



ARLINGTON COUNTY, VIRGINIA

County Board Agenda Item Meeting of October 14, 2023

DATE: August 22, 2023

SUBJECT: Ordinance to adopt, amend, reenact, and recodify Chapter 48 (Floodplain Management) of Arlington County code. The proposed ordinance adopts revised Flood Insurance Rate Maps, issued by the Federal Emergency Management Agency (FEMA), in compliance with the requirements of the National Flood Insurance Program (NFIP).

C. M. RECOMMENDATION:

Adopt the proposed ordinance (Attachment 1) to amend, reenact, and recodify Chapter 48 (Floodplain Management) of the Arlington County Code, to refine the language to include and amend definitions; to adopt new Flood Insurance Maps; to more clearly outline the responsibilities of the Floodplain Administrator and/or his designees; to clarify procedures to interpret maps, and to include descriptions of Flood Zones delineated on the Flood Insurance Rate Map (FIRM) and provisions for development within those zones, with an effective date of November 16, 2023.

ISSUES: County Board action is required to update Chapter 48 (Floodplain Management) of the Arlington County Code so that the County can continue participation in the National Flood Insurance Program (NFIP), which makes flood insurance available to property owners in Arlington County. The amended ordinance closely conforms to the state model ordinance which was developed by the Virginia Department of Conservation and Recreation (DCR) to facilitate approval by the Federal Emergency Management Agency (FEMA). There are no outstanding issues.

SUMMARY: On September 18, 2020, the Federal Emergency Management Agency, (FEMA) issued a Preliminary Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) to Arlington County for its review. That Preliminary FIS and FIRM re-delineated the 100-year and 500-year floodplains based on updated topographic information; incorporated all map revisions since the last FIRM update in 2013; and updated Base Flood Elevations (BFE) for Four Mile Run.

County Manager:

MJS / MJC

County Attorney:

MNC

Staff: Elizabeth Thurber, DES

The County notified all affected property owners about the new maps. At initial public meetings held in November 2020 to discuss the FIRM, several citizens expressed concern over the accuracy of the flood boundaries delineated on the map. Staff investigated these concerns and filed formal protests with FEMA of the flood boundaries at three locations. Those protests were reviewed by FEMA. Two requests were rejected but one resulted in three revised map panels. The revised map panels were issued on April 29, 2022. When FEMA rejected the initial boundary protests by the County, they suggested following up with more detailed engineering studies to address these locations. In accordance with that suggestion, Staff is pursuing the Letter of Map Revision process for both Lubber Run and Gulf Branch which were the two areas for which the appeals were rejected.

FEMA issued a Letter of Final Determination (LFD) on May 16, 2023. The issuance of the LFD initiated a 6-month compliance period during which Arlington County must update its Floodplain Management Ordinance in order to continue participation in the NFIP. Failure to update the ordinance would result in Arlington County being suspended from participation in the NFIP, which would make acquisition of flood insurance impossible. An inability to acquire flood insurance would make it almost impossible to sell properties in the 100-year floodplain. There are no extensions or exceptions to the FEMA mandated schedule and effective date.

The proposed ordinance adopts revised Flood Insurance Rate Maps, issued by the Federal Emergency Management Agency (FEMA), in compliance with the requirements of the National Flood Insurance Program (NFIP). Amendments are summarized below:

- A. Adoption of new FIRM.
- B. Enumeration of Duties of Floodplain Administrator and his designees.
 - a. Arlington already completes all the duties that are enumerated, but multiple agencies and individuals are responsible for the various duties.
 - b. Duties are now enumerated in greater detail than previously.
- C. New restriction on three uses within the 500-year flood zone.
 - a. No storage of government records.
 - b. No emergency services.
 - c. No medical services, such as hospitals (individual offices would still be permitted).
- D. Limitations on Accessory Structures.
 - a. Size limited to 600 square feet or less.
 - b. Not for human habitation.
 - c. Used only for vehicle parking and limited storage.
 - d. Electrical/Mechanical equipment must be elevated above base flood elevation.
 - e. Must be anchored against flotation.
 - f. Placement must minimize obstruction of flow of floodwaters.
 - g. Flood resilient material shall be used below base flood elevation.

- E. Increases in freeboard, which establish a higher standard and help reduce flood insurance premiums.
 - a. Increase from 12 inches to 18 inches.
 - b. Increase from 1 foot to 2 feet for commercial floodproofing.
- F. Specifications on how to interpret Flood Insurance Rate Maps.
 - a. Existing FEMA guidance will now be codified.
- G. Addition of several definitions.
- H. Editorial changes for improved clarity.

The proposed amendment to the Floodplain Management ordinance has been reviewed by the Virginia Department of Conservation and Natural Resources (DCR) to ensure that it meets the minimum requirements of the NFIP and incorporates the provisions of model ordinances developed by FEMA and DCR. On July 18, 2023, DCR provided notification that the proposed ordinance complies with the NFIP requirements.

A copy of the full text of the proposed ordinance and the updated Flood Insurance Study and Flood Insurance Rate Map is on file with and may be examined and inspected in the Department of Environmental Services, Suite 750, 2100 Clarendon Blvd., Arlington, VA, 8 a.m-4:30 p.m. weekdays, or online at

[Flood Insurance Rate Maps Update Process – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](https://www.arlingtonva.us/1432/Flood-Insurance-Rate-Maps-Update-Process)

BACKGROUND: The National Flood Insurance Program (NFIP) is a federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government. That agreement stipulates that if a community adopts and enforces a floodplain management ordinance to reduce future flood risks to new construction in the 100-year floodplain, the Federal Government will make flood insurance available within the community as a financial protection against flood losses. Arlington County has participated in the NFIP since 1969.

For decades, the national response to flood disasters was generally limited to constructing flood- control works such as levees and providing disaster relief to flood victims. While useful in some locations, overall, this approach did not reduce losses. The Federal government concluded that too many areas are subject to the risk of flooding to address through flood-control projects, and this strategy did not discourage unwise or risky development. In fact, it may have actually encouraged additional development in areas of high risk. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked. In the face of mounting flood losses and escalating costs of disaster relief to the general

taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

Arlington's first Stormwater Master Plan (December 1957 update of the 1943 Chester Engineers Master Plan of Storm Water Sewers) recommended continued acquisition of floodplain areas to discourage unwise development; implementation of this recommendation was ahead of its time, and as a result, relatively few properties in Arlington are in the 100-year floodplain. Instead of large-scale development in the floodplain, Arlington County has an extensive network of stream valley parks as a result of acquisition of stream valleys by the County.

Due to Arlington County's forward thinking floodplain management and policies, only a small number of structures within the County are located in FEMA designated high flood hazard areas. According to statistics provided by FEMA, there are only approximately 375 insurable structures located within the high hazard, or Special Flood Hazard Area (SFHA) which is the area with 1% annual probability of flooding (100-year). These 375 structures clearly represent a very small percentage, less than one percent (1%), of the 46,000 structures located within the County.

DISCUSSION: On September 18, 2020, FEMA issued a Preliminary Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) to Arlington County. That Preliminary FIS and FIRM re-delineated the 100-year and 500-year floodplains based on updated topographic information; incorporated all map revisions since the last FIRM update in 2013; and updated Base Flood Elevations for Four Mile Run. Both Arlington County and City of Alexandria had insisted that Four Mile Run be restudied, and FEMA finally did agree to do so. Note that the FIRM is prepared by FEMA. Arlington County has no influence over the format or level of detail depicted on the FIRM.

Overall, the newly revised FIRM increase the number of parcels and buildings impacted by floodplains. An analysis, prepared by County staff, of the revised floodplain boundaries shown on the FIRM indicates that approximately 1,150 parcels of land and approximately 600 buildings are impacted by the new boundaries. This includes parcels in both the 1.0 percent annual chance of flooding (100-year) and 0.2 percent annual chance of flooding (500-year) zones. The number of buildings impacted is much lower than the number of parcels impacted. That is due to the fact that many building are located outside of the FEMA floodplain, on a portion of the parcel that is not impacted by any flood zone. In some cases, only a very small portion of a parcel has a flood hazard area on it. The impacted properties represent approximately 2.5% of the total number of parcels. Overall, this is a small percentage of the total number of parcels within the County. See the Chart below:

Property Impacted		Effective By Floodplain Boundaries		Impact of 15' Setback	Property Impacted		Preliminary By Floodplain Boundaries	
1% (100Yr)		0.2%(500Yr)			1% (100Yr)		0.2% (500Yr)	
Parcels	Bldgs	Parcels	Bldgs	Bldgs	Parcels	Bldgs	Parcels	Bldgs
**	172	1054	**	150	714	300	1150	600

For many decades, Arlington has prohibited new buildings from being located closer than 15 feet, in the landward direction, to the boundary of the SFHA. Therefore, as the SFHA boundary changes, the buildable area of some lots also changes. There are approximately 150 buildings in the County that will be outside of the SFHA, but within 15 feet of the new SFHA boundary. These will experience some impacts to the development potential of the building and property. Since adoption of the FIRM is mandated for compliance with the NFIP, the impacts are unavoidable.

Because FEMA is mandating new restrictions on uses within the 0.2% annual chance flood zone, these properties will experience a minor impact from the map update and concomitant ordinance update. Staff estimates that approximately one quarter (25%) of the 600 buildings that are located in the 0.2% annual chance flooding area will be impacted by the new use restrictions in that zone. These building are those located in non-residential zones. The approximate 75% of the buildings that are residential, are not likely to be impacted by restrictions on emergency services, healthcare facilities or government records storage. Hence, the impact of the use restrictions is very minor, representing less than 0.5% of the total number of structures within the County.

The new restrictions on accessory structures could impact the approximately 714 parcels located within the SFHA. These are mandatory restrictions for compliance with the NFIP. The impacts are unavoidable.

The proposed increase in freeboard requirements is an optional measure. By adopting this provision, the County establishes a higher standard which helps reduce flood insurance premiums throughout the County. The higher standard also helps impacted properties obtain lower insurance costs when they meet the requirement. The increase in freeboard requirements could potentially impact the approximately 300 buildings located in the new SFHA plus the approximate 150 buildings located closer than 15 feet from the SFHA boundary. In total, approximately 450 buildings could be impacted by these requirements; however, increasing freeboard on proposed remodeling efforts, or construction of additions or accessory structures, should result in lower flood insurance premiums and less flood damage. It should also be noted that there will be impacts regardless of the amount of required freeboard since the impacts are actually due to simply being in the SFHA as opposed to not being in the SFHA. In addition, since Arlington already requires that new buildings be situated 15 feet away from the SFHA boundary, the reality is that new construction will be minimally impacted since new buildings cannot be located within the

SFHA. Staff analysis indicates that the benefits in the adoption of a higher standard and the reduction of flood losses are greater than the impacts of the increased freeboard requirement.

There are no impacts to the provisions related to the duties of the Floodplain Administrator. Multiple agencies and other designees already perform these functions, but the Ordinance will now enumerate these items in a detailed fashion. There are no impacts resulting from the codification on the use and interpretation of the FIRM. The existing FEMA guidance is now to be codified.

Letters were sent to property owners in the 100-year and 500-year flood zones notifying them about the Preliminary FIS and FIRM and inviting them to public meetings to review the FIS and FIRM. Those letters also included a link to the site for FEMA's contractors where the Preliminary FIRM could be viewed. This link was also available on the County's website. The Preliminary Floodplain layers and boundaries are also available on the County's AcMaps webpage and on a County webpage dedicated to the Floodplain Map Update process:

[Flood Insurance Rate Maps Update Process – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](https://www.aclink.com/external/county/arcgis/rest/services/AcMaps/FloodplainMapUpdate/MapServer?appid=arcgis/arcgisonline)

Letters were sent to parcel owners in anticipation of this public hearing.

At the initial public meetings held in 2020 that presented the updated FIRMs to County residents, several citizens expressed concern over the accuracy of the flood boundaries delineated on the FIRM. Staff investigated these concerns and filed formal protests with FEMA of the flood boundaries at three locations. Two of those protests (Gulf Branch and Lubber Run) were reviewed by FEMA and rejected. The third protest of the upper reach of Four Mile Run near North Winchester Street resulted in three revised map panels. The revised map panels were issued on April 29, 2022. When FEMA rejected boundary protests for Gulf Branch and Lubber Run, they suggested following up with more detailed engineering studies to address these locations. Staff is currently pursuing the Letter of Map Revision process for those two areas.

FEMA issued a Letter of Final Determination (LFD) on May 16, 2023. The issuance of the LFD initiated a 6-month compliance period during which Arlington County must update its Floodplain Management Ordinance in order to continue participation in the NFIP. The proposed amendment to the Floodplain Management ordinance has been reviewed by the Virginia Department of Conservation and Natural Resources (DCR) to ensure that it meets the minimum requirements of the NFIP and incorporates the provisions of model ordinances developed by FEMA and DCR.

The amendments to Chapter 48 include provisions for several changes, most of which are mandatory and administrative in nature. The following table summarizes each change.

Proposed Change	Section
Adjust and/or add Definitions for BFE, Pre and Post Firm Buildings, Severe Repetitive Loss Properties, Substantial Damage, and other terms	Article II
Multiple minor edits to clarify language and adjust formatting	Throughout
Restrict uses in the 500-year flood zone to exclude storage of government records, medical services and emergency services except by Special Exception	§48-47 E.
Adjust freeboard from 12 inches to 18 inches and floodproofing from 1 foot to 2 feet	§48-51 A. & B.
Limitations on Accessory Structures to: i) less than 600 square feet, ii) not be for human habitation, iii) be used for vehicle parking or limited storage only, iv) use flood resilient materials below BFE, v) elevate electrical and mechanical equipment above BFE, vi) be anchored against flotation, vii) floodproof utility systems.	§48-51 D.
Require Utility Systems to be elevated 18 inches above BFE instead of 12 inches	§48-52
Clarify that the 15 ft. setback from the SFHA boundary is landward	§48-55 A. & B.
Enumerate duties of Floodplain Administrator or his designee. These duties are currently completed by Agencies and Individuals that are designated to perform that function. The proposed Ordinance enumerates the functions in more detail and continues to permit the Floodplain Administrator to designate these duties to Agencies and Individuals to continue to perform the various functions.	§48-60
Add Detailed Description of Use and Interpretation of FIRM. Under the currently effective ordinance, this is only guidance. The proposed ordinance mandates the use and interpretation.	§48-60.1
Add section on Letters of Map Revisions	§48-62.1
Add criteria for waivers related to historic structures and accessory structures.	§48-63. 13 & 14
Clarify penalties.	§48-64

PUBLIC ENGAGEMENT:

Level of Engagement: CONSULT

The entire process for updating the FEMA Flood Insurance Rate Maps, Flood Insurance Study and Floodplain Management Ordinance is established by FEMA and County compliance is mandatory. There is extremely little County discretion regarding the process. Hence the Engagement process has been focused on informing the County residents regarding the changes and answering questions related to specific properties. However, based on feedback and information provided by residents, the County did file three Appeals to the revised maps. Only one Appeal was accepted by FEMA. The results of the accepted Appeal lowered the base flood elevations; however, the new base flood elevations are still higher than the currently effective elevations.

Outreach Methods:

Public Outreach has been constant throughout the Update Process and consists of:

- Mailings (Letters & Newsletters)
 - October 28, 2020
 - July 27, 2021
 - May 25, 2022
 - January 2023
 - August/September 2023
- Website information
- Other Outreach Efforts (press releases, regional webinars)
- Public Meetings – Information was presented at multiple public meetings:

Date	Activity	Audience
November 18, 2020	Floodplain map public meeting #1	Property owners affected by floodplain map update
January 27, 2021	Community meeting	Bluemont CA (Abingdon St)
February 16, 2021	Stormwater Update	Civic Federation
February 24, 2021	Community meeting	Gulf Branch neighborhood meeting
May, 2021	Stormwater Update	C2E2

July 19, 2021	Community meeting	Bluemont CA (Abingdon St)
October 13, 2021	Community meeting	Gulf Branch neighborhood meeting
February 8, 2022	Stormwater Presentation	Civic Federation

Details for the above outreach:

- *Website Postings:* Information regarding the process and documents has been posted to the County webpage. Public presentations are posted on the webpage: [Floodplains and Flood Insurance Rate Maps – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](https://www.arlingtonva.us/floodplains-and-flood-insurance-rate-maps)
- *Civic Federation Briefings:* DES staff provided information regarding the Floodplain Update process at meetings held on February 16, 2021, and February 8, 2022. Updates have been discussed with the Civic Federation Stormwater Working Group at regularly scheduled meetings.
- *Critical Watershed Stakeholder Groups Briefings:* Throughout the process, DES staff informed members of the public about the revised maps, ordinance changes, and timeline during a series of meetings with groups of stakeholders. These groups consist largely of residents who live within the Crossman Run, Little Pimmit Run, Four Mile Run, Torreyson Run, Lubber Run, and Spout Run watersheds. A public meeting for the West Columbia Pike area included representatives and residents of the Columbia Forest and Arlington Mill civic associations in the western portion of the Columbia Pike Corridor. Public presentations are posted on the various webpages for the watersheds. Meeting dates are listed below:

Watershed	Date
Spout Run	9/7/2022
Torreyson Run	11/2/2022
Lubber Run	9/21/2022
Lubber Run	3/23/2022
Lubber Run	1/13/2022
Waycroft Woodlawn CA	10/28/2020
Crossman Run	11/9/2022
West Columbia Pike	10/15/2022
LPR Dumbarton Culvert	5/1/2023

- Additional outreach for Flood Awareness week - Press release and regional webinars: County staff participated in several outreach events and released information to the press.
 - <https://www.arlingtonva.us/Government/Programs/Sustainability-and-Environment/Stormwater/Flood-Awareness-Week>
 - <https://www.arlingtonva.us/About-Arlington/Newsroom/Articles/2023/Virginia-Flood-Awareness-Week-2023-Points-to-Preparation-in-County-wide-Multi-Jurisdictional-Campaign>
 - CARRT hosted Preparedness Day of Action with flood awareness outreach <https://www.arlingtonva.us/Government/Public-Safety/Emergency-Preparedness/CARRT/Volunteer-with-CARRT>
- Other County Agencies/Departments/Bureaus: County staff has coordinated the proposed Floodplain Management Ordinance with the Zoning Department, Development Services, the Building Official, Community Planning and Housing Development. There are no issues from these stakeholders. The County Building Official made copies of a presentation about the proposed changes available via mailings to approximately 600 industry contractors and stakeholders.
- Boards/Commissions: Staff provided briefings to the following boards and commissions:
 - Climate Change, Energy and Environment Commission (C2E2) was briefed in May 2021.
 - Meetings with the Planning Commission were not held, in accordance with past Floodplain Map and Ordinance updates.

Community Feedback:

Staff received feedback from residents regarding their concern regarding the changed boundaries for the Flood Insurance Rate Maps. Based on the feedback, staff Appealed three areas of concern. Only one Appeal was accepted by FEMA. This Appeal lowered base flood elevations from the original elevations, but the resulting elevations are still higher than the effective. In addition, two Letters of Map Revisions are being processed, in order to more accurately establish the Special Flood Hazard Area boundaries and base flood elevations. The County Building Official, Zoning Department, and Development Services Department are supportive of the proposed ordinance, or have no concerns.

FISCAL IMPACT: There are no direct costs to the County. However, residents whose homes are located in the 100-year floodplain on the FIRM are required to purchase flood insurance if the mortgage on that home is a federally regulated mortgage (virtually all mortgages). Mortgage companies may at their discretion require acquisition of flood insurance even if the building is not shown in the floodplain; however, determination that the building is outside the floodplain can have a large impact on the cost of flood insurance. While the cost of flood insurance can vary depending on the extent of coverage required or elected, costs typically vary between approximately \$500 per year for properties outside the 100-year flood zone to more than \$5,000 per year for properties inside the 100-year flood zone. The cost of flood insurance is borne by individual property owners and paid to their insurance companies. It should be noted that the Real Estate Assessment Office in the Department of Management and Finance will take designation of a parcel as being located in a Special Flood Hazard Area into account in determining the assessed value of a property.

ATTACHMENT A

**AN ORDINANCE TO AMEND, REENACT, AND RECODIFY
CHAPTER 48 (FLOODPLAIN MANAGEMENT) OF THE
ARLINGTON COUNTY CODE, EFFECTIVE November 16, 2023.,**

BE IT ORDAINED by the County Board of Arlington County, Virginia that:

1. Chapter 48 (Floodplain Management), is amended, reenacted and recodified, effective on November 16, 2023, as follows:

* * *

Proposed amendments are shown as follows:

Text denoted with underline or ~~strikethrough~~ is text proposed to be added or ~~deleted~~, respectively. Italicized *text* is text that was moved; italicized text [*text*] in brackets is text that is italicized in the current Chapter 48.