


Floodplain Management Workshop

Middle Peninsula Planning District Commission


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October 18, 2017
Saluda, VA




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





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Overview of the National Flood Insurance Program



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






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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.



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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.



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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



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NFIP Background

Insurance

Flood Insurance Rate Maps

Flood grants Community Rating System

Building codes and regulations

FEMA

DCR

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

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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.*

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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

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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%


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Overview of the National Flood Insurance Program

Questions?

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Floodplain Ordinances and Permitting



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Floodplain Ordinances and Permitting


FLOODPLAIN MANAGEMENT REGULATIONS



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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



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Regulation "Staircase"

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

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44 CFR §60.3(a): No Flood Map

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

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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.

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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.

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Protecting Utilities

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



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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.

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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.



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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.



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60.3(b) Requirements (1)–(4)

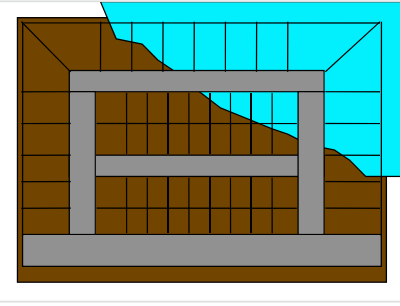
1. Require permits for ALL development in mapped SFHAs.
2. Apply 60.3(a) (2)–(6) standards to development.
3. Require that subdivision and other development proposals include BFE data.
 - Subdivisions: 50 lots or 5 acres
4. Use available BFE and floodway data.



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Review Subdivision Proposals: 60.3(b)(3)



Zone A
(can the project be designed differently?)

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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.

FEMA 35 DCR

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.

FEMA 36 DCR

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

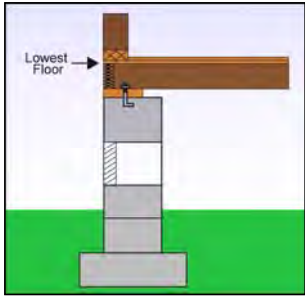
FEMA 37 DCR

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

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



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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.



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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)].



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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).




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60.3(d): A Zones With BFE and Floodway

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

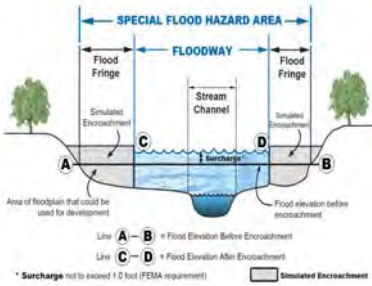


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Floodways

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.



FEMA 44 DCR

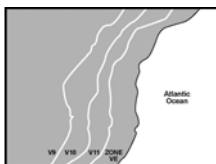
60.3(d) Requirements: Review

- 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).

FEMA 45 DCR

60.3(e): Zones VE and V1-30

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



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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



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Transect Schematic

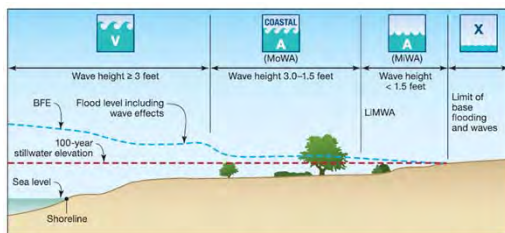


Figure 3-53. Typical shoreline-perpendicular transect showing stillwater and wave crest elevations and associated flood zones

COASTAL CONSTRUCTION MANUAL

3-57



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

Zone V
Not to scale

FEMA49DCR

Coastal Barrier Resources Act (CBRA)

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

FEMA50DCR

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

FEMA51DCR

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

FEMA 52 DCR

Floodplain Ordinances and Permitting

ACCESSORY STRUCTURES

FEMA 53 DCR

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)*

FEMA 54 DCR



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 ft² 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 ft².



Accessory Structure Requirements

1. Not for human habitation
1. Be limited to no more than 600 ft² 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 ft²
- Higher Standards
 - A community could choose a higher standard and limit accessory structures to a size less than 600 ft², such as 200 ft²
 - In that case, a variance could be issued for larger accessory structures, not to exceed 600 ft (i.e. between 200 ft² -600 ft²)

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).

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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

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FEMA DCR

Floodplain Ordinances and Permitting

FLOODPLAIN ORDINANCES AND ADMINISTRATIVE PROCEDURES

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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

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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**

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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

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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

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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

10-18-17
 This document is intended to provide a model for local governments to use in developing their own floodplain management ordinances. It is not intended to be a substitute for legal advice. The document is provided as a service to the public and is not intended to be a substitute for legal advice. The document is provided as a service to the public and is not intended to be a substitute for legal advice.

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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

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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

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Higher Standards Reduce...

- ...**work** and administrative burden
- ...**risk** and response/recovery efforts
- ...**costs** for insurance and rebuilding


FEMA 72 DCR

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)

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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

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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

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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>


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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


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Duties of the Floodplain Administrator

<ul style="list-style-type: none"> ▪ Review applications ▪ Make floodplain determinations ▪ Make Substantial Improvement / Damage determination ▪ Issue or deny permits ▪ Review plans and specifications ▪ Ensure all other permits are obtained 	<ul style="list-style-type: none"> ▪ Notification of watercourse alterations ▪ Maintain and help update flood data and maps ▪ Inspect development ▪ Recordkeeping ▪ Remedy violations
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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.**

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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


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graph LR
    A[Applicant submits appeal to Board] --> B[FPA explains reason for decision]
    B --> C[Board reviews and issues decision]
    C --> D[Permit issued or denied based on decision]
  
```

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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



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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!

FEMA 85 DCR

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

FEMA 86 DCR

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.

FEMA 87 DCR

Floodplain Ordinances and Permitting



PERMITTING DEVELOPMENT

Permits are Required for ALL Development



ALL development in the SFHA requires a permit

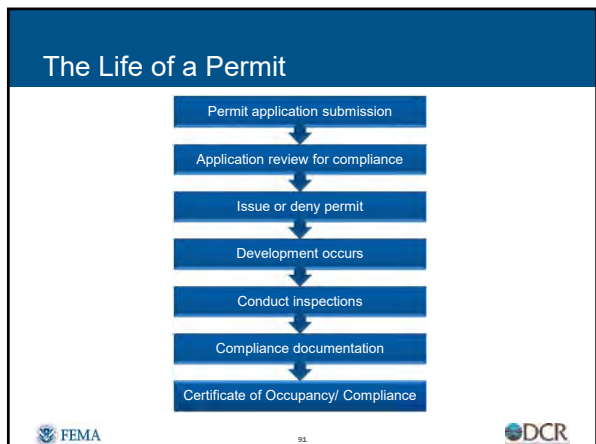
- Definition of development (as per 44 CFR 59)
 - **Any manmade change to improved or unimproved real estate**, including, but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.
- Before any 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.



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: _____ %

FEMA DCR

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?


FEMA DCR

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

FEMA 94 DCR

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

FEMA 95 DCR

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).

FEMA 96 DCR


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



FEMA 97 DCR

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)

FEMA 98 DCR

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 99 DCR

Considerations for Zone A

Other possible sources of elevation data:

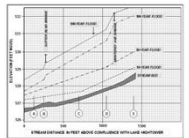
- Check other sources: federal, state, and local
- H&H study may be available – FEMA Engineering library
- Simplified methods of estimation:
 - Contour interpolation: point on boundary
 - Data extrapolation: estimating from the FIS
- In some cases, FEMA may be able to provide a BFE for a property when 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.


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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 \geq flood depth
or
Lowest floor \geq 2' when no depth is specified


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Considerations for Zone AE

AE Zones without Floodways

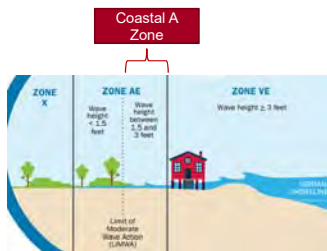
- Where FEMA has provided BFEs but no floodway, the community must review all development to **track cumulative rise**
- Ensure development does not increase the BFE more than 1.0 foot
- Once allowable rise is reached, **no further rise** is permitted
- Administrative procedure to track and collect cumulative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


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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



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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 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



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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.





105




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


106




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.




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Considerations During Inspections

Address Non-Compliance Early

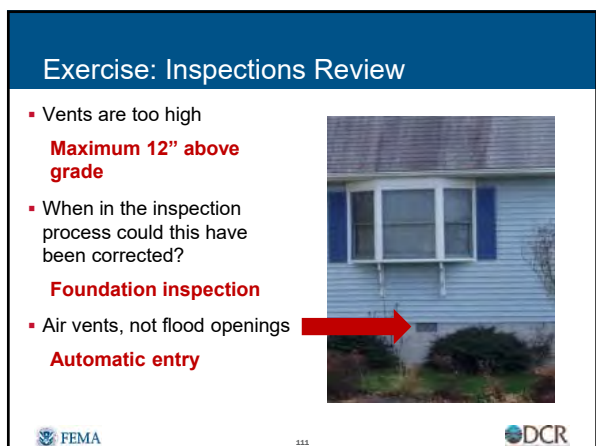
- If inspections reveal violations, take steps to bring into compliance
 - Voluntary option
 - Provide written notice
 - Issue fines or penalties
 - Withhold final approvals
- Refer to ordinance for specific enforcement procedures
- Insurance for non-compliant structures is available, **but it's very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




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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




FEMA 112 DCR

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



FEMA 113 DCR


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](#)





FEMA 114 DCR

Other Types of Development




- 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

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




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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


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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


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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.

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

FEMA DCR

FEMA Draft Permitting Policy

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

FEMA DCR

FEMA Draft Permitting Policy

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

FEMA DCR


Floodplain Ordinances and Permitting

ELEVATION CERTIFICATES

FEMA DCR

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



FEMA
NATIONAL FLOOD INSURANCE PROGRAM
ELEVATION CERTIFICATE
AND
INSTRUCTIONS
2010 EDITION

FEMA DCR

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.

FEMA DCR

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 if required, 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) is 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?



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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: _____ Title: _____ Telephone: _____

Comments: _____

Check here if attachments.

Who can fill out Section F?



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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 items (1) and sign below. Check the measurement used in Items G4-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: G4. Date Permit issued: G4. Date Certificate of Compliance/Occupancy issued:

G5. This permit was both issued for: New Construction Substantial Improvement

G6. Elevation of an built lowest floor (including basement) of the building: feet meters Datum: _____

G7. 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?



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Exercise: What Building Diagram is this?



FEMA

133

DCR

Exercise: What Building Diagram is this?



FEMA

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DCR

Exercise: What Building Diagram is this?



FEMA

135

DCR

Exercise: What Building Diagram is this?

Building Diagram 3



FEMA

136

DCR

Exercise: What Building Diagram is this?

Building Diagram 4



FEMA

137

DCR

Exercise: What Building Diagram is this?

Building Diagram 5



FEMA

138

DCR

Exercise: What Building Diagram is this?



FEMA

139

DCR

Exercise: What Building Diagram is this?



FEMA

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DCR

Floodplain Ordinances and Permitting

Questions?

FEMA

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DCR

Flood Hazard Maps and Data





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.



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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.



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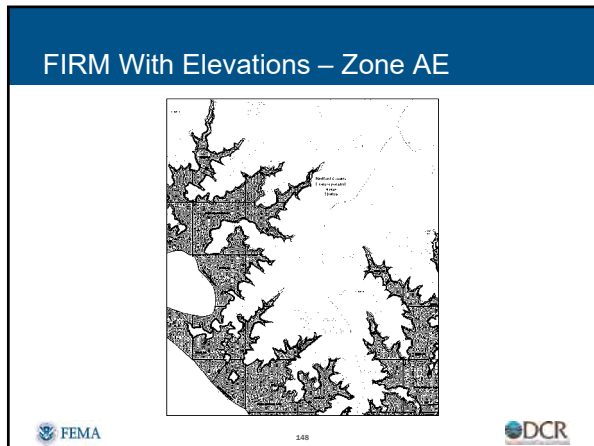


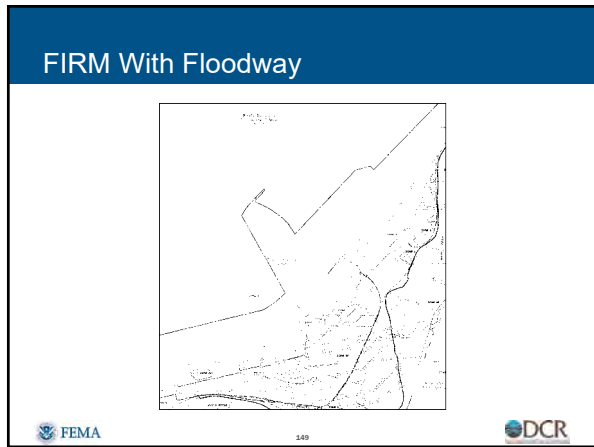
FIRM – Zone A

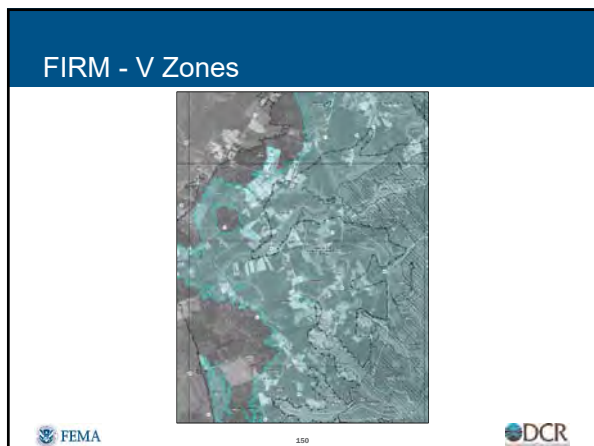


147











Flood Hazard Maps and Data

ACCESSING AND USING FLOOD HAZARD DATA





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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




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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



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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.



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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.



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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.



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Access to VFRIS

DCR | Virginia Department of Conservation and Recreation

Search DCR Site

About DCR State Parks Natural Heritage Soil and Water Conservation Recreation Planning Dam Safety and Floodplains Land Conservation

Dam Safety and Floodplains

Dam Safety

Floodplain Management

Floodplain Documents

Floodplain Ordinances

Floodplain Regulations

Floodplain Maps

Floodplains As Hazards

Maple Ordinances

Community Rating System

Services

Virginia Flood Risk Information System

Virginia Flood Risk Information System (VFRIS) is a collaboration between DCR and the Virginia Institute of Marine Science's Center for Coastal Resource Management. VFRIS helps communities, real estate agents, property buyers and property owners discover an area's flood risk. By pulling together information from the Federal Emergency Management Agency's Flood and Wetlands Service and Esri GIS, VFRIS allows users to quickly locate and view if property is within the Special Flood Hazard Area (SFHA). Click here to go directly to the map tool.

Knowing flood zone locations:

- Helps property owners and buyers understand their flood insurance rate and consider budgeting options.
- Helps insurance agents assess risks.

FEMA DCR

VFRIS Tour

Map Controls

Map Legend

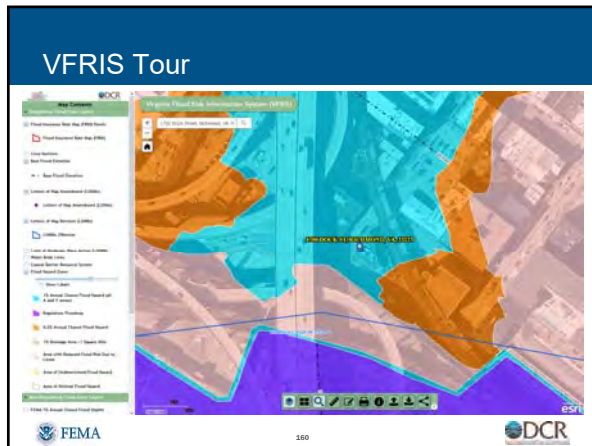
DCR

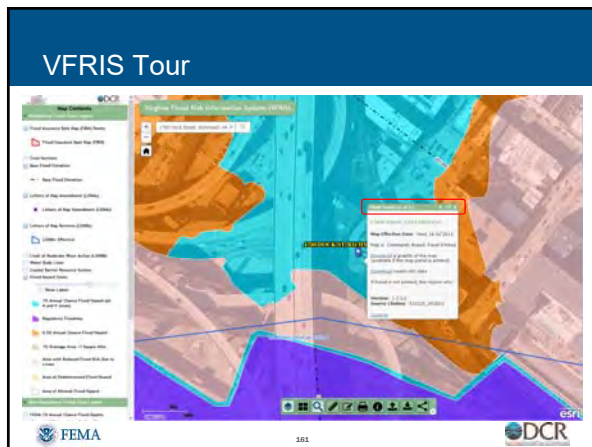
VFRIS Tour

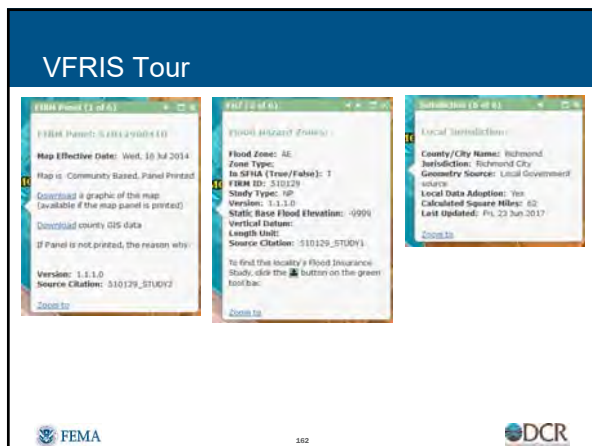
Map Controls

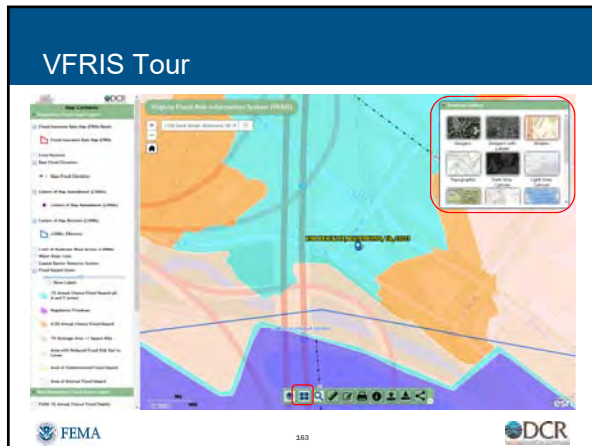
Map Legend

DCR

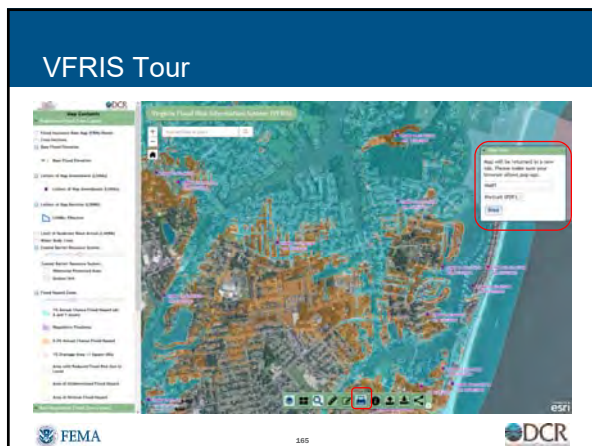












VFRIS Tour

FEMA 166 DCR

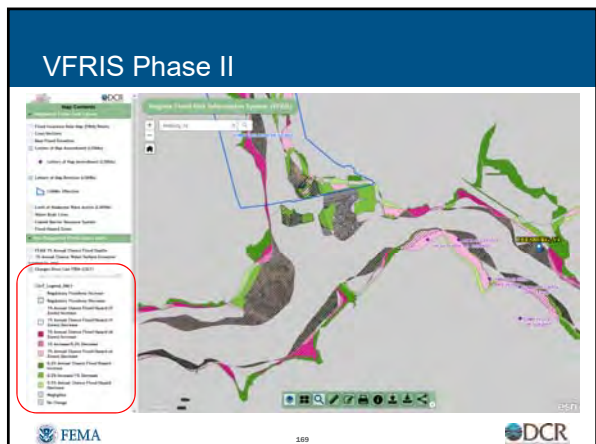
VFRIS Phase II

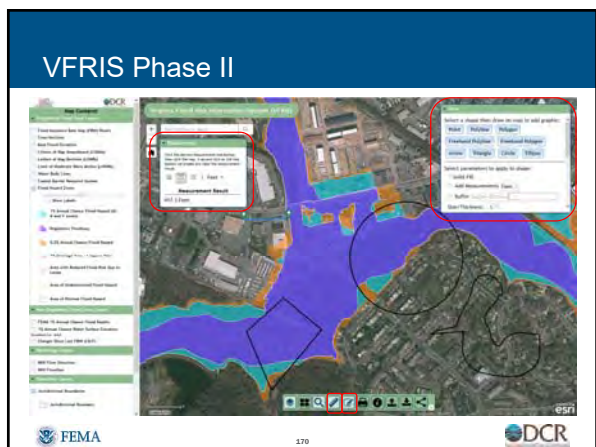
- Additional information from the NFHL/FEMA Map Service Center
 - Limit of Moderate Wave Action
 - Flood Insurance Study Reports
- VGIN Parcel Boundaries
- Additional Non-Regulatory FEMA data
 - Changes since last FIRM
 - Preliminary Maps
 - Water surface elevation grids in model-backed A Zones (Loudoun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

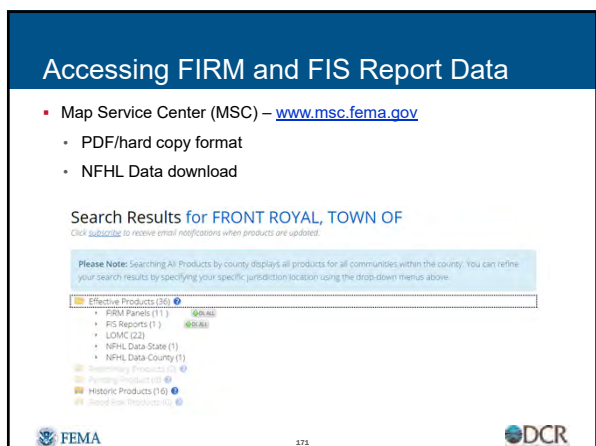
FEMA 167 DCR

VFRIS Phase II

FEMA 168 DCR








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



The image shows two documents. The top one is the cover of a 'FLOOD INSURANCE STUDY' report for 'FAIRFAX COUNTY, VIRGINIA UNINCORPORATED AREAS'. The bottom one is a data table with columns for 'FIRM NUMBER', 'FIRM DATE', 'FIRM ELEVATION', 'FIRM TYPE', 'FIRM SOURCE', 'FIRM STATUS', 'FIRM COMMENTS', and 'FIRM NOTES'. The table contains several rows of data.

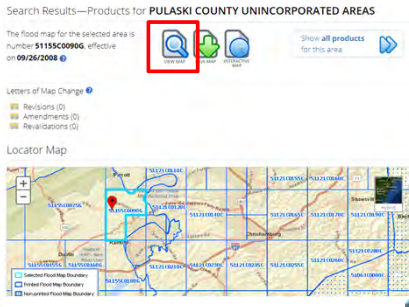
FEMA 172 DCR

Making a FIRMette

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

Search Results—Products for PULASKI COUNTY UNINCORPORATED AREAS

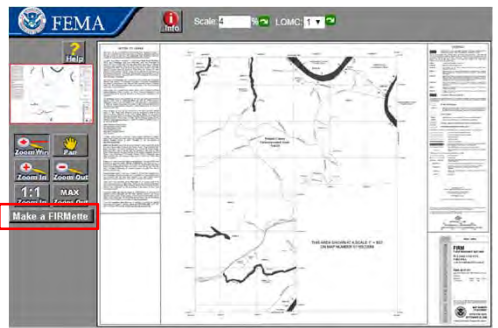
The flood map for the selected area is number **51155C099G**, effective on **09/26/2005**



The screenshot shows the FEMA MSC FIRMette interface. It includes a search bar with the text 'PULASKI COUNTY UNINCORPORATED AREAS', a search button, and a 'Show all products for this area' button. Below the search results, there are 'Letters of Map Change' options: 'Revisions (0)', 'Amendments (0)', and 'Revalidations (0)'. A 'Locator Map' is displayed at the bottom, showing a map of the area with a red dot indicating the selected location. The interface also includes a 'Make a FIRMette' button in the bottom left corner.

FEMA 173 DCR

Making a FIRMette



The screenshot shows the FEMA MSC FIRMette interface with a map displayed. The map shows a riverine area with a red dot indicating the selected location. The interface includes a 'Make a FIRMette' button in the bottom left corner. The map also shows a scale bar and a 'MAX' button.

FEMA 174 DCR

Making a FIRMette

FEMA DCR

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Making a FIRMette

FEMA DCR

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Making a FIRMette

FEMA DCR

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Making a FIRMette

- NFHL FIRMette builder – <http://fema.maps.arcgis.com/apps/webappviewer/index.html?id=49069b91c14a411fa8defcc5c1f6266>



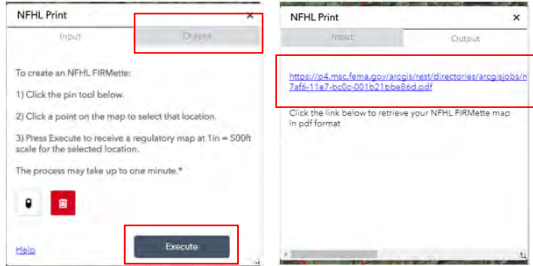
FEMA 178 DCR

Making a FIRMette



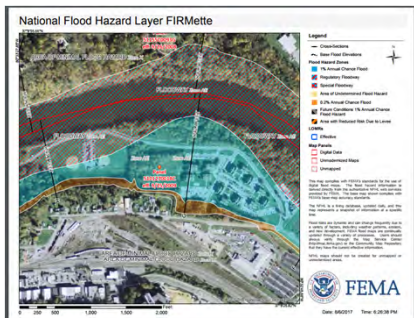
FEMA 179 DCR

Making a FIRMette



FEMA 180 DCR

Making a FIRMette



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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)



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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.



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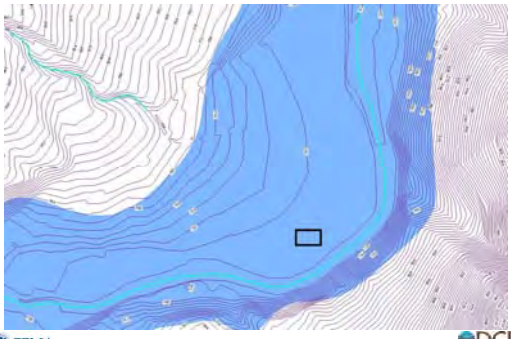


Contour Interpolation Steps

- 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 1/2 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.

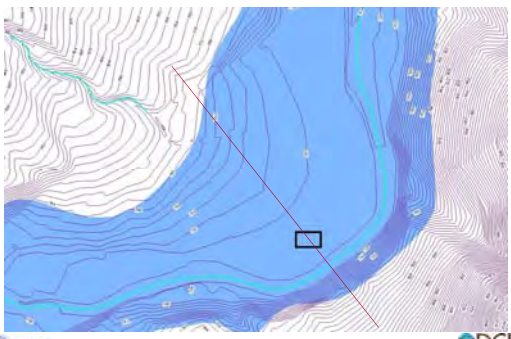
FEMA 184 DCR

Contour Interpolation Example 1

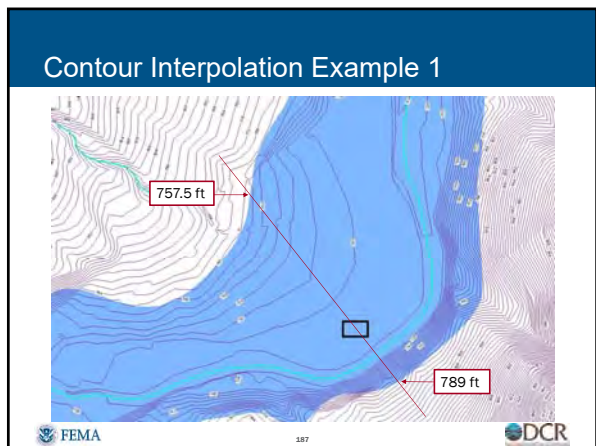


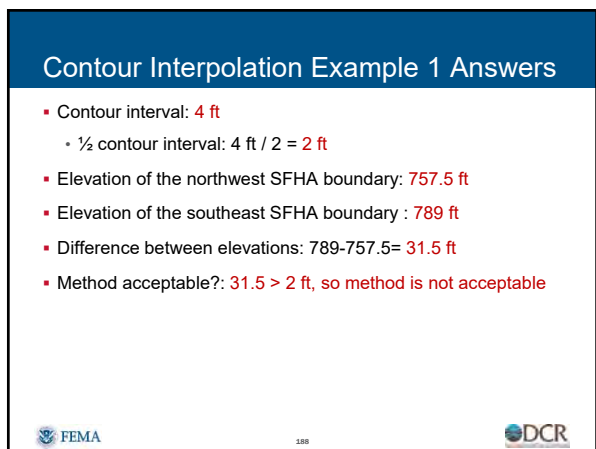
FEMA 185 DCR

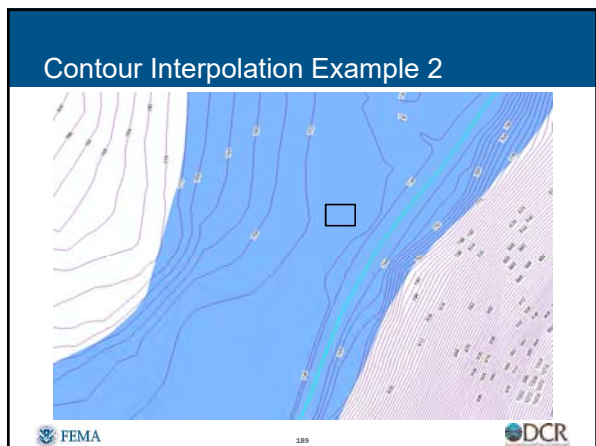
Contour Interpolation Example 1

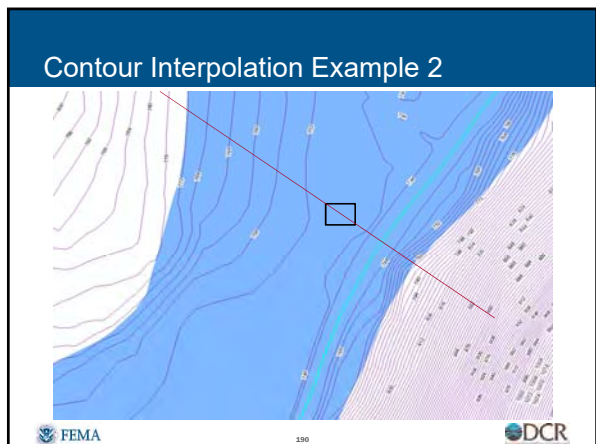


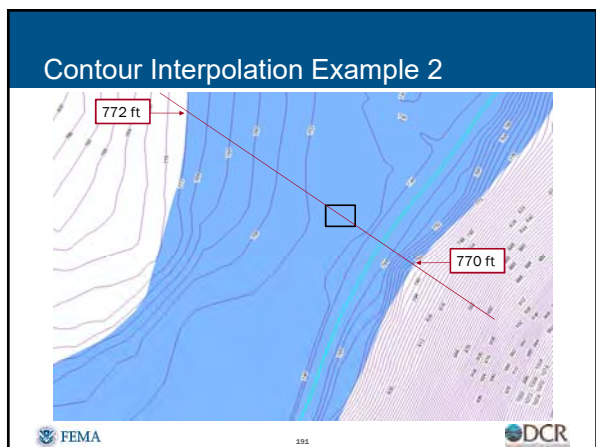
FEMA 186 DCR









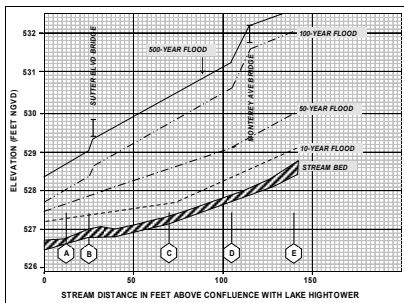


Contour Interpolation Example 2 Answers

- Contour interval: 4 ft
 - $\frac{1}{2}$ contour interval: $4 \text{ ft} / 2 = 2 \text{ ft}$
- Elevation of the northwest SFHA boundary: 772 ft
- Elevation of the southeast SFHA boundary : 770 ft
- Difference between elevations: $772 - 770 = 2 \text{ ft}$
- Method acceptable?: $2 \text{ ft} = 2 \text{ ft}$, so method is acceptable
- Estimated BFE: $770 \text{ ft} + 2 \text{ ft} = 772 \text{ ft}$

FEMA 192 DCR

Data Extrapolation: Extend Profile



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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.



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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.



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Data Extrapolation – Figures 11 and 12

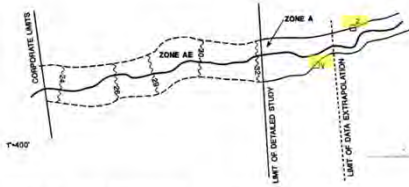


Figure 12 - Data Extrapolation Method - Plan View

-Property V 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 V 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.



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Data Extrapolation – Figures 11 and 12

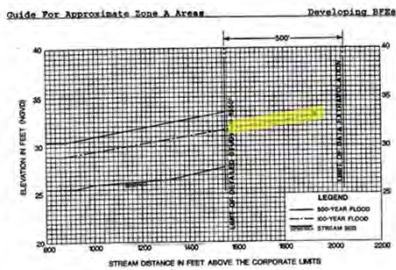


Figure 11 - Data Extrapolation Method - Profile



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Data Extrapolation – Figures 13 and 14

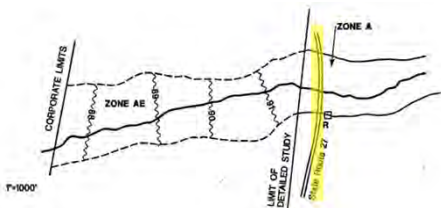


Figure 14 - Data Extrapolation Method - Plan View

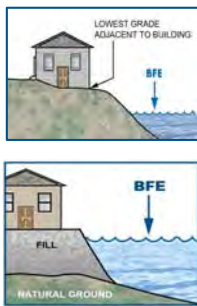
-State Rule 27 may have an effect on the 100-year water-surface elevations. Therefore, data extrapolation should not be used to obtain a BFE for property R.



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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




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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.


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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


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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



FEMA 205 DCR

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?

FEMA 206 DCR

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

FEMA 207 DCR

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?



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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



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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.pl



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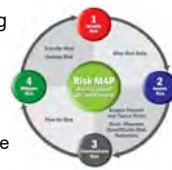

Flood Hazard Maps and Data

NON-REGULATORY PRODUCTS AND OTHER RESOURCES



Risk MAP Process



- Risk Mapping Assessment and Planning (Risk MAP)
- FEMA works with communities to develop flood risk products and flood hazard maps that are:
 - Based on the best available data from the community and latest technologies
 - Conducted on a watershed basis
- You can use Risk MAP tools and data to:
 - Improve and implement your Hazard Mitigation Plans
 - Use information to influence decisions about development, ordinances, and flood mitigation projects
 - Communicate with citizens about flood risk

Shifting from MapMod to Risk MAP



- Map Modernization used increasingly-available technology to increase the quality, reliability, and availability of flood hazard maps and data
- It focused on digitizing maps to provide timely, accurate information to community planners

Risk MAP further enhances the maps, involves communities during the assessment and planning stages, and guides and encourages them to communicate risk to their constituents



Risk MAP Meetings

- 1 - Discovery Meeting
 - Objectives: engage watershed stakeholders, understand the needs of the communities in a watershed, introduce or enhance flood risk discussions, and balance FEMA's resources with a plan for a possible Risk MAP project.
- Optional: Flood Risk Review Meeting
 - Objectives: provide communities with engineering data and drafts of Risk MAP products as they are developed (collecting feedback and revising as needed), and to build confidence in those products


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Risk MAP Meetings

- 2 - Resilience Meeting
 - Objectives: provide a comprehensive view of mitigation planning and mitigation options available to communities, and to share success stories and potential mitigation actions that communities can initiate.
- 3 - Consultation Coordination Officer (CCO) and Open House Meeting
 - Objectives: plan for preliminary FIRM release, build consensus with communities on impacts as a result of changes to the regulatory map, and encourage mitigation implementation and use of available resources.
- More information on the process is available in the FEMA Operating Guidance No. 04-11




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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:



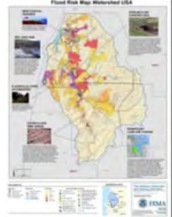
FIRM Database

01 - 02 - 03 - 04 - 05 - 06 - 07 - 08 - 09 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32 - 33 - 34 - 35 - 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 - 54 - 55 - 56 - 57 - 58 - 59 - 60 - 61 - 62 - 63 - 64 - 65 - 66 - 67 - 68 - 69 - 70 - 71 - 72 - 73 - 74 - 75 - 76 - 77 - 78 - 79 - 80 - 81 - 82 - 83 - 84 - 85 - 86 - 87 - 88 - 89 - 90 - 91 - 92 - 93 - 94 - 95 - 96 - 97 - 98 - 99 - 100 - 101 - 102 - 103 - 104 - 105 - 106 - 107 - 108 - 109 - 110 - 111 - 112 - 113 - 114 - 115 - 116 - 117 - 118 - 119 - 120 - 121 - 122 - 123 - 124 - 125 - 126 - 127 - 128 - 129 - 130 - 131 - 132 - 133 - 134 - 135 - 136 - 137 - 138 - 139 - 140 - 141 - 142 - 143 - 144 - 145 - 146 - 147 - 148 - 149 - 150 - 151 - 152 - 153 - 154 - 155 - 156 - 157 - 158 - 159 - 160 - 161 - 162 - 163 - 164 - 165 - 166 - 167 - 168 - 169 - 170 - 171 - 172 - 173 - 174 - 175 - 176 - 177 - 178 - 179 - 180 - 181 - 182 - 183 - 184 - 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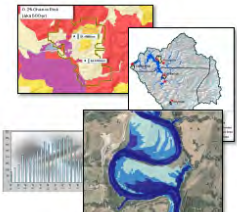

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Non-Regulatory Products and Other Resources

- New non-regulatory products:
 - Flood Risk Database (FRD)**

 - Flood Risk Report**

 - Flood Risk Map: Watershed USA**


FEMA DCR

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

FEMA DCR

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

FEMA DCR

Changes Since Last FIRM

The diagram illustrates the process of updating a Flood Insurance Rate Map (FIRM). It shows a cross-section of a river channel with 'Old FIRM' and 'New FIRM' labels, indicating a change in the channel's shape and depth. Below this, a plan view map shows various flood zones and boundaries, with a legend identifying different types of boundaries and zones.

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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

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Flood Depth and Analysis Grids

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

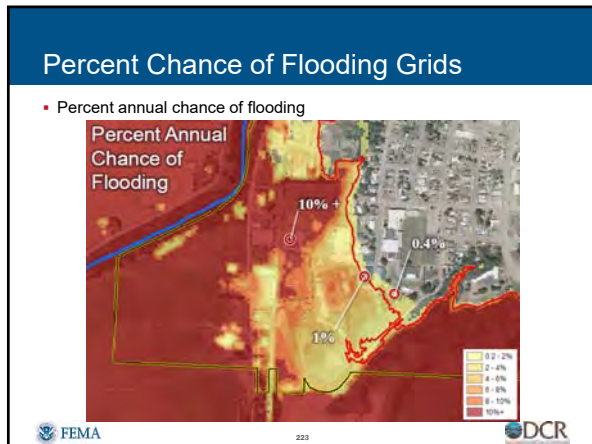
FIRM 1% Annual Chance (100-yr) Floodplain

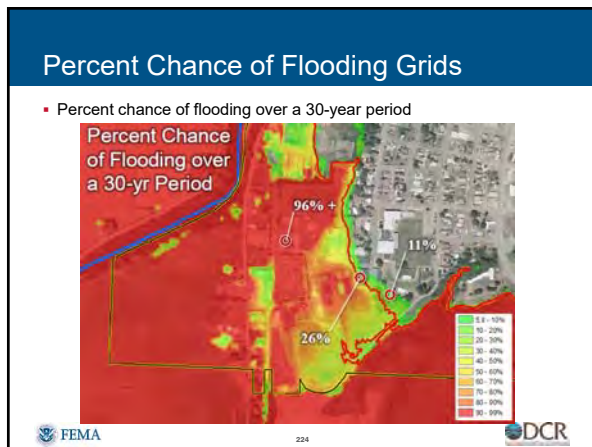
1% Annual Chance Depth Grid

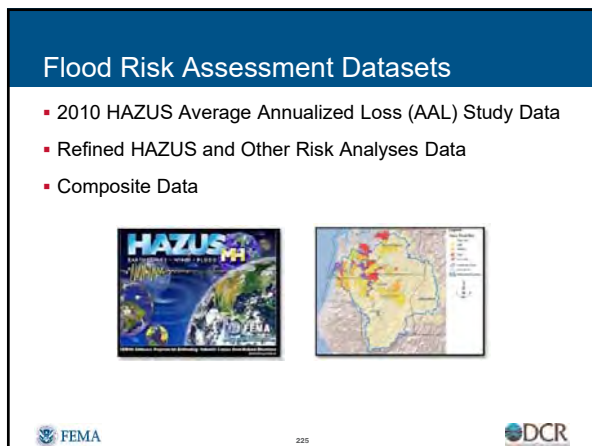
→

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

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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

FEMA 226 DCR

Flood Risk Assessment Datasets

1% Chance Risk (100-yr)

Flood Risk Legend: Severe, High, Medium, Low

FEMA 227 DCR

Areas of Mitigation Interest

NEW COASTAL HAZARDOUS

BIG LAKE DAM

FLOODVILLE LEVEE (ACCREDITED)


STREAM FLOW PINCH POINT

Scale 1

FEMA 228 DCR

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






Flood Risk Report
Lancaster County, Virginia (MAP Case # 11-03-20411),
 HUC-8 Watershed: 62670000 and 62670019*

*This report was created for the same area as the community.

Report Number: 01
 10/15/2016

Final






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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:

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.





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Where to Find Non-Regulatory Products

FEMA Flood Map Service Center: Search All Products

Choose one of the three search options below and optionally enter a posting date range.

Jurisdiction	Jurisdiction Name	Product ID 
State <input type="text" value="Virginia"/>	Jurisdiction Name or FEMA ID <input type="text" value=""/>	Product ID <input type="text" value=""/>
County <input type="text" value="Lancaster County"/>	<small>(E.g. Fairfax Countyward on SICSAO)</small>	<small>(E.g. Report Number, LDAC Code, etc.)</small>
Community <input type="text" value="Lancaster County All Juris."/>		

> Filter By Posting Date Range (Optional)


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Where to Find Non-Regulatory Products

Search Results for LOUDOUN COUNTY ALL JURISDICTIONS
Open associated to reveal entire notifications when product are updated

Please Note: Searching all products by county, district, all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the dropdown menu above.

- Effective Products (35)
- Regulatory Products (2)
- Non-Regulatory Products (24)**

Please Note: Flood Risk Products have purposes that are different from regulatory flood hazard products (i.e. Flood Risk Reports and Flood Databases). Regulatory flood hazard products are mandated by law and used to the national flood insurance program (which for rating flood insurance policies and enforcing the Federal flood insurance purchase requirements). Flood Risk Products are a supplementary resource for communicating flood risk to communities and are not directly aligned with the regulatory flood maps. The information in these products reflect what was produced by the FEMA Risk Map Study Final (link). 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 (7)
- Flood Risk Reports (11)
- Flood Risk Database (6)

Product ID	File Format	MSC Posting Date	Size	Download
FDL31127C_GeoDatabase	GeoDatabase	10/13/2014	395KB	View
FDL31127C_GeoTIFFs	GeoTIFFs	10/13/2014	354KB	View
FDL31127C_Shapefiles	Shapefiles	10/13/2014	35KB	View


FEMA 232 DCR

Flood Hazard Maps and Data

Questions?

FEMA 233 DCR

Pre- and Post-Disaster Considerations



FEMA DCR

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



FEMA DCR

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.

FEMA DCR


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.

FEMA DCR

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)

FEMA

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DCR

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.

FEMA


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DCR

Substantial Improvement/Damage

Definition:

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



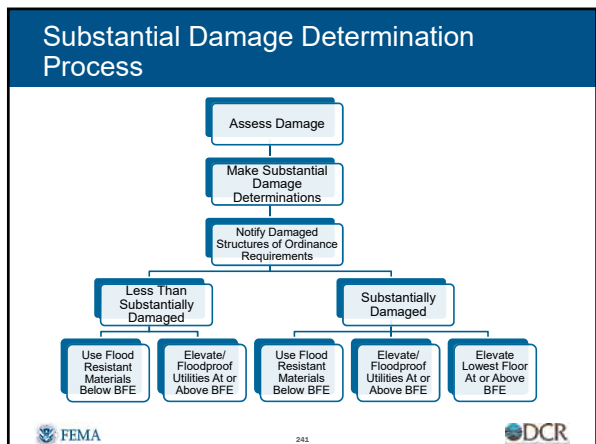
(PEMA)

(PEMA)

FEMA

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DCR



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)

FEMA DCR

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)

FEMA DCR

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



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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



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VDEM Regional Contacts

VDEM Regional Field Offices



Chief Regional Coordinator (Region 1):
Lori Dachille
Lori.Dachille@vdem.virginia.gov

Regional Planner (Region 5):
Danielle Progen
Danielle.progen@vdem.virginia.gov




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Pre- and Post-Disaster Considerations




Questions?



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The Community Rating System (CRS)




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





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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


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CRS Premium Savings



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

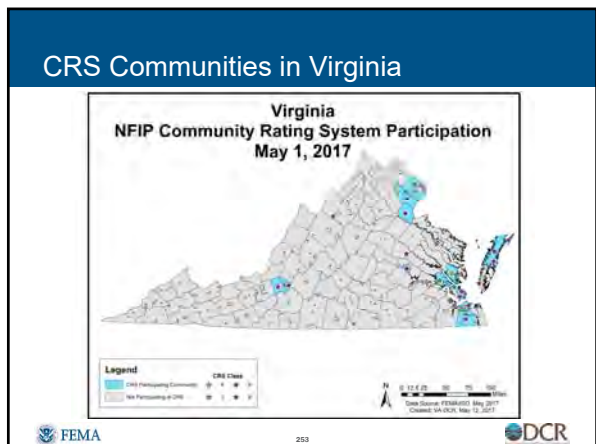

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CRS Communities in the US

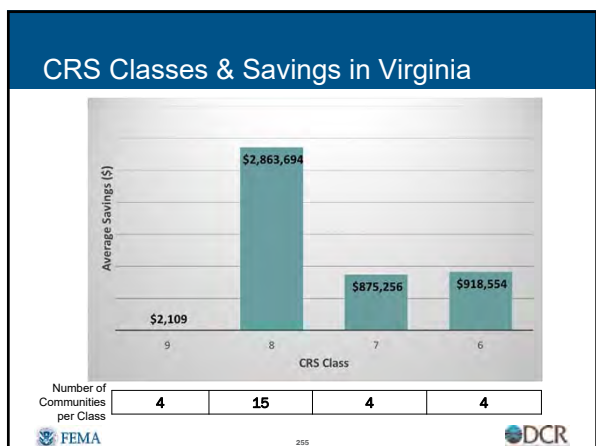
National Flood Insurance Program (NFIP)
Community Rating System (CRS) May 2017




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- ### CRS Communities in Virginia
- ACCOMACK COUNTY (8)
 - CITY OF ALEXANDRIA (6)
 - ARLINGTON COUNTY (8)
 - TOWN OF ASHLAND (9)
 - TOWN OF BRIDGEWATER (8)
 - TOWN OF CAPE CHARLES (9)
 - CITY OF CHESAPEAKE (8)
 - TOWN OF CHINCOTEAGUE (8)
 - FAIRFAX COUNTY (6)
 - CITY OF FALLS CHURCH (6)
 - GLOUCESTER COUNTY (6)
 - CITY OF HAMPTON (8)
 - JAMES CITY COUNTY (7)
 - CITY OF NORFOLK (8)
 - CITY OF POQUOSON (8)
 - CITY OF PORTSMOUTH (7)
 - PRINCE WILLIAM COUNTY (8)
 - CITY OF RICHMOND (8)
 - CITY OF ROANOKE (7)
 - ROANOKE COUNTY (8)
 - STAFFORD COUNTY (8)
 - TOWN OF VIENNA (8)
 - TOWN OF VINTON (8)
 - TOWN OF WACHAPREAGUE (8)
 - YORK COUNTY (7)
- FEMA 254 DCR



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

FEMA DCR

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.

FEMA DCR

Maintaining CRS



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

FEMA DCR

Four Categories of Activities

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



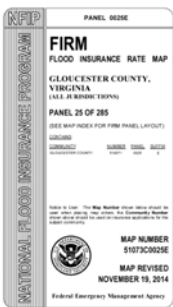
19 Activities
94 Elements



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Public Information Activities



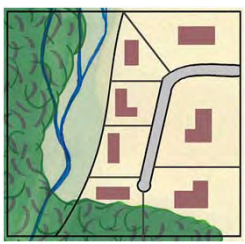
- 310 – Elevation Certificates
- 320 – Map Information Service
- 330 – Outreach Projects
- 340 – Hazard Disclosure
- 350 – Flood Protection Information
- 360 – Flood Protection Assistance
- 370 – Flood Insurance Promotion



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Mapping and Regulations Activities


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



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Flood Damage Reduction Activities


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



FEMA 265 DCR

Warning and Response Activities

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



FEMA 266 DCR

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

FEMA 267 DCR

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

FEMA 268 DCR


The Community Rating System

Questions?

FEMA 269 DCR



DCR Division of Dam Safety and Floodplain Management Update

FEMA DCR





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.

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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.

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DCR Division of Dam Safety and Floodplain Management Update

DAM SAFETY UPDATE

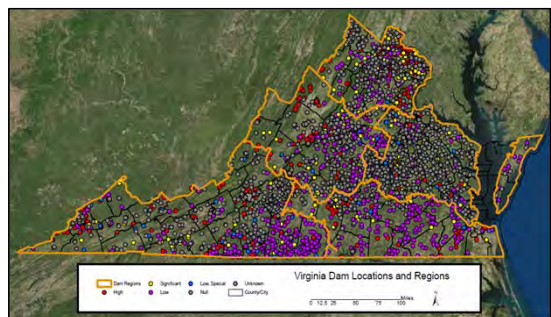
 276 

Dam Safety Inventory System (DSIS)



FEMA DCR

Virginia Dam Locations and Regions



Virginia Dam Locations and Regions

FEMA DCR



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

FEMA DCR



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)



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Dam Safety Inventory System

ID Number	Dam Name	Dam Other Name	Conter Name	Dam Region	City/County	Regional Engineer	Hazard Classification	Dam Size	Dam Type
01181	Little Falling River Dam #1			3	Campbell County	Regional Engineer	Significant	2	Earth
01183	Little Falling River Dam #2			3	Campbell County	Regional Engineer	Significant	2	Earth
01184	Little Falling River Dam #3			3	Campbell County	Regional Engineer	Significant	1	Earth
01185	Lakewood Dam	Lynch Dam		3	Campbell County	Regional Engineer	Significant	2	Earth
01186	Brookhead Dam	PHILIPS CREEK DAM		3	Campbell County	Regional Engineer	Significant	0	Earth
0804	Walker Mason Dam	0190003983		3,4	Bedford County/City of Lynchburg	Regional Engineer	Significant	1	Earth
01915	Ramsley Dam	Dubyns Dam 00566, Huntingwood Dam		3,4	Bedford County/City of Lynchburg	Regional Engineer	Significant	1	Earth


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Dam Safety Inventory System


Project ID: 0001 (Inventory System)

General

Dam Name: Available Data Dam

Other Dam Name: Walker Farm Field

Hazard Classification: Unrated

Dam Size: Small (15 - 200 ac., 1 - 6,000')

Dam Construction: 1950's

Is Dam Estimated: No

Reservoir Purpose: Recreation

Dam Type: Earth



Regional Engineer: [Select]

Dam Region: Regional Engineer

County Name: Regional Engineer

Level of Significance: Primary

Level of Significance: Ordinary


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Dam Safety Inventory System

Field	Value
Length (Feet)	0
Normal Pool Area (Acres)	1.52
Normal Pool Capacity (2004-2011)	4.8
Normal Pool Elevation (Feet)	501
Normal Pool Height (Feet)	25.5
Top Capacity (Acres-Feet)	29.4
Top Elevation (Feet)	451.1
Top Height (Feet)	36
Top Surface Area (Acres)	3.28
Maximum Discharge (CFS)	
Hydraulic Height (Feet)	
Structural Height (Feet)	

FEMA 283 DCR

Dam Safety Inventory System

Field	Value	Priority
First Name	Jane	
Last Name	Die	
Organization		
Address		
Primary Contact	No	
Contact Type	Owner Representative	
Owner Type		
VA FE License Number		
Emails	Email Address: jane@central.com	Priority: Yes
Addresses	Address(es): 1234 Main St, Richmond, VA 23219	Priority: Primary
Phones	Phone Number(s): (804) 555-1234	Priority: Yes
Certification	Phone Number(s): (804) 555-5678	Priority: Yes
Emergency Action Plans	Not Applicable	No
Attachments	Federal Instrument Order	

FEMA 284 DCR

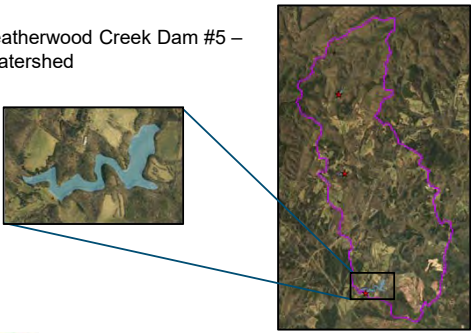
Dam Safety Inventory System

Field	Value	Priority
First Name	Jane	
Last Name	Die	
Organization		
Address		
Primary Contact	No	
Contact Type	Owner Representative	
Owner Type		
VA FE License Number		
Emails	Email Address: jane@central.com	Priority: Yes
Addresses	Address(es): 1234 Main St, Richmond, VA 23219	Priority: Primary
Phones	Phone Number(s): (804) 555-1234	Priority: Yes
Certification	Phone Number(s): (804) 555-5678	Priority: Yes
Emergency Action Plans	Not Applicable	No
Attachments	Federal Instrument Order	

FEMA 285 DCR

Dam Safety Inventory System


Leatherwood Creek Dam #5 – Watershed



FEMA 286 DCR

Dam Safety Inventory System

Leatherwood Creek Dam #5 – Watershed



FEMA 287 DCR

Dam Safety Inventory System Contacts

David Wilmoth, Dam Safety Engineer
David.Wilmoth@dcr.virginia.gov
804-625-3977

James Martin, Conservation Data Specialist
James.Martin@dcr.virginia.gov
804-887-8916



FEMA 288 DCR

Floodplain Management Contacts

- FEMA Region III
 - Zane Hadzick - Lead Mitigation Specialist for VA
 - Zane.Hadzick@fema.dhs.gov
 - Charlie Baker - Backup Mitigation Specialist for VA
 - Charles.Baker@fema.dhs.gov
 - Rich Sobota - Insurance and CRS Specialist
 - Richard.Sobota@fema.dhs.gov
- ISO/CRS Specialist
 - Christina Groves
 - (270) 754-3646
 - Christina.Groves@verisk.com