



## ***Zoning Text Amendment #2025-00007***

### ***Environmental Management Ordinance***

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<p><b>Issue:</b> (A) Initiation of a text amendment; and (B) Public hearing and consideration of a text amendment to the Zoning Ordinance to revise Sections 13-103, 13-107, and 13-117 of Article XIII to incorporate required changes pursuant to the 2020 General Assembly and 2021 State Water Control Board's regulatory changes to Virginia Code § 62.1-44.15:72 &amp; 9VAC25-830 requiring the State Water Control Board to develop criteria enabling local government Bay Act programs to encourage and promote "coastal resilience and adaptation to sea-level rise and climate change".</p> <p>These amendments integrate resiliency assessment and adaptation requirements into the City's Chesapeake Bay Preservation Act program through inclusion in the Zoning Ordinance, ensuring that future redevelopment in Resource Protection Areas (RPAs) consider storm surge, flooding, and sea level rise using state-approved models and a 30-year planning horizon.</p>	Planning Commission Hearing:	September 4, 2025
	City Council Hearing:	September 13, 2025

**Staff:** Michael Moon, Interim Director, T&ES [mike.moon@alexandriava.gov](mailto:mike.moon@alexandriava.gov)  
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**PLANNING COMMISSION ACTION, SEPTEMBER 4, 2025:** On a motion by Vice Chair Koenig, seconded by Commissioner Manor, the Planning Commission voted to initiate Zoning Text Amendment #2025-00007. The motion carried on a vote of 6-0.

On a motion by Vice Chair Koenig, seconded by Commissioner Manor, the Planning Commission voted to recommend approval of Zoning Text Amendment #2025-0007. The motion carried on a vote of 6-0.

## **I. Issue**

Consideration of adoption of revisions to Zoning Ordinance Article XIII (Environmental Management), to incorporate requirements for a resiliency assessment and, if applicable, adaptation measures related to the state's recent amendments to the Chesapeake Bay Preservation Act and attendant Code of Virginia regulations 9VAC25-830-155, requiring localities to address climate resilience and sea level rise for development and redevelopment within Resource Protection Areas (RPAs).

## **II. Background**

Pursuant to legislative changes adopted by the 2020 Virginia General Assembly and subsequent regulatory amendments adopted by the State Water Control Board in 2021, the Chesapeake Bay Preservation Act (Va. Code § 62.1-44.15:72) and its implementing regulations (9VAC25-830) were updated to require the integration of coastal resilience and adaptation into local Bay Act programs. Specifically, the addition of 9VAC25-830-155 mandates that development and redevelopment proposed within Resource Protection Areas (RPAs) be evaluated for potential impacts from sea level rise, storm surge, and flooding over a 30-year planning horizon. These evaluations must utilize the National Oceanic and Atmospheric Administration's (NOAA) 2017 Intermediate-High Sea Level Rise Scenario and the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model, or other models approved by the Virginia Department of Environmental Quality (DEQ). Where the results of the evaluation indicate future impacts and where local Bay Act program authority determines it is necessary and appropriate, applicants may be required to implement site-specific adaptation measures to mitigate anticipated risks. Acceptable adaptation measures shall be a nature-based solutions as defined in regulation, be designed, installed, and properly maintained, allow for the conditional use of fill, and maximize the preservation of existing natural vegetation to include mature trees.

## **III. Discussion of Proposed Text Changes**

*Implementation of new definitions, new letter codes to existing definitions, and new language in Article XIII Sections 103, 107, and 117. The proposed ordinance updates include the introduction of a couple new definitions in Section 13-103 to support implementation of climate resilience requirements, including terms such as adaptation measure, nature-based solution, and resilience. Definitions have been re-lettered following a sequential structure to accommodate the new entries. Section 13-107 includes additions related to new permitted uses in the RPA for climate resilience adaptation measures, introduces the integration of adaptation strategies, and describes allowable nature-based solution adaptation measures and under which conditions they're approvable. Revisions to Section 13-117 expand the Water Quality Impact Assessment (WQIA) requirements to include resiliency assessments and adaptation measures, if applicable, based on 30-year projections for sea level rise, storm surge, and flooding. These projections*

*must use NOAA's Intermediate-High scenario and SLOSH model outputs. Where future impacts are identified, site-specific adaptation measures such as preservation of mature trees or implementation of nature-based solutions may be required.*

### 13-103 Definitions.

The following words and terms used in this Article XIII have the following meanings, unless the context clearly indicates otherwise.

- ~~(A)~~ (A) *Adaptation measure.* A project, practice, or approach to mitigate or address an impact of climate change including sea-level rise, storm surge, and flooding including increased or recurrent flooding.
- ~~(A)~~~~(B)~~ (B) *Administrator.* The person responsible for the administration of this Article XIII, which in the city shall be the director of T&ES or his/her designee.
- ~~(B)~~~~(C)~~ (C) *Alexandria water quality volume default.* The volume equal to the first 0.5 inch of runoff multiplied by the total impervious area of the site as defined herein.
- ~~(C)~~~~(D)~~ (D) *Applicant.* A person who has submitted, or plans to submit, a plan of development or an exception request to the city or a person seeking approval from the city for any activity that is regulated under this article.
- ~~(D)~~~~(E)~~ (E) *Best management practice (BMP).* Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices, to prevent or reduce the pollution of surface water and groundwater systems from the impacts of land-disturbing activities.
- ~~(E)~~~~(F)~~ (F) *Buffer area.* An area of natural or established vegetation managed to protect other components of a resource protection area and state waters from significant degradation due to land disturbances. To effectively perform this function, the buffer area will achieve a 75 percent reduction of sediments and a 40 percent reduction of nutrients. A 100-foot wide buffer area shall be considered to meet this standard.
- ~~(F)~~~~(G)~~ (G) *Chesapeake Bay Preservation Act land-disturbing activity.* A land-disturbing activity including clearing, grading, or excavation that results in a land disturbance equal or greater than 2,500 square feet and less than one acre in all areas of the city designated as subject to the regulations adopted pursuant to the Chesapeake Bay Preservation Act, Code of Virginia, § 62.1-44.15:67 et seq.
- ~~(G)~~~~(H)~~ (H) *Clean Water Act or CWA* means the federal Clean Water Act (33 U.S.C § 1251 et seq.), formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500, as amended by Public

Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, or any subsequent revisions thereto.

~~(H)~~(I) *Common plan of development or sale.* A contiguous area where separate and distinct construction activities may be taking place at different times on different schedules.

~~(H)~~(J) *Control measure.* Any best management practice or stormwater management facility, or other method used to minimize the discharge of pollutants to state waters.

~~(H)~~(K) *Department (DEQ).* The Virginia Department of Environmental Quality.

~~(K)~~(L) *Development.* Land disturbance and the resulting landform associated with the construction or substantial alteration of residential, commercial, industrial, institutional, recreational, transportation, or utility facilities or structures or the clearing of land for non-agricultural or non-silvicultural purposes.

~~(L)~~(M) *Director of T&ES/Director of P&Z.* Director of T&ES means the director of transportation and environmental services of the City of Alexandria. Director of P&Z means the director of planning and zoning of the City of Alexandria.

~~(M)~~(N) *Floodway.* All lands as defined in subsection 6-303(O) of this ordinance.

~~(N)~~(O) *General permit.* The state permit titled General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities found in 9VAC25-880 et seq. of the Virginia Erosion and Stormwater Management Regulations authorizing a category of discharges under the federal Clean Water Act and the Virginia Erosion and Stormwater Management Act within a geographical area of the Commonwealth of Virginia.

~~(O)~~(P) *Highly erodible soils.* Soils (excluding vegetation) with an erodibility index (EI) from sheet and rill erosion equal to or greater than eight. The erodibility index for any soil is defined as the product of the formula  $RKLS/T$ , where K is the soil susceptibility to water erosion in the surface layer; R is the rainfall and runoff; LS is the combined effects of slope length and steepness; and T is the soil loss tolerance.

~~(P)~~(Q) *Highly permeable soils.* Soils with a given potential to transmit water through the soil profile. Highly permeable soils are identified as any soil having a permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches (permeability groups "rapid" and "very rapid"), as found in the "National Soil Survey Handbook" of November 1996 in the "Field Office Technical Guide" of the U.S. Dept. of Agriculture Natural Resources Conservation Service.

~~(Q)~~(R) *Impervious cover.* A surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to: roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surface.

~~(R)~~(S) *Intermittent stream*. Any natural or engineered channel (measured from top of bank) with flowing water during certain times of the year, when groundwater provides for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. Acceptable methodologies for establishing the presence of an intermittent stream will be provided by the director of T&ES pursuant to subsection 13-104(C).

~~(S)~~(T) *Isolated wetlands of minimal ecological value*. Those wetlands, as defined in 9VAC25-210-10, that:

- (i) Do not have a surface water connection to other state waters;
- (ii) Are less than one-tenth of an acre in size;
- (iii) Are not located in a Federal Emergency Management Agency designated 100-year floodplain;
- (iv) Are not identified by the Virginia Natural Heritage Program as a rare or state significant natural community;
- (v) Are not forested; and
- (vi) Do not contain listed federal or state threatened or endangered species.

~~(T)~~(U) *Land disturbance or land-disturbing activity*. A manmade change to the land surface that potentially changes its runoff characteristics, including clearing, grading, filling, or excavation.

~~(U)~~(V) *Layout*. A conceptual drawing sufficient to provide for the specified stormwater management facilities required at the time of approval.

(W) *Mature tree*. For the purposes of this section, a canopy tree with a diameter at breast height (DBH) of approximately 12 inches or greater or an understory tree with a DBH of approximately four (4) inches or greater.

~~(V)~~(X) *Minor modification*. An amendment to an existing general permit before its expiration not requiring extensive review and evaluation including, but not limited to, changes in EPA promulgated test protocols, increasing monitoring frequency requirements, changes in sampling locations, and changes to compliance dates within the overall compliance schedules. A minor general permit modification or amendment does not substantially alter general permit conditions, substantially increase or decrease the amount of surface water impacts, increase the size of the operation, or reduce the capacity of the facility to protect human health or the environment.

~~(W)~~(Y) *Natural channel.* A nontidal waterway that is part of the natural topography and is generally characterized as being irregular in cross section with a meandering course.

(Z) *Nature-based solution.* An approach that reduces the impacts of sea-level rise, flooding, and storm events through the use of environmental processes and natural systems.

~~(X)~~(AA) *Nonpoint source pollution.* Contamination from diffuse sources that is not regulated as point source pollution under Section 402 of the Clean Water Act.

~~(Y)~~(BB) *Nontidal wetlands.* Those wetlands, other than tidal wetlands, that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, as defined by the U.S. Environmental Protection Agency pursuant to Section 404 of the Federal Clean Water Act, in 33 CFR 328.3b.

~~(Z)~~(CC) *Operator.* The owner or operator of any facility or activity subject to regulation under this Article XIII.

~~(AA)~~(DD) *Permittee.* The person to whom a state permit is issued, including any owner or operator whose construction site is covered under a state construction general permit.

~~(BB)~~(EE) *Person.* Any individual, corporation, partnership, association, municipality, commission, or political subdivision, of a state, governmental body, including federal, state, or local entity as applicable, any interstate body or any other legal entity.

~~(CC)~~(FF) *Pre-development.* The land use that exists at the time that plans for the development are submitted to the city. Where phased development or plan approval occurs (preliminary grading, roads and utilities, etc.), the land use at the time the first item is submitted shall establish pre-development conditions.

~~(DD)~~(GG) *Post-development.* Conditions that reasonably may be expected or anticipated to exist after completion of the development activity on a specific site or tract of land.

~~(EE)~~ (HH) *Public road.* For the purpose of this Article XIII, public road means a publicly owned road designed and constructed in accordance with water quality protection criteria at least as stringent as requirements applicable to the Virginia Department of Transportation, including regulations promulgated pursuant to (i) the Virginia Erosion and Stormwater Management Act (Section 62.1-44.15:51 et seq. of the Code of Virginia). This definition includes those roads where the Virginia Department of Transportation exercises direct supervision over the design or construction activities, or both, and cases where roads are constructed or maintained, or both, by the City of Alexandria.

- ~~(FF)~~(II) *Redevelopment*. The process of developing land that is or has been previously developed.
- ~~(GG)~~(JJ) *Regulations*. The Virginia Erosion and Stormwater Management Program (VESMP) Permit Regulations, 9VAC25-875, as amended.
- ~~(HH)~~(KK) *Restored stormwater conveyance system*. A stormwater conveyance system that has been designed and constructed using natural channel design concepts. Restored stormwater conveyance systems include the main channel and the flood-prone area adjacent to the main channel.
- ~~(H)~~(LL) *Resource management area (RMA)*. A Chesapeake Bay Preservation Area overlay designation as further defined in section 13-105(C).
- ~~(JJ)~~(MM) *Resource protection area (RPA)*. A Chesapeake Bay Preservation Area overlay designation as further defined in section 13-105(B).
- ~~(KK)~~(NN) *Shoreline*. Land contiguous to a body of water.
- ~~(LL)~~(OO) *Site*. The land or water area where any facility or land-disturbing activity is physically located or conducted, including adjacent land used or preserved in connection with the facility or land-disturbing activity. Areas channelward of mean low water in tidal Virginia shall not be considered part of a site. The following shall be used for determining water quality and water quantity requirements in sections 13-109(E) and (F): For projects disturbing less than 50 percent of the tax parcel, (or if multiple parcels are involved, the land subject to the application), the disturbed area shall constitute the site; for projects disturbing greater than or equal to 50 percent of the tax parcel (or if multiple parcels are involved, the land subject to the application), the entire tax parcel shall constitute the site.
- ~~(MM)~~(PP) *State*. The Commonwealth of Virginia.
- ~~(NN)~~(QQ) *State permit*. An approval to conduct a land-disturbing activity issued by the Virginia State Water Control Board in the form of a state stormwater individual permit or coverage issued under a state general permit or an approval issued by the Virginia State Water Control Board for stormwater discharges from an MS4. Under these state permits, the state imposes and enforces requirements pursuant to the federal Clean Water Act, the Virginia Erosion and Stormwater Management Act, and their attendant regulations.
- ~~(OO)~~(RR) *State Water Control Law*. Chapter 3.1 (62.1-44.2 et seq.) of Title 62.1 of the Code of Virginia.
- ~~(PP)~~(SS) *State waters*. All waters on the surface or in the ground, wholly or partially within or bordering the commonwealth or within its jurisdiction, including wetlands.

- ~~(QQ)~~(TT) *Stormwater*. Precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.
- ~~(RR)~~(UU) *Stormwater management facility*. A device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.
- ~~(SS)~~ (VV) *Stormwater management plan*. A document or documents containing material describing methods for complying with the requirements of section 13-114 of this article.
- ~~(TT)~~ (WW) *Stormwater pollution prevention plan (SWPPP)*. A document that is prepared in accordance with section 13-113 of this article and good engineering practices and that identifies potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the construction site, and otherwise meet the requirements of this article. In addition the document shall identify and require the implementation of control measures, and shall include, but not be limited to the inclusion of, or the incorporation by reference of, an approved erosion and sediment control plan, and a pollution prevention plan.
- (XX) *Storm surge*. The resulting temporary rise in sea level due to the action of wind stress on the water surface and low atmospheric pressure created during storms which can cause coastal flooding. Surge is the difference from expected tide level. Storm tide is the total water level.
- ~~(UU)~~(YY) *Subdivision*. Means the same as defined in section 2-197.2 of the Alexandria Zoning Ordinance.
- ~~(VV)~~(ZZ) *Substantial alteration*. Expansion or modification of a building or development that would result in land disturbance exceeding an area of 2,500 square feet in the resource management area only.
- ~~(WW)~~(AAA) *Tidal shore*. Land contiguous to a tidal body of water between the mean low water level and the mean high water level.
- ~~(XX)~~(BBB) *Tidal wetlands*. Vegetated and nonvegetated wetlands as defined in Section 28.2-1300 of the Code of Virginia.
- ~~(YY)~~(CCC) *Top of Bank*. To the extent applicable, top of bank shall be determined on prevailing professional standards and the best professional judgment of the director.
- ~~(ZZ)~~(DDD) *Total maximum daily load (TMDL)*. The sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, natural background loading, and a margin of safety. TMDLs can be expressed in terms of either mass per time,



toxicity, or other appropriate measure. The TMDL process provides for point versus nonpoint source trade-offs.

~~(AAA)~~(EEE) *Use*. Any activity on the land other than development, including, but not limited to agriculture, horticulture, and silviculture.

~~(BBB)~~(FFF) *Virginia Erosion and Stormwater Management Act* (§ 62.1-44.15:24 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia.

~~(CCC)~~(GGG) *Virginia Stormwater BMP Clearinghouse website*. A website that contains detailed design standards and specifications for control measures that may be used in Virginia to comply with the requirements of the Virginia Erosion and Stormwater Management Act and regulations.

~~(DDD)~~(HHH) *Virginia Erosion and Stormwater Management Program (VESMP)*. A program approved by the Virginia State Water Control Board that has been established by a VESMP authority for the effective control of soil erosion and sediment deposition and the management of the quality and quantity of runoff resulting from land-disturbing activities to prevent the unreasonable degradation of properties, stream channels, waters, and other natural resources. The program shall include such items as local ordinances, rules, requirements for permits and land-disturbance approvals, policies and guidelines, technical materials, and requirements for plan review, inspection, and enforcement consistent with the requirements of the Virginia Erosion and Stormwater Management Act.

~~(EEE)~~(III) *VESMP authority*. An authority approved by the Virginia State Water Control Board to operate a VESMP. For the purposes of this article, the city is the VESMP authority.

~~(FFF)~~(JJJ) *VESMP authority permit*. An approval to conduct a land-disturbing activity issued by the city for the initiation of a land-disturbing activity after evidence of general permit coverage has been provided where applicable. In the City of Alexandria a VESMP authority permit is not a separate permit. Rather, the issuance of a building, land use, or other land development permit is contingent on a proposed land-disturbing activity meeting all VESMP authority permit requirements in 9VAC25-875 and the requirements of this article.

~~(GGG)~~(KKK) *Water body with perennial flow*. A body of water that flows in a natural or engineered channel year-round during a year of normal precipitation. This includes, but is not limited to streams, estuaries, and tidal embayments and may include drainage ditches or channels constructed in wetlands or from former natural drainage ways that convey perennial flow. Lakes and ponds, through which a perennial stream flows, are a part of the perennial stream. Generally, the water table is located above the streambed for most of the year and groundwater is the primary source for stream flow. The width of the perennial stream extends from top-of-bank to top-of-bank of the channel or to the limits of the normal water level for a pond or lake when there is

no definable top-of-bank. Acceptable methodologies for establishing the presence of a water body with perennial flow will be provided by the director of T&ES pursuant to subsection 13-104(C).

~~(HHH)~~(LLL) *Water-dependent facility.* A development of land that cannot exist outside of the resource protection area and must be located on the shoreline by reason of the intrinsic nature of its operation. These facilities include, but are not limited to:

- (i) Ports;
- (ii) The intake and outfall structures of power plants, water treatment plants, sewage treatment plants, and storm sewers;
- (iii) Marinas and other boat docking facilities;
- (iv) Beaches and other public water-oriented recreation areas; and
- (v) Fisheries or other marine resources facilities.

~~(HH)~~(MMM) *Watershed.* The total drainage area contributing runoff to a single point.

~~(JJJ)~~ (NNN) *Wetlands.* Tidal and nontidal wetlands.

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13-107 – Development, redevelopment, and uses permitted in RPAs.

The following criteria shall apply in RPAs unless the development, redevelopment, use, or land disturbing activity is exempted under section 13-123 or granted an exception pursuant to section 13-119. All development, redevelopment, and uses within the RPA must comply with the performance criteria provided in section 13-109.

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(F) The following adaptation measures are allowed within the RPA if approved by the director of T&ES and provided that a water quality impact assessment is performed and accepted by the director of T&ES as complete in accordance with section 13-117:

(1) Be a nature-based solution adaptation measure that uses environmental processes, natural systems, or natural features, is appropriate for site conditions, and is:

(a) A Best Management Practice approved by the Chesapeake Bay Program Partnership;

(b) An approved Virginia Stormwater Best Management Practice listed in the Virginia Stormwater Best Management Practice Clearinghouse;

- (c) An approved Shoreline Protection Strategy in accordance with the Tidal Wetlands Guidelines as determined by the Virginia Marine Resource Commission; or
    - (d) A project that is an eligible activity for funding by the Virginia Community Flood Preparedness Fund as determined by the Virginia Department of Conservation and Recreation.
  - (2) Be designed, installed, and maintained in accordance with the applicable adaptation measure specifications in accordance with the type of the adaptation measure identified in subsection (F)(1) above.
  - (3) Allow for the use of fill only under the following conditions:
    - (a) The grading and slope created by the use of fill shall be no greater than necessary based upon the project specifications and implemented in a manner that minimizes the impact of run-off;
    - (b) The fill must have the necessary biogeochemical characteristics, including sufficient organic content, to support the growth of vegetation and adequate permeability to allow infiltration consistent with the project specifications;
    - (c) The use of fill shall not enhance stormwater runoff from the RPA, and any lateral flow onto adjacent properties shall be controlled;
    - (d) Any impacts on the management of stormwater upland of the RPA created by the use of fill shall be mitigated as necessary; and
    - (e) The use of fill shall be consistent with any applicable federal or state law, including floodplain management requirements in 44 CFR Part 60 and section 6 - 300.
  - (4) Maximize preservation of existing natural vegetation, including mature trees, and minimize land disturbance consistent with the adaptation measure specifications.
  - (5) Comply with all federal, state, and local laws and requirements including any required permits and conditions.

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13-117 - Water quality impact assessment.

- (A) The purpose of the water quality impact assessment is to:

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- (5) Determine if proposed development or redevelopment within the RPA is vulnerable to sea level rise, storm surge, or flooding per subsection (C)(6).

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- (C) A water quality minor impact assessment is required for development or redevelopment within RPAs or under an exception which involves 5,000 or less square feet of land disturbance; or for any development or redevelopment within the RMA that involves 5,000 or less square feet of land disturbance adjacent to an RPA, if required by the director of T&ES due to the presence or proximity of wetlands, potential for harmful discharge of contaminants from the property, or slopes greater ~~that~~ than 15 percent which are proposed to be disturbed. A minor assessment must demonstrate that the undisturbed buffer area, enhanced vegetative plantings, and any required BMPs will result in the removal of no less than 75 percent of sediments and 40 percent of nutrients from post-development stormwater runoff and that will retard runoff, prevent erosion, and filter nonpoint source pollution the equivalent of the full undisturbed buffer area and must also include a resiliency assessment and adaptation measures if applicable. Such an assessment shall include a site plan that shows the following:

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- (6) For any development or redevelopment within the RPA, the water quality impact assessment shall include a resiliency assessment. The resiliency assessment shall:
- (a) Be based upon a potential impact range of 30 years or the lifespan of the project if less than 30 years;
  - (b) Utilize a model or forecast developed by or on behalf of the Commonwealth of Virginia;
  - (c) Identify potential impacts:
    - (i) From projected sea-level rise using the 2017 National Oceanographic and Atmospheric Administration (NOAA) Intermediate-High scenario projection curve or any subsequently updated version thereof, on the project site;

Zoning Text Amendment #2025-00007  
Environmental Management Ordinance Update

(ii) From storm surge based upon the most updated NOAA hydrodynamic Sea, Lake, and Overland Surges from Hurricanes model on the project site; and

(iii) From flooding based upon the most updated Special Flood Hazard Area and the Limit of Moderate Wave Action on the project site. Such assessment of flooding should be in conjunction with the requirements and application of floodplain management requirements and programs.

(d) Based upon the assessment, the director of T&ES, as necessary and appropriate, shall require conditions, alterations, or the installation of adaptation measures as part of the proposed land development consistent with the requirements of section 13-107 (F).

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### **III. Recommendation**

Staff recommends that the text amendments contained above be initiated, and recommends approval of each of the attached Zoning Ordinance text changes.

Staff: Michael Moon, Interim Director, Transportation and Environmental Services  
Jesse E. Maines, Division Chief, T&ES Stormwater Management  
Christina Zechman Brown, Deputy City Attorney  
Gavin Pellitteri, Stormwater Principal Planner, T&ES SWM

## Attachment - Proposed Zoning Ordinance Text Changes

13-103 Definitions.

The following words and terms used in this Article XIII have the following meanings, unless the context clearly indicates otherwise.

(A) Adaptation measure. A project, practice, or approach to mitigate or address an impact of climate change including sea-level rise, storm surge, and flooding including increased or recurrent flooding.

~~(A)~~(B) *Administrator.* The person responsible for the administration of this Article XIII, which in the city shall be the director of T&ES or his/her designee.

~~(B)~~(C) *Alexandria water quality volume default.* The volume equal to the first 0.5 inch of runoff multiplied by the total impervious area of the site as defined herein.

~~(C)~~(D) *Applicant.* A person who has submitted, or plans to submit, a plan of development or an exception request to the city or a person seeking approval from the city for any activity that is regulated under this article.

~~(D)~~(E) *Best management practice (BMP).* Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices, to prevent or reduce the pollution of surface water and groundwater systems from the impacts of land-disturbing activities.

~~(E)~~(F) *Buffer area.* An area of natural or established vegetation managed to protect other components of a resource protection area and state waters from significant degradation due to land disturbances. To effectively perform this function, the buffer area will achieve a 75 percent reduction of sediments and a 40 percent reduction of nutrients. A 100-foot wide buffer area shall be considered to meet this standard.

~~(F)~~(G) *Chesapeake Bay Preservation Act land-disturbing activity.* A land-disturbing activity including clearing, grading, or excavation that results in a land disturbance equal or greater than 2,500 square feet and less than one acre in all areas of the city designated as subject to the regulations adopted pursuant to the Chesapeake Bay Preservation Act, Code of Virginia, § 62.1-44.15:67 et seq.

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~~(N)~~(O) *General permit*. The state permit titled General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities found in 9VAC25-880 et seq. of the Virginia Erosion and Stormwater Management Regulations authorizing a category of discharges under the federal Clean Water Act and the Virginia Erosion and Stormwater Management Act within a geographical area of the Commonwealth of Virginia.

~~(O)~~(P) *Highly erodible soils*. Soils (excluding vegetation) with an erodibility index (EI) from sheet and rill erosion equal to or greater than eight. The erodibility index for any soil is defined as the product of the formula  $RKLS/T$ , where K is the soil susceptibility to water erosion in the surface layer; R is the rainfall and runoff; LS is the combined effects of slope length and steepness; and T is the soil loss tolerance.

~~(P)~~(Q) *Highly permeable soils*. Soils with a given potential to transmit water through the soil profile. Highly permeable soils are identified as any soil having a permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches (permeability groups "rapid" and "very rapid"), as found in the "National Soil Survey Handbook" of November 1996 in the "Field Office Technical Guide" of the U.S. Dept. of Agriculture Natural Resources Conservation Service.

~~(Q)~~(R) *Impervious cover*. A surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to: roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surface.

~~(R)~~(S) *Intermittent stream*. Any natural or engineered channel (measured from top of bank) with flowing water during certain times of the year, when groundwater provides for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. Acceptable

methodologies for establishing the presence of an intermittent stream will be provided by the director of T&ES pursuant to subsection 13-104(C).

~~(S)~~(T) *Isolated wetlands of minimal ecological value.* Those wetlands, as defined in 9VAC25-210-10, that:

- (i) Do not have a surface water connection to other state waters;
- (ii) Are less than one-tenth of an acre in size;
- (iii) Are not located in a Federal Emergency Management Agency designated 100-year floodplain;
- (iv) Are not identified by the Virginia Natural Heritage Program as a rare or state significant natural community;
- (v) Are not forested; and
- (vi) Do not contain listed federal or state threatened or endangered species.

~~(T)~~(U) *Land disturbance or land-disturbing activity.* A manmade change to the land surface that potentially changes its runoff characteristics, including clearing, grading, filling, or excavation.

~~(U)~~(V) *Layout.* A conceptual drawing sufficient to provide for the specified stormwater management facilities required at the time of approval.

(W) *Mature tree.* For the purposes of this section, a canopy tree with a diameter at breast height (DBH) of approximately 12 inches or greater or an understory tree with a DBH of approximately four (4) inches or greater.

~~(V)~~(X) *Minor modification.* An amendment to an existing general permit before its expiration not requiring extensive review and evaluation including, but not limited to, changes in EPA promulgated test protocols, increasing monitoring frequency requirements, changes in sampling locations, and changes to compliance dates within the overall compliance schedules. A minor general permit modification or amendment does not substantially alter general permit conditions, substantially increase or decrease the amount of surface water impacts, increase the size of the operation, or reduce the capacity of the facility to protect human health or the environment.

~~(W)~~(Y) *Natural channel.* A nontidal waterway that is part of the natural topography and is generally characterized as being irregular in cross section with a meandering course.

(Z) *Nature-based solution.* An approach that reduces the impacts of sea-level rise, flooding, and storm events through the use of environmental processes and natural systems.



1  
2 ~~(X)~~(AA) *Nonpoint source pollution.* Contamination from diffuse sources that is not regulated  
3 as point source pollution under Section 402 of the Clean Water Act.  
4

5 ~~(Y)~~(BB) *Nontidal wetlands.* Those wetlands, other than tidal wetlands, that are inundated or  
6 saturated by surface water or groundwater at a frequency and duration sufficient to  
7 support, and that under normal circumstances do support, a prevalence of vegetation  
8 typically adapted for life in saturated soil conditions, as defined by the U.S.  
9 Environmental Protection Agency pursuant to Section 404 of the Federal Clean Water  
10 Act, in 33 CFR 328.3b.  
11

12 ~~(Z)~~(CC) *Operator.* The owner or operator of any facility or activity subject to regulation under  
13 this Article XIII.  
14

15 ~~(AA)~~(DD) *Permittee.* The person to whom a state permit is issued, including any owner or  
16 operator whose construction site is covered under a state construction general permit.  
17

18 ~~(BB)~~(EE) *Person.* Any individual, corporation, partnership, association, municipality,  
19 commission, or political subdivision, of a state, governmental body, including  
20 federal, state, or local entity as applicable, any interstate body or any other legal  
21 entity.  
22

23 ~~(CC)~~(FF) *Pre-development.* The land use that exists at the time that plans for the development  
24 are submitted to the city. Where phased development or plan approval occurs  
25 (preliminary grading, roads and utilities, etc.), the land use at the time the first item  
26 is submitted shall establish pre-development conditions.  
27

28 ~~(DD)~~(GG) *Post-development.* Conditions that reasonably may be expected or anticipated to  
29 exist after completion of the development activity on a specific site or tract of land.  
30

31 ~~(EE)~~ (HH) *Public road.* For the purpose of this Article XIII, public road means a publicly  
32 owned road designed and constructed in accordance with water quality protection  
33 criteria at least as stringent as requirements applicable to the Virginia Department of  
34 Transportation, including regulations promulgated pursuant to (i) the Virginia  
35 Erosion and Stormwater Management Act (Section 62.1-44.15:51 et seq. of the Code  
36 of Virginia). This definition includes those roads where the Virginia Department of  
37 Transportation exercises direct supervision over the design or construction activities,  
38 or both, and cases where roads are constructed or maintained, or both, by the City of  
39 Alexandria.  
40

41  
42 ~~(FF)~~(II) *Redevelopment.* The process of developing land that is or has been previously  
43 developed.  
44

45 ~~(GG)~~(JJ) *Regulations.* The Virginia Erosion and Stormwater Management Program (VESMP)  
46 Permit Regulations, 9VAC25-875, as amended.

~~(HH)~~(KK) *Restored stormwater conveyance system*. A stormwater conveyance system that has been designed and constructed using natural channel design concepts. Restored stormwater conveyance systems include the main channel and the flood-prone area adjacent to the main channel.

~~(H)~~(LL) *Resource management area (RMA)*. A Chesapeake Bay Preservation Area overlay designation as further defined in section 13-105(C).

~~(JJ)~~(MM) *Resource protection area (RPA)*. A Chesapeake Bay Preservation Area overlay designation as further defined in section 13-105(B).

~~(KK)~~(NN) *Shoreline*. Land contiguous to a body of water.

~~(LL)~~(OO) *Site*. The land or water area where any facility or land-disturbing activity is physically located or conducted, including adjacent land used or preserved in connection with the facility or land-disturbing activity. Areas channelward of mean low water in tidal Virginia shall not be considered part of a site. The following shall be used for determining water quality and water quantity requirements in sections 13-109(E) and (F): For projects disturbing less than 50 percent of the tax parcel, (or if multiple parcels are involved, the land subject to the application), the disturbed area shall constitute the site; for projects disturbing greater than or equal to 50 percent of the tax parcel (or if multiple parcels are involved, the land subject to the application), the entire tax parcel shall constitute the site.

~~(MM)~~(PP) *State*. The Commonwealth of Virginia.

~~(NN)~~(QQ) *State permit*. An approval to conduct a land-disturbing activity issued by the Virginia State Water Control Board in the form of a state stormwater individual permit or coverage issued under a state general permit or an approval issued by the Virginia State Water Control Board for stormwater discharges from an MS4. Under these state permits, the state imposes and enforces requirements pursuant to the federal Clean Water Act, the Virginia Erosion and Stormwater Management Act, and their attendant regulations.

~~(OO)~~(RR) *State Water Control Law*. Chapter 3.1 (62.1-44.2 et seq.) of Title 62.1 of the Code of Virginia.

~~(PP)~~(SS) *State waters*. All waters on the surface or in the ground, wholly or partially within or bordering the commonwealth or within its jurisdiction, including wetlands.

~~(QQ)~~(TT) *Stormwater*. Precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

- 1 ~~(RR)~~(UU) *Stormwater management facility*. A device that controls stormwater runoff and  
2 changes the characteristics of that runoff including, but not limited to, the quantity  
3 and quality, the period of release or the velocity of flow.  
4
- 5 ~~(SS)~~ (VV) *Stormwater management plan*. A document or documents containing material  
6 describing methods for complying with the requirements of section 13-114 of this  
7 article.  
8
- 9 ~~(TT)~~ (WW) *Stormwater pollution prevention plan (SWPPP)*. A document that is prepared in  
10 accordance with section 13-113 of this article and good engineering practices and  
11 that identifies potential sources of pollutants that may reasonably be expected to  
12 affect the quality of stormwater discharges from the construction site, and otherwise  
13 meet the requirements of this article. In addition the document shall identify and  
14 require the implementation of control measures, and shall include, but not be  
15 limited to the inclusion of, or the incorporation by reference of, an approved erosion  
16 and sediment control plan, and a pollution prevention plan.  
17
- 18 ~~(XX)~~ *Storm surge*. The resulting temporary rise in sea level due to the action of wind  
19 stress on the water surface and low atmospheric pressure created during storms  
20 which can cause coastal flooding. Surge is the difference from expected tide level.  
21 Storm tide is the total water level.  
22
- 23 ~~(UU)~~(YY) *Subdivision*. Means the same as defined in section 2-197.2 of the Alexandria Zoning  
24 Ordinance.  
25
- 26 ~~(VV)~~(ZZ) *Substantial alteration*. Expansion or modification of a building or development that  
27 would result in land disturbance exceeding an area of 2,500 square feet in the  
28 resource management area only.  
29
- 30 ~~(WW)~~(AAA) *Tidal shore*. Land contiguous to a tidal body of water between the mean low water  
31 level and the mean high water level.  
32
- 33 ~~(XX)~~(BBB) *Tidal wetlands*. Vegetated and nonvegetated wetlands as defined in Section 28.2-  
34 1300 of the Code of Virginia.  
35
- 36 ~~(YY)~~(CCC) *Top of Bank*. To the extent applicable, top of bank shall be determined on prevailing  
37 professional standards and the best professional judgment of the director.  
38
- 39 ~~(ZZ)~~(DDD) *Total maximum daily load (TMDL)*. The sum of the individual wasteload  
40 allocations for point sources, load allocations for nonpoint sources, natural  
41 background loading, and a margin of safety. TMDLs can be expressed in terms of  
42 either mass per time, toxicity, or other appropriate measure. The TMDL process  
43 provides for point versus nonpoint source trade-offs.  
44
- 45 ~~(AAA)~~(EEE) *Use*. Any activity on the land other than development, including, but not limited to  
46 agriculture, horticulture, and silviculture.

~~(BBB)~~(FFF) *Virginia Erosion and Stormwater Management Act* (§ 62.1-44.15:24 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia.

~~(CCC)~~(GGG) *Virginia Stormwater BMP Clearinghouse website*. A website that contains detailed design standards and specifications for control measures that may be used in Virginia to comply with the requirements of the Virginia Erosion and Stormwater Management Act and regulations.

~~(DDD)~~(HHH) *Virginia Erosion and Stormwater Management Program (VESMP)*. A program approved by the Virginia State Water Control Board that has been established by a VESMP authority for the effective control of soil erosion and sediment deposition and the management of the quality and quantity of runoff resulting from land-disturbing activities to prevent the unreasonable degradation of properties, stream channels, waters, and other natural resources. The program shall include such items as local ordinances, rules, requirements for permits and land-disturbance approvals, policies and guidelines, technical materials, and requirements for plan review, inspection, and enforcement consistent with the requirements of the Virginia Erosion and Stormwater Management Act.

~~(EEE)~~(III) *VESMP authority*. An authority approved by the Virginia State Water Control Board to operate a VESMP. For the purposes of this article, the city is the VESMP authority.

~~(FFF)~~(JJJ) *VESMP authority permit*. An approval to conduct a land-disturbing activity issued by the city for the initiation of a land-disturbing activity after evidence of general permit coverage has been provided where applicable. In the City of Alexandria a VESMP authority permit is not a separate permit. Rather, the issuance of a building, land use, or other land development permit is contingent on a proposed land-disturbing activity meeting all VESMP authority permit requirements in 9VAC25-875 and the requirements of this article.

~~(GGG)~~(KKK) *Water body with perennial flow*. A body of water that flows in a natural or engineered channel year-round during a year of normal precipitation. This includes, but is not limited to streams, estuaries, and tidal embayments and may include drainage ditches or channels constructed in wetlands or from former natural drainage ways that convey perennial flow. Lakes and ponds, through which a perennial stream flows, are a part of the perennial stream. Generally, the water table is located above the streambed for most of the year and groundwater is the primary source for stream flow. The width of the perennial stream extends from top-of-bank to top-of-bank of the channel or to the limits of the normal water level for a pond or lake when there is no definable top-of-bank. Acceptable methodologies for establishing the presence of a water body with perennial flow will be provided by the director of T&ES pursuant to subsection 13-104(C).

~~(HHH)~~(LLL) *Water-dependent facility.* A development of land that cannot exist outside of the resource protection area and must be located on the shoreline by reason of the intrinsic nature of its operation. These facilities include, but are not limited to:

- (i) Ports;
- (ii) The intake and outfall structures of power plants, water treatment plants, sewage treatment plants, and storm sewers;
- (iii) Marinas and other boat docking facilities;
- (iv) Beaches and other public water-oriented recreation areas; and
- (v) Fisheries or other marine resources facilities.

~~(HH)~~(MMM) *Watershed.* The total drainage area contributing runoff to a single point.

~~(JJ)~~ (NNN) *Wetlands.* Tidal and nontidal wetlands.

\*\*\*

13-107 – Development, redevelopment, and uses permitted in RPAs.

The following criteria shall apply in RPAs unless the development, redevelopment, use, or land disturbing activity is exempted under section 13-123 or granted an exception pursuant to section 13-119. All development, redevelopment, and uses within the RPA must comply with the performance criteria provided in section 13-109.

\*\*\*

(F) The following adaptation measures are allowed within the RPA if approved by the director of T&ES and provided that a water quality impact assessment is performed and accepted by the director of T&ES as complete in accordance with section 13-117:

(1) Be a nature-based solution adaptation measure that uses environmental processes, natural systems, or natural features, is appropriate for site conditions, and is:

- (a) A Best Management Practice approved by the Chesapeake Bay Program Partnership;
- (b) An approved Virginia Stormwater Best Management Practice listed in the Virginia Stormwater Best Management Practice Clearinghouse;
- (c) An approved Shoreline Protection Strategy in accordance with the Tidal Wetlands Guidelines as determined by the Virginia Marine Resource Commission; or

1  
2           (d) A project that is an eligible activity for funding by the Virginia Community  
3           Flood Preparedness Fund as determined by the Virginia Department of  
4           Conservation and Recreation.

5  
6           (2) Be designed, installed, and maintained in accordance with the applicable  
7           adaptation measure specifications in accordance with the type of the adaptation  
8           measure identified in subsection (F)(1) above.

9  
10          (3) Allow for the use of fill only under the following conditions:

11  
12           (a) The grading and slope created by the use of fill shall be no greater than  
13           necessary based upon the project specifications and implemented in a manner  
14           that minimizes the impact of run-off;

15  
16           (b) The fill must have the necessary biogeochemical characteristics, including  
17           sufficient organic content, to support the growth of vegetation and adequate  
18           permeability to allow infiltration consistent with the project specifications;

19  
20           (c) The use of fill shall not enhance stormwater runoff from the RPA, and any  
21           lateral flow onto adjacent properties shall be controlled;

22  
23           (d) Any impacts on the management of stormwater upland of the RPA created by  
24           the use of fill shall be mitigated as necessary; and

25  
26           (e) The use of fill shall be consistent with any applicable federal or state law,  
27           including floodplain management requirements in 44 CFR Part 60 and  
28           section 6 - 300.

29  
30          (4) Maximize preservation of existing natural vegetation including mature trees and  
31          minimize land disturbance consistent with the adaptation measure specifications.

32  
33          (5) Comply with all federal, state, and local laws and requirements including any  
34          required permits and conditions.

35  
36          \*\*\*

37  
38          13-117 - Water quality impact assessment.

39  
40           (A) The purpose of the water quality impact assessment is to:

41  
42          \*\*\*

(5) Determine if proposed development or redevelopment within the RPA is vulnerable to sea level rise, storm surge, or flooding per subsection (C)(6).

\*\*\*

(C) A water quality minor impact assessment is required for development or redevelopment within RPAs or under an exception which involves 5,000 or less square feet of land disturbance; or for any development or redevelopment within the RMA that involves 5,000 or less square feet of land disturbance adjacent to an RPA, if required by the director of T&ES due to the presence or proximity of wetlands, potential for harmful discharge of contaminants from the property, or slopes greater ~~that~~ than 15 percent which are proposed to be disturbed. A minor assessment must demonstrate that the undisturbed buffer area, enhanced vegetative plantings, and any required BMPs will result in the removal of no less than 75 percent of sediments and 40 percent of nutrients from post-development stormwater runoff and that will retard runoff, prevent erosion, and filter nonpoint source pollution the equivalent of the full undisturbed buffer area and must also include a resiliency assessment and adaptation measures if applicable. Such an assessment shall include a site plan that shows the following:

\*\*\*

(6) For any development or redevelopment within the RPA, the water quality impact assessment shall include a resiliency assessment. The resiliency assessment shall:

(a) Be based upon a potential impact range of 30 years or the lifespan of the project if less than 30 years;

(b) Utilize a model or forecast developed by or on behalf of the Commonwealth of Virginia;

(c) Identify potential impacts:

(i) From projected sea-level rise using the 2017 National Oceanographic and Atmospheric Administration (NOAA) Intermediate-High scenario projection curve or any subsequently updated version thereof, on the project site;

(ii) From storm surge based upon the most updated NOAA hydrodynamic Sea, Lake, and Overland Surges from Hurricanes model on the project site; and

(iii) From flooding based upon the most updated Special Flood Hazard Area and the Limit of Moderate Wave Action on the project site. Such assessment of flooding should be in conjunction with the requirements and application of floodplain management requirements and programs.

(7) Based upon the assessment, the director of T&ES, as necessary and appropriate, shall require conditions, alterations, or the installation of adaptation measures as part of the proposed land development consistent with the requirements of section 13-107 (F).

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