

ORDINANCE NO. \_\_\_\_\_

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4-16-11

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Introduction and first reading:	04/12/11
Public hearing:	04/12/11
Second reading and enactment:	04/16/11

INFORMATION ON PROPOSED ORDINANCE

Title

AN ORDINANCE to amend and reordain Section 6-300 (FLOODPLAIN DISTRICT) of Article VI (SPECIAL AND OVERLAY ZONES) of the City of Alexandria Zoning Ordinance, in accordance with the text amendment heretofore approved by city council as Text Amendment No. 2011-0004.

Summary

The proposed ordinance accomplishes the final adoption of Text Amendment No. 2011-0004 to implement changes to the City's floodplain regulations in accord with the model Federal Emergency Management Agency (FEMA) regulations and adopting new Flood Insurance Rate Maps (FIRMS) as the City's floodplain maps.

Sponsor

Department of Transportation and Environmental Services

Staff

Emily Baker, City Engineer, Department of Transportation and Environmental Services  
Joanna C. Anderson, Assistant City Attorney

Authority

§9.09 Alexandria City Charter  
§ 11-800, City of Alexandria Zoning Ordinance

Estimated Costs of Implementation

None

Attachments in Addition to Proposed Ordinance and its Attachments (if any)

None

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE to amend and reordain Section 6-300 (FLOODPLAIN DISTRICT) of Article VI (SPECIAL AND OVERLAY ZONES) of the City of Alexandria Zoning Ordinance, in accordance with the text amendment heretofore approved by city council as Text Amendment No. 2011-0004.

WHEREAS, the City Council finds and determines that:

1. In Text Amendment No. 2011-0004, the planning commission, having found that the public necessity, convenience, general welfare and good zoning practice so require, recommended approval to the City Council on March 1, 2011 of a text amendment to the Zoning Ordinance to adopt revised floodplain regulations, which recommendation was approved by the City Council at public hearing on March 12, 2011;

2. The City Council in adopting this ordinance expressly adopts, ratifies, affirms and concurs in the finding and action of the Planning Commission above stated;

3. All requirements of law precedent to the adoption of this ordinance have been complied with; now, therefore,

THE CITY COUNCIL OF ALEXANDRIA HEREBY ORDAINS:

Section 1. That Section 6-300 of the Zoning Ordinance be, and the same hereby is, amended by deleting the current section in its entirety and inserting new language, as shown:

**Sec. 6-300 Floodplain district.**

*6-301 Purpose and Intent.*

(A) This ordinance is adopted pursuant to the authority granted to all localities by Va. Code § 15.2 – 2280, as well as the authority specifically granted to the City in its Charter. 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:

- (1) 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;
- (2) restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;
- (3) requiring all those uses, activities, and developments that do occur

1 in flood-prone districts to be protected and/or flood-proofed  
2 against flooding and flood damage; and,  
3

- 4 (4) protecting individuals from buying land and structures which are  
5 unsuited for intended purposes because of flood hazards.  
6

7 *6-302 Applicability.*  
8

- 9 (A) These provisions shall apply to all privately and publicly owned lands  
10 within the jurisdiction of the City of Alexandria and identified as being in  
11 a floodplain as designated in the Flood Insurance Study and as shown on  
12 the Flood Insurance Rate Maps prepared by the Federal Emergency  
13 Management Agency (FEMA) dated June 16, 2011.  
14
- 15 (B) The floodplain district regulations in Section 6-300 are adopted in  
16 compliance with floodplain management criteria set forth in regulations  
17 promulgated by FEMA.  
18
- 19 (C) This section shall be applicable to all applicants for building permits in the  
20 floodplain area.  
21
- 22 (D) All buildings for which a building permit shall have been duly and  
23 regularly issued by the director of building and mechanical inspections on  
24 or before May 24, 1977, which permit has not expired, may be completed  
25 without the necessity of complying with the floodplain district regulations  
26 in Section 6-300, but after completion, any such building or structure and  
27 the land on which it is situated shall be subject to all the provisions of said  
28 section.  
29
- 30 (E) All preliminary site plans which have been duly and regularly approved on  
31 or before May 24, 1977, and which have not expired, may be completed  
32 without the necessity of complying with the floodplain district regulations  
33 in Section 6-300, but after completion, any building or structure on said  
34 site plan together with the land included in said site plan shall be subject to  
35 all the provisions of said section  
36
- 37 (F) All final site plans which have been duly and regularly approved and  
38 released on or before May 24, 1977, and which have not expired may be  
39 completed without the necessity of complying with the floodplain district  
40 regulations in Section 6-300, but after completion, any building or  
41 structure on said site plan together with the land included in said site plan  
42 shall be subject to all the provisions of said section.  
43
- 44
- 45 (G) Any building or structure which is in existence on or before June 15, 2011,  
46 or for which a preliminary or combination site plan, building permit or

1 subdivision approved on or before June 15, 2011, continues in force and  
2 effect shall not be deemed a nonconforming use provided, that any such  
3 building or structure which, following June 15, 2011, is the subject of  
4 substantial improvement shall comply with the floodplain regulations in  
5 effect at the time of such improvement.  
6

7 **6-303 Definitions.** For the purposes of this Section 6-300 the following terms and  
8 phrases shall have the meaning ascribed as follows below. Should any  
9 uncertainty occur with respect to the definition of any word, term or phrase used  
10 in this section, the applicable definitions set out in 44 CFR 59.1, as amended,  
11 shall apply.  
12

- 13 (A) *A Zone.* An area of the one hundred (100)-year flood as shown on the  
14 Flood Insurance Rate Map. This zone is also referred to as the  
15 Approximated Floodplain District.  
16
- 17 (B) *AE Zone.* An area shown of the 100-year flood on the Flood Insurance  
18 Rate Map for which corresponding base flood elevations have been  
19 provided. This zone is also referred to as the Special Floodplain District.  
20
- 21 (C) *Base flood.* The flood having a one percent chance of being equaled or  
22 exceeded in any given year. May also be referred to as the 100-year flood.  
23
- 24 (D) *Base flood elevation (BFE).* The FEMA designated 100-year water  
25 surface elevation as shown on the Flood Insurance Rate Map that  
26 corresponds to the base flood.  
27
- 28 (E) *Basement.* Any area of a building (including parking) having its floor  
29 subgrade (below ground level) on all sides.  
30
- 31 (F) *Development.* Any man-made change to improved or unimproved real  
32 estate, including, but not limited to, the construction of buildings or other  
33 structures, the placement of manufactured homes, the construction of  
34 streets, the installation of utilities and other activities or operations  
35 involving paving, filling, grading, excavating, mining, dredging or  
36 drilling, the storage of equipment or materials.  
37
- 38 (G) *Existing manufactured home park or subdivision.* A manufactured home  
39 park or subdivision for which the construction of facilities for servicing  
40 the lots on which the manufactured homes are to be affixed (including, at a  
41 minimum, the installation of utilities, the construction of streets, and either  
42 final site grading or the pouring of concrete pads) is completed before the  
43 effective date of the floodplain management regulations adopted by a  
44 community.  
45
- 46 (H) *Flood/flooding.*

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- (1) A general and temporary condition of partial or complete inundation of normally dry land areas from:
  - (a) the overflow of inland or tidal waters;
  - (b) the unusual and rapid accumulation or runoff of surface waters from any source; or,
  - (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.
  
- (I) *Flood Insurance Rate Map (FIRM)*. An official map of a community, on which the FEMA Federal Insurance Administrator has delineated both the special flood hazard areas and the risk premium zones applicable to the community. A Flood Insurance Rate Map that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM). The official Flood Insurance Rate Map for the City of Alexandria shall be the in the digital format prepared by FEMA, Federal Insurance Administration, dated June 16, 2011, as amended.
  
- (J) *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. The official Flood Insurance Study for the City of Alexandria shall be the Flood Insurance Study prepared by FEMA, Federal Insurance Administration, dated June 16, 2011, as amended.
  
- (K) *Floodplain*. A relatively flat or low land area adjoining a river, stream or other watercourse which is subject to partial or complete inundation by water from such watercourse, or a land area which is subject to the unusual and rapid accumulation or runoff of surface waters from any source.

- 1 (L) *Floodplain district.* The areas encompassed by the 100-year floodplain as  
2 shown on the Flood Insurance Rate Map.  
3
- 4 (M) *Flood-prone area.* Any land area susceptible to being inundated by water  
5 from any source more often than once in a 100-year period.  
6
- 7 (N) *Floodproofing.* Any combination of structural and non-structural  
8 additions, changes, or adjustments to structures which reduce or eliminate  
9 flood damage to real estate or improved real property, water and sanitary  
10 facilities, structures and their contents.  
11
- 12 (O) *Floodway.* The designated area of a floodplain required to carry and  
13 discharge flood waters of a given magnitude. For purposes of this Section  
14 6-300, a floodway must be capable of accommodating a flood of the 100-  
15 year magnitude.  
16
- 17 (P) *Freeboard.* A factor of safety usually expressed in feet above a specified  
18 flood level for purposes of floodplain management. "Freeboard" tends to  
19 compensate for the many unknown factors that could contribute to flood  
20 heights greater than the height calculated for a selected size flood and  
21 floodway conditions, such as wave action, bridge openings, and the  
22 hydrological effect of urbanization in the watershed.  
23
- 24 (Q) *Highest adjacent grade.* The highest natural elevation of the ground  
25 surface prior to construction next to the proposed walls of a structure.  
26
- 27 (R) *Historic structure.* Any structure that is:  
28
- 29 (1) listed individually in the National Register of Historic Places (a  
30 listing maintained by the Department of Interior) or preliminarily  
31 determined by the Secretary of the Interior as meeting the  
32 requirements for individual listing on the National Register;  
33
  - 34 (2) certified or preliminarily determined by the Secretary of the  
35 Interior as contributing to the historical significance of a registered  
36 historic district or a district preliminarily determined by the  
37 Secretary to qualify as a registered historic district;  
38
  - 39 (3) individually listed on a state inventory of historic places in states  
40 with historic preservation programs which have been approved by  
41 the Secretary of the Interior; or,  
42
  - 43 (4) individually listed on a local inventory of historic places in  
44 communities with historic preservation programs that have been  
45 certified either by an approved state program as determined by the  
46 Secretary of the Interior or directly by the Secretary of the Interior

1 in states without approved programs.

2  
3 (S) *Lowest floor.* The lowest floor of the lowest enclosed area (including  
4 basement). A parking structure that is below grade on all sides is  
5 considered a basement and therefore the lowest floor. An unfinished or  
6 flood resistant enclosure, usable solely for parking of vehicles, building  
7 access or storage, in an area other than a basement area (the enclosure is  
8 not below grade on all sides) is not considered a building's lowest floor;  
9 provided, that such enclosure is not built so as to render the structure in  
10 violation of the applicable floodproofing non-elevation design  
11 requirements of this Section 6-300.

12  
13 (T) *Manufactured home.* A structure, transportable in one or more sections,  
14 which is built on a permanent chassis and is designed to be used as a  
15 single-family dwelling, with or without permanent foundation, when  
16 connected to the required facilities, and which includes the plumbing,  
17 heating, air conditioning and electrical systems contained in the structure.  
18 A manufactured home shall include park trailers and other similar vehicles  
19 when placed on a site for greater than 180 days.

20  
21 (U) *Mixed-use building.* Any building or structure that is used or intended for  
22 use for a mixture of nonresidential and residential uses in the same  
23 building or structure. For floodplain management purposes, a mixed-use  
24 building is subject to the same rules and conditions as a residential  
25 building unless all of the provisions set forth more specifically herein are  
26 met.

27  
28 (V) *New construction.* Buildings and structures as to which the start of  
29 construction occurred on or after May 24, 1977, including any subsequent  
30 improvements to such buildings or structures. For floodplain management  
31 purposes, new construction means structures for which the start of  
32 construction commenced on or after the effective date of a floodplain  
33 management regulation adopted by a community and includes any  
34 subsequent improvements to such structures.

35  
36 (W) *Nonresidential building.* Any building or structure which is not a  
37 residential building or a mixed-use building.

38  
39 (X) *Recreational vehicle.* A vehicle which is

40  
41 (1) built on a single chassis;

42  
43 (2) 400 square feet or less when measured at the largest horizontal  
44 projection;

45  
46 (3) designed to be self-propelled or permanently towable by a light

1 duty truck; and,

2  
3 (4) designed primarily not for use as a permanent dwelling but as  
4 temporary living quarters for recreational camping, travel, or  
5 seasonal use.

6  
7 (Y) *Residential building.* Any single-family dwelling, two-family dwelling,  
8 row or townhouse dwelling, or multi-family dwelling, and any accessory  
9 building or structure.

10  
11 (Z) *Shallow flooding area.* A special flood hazard area with base flood depths  
12 from one to three feet where a clearly defined channel does not exist,  
13 where the path of flooding is unpredictable and indeterminate, and where  
14 velocity flow may be evident. Such flooding is characterized by ponding  
15 or sheet flow.

16  
17 (AA) *Special Flood Hazard Area (SFHA).* The land in the floodplain subject to  
18 a one percent or greater chance of being flooded in any given year as  
19 designated on the official Flood Insurance Rate Map for the City of  
20 Alexandria.

21  
22 (BB) *Start of construction.* The date a building permit is issued, provided that  
23 the actual start of construction begins within 180 days of the permit  
24 issuance date. For new construction, the actual start of construction means  
25 the initial placement of permanent construction of a structure on the site,  
26 such as the pouring of footings or a slab, the installation of piles, the  
27 construction of columns or any work beyond the state of excavation, or the  
28 placement of a manufactured home on a foundation. Permanent  
29 construction does not include land preparation, such as clearing, grading  
30 and filling, or the installation of streets or walkways, or excavation for a  
31 basement or for footings, piers or foundations, or the erection of  
32 temporary forms, or the installation of accessory buildings, such as  
33 garages or sheds not occupied as dwelling units and not part of the main  
34 structure. For substantial improvements, the actual start of construction  
35 means the first alteration of any wall, ceiling, floor or other structural part  
36 of a building, whether or not the alteration affects the external dimensions  
37 of the buildings.

38  
39 (CC) *Structure.* For flood plain management purposes, a walled and roofed  
40 building, including a gas or liquid storage tank, that is principally above  
41 ground, as well as a manufactured home. "Structure" for insurance  
42 coverage purposes, means:

43  
44 (1) A building with two or more outside rigid walls and a fully secured  
45 roof, that is affixed to a permanent site;  
46



- 1 (2) A manufactured home (also known as a mobile home), is a  
2 structure: built on a permanent chassis, transported to its site in one  
3 or more sections, and affixed to a permanent foundation; or  
4  
5 (3) A travel trailer without wheels, built on a chassis and affixed to a  
6 permanent foundation, that is regulated under the community's  
7 floodplain management and building ordinances or laws.  
8

9 For the latter purpose, "structure" does not mean a recreational vehicle or a park  
10 trailer or other similar vehicle, except as described in paragraph (3) of this  
11 definition, or a gas or liquid storage tank.  
12

13 (DD) *Substantial damage.* Damage of any origin sustained by a building or  
14 structure whereby the cost of restoring the building or structure to its  
15 before damaged condition would equal or exceed 50 percent of the market  
16 value of the building or structure before the damage occurred.  
17

18 (EE) *Substantial improvement.* Any repair, reconstruction, rehabilitation,  
19 addition or other improvement of a building or structure, the cost of which  
20 equals or exceeds 50 percent of the market value of the building or  
21 structure immediately before construction of the improvement is  
22 commenced, or any restoration of a building or structure which has  
23 incurred substantial damage; provided, that the term does not include:  
24

25 (1) Any improvement of a building or structure that is necessary to  
26 correct existing violations of state or local health, sanitary or safety  
27 code specifications which have been identified by appropriate  
28 officials of the state or city and which are the minimum necessary  
29 to assure safe living conditions; or  
30

31 (2) Any improvement of a "historic structure," as defined in this  
32 section, so long as the improvement does not preclude the  
33 structure's continued designation as a "historic structure."  
34

35 (FF) *Violation.* The failure of a structure or other development to be fully  
36 compliant with the City of Alexandria's floodplain management  
37 regulations. A structure or other development without the elevation  
38 certificate, other certifications, or other evidence of compliance required  
39 in 44 CFR Sec. 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is  
40 presumed to be in violation until such time as that documentation is  
41 provided.  
42  
43

44 *6-304 Description of Floodplain Districts.*

45 (A) The various floodplain districts shall include the Special Flood Hazard  
46

1 Areas described below. The basis for the delineation of these districts  
2 shall be the Flood Insurance Study and the Flood Insurance Rate Maps for  
3 the City of Alexandria prepared by FEMA, Federal Insurance  
4 Administration, dated June 16, 2011, and any subsequent revisions and  
5 amendments thereto.  
6

7 (1) The Special Floodplain District shall include those areas identified  
8 as an AE Zone on the Flood Insurance Rate Map for which 100-  
9 year base flood elevations have been provided.  
10

11 (2) The Approximated Floodplain District shall include those areas  
12 identified as an A Zone on the Flood Insurance Rate Map. In these  
13 zones, no detailed flood profiles or elevations are provided, but the  
14 100-year floodplain boundary has been approximated. For these  
15 areas, the 100-year flood elevations and floodway information  
16 from federal, state, and other acceptable sources shall be used,  
17 when available. Where the specific 100-year flood elevation  
18 cannot be determined for this area using other sources of data, such  
19 as the U.S. Army Corps of Engineers Flood Plain Information  
20 Reports, U.S. Geological Survey Flood-prone Quadrangles, etc.,  
21 then the applicant for the proposed use, development and/or  
22 activity shall determine this elevation in accordance with FEMA-  
23 approved hydrologic and hydraulic engineering techniques.  
24 Hydrologic and hydraulic analyses shall be undertaken only by  
25 professional engineers or others of demonstrated qualifications,  
26 who shall certify that the technical methods used correctly reflect  
27 currently-accepted technical concepts. Studies, analyses,  
28 computations, etc., shall be submitted in sufficient detail to allow a  
29 thorough review by the Director of Transportation and  
30 Environmental Services.  
31

32 (B) The delineation of any of the floodplain districts may be revised by the  
33 City of Alexandria where natural or man-made changes have occurred  
34 and/or where more detailed studies have been conducted or undertaken by  
35 the U.S. Army Corps of Engineers or other qualified agency, or an  
36 individual documents the need for such change. Updates to the  
37 delineation of the floodplain districts require approval from both the City  
38 of Alexandria and the FEMA Federal Insurance Administration.  
39

40 (C) Any uncertainty on the floodplain district map, or Flood Insurance Rate  
41 Map, with respect to the boundary of any floodplain district, either A or  
42 AE Zone, shall be determined by the Director of Transportation and  
43 Environmental Services by scaling and computation from the map or by  
44 land survey information.  
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- (A) The Director of Transportation and Environmental Services shall be responsible for the administration of the floodplain management regulations set forth in this Section 6-300. He or she shall be responsible for the review of all proposed uses and development to determine whether the land on which the proposed use or development is located is in a floodplain, and that the site is reasonably safe from flooding.
- (B) An applicant must apply for a permit and issuance of the permit is required prior to the start of any development within the Special Flood Hazard Area.
- (C) No site plan, subdivision plat or building permit application which proposes to construct or make substantial improvements within any floodplain district shall be approved by any agency of the City of Alexandria without certification by the Director of Transportation and Environmental Services that the plan, plat or permit application meets the requirements of this Section 6-300. The Director of Transportation and Environmental Services shall insure that all other required permits related to development in the floodplain from state or federal governmental agencies have been obtained.
- (D) All applications for new construction or substantial improvement within any floodplain district, and all building permits issued for the floodplain shall incorporate the following information:
  - (1) the base flood elevation at the site;
  - (2) the elevation of the lowest floor (including basement);
  - (3) for structures to be floodproofed (nonresidential only), the elevation to which the structure will be floodproofed; and,
  - (4) topographic information showing existing and proposed ground elevations.
- (E) The Director of Transportation and Environmental Services may require information from the applicant, including, but not limited to, an engineering study of the floodplain. Upon a determination that the land on which the proposed use or development is located in a floodplain, the Director of Transportation and Environmental Services shall determine whether such use or development may be permitted in accordance with the provisions of Section 6-306 through 6-308 or requires the approval of a variance as set forth in Section 6-311.
- (F) The Director of Transportation and Environmental Services shall be

1 responsible for the collection and maintenance of records necessary for the  
2 City's participation in the National Flood Insurance Program. Base flood  
3 elevations may increase or decrease resulting from physical changes  
4 affecting flooding conditions. As soon as practicable, but not later than  
5 six months after the date such information becomes available, the Director  
6 of Transportation and Environmental Services shall notify or require the  
7 applicant to notify the FEMA Federal Insurance Administrator of any  
8 change in base flood elevation or the boundaries of any Special Flood  
9 Hazard Area depicted on the City's Flood Insurance Rate Map by  
10 submitting technical and scientific data to FEMA for a Letter of Map  
11 Revision.  
12

13 *6-306 Special Regulations.*  
14

15 Within the boundaries of any A or AE Zones in any floodplain district as shown  
16 on the Flood Insurance Rate Map, buildings or structures and their extensions and  
17 accessory buildings or structures maybe be constructed or substantially improved  
18 only in accordance with the following requirements of this Section 6-300 and all  
19 other applicable provisions of law.  
20

- 21 (A) The elevation of the lowest floor, including the basement, for any new  
22 residential building or any extension to a residential building shall be at  
23 least one foot above the base flood elevation.  
24
- 25 (B) The elevation of the lowest floor, including the basement for any new  
26 nonresidential building or structure and any extension or accessory to a  
27 nonresidential building shall be at least one foot above the base flood  
28 elevation. Nonresidential buildings located in all A or AE zones may be  
29 floodproofed in lieu of being elevated provided that all areas of the  
30 building components below the elevation corresponding to the base flood  
31 elevation plus one foot are watertight with walls substantially  
32 impermeable to the passage of water, and use structural components  
33 having the capability of resisting hydrostatic and hydrodynamic loads and  
34 the effect of buoyancy. In no event shall any floor below at least one foot  
35 above the base flood elevation be used for human or animal habitation,  
36 food storage or food preparation.  
37
- 38 (C) All new and replacement public utilities, water mains and sanitary sewers  
39 shall be designed to minimize or eliminate infiltration and exfiltration and  
40 to insure their structural integrity under flood conditions to the satisfaction  
41 of the Director of Transportation and Environmental Services.  
42 (D) Water heaters, furnaces, electrical distribution panels and other critical  
43 mechanical or electrical installations shall not be installed below the base  
44 flood elevation. Separate electrical circuits shall serve areas below the  
45 base flood elevation and shall be dropped from above.  
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- (E) Any proposed use of land, development and any new construction or substantial improvement of a building or structure within an A or AE zone, in conjunction with all other uses, existing or possessing a valid permit for construction, shall not increase the water-surface elevation of the 100-year flood by more than 0.5 foot. Any party proposing a land use or development or such construction or improvement within an A or AE Zone shall furnish specific engineering data and information as to the effect of the proposed action on future flood heights and obtain approval from the Director of Transportation and Environmental Services prior to undertaking the action.
  
- (F) No building permit shall be issued for the construction or substantial improvement of a building or structure unless the applicant submits to the Department of Code Administration a certification from a duly registered architect or engineer that the proposed construction (including prefabricated homes) or improvement meets the following requirements:
  - (1) the construction shall be protected against flood damage;
  - (2) the construction shall be designed (or modified) and anchored to prevent flotation, collapse or lateral movement of the building and structure;
  - (3) the construction shall be built using materials and utility equipment that are resistant to flood damage; and,
  - (4) the construction shall be built using methods and practices that will minimize flood damage. The certification required by Section 6-306(F)(1) and (2) shall be based on the 100-year flood level as noted on the Flood Insurance Rate Map.
  
- (G) No building permit for the substantial improvement of an existing nonresidential building shall be issued unless the building, together with attendant utility and sanitary facilities, has the lowest floor (including the basement) elevated at least one foot above the base flood elevation. Should this not be feasible, no such permit shall be issued unless the existing structure is watertight floodproofed as described in Section 6-306 in all areas below the base flood elevation to the classification designated by the Director of Transportation and Environmental Services.
  
- (H) No building permit for the substantial improvement of an existing residential building shall be issued unless the building has the lowest floor (including the basement) elevated at least one foot above the base flood elevation.
  
- (I) Wherever floodproofing is utilized within the scope of this Section 6-300,

1 such floodproofing shall be done by approved methods. A registered  
2 professional engineer or architect shall certify the adequacy of the  
3 floodproofing design to withstand the stresses of the base flood and such  
4 plan shall cite the elevation to which the structure is floodproofed. Such  
5 certification shall be provided on Federal Emergency Management  
6 Agency, National Flood Insurance Program, elevation certificate and/or  
7 floodproofing certificate as applicable. Designs meeting the requirements  
8 of the W-1 and W-2 without human intervention technique as outlined in  
9 floodproofing regulations of the Office of the Chief of Engineers, U.S.  
10 Army, December 15, 1995, shall be deemed to comply with this  
11 requirement. The building or code official shall maintain a file of such  
12 certifications, including the elevation of the lowest floor for structures that  
13 are elevated in lieu of watertight floodproofing.  
14

15 (J) For all new construction or substantially improved structures, fully  
16 enclosed areas below the lowest floor (other than a basement) which are  
17 below the base flood elevation shall:

- 18
- 19 (1) only be used for the parking of vehicles, building access, or limited  
20 storage of maintenance equipment used in connection with the  
21 premises and shall not be designed or used for human habitation.  
22 Access to the enclosed area shall be the minimum necessary to  
23 allow for parking of vehicles (garage door) or limited storage of  
24 maintenance equipment (standard exterior door), or the entry to the  
25 living area (stairway or elevator);  
26
  - 27 (2) be constructed entirely of flood resistant materials below the base  
28 flood elevation; and,  
29
  - 30 (3) include, in A and AE Zones, measures to automatically equalize  
31 hydrostatic flood forces on walls by allowing for the entry and exit  
32 of floodwaters. To meet this requirement, the openings must be  
33 certified by a professional engineer or architect or meet the  
34 minimum design criteria:  
35
    - 36 (a) provide a minimum of two openings on different sides of each  
37 enclosed area subject to flooding;  
38
    - 39 (b) the total net area of all openings must be at least one square  
40 inch for each square foot of enclosed area subject to flooding;
    - 41 (c) if a building has more than one enclosed area, each area must  
42 have openings to allow floodwaters to automatically enter and  
43 exit;  
44
    - 45 (d) the bottom of all required openings shall be no higher than one  
46 foot above the adjacent grade;

- 1  
2 (e) openings may be equipped with screens, louvers, or other  
3 opening coverings or devices, provided they permit the  
4 automatic flow of floodwaters in both directions; and,  
5  
6 (f) foundation enclosures made of flexible skirting are not  
7 considered enclosures for regulatory purposes, and, therefore,  
8 do not require openings. Masonry or wood underpinning,  
9 regardless of structural status, is considered an enclosure and  
10 requires openings as outlined above.

11  
12 (K) Any mixed-use building may be considered a nonresidential building for  
13 purposes of this Section 6-306 if all of the following conditions are met;  
14 otherwise, the building shall be considered a residential building:

- 15  
16 (1) no more than twenty percent of the development site is within the  
17 boundaries of any A or AE Zones in any floodplain district as  
18 shown on the Flood Insurance Rate Map;  
19  
20 (2) at least 20,000 square feet of finished floor area of the proposed  
21 mixed-use building is devoted to nonresidential use;  
22  
23 (3) basement areas (including below grade parking) must be located  
24 outside the boundaries of any A or AE Zones in any floodplain  
25 district; and,  
26  
27 (4) all floodproofing requirements specified in this Section 6-300 and  
28 as specified in FEMA Technical Bulletin 3-93 Non-Residential  
29 Floodproofing – Requirements and Certification must be met.  
30

31 *6-307 Other Conditions.*

- 32  
33 (A) No filling of any kind shall be allowed within the boundaries of any A or  
34 AE Zone except where such filling, when considered in conjunction with  
35 all other uses, existing and proposed, will not increase the base flood  
36 elevation more than 0.5 foot. Persons proposing such filling shall furnish  
37 specific engineering data and information as to the effect of their proposed  
38 action on future flood heights and shall obtain approval from the Director  
39 of Transportation and Environmental Services prior to any filling.  
40  
41 (B) All uses, activities and development occurring within any floodplain  
42 district shall only be undertaken in strict compliance with the Virginia  
43 Uniform Statewide Building Code (VA USBC).  
44  
45 (C) No wall, fence or other outdoor obstruction shall be constructed in any  
46 floodplain district unless such structure is approved by the Director of

1 Transportation and Environmental Services; provided that open mesh wire  
2 fences of not less than No. 9 wire, with mesh openings of not less than six  
3 inches times six inches, whose supports shall be securely anchored in  
4 concrete and whose wire shall be securely fastened to the supports, may be  
5 erected without any review by or approval of the Director of  
6 Transportation and Environmental Services under this Section 6-300.  
7

- 8 (D) The provisions of this Section 6-300 shall not be construed to prevent the  
9 remodeling (not amounting to substantial improvement), maintenance or  
10 floodproofing of buildings and structures now existing, or prevent the  
11 surfacing or resurfacing of existing streets or parking lots within two  
12 inches of the existing grade.  
13

14 *6-308 Subdivision Requirements.*

- 15 (A) Subdivision proposals which are located in A or AE Zones must comply  
16 with the provisions of Section 6-300 and shall:  
17  
18 (1) be consistent with the need to minimize flood damage;  
19  
20 (2) have public utilities and facilities such as sewer, gas, electrical and  
21 water systems located and constructed to minimize flood damage;  
22  
23 (3) have adequate drainage provided to reduce exposure to flood  
24 hazards; and,  
25  
26 (4) include base flood elevation data.  
27

28 *6-309 Trailer Camps, Manufactured Homes, Mobile Homes, Recreational Vehicles and*  
29 *Septic Tank Systems.*

- 30 (A) Trailer camps, manufactured homes and mobile homes are not permitted  
31 in any floodplain district.  
32  
33 (B) All recreational vehicles in the floodplain must be on the site for fewer  
34 than 180 consecutive days and be fully licensed and ready for highway  
35 use.  
36  
37 (C) Installation of septic tank systems in any floodplain district is prohibited.  
38  
39  
40

41 *6-310 Flood Prevention Projects.*

42  
43 Nothing in Section 6-304 through Section 6-308 shall be construed to prohibit the  
44 City of Alexandria or any person from undertaking lawful filling, draining,  
45 construction, realignment or relocation of stream channels or any other  
46 improvement that is intended to eliminate or reduce the danger of flooding,



1 provided:

- 2
- 3 (A) the improvement is in accord with the City of Alexandria's flood
- 4 improvement plan for the floodplain district involved and the Director of
- 5 Transportation and Environmental Services has issued a certificate to that
- 6 effect;
- 7
- 8 (B) the improvement is under the general supervision of the Director of
- 9 Transportation and Environmental Services;
- 10
- 11 (C) the realignment or relocation of any stream channel is designed and
- 12 constructed so that there will be no reduction in the natural valley storage
- 13 capacity of the area with respect to the 100-year flood, unless such
- 14 relocation or realignment is designed to contain the 100-year flood within
- 15 the banks of the channel;
- 16
- 17 (D) notification, in riverine situations, is provided to adjacent communities,
- 18 Virginia Department of Conservation and Recreation, FEMA, and other
- 19 required agencies prior to any alteration or relocation of a watercourse;
- 20 and,
- 21
- 22 (E) the requirements of Section 6-306 (E) and Section 6-307(A) must be met.

23

24 *6-311 Variances*

- 25
- 26 (A) The City Council may, for good and sufficient cause, permit less than full
- 27 compliance with or waive the provisions of Section 6-304 through Section
- 28 6-310, provided:
- 29
- 30 (1) written application is made stating the hardship which will occur if
- 31 the variance is not granted;
- 32
- 33 (2) a public hearing is held;
- 34
- 35 (3) the decision is made by a majority vote of the entire membership
- 36 of City Council upon finding that the variance is the minimum
- 37 necessary, considering the flood hazard, to afford relief;
- 38
- 39 (4) the Director of Transportation and Environmental Services states
- 40 in writing that the variance will not result in unacceptable or
- 41 prohibited increases in flood heights, additional threats to public
- 42 safety, extraordinary public expense; and will not create nuisances,
- 43 cause fraud or victimization of the public, or conflict with local
- 44 laws and ordinances; and,
- 45
- 46 (5) the Director of Transportation and Environmental Services notifies

1 the applicant in writing that the issuance of a variance to construct  
2 a structure below the base flood elevation will result in increased  
3 insurance premium rates for flood insurance and that such  
4 construction will increase the risks to life and property.  
5

6 (B) In evaluating applications for variances, the Director of Transportation and  
7 Environmental Services shall satisfy all relevant factors and procedures  
8 specified in other sections of the City's ordinance and consider the  
9 following additional factors:

- 10
- 11 (1) the danger to life and property due to increased flood heights or  
12 velocities caused by encroachments;
  - 13
  - 14 (2) the danger that materials may be swept onto other lands or  
15 downstream to the injury of others;
  - 16
  - 17 (3) the susceptibility of the proposed facility and its contents to flood  
18 damage and the effect of such damage on the individual owners;
  - 19
  - 20 (4) the importance of the services provided by the proposed facility to  
21 the community.
  - 22
  - 23 (5) the requirements of the facility for a waterfront location;
  - 24
  - 25 (6) the availability of alternative locations not subject to flooding for  
26 the proposed use;
  - 27
  - 28 (7) the compatibility of the proposed use with existing development  
29 and development anticipated in the foreseeable future;
  - 30
  - 31 (8) the relationship of the proposed use to the comprehensive plan and  
32 floodplain management program for the area;
  - 33
  - 34 (9) the safety of access by ordinary and emergency vehicles to the  
35 property in time of flood;
  - 36
  - 37 (10) the expected heights, velocity, duration, rate of rise, and sediment  
38 transport of the flood waters expected at the site; and,
  - 39
  - 40 (11) such other factors which are relevant to the purposes of this  
41 ordinance.
  - 42

43 (C) The Director of Transportation and Environmental Services may refer any  
44 application and accompanying documentation pertaining to any request for  
45 a variance to any engineer or other qualified person or agency for  
46 technical assistance in evaluating the proposed project in relation to flood

1 heights and velocities, and the adequacy of the plans for flood protection  
2 and other related matters.

3  
4 (D) A record shall be maintained of the above notification as well as all  
5 variance actions, including justification for the issuance of the variances.  
6 Any variances that are issued shall be noted in the annual or biennial  
7 report submitted to the FEMA Federal Insurance Administrator.

8  
9 (E) Variances may be issued by a community for new construction and  
10 substantial improvements and for other development necessary for the  
11 conduct of a functionally dependent use.

12  
13 *6-312 Compliance, Liability, Severability and Penalties.*

14  
15 (A) No land shall hereafter be developed and no structure shall be located,  
16 relocated, constructed, reconstructed, enlarged or structurally altered  
17 except in full compliance with the terms and provisions of this Section 6-  
18 300 and any other applicable ordinances and regulations which apply to  
19 uses within the jurisdiction of these floodplain district regulations.

20  
21 (B) The degree of flood protection required by these floodplain district  
22 regulations and all other applicable local, state and federal regulations is  
23 considered reasonable for regulatory purposes. Larger floods may occur  
24 on rare occasions or flood heights may be increased by man-made or  
25 natural causes. Therefore, the regulations set forth in this Section 6-300  
26 do not imply that areas outside the floodplain districts, or land uses  
27 permitted within such districts, will be free from flooding and flood  
28 damages under all conditions. Additionally, the granting of a permit or  
29 approval of a development in an identified floodplain district shall not  
30 constitute a representation, guarantee, or warranty of any kind by any  
31 official or employee of the City of Alexandria of the practicability or  
32 safety of the proposed use, and shall create no liability upon the City of  
33 Alexandria, its officials or employees.

34  
35 (C) If any section, subsection, paragraph, sentence, clause or phrase of this  
36 Section 6-300 shall be declared invalid for any reason by a court of  
37 competent jurisdiction, such decision shall not affect the remaining  
38 portions of this Section 6-300. The remaining portions shall remain in full  
39 force and effect; and for this purpose, the provisions of Section this 6-300  
40 are hereby declared to be severable.

41  
42 (D) Any person who shall engage in new construction, substantial  
43 improvement or development without a building permit as required by VA  
44 USBC and these floodplain management regulations shall be subject to the  
45 penalties provided in Section 11-200 of the Zoning Ordinance.

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*6-313 Appeals.*

Any person aggrieved by a decision of the Director of Transportation and Environmental Services under this Section 6-300 may appeal that decision to City Council; provided, that the appeal shall be filed in writing with the City Clerk within fifteen (15) days of the decision being appealed and shall describe the decision being appealed and the reasons why the person believes the decision to be invalid.

*6-314 Annual Report.*

It shall be the City Manager’s duty to submit any reports to FEMA and the floodplain coordinator at the Virginia Department of Conservation and Recreation that may be required regarding the City of Alexandria’s compliance with flood management regulations.

Section 2. That the director of planning and zoning be, and hereby is, directed to record the foregoing text amendment.

Section 3. That Section 6-300, as amended pursuant to Section 1 of this ordinance, be, and the same hereby is, reordained as part of the City of Alexandria Zoning Ordinance.

Section 4. That this ordinance shall become effective on the date and at the time of its final passage, and shall apply to all applications for land use, land development or subdivision approval provided for under the City of Alexandria Zoning Ordinance which may be filed after such date, and shall apply to all other facts and circumstances subject to the provisions of the City of Alexandria Zoning Ordinance, except as may be provided in Article XII of the Zoning Ordinance.

WILLIAM D. EUILLE  
Mayor

Introduction: 4/12/11  
First Reading: 4/12/11  
Publication:  
Public Hearing:  
Second Reading:  
Final Passage:

ORDINANCE NO. 4715

AN ORDINANCE to amend and reordain Section 6-300 (FLOODPLAIN DISTRICT) of Article VI (SPECIAL AND OVERLAY ZONES) of the City of Alexandria Zoning Ordinance, in accordance with the text amendment heretofore approved by city council as Text Amendment No. 2011-0004.

WHEREAS, the City Council finds and determines that:

1. In Text Amendment No. 2011-0004, the planning commission, having found that the public necessity, convenience, general welfare and good zoning practice so require, recommended approval to the City Council on March 1, 2011 of a text amendment to the Zoning Ordinance to adopt revised floodplain regulations, which recommendation was approved by the City Council at public hearing on March 12, 2011;

2. The City Council in adopting this ordinance expressly adopts, ratifies, affirms and concurs in the finding and action of the Planning Commission above stated;

3. All requirements of law precedent to the adoption of this ordinance have been complied with; now, therefore,

THE CITY COUNCIL OF ALEXANDRIA HEREBY ORDAINS:

Section 1. That Section 6-300 of the Zoning Ordinance be, and the same hereby is, amended by deleting the current section in its entirety and inserting new language, as shown:

**Sec. 6-300 Floodplain district.**

*6-301 Purpose and Intent.*

(A) This ordinance is adopted pursuant to the authority granted to all localities by Va. Code § 15.2 – 2280, as well as the authority specifically granted to the City in its Charter. 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:

- (1) 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;
- (2) restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;

- (3) 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,
- (4) protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.

*6-302 Applicability.*

- (A) These provisions shall apply to all privately and publicly owned lands within the jurisdiction of the City of Alexandria and identified as being in a floodplain as designated in the Flood Insurance Study and as shown on the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) dated June 16, 2011.
- (B) The floodplain district regulations in Section 6-300 are adopted in compliance with floodplain management criteria set forth in regulations promulgated by FEMA.
- (C) This section shall be applicable to all applicants for building permits in the floodplain area.
- (D) All buildings for which a building permit shall have been duly and regularly issued by the director of building and mechanical inspections on or before May 24, 1977, which permit has not expired, may be completed without the necessity of complying with the floodplain district regulations in Section 6-300, but after completion, any such building or structure and the land on which it is situated shall be subject to all the provisions of said section.
- (E) All preliminary site plans which have been duly and regularly approved on or before May 24, 1977, and which have not expired, may be completed without the necessity of complying with the floodplain district regulations in Section 6-300, but after completion, any building or structure on said site plan together with the land included in said site plan shall be subject to all the provisions of said section
- (F) All final site plans which have been duly and regularly approved and released on or before May 24, 1977, and which have not expired may be completed without the necessity of complying with the floodplain district regulations in Section 6-300, but after completion, any building or structure on said site plan together with the land included in said site plan shall be subject to all the provisions of said section.

- (G) Any building or structure which is in existence on or before June 15, 2011, or for which a preliminary or combination site plan, building permit or subdivision approved on or before June 15, 2011, continues in force and effect shall not be deemed a nonconforming use provided, that any such building or structure which, following June 15, 2011, is the subject of substantial improvement shall comply with the floodplain regulations in effect at the time of such improvement.

6-303 *Definitions.* For the purposes of this Section 6-300 the following terms and phrases shall have the meaning ascribed as follows below. Should any uncertainty occur with respect to the definition of any word, term or phrase used in this section, the applicable definitions set out in 44 CFR 59.1, as amended, shall apply.

- (A) *A Zone.* An area of the one hundred (100)-year flood as shown on the Flood Insurance Rate Map. This zone is also referred to as the Approximated Floodplain District.
- (B) *AE Zone.* An area shown of the 100-year flood on the Flood Insurance Rate Map for which corresponding base flood elevations have been provided. This zone is also referred to as the Special Floodplain District.
- (C) *Base flood.* The flood having a one percent chance of being equaled or exceeded in any given year. May also be referred to as the 100-year flood.
- (D) *Base flood elevation (BFE).* The FEMA designated 100-year water surface elevation as shown on the Flood Insurance Rate Map that corresponds to the base flood.
- (E) *Basement.* Any area of a building (including parking) having its floor subgrade (below ground level) on all sides.
- (F) *Development.* Any man-made change to improved or unimproved real estate, including, but not limited to, the construction of buildings or other structures, the placement of manufactured homes, the construction of streets, the installation of utilities and other activities or operations involving paving, filling, grading, excavating, mining, dredging or drilling, the storage of equipment or materials.
- (G) *Existing manufactured home park or subdivision.* A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

(H) *Flood/flooding.*

- (1) A general and temporary condition of partial or complete inundation of normally dry land areas from:
  - (a) the overflow of inland or tidal waters;
  - (b) the unusual and rapid accumulation or runoff of surface waters from any source; or,
  - (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.

(I) *Flood Insurance Rate Map (FIRM).* An official map of a community, on which the FEMA Federal Insurance Administrator has delineated both the special flood hazard areas and the risk premium zones applicable to the community. A Flood Insurance Rate Map that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM). The official Flood Insurance Rate Map for the City of Alexandria shall be the in the digital format prepared by FEMA, Federal Insurance Administration, dated June 16, 2011, as amended.

(J) *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. The official Flood Insurance Study for the City of Alexandria shall be the Flood Insurance Study prepared by FEMA, Federal Insurance Administration, dated June 16, 2011, as amended.

(K) *Floodplain.* A relatively flat or low land area adjoining a river, stream or other watercourse which is subject to partial or complete inundation by water from such watercourse, or a land area which is subject to the unusual and rapid accumulation or runoff of surface waters from any source.



- (L) *Floodplain district.* The areas encompassed by the 100-year floodplain as shown on the Flood Insurance Rate Map.
- (M) *Flood-prone area.* Any land area susceptible to being inundated by water from any source more often than once in a 100-year period.
- (N) *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.
- (O) *Floodway.* The designated area of a floodplain required to carry and discharge flood waters of a given magnitude. For purposes of this Section 6-300, a floodway must be capable of accommodating a flood of the 100-year magnitude.
- (P) *Freeboard.* A factor of safety usually expressed in feet above a specified 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.
- (Q) *Highest adjacent grade.* The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.
- (R) *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 by an approved state program as determined by the Secretary of the Interior or directly by the Secretary of the Interior in states without approved programs.
- (S) *Lowest floor.* The lowest floor of the lowest enclosed area (including basement). A parking structure that is below grade on all sides is considered a basement and therefore the lowest floor. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area (the enclosure is not below grade on all sides) 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 floodproofing non-elevation design requirements of this Section 6-300.
- (T) *Manufactured home.* A structure, transportable in one or more sections, which is built on a permanent chassis and is designed to be used as a single-family dwelling, with or without permanent foundation, when connected to the required facilities, and which includes the plumbing, heating, air conditioning and electrical systems contained in the structure. A manufactured home shall include park trailers and other similar vehicles when placed on a site for greater than 180 days.
- (U) *Mixed-use building.* Any building or structure that is used or intended for use for a mixture of nonresidential and residential uses in the same building or structure. For floodplain management purposes, a mixed-use building is subject to the same rules and conditions as a residential building unless all of the provisions set forth more specifically herein are met.
- (V) *New construction.* Buildings and structures as to which the start of construction occurred on or after May 24, 1977, including any subsequent improvements to such buildings or 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.
- (W) *Nonresidential building.* Any building or structure which is not a residential building or a mixed-use building.

- (X) *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.
- (Y) *Residential building.* Any single-family dwelling, two-family dwelling, row or townhouse dwelling, or multi-family dwelling, and any accessory building or structure.
- (Z) *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.
- (AA) *Special Flood Hazard Area (SFHA).* The land in the floodplain subject to a one percent or greater chance of being flooded in any given year as designated on the official Flood Insurance Rate Map for the City of Alexandria.
- (BB) *Start of construction.* The date a building permit is issued, provided that the actual start of construction begins within 180 days of the permit issuance date. For new construction, the actual start of construction means the initial placement of permanent construction of a structure on the site, such as the pouring of footings or a slab, the installation of piles, the construction of columns or any work beyond the state 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, or the installation of streets or walkways, or excavation for a basement or for footings, piers or foundations, or the erection of temporary forms, or the installation of accessory buildings, such as garages or sheds not occupied as dwelling units and not part of the main structure. For substantial improvements, the actual start of construction means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not the alteration affects the external dimensions of the buildings.

(CC) *Structure.* For flood plain 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. "Structure" for insurance coverage purposes, means:

- (1) A building with two or more outside rigid walls and a fully secured roof, that is affixed to a permanent site;
- (2) A manufactured home (also known as a mobile home), is a structure: built on a permanent chassis, transported to its site in one or more sections, and affixed to a permanent foundation; or
- (3) A travel trailer without wheels, built on a chassis and affixed to a permanent foundation, that is regulated under the community's floodplain management and building ordinances or laws.

For the latter purpose, "structure" does not mean a recreational vehicle or a park trailer or other similar vehicle, except as described in paragraph (3) of this definition, or a gas or liquid storage tank.

(DD) *Substantial damage.* Damage of any origin sustained by a building or structure whereby the cost of restoring the building or structure to its before damaged condition would equal or exceed 50 percent of the market value of the building or structure before the damage occurred.

(EE) *Substantial improvement.* Any repair, reconstruction, rehabilitation, addition or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the building or structure immediately before construction of the improvement is commenced, or any restoration of a building or structure which has incurred substantial damage; provided, that the term does not include:

- (1) Any improvement of a building or structure that is necessary to correct existing violations of state or local health, sanitary or safety code specifications which have been identified by appropriate officials of the state or city and which are the minimum necessary to assure safe living conditions; or
- (2) Any improvement of a "historic structure," as defined in this section, so long as the improvement does not preclude the structure's continued designation as a "historic structure."

(FF) *Violation.* The failure of a structure or other development to be fully compliant with the City of Alexandria's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in 44 CFR 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.

*6-304 Description of Floodplain Districts.*

- (A) The various floodplain districts shall include the Special Flood Hazard Areas described below. The basis for the delineation of these districts shall be the Flood Insurance Study and the Flood Insurance Rate Maps for the City of Alexandria prepared by FEMA, Federal Insurance Administration, dated June 16, 2011, and any subsequent revisions and amendments thereto.
  - (1) The Special Floodplain District shall include those areas identified as an AE Zone on the Flood Insurance Rate Map for which 100-year base flood elevations have been provided.
  - (2) The Approximated Floodplain District shall include those areas identified as an A Zone on the Flood Insurance Rate Map. In these zones, no detailed flood profiles or elevations are provided, but the 100-year floodplain boundary has been approximated. For these areas, the 100-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific 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 FEMA-approved 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 thorough review by the Director of Transportation and Environmental Services.
- (B) The delineation of any of the floodplain districts may be revised by the City of Alexandria 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. Updates to the delineation of the floodplain districts require approval from both the City of Alexandria and the FEMA Federal Insurance Administration.
- (C) Any uncertainty on the floodplain district map, or Flood Insurance Rate Map, with respect to the boundary of any floodplain district, either A or

AE Zone, shall be determined by the Director of Transportation and Environmental Services by scaling and computation from the map or by land survey information.

*6-305 Administration.*

- (A) The Director of Transportation and Environmental Services shall be responsible for the administration of the floodplain management regulations set forth in this Section 6-300. He or she shall be responsible for the review of all proposed uses and development to determine whether the land on which the proposed use or development is located is in a floodplain, and that the site is reasonably safe from flooding.
- (B) An applicant must apply for a permit and issuance of the permit is required prior to the start of any development within the Special Flood Hazard Area.
- (C) No site plan, subdivision plat or building permit application which proposes to construct or make substantial improvements within any floodplain district shall be approved by any agency of the City of Alexandria without certification by the Director of Transportation and Environmental Services that the plan, plat or permit application meets the requirements of this Section 6-300. The Director of Transportation and Environmental Services shall insure that all other required permits related to development in the floodplain from state or federal governmental agencies have been obtained.
- (D) All applications for new construction or substantial improvement within any floodplain district, and all building permits issued for the floodplain shall incorporate the following information:
  - (1) the base flood elevation at the site;
  - (2) the elevation of the lowest floor (including basement);
  - (3) for structures to be floodproofed (nonresidential only), the elevation to which the structure will be floodproofed; and,
  - (4) topographic information showing existing and proposed ground elevations.
- (E) The Director of Transportation and Environmental Services may require information from the applicant, including, but not limited to, an engineering study of the floodplain. Upon a determination that the land on which the proposed use or development is located in a floodplain, the Director of Transportation and Environmental Services shall determine whether such use or development may be permitted in accordance with the

provisions of Section 6-306 through 6-308 or requires the approval of a variance as set forth in Section 6-311.

- (F) The Director of Transportation and Environmental Services shall be responsible for the collection and maintenance of records necessary for the City's participation in the National Flood Insurance Program. 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, the Director of Transportation and Environmental Services shall notify or require the applicant to notify the FEMA Federal Insurance Administrator of any change in base flood elevation or the boundaries of any Special Flood Hazard Area depicted on the City's Flood Insurance Rate Map by submitting technical and scientific data to FEMA for a Letter of Map Revision.

*6-306 Special Regulations.*

Within the boundaries of any A or AE Zones in any floodplain district as shown on the Flood Insurance Rate Map, buildings or structures and their extensions and accessory buildings or structures may be constructed or substantially improved only in accordance with the following requirements of this Section 6-300 and all other applicable provisions of law.

- (A) The elevation of the lowest floor, including the basement, for any new residential building or any extension to a residential building shall be at least one foot above the base flood elevation.
- (B) The elevation of the lowest floor, including the basement for any new nonresidential building or structure and any extension or accessory to a nonresidential building shall be at least one foot above the base flood elevation. Nonresidential buildings located in all A or AE zones may be floodproofed in lieu of being elevated provided that all areas of the building components below the elevation corresponding to the base flood elevation plus one foot are watertight 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. In no event shall any floor below at least one foot above the base flood elevation be used for human or animal habitation, food storage or food preparation.
- (C) All new and replacement public utilities, water mains and sanitary sewers shall be designed to minimize or eliminate infiltration and exfiltration and to insure their structural integrity under flood conditions to the satisfaction of the Director of Transportation and Environmental Services.

- (D) Water heaters, furnaces, electrical distribution panels and other critical mechanical or electrical installations shall not be installed below the base flood elevation. Separate electrical circuits shall serve areas below the base flood elevation and shall be dropped from above.
- (E) Any proposed use of land, development and any new construction or substantial improvement of a building or structure within an A or AE zone, in conjunction with all other uses, existing or possessing a valid permit for construction, shall not increase the water-surface elevation of the 100-year flood by more than 0.5 foot. Any party proposing a land use or development or such construction or improvement within an A or AE Zone shall furnish specific engineering data and information as to the effect of the proposed action on future flood heights and obtain approval from the Director of Transportation and Environmental Services prior to undertaking the action.
- (F) No building permit shall be issued for the construction or substantial improvement of a building or structure unless the applicant submits to the Department of Code Administration a certification from a duly registered architect or engineer that the proposed construction (including prefabricated homes) or improvement meets the following requirements:
  - (1) the construction shall be protected against flood damage;
  - (2) the construction shall be designed (or modified) and anchored to prevent flotation, collapse or lateral movement of the building and structure;
  - (3) the construction shall be built using materials and utility equipment that are resistant to flood damage; and,
  - (4) the construction shall be built using methods and practices that will minimize flood damage. The certification required by Section 6-306(F)(1) and (2) shall be based on the 100-year flood level as noted on the Flood Insurance Rate Map.
- (G) No building permit for the substantial improvement of an existing nonresidential building shall be issued unless the building, together with attendant utility and sanitary facilities, has the lowest floor (including the basement) elevated at least one foot above the base flood elevation. Should this not be feasible, no such permit shall be issued unless the existing structure is watertight floodproofed as described in Section 6-306 in all areas below the base flood elevation to the classification designated by the Director of Transportation and Environmental Services.



- (H) No building permit for the substantial improvement of an existing residential building shall be issued unless the building has the lowest floor (including the basement) elevated at least one foot above the base flood elevation.
  
- (I) Wherever floodproofing is utilized within the scope of this Section 6-300, such floodproofing shall be done by approved methods. A registered professional engineer or architect shall certify the adequacy of the floodproofing design to withstand the stresses of the base flood and such plan shall cite the elevation to which the structure is floodproofed. Such certification shall be provided on Federal Emergency Management Agency, National Flood Insurance Program, elevation certificate and/or floodproofing certificate as applicable. Designs meeting the requirements of the W-1 and W-2 without human intervention technique as outlined in floodproofing regulations of the Office of the Chief of Engineers, U.S. Army, December 15, 1995, shall be deemed to comply with this requirement. The building or code official shall maintain a file of such certifications, including the elevation of the lowest floor for structures that are elevated in lieu of watertight floodproofing.
  
- (J) For all new construction or substantially improved structures, fully enclosed areas below the lowest floor (other than a basement) which are below the base flood elevation shall:
  - (1) only be used for the parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises and shall not be designed or used for human habitation. 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 the entry to the living area (stairway or elevator);
  - (2) be constructed entirely of flood resistant materials below the base flood elevation; and,
  - (3) include, in A and AE Zones, 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 be certified by a professional engineer or architect or meet the 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 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 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,
  - (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.
- (K) Any mixed-use building may be considered a nonresidential building for purposes of this Section 6-306 if all of the following conditions are met; otherwise, the building shall be considered a residential building:
- (1) no more than twenty percent of the development site is within the boundaries of any A or AE Zones in any floodplain district as shown on the Flood Insurance Rate Map;
  - (2) at least 20,000 square feet of finished floor area of the proposed mixed-use building is devoted to nonresidential use;
  - (3) basement areas (including below grade parking) must be located outside the boundaries of any A or AE Zones in any floodplain district; and,
  - (4) all floodproofing requirements specified in this Section 6-300 and as specified in FEMA Technical Bulletin 3-93 Non-Residential Floodproofing – Requirements and Certification must be met.

*6-307 Other Conditions.*

- (A) No filling of any kind shall be allowed within the boundaries of any A or AE Zone except where such filling, when considered in conjunction with all other uses, existing and proposed, will not increase the base flood elevation more than 0.5 foot. Persons proposing such filling shall furnish specific engineering data and information as to the effect of their proposed action on future flood heights and shall obtain approval from the Director of Transportation and Environmental Services prior to any filling.

- (B) All uses, activities and development occurring within any floodplain district shall only be undertaken in strict compliance with the Virginia Uniform Statewide Building Code (VA USBC).
- (C) No wall, fence or other outdoor obstruction shall be constructed in any floodplain district unless such structure is approved by the Director of Transportation and Environmental Services; provided that open mesh wire fences of not less than No. 9 wire, with mesh openings of not less than six inches times six inches, whose supports shall be securely anchored in concrete and whose wire shall be securely fastened to the supports, may be erected without any review by or approval of the Director of Transportation and Environmental Services under this Section 6-300.
- (D) The provisions of this Section 6-300 shall not be construed to prevent the remodeling (not amounting to substantial improvement), maintenance or floodproofing of buildings and structures now existing, or prevent the surfacing or resurfacing of existing streets or parking lots within two inches of the existing grade.

*6-308 Subdivision Requirements.*

- (A) Subdivision proposals which are located in A or AE Zones must comply with the provisions of Section 6-300 and shall:
  - (1) be consistent with the need to minimize flood damage;
  - (2) have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
  - (3) have adequate drainage provided to reduce exposure to flood hazards; and,
  - (4) include base flood elevation data.

*6-309 Trailer Camps, Manufactured Homes, Mobile Homes, Recreational Vehicles and Septic Tank Systems.*

- (A) Trailer camps, manufactured homes and mobile homes are not permitted in any floodplain district.
- (B) All recreational vehicles in the floodplain must be on the site for fewer than 180 consecutive days and be fully licensed and ready for highway use.
- (C) Installation of septic tank systems in any floodplain district is prohibited.

*6-310 Flood Prevention Projects.*

Nothing in Section 6-304 through Section 6-308 shall be construed to prohibit the City of Alexandria or any person from undertaking lawful filling, draining, construction, realignment or relocation of stream channels or any other improvement that is intended to eliminate or reduce the danger of flooding, provided:

- (A) the improvement is in accord with the City of Alexandria's flood improvement plan for the floodplain district involved and the Director of Transportation and Environmental Services has issued a certificate to that effect;
- (B) the improvement is under the general supervision of the Director of Transportation and Environmental Services;
- (C) the realignment or relocation of any stream channel is designed and constructed so that there will be no reduction in the natural valley storage capacity of the area with respect to the 100-year flood, unless such relocation or realignment is designed to contain the 100-year flood within the banks of the channel;
- (D) notification, in riverine situations, is provided to adjacent communities, Virginia Department of Conservation and Recreation, FEMA, and other required agencies prior to any alteration or relocation of a watercourse; and,
- (E) the requirements of Section 6-306 (E) and Section 6-307(A) must be met.

*6-311 Variances*

- (A) The City Council may, for good and sufficient cause, permit less than full compliance with or waive the provisions of Section 6-304 through Section 6-310, provided:
  - (1) written application is made stating the hardship which will occur if the variance is not granted;
  - (2) a public hearing is held;
  - (3) the decision is made by a majority vote of the entire membership of City Council upon finding that the variance is the minimum necessary, considering the flood hazard, to afford relief;
  - (4) the Director of Transportation and Environmental Services states in writing that the variance will not result in unacceptable or

prohibited increases in flood heights, additional threats to public safety, extraordinary public expense; and will not create nuisances, cause fraud or victimization of the public, or conflict with local laws and ordinances; and,

- (5) the Director of Transportation and Environmental Services notifies the applicant in writing that the issuance of a variance to construct a structure below the base flood elevation will result in increased insurance premium rates for flood insurance and that such construction will increase the risks to life and property.
- (B) In evaluating applications for variances, the Director of Transportation and Environmental Services shall satisfy all relevant factors and procedures specified in other sections of the City's ordinance and consider the following additional factors:
- (1) the danger to life and property due to increased flood heights or velocities caused by encroachments;
  - (2) the danger that materials may be swept onto other lands or downstream to the injury of others;
  - (3) the susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners;
  - (4) the importance of the services provided by the proposed facility to the community.
  - (5) the requirements of the facility for a waterfront location;
  - (6) the availability of alternative locations not subject to flooding for the proposed use;
  - (7) the compatibility of the proposed use with existing development and development anticipated in the foreseeable future;
  - (8) the relationship of the proposed use to the comprehensive plan and floodplain management program for the area;
  - (9) the safety of access by ordinary and emergency vehicles to the property in time of flood;
  - (10) the expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site; and,
  - (11) such other factors which are relevant to the purposes of this ordinance.

- (C) The Director of Transportation and Environmental Services 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.
- (D) 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 FEMA Federal Insurance Administrator.
- (E) Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use.

*6-312 Compliance, Liability, Severability and Penalties.*

- (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 Section 6-300 and any other applicable ordinances and regulations which apply to uses within the jurisdiction of these floodplain district regulations.
- (B) The degree of flood protection required by these floodplain district regulations and all other applicable local, state and federal regulations is considered reasonable for regulatory purposes. Larger floods may occur on rare occasions or flood heights may be increased by man-made or natural causes. Therefore, the regulations set forth in this Section 6-300 do not imply that areas outside the floodplain districts, or land uses permitted within such districts, will be free from flooding and flood damages under all conditions. Additionally, the granting of a permit or approval of a development in an identified floodplain district shall not constitute a representation, guarantee, or warranty of any kind by any official or employee of the City of Alexandria of the practicability or safety of the proposed use, and shall create no liability upon the City of Alexandria, its officials or employees.
- (C) If any section, subsection, paragraph, sentence, clause or phrase of this Section 6-300 shall be declared invalid for any reason by a court of competent jurisdiction, such decision shall not affect the remaining portions of this Section 6-300. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of Section this 6-300 are hereby declared to be severable.

- (D) Any person who shall engage in new construction, substantial improvement or development without a building permit as required by VA USBC and these floodplain management regulations shall be subject to the penalties provided in Section 11-200 of the Zoning Ordinance.

*6-313 Appeals.*

Any person aggrieved by a decision of the Director of Transportation and Environmental Services under this Section 6-300 may appeal that decision to City Council; provided, that the appeal shall be filed in writing with the City Clerk within fifteen (15) days of the decision being appealed and shall describe the decision being appealed and the reasons why the person believes the decision to be invalid.

*6-314 Annual Report.*

It shall be the City Manager's duty to submit any reports to FEMA and the floodplain coordinator at the Virginia Department of Conservation and Recreation that may be required regarding the City of Alexandria's compliance with flood management regulations.

Section 2. That the director of planning and zoning be, and hereby is, directed to record the foregoing text amendment.

Section 3. That Section 6-300, as amended pursuant to Section 1 of this ordinance, be, and the same hereby is, reordained as part of the City of Alexandria Zoning Ordinance.

Section 4. That this ordinance shall become effective on the date and at the time of its final passage, and shall apply to all applications for land use, land development or subdivision approval provided for under the City of Alexandria Zoning Ordinance which may be filed after such date, and shall apply to all other facts and circumstances subject to the provisions of the City of Alexandria Zoning Ordinance, except as may be provided in Article XII of the Zoning Ordinance.

WILLIAM D. EUILLE  
Mayor

Final Passage: April 16, 2011