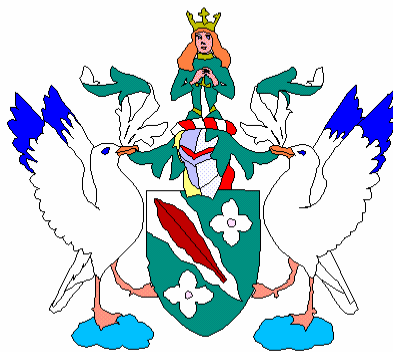


MIDDLESEX COUNTY VIRGINIA



FLOODPLAIN ORDINANCE

Repealed and adopted 3-16-2010

MIDDLESEX COUNTY

Department of Planning and Community Development

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AN ORDINANCE AMENDING THE ZONING ORDINANCE OF MIDDLESEX COUNTY, 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 COUNTY OF MIDDLESEX, VIRGINIA, AS FOLLOWS:

ARTICLE I - GENERAL PROVISIONS

Section 1.1 – Statutory Authorization and Purpose

This ordinance is 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 and 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 flood-proofed against flooding and flood damage; and,
- D. Protecting individuals from buying land and structures that 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 *MIDDLESEX COUNTY* and identified as being flood prone.

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. Records of actions associated with administering this ordinance shall be kept on file and maintained by the *DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT*
- D. This ordinance shall not create liability on the part of MIDDLESEX COUNTY or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made there under.

Section 1.4 - Abrogation and Greater Restrictions

This ordinance supersedes any ordinance currently in effect in flood-prone districts. Any ordinance, however, shall remain in full force and effect to the extent that its provisions are more restrictive.

Section 1.5 - 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 1.6 - Penalty for violations

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 MIDDLESEX COUNTY shall be guilty of a misdemeanor and subject to the penalties as specified in Section 15.2-2286.A.5 of the Code of Virginia:

Code of Virginia 15.2-2286.A.5 For the imposition of penalties upon conviction of any violation of the zoning ordinance. Any such violation shall be a misdemeanor punishable by a fine of not less than \$10 nor more than \$1,000. If the violation is uncorrected at the time of the conviction, the court shall order the violator to abate or remedy the violation in compliance with the zoning ordinance, within a time period established by the court. Failure to remove or abate a zoning violation within the specified time period shall constitute a separate misdemeanor offense punishable by a fine of not less than \$10 nor more than \$1,000, and any such failure during any succeeding 10-day period shall constitute a separate misdemeanor offense for each 10-day period punishable by a fine of not less than \$100 nor more than \$1,500.

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 or noncompliance within a reasonable time. Any structure constructed, reconstructed, enlarged, altered, or relocated in noncompliance with this article may be declared by MIDDLESEX COUNTY to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in

violation of this article.

ARTICLE II - DEFINITIONS

- A. Base flood - The flood having a one percent chance of being equaled or exceeded in any given year.
- B. Base flood elevation - The Federal Emergency Management Agency designated one hundred (100)-year water surface elevation. 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 one hundred (100) year flood or 1% annual chance flood.
- C. Basement - Any area of the building having its floor sub-grade (below ground level) on all sides.
- D. 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.
- E. Breakaway wall - A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.
- F. Coastal A Zone – Flood hazard areas inland of and contiguous to flood hazard areas subject to high velocity wave action. Areas subject to this classification are those where the still water depth is greater than or equal to 2-feet, and the breaking wave heights are greater than or equal to 1.5 feet.
- G. Coastal high hazard area – A special flood hazard area extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.
- H. Design flood elevation – The Base Flood Elevation (BFE) plus a minimum of 1 foot (freeboard).
- I. Development - Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
- J. Elevated building - A non-basement building built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, or columns (posts and piers).
- K. 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.
- L. 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 subsistence 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.
- M. Flood Insurance Rate Map (FIRM) - an official map of a community, on which the Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).
- N. Flood Insurance Study (FIS) – an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.
- O. Floodplain or flood-prone area - Any land area susceptible to being inundated by water from any source.
- P. Flood proofing - 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.
- Q. 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.
- R. 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. When a freeboard is included in the height of a structure, the flood insurance premiums may be cheaper.
- 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. Increased Cost of Compliance (ICC) coverage – Coverage under the Standard Flood Insurance Policy that provides for payment of a claim to help pay for the cost to comply with State or community floodplain management laws or ordinance from a flood event in which a building has been declared substantially damaged or repetitively damaged.
- V. 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.
- W. 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 one a site for greater than 180 consecutive days, but does not include a recreational vehicle.
- X. Manufactured Home Park or subdivision - a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
- Y. Market value – For the purposes of this ordinance, market value shall be determined by the most current appraisal available. When an appraisal is not available, the value of the structure as carried on the current tax assessment shall be used.
- Z. New construction - For the purposes of determining insurance rates, structures for which the

“start of construction” commenced on or after January 18, 1989 or after December 31, 1974, 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.

AA. Recreational vehicle - A vehicle that 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.

BB. Repetitive Loss Structure - A building covered by a contract for flood insurance that has incurred flood-related damages on two occasions during a 10-year period ending on the date of the event for which a second claim is made, in which the cost of repairing the flood damage, on the average, equaled or exceeded 25 percent of the market value of the building at the time of each such flood event.

CC. 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.

DD. 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 3.2 of this ordinance.

EE. 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.

- FF. Structure - for flood plain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground; this term includes a manufactured home.
- GG. 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 50 percent of the market value of the structure before the damage occurred.
- HH. 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. This term shall be cumulative and shall apply to all improvements or repairs in any ten (10) consecutive years. This term includes structures which have incurred *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 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*.
- II. Violation - the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in 44 CFR 59, Sec. 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.
- JJ. 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 III - ESTABLISHMENT OF ZONING DISTRICTS

Section 3.1 - Description of Districts

A. Basis of Districts

The various floodplain districts shall include special flood hazard areas. The basis for the delineation of these districts shall be the Flood Insurance Study (FIS) and the Flood Insurance Rate Maps (FIRM) for MIDDLESEX COUNTY prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated May 3, 2010, and any subsequent revisions or amendments thereto.

The boundaries of the Special Flood Hazard Area and Floodplain Districts are established as shown on the Flood Insurance Rate Map which is declared to be a part of this ordinance and which shall be kept on file at the MIDDLESEX COUNTY offices.

1. The Special Floodplain District shall be those areas identified as an AE Zone on the maps accompanying the Flood Insurance Study for which one hundred (100)-year flood elevations have been provided.
2. The Approximated Floodplain District shall be those areas identified as an A or A99 Zone on the maps accompanying the Flood Insurance Study. In these zones, no detailed flood profiles or elevations are provided, but the one hundred (100)-year floodplain boundary has been approximated. For these areas, the one hundred (100)-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one hundred (100)-year flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Flood Plain Information Reports, U.S. Geological Survey Flood-prone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this 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. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a through review by the governing body.
3. The Coastal A District shall be flood hazard area inland of and contiguous to flood hazard areas subject to high velocity wave action. Areas subject to this classification are those where the still water depth is greater than or equal to 2-feet, and the design wave heights are greater than or equal to 1.5 feet.
4. The Coastal High Hazard District shall be those areas identified as V or VE Zones on the maps accompanying the Flood Insurance Study.

B. Overlay Concept

1. 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.
2. If there is any conflict between the provisions or requirements of the Floodplain District and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts shall apply.
3. 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.

Section 3.2 - Official Zoning Map

The boundaries of the Special Flood Hazard Area and Floodplain Districts are established as shown on the Flood Boundary and Floodway Map and/or Flood Insurance Rate Map which is declared to be a part of this ordinance and which shall be kept on file at the Middlesex County offices.

Section 3.3 - District Boundary Changes

The delineation of any of the Floodplain Districts may be revised by *MIDDLESEX 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 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.

Section 3.4 - Interpretation of District Boundaries

The Floodplain Manager or the Director of Planning shall make initial interpretations of the boundaries of the Floodplain Districts. 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 3.5 – Submitting 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 months after the date such information becomes available, a community shall notify the Federal Insurance Administrator 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 flood plain management requirements will be based upon current data.

ARTICLE IV - DISTRICT PROVISIONS

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 zoning 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 *MIDDLESEX COUNTY* Subdivision Regulations. Prior to the issuance of any such permit, the Director of Planning and Community Development 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 building permits issued for the floodplain shall incorporate the following information:

1. The elevation of the Base Flood at the site.
2. The elevation of the lowest floor (including basement).
3. For structures to be flood-proofed (non-residential only), the elevation to which the structure will be flood-proofed.
4. Topographic information showing existing and proposed ground elevations.
5. The elevation of the Design Flood Elevation (DFE).

Section 4.2 - General Standards

The following provisions shall apply to all permits:

- A. All proposed developments shall include a Flood Zone Site Plan, prepared by an engineer or surveyor. The plan shall include:
1. The location of all existing and proposed construction,
 2. The elevation of the adjacent grade at the proposed construction,
 3. The elevation of existing and proposed construction,
 4. The location and elevation of an on-site bench mark, and
 5. The location of all flood zones on the property or within 100' of the property.
 6. Coastal A Zones plans shall include BFE, DFE and Design Wave Height calculations. Design wave heights (H_b) = $0.78(BFE - GS)$. GS = lowest eroded ground elevation adjacent to the building in feet above datum.
- B. New construction and substantial improvements shall be according to the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.
- C. 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.

- D. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- E. New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
- F. Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including ductwork, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding. Fixtures connected to a sewer system shall not be allowed to have openings below DFE.
- G. All vertical utility risers at or below the design flood elevation shall be protected from impact damage.
- H. Adequate drainage shall be provided to reduce exposure to flood hazards.
- I. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
- J. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.
- K. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding. If placement outside of flood zones is not possible, the system shall include the use of top-seamed tanks and/ or sealed septic and pump chamber tanks.
- L. All tanks, including but not limited to propane, fuel oil and gas, and septic, shall be anchored to prevent flotation. The amount of anchorage required shall assume the tank is empty.
- M. Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this ordinance shall meet the requirements of “new construction” as contained in this ordinance.
- N. Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this ordinance, shall be undertaken only if said non-conformity is not furthered, extended, or replaced.
- O. All development plans within designated flood districts shall be maintained in the office of the Zoning Administrator.
- P. Development within a flood hazard zone shall comply with the International Building Code, Appendix G ‘Flood-Resistant Construction’, as amended, and/or International Residential Code, as amended.

In addition to provisions A – P above, in all special flood hazard areas, the additional provisions

shall apply:

- Q. 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) and the Federal Insurance Administrator.
- R. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

Section 4.3 - Specific Standards

In all special flood hazard areas where base flood elevations have been provided in the Flood Insurance Study or generated according Article 4, section 4.5, the following provisions shall apply:

A. Residential Construction

New construction or substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor, including basement, elevated to or above the design flood elevation.

B. Non-Residential Construction

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 design flood elevation. Buildings located in all A1-30, 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 DFE plus one foot 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 Director of Planning and Community Development.

C. Elevated Buildings

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 only be used 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, in Zones A, AO, AE, and A1-30, 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, and permit the passage of a 3" diameter object.
 - 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. Standards for Manufactured Homes and Recreational Vehicles

1. All manufactured homes placed, or substantially improved, on individual lots or parcels, in expansions to existing manufactured home parks or subdivisions, in a new manufactured home park or subdivision or in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood, must meet all the requirements for new construction, including the elevation and anchoring requirements in Article 4, section 4.2 (A) and (B), and section 4.3 (A).
2. All recreational vehicles placed on sites must either
 - a. be on the site for fewer than 180 consecutive days;
 - b. 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,

- c. Meet all the requirements for manufactured homes in Article 4, sections 4.2 and 4.3 (D).

Section 4.4 - Standards for the Special Floodplain District

The following provisions shall apply within the Special Floodplain District:

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 and AE on the Flood Insurance Rate Map, 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 Middlesex County.

Development activities in Zones A1-30, AE, and AH, on the Middlesex County Flood Insurance Rate Map which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the developer or applicant first applies – with Middlesex County’s endorsement – for a conditional Flood Insurance Rate Map revision, and receives the approval of the Federal Emergency Management Agency.

Section 4.5 - Standards for Approximated Floodplain

The following provisions shall apply with the Approximate Floodplain District:

The Approximated Floodplain District shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a one hundred (100) -year floodplain boundaries has been approximated. Such areas are shown as Zone A on the maps accompanying the Flood Insurance Study. For these areas, the one hundred (100)-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one hundred (100)-year 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 Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted technical concepts, such as point on boundary, high water marks, or hydrologic and hydraulic analyses. Studies, analyses, computations, etc. shall be submitted in sufficient detail to allow for a thorough review by the Director of Planning and Community Development.

The Director of Planning and Community Development 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 design flood level. During the permitting process, the Director of Planning and Community Development shall obtain:

1. The elevation of the lowest floor (including the basement) of all new and substantially improved structures; and,
2. If the structure has been flood-proofed in accordance with the requirements of this article, the elevation (in relation to mean sea level) to which the structure has been flood-proofed.

Section 4.6 Standards for Coastal A District

All new construction and substantial improvements in Coastal A zones shall meet the same standards as those specified for the Coastal High Hazard District.

Section 4.7 Standards for the Coastal High Hazard District

The following provisions shall apply within the Coastal High Hazard District and Coastal A Zone.

- A. All proposed development plans shall include a Flood Zone Site Plan, prepared by an engineer or surveyor. The plan shall include:
 1. The location of all existing and proposed construction,
 2. The elevation of the adjacent grade,
 3. The elevation of existing and proposed construction,
 4. The location and elevation of an on-site bench mark, and
 5. The location of all flood zones on the property or within 100' of the property boundaries.
- B. All new construction and substantial improvements in Zones VE and Coastal A 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 design flood elevation and,
 2. The pile or column foundation and structure attached thereto is anchored to 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 equaled or exceeded in any given year (one-percent annual chance).
- C. 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 4, Section 4.7 (B).

- D. The Director of Planning and Community Development 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 VE and Coastal A. The Floodplain Management Administrator shall maintain a record of all such information.
- E. All new construction shall be located landward of the reach of mean high tide.
- F. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with nonsupporting 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 equaled or exceeded in any give year.
- G. The enclosed space below the lowest floor shall be used solely for parking of vehicles, building access, or storage. The enclosed space located below the Design Flood Elevation (DEF) shall be limited in size to 300 square feet. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation.
- H. The use of fill for structural support of buildings is prohibited. When 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 development permit.
- I. The man-made alteration of sand dunes, which would increase potential flood damage, is prohibited.
- J. All manufactured homes to be placed or substantially improved within Zones V and VE, as shown on the Middlesex County Flood Insurance Rate Map, must meet the standards of Article 4, Section 4.2(A) though (R) and Article 4, Section 4.3 (D).

Section 4.8 - Standards for Subdivision Proposals

- A. All subdivision proposals shall be consistent with the need to minimize flood damage. Within such subdivision proposals, no new construction or development shall be permitted within the Coastal Floodplain District, Coastal High Hazard District or Coastal A District unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and approved development, will not increase the elevation of the one hundred (100) year flood more than one foot at any point.
- 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. Any encroachment for public utilities and facilities within the Coastal Floodplain District, Coastal High Hazard District or Coastal A District shall be the minimum necessary for the provision of such public utilities and facilities.
- C. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards as follows:
 - 1. In all subdivisions, adequate storm drainage piping and appurtenance shall be provided in a manner to preclude flooding, erosion or standing pools of water. Open channels, other than naturally occurring streams, shall not be used for the conveyance of runoff within 50 feet of any residential structure.
 - 2. All subdivisions shall have adequate storm water management facilities, so that after development, a storm of a two-year average frequency shall be no greater than it would have been prior to development. Storm water management facilities shall be designed and constructed in accordance with Virginia Storm water Management Handbook, 1999 Edition, as amended.
 - 3. Easements, both on-site and off-site, shall be required for all storm drainage facilities, including natural streams, not located in the public rights-of-way. Such easements, shall be a minimum of fifteen (15) feet in width or greater for access and maintenance purposes.
- D. Base flood elevation data shall be provided 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.

ARTICLE V - VARIANCES: FACTORS TO BE CONSIDERED

Variations 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 showing of good and sufficient cause.
- B. 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 hundred (100)-year flood elevation.
- C. The danger that materials may be swept on to other lands or downstream to the injury of others.
- D. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.
- E. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.
- F. The importance of the services provided by the proposed facility to the community.
- G. The requirements of the facility for a waterfront location.
- H. The availability of alternative locations not subject to flooding for the proposed use.
- I. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
- J. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
- K. The safety of access by ordinary and emergency vehicles to the property in time of flood.
- L. The expected heights, velocity, duration, rate of rise, and sediment transport of the

floodwaters expected at the site.

- M. 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.
- 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 and signed by the Director of Planning and Community Development that the issuance of a variance to construct a structure below the one hundred (100)-year flood elevation (a) increases the risks to life and property and (b) will result in increased premium rates for flood insurance.

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 VI – EXISTING STRUCTURES IN FLOODPLAIN AREAS

A 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:

- A. Existing structures in the Floodway Area shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed expansion would not result in any increase in the base flood elevation.
- B. Any modification, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use located in any flood plain areas to an extent or amount of less than fifty (50) percent of its market value shall conform to the VA USBC.
- C. The modification, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use, regardless of its location in a 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 this ordinance and shall require the entire structure to conform to the VA USBC.

ARTICLE VII - ENACTMENT

ENACTED AND ORDAINED THIS 16th DAY OF MARCH 2010. This ordinance shall become effective upon passage.

Present and voting:

John D. Miller, Jr.	aye
Fred S. Crittenden	aye
Wayne H. Jessie, Sr.	aye
Carlton S. Revere	aye
Peter W. Mansfield	aye

A copy teste

Charles M. Culley, Jr.
Clerk