resources.
- Improve and increase flood risk communication and present a unified interagency message.
- Establish close relationships to facilitate integrated post-disaster recovery solutions.

The Floodplain Management Plan for the Commonwealth of Virginia

- The plan will be a web-based resource that serves as a one-stop-shop for flood information in Virginia.
  - This is a departure from the 2005 plan, which was a 226 page document.
- The new Virginia Flood Risk Information System (VFRIS) is one major element of the website. Phase 1 of VFRIS was rolled out in February 2017.
- The draft website layout is complete and two pages are in the initial draft phase.
- Legal information and analysis has been provided by the Virginia Coastal Policy Center.

State Model Floodplain Ordinance

- DCR updated the state model floodplain ordinance to incorporate new FEMA guidance on accessory structures.
  - DCR has been working with communities to understand this accessory structure guidance and incorporate it into their ordinances.
  - No statewide deadline for community adoption. DCR works with communities on a rolling basis.
- DCR is currently working to ensure the ordinance aligns with the current and future VA Uniform Statewide Building Code.

DCR Division of Dam Safety and Floodplain Management Update

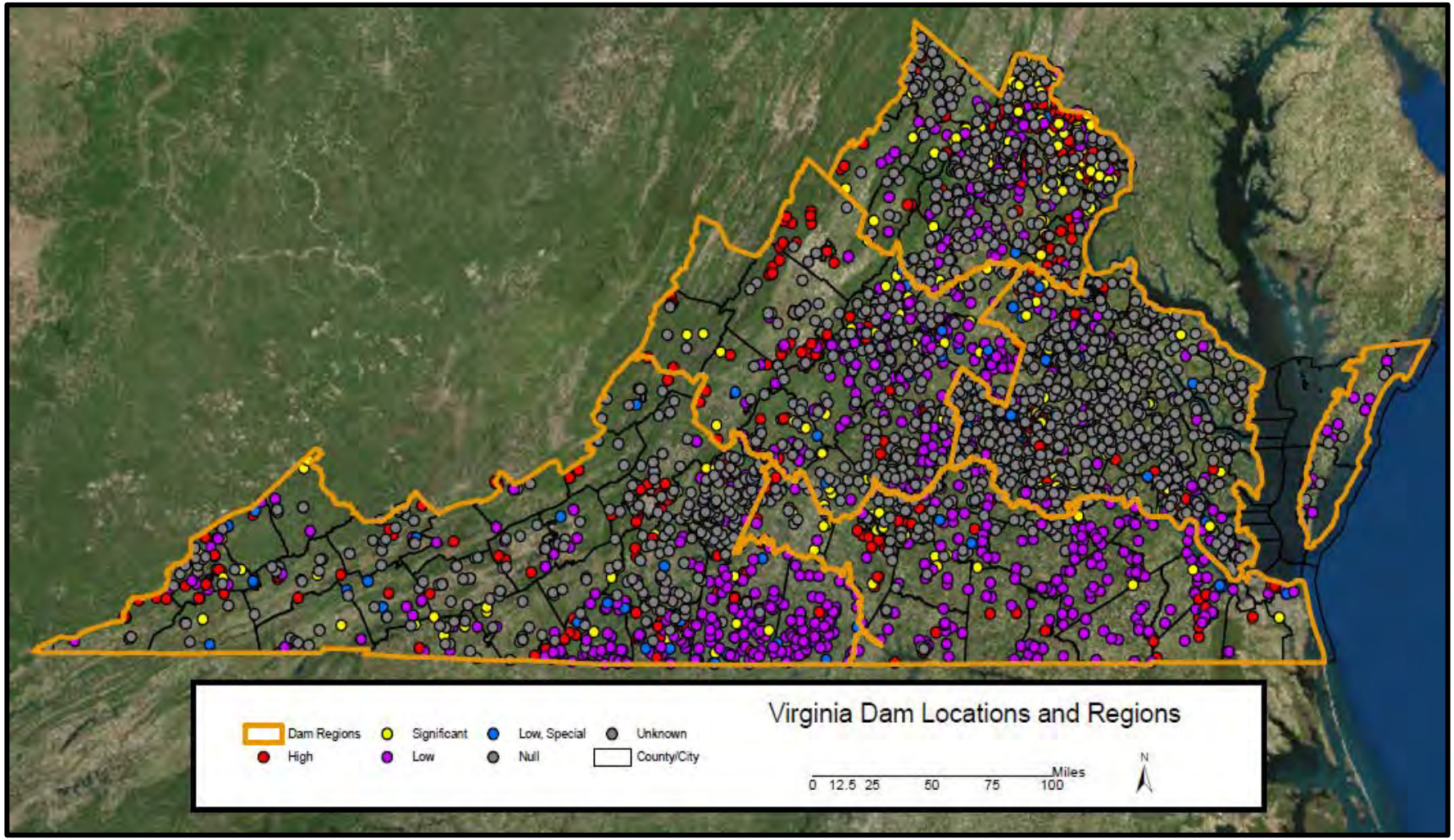
DAM SAFETY UPDATE

Dam Safety Inventory System (DSIS)

FEMA

DCR
Virginia Department of Conservation & Recreation

Virginia Dam Locations and Regions



Dam Safety Inventory System Goals

- Digital Files and Attachments
- Centralized Database
- Simplified Tracking
- Quickly Find Data
- Export Reports and Files for Sharing
- Public Facing
- Quickly Respond to Emergency Requests
- Effective Response During Emergencies

Dam Safety Inventory System Information

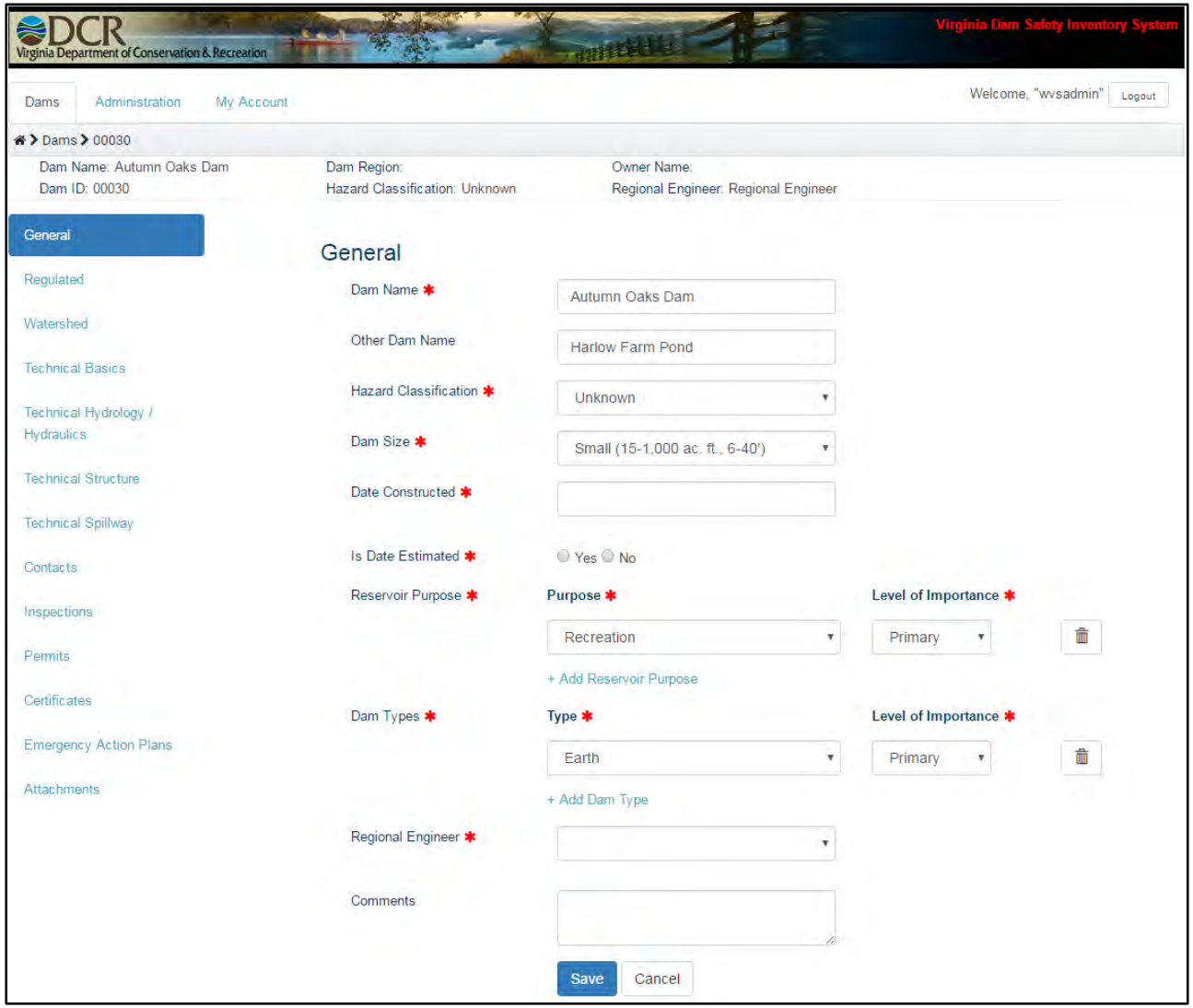
- Contact information
- Technical Specifications
- Inspections
- Permits
- Certificates
- Emergency Action Plans
- Map location and additional map layers (including dam break inundation zones and SFHA)

Dam Safety Inventory System

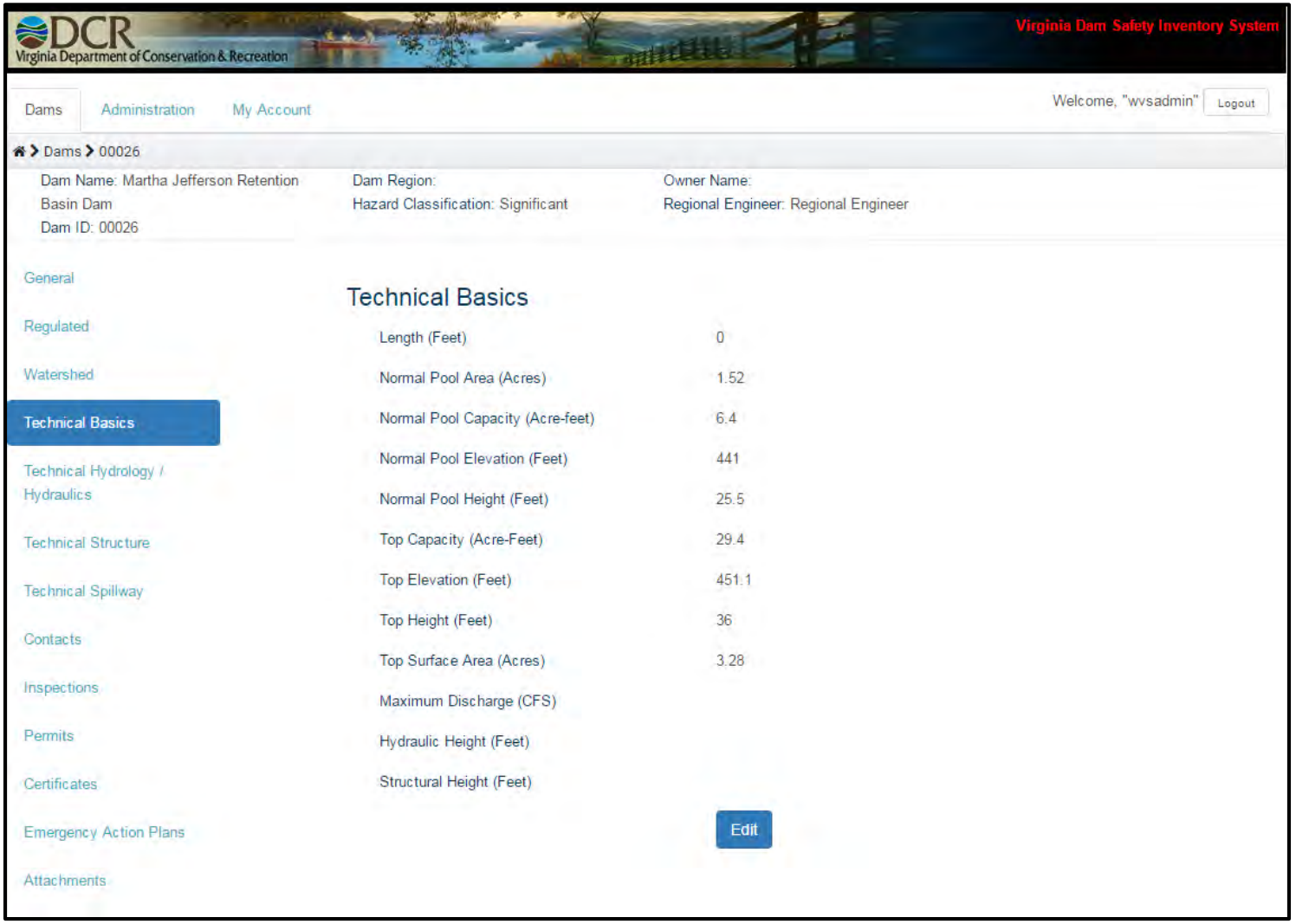
Id Number	Dam Name	Dam Other Name	Owner Name	Dam Region	City/County	Regional Engineer	Hazard Classification	Dam Size	Dam Type
Search	Search	Search	Search	3	Search	Search	Sign	Search	Search
03101	Little Falling River Dam #1			3	Campbell County	Regional Engineer	Significant	2	Earth
03103	Little Falling River Dam #2			3	Campbell County	Regional Engineer	Significant	2	Earth
03104	Little Falling River Dam #3			3	Campbell County	Regional Engineer	Significant	1	Earth
03105	Lakewood Dam	Lynch Dam		3	Campbell County	Regional Engineer	Significant	2	Earth
03106	Brookneal Dam	PHELPS CREEK DAM		3	Campbell County	Regional Engineer	Significant	0	Earth
00804	Walker Mawn Dam	01900dd383		3,4	Bedford County,City of Lynchburg	Regional Engineer	Significant	1	Earth
01915	Ramsey Dam	Dobyns Dam 00586, Huntingwood Dam		3,4	Bedford County,City of Lynchburg	Regional Engineer	Significant	1	Earth

1 50

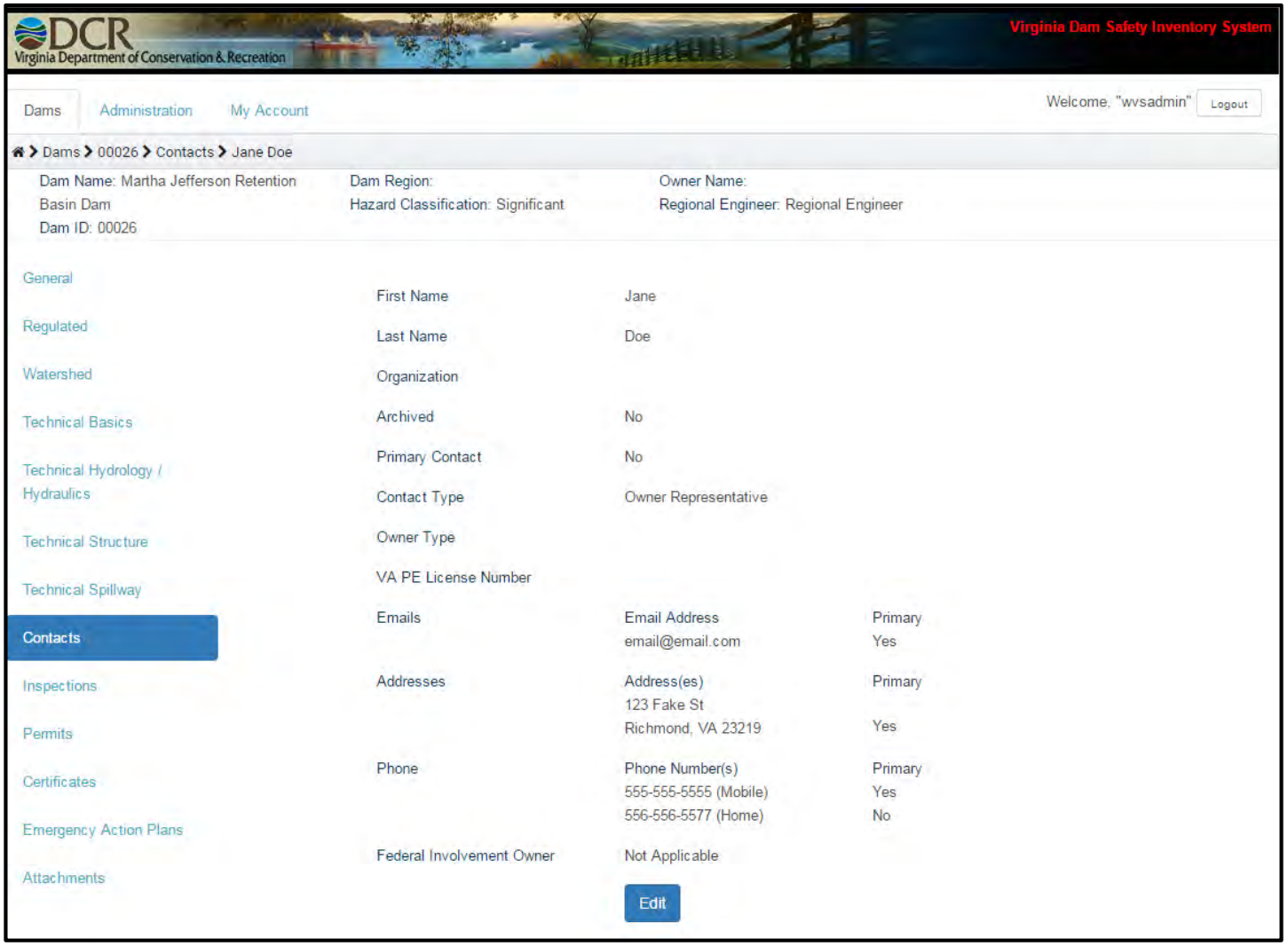
Dam Safety Inventory System



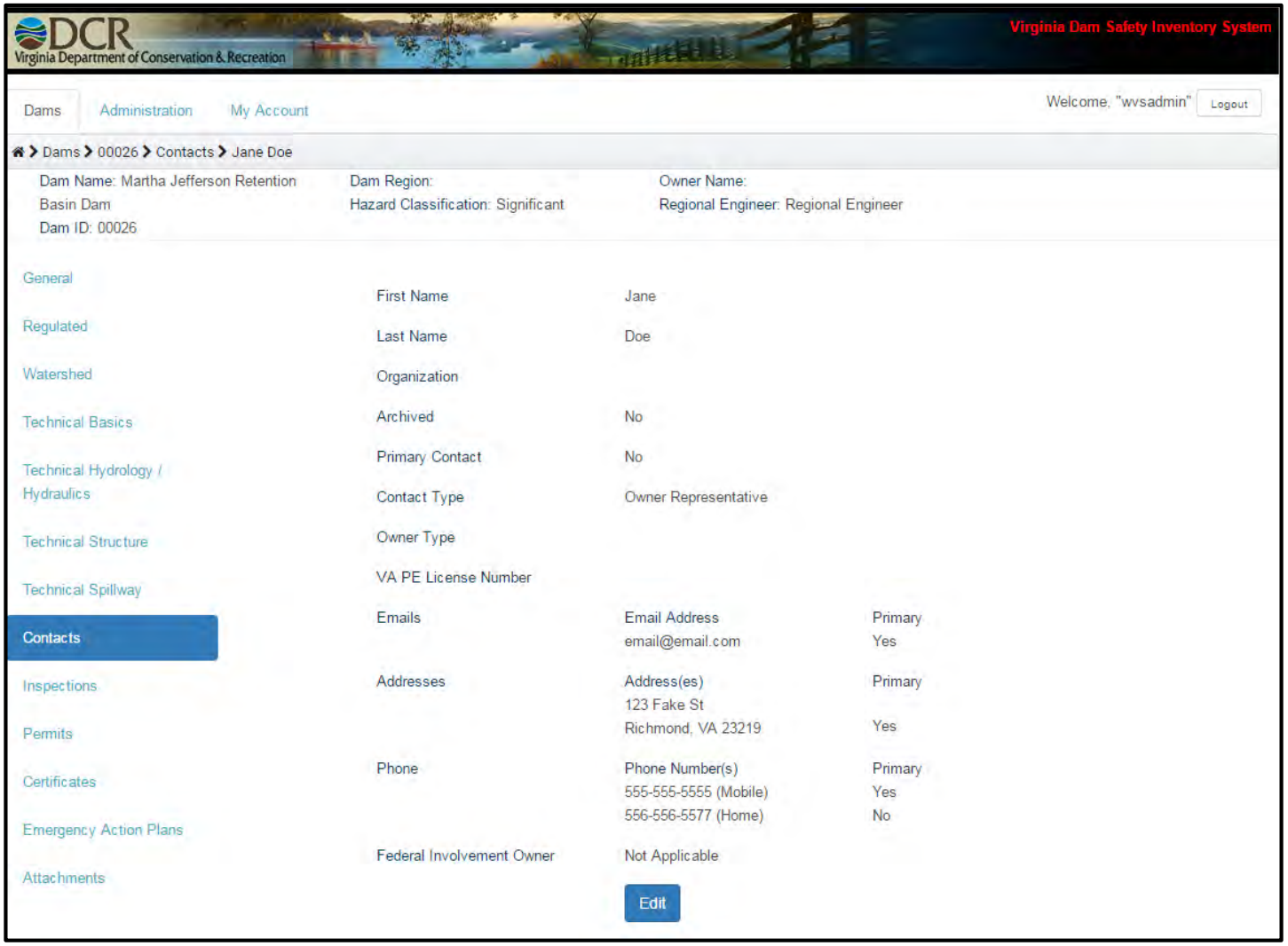
Dam Safety Inventory System



Dam Safety Inventory System

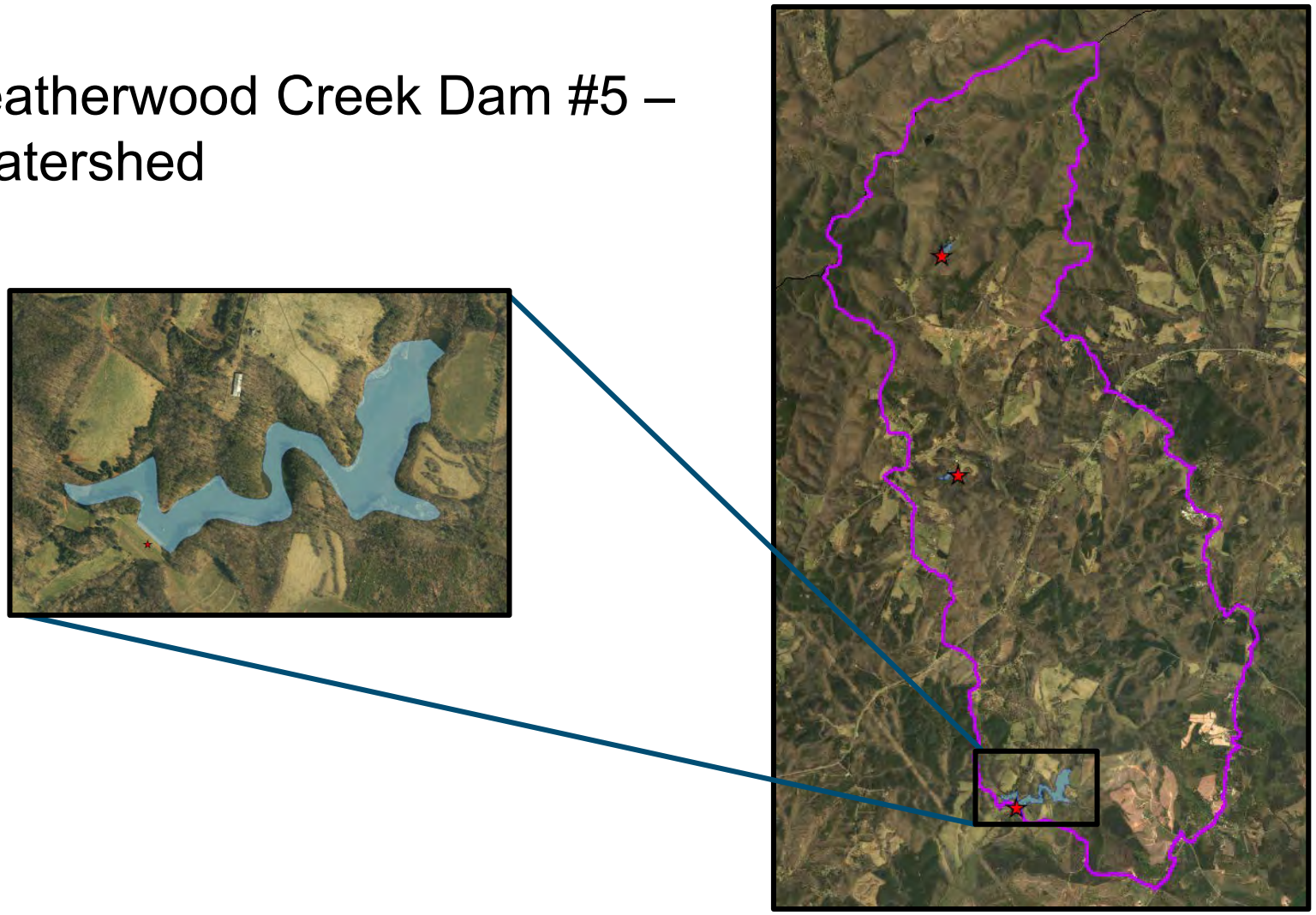


Dam Safety Inventory System



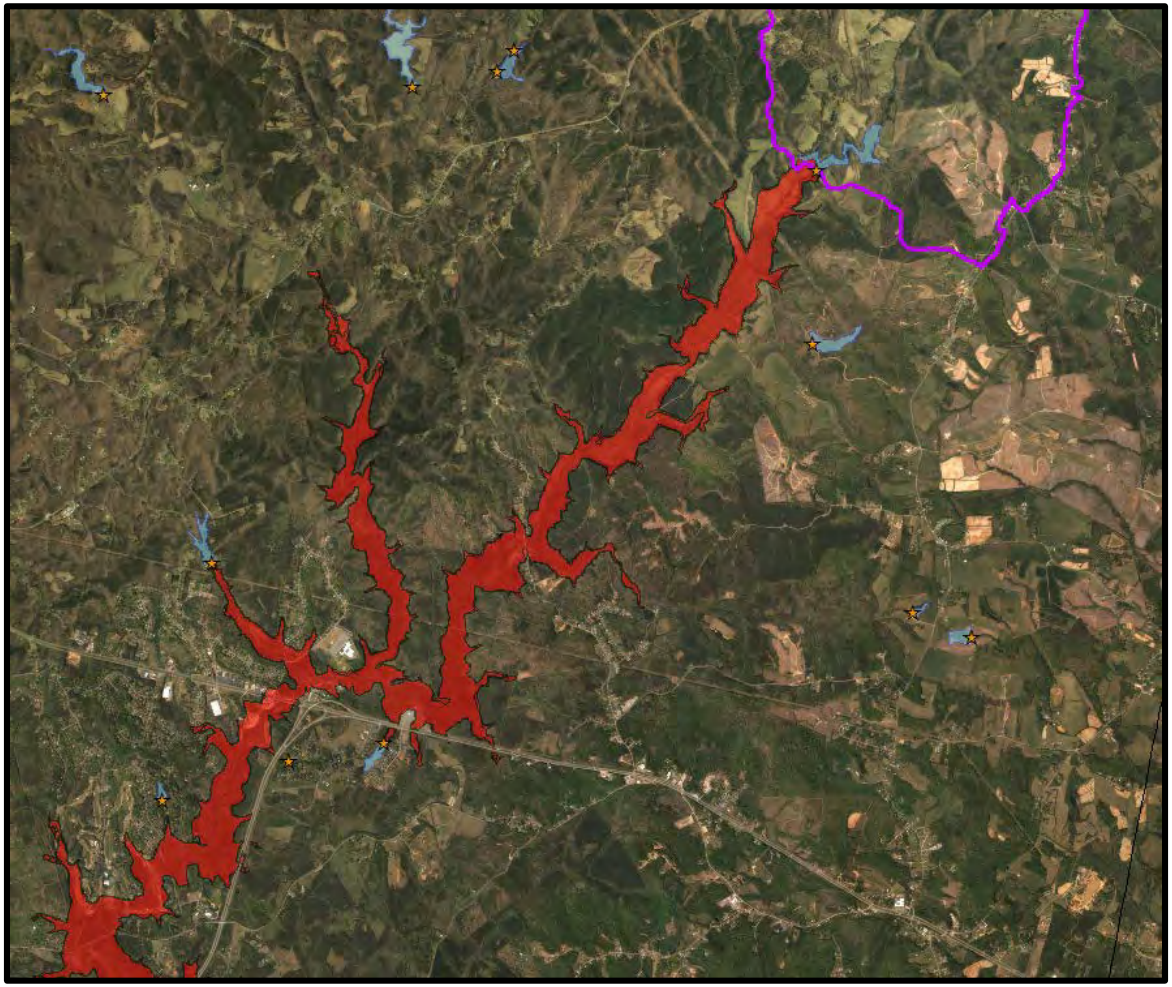
Dam Safety Inventory System

Leatherwood Creek Dam #5 – Watershed



Dam Safety Inventory System

Leatherwood Creek Dam #5 – Watershed



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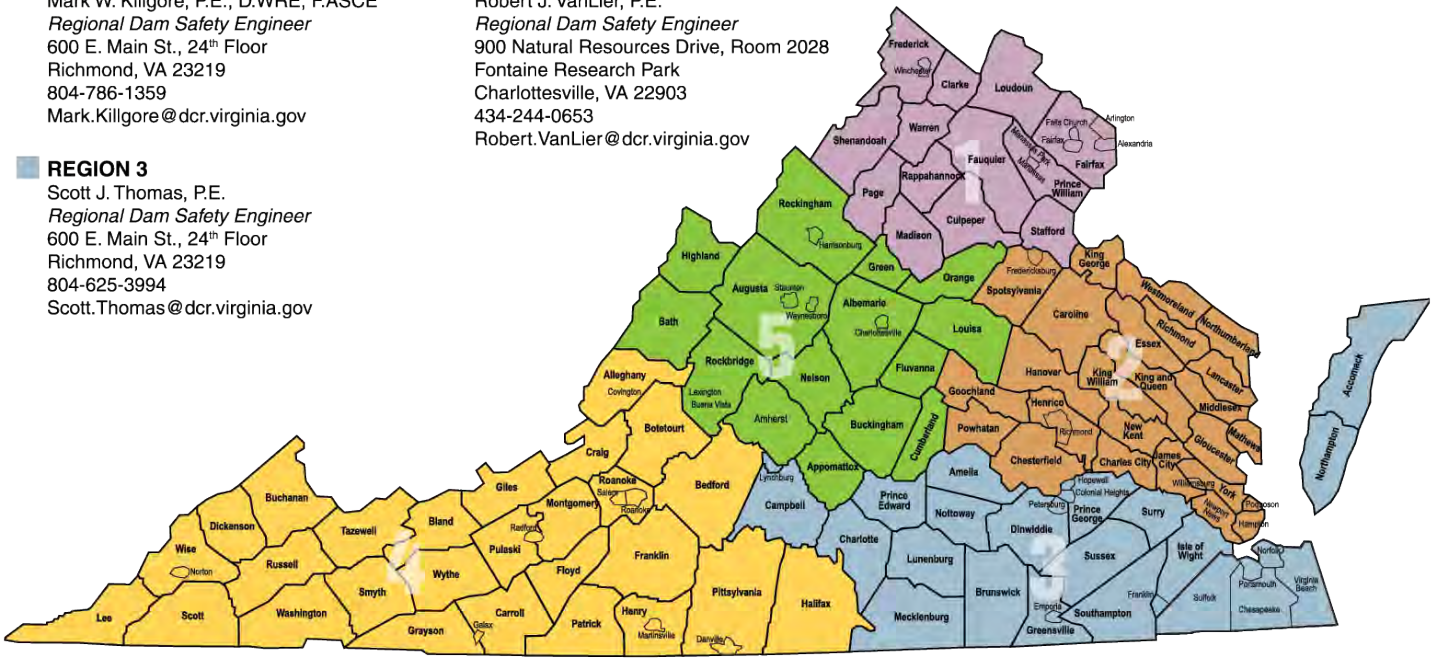

Virginia Department of Conservation and Recreation
600 E. Main St., 24th Floor
Richmond, VA 23219

DCR Virginia Department of Conservation & Recreation

7/25/17

FEMA

DCR Virginia Department of Conservation & Recreation

DCR Division of Dam Safety and Floodplain Management Update

Questions?

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- Kristin Owen, AICP, CFM (CRS)
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