Memorandum

TO: Planning Commission

FROM: Philip Thompson, AICP
Director of Planning

DATE: February 27, 2020

SUBJECT: Zoning Ordinance Amendments – Floodplain Management

Over the past several months, staff has been reviewing and preparing amendments to the County's Zoning Ordinance (Article I – General Provisions, Article II – Definitions and Use Types, Article III – District Regulations) regarding floodplain management (amendments attached). The proposed amendments to Article I, Section 30-5, would amend the powers and duties of the Zoning Administrator; amendments to Article II, Sections 30-28 & 29 would add, amend, and delete definitions associated with floodplain management; and proposed amendments to Article III, Section 30-74 Floodplain Overlay District, would add or amend regulatory sections dealing with floodplain management. The proposed amendments are consistent with the Virginia Department of Conservation and Recreation's model ordinance (attached) which complies with the requirements of the Federal Emergency Management Agency’s (FEMA) National Flood Insurance Program (NFIP) regulations.

Staff reviewed a draft set of amendments with the Planning Commission at its January 21st meeting. If you have any questions, please contact me by phone at (540) 772-2029 or by email at pthompson@roanokecountyva.gov.

PGT:pt

Attachments
ARTICLE I – GENERAL PROVISIONS

SEC. 30-5. ZONING ADMINISTRATOR; POWERS AND DUTIES.

(A) The zoning administrator shall serve as the administrator of this ordinance, unless otherwise specified.

ARTICLE II – DEFINITIONS AND USE TYPES

SEC. 30-28. DEFINITIONS.

(C) For the purposes of this ordinance, the words and phrases listed below in this section shall have the meanings described below.

Accessory building or structure: A building or structure detached from a principal building on the same lot and customarily incidental and subordinate to the principal building or use. Where an accessory building or structure is attached to the principal building in a substantial manner, as by a wall or roof, such accessory building shall be considered a part of the principal building. Accessory structures shall not exceed 600 square feet in special flood hazard areas.

Base flood: The flood having a one percent chance of being equaled or exceeded in any given year.

Base flood elevation (BFE): The water surface elevation which occurs in a one-hundred-year flood as designated by the Federal Emergency Management Agency, or in approximated floodplains, approved by the director of community development of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year and is generally referred to as the "100-year flood." The water surface elevation of the base flood in relation to the datum specified on the community’s Flood Insurance Rate Map. For the purpose of this ordinance, the base flood is the 1% annual chance flood.

Board of zoning appeals (BZA): The term board of zoning appeals will refer to the Roanoke County Board of Zoning Appeals, also referred to in this ordinance as BZA. This board is appointed to review appeals made by individuals with regard to decisions of the zoning administrator, and in special flood hazard areas the decisions of the floodplain administrator, in the interpretation of this ordinance. In addition, the BZA is responsible for granting variances from local zoning regulations.

Conditional letter of map revision (CLOMR): A formal review and comment as to whether a proposed flood protection project or other project complies with the minimum National Flood Insurance Program (NFIP) requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map (FIRM) or Flood Insurance Study (FIS).
Development: Any manmade change to improved or unimproved real estate including but not limited to buildings or other structures, temporary structures, mining, dredging, filling, grading, paving, excavation or drilling operations or other land-disturbing activities, or permanent or temporary storage of equipment or materials.

Elevated building: A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

Encroachment: The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Existing construction: For the purpose of the flood insurance program, structures for which the “start of construction” commenced before the effective date of the FIRM for that location, or before October 17, 1978, for FIRMs effective before that date. “Existing construction” may also be referred to as “existing structures” and “pre-FIRM.”

Flood or flooding: A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters; or the unusual and rapid accumulation or runoff of surface waters from any source.

1. A general or temporary condition of partial or complete inundation of normally dry land areas from:
   (a) the overflow of inland or tidal waters; or,
   (b) the unusual and rapid accumulation or runoff of surface waters from any source.
   (c) Mudflows which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1 (a) of this definition.

Flood insurance rate map (FIRM): An official map of a community, on which the Federal Emergency Management Agency (FEMA) has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

Flood insurance study (FIS): A report by FEMA that examines, evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination,
evaluation and determination of mudflow and/or flood-related erosion hazards.

**Flood, one hundred year**: A flood that, on the average, is likely to occur once every one hundred (100) years (i.e., that has a one percent chance of occurring each year, although the flood may occur in any year). A one hundred-year flood is also referred to as the base flood.

**Floodplain administrator**: The Floodplain Administrator of Roanoke County, Virginia. The floodplain administrator shall be responsible for administering the floodplain regulations on behalf of the county.

**Floodproofing**: Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

**Floodway**: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height one foot at any point within the community.

**Freeboard**: A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. “Freeboard” tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

**Highest adjacent grade**: The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

**Hydrologic and hydraulic engineering analysis**: Analyses performed by a licensed professional engineer, in accordance with standard engineering practices that are accepted by the Virginia Department of Conservation and Recreation and FEMA, used to determine the base flood, other frequency floods, flood elevations, floodplain and floodway delineations, and flood profiles.

**Letter of map amendment (LOMA)**: An amendment based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a Land as defined by metes and bounds or structure is not located in a special flood hazard area.

**Letters of map change (LOMC)**: A Letter of Map Change is an official FEMA determination, by letter, that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study. Letters of Map Change include Letter of Map Amendment (LOMA), Letter of Map Revision (LOMR), and Conditional Letter of Map Revision (CLOMR).

**Letter of map revision (LOMR)**: A revision based on technical data that may show changes to flood zones, flood elevations, floodplain and floodway delineations, and planimetric
features. A Letter of Map Revision Based on Fill (LOMR-F) is a determination that a structure or parcel of land has been elevated by fill above the base flood elevation and is, therefore, no longer exposed to flooding associated with the base flood. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community’s floodplain management regulations.

*Lowest adjacent grade:* The lowest natural elevation of the ground surface next to the walls of a structure.

*New construction:* For the purposes of determining insurance rates, structures for which the “start of construction” commenced on or after the effective date of an initial FIRM for that location, or after October 17, 1978, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

*Post-FIRM structures:* A structure for which construction or substantial improvement occurred on or after the effective date of the initial FIRM for that location, or on or after October 17, 1978.

*Pre-FIRM structures:* A structure for which construction or substantial improvement occurred before the effective date of the initial FIRM for that location, or before October 17, 1978.

*Recreational vehicle:* A vehicle, built on a single chassis and measuring 400 square feet or less at the largest horizontal projection, which can be towed, hauled or driven, designed and used as temporary living accommodations for recreational, camping or travel uses only. Recreational vehicles shall include travel trailers, pick-up campers, motor homes, tent trailers or similar devices used for temporary mobile housing, boats and personal watercraft.

*Repetitive loss structure:* A building covered by a contract for flood insurance that has incurred flood-related damages on two occasions in a 10-year period, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

*Severe repetitive loss structure:* A structure that: (a) Is covered under a contract for flood insurance made available under the NFIP; and (b) Has incurred flood related damage – (i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.
Shallow flooding area: A special flood hazard area with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Special flood hazard area: The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year as determined in Section 30-74-8 of this ordinance.

Start of construction: For other than new construction and substantial improvement, start of construction means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations; or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure: Anything that is constructed or erected with a fixed location on the ground, or attached to something having a fixed location on the ground, including but not limited to buildings, signs, manufactured homes and swimming pools. Walls and fences shall not be deemed structures except as otherwise specifically provided in this ordinance. For floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

Substantial damage. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred. It also means flood-related damages sustained by a structure on two occasions in a 10-year period, in which the cost of repair, on average, equals or exceeds 25 percent of the market value of the structure at the time of each such flood event.

Substantial improvement. Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred repetitive loss or substantial damage regardless of the actual repair work performed. The term does not, however, include either:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified
by the local code enforcement official which are the minimum necessary to assure safe living conditions; or

(2) Any alteration of a historic structure provided that the alteration will not preclude the structure’s continued designation as a historic structure; or

(3) Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all ordinance requirements that do not preclude the structure’s continued designation as a historic structure. Documentation that a specific ordinance requirement will cause removal of the structure from the National Register of Historic Places or the State Inventory of Historic places must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from ordinance requirements will be the minimum necessary to preserve the historic character and design of the structure.

SEC. 30-29. USE TYPES; GENERALLY.

Sec. 30-29-2. Residential Use Types.

Manufactured home: A structure subject to federal regulation, which is transportable in one (1) or more sections: is eight (8) body feet or more in width and forty (40) body feet or more in length in the traveling mode, or is three hundred twenty (320) or more square feet when erected on site; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to the required utilities; and includes the plumbing, heating, air conditioning, and electrical systems contained in the structure. For floodplain management purposes also included are park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

ARTICLE III – DISTRICT REGULATIONS

SEC. 30-74. FO FLOODPLAIN OVERLAY DISTRICT.

Sec. 30-74-1. Purpose.

(A) The purpose of the Floodplain Overlay (FO) District is to provide mandatory floodplain restrictions for Federal Emergency Management Agency (FEMA) compliance. The purpose of these floodplain provisions is to prevent the following hazards:

1. The loss of life, health, or property;

2. The creation of health and safety hazards;

3. The disruption of commerce and governmental services;
4. The extraordinary and unnecessary expenditure of public funds for flood protection and relief; and

5. The impairment of the tax base.

(B) These provisions are designed to accomplish the above purposes by:

1. Regulating uses, activities, and development which, acting alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;

2. Restricting or prohibiting certain uses, activities, and development from locating within areas subject to flooding;

3. Requiring all those uses, activities, and developments that do occur in flood-prone areas to be protected and/or flood-proofed against flooding and flood damage; and

4. Protecting individuals from buying lands and structures which are unsuited for intended purposes because of flood hazards.

Sec. 30-74-2. Applicability and Administration.

(A) These provisions shall apply to all lands within the jurisdiction of Roanoke County and identified as being within a floodplain, as stipulated in this section as special flood hazard areas (SFHAs), shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) provided to Roanoke County by FEMA.

(B) These provisions shall supersede any regulations currently in effect in floodplain areas. Where conflict exists between these provisions and those of any underlying zoning district, the more restrictive provisions shall apply.

(C) In the event any provision concerning a floodplain area is declared inapplicable as a result of any legislative or administrative actions or judicial discretion, the basic underlying zoning district provisions shall remain applicable.

Sec. 30-74-3. Compliance.

(A) No land shall hereafter be developed and no structure shall be located, relocated, constructed, enlarged, or structurally altered except in full compliance with the terms and provisions of this section and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this section.

(B) The degree of flood protection sought by the provisions of this section is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare
occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This section does not imply that areas outside floodplain areas, or that land uses permitted within such areas, will be free from flooding or flood damages.

(C) This ordinance shall not create liability on the part of Roanoke County or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

Sec. 30-74-4. Severability

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this ordinance. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this ordinance are hereby declared to be severable.

Sec. 30-74-5. Designation of the Floodplain Administrator

The County Administrator shall designate the Floodplain Administrator for Roanoke County.

Sec. 30-74-6. Duties and Responsibilities of the Floodplain Administrator

The duties and responsibilities of the Floodplain Administrator shall include but are not limited to:

(A) Review applications for permits to determine whether proposed activities will be located in the Special Flood Hazard Area (SFHA).

(B) Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.

(C) Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the requirements of these regulations.

(D) Review applications to determine whether all necessary permits have been obtained from the Federal, State or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the one hundred year frequency floodplain of free-flowing non-tidal waters of the State.

(E) Verify that applicants proposing an alteration of a watercourse have notified adjacent communities, the Department of Conservation and Recreation (Division of Dam Safety
and Floodplain Management), and other appropriate agencies (Virginia Department of Environmental Quality (VADEQ), United States Army Corps of Engineers (USACE)) and have submitted copies of such notifications to FEMA.

(F) Approve applications and issue permits to develop in flood hazard areas if the provisions of these regulations have been met, or disapprove applications if the provisions of these regulations have not been met.

(G) Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with these regulations or to determine if non-compliance has occurred or violations have been committed.

(H) Review Elevation Certificates and require incomplete or deficient certificates to be corrected.

(I) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain the FIRM, including hydrologic and hydraulic engineering analyses prepared by or for Roanoke County, within six months after such data and information becomes available if the analyses indicate changes in base flood elevations.

(J) Maintain and permanently keep records that are necessary for the administration of these regulations, including:

1. Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps) and Letters of Map Change (LOMC); and
2. Documentation supporting issuance and denial of permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been flood-proofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of these regulations.

(K) Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders and require permit holders to take corrective action.

(L) Advise the Board of Zoning Appeals (BZA) regarding the intent of these regulations and, for each application for a variance, prepare a staff report and recommendation.

(M) Administer the requirements related to proposed work on existing buildings:

1. Make determinations in consultation with the building official as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.
2. Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct. Prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

(N) Undertake other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for Increased Cost of Compliance coverage under the National Flood Insurance Program (NFIP) flood insurance policies.

(O) Notify FEMA when the corporate boundaries of Roanoke County have been modified and:

1. Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to these regulations has either been assumed or relinquished through annexation; and

2. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

(P) Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

(Q) It is the duty of the Floodplain Administrator to take into account flood, mudslide and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use throughout the entire jurisdictional area of the community, whether or not those hazards have been specifically delineated geographically (e.g. via mapping or surveying).

Sec. 30-74-7. Use and Interpretation of FIRMs
The Floodplain Administrator shall make interpretations, where needed, as to the exact location of SFHAs, floodplain boundaries, and floodway boundaries. The following shall apply to the use and interpretation of FIRMs and data:

(A) Where field surveyed topography indicates that adjacent ground elevations:

1. Are below the base flood elevation in riverine SFHAs, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as SFHA and subject to the requirements of these regulations;

2. Are above the base flood elevation and the area is labelled as a SFHA on the FIRM, the area shall be regulated as SFHA unless the applicant obtains a Letter of Map Change that removes the area from the SFHA.

(B) In FEMA-identified SFHAs where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a Federal, State, or other source shall be reviewed and reasonably used.

(C) Base flood elevations and designated floodway boundaries on the FIRM and in the FIS shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.

(D) Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on the FIRM and in the FIS.

(E) If a Preliminary FIRM and/or a Preliminary FIS has been provided by FEMA:

1. Upon the issuance of a Letter of Final Determination by FEMA, the preliminary flood hazard data shall be used and shall replace the flood hazard data previously provided from FEMA for the purposes of administering these regulations.

2. Prior to the issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to Section 30-74-8(A)3 and used where no base flood elevations and/or floodway areas are provided on the effective FIRM.

3. Prior to issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations or floodway areas exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change and/or appeal to FEMA.

Sec. 30-74-48. Delineation of Areas.
(A) The various special floodplain hazard areas shall include the SFHAs areas subject to inundation by waters of the one hundred year flood. The primary basis for the delineation of these areas shall be the flood insurance study FIS and the FIRMs for the county Roanoke County prepared by Federal Emergency Management Agency FEMA, dated September 28, 2007, as amended, and any subsequent revisions or amendments thereto.

Roanoke County may identify and regulate local flood hazard and ponding areas that are not delineated on the FIRM. These areas may be noted on a “Local Flood Hazard Map” using the best available topographic data and locally derived information such as flood of record, historic high water marks or approximate study methodologies.

The boundaries of the SFHAs are established as shown on the FIRM which is declared to be a part of this ordinance and which shall be kept on file at the Roanoke County offices. These areas are more specifically defined as follows:

1. The Floodway is part of an AE Zone and is delineated, for purposes of this section, using the criteria that a certain area within the floodplain must be capable of carrying the waters of the 100-year one percent annual chance flood without increasing the water surface elevation of that flood more than one foot at any point. These Floodways are specifically defined in Table 45 of the above referenced Flood Insurance Study FIS and shown on the accompanying Flood Insurance Rate Map FIRM accompanying that study.

The following provisions shall apply within the Floodway of an AE zone:

a. Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations and other required information shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies – with Roanoke County’s endorsement – for a Conditional Letter of Map Revision (CLOMR), and receives the approval of the FEMA.
Once approved by FEMA, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 30-74-13 and 30-74-15.

b. The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured home park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring, elevation, and encroachment standards are met.

2. The Flood Fringe shall be that area of the 100-year floodplain not included in the Floodway. The basis for the outermost boundary of the Flood Fringe shall be the 100-year flood elevations contained in the flood profiles of the above referenced Flood Insurance Study and as shown on the Flood Insurance Rate Map accompanying the study.

32. The AE or AH Zones Special Floodplain shall be those areas identified as an AE zone on the maps accompanying the flood insurance study that are designated as AE or AH Zones on the FIRM accompanying the FIS shall be the areas for which one hundred year percent annual chance flood elevations have been provided but for which no floodway has not been delineated. The following provisions shall apply within an AE or AH zone where FEMA has provided base flood elevations:

a. Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the SFHA, designated as Zones AE or AH on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within Roanoke County.

Development activities in Zones AE or AH on the County of Roanoke’s FIRM which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies – with Roanoke County’s endorsement – for a CLOMR, and receives the approval of FEMA.

43. The A Zone, or Approximated Floodplain, on the FIRM accompanying the FIS, shall be those floodplain areas shown on the flood insurance rate map for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated, and all other floodplain areas where the drainage area is greater than 100 acres. For these areas, the following provisions shall apply:
a. The base flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific 100-year one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers USACE Floodplain Information Reports, U. S. Geological Survey Flood-Prone Quadrangles, etc. and similar sources, then the applicant for the proposed use, development and/or activity shall determine this base flood elevation in accordance with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently accepted technical concepts. Calculations for the design flood shall be related to existing land use and potential development under existing zoning. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the director of community development. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted practices, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, computations, and other information shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

b. The Floodplain Administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated to or above the base flood level plus twelve (12) inches for non-residential structures and twenty-four (24) inches for residential structures.

c. During the permitting process, the Floodplain Administrator shall obtain:

i. The elevation of the lowest floor (in relation to mean sea level), including the basement, of all new and substantially improved structures; and,

ii. If the structure has been flood-proofed in accordance with the requirements of Section 30-74, the elevation (in relation to mean sea level) to which the structure has been flood-proofed.

Base flood elevation data shall be obtained from other sources or developed using detailed methodologies comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five acres, whichever is the lesser.
4. The AO Zone, shall be those areas of shallow flooding identified as AO on the FIRM accompanying the FIS. For these areas, the following provisions shall apply:

   a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.

   b. All new construction and substantial improvements of non-residential structures shall:

      i. Have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two feet above the highest adjacent grade; or,

      ii. Together with attendant utility and sanitary facilities be completely flood-proofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

   c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

(B) The mapped floodplain, includes all of the above regions and also the regions designated as having a 0.2 annual chance of flooding on any flood map or flood insurance study. In this area, no new emergency service, medical service, or governmental records storage shall be allowed except through the variance process.

Sec. 30-74-59. Creation of Overlay.

(A) The floodplain areas described above shall be an overlay to the existing underlying zoning districts as shown on the Official Zoning Map, and as such, the provisions for the floodplain areas shall serve as a supplement to the underlying zoning district provisions.
The boundaries of the floodplain areas are established as shown on the Flood Insurance Rate Map (FIRM) which is declared to be part of this chapter and which shall be kept on file in the office of the Floodplain Administrator.

Sec. 30-74-610. Floodplain Boundary Changes and Interpretation

(A) In regards to jurisdictional boundary changes, the County Floodplain Ordinance in effect on the date of annexation shall remain in effect and shall be enforced by the municipality for all annexed areas until the municipality adopts and enforces an ordinance which meets the requirements for participation in the National Flood Insurance Program. Municipalities with existing Floodplain Ordinances shall pass a resolution acknowledging and accepting responsibility for enforcing Floodplain Ordinance standards prior to annexation of any area containing identified flood hazards. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

In accordance with the Code of Federal Regulations, Title 44 Subpart (B) Section 59.22 (a) (9) (v) all NFIP participating communities must notify the Federal Insurance Administration (FIA) and optionally the State Coordinating Office in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed or no longer has authority to adopt and enforce floodplain management regulations for a particular area.

In order that the FIRM accurately represent the community’s boundaries, a copy of a map of the community suitable for reproduction, clearly delineating the new corporate limits or new area for which the community has assumed or relinquished floodplain management regulatory authority must be included with the notification.

(AB) The delineation of any of the floodplain areas may be revised by the Board of Supervisors of Roanoke County where natural or man-made changes have occurred and/or where more detailed studies have been conducted or undertaken by the U.S. Army Corps of Engineers (USACE) or other qualified agency, or an individual documents the need for such change. However, prior to any such change, approval must be obtained from the Federal Insurance Administration (FEMA). A completed LOMR is a record of this approval.

(BC) Initial interpretations of the boundaries of the floodplain areas shall be made by the Floodplain Administrator. Should a dispute arise concerning the boundaries of any of the floodplain areas, the Board of Zoning Appeals (BZA) shall make the necessary determination. The person questioning or contesting the location of the floodplain area boundary shall be given an opportunity to present his case to the Board of Zoning Appeals.
BZA and to submit technical evidence. Procedures for such appeals shall be as outlined in Section 30-24 of this ordinance.

Sec. 30-74-11. Submitting Model Backed Technical Data

A community’s base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six (6) months after the date such information becomes available, a community shall notify FEMA of the changes by submitting technical or scientific data. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

Sec. 30-74-12. Letters of Map Revision (LOMR)

(A) When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a CLOMR and then a LOMR. Example cases may include, but not be limited to:

1. Any development within the floodway that causes a rise in the base flood elevations.

2. Any development occurring in Zones A1-30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.

3. Alteration or relocation of a stream (including but not limited to installing culverts and bridges) 44 Code of Federal Regulations §65.3 and §65.6(a)(12).


(A) All uses, activities, and development occurring within any floodplain area, including placement of manufactured homes, shall be undertaken only upon the issuance of a zoning permit. Such development shall be undertaken only in strict compliance with the provisions of this section and with all other applicable codes and ordinances such as the Virginia Uniform Statewide Building Code (VA USBC) and the Roanoke County Subdivision Ordinance. Prior to the issuance of any such permit, the Floodplain Administrator shall require all applications to include compliance with all applicable state and federal laws and shall review all sites to assure they are reasonably safe from flooding. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways or any watercourse, drainage ditch, or any other drainage facility or system.

(B) Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways or any watercourse, drainage ditch, or any other drainage facility or system. Prior to any proposed alteration or relocation of any channels
or floodways of any watercourse, stream, etc., within Roanoke County, approval shall be obtained from the Virginia Department of Environmental Quality, Division of Water. Further, notification of the proposal shall be given to all affected adjacent jurisdictions. Copies of such notification shall be forwarded to the Virginia Department of Environmental Quality, Division of Water, the State Department of Intergovernmental Affairs, and the Federal Insurance Administration.

(C) The lowest floor elevation of any new residential structure constructed within a floodplain area shall be at least two (2) feet above base flood elevation. The lowest floor elevation of any new non-residential structure constructed within a floodplain area shall be at least one (1) foot above base flood elevation, unless such structure is floodproofed. In addition, no existing structure shall be modified, expanded or enlarged unless the new construction complies with this standard.

(DB) All applications for development in the floodplain district and all building permits issued for the floodplain shall incorporate the following information:

1. For structures to be elevated, the elevation of the lowest floor (including basement).

2. For structures to be flood-proofed (non-residential only), the elevation to which the structure will be flood-proofed.

3. The elevation of the one hundred-year base flood at the site.

4. Topographic information showing existing and proposed ground elevations.

(EC) For all new subdivisions which adjoin or include floodplain areas identified in the flood insurance study FIS, the base flood elevation shall be shown on the final record plat.

(D) The following provisions shall apply to all permits:

1. New construction and substantial improvements shall be built according to Section 30-74-8 of this ordinance and the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.

2. Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.

3. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
4. New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

5. Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

6. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

7. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

8. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

9. Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, or other water feature, within this jurisdiction a permit shall be obtained from the USACE, the VADEQ, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), other required agencies, and FEMA.

10. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(F) All recreational vehicles located in a FEMA designated floodplain shall either:

1. Be on site for fewer than one hundred eighty (180) consecutive days, be fully licensed and inspected, and ready for highway use; or

2. Meet the minimum requirements for placement and the elevation and anchoring requirements for manufactured homes as contained in the Virginia Uniform Statewide Building Code.

A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

Sec. 30-74-8-14. Floodway Development Regulations.
(A) In the floodway no development shall be permitted except where the effect of such development on flood heights is fully offset by accompanying improvements which have been approved by all appropriate authorities as required above.

(B) The placement of any manufactured home, except in an existing manufactured home park within the floodway is specifically prohibited.

(C) In the floodway, the following uses, types and activities are permitted provided that (1) they are in compliance with the provisions of the underlying zoning district, (2) are not prohibited by any other ordinance and (3) no specific land use requires any type of structure, fill, or storage of materials and equipment:

1. Agricultural
2. Public Parks and Recreational Areas
3. Outdoor Sports and Recreation
4. Golf Courses
5. Accessory residential uses such as yard areas, gardens, play areas, and loading areas.
6. Accessory industrial and commercial uses such as, but not limited to, yard areas, parking and loading areas, and airport landing strips, etc.

(D) The following uses and activities may be permitted by Special Use pursuant to Section 30-19 of this ordinance provided that they are in compliance with the provisions of the underlying zoning district and are not prohibited by this or any other ordinance:

1. Structures (except for manufactured homes) accessory to the uses and activities by right, above.
2. Certain utilities and public facilities and improvements such as pipe lines, water and sewage treatment plants, and other similar or related uses.
3. Water-related uses and activities such as marinas, docks, wharves, piers, etc.
4. Extraction of sand, gravel, and other materials (where no increase in level of flooding or velocity is caused thereby).
5. Storage of materials and equipment provided that they are not buoyant, flammable or explosive, and are not subject to major damage by flooding, or provided that such material and equipment is firmly anchored to prevent flotation or movement, and/or can be readily removed from the area within the time available after flood warning.
6. Other similar uses and activities provided they cause no increase in flood heights and/or velocities. All uses, activities, and structural development shall be undertaken in strict compliance with the flood-proofing provisions contained in all other applicable codes and ordinances.

Sec. 30-74-15. Elevation and Construction Standards

In all identified flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with Section 30-74-8, the following provisions shall apply:

(A) Residential Construction

New construction or substantial improvement of any residential structure (including manufactured homes) in Zones AE, AH and A with detailed base flood elevations shall have the lowest floor, including basement, elevated to or above the base flood level plus twenty-four (24) inches.

(B) Non-Residential Construction

1. New construction or substantial improvement of any commercial, industrial, or non-residential building (or manufactured home) shall have the lowest floor, including basement, elevated to or above the base flood level plus twelve (12) inches.

2. Non-residential buildings located in all AE, and AH zones may be flood-proofed in lieu of being elevated provided that all areas of the building components below the elevation corresponding to the BFE plus two feet are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are flood-proofed, shall be maintained by the Floodplain Administrator.

(C) Space below the Lowest Floor

In zones A, AE, AH, and AO, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

1. Not be designed or used for human habitation, but shall be used solely for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of
maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).

2. Be constructed entirely of flood resistant materials below the regulatory flood protection elevation;

3. Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet the following minimum design criteria:
   a. Provide a minimum of two openings on different sides of each enclosed area subject to flooding.
   b. The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.
   c. If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.
   d. The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade.
   e. Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions.
   f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

(D) Accessory Structures

Accessory structures in the SFHA shall comply with the elevation requirements and other requirements of 30-74-15(B) or, if not elevated or dry flood-proofed, shall:

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

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 which shall meet the following criteria:
   a. There shall be a minimum of two flood openings on different sides of each enclosed area; if a building has more than one enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.
   b. The total net area of all flood openings shall be at least 1 square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.
   c. The bottom of each flood opening shall be 1 foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.
   d. Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.

(E) Standards for Manufactured Homes and Recreational Vehicles

1. All manufactured homes placed, or substantially improved, on individual lots or parcels, must meet all the requirements for new construction, including the elevation and anchoring requirements in Section 30-74-13 and Section 30-74-15.

2. All recreational vehicles located in a FEMA designated floodplain shall either:
   a. Be on site for fewer than one hundred eighty (180) consecutive days, be fully licensed and inspected, and ready for highway use; or
   b. Meet the minimum requirements for placement and the elevation and anchoring requirements for manufactured homes as contained in the VA USBC; or
c. Be fully licensed and highway ready. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

(F) Standards for Subdivision Proposals

1. All subdivision proposals shall be consistent with the need to minimize flood damage;

2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;

3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards; and

4. When the FIS does not provide detailed base flood elevations, base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a Flood Insurance Study for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five acres, whichever is the lesser.


(A) In the flood fringe, special floodplain and approximated floodplain the development and/or use of land shall be permitted in accordance with the regulations of the underlying zoning district provided that all such uses, activities, and/or development shall be undertaken in strict compliance with the flood-proofing and related provisions contained in the Virginia Uniform Statewide Building Code and all other applicable codes and ordinances.

However, in the special floodplain and the approximated floodplain areas the applicant and/or developer shall evaluate the effects of the proposed development and/or use of land on the floodplain with current hydrologic and hydraulic engineering techniques. The applicant and/or developer shall submit studies, analysis, computations, etc. to show the delineation of a floodway based on the requirement that all existing and future development not increase the one hundred year flood elevation more than one (1) foot at any point. The engineering principle, equal reduction of conveyance, shall be used to make the determination of increased flood height.

Sec. 30-74-126. Existing Structures in Floodplain Areas.
(A) Any structure or use of a structure or premises which lawfully existed before the enactment of these provisions, but which is not in conformity with these provisions may be continued subject to the following conditions: must be brought into conformity with these provisions when it is changed, repaired, or improved unless one of the following exceptions is established before the change:

1. Existing structures and/or uses located in the floodway shall not be expanded or enlarged (unless the effect of the proposed expansion or enlargement on flood heights is fully offset by accompanying improvements). The Floodplain Administrator has determined that:
   
   a. Change is not a substantial repair or substantial improvement; and
   
   b. No new square footage is being built in the floodplain that is not compliant; and
   
   c. No new square footage is being built in the floodway; and
   
   d. The change complies with the zoning ordinance and the VA USBC.

2. Any modification, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use located in any floodplain area to an extent or amount of fifty (50) percent or more of its market value, shall be undertaken only in full compliance with the Virginia Uniform Statewide Building Code. The changes are required to comply with a citation for a health and safety violation.

3. The structure is a historic structure and the change requires would impair the historic nature of the structure.

Sec. 30-74-10. Procedures for Special Uses in Floodways.

(A) Any use listed as permitted with a special use in a floodway shall be allowed only after approval of an application submitted to the BOS. All such applications shall be reviewed pursuant to the procedures outlined in Section 30-19 of this ordinance. In addition to information required by Section 30-19, all such application shall include the following:

1. Plans in triplicate drawn to scale not less than 1” to 100’ horizontally showing the location, dimensions, and contours (at five-foot intervals) of the lot, existing and proposed structures, fill, storage areas, water supply, sanitary facilities, and relationship of the floodway to the proposal.

2. A typical valley cross-section as necessary to adequately show the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and one hundred year flood elevation.
3. A profile showing the slope of the bottom of the channel or flow line of the stream.

4. A summary report, prepared by professional engineers or others of demonstrated qualifications, evaluating the proposed project in relation to flood heights and velocities; the seriousness of flood damage to the use; and other pertinent technical matters.

5. A list of names and addresses of adjoining property owners.

(B) In acting upon such applications, the planning commission and the BOS shall consider all relevant factors specified in other sections of this ordinance and:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments. No special use shall be granted for any proposed use, development, or activity within the floodway that will cause any increase in flood levels during the one hundred year flood.

2. The danger that materials may be swept on to other lands or downstream to the injury of others.

3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.

4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

5. The importance of the services provided by the proposed facility to the county.

6. The requirements of the facility for a waterfront location.

7. The availability of alternative locations not subject to flooding for the proposed use.

8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

9. The relationship of the proposed use to the community plan and floodplain management program for the county.

10. The safety of access to the property in times of flood for ordinary and emergency vehicles.

11. Such other factors which are relevant to the purpose of this Section.
Sec. 30-74-147. Variances.

(A) The board of zoning appeals may consider variances to the requirements of this section, under the following guidelines and conditions:

1. Variances may not be considered within any floodway if any increase in flood levels during the 100-year flood would result.

2. Variance requests may be granted for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or a State Inventory of Historic Places without regard to the procedures set forth in this section.

3. Variances may be considered for new construction and substantial improvements to be erected on a lot contiguous and surrounded by lots with existing structures constructed below the 100-year flood level using the guidelines set forth in Section 30-74-10 (B) above.

(A) Variances shall be issued only upon a showing of good and sufficient cause, and after the BZA has determined that failure to grant the variance would result in exceptional hardship to the applicant.

While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. Variances may be issued by the BZA for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the provisions of this Section.

Variances may be issued for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of this Section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

In passing upon applications for variances, the BZA shall satisfy all relevant factors and procedures set forth in Section 30-24-1 et seq. of the zoning ordinance and consider the following additional factors:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any Floodway District that will cause any increase
in the one percent (1%) chance flood elevation.

2. The danger that materials may be swept on to other lands or downstream to the injury of others.

3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.

4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

5. The importance of the services provided by the proposed facility to the county.

6. The requirements of the facility for a waterfront location.

7. The availability of alternative locations not subject to flooding for the proposed use.

8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

9. The relationship of the proposed use to the comprehensive plan and floodplain management program for the county.

10. The safety of access by ordinary and emergency vehicles to the property in time of flood.

11. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.

12. The historic nature of a structure. Variances for repair or rehabilitation of historic structures may be granted upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

13. No variance shall be granted for an accessory structure exceeding 600 square feet.

14. Such other factors which are relevant to the purposes of this Ordinance.

(B) The board of zoning appeals BZA may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for protection and other
related matters. Variances shall only be issued after the board of zoning appeals BZA has determined that the granting of such will not result in:

1. Unacceptable or prohibited increases in flood heights;
2. Additional threats to public safety;
3. Extraordinary public expense;
4. Creation of nuisances;
5. Fraud or victimization of the public; or,
6. Conflict with local laws or ordinances.

Variances shall only be issued after the board of zoning appeals BZA has determined that the variance will be the minimum to provide relief to any hardship.

(C) The board of zoning appeals BZA shall notify the applicant for a variance, in writing, that the issuance of a variance to construct a structure below the one percent (1%) flood elevation (a) increases the risks to life and property, and (b) will result in increased premium rates for flood insurance. A record of the above notification as well as all variance actions, including justification for their issuance, shall be maintained and any variances which are issued shall be noted in the annual report submitted to the Federal Insurance Administration FIA.

Sec. 30-74-18. Records.

Records of actions associated with administering this ordinance shall be kept on file and maintained by or under the direction of the Floodplain Administrator in perpetuity.

Sec. 30-74-19. Violations.

The failure of a structure or other development to be fully compliant with the county’s floodplain management regulations shall be considered a violation. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Sections 30-74-13 (9), 30-74-15 (B) 2, 30-74-15 (E) 4, and 30-74-16 (A) is presumed to be in violation until such time as that documentation is provided.

Sec. 30-74-20. Penalty for Violations

Section 30-22 of the Zoning Ordinance contains provisions for enforcement of this section and penalties that apply for violations.

Sec. 30-74-13. Liability.
(A) The degree of flood protection sought by the provisions of this section is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur on rare occasions. Flood heights may be increased by manmade or natural causes, such as ice jams and bridge openings restricted by debris. This section does not imply that areas outside floodplain areas, or that land uses permitted within such areas, will be free from flooding or flood damages.

(B) This ordinance shall not create liability on the part of Roanoke County or any officers or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.
XV. Example Floodplain Management Ordinance

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

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

- These provisions should be modified to reflect the kinds of flooding hazards in your community as well as the community's circumstances, objectives, or policies.

- These provisions have been prepared only with the intention of meeting the minimum requirements of the FEMA NFIP regulations and the Virginia Uniform State Building Code (USBC).

- The Department of Conservation and Recreation (DCR) suggests that in some cases the minimum standards provide insufficient protection, create a risk of higher than necessary insurance rates, or create a more complex program. In these cases we have recommended specific higher standards or excluded additional complex options. We do this with *italics* and try to explain why the change is recommended or a provision might require additional attention in a footnote. Local requirements (higher standards) are encouraged, such as those under the Community Rating System (CRS) for example, and are supported by the Federal Emergency Management Agency and DCR. The more restrictive local regulations are recognized as taking precedence over the federal minimum guidelines.

- The needs, circumstances, and objectives of communities are diverse and the development of a single model ordinance or set of provisions for use by all is unrealistic to produce and what is provided may be subject to community revisions to meet individualized needs.

- This document is a template highlighting minimum requirements a community must have in their ordinance pursuant to federal requirements. You must make certain changes in order for this template to act as a document that meets 44 CFR requirements for your community. Changes required are as follows:
  
  o Replace text `{community}` throughout the document with the name of the community adopting the ordinance.
  o Add the date of the community’s effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) to the first paragraph of Article III, Section 3.1.A as indicated.
  o Adopt, sign and date the ordinance as described in Article VII.

If there are any questions concerning these suggested provisions or concerning the National Flood Insurance Program, please contact DCR’s Division of Dam Safety and Floodplain Management at (804) 371-6095 or the FEMA Region 3 Office at (215) 931-5500.
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ORDINANCE NO.____

AN ORDINANCE AMENDING ORDINANCE NO.____, THE ZONING ORDINANCE OF {community} VIRGINIA, BY ESTABLISHING FLOODPLAIN DISTRICTS, BY REQUIRING THE ISSUANCE OF PERMITS FOR DEVELOPMENT, AND BY PROVIDING FACTORS AND CONDITIONS FOR VARIANCES TO THE TERMS OF THE ORDINANCES.

BE IT ENACTED AND ORDAINED BY THE {community}, Virginia, as follows:

ARTICLE I - GENERAL PROVISIONS

Section 1.1 – Statutory Authorization and Purpose [44 CFR 59.22(a)(2)]

Va. Code § 15.2-2283 specifies that zoning ordinances shall be for the general purpose of promoting the health, safety, or general welfare of the public and of further accomplishing the objectives of § 15.2-2200 which encourages localities to improve the public health, safety, convenience, and welfare of their citizens. To these ends, flood ordinances shall be designed to provide for safety from flood, to facilitate the provision of flood protection, and to protect against loss of life, health, or property from flood.

In accordance with these directed provisions, this ordinance is specifically adopted pursuant to the authority granted to localities by Va. Code § 15.2 - 2280.

The purpose of these provisions is to prevent: the loss of life, health, or property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by:

A. Regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;

B. Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;

C. Requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or floodproofed against flooding and flood damage; and,

D. Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.
Section 1.2 – Applicability

These provisions shall apply to all privately and publicly owned lands within the jurisdiction of {community} and identified as areas of special flood hazard identified by the community or shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) that are provided to the {community} by FEMA.

Section 1.3 - Compliance and Liability

A. No land shall hereafter be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with the terms and provisions of this ordinance and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this ordinance.

B. The degree of flood protection sought by the provisions of this ordinance is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This ordinance does not imply that districts outside the floodplain district or land uses permitted within such district will be free from flooding or flood damages.

C. This ordinance shall not create liability on the part of {community} or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

Section 1.4 – Records [44 CFR 59.22(a)(9)(iii)]

Records of actions associated with administering this ordinance shall be kept on file and maintained by or under the direction of the Floodplain Administrator in perpetuity.

Section 1.5 - Abrogation and Greater Restrictions [44 CFR 60.1(b)]

To the extent that the provisions are more restrictive, this ordinance supersedes any ordinance currently in effect in flood-prone districts. To the extent that any other existing law or regulation is more restrictive or does not conflict it shall remain in full force and effect.

These regulations are not intended to repeal or abrogate any existing ordinances including subdivision regulations, zoning ordinances, or building codes. In the event of a conflict between these regulations and any other ordinance, the more restrictive shall govern.

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1 Communities have the authority and are encouraged to regulate areas known to flood that do not appear in the FIRM or FIS. Even if you have not identified areas of flood risk that are not included in FEMA’s products you might want to adopt this higher standard to reserve the option to identify and regulate locally known risk areas.

2 This is a requirement to participate in the NFIP and is more restrictive then the Library of Virginia policy. If these records are not available, there is no way to show that a structure was built in compliance with the regulations at the time. Maintaining these records is the only way the community can show that it has been fairly administering the program.
Section 1.6 - Severability

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this ordinance. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this ordinance are hereby declared to be severable.

Section 1.7 - Penalty for Violations [44 CFR 60.2(e)]

Any person who fails to comply with any of the requirements or provisions of this article or directions of the director of planning or any authorized employee of the {community} shall be guilty of the appropriate violation and subject to the penalties thereof.

The VA USBC addresses building code violations and the associated penalties in Section 104 and Section 115. Violations and associated penalties of the Zoning Ordinance of {community} are addressed in Section ____ of the Zoning Ordinance.

In addition to the above penalties, all other actions are hereby reserved, including an action in equity for the proper enforcement of this article. The imposition of a fine or penalty for any violation of, or noncompliance with, this article shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations within a reasonable time. Any structure constructed, reconstructed, enlarged, altered or relocated in noncompliance with this article may be declared by the {community} to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in violation of this article.3

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3 If this is not a part of the zoning ordinance specific fines and penalties will need to be adopted instead.
ARTICLE II - ADMINISTRATION

Section 2.1 - Designation of the Floodplain Administrator [44 CFR 59.22(b)]

The Floodplain Administrator is hereby appointed to administer and implement these regulations and is referred to herein as the Floodplain Administrator. The Floodplain Administrator may:

A. Do the work themselves. In the absence of a designated Floodplain Administrator, the duties are conducted by the {community} chief executive officer.

B. Delegate duties and responsibilities set forth in these regulations to qualified technical personnel, plan examiners, inspectors, and other employees.

C. Enter into a written agreement or written contract with another community or private sector entity to administer specific provisions of these regulations. Administration of any part of these regulations by another entity shall not relieve the community of its responsibilities pursuant to the participation requirements of the National Flood Insurance Program as set forth in the Code of Federal Regulations at 44 C.F.R. Section 59.22.

Section 2.2 - Duties and Responsibilities of the Floodplain Administrator [44 CFR 60.3]

The duties and responsibilities of the Floodplain Administrator shall include but are not limited to:

A. Review applications for permits to determine whether proposed activities will be located in the Special Flood Hazard Area (SFHA).

B. Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.

C. Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the requirements of these regulations.

D. Review applications to determine whether all necessary permits have been obtained from the Federal, State, or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the State.

E. Verify that applicants proposing an alteration of a watercourse have notified adjacent communities, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies (VADEQ, USACE), and have submitted copies of such notifications to FEMA.

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4 Instead of Floodplain Administrator you can appoint the zoning administrator, town manager or other official who can be specifically identified here. Floodplain administrator does not always have to be a standalone job, but someone has to have the job.
F. Advise applicants for new construction or substantial improvement of structures that are located within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act that Federal flood insurance is not available on such structures; areas subject to this limitation are shown on Flood Insurance Rate Maps as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).

G. Approve applications and issue permits to develop in flood hazard areas if the provisions of these regulations have been met, or disapprove applications if the provisions of these regulations have not been met.

H. Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with these regulations or to determine if non-compliance has occurred or violations have been committed.

I. Review Elevation Certificates and require incomplete or deficient certificates to be corrected.

J. Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for the {community}, within six months after such data and information becomes available if the analyses indicate changes in base flood elevations.

K. Maintain and permanently keep records that are necessary for the administration of these regulations, including:

1. Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps), and Letters of Map Change; and

2. Documentation supporting issuance and denial of permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of these regulations.

L. Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.

M. Advise the Board of Zoning Appeals regarding the intent of these regulations and, for each application for a variance, prepare a staff report and recommendation.

N. Administer the requirements related to proposed work on existing buildings:

1. Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.

2. Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct. Prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective
measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

O. Undertake, as determined appropriate by the Floodplain Administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for Increased Cost of Compliance coverage under NFIP flood insurance policies.

P. Notify the Federal Emergency Management Agency when the corporate boundaries of the community have been modified and:

1. Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to these regulations has either been assumed or relinquished through annexation; and

2. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

Q. Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

R. It is the duty of the Community Floodplain Administrator to take into account flood, mudslide and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use throughout the entire jurisdictional area of the Community, whether or not those hazards have been specifically delineated geographically (e.g. via mapping or surveying).

Section 2.3 - Use and Interpretation of FIRMs [44 CFR 60.3]

The Floodplain Administrator shall make interpretations, where needed, as to the exact location of special flood hazard areas, floodplain boundaries, and floodway boundaries. The following shall apply to the use and interpretation of FIRMs and data:

A. Where field surveyed topography indicates that adjacent ground elevations:

1. Are below the base flood elevation in riverine SFHAs, or below the 1% storm surge elevation in coastal SFHAs, even in areas not delineated as a special flood hazard area
2. Are above the base flood elevation and the area is labelled as a SFHA on the FIRM, the area shall be regulated as special flood hazard area unless the applicant obtains a Letter of Map Change that removes the area from the SFHA.

B. In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a Federal, State, or other source shall be reviewed and reasonably used.

C. Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.

D. Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.

E. If a Preliminary Flood Insurance Rate Map and/or a Preliminary Flood Insurance Study has been provided by FEMA:

1. Upon the issuance of a Letter of Final Determination by FEMA, the preliminary flood hazard data shall be used and shall replace the flood hazard data previously provided from FEMA for the purposes of administering these regulations.

2. Prior to the issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to Article III, Section 3.1.A.3 and used where no base flood elevations and/or floodway areas are provided on the effective FIRM.

3. Prior to issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations or floodway areas exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change and/or appeal to FEMA.

Section 2.4 - Jurisdictional Boundary Changes [44 CFR 59.22, 65.3]

The County floodplain ordinance in effect on the date of annexation shall remain in effect and shall be enforced by the municipality for all annexed areas until the municipality adopts and enforces an ordinance which meets the requirements for participation in the National Flood Insurance Program. Municipalities with existing floodplain ordinances shall pass a resolution acknowledging and accepting responsibility for enforcing floodplain ordinance standards prior to annexation of any area containing identified flood hazards. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, the governing body shall prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date
of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

In accordance with the Code of Federal Regulations, Title 44 Subpart (B) Section 59.22(a)(9)(v) all NFIP participating communities must notify the Federal Insurance Administration and optionally the State Coordinating Office in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed or no longer has authority to adopt and enforce floodplain management regulations for a particular area.

In order that all Flood Insurance Rate Maps accurately represent the community’s boundaries, a copy of a map of the community suitable for reproduction, clearly delineating the new corporate limits or new area for which the community has assumed or relinquished floodplain management regulatory authority must be included with the notification.

Section 2.5 - District Boundary Changes

The delineation of any of the Floodplain Districts may be revised by the {community} where natural or man-made changes have occurred and/or where more detailed studies have been conducted or undertaken by the U. S. Army Corps of Engineers or other qualified agency, or an individual documents the need for such change. However, prior to any such change, approval must be obtained from the Federal Emergency Management Agency. A completed LOMR is a record of this approval.

Section 2.6 - Interpretation of District Boundaries

Initial interpretations of the boundaries of the Floodplain Districts shall be made by the Zoning Officer. Should a dispute arise concerning the boundaries of any of the Districts, the Board of Zoning Appeals shall make the necessary determination. The person questioning or contesting the location of the District boundary shall be given a reasonable opportunity to present his case to the Board and to submit his own technical evidence if he so desires.

Section 2.7 – Submitting Model Backed Technical Data [44 CFR 65.3]

A community’s base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Federal Emergency Management Agency of the changes by submitting technical or scientific data. The community may submit data via a LOMR. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

Section 2.8 – Letters of Map Revision

When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a Conditional Letter of Map Revision and then a Letter of Map Revision.
Example cases:

- Any development that causes a rise in the base flood elevations within the floodway.

- Any development occurring in Zones A1-30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.

- Alteration or relocation of a stream (including but not limited to installing culverts and bridges) 44 Code of Federal Regulations §65.3 and §65.6(a)(12).
ARTICLE III - ESTABLISHMENT OF ZONING DISTRICTS

Section 3.1 - Description of Special Flood Hazard Districts [44 CFR 59.1, 60.3]

A. Basis of Districts

The various special flood hazard districts shall include the SFHAs. The basis for the delineation of these districts shall be the FIS and the FIRM for {community} prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated ______________ {insert the effective date of the community’s Flood Insurance Rate Map}[^5], and any subsequent revisions or amendments thereto.

The {community} may identify and regulate local flood hazard or ponding areas that are not delineated on the FIRM. These areas may be delineated on a “Local Flood Hazard Map” using best available topographic data and locally derived information such as flood of record, historic high water marks, or approximate study methodologies.

The boundaries of the SFHA Districts are established as shown on the FIRM which is declared to be a part of this ordinance and which shall be kept on file at the {community} offices.

1. The **Floodway District** is in an AE Zone and is delineated, for purposes of this ordinance, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one percent annual chance flood without increasing the water surface elevation of that flood more than one (1) foot at any point. The areas included in this District are specifically defined in Table ____ of the above-referenced FIS and shown on the accompanying FIRM.

   The following provisions shall apply within the Floodway District of an AE zone [44 CFR 60.3(d)]:

   a. Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

   Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies – with the {community’s}[^5] if preparing an ordinance amendment for adoption of a new FIRM and FIS, the new effective date should be used here, not the initial FIRM date. Every time a community receives a new FIRM, an ordinance amendment must be adopted to update the FIRM’s effective date. This amendment must be adopted and approved by FEMA prior to the effective date of the new FIRM to avoid suspension from the NFIP.

[^5]: If preparing an ordinance amendment for adoption of a new FIRM and FIS, the new effective date should be used here, not the initial FIRM date. Every time a community receives a new FIRM, an ordinance amendment must be adopted to update the FIRM’s effective date. This amendment must be adopted and approved by FEMA prior to the effective date of the new FIRM to avoid suspension from the NFIP.
endorsement – for a Conditional Letter of Map Revision (CLOMR), and receives the approval of the Federal Emergency Management Agency.

If Article III, Section 3.1.A.1.a is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 4.

b. The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured home (mobile home) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring, elevation, and encroachment standards are met.

2. The **AE, or AH Zones** on the FIRM accompanying the FIS shall be those areas for which one-percent annual chance flood elevations have been provided and the floodway has not been delineated. The following provisions shall apply within an AE or AH zone [44 CFR 60.3(c)] where FEMA has provided base flood elevations:

Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones A1-30, AE, or AH on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the **community**.

Development activities in Zones A1-30, AE, or AH on the **community's** FIRM which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies – with the **community's** endorsement – for a Conditional Letter of Map Revision, and receives the approval of the Federal Emergency Management Agency.

3. The **A Zone** on the FIRM accompanying the FIS shall be those areas for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated. For these areas, the following provisions shall apply [44 CFR 60.3(b)]:

The Approximated Floodplain District shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a one percent annual chance floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the FIS. For these areas, the base flood elevations and floodway information from Federal, State, and other acceptable sources shall be used, when available. Where the specific one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U. S. Army Corps of Engineers Floodplain Information Reports, U. S. Geological Survey Flood-Prone

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6 The requirement in 60.3(c)(10) only applies along rivers, streams, and other watercourses where FEMA has provided base flood elevations. The requirement does not apply along lakes, bays and estuaries, and the ocean coast.
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Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this base flood elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted practices, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

The Floodplain Administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated to or above the base flood level plus eighteen (18) inches.

During the permitting process, the Floodplain Administrator shall obtain:

a. The elevation of the lowest floor (in relation to mean sea level), including the basement, of all new and substantially improved structures; and,

b. If the structure has been floodproofed in accordance with the requirements of this article, the elevation (in relation to mean sea level) to which the structure has been floodproofed.

Base flood elevation data shall be obtained from other sources or developed using detailed methodologies comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five acres, whichever is the lesser.

4. The AO Zone on the FIRM accompanying the FIS shall be those areas of shallow flooding identified as AO on the FIRM. For these areas, the following provisions shall apply [44 CFR 60.3(c)]:

a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.

b. All new construction and substantial improvements of non-residential structures shall

   (1) Have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the

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7 The flood maps anticipate one foot of rise in BFE due to fill in the floodplain, so while building to BFE is all that is required; it will result in flooding if all assumptions made in mapping are correct. Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data.

8 The recommended standard here is 5 lots instead of 50. Fifty lots is the breakpoint suggested in the federal regulations but the 5/5 rule is less confusing and captures more commercial development.
depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two feet above the highest adjacent grade; or,

(2) Together with attendant utility and sanitary facilities be completely floodproofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

5. The **Coastal A Zone**\(^9\) is labelled as AE on the FIRM; it is those areas that are seaward of the limit of moderate wave action (LiMWA) line. As defined by the VA USBC, these areas are subject to wave heights between 1.5 feet and 3 feet. For these areas, the following provisions shall apply:

Buildings and structures within this zone shall have the lowest floor elevated to or above the base flood elevation plus one foot\(^{10}\) of freeboard, and must comply with the provisions in Article III, Section 3.1.A.2 and Article IV, Sections 4.2 and 4.3.

6. The **VE or V Zones** on FIRMs accompanying the FIS shall be those areas that are known as Coastal High Hazard areas, extending from offshore to the inland limit of a primary frontal dune along an open coast or other areas subject to high velocity waves. For these areas, the following provisions shall apply [44 CFR 60.3(e)]:

a. All new construction and substantial improvements in Zones V and VE, including manufactured homes, shall be elevated on pilings or columns so that:

(1) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level \textit{plus eighteen (18) inches}.\(^{11}\) if the lowest horizontal structural member is parallel to the direction of wave approach or elevated at least two feet above the base flood level if the lowest horizontal structural member is perpendicular to the direction of wave approach; and,

(2) The pile or column foundation and structure attached thereto is anchored to

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\(^9\) Instead of having a coastal A zone a community can include this area in the V zone, adopting these standards for Coastal A areas provides a higher degree of protection, reflects the level of surge risk seen in actual events, and helps ensure that buildings built now receive favorable insurance rates if FEMA does change their program requirements to include coastal A limitations. Right now the only provisions effecting this zone are found in the Virginia Building Code and are reflected in the language here.

\(^{10}\) If your community has adopted a higher freeboard (as is recommended) this one foot requirement might need to be changed for consistency with the freeboard required in A or V zones. Consider changing the one foot to 18” of freeboard.

\(^{11}\) Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data.
resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equalled or exceeded in any given year (one-percent annual chance).

b. A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of Article III, Section A.6.a.

c. The Floodplain Administrator shall obtain the elevation (in relation to mean sea level) of the bottom of the lowest horizontal structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V and VE. The Floodplain Management Administrator shall maintain a record of all such information.

d. All new construction shall be located landward of the reach of mean high tide.

e. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction\(^\text{12}\) or constructed with non-supporting breakaway walls, open wood-lattice work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purpose of this Section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

(1) Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and

(2) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equalled or exceeded in any given year.

f. The enclosed space below the lowest floor shall be used solely for parking of vehicles, building access, or storage. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation. The enclosed

\(^{12}\) An optional higher standard is to simply require that all areas below the lowest floor be free from obstructions that cannot be seen though. This makes it much easier to be sure that these areas are not converted to living spaces and means that breakaway walls do not need technical inspections.
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space shall be less than 300 square feet.\textsuperscript{13}

g. The use of fill for structural support of buildings is prohibited. When non-structural fill is proposed in a coastal high hazard area, appropriate engineering analyses shall be conducted to evaluate the impacts of the fill prior to issuance of a permit.

h. The man-made alteration of sand dunes, which would increase potential flood damage, is prohibited.

7. \textit{The mapped floodplain includes all of the above regions and also the regions designated as having a 0.2 percent annual chance of flooding on any flood map or flood insurance study. In this area no emergency service, medical service, or governmental records storage shall be allowed except by special exception using the variance process.}\textsuperscript{14}

Section 3.2 - Overlay Concept

The Floodplain Districts described above shall be overlays to the existing underlying districts as shown on the Official Zoning Ordinance Map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions.

If there is any conflict between the provisions or requirements of the Floodplain Districts and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts shall apply.

In the event any provision concerning a Floodplain District is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.

\textsuperscript{13} Spaces that are 300 square feet or more trigger very high insurance rates, so limiting the size of these spaces to less than 300 square feet is a higher standard that can make the structure more affordable to insure.

\textsuperscript{14} This limitation on the use of the 0.2 percent floodplain is not required by NFIP regulations but is an accepted standard for critical facilities in emergency management. Critical facilities that are built in mapped floodplain might not be eligible for rebuilding assistance after a disaster, therefore DCR recommends this provision to ensure that any decision made to build in these circumstances is carefully considered.
ARTICLE IV - DISTRICT PROVISIONS [44 CFR 59.22, 60.2, 60.3]

Section 4.1 – Permit and Application Requirements

A. Permit Requirement

All uses, activities, and development occurring within any floodplain district, including placement of manufactured homes, shall be undertaken only upon the issuance of a permit. Such development shall be undertaken only in strict compliance with the provisions of this Ordinance and with all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC) and the {community} Subdivision Regulations. Prior to the issuance of any such permit, the Floodplain Administrator shall require all applications to include compliance with all applicable State and Federal laws and shall review all sites to assure they are reasonably safe from flooding. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

B. Site Plans and Permit Applications

All applications for development within any floodplain district and all permits issued for the floodplain shall incorporate the following information:

1. The elevation of the Base Flood at the site.

2. For structures to be elevated, the elevation of the lowest floor (including basement) or, in V zones, the lowest horizontal structural member.

3. For structures to be floodproofed (non-residential only), the elevation to which the structure will be floodproofed.

4. Topographic information showing existing and proposed ground elevations.

Section 4.2 - General Standards

The following provisions shall apply to all permits:

A. New construction and substantial improvements shall be built according to this ordinance and the VA USBC, and anchored to prevent flotation, collapse, or lateral movement of the structure.

B. Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.

C. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

D. New construction or substantial improvements shall be constructed by methods and
practices that minimize flood damage.

E. Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

F. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

G. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

H. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

In addition to provisions A – H above, in all special flood hazard areas, the additional provisions shall apply:

I. Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U. S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), other required agencies, and the Federal Emergency Management Agency.

J. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

Section 4.3 - Elevation and Construction Standards [44 CFR 60.3]

In all identified flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with Article III, Section 3.1.A.3 the following provisions shall apply:

A. Residential Construction

New construction or substantial improvement of any residential structure (including manufactured homes) in Zones A1-30, AE, AH, and A with detailed base flood elevations shall have the lowest floor, including basement, elevated to or above the base flood level plus eighteen (18) inches. See Article III, Section 3.1.A.5 and Article III, Section 3.1.A.6 for requirements in the Coastal A, VE, and V zones.

15 The flood maps anticipate one foot of rise in BFE due to fill in the floodplain, so while building to BFE is all that is required; it will result in flooding if all assumptions made in mapping are correct. Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data.
B. Non-Residential Construction

1. New construction or substantial improvement of any commercial, industrial, or non-residential building (or manufactured home) shall have the lowest floor, including basement, elevated to or above the base flood level plus eighteen (18) inches\(^\text{16}\). See Article III, Section 3.1.A.5 and Article III, Section 3.1.A.6 for requirements in the Coastal A, VE, and V zones.

2. Non-residential buildings located in all A1-30, AE, and AH zones may be floodproofed in lieu of being elevated provided that all areas of the building components below the elevation corresponding to the BFE plus two feet\(^\text{17}\) are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by (title of community administrator).

C. Space Below the Lowest Floor

In zones A, AE, AH, AO, and A1-A30, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

1. Not be designed or used for human habitation, but shall be used solely for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).

2. Be constructed entirely of flood resistant materials below the regulatory flood protection elevation;

3. Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet the following minimum design criteria:
   a. Provide a minimum of two openings on different sides of each enclosed area subject

\(^{16}\) The flood maps anticipate one foot of rise in BFE due to fill in the floodplain, so while building to BFE is all that is required; it will result in flooding if all assumptions made in mapping are correct. Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data

\(^{17}\) If your community has adopted the recommended freeboard you might need to change this provision to be consistent or higher than the freeboard otherwise required. Please note that the minimum requirements are BFE plus one foot – two feet of freeboard is the recommended minimum.
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b. The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.

c. If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.

d. The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade.

e. Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions.

f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

D. Accessory Structures

1. Accessory structures of any size shall be prohibited within the SFHA and no variance shall be granted for accessory structures.

OR

2. Accessory structures in the SFHA shall comply with the elevation requirements and other requirements of Article IV, Section 4.3.B or, if not elevated or dry floodproofed, shall:

   a. Not be used for human habitation;

   b. Be limited to no more than 600 square feet\textsuperscript{18} in total floor area;

   c. Be useable only for parking of vehicles or limited storage;

   d. Be constructed with flood damage-resistant materials below the base flood elevation;

   e. Be constructed and placed to offer the minimum resistance to the flow of floodwaters;

   f. Be anchored to prevent flotation;

\textsuperscript{18} This is the minimum size restriction set by FEMA Region III, but a community could choose a higher standard and limit accessory structures to a size less than 600 square feet. However, a variance could be issued for larger accessory structures, not to exceed 600 square feet. If a smaller size limit is chosen, additional language would be required in Article VI: Variances - see Footnote 23. The chosen size restriction should also be reflected in Article IV, Section 4.3.D.2.b, Article VI, Section M, and Article VIII-Glossary in the definition of “Appurtenant or accessory structure”.

g. Have electrical service and mechanical equipment elevated to or above the base flood elevation;

h. Shall be provided with flood openings which shall meet the following criteria:

   (1) There shall be a minimum of two flood openings on different sides of each enclosed area; if a building has more than one enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.

   (2) The total net area of all flood openings shall be at least 1 square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.

   (3) The bottom of each flood opening shall be 1 foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.

   (4) Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.

   i. A signed Declaration of Land Restriction (Non-Conversion Agreement) shall be recorded on the property deed.\textsuperscript{19}

E. Standards for Manufactured Homes and Recreational Vehicles

1. In zones A, AE, AH, and AO, all manufactured homes placed, or substantially improved, on individual lots or parcels, must meet all the requirements for new construction, including the elevation and anchoring requirements in Article III, Section 3.1.A.6 and Article IV, Sections 4.2 and 4.3.

2. All recreational vehicles placed on sites must either:

   a. Be on the site for fewer than 180 consecutive days, be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions); or

   b. Meet all the requirements for manufactured homes in Article IV, Section 4.3.E.1.

\textsuperscript{19} A non-conversion agreement is strongly recommended, especially if a variance is being issued for an accessory structure. However, the non-conversion agreement is not a requirement.
Section 4.4 - Standards for Subdivision Proposals

A. All subdivision proposals shall be consistent with the need to minimize flood damage;

B. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;

C. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards, and

D. Base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a Flood Insurance Study for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty\textsuperscript{20} lots or five acres, whichever is the lesser.

\textsuperscript{20} The recommended standard here is 5 lots instead of 50. Fifty lots is the breakpoint suggested in the federal regulations, but the 5/5 rule is less confusing and captures more commercial development.
ARTICLE V – EXISTING STRUCTURES IN FLOODPLAIN AREAS

Any structure or use of a structure or premises must be brought into conformity with these provisions when it is changed, repaired, or improved\(^{21}\) unless one of the following exceptions is established before the change is made:

A. The floodplain manager has determined that:
   
   1. Change is not a substantial repair or substantial improvement AND
   2. No new square footage is being built in the floodplain that is not complaint AND
   3. No new square footage is being built in the floodway AND
   4. The change complies with this ordinance and the VA USBC AND
   5. The change, when added to all the changes made during a rolling 5-year period does not constitute 50% of the structure’s value.\(^{22}\)

B. The changes are required to comply with a citation for a health or safety violation.

C. The structure is a historic structure and the change required would impair the historic nature of the structure.

\(^{21}\) The assumption that all buildings will be brought in to compliance unless an exception is found is not required by the federal regulations, it is a recommended change for the sake of administrative efficiency and improved compliance.

\(^{22}\) This cumulative change requirement is a recommended higher standard. DCR has found that not having a time period for cumulative change can lead to people trying to split work up to avoid hitting the 50% limit which puts the community in a difficult place with enforcement and increases administrative burdens.
ARTICLE VI - VARIANCES: FACTORS TO BE CONSIDERED [44 CFR 60.6]

Variances shall be issued only upon (i) a showing of good and sufficient cause, (ii) after the Board of Zoning Appeals has determined that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) after the Board of Zoning Appeals has determined that the granting of such variance will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. Variances may be issued by the Board of Zoning Appeals for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the provisions of this Section.

Variances may be issued for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of this Section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

In passing upon applications for variances, the Board of Zoning Appeals shall satisfy all relevant factors and procedures specified in other sections of the zoning ordinance and consider the following additional factors:

A. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any Floodway District that will cause any increase in the one percent (1%) chance flood elevation.

B. The danger that materials may be swept on to other lands or downstream to the injury of others.

C. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.

D. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

E. The importance of the services provided by the proposed facility to the community.

F. The requirements of the facility for a waterfront location.

G. The availability of alternative locations not subject to flooding for the proposed use.

H. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
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I. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.

J. The safety of access by ordinary and emergency vehicles to the property in time of flood.

K. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.

L. The historic nature of a structure. Variances for repair or rehabilitation of historic structures may be granted upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

M. Variances will not be issued for any accessory structure within the SFHA. *(Note: See Article IV, Section 4.3.D.1).*

OR

No variance shall be granted for an accessory structure exceeding 600 square feet. *(Note: See Article IV, Section 4.3.D.2).*

N. Such other factors which are relevant to the purposes of this Ordinance.

The Board of Zoning Appeals may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.

Variances shall be issued only after the Board of Zoning Appeals has determined that the granting of such will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

Variances shall be issued only after the Board of Zoning Appeals has determined that the variance will be the minimum required to provide relief.

The Board of Zoning Appeals shall notify the applicant for a variance, in writing that the issuance of a variance to construct a structure below the one percent (1%) chance flood elevation (a) increases the risks to life and property and (b) will result in increased premium rates for flood insurance.

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23 If a size restriction for accessory structures that is less than 600 square feet is chosen, variances could be issued for structures larger than that size restriction, not to exceed 600 square feet. In this case, additional language is required under Article VI, Section M. Suggested language:

“Accessory structures within the SFHA that are greater than {insert size restriction} square feet, do not exceed 600 square feet, and do not meet all requirements for elevating or dry floodproofing, as set out in Article IV, Section 4.3.B, must secure a variance in accordance with the floodplain ordinance before a permit is issued. The structure must comply with accessory structure criteria in Article IV, Section 4.3.D.2. No variance shall be granted for an accessory structure exceeding 600 square feet. *(Note: See Article IV, Section 4.3.D.2).*”
A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances that are issued shall be noted in the annual or biennial report submitted to the Federal Insurance Administrator.
ARTICLE VII - GLOSSARY [44 CFR 59.1]

A. **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\(^{24}\).

B. **Base flood** - The flood having a one percent chance of being equalled or exceeded in any given year.

C. **Base flood elevation** - The water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year. The water surface elevation of the base flood in relation to the datum specified on the community’s Flood Insurance Rate Map. For the purposes of this ordinance, the base flood is the 1% annual chance flood.

D. **Basement** - Any area of the building having its floor sub-grade (below ground level) on all sides.

E. **Board of Zoning Appeals** - The board appointed to review appeals made by individuals with regard to decisions of the Zoning Administrator in the interpretation of this ordinance.

F. **Coastal A Zone** - Flood hazard areas that have been delineated as subject to wave heights between 1.5 feet and 3 feet.

G. **Development** - Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, temporary structures, mining, dredging, filling, grading, paving, excavation, drilling or other land-disturbing activities or permanent or temporary storage of equipment or materials.

H. **Elevated building** - A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

I. **Encroachment** - The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

J. **Existing construction** - For the purposes of the insurance program, structures for which the “start of construction” commenced before the effective date of the FIRM or before January 1, 1975 for FIRMs effective before that date. “Existing construction” may also be referred to as “existing structures” and “pre-FIRM.”

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\(^{24}\) This is the size restriction set by FEMA Region III, but a community could choose a higher standard and limit accessory structures to a size less than 600 square feet. However, a variance could be issued for larger accessory structures, not to exceed 600 square feet. If a smaller size limit is chosen, additional language would be required in Article VI: Variances - see Footnote 23. The chosen size restriction should also be reflected in Article IV, Section 4.3.D.2.b, Article VI, Section M, and Article VIII-Glossary in the definition of “Appurtenant or accessory structure.”
K. **Flood or flooding** -
1. A general or temporary condition of partial or complete inundation of normally dry land areas from:
   a. The overflow of inland or tidal waters; or,
   b. The unusual and rapid accumulation or runoff of surface waters from any source.
   c. Mudflows which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.
2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1 (a) of this definition.

L. **Flood Insurance Rate Map (FIRM)** - an official map of a community, on which the Federal Emergency Management Agency has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

M. **Flood Insurance Study (FIS)** - a report by FEMA that examines, evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.

N. **Floodplain or flood-prone area** - Any land area susceptible to being inundated by water from any source.

O. **Floodproofing** - any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

P. **Floodway** - The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot at any point within the community.

Q. **Freeboard** - A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. “Freeboard” tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

R. **Functionally dependent use** - A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.
S. **Highest adjacent grade** - the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

T. **Historic structure** - Any structure that is:
1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or,
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
   a. By an approved state program as determined by the Secretary of the Interior; or,
   b. Directly by the Secretary of the Interior in states without approved programs.

U. **Hydrologic and Hydraulic Engineering Analysis** - Analyses performed by a licensed professional engineer, in accordance with standard engineering practices that are accepted by the Virginia Department of Conservation and Recreation and FEMA, used to determine the base flood, other frequency floods, flood elevations, floodway information and boundaries, and flood profiles.

V. **Letters of Map Change (LOMC)** - A Letter of Map Change is an official FEMA determination, by letter, that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study. Letters of Map Change include:

   **Letter of Map Amendment (LOMA)** - An amendment based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a land as defined by meets and bounds or structure is not located in a special flood hazard area.

   **Letter of Map Revision (LOMR)** - A revision based on technical data that may show changes to flood zones, flood elevations, floodplain and floodway delineations, and planimetric features. A Letter of Map Revision Based on Fill (LOMR-F), is a determination that a structure or parcel of land has been elevated by fill above the base flood elevation and is, therefore, no longer exposed to flooding associated with the base flood. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community’s floodplain management regulations.

   **Conditional Letter of Map Revision (CLOMR)** - A formal review and comment as to whether a proposed flood protection project or other project complies with the minimum NFIP requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map or Flood Insurance Study.

W. **Lowest adjacent grade** - the lowest natural elevation of the ground surface next to the walls of a structure.
X. **Lowest floor** - The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building’s lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Federal Code 44CFR §60.3.

Y. **Manufactured home** - A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term “manufactured home” also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

Z. **Manufactured home park or subdivision** - a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

AA. **Mean Sea Level** – for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or the North American Vertical Datum (NAVD) of 1988 to which base flood elevations shown on a community’s FIRM are referenced.

BB. **New construction** - For the purposes of determining insurance rates, structures for which the “start of construction” commenced on or after ________________ {insert the effective date of the community’s initial Flood Insurance Rate Map} [or “after December 31, 1974”, choose whichever is later], and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

CC. **Post-FIRM structures** - A structure for which construction or substantial improvement occurred on or after ________________ {insert the effective date of the community’s initial Flood Insurance Rate Map} [or “after December 31, 1974”, choose whichever is later].

DD. **Pre-FIRM structures** - A structure for which construction or substantial improvement occurred before ________________ {insert the effective date of the community’s initial Flood Insurance Rate Map} [or “on or before December 31, 1974”, choose whichever is later].

EE. **Primary frontal dune** - a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms.

FF. **Recreational vehicle** - A vehicle which is:
1. Built on a single chassis;
2. 400 square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and,
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel, or seasonal use.

GG. **Repetitive Loss Structure** - A building covered by a contract for flood insurance that has incurred flood-related damages on two occasions in a 10-year period, in which the cost of the repair, on the average, equalled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

HH. **Severe repetitive loss structure** - a structure that: (a) Is covered under a contract for flood insurance made available under the NFIP; and (b) Has incurred flood related damage - (i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

II. **Shallow flooding area** - A special flood hazard area with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

JJ. **Special flood hazard area** - The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year as determined in Article 3, Section 3.1 of this ordinance.

KK. **Start of construction** - For other than new construction and substantial improvement, under the Coastal Barriers Resource Act (P.L. – 97-348), means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

LL. **Structure** - for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

MM. **Substantial damage** - Damage of any origin sustained by a structure whereby the cost of restoring the structure to it’s before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. *It also means flood-related*
damages sustained by a structure on two occasions in a 10-year period, in which the cost of the repair, on the average, equals or exceeds 25 percent of the market value of the structure at the time of each such flood event.

NN. **Substantial improvement** - Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
2. Any alteration of a historic structure, provided that the alteration will not preclude the structure’s continued designation as a historic structure.
3. Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all ordinance requirements that do not preclude the structure’s continued designation as a historic structure. Documentation that a specific ordinance requirement will cause removal of the structure from the National Register of Historic Places or the State Inventory of Historic places must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from ordinance requirements will be the minimum necessary to preserve the historic character and design of the structure.

OO. **Violation** - the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this ordinance is presumed to be in violation until such time as that documentation is provided.

PP. **Watercourse** - A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.
ARTICLE VIII – ENACTMENT

Enacted and ordained this ____ day of __________, 20____. This ordinance, number _____ of {community}, Virginia, shall become effective upon passage.

________________________________________
Signature

________________________________________
Title

________________________________________
Attested

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25 This section can be customized based upon a community’s preferences. The model ordinance contains this section as FEMA requires an ordinance to have signatures from the community, either elected officials or administrators, showing that the ordinance has been officially adopted. FEMA also requires a date of adoption and an ordinance number.