

CHESAPEAKE BAY PRESERVATION AREA REGULATIONS

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AUTHORITY

These regulations are promulgated by the Director of Public Utilities pursuant to Sections 14-181, 14-292, 14-293, 14-294, and 14-295 of the City Code, which collectively designate the Administrator (Director of Public Utilities or designee) as responsible for reviewing and approving site plans, determining whether to grant exceptions from the requirements of Article IV of Chapter 14, establishing administrative procedures, and enforcing compliance. These regulations implement the discretionary provisions of the City's Chesapeake Bay Preservation Area ordinance as amended by Ordinance No. 2026-039, in accordance with: (a) Virginia Code § 62.1-44.15:67 et seq. (Chesapeake Bay Preservation Act), including Virginia Code § 62.1-44.15:74 (Local programs and regulations); (b) 9VAC25-830 (Chesapeake Bay Preservation Area Designation and Management Regulations); (c) City Code Article IV, Chapter 14 (Chesapeake Bay Preservation Areas); and (d) the Virginia Department of Environmental Quality (DEQ) Chesapeake Bay Preservation Act Resiliency Guidance (June 17, 2025 or most current version), including model ordinance provisions, resiliency assessment templates, and adaptation measure checklists. These regulations, in conjunction with City Code Article IV, Chapter 14, have been developed to maintain consistency with state criteria under 9VAC25-830-160, subject to DEQ certification.

PART I - GENERAL PROVISIONS

Section 1.01 Purpose

These regulations establish standardized procedures, criteria, and methodologies for implementing the Director's discretionary authority under Article IV of Chapter 14 of the City Code regarding:

- (a) Resiliency assessments;
- (b) Adaptation measures within resource protection areas;
- (c) Mature tree protection and removal standards;
- (d) Living shoreline project approvals;
- (e) Buffer area modifications and mitigation;
- (f) Water quality impact assessments; and
- (g) All discretionary administrative review and approval processes under these regulations shall be governed by the procedures and documentation standards outlined in Section 9.06.

Section 1.02 Applicability

These regulations apply to all land disturbance, development, and redevelopment activities within designated Chesapeake Bay Preservation Areas, with particular emphasis on activities within resource protection areas that require discretionary administrative review and approval. A site plan that meets the definition of a Chesapeake Bay Site Plan in City Code § 14-181 but is not titled as

such may nonetheless be accepted by staff as a Chesapeake Bay Site Plan and marked by staff as such.

Section 1.03 Relationship to Other Requirements

These regulations supplement and do not replace other applicable City, State, and Federal requirements, including but not limited to:

- (a) Article V, Chapter 14 (Erosion and Stormwater Management);
- (b) Article II, Chapter 14 (Floodplain Management);
- (c) Virginia Erosion and Stormwater Management Regulation;
- (d) Virginia Marine Resources Commission permits and guidelines;
- (e) U.S. Army Corps of Engineers permits; and
- (f) Virginia Department of Environmental Quality permits.
- (g) City Code Sections 14-292 (Exemptions), 14-293 (Administrative Procedures), 14-294 (Appeals), and 14-295 (Penalties).
- (h) DEQ AdaptVA platform for coastal resiliency data and mapping.
- (i) DEQ Bay Act model ordinance and checklists for local implementation.
- (j) Nonconforming Uses: Nonconforming uses and structures in Chesapeake Bay Preservation Areas shall be managed in accordance with 9VAC25-830-150 and City Code § 14-292(a), allowing continuation but restricting expansion that increases impervious cover or encroachment into RPAs.
- (k) Exceptions may be granted by the Administrator for public utilities, roads, or hardships per 9VAC25-830-150 and City Code §§ 14-292(b) & (c), requiring a public hearing and findings that the request minimizes environmental impact.

Section 1.04 Definitions

For purposes of these regulations, the following terms shall have the meanings ascribed to them, unless the context clearly indicates otherwise. Terms not defined herein shall have the meanings assigned in City Code § 14-181, Virginia Code § 62.1-44.15:68, or 9VAC25-830-40, as applicable.

- (a) Canopy Tree: A tree that typically reaches 35 feet in height or taller when mature, as defined in City Code § 14-181.
- (b) Discretionary Administrative Review and Approval: The process by which the Administrator evaluates and determines the approval, conditional approval, or denial of applications, exceptions, or modifications under these regulations, subject to the procedures and documentation standards outlined in Section 9.06.
- (c) Mature Tree: A canopy tree with a diameter at breast height (DBH) of 12 inches or greater or an understory tree with a DBH of four inches or greater, as defined in City Code § 14-181.

- (d) Mitigation: Actions taken to offset adverse impacts to Chesapeake Bay Preservation Areas, including but not limited to tree replacement, buffer restoration, or implementation of adaptation measures, as specified in the applicable sections of these regulations.
- (e) 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, as defined in City Code § 14-181.
- (f) Tree Protection Zone: A designated area surrounding a mature tree, established through fencing or other physical barriers, extending to the drip line or a minimum radius of one foot per inch of diameter at breast height (DBH), whichever is greater, to prevent damage during development activities.
- (g) Understory Tree: A tree that typically reaches 12 to 35 feet in height when mature, as defined in City Code § 14-181.

PART II - MATURE TREE PROTECTION

City Code Section 14-263(3) provides: "Mature trees shall be protected during development and only removed where necessary, including to provide for the proposed use or development."

Section 2.01 Purpose

City Code Section 14-263(3) requires that mature trees shall be protected during development and only removed where necessary, including to provide for the proposed use or development. These provisions implement standards for determining when mature tree removal is necessary and establish mitigation requirements.

Section 2.02 Tree Protection During Development

All applicants proposing land disturbance within Chesapeake Bay Preservation Areas shall:

- (a) Include on the Chesapeake Bay Site Plan the location of all trees on-site, with species identification and DBH measurements;
- (b) Establish tree protection zones around mature trees to be preserved, consisting of fencing or other physical barriers at the drip line or a minimum of one foot of radius per inch of DBH, whichever is greater;
- (c) Prohibit grading, trenching, material storage, or equipment operation within tree protection zones; and
- (d) Implement construction best management practices (BMPs), in accordance with the latest version of the Virginia Stormwater Management Handbook, to prevent soil compaction and root damage.

Section 2.03 Standards for Determining Necessity of Tree Removal

Mature tree removal shall be considered necessary only when the Administrator determines that one or more of the following conditions exist. The applicant bears the burden of demonstrating necessity through clear and convincing evidence.

- (a) Site Access. The tree's location prevents reasonable vehicular or pedestrian, access as determined by the Fire Marshal, to the buildable area of the property, and no feasible alternative access route exists.

(1) Evaluation Criteria. The Administrator shall consider:

- i. Whether alternative access alignments were evaluated and documented;
- ii. Whether shared access with adjacent properties is feasible;
- iii. Whether the additional cost of alternative access is proportionate to the overall project cost (e.g., alternative access costing more than 150% of tree removal option may be considered economically infeasible for residential projects);
- iv. Whether topographic or legal constraints (easements, setbacks) genuinely preclude alternatives; and
- v. Whether emergency vehicle access requirements can be satisfied through alternative means.

(2) Presumptions.

- i. For new subdivisions or large developments, the applicant must demonstrate that the street layout was designed to minimize tree impacts before individual tree removal is considered necessary;
- ii. For existing lots, reasonable access means a driveway of standard width (typically 10-12 feet for residential); wider access must be justified by specific need; and
- iii. Removal of mature trees to accommodate circular driveways or multiple access points is presumptively not necessary.

- (b) Building Footprint. The tree is located within the proposed building footprint and relocation of the structure is not feasible due to:

- (1) Lot configuration and dimensional requirements;
- (2) Required setbacks and buffer areas;
- (3) Topographic constraints; or
- (4) Presence of other protected features (wetlands, steep slopes, etc.).

(5) Evaluation Criteria. The Administrator shall consider:

- i. Whether alternative building locations on the lot were evaluated with a site plan showing at least two alternative footprint locations;
- ii. Whether the proposed structure size is appropriate to the lot (structures exceeding 50% of maximum allowable lot coverage must demonstrate why smaller structures are inadequate);

- iii. Whether building design modifications (footprint shape, multi-story vs. single-story) could avoid tree removal;
- iv. Whether the tree is in a location that could reasonably have been anticipated to constrain development when the lot was created; and
- v. For additions to existing structures, whether the addition could be located on another side of the structure.

(6) Presumptions.

- i. Applicants proposing structures in the largest 25% by square footage for the zoning district must demonstrate specific need for that size;
- ii. Mature trees located in the required setback areas or buffers create a presumption that the buildable area should be adjusted to preserve them; and
- iii. Removal of mature trees to accommodate accessory structures (garages, sheds, pools) requires greater justification than for principal structures.

(c) Utility Installation. The tree's location conflicts with required utility connections (water, sewer, gas, electric) and horizontal directional drilling or other alternative installation methods are not technically or economically feasible.

(1) Evaluation Criteria. The construction, installation and maintenance of water, sewer, natural gas, and underground telecommunications and cable television lines owned, permitted, or both, by the City or a regional service authority shall be exempt from the requirements of this section herein. For all other types of development, the Administrator shall:

- i. Require documentation from utility providers or licensed engineers that conventional trenching is necessary;
- ii. Require cost comparison between open-cut trenching and trenchless methods;
- iii. Consider trenchless methods economically infeasible if costs exceed 200% of conventional trenching for utility connections;
- iv. Require evaluation of alternative connection points or routes; and
- v. Consider whether utility easement locations could be adjusted.

(2) Presumptions.

- i. For new development, utility layouts must be designed to avoid mature trees before tree removal is considered necessary;
- ii. Service laterals to individual lots should use standard trenchless techniques where mature trees are present; and
- iii. Tree removal for underground utility installation requires greater justification than overhead utility installation in non-buffer areas.

(d) Safety Hazard. The tree is dead, diseased, dying, or structurally unsound as certified by an ISA Certified Arborist or a , and poses an imminent safety risk.

(1) Required Documentation. The applicant shall provide:

- i. Written assessment from an ISA Certified Arborist or a City arborist including: Tree identification and measurements; Specific diagnosis of condition; Description of hazard posed; Evaluation of whether the safety risk can be mitigated through pruning or cabling; Photographs documenting condition; and
- ii. If structural instability is claimed, documentation of defects, such as cavities, decay, cracks, or root damage.

(2) Evaluation Standards.

- i. "Imminent safety risk" means the tree or major limbs are likely to fail and cause property damage or personal injury within the current or next growing season;
- ii. Trees with conditions treatable through accepted arboricultural practices (pruning, cabling, disease treatment) shall not be considered immediately hazardous; and
- iii. The Administrator may require a second opinion from a City-approved arborist at the applicant's expense for trees with high ecological or community value.

(e) Stormwater Management. The tree's location prevents installation of required stormwater management facilities, and alternative BMP configurations or locations are not feasible.

(1) Evaluation Criteria. The Administrator shall require:

- i. Demonstration that at least three alternative BMP types or locations were evaluated;
- ii. Documentation that alternative BMPs cannot meet water quality and quantity requirements;
- iii. Consideration of distributed BMPs versus centralized facilities to minimize tree impacts;
- iv. For large construction activity, demonstration that BMP locations were optimized during site planning; and
- v. Evaluation of whether bioretention or other vegetated practices can incorporate existing trees.

(2) Presumptions.

- i. BMPs should be located in previously disturbed areas before considering removal of mature trees;
- ii. Underground detention facilities should be considered where mature trees occupy optimal surface BMP locations; and
- iii. Tree removal for BMP installation requires comprehensive stormwater management plan showing overall site strategy.

(f) Permitted Buffer Modifications. Removal is authorized under Section 14-264(5) for reasonable sight lines, access paths, general woodlot management, or shoreline erosion

control projects, subject to the specific requirements of Parts VI and VII of these regulations.

- (g) Documentation Requirements. For all necessity claims under subsections (a) through (e), the applicant shall provide:
 - (1) A plan showing all mature trees, proposed development, and alternatives considered;
 - (2) Written narrative explaining why each alternative is not feasible;
 - (3) Cost estimates for alternatives where economic feasibility is claimed;
 - (4) Photographs of site conditions; and
 - (5) Any required professional certifications or engineering analyses.
- (h) Administrator's Written Findings. For each determination under this section, the Administrator shall prepare a written determination that includes:
 - (1) Identification of which conditions in subsections (a) through (f) the applicant claims exist;
 - (2) Summary of evidence submitted by applicant in support of necessity claim;
 - (3) Identification of any presumptions that apply under subsections (a)(2), (b)(6), (c)(2), (e)(2), or other provisions;
 - (4) Finding as to whether applicant overcame applicable presumptions through clear and convincing evidence;
 - (5) Analysis of evaluation criteria applied under subsections (a)(1), (b)(5), (c)(1), (e)(1), or other provisions;
 - (6) Specific basis for finding that tree removal is or is not necessary;
 - (7) If approved, conditions imposed to minimize impacts; and
 - (8) Reference to similar past determinations and explanation of consistency or distinguishing factors.

The written determination shall be maintained as part of the application record and provided to the applicant with the decision. This documentation facilitates administrative review and any appeals pursuant to City Code § 14-294.

Section 2.04 Tree Removal Application Requirements

Applications for mature tree removal shall include:

- (a) A plan showing all mature trees with species and DBH;
- (b) Written justification demonstrating necessity under Section 2.03;
- (c) For safety hazard claims, certification from an ISA Certified Arborist or a city arborist;
- (d) Photographic documentation of trees proposed for removal;
- (e) Tree replacement and mitigation plan per Section 2.05; and
- (f) Alternative design considerations evaluated.

Section 2.05 Mitigation for Mature Tree Removal

When mature tree removal is approved as necessary, the applicant shall provide mitigation as follows:

- (a) Replacement Ratio. Based on industry best practices for tree replacement to maintain buffer functions:
 - (1) Canopy trees shall be replaced at a 3:1 ratio (three trees planted for each removed); and
 - (2) Understory trees shall be replaced at a 2:1 ratio (two trees planted for each removed).
 - (3) These replacement ratios shall be applied in a manner consistent with the guidance provided in the Riparian Buffer Modification & Mitigation Guidance Manual (2003, as amended by the Virginia Department of Conservation and Recreation).
- (b) Replacement Tree Specifications. Based on American Nursery and Landscape Association (ANLA) standards for transplant success:
 - (1) Canopy tree species shall be minimum 2-inch caliper;
 - (2) Understory tree species shall be minimum 1.5-inch caliper;
 - (3) Native species are preferred per Native Plants for Virginia's Capital Region, published by the Plant RVA Natives Campaign; and
 - (4) Species diversity is encouraged, with no single species exceeding 30% of total plantings.
 - (5) All replacement plantings shall adhere to the standards for transplant success and species selection outlined in the Riparian Buffer Modification & Mitigation Guidance Manual (2003, as amended by the Virginia Department of Conservation and Recreation), with priority given to native species as recommended therein.
- (c) Planting Location Priority.
 - (1) First priority: Within resource protection area buffer;
 - (2) Second priority: Elsewhere within Chesapeake Bay Preservation Area on same property; and
 - (4) Third priority: Off-site location approved by Administrator within same watershed.

Section 2.06 Maintenance and Monitoring

- (a) Replacement trees shall be maintained for a minimum monitoring period as determined by the Administrator to ensure successful establishment, typically two to three years based on site conditions and species selected.
- (b) Trees that die within the monitoring period shall be replaced at the expense of the applicant.
- (c) Annual monitoring reports shall be submitted to the Administrator during the monitoring period.
- (d) Financial assurance may be required consistent with City's general bonding authority for development projects.

PART III - RESILIENCY ASSESSMENTS

City Code Section 14-264(1)(c) provides: "A resiliency assessment in accordance with subsection (7) of this section shall be required for any proposed land disturbance in the resource protection area."

City Code Section 14-264(7)(a) provides: "The purpose of the resiliency assessment is to consider the potential impacts of sea level rise, storm surge, and flooding on buffer function in light of a proposed resource protection area encroachment. An approved resiliency assessment shall contain the anticipated impacts of sea level rise, flooding, and storm surge on the parcel and the proposed development."

Section 3.01 Purpose

City Code Section 14-264(1)(c) requires a resiliency assessment for any proposed land disturbance in the resource protection area. Section 14-264(7) establishes the purpose and requirements for such assessments. These provisions implement detailed standards and methodologies for resiliency assessments.

Section 3.02 When Required

A resiliency assessment is required for any proposed development within the resource protection area consistent with Section 14-264; and any other development in Chesapeake Bay Preservation Areas that the Administrator determines may warrant such assessment because of site characteristics, intensity of proposed use, or duration of proposed use. The construction, installation and maintenance of water, sewer, natural gas, and underground telecommunications and cable television lines owned, permitted, or both, by the City or a regional service authority shall be exempt from the requirements of this section herein.

(a) Mandatory Assessment Triggers

A resiliency assessment is mandatory for development in Chesapeake Bay Preservation Areas that meets any of the following thresholds:

(1) Proximity to Tidal Waters.

- i. Any structure with a foundation or habitable space within 200 feet of mean high water; or
- ii. Any critical facility within 500 feet of mean high water.
 - a. Critical facilities include, but are not limited to, hospitals, nursing homes, emergency operation centers, police and fire stations, and facilities that produce, use, or store hazardous materials or hazardous waste.

(2) Elevation.

- i. Any structure with lowest floor elevation at or below 8 feet NAVD88 in areas subject to tidal influence; or
- ii. Any structure with lowest floor elevation within 2 feet of Base Flood Elevation.

(3) Flood Zone.

- i. Any new structure in Special Flood Hazard Area Zone A or AE);
- ii. Any substantial improvement (as defined in Section 14-21) in Zone A or AE; or
- iii. Any critical facility in any Special Flood Hazard Area.

(4) New Development.

- i. Any subdivision creating 5 or more lots in resource management area;
- ii. Any multi-family residential development of 10 or more units in Chesapeake Bay Preservation Area;
- iii. Any commercial or industrial development exceeding 20,000 square feet of building area or 2 acres of land disturbance in Chesapeake Bay Preservation Area; or
- iv. Any development proposing infrastructure (roads, utilities, stormwater facilities) designed for a service life exceeding 30 years within resource management area.

(b) Discretionary Assessment Factors

For development not meeting mandatory thresholds in subsection A, the Administrator shall evaluate the following factors to determine if a resiliency assessment is warranted:

(1) Site Vulnerability Indicators.

- i. Site history of flooding or erosion;
- ii. Presence of highly erodible or collapsible soils;
- iii. Groundwater levels within 3 feet of surface;
- iv. Location in area identified as vulnerable in the Richmond-Crater Multi-Regional Hazard Mitigation Plan or Virginia Coastal Resilience Master Plan; or
- v. Adjacent properties experiencing chronic flooding or erosion, or local flooding identified on an internal pluvial flood map.

(2) Proposed Use Characteristics.

- i. Structures housing vulnerable populations (elderly, children, disabled);
- ii. Facilities storing hazardous materials;
- iii. Essential services (emergency response, medical, utilities);
- iv. Proposed use of basement or below-grade space;
- v. Structures with mechanical/electrical systems below Base Flood Elevation; or
- vi. Long-term investments exceeding \$1 million in construction value.

(3) Duration and Permanence.

- i. Permanent structures require greater scrutiny than temporary structures;
- ii. Structures designed for less than 20-year lifespan may receive reduced assessment requirements; and
- iii. Seasonal or recreational structures may receive case-by-case evaluation.

(c) Decision Framework and Documentation

- (1) Presumption for Assessment. When factors in subsection B indicate potential vulnerability, there is a presumption that resiliency assessment should be required unless the applicant demonstrates that:
 - i. Site conditions clearly indicate low vulnerability to climate-related hazards;
 - ii. Proposed development incorporates resilient design features that address anticipated impacts; and
 - iii. The development will not create or exacerbate risks to adjacent properties or public infrastructure.
- (2) Applicant Request for Determination. An applicant may request written determination of whether resiliency assessment is required by submitting:
 - i. Preliminary site plan;
 - ii. Site elevation data;
 - iii. Description of proposed use and structures; and
 - iv. Any relevant site history or existing studies.
- (3) The Administrator shall issue determination within 15 business days of receiving complete request.
- (4) Written Determination for Discretionary Decisions. When exercising discretion under subsection (b) to require or waive a resiliency assessment, the Administrator shall prepare a written determination that includes:
 - i. Enumeration of vulnerability factors present under subsection (b)(1), (2), or (3);
 - ii. Explanation of why factors present do or do not warrant requiring assessment;
 - iii. If assessment is not required, description of alternative measures or conditions imposed to address identified concerns;
 - iv. Explanation of how determination is consistent with similar past decisions; and
 - v. If applicant requested determination under subsection (c)(2), response to applicant's submissions demonstrating low vulnerability or resilient design.
- (5) Economic and Social Considerations. In exercising discretion under this section, the Administrator shall give due consideration to the economic and social costs and benefits reasonably expected to result from requiring or waiving a resiliency assessment, consistent with Va. Code § 62.1-44.15:72(C).

This written determination shall be maintained as part of the application record and facilitates any appeals pursuant to City Code § 14-294.

Section 3.03 Assessment Objectives

The resiliency assessment shall evaluate the potential impacts of climate change and coastal hazards on:

- (a) The functionality of the 100-foot resource protection area buffer;
- (b) The proposed development and its long-term viability;
- (c) Adjacent properties and downstream areas; and
- (d) Natural resources and habitat within the resource protection area.

Section 3.04 Required Analysis Components

(a) Sea Level Rise Analysis

Pursuant to City Code § 14-264(7)(a)(i), the applicant shall:

- (1) Use the 2017 National Oceanographic and Atmospheric Administration (NOAA) Intermediate-High scenario projection curve, or any subsequently updated version thereof;
- (2) Model projected water levels at the following time horizons:
 - i. Year 2050 (near-term);
 - ii. Year 2080 (mid-term); and
 - iii. Year 2100 (long-term).
- (3) Demonstrate anticipated impacts on:
 - i. Property access and egress routes;
 - ii. Building elevations and flood risk;
 - iii. Septic systems and drainfields (if applicable);
 - iv. Stormwater management infrastructure; and
 - v. Buffer area vegetation and functionality.
- (4) Provide mapping showing:
 - i. Current mean high-water line;
 - ii. Projected inundation zones for each time horizon;
 - iii. Limits of resource protection area; and
 - iv. Proposed development footprint and improvements.

(b) Flood Hazard Analysis

Pursuant to City Code § 14-264(7)(a)(ii), the applicant shall:

- (1) Use the most up-to-date Special Flood Hazard Area (SFHA) mapping from the Virginia Flood Risk Information System (VFRIS);
- (2) Identify and map the Limit of Moderate Wave Action (LiMWA) on the project site;
- (3) Demonstrate compliance with Article II, Chapter 14 (Floodplain Management) requirements, including:
 - i. Flood-resistant construction standards;

- ii. Elevation requirements; and
 - iii. Floodway encroachment prohibitions.
- (4) Evaluate potential impacts of flooding on:
 - i. Structural integrity of proposed improvements;
 - ii. Function of buffer area during flood events;
 - iii. Erosion potential and sediment transport; and
 - iv. Water quality protection capabilities.
- (c) Storm Surge Analysis pursuant to City Code § 14-264(7)(a)(iii), the applicant shall:
 - (1) Use the most up-to-date NOAA hydrodynamic Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model;
 - (2) Evaluate storm surge impacts for:
 - i. Category 1 hurricane;
 - ii. Category 2 hurricane; and
 - iii. Category 3 hurricane.
 - (3) Map surge inundation zones and wave heights; and
 - (4) Assess potential for:
 - i. Structural damage from surge and waves;
 - ii. Erosion and scour;
 - iii. Debris impacts; and
 - iv. Contamination from flooded septic systems or storage areas.

Section 3.05 Impact Evaluation Standards

The resiliency assessment shall follow the format and content recommended in the DEQ resiliency assessment template, including executive summary, site description, methodology, results, impact evaluation, mitigation recommendations, and professional certification. The resiliency assessment shall evaluate and document:

- (a) Buffer Function Degradation. Whether projected conditions would compromise the buffer's ability to achieve 75% sediment reduction and 40% nutrient reduction as required by Section 14-264(3)(a).
- (b) Development Vulnerability. Whether the proposed development would be subject to:
 - (1) Repetitive flood damage;
 - (2) Structural failure or instability;
 - (3) Loss of access during storm events; or
 - (4) Contamination or pollution risks.
- (c) Exacerbation of Impacts. Whether the proposed development would:
 - (1) Increase flood elevations on adjacent properties;
 - (2) Accelerate erosion processes;
 - (3) Reduce natural storage or conveyance capacity; or
 - (5) Diminish habitat functions or ecosystem services.

- (d) Adaptation Opportunities. Whether the site and proposed development could incorporate adaptation measures to enhance resilience.

Section 3.06 Report Format and Content

The resiliency assessment shall be prepared by a qualified professional (Professional Engineer, Certified Floodplain Manager, or equivalent) and include:

- (a) Executive Summary.
 - (1) Key findings and recommendations.
- (b) Site Description.
 - (1) Current conditions, topography, vegetation, soils, hydrology.
- (c) Methodology.
 - (1) Data sources, models used, assumptions, limitations.
- (d) Analysis Results.
 - (1) Sea level rise projections and impacts;
 - (2) Flood hazard evaluation;
 - (3) Storm surge analysis; and
 - (4) Maps and visualizations.
- (e) Impact Evaluation.
 - (1) Assessment of impacts per Section 3.05.
- (f) Mitigation Recommendations.
 - (1) Proposed design modifications, adaptation measures, or other strategies to address identified vulnerabilities.
- (g) Professional Certification.
 - (1) Statement signed and sealed by qualified professional.

Section 3.07 Review and Approval

- (a) The Administrator shall review the resiliency assessment for:
 - (1) Compliance with Section 14-264(7) requirements;
 - (2) Use of appropriate data sources and methodologies;
 - (3) Adequacy of impact evaluation; and
 - (4) Sufficiency of proposed mitigation measures.
- (b) The Administrator may require revisions, additional analysis, or alternative design approaches based on assessment findings.
- (c) Approval of the resiliency assessment does not constitute approval of the overall development proposal, which must satisfy all applicable requirements.

PART IV - ADAPTATION MEASURES IN RESOURCE PROTECTION AREAS

City Code Section 14-264(5)(f) provides: "Adaptation measures proposed for location within the resource protection area shall meet the following conditions: (1) The selected adaptation measure shall be a nature-based solution that uses environmental processes, natural systems, or natural features identified as being appropriate for existing site conditions."

Section 4.01 Purpose

City Code Section 14-264(5)(f) establishes conditions under which adaptation measures may be permitted within resource protection areas. These provisions implement standards for evaluating, approving, and ensuring proper installation of adaptation measures.

Section 4.02 Eligible Adaptation Measures

- (a) Adaptation measures proposed for location within the resource protection area must be nature-based solutions that use environmental processes, natural systems, or natural features.
- (b) Source Documents for Eligible Measures. An adaptation measure is eligible if it is identified in one or more of the following authoritative sources:
 - (1) Chesapeake Bay Program Approved BMP List: Practices specifically designed for water quality improvement and coastal resilience;
 - (2) Virginia Stormwater BMP Clearinghouse: Approved best management practices with demonstrated effectiveness and published specifications;
 - (3) VMRC Tidal Wetlands Guidelines: Living shorelines and other shoreline stabilization approaches consistent with wetland protection; or
 - (4) Virginia Community Flood Preparedness Fund Grant Program: Projects eligible for CFPF funding that enhance flood resilience through natural and nature-based features.
- (c) Evaluation of Proposed Measures.
 - (1) Measure Listed in Source Document. If the proposed adaptation measure is explicitly listed in one of the source documents in subsection (b), there is a presumption that it is eligible, provided:
 - i. The measure is designed and will be installed according to the specifications in the source document;
 - ii. Site conditions are appropriate for the measure as described in the source document; and
 - iii. The measure is consistent with other requirements of this article.

- (2) Measure Not Listed but Substantially Similar. If the proposed measure is not explicitly listed but is substantially similar to a listed measure, the Administrator shall evaluate:
- i. How the proposed measure differs from the listed measure;
 - ii. Whether the differences affect the nature-based character of the measure;
 - iii. Whether scientific or technical literature supports the proposed variation;
 - iv. Whether other jurisdictions have approved similar measures; and
 - v. Whether the measure has been reviewed and approved by Virginia DEQ, VMRC, or other relevant agencies.
- (3) Innovative or Unlisted Measures. For proposed measures not listed in source documents and not substantially similar to listed measures, the applicant bears the burden of demonstrating:
- i. The measure uses environmental processes, natural systems, or natural features;
 - ii. The measure will provide water quality, flood reduction, or coastal resilience benefits;
 - iii. Scientific or engineering analysis supports the measure's effectiveness;
 - iv. The measure is consistent with the goals and purposes of the Chesapeake Bay Preservation Act;
 - v. Professional engineer, landscape architect, or certified ecologist has designed the measure; and
 - vi. Monitoring and adaptive management plan is included to verify performance.
- (d) Conflicting Source Documents. If source documents provide conflicting guidance on a proposed measure:
- (1) The Administrator shall give priority to:
 - i. More recent guidance over older guidance;
 - ii. Virginia-specific guidance over general guidance;
 - iii. Guidance from agencies with direct regulatory authority (VMRC for tidal areas, DEQ for water quality); and
 - iv. Guidance that is more protective of water quality and buffer functions.
 - (2) The Administrator may consult with the relevant state agencies to resolve conflicts.
 - (3) The Administrator shall document the basis for resolving the conflict in the approval decision.
- (e) Prohibited Measures. The following measures are not eligible as adaptation measures under this section, regardless of listing in source documents:
- (1) Vertical seawalls, bulkheads, or revetments without natural features;
 - (2) Measures consisting primarily of impervious surfaces;
 - (3) Measures that require removal of mature trees beyond what is necessary under Section 2.04;

- (4) Measures that would result in net loss of wetland acreage, function, or ecosystem services; or
- (5) Measures inconsistent with VMRC Tidal Wetlands Guidelines' preference for living shorelines.
- (f) Pre-Application Review of Eligibility. Applicants are encouraged to request preliminary determination of eligibility by submitting:
 - (1) Description of proposed measure;
 - (2) Design plans or conceptual drawings;
 - (3) Citation to source document or supporting technical literature; and
 - (4) Site conditions assessment.
- (g) The Administrator shall provide written response to eligibility inquiries within 15 business days.
- (h) Written Determination for Non-Listed Measures. When evaluating proposed adaptation measures under subsection (c)(2) (substantially similar measures) or subsection (c)(3) (innovative or unlisted measures), the Administrator shall prepare a written determination that includes:
 - (1) Description of the proposed measure and its characteristics;
 - (2) Identification of whether measure is listed, substantially similar, or innovative/unlisted;
 - (3) If substantially similar, analysis per subsection (c)(2) of differences from listed measure and supporting rationale;
 - (4) If innovative/unlisted, findings addressing each element of subsection (c)(3);
 - (5) If conflicting source documents exist, explanation of conflict resolution per subsection (d);
 - (6) Specific basis for finding measure is or is not eligible; and
 - (7) Any conditions on eligibility.

This written determination facilitates transparency and any appeals pursuant to City Code § 14-294.

Section 4.03 Examples of Acceptable Adaptation Measures

The following represent categories of acceptable nature-based adaptation measures:

- (a) Living Shorelines: Combination of marsh sills, vegetated marsh terraces, oyster reef breakwaters, and native plantings;
- (b) Bioretention and Rain Gardens: Vegetated depressions that capture, treat, and infiltrate stormwater;
- (c) Regenerative Stream Conveyance: Stream restoration approaches that reconnect floodplains and restore natural channel processes;
- (d) Wetland Creation and Enhancement: Establishment or improvement of tidal and nontidal wetlands;

- (e) Native Vegetation Establishment: Strategic planting of trees, shrubs, and herbaceous vegetation to stabilize soils, enhance buffer functions, and ecosystem services;
- (f) Natural Berms and Swales: Earthen features that provide flood storage and conveyance using native vegetation; and
- (g) Oyster and Mussel Reefs: Bivalve habitat structures that attenuate waves and filter water.

Section 4.04 Application Requirements

Applications shall include completion of the DEQ adaptation measure checklist, demonstrating compliance with nature-based solution criteria. Applications for adaptation measures in resource protection areas shall include:

- (a) Project Description.
 - (1) Type of adaptation measure proposed;
 - (2) Purpose and objectives;
 - (3) Expected performance and benefits; and
 - (4) Source document identifying measure as eligible.
- (b) Site Analysis.
 - (1) Existing conditions assessment;
 - (2) Identification of climate vulnerabilities; and
 - (3) Evaluation of site suitability for proposed measure.
- (c) Design Plans.
 - (1) Detailed engineering or landscape plans;
 - (2) Cross-sections and profiles;
 - (3) Planting plans with species list; and
 - (4) Construction sequencing.
- (d) Specifications Compliance.
 - (1) Demonstration that design meets applicable specifications from source document; and
 - (2) Design modifications to address site-specific conditions.
- (e) Impact Analysis.
 - (1) Land disturbance calculations;
 - (2) Mature tree impact assessment;
 - (3) Buffer encroachment justification; and
 - (4) Adjacent property considerations.
- (f) Permit Documentation.
 - (1) Status of required federal, state, and local permits; and
 - (2) Coordination with permitting agencies.

Section 4.05 Use of Fill Standards

Pursuant to City Code § 14-264(5)(f)(4), fill may be permitted as a component of an adaptation measure only when all of the following conditions are met:

(a) Grading and Slope Requirements

- (1) The grading and slope created by the use of fill shall be the minimum necessary based upon project specifications.
- (2) Slopes shall be designed to:
 - i. Minimize erosion potential;
 - ii. Allow establishment of vegetation;
 - iii. Direct runoff away from sensitive areas; and
 - iv. Not exceed 3:1 (horizontal:vertical) unless engineering analysis demonstrates steeper slopes can be adequately stabilized.
- (3) Terracing or other techniques shall be employed on slopes exceeding 3:1.

(b) Fill Material Characteristics

- (1) Fill shall have biogeochemical characteristics suitable to support vegetation growth. The Administrator shall apply standards consistent with Virginia Department of Environmental Quality and U.S. Department of Agriculture Natural Resources Conservation Service guidelines for soil quality, including:
 - i. Organic content: sufficient to support plant establishment and growth (typically minimum 3-5% by weight for mineral soils);
 - ii. pH range: appropriate for intended vegetation (typically 5.5 to 7.5 for most native species);
 - iii. Adequate nutrient levels to support vegetation without requiring fertilizer application; and
 - iv. Absence of contaminants exceeding Virginia DEQ residential or commercial soil screening levels, as applicable.
- (2) Fill shall have permeability adequate to allow infiltration consistent with project specifications. The Administrator shall apply infiltration standards based on the selected adaptation measure's specifications and site conditions:
 - i. For bioretention and infiltration practices: minimum infiltration rate of 0.5 inches per hour consistent with Virginia Stormwater Management Handbook Standard and Specification P-Fil-05 (Bioretention);
 - ii. For other applications: infiltration rates appropriate to support vegetation and prevent ponding; and
 - iii. Clay content limitations as appropriate to the specific adaptation measure and its approved specifications.
- (3) The applicant shall provide:
 - i. Soils analysis report from a Virginia Environmental Laboratory Accreditation Program (VELAP) certified laboratory;
 - ii. Certification that fill material meets applicable specifications; and
 - iii. Source documentation for fill material.

(c) Stormwater Management

- (1) Use of fill shall not exacerbate stormwater runoff to adjacent properties.

- (2) Lateral flow onto adjacent properties shall be controlled through:
 - i. Appropriate grading and slope direction;
 - ii. Installation of vegetated buffers or filter strips along property boundaries;
 - iii. Subsurface drainage systems where needed; and
 - iv. Regular maintenance to ensure continued functionality.
- (3) Post-construction stormwater calculations shall demonstrate no increase in runoff rates or volumes to adjacent properties for 1-year, 2-year, and 10-year storm events.
- (d) Septic System Protection
 - (1) Use of fill shall not negatively impact septic systems and drainfields located within the resource protection area.
 - (2) Minimum separation distances shall be maintained consistent with Virginia Department of Health regulations (12VAC5-610) for onsite sewage systems:
 - i. Horizontal separation as required by VDH standards (typically 25 feet from drainfield boundaries, subject to site-specific VDH review);
 - ii. Fill placement shall not create hydraulic gradient toward drainfields; and
 - iii. No fill placement that would submerge or saturate drainfield area.
 - (3) For properties with septic systems, applicant shall provide:
 - i. Certification from professional engineer or licensed onsite soil evaluator that fill will not impact system functionality; and
 - ii. Monitoring plan to verify system performance post-construction as determined necessary by the Administrator.
- (e) Floodplain Compliance
 - (1) Use of fill shall be consistent with applicable local, state, and federal floodplain requirements, including:
 - i. Federal floodplain management regulations (44 CFR Part 60);
 - ii. City Code Article II, Chapter 14 (Floodplain Management); and
 - iii. Virginia Floodplain Management Regulations.
 - (2) Fill within Special Flood Hazard Areas shall:
 - i. Not cause any increase in Base Flood Elevations unless fully analyzed and approved through Letter of Map Revision process;
 - ii. Be anchored to prevent flotation or lateral movement;
 - iii. Use flood-resistant materials below Base Flood Elevation; and
 - iv. Maintain floodway conveyance capacity.
 - (3) Compensatory flood storage shall be provided at minimum 1:1 ratio if fill displaces flood storage volume.

Section 4.06 Vegetation Preservation and Land Disturbance Minimization

Pursuant to City Code § 14-264(5)(f)(5):

- (a) Mature Tree Preservation.
 - (1) Maximum preservation of existing mature trees is required;

- (2) Part II (Mature Tree Protection) standards apply;
- (3) Tree removal only permitted when necessary, per Section 2.04; and
- (4) Replacement ratios per Section 2.06 apply to trees removed for adaptation measures.
- (b) Land Disturbance Minimization.
 - (1) Limits of disturbance shall be clearly marked on site prior to any clearing or grading;
 - (2) Construction access routes shall be minimized and located to avoid sensitive areas;
 - (3) Phased construction shall be employed to minimize area of exposed soil; and
 - (4) Temporary stabilization measures shall be implemented within seven days of disturbance.
- (c) Indigenous Vegetation Retention.
 - (1) All vegetation not requiring removal for construction shall be preserved;
 - (2) Root protection zones shall be established around preserved trees; and
 - (3) Understory vegetation shall be preserved where feasible.

Section 4.07 Federal, State, and Local Permit Compliance

Pursuant to City Code § 14-264(5)(f)(6), adaptation measures shall comply with all applicable requirements, including but not limited to:

- (a) U.S. Army Corps of Engineers.
 - (1) Section 404 Clean Water Act permit (if wetland impacts); and
 - (2) Section 10 Rivers and Harbors Act permit (if navigable water impacts).
- (b) Virginia Marine Resources Commission.
 - (1) Joint Permit Application for impacts to tidal wetlands, subaqueous lands, or dunes; and
 - (2) Consistency with VMRC Tidal Wetlands Guidelines.
- (c) Virginia Department of Environmental Quality.
 - (1) Section 401 Water Quality Certification; and
 - (2) Virginia Pollutant Discharge Elimination System (VPDES) permit if applicable.
- (d) Virginia Department of Health. Approval if project affects drinking water sources or sewage disposal systems.
- (e) City of Richmond.
 - (1) Water Quality Impact Assessment (as required);
 - (2) Chesapeake Bay Site Plan approval;
 - (3) Building permits;
 - (4) Richmond Erosion and Stormwater Management Program (RESMP) permit; and
 - (5) Coverage under the General VPDES Permit for Discharges from Construction Activities (as required).

Section 4.08 No Conflict with Floodplain Management

Pursuant to City Code § 14-264(5)(d), nothing in these provisions authorizes approval of an adaptation measure that contravenes floodplain management requirements. In the event of conflict

between these regulations and Article II, Chapter 14 (Floodplain Management), the more restrictive provision shall apply.

Section 4.09 Maintenance Requirements

- (a) Approved adaptation measures shall be maintained to ensure continued functionality.
- (b) Maintenance plan shall be submitted with application and address:
 - (1) Inspection frequency (minimum annual);
 - (2) Vegetation management (weeding, replanting, pruning);
 - (3) Structural integrity monitoring;
 - (4) Sediment and debris removal; and
 - (5) Erosion repair procedures.
- (c) Maintenance agreement shall be recorded as a deed restriction running with the land.
- (d) Annual maintenance reports shall be submitted to Administrator for first five years.

PART V - LIVING SHORELINES

City Code Section 14-263(10) provides: "A living shoreline, as defined by Code of Virginia, § 28.2-104.1 may be exempt from additional performance criteria requirements of Section 14-264, including a water quality impact assessment, provided the project minimizes land disturbance, maintains or establishes a vegetative buffer inland of the living shoreline, complies with the fill conditions in section 14-264(5)(f)(4) of this article, and receives approval from the VMRC or the local wetland board, as applicable."

Section 5.01 Purpose

City Code Section 14-263(10) provides that living shorelines may be exempt from additional performance criteria requirements of Section 14-264, including water quality impact assessments, provided specific conditions are met. These provisions establish standards for reviewing living shoreline projects.

Section 5.02 Definition

A living shoreline means a shoreline management practice that provides erosion control and water quality benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural and organic materials, as defined in Virginia Code § 28.2-104.1.

Section 5.03 Applicability of Exemption

A living shoreline project may be exempt from additional performance criteria requirements of Section 14-264, including the requirement for a water quality impact assessment, when all of the following conditions are satisfied:

- (a) The project minimizes land disturbance;
- (b) The project maintains or establishes a vegetative buffer inland of the living shoreline;
- (c) The project complies with fill conditions in Section 14-264(5)(f)(4); and
- (d) The project receives approval from Virginia Marine Resources Commission (VMRC) or the local wetland board, as applicable.

Section 5.04 Land Disturbance Minimization

- (a) Total land disturbance shall not exceed area necessary for living shoreline installation.
- (b) Evaluation of Disturbance Minimization. The Administrator shall evaluate whether land disturbance is minimized by considering:
 - (1) Upland Disturbance Assessment.
 - i. Whether the proposed clearing is limited to construction footprint, access routes, and staging areas;
 - ii. Whether existing cleared areas are utilized before clearing vegetated areas;
 - iii. Whether disturbance area is proportionate to project scale (projects with upland clearing exceeding 30% of the living shoreline linear footage require enhanced justification);
 - iv. Whether phased construction is proposed to minimize the area of concurrent disturbance; and
 - v. Whether post-construction restoration of temporarily disturbed areas is planned.
 - (2) Access Route Evaluation.
 - i. Whether access routes follow existing paths, driveways, or previously disturbed areas;
 - ii. Whether route alignment minimizes impacts to mature trees and other vegetation;
 - iii. Whether route width is limited to minimum necessary for equipment operation (typically 10-15 feet for most equipment);
 - iv. Whether temporary access mats or similar measures are used to reduce soil compaction and vegetation damage; and
 - v. Whether access route will be restored with appropriate vegetation after construction.
 - (3) Staging Area Evaluation.
 - i. Whether staging areas are located outside resource protection area;
 - ii. If staging in resource protection area is necessary, whether it is limited to previously disturbed areas;
 - iii. Whether staging area size is proportionate to project needs; and
 - iv. Whether erosion and sediment controls protect staging areas.
- (c) Presumptions and Standards.

- (1) Presumption of Excessive Disturbance. Upland disturbance exceeding any of the following creates a presumption that disturbance is not minimized:
 - i. Clearing extending more than 50 feet landward of the living shoreline crest;
 - ii. Clearing exceeding 50% of the area between the living shoreline and existing structures or improvements; or
 - iii. Removal of mature trees not directly conflicting with construction activities.
- (2) Overcoming Presumption. Applicant may overcome the presumption by demonstrating:
 - i. Specific site constraints requiring greater disturbance (steep slopes, access limitations, soil conditions);
 - ii. Project specifications from VMRC or engineer requiring specific work areas;
 - iii. Safety requirements for equipment operation; or
 - iv. Temporary disturbance with comprehensive restoration plan.
- (d) Access routes for equipment shall:
 - i. Use existing cleared areas where possible;
 - ii. Be minimum width necessary for equipment operation; and
 - iii. Be restored to pre-construction contours and vegetation upon completion.
- (e) Staging areas shall be located outside resource protection area where feasible.
- (f) Documentation Requirements. Applications shall include:
 - (1) Limits of disturbance clearly shown on site plan;
 - (2) Narrative explaining why proposed disturbance is minimum necessary;
 - (3) Construction sequencing plan showing phased approach to minimize concurrent disturbance;
 - (4) Identification of access routes and staging areas with justification for locations; and
 - (5) Restoration plan for temporarily disturbed areas.
- (g) Written Determination for Disturbance Evaluation. When evaluating whether land disturbance is minimized under subsection (b), particularly when upland disturbance exceeds presumptive thresholds in subsection (c)(1), the Administrator shall prepare a written determination that includes:
 - (1) Calculation of proposed disturbance in relation to project scale;
 - (2) Identification of whether presumption of excessive disturbance applies;
 - (4) If presumption applies, evaluation of applicant's evidence under subsection (c)(2) to overcome presumption;
 - (5) Assessment of each evaluation factor in subsection (b)(1), (2), and (3);
 - (6) Finding as to whether disturbance is minimized; and
 - (7) Any conditions imposed to further minimize disturbance.

This written determination shall be maintained as part of the application record.

Section 5.05 Vegetative Buffer Requirements

The project shall maintain or establish a vegetative buffer inland of the living shoreline by:

- (a) Maintaining Existing Buffer.
 - (1) Preserving all existing native vegetation between living shoreline and upland development;
 - (2) Protecting mature trees per Part II standards; and
 - (3) Avoiding unnecessary clearing.
- (b) Establishing New Buffer. Where existing vegetation is sparse or absent:
 - (1) Planting native vegetation appropriate to site conditions;
 - (2) Using species from Native Plants for Virginia's Capital Region, published by the Plant RVA Natives Campaign are preferred;
 - (3) Achieving minimum 80% coverage within two growing seasons; and
 - (4) Including mixture of trees, shrubs, and herbaceous plants.
- (c) Buffer Width Determination. The Administrator shall determine appropriate buffer width based on the following framework:
 - (1) Minimum Standards. Buffer width shall be sufficient to:
 - i. Provide meaningful water quality protection through vegetation uptake and filtration;
 - ii. Stabilize soils landward of the living shoreline structure;
 - iii. Provide habitat connectivity between upland and aquatic environments; and
 - iv. Allow for buffer migration as sea levels rise.
 - (2) Evaluation Factors. The Administrator shall consider:
 - i. VMRC permit conditions and recommendations;
 - ii. Project-specific design specifications from qualified professional;
 - iii. Site slope, soil type, and existing vegetation;
 - iv. Distance to existing structures or improvements;
 - v. Sea level rise projections and anticipated buffer migration needs;
 - vi. Width of buffer that can be successfully established given site constraints; and
 - vii. Comparable buffer widths approved for similar projects.
 - (3) Presumptive Standards.
 - i. Buffer width of at least 20 feet creates a presumption of adequacy for low-slope sites (less than 10% slope) with stable soils;
 - ii. Buffer width of at least 35 feet creates a presumption of adequacy for moderate-slope sites (10-20% slope) or sites with erodible soils;
 - iii. Buffer width of at least 50 feet creates a presumption of adequacy for steep-slope sites (greater than 20% slope) or sites with highly erodible soils;
 - iv. Where existing structures or site constraints prevent achieving presumptive widths, the Administrator may approve reduced buffer width with enhanced

planting density, additional erosion controls, or other compensatory measures.

(4) Documentation Requirements. Applications shall include:

- i. Site plan showing proposed buffer width and limits;
- ii. Topographic information showing slopes;
- iii. Soil information relevant to vegetation establishment;
- iv. Distance from proposed buffer to existing structures;
- v. Planting plan for buffer establishment; and
- vi. If requesting buffer width below presumptive standards, justification and proposed compensatory measures.

(5) Written Determination. The Administrator shall document the approved buffer width and the basis for the determination, including:

- i. Which evaluation factors were most significant;
- ii. How the approved width satisfies minimum standards;
- iii. Any conditions or compensatory measures required; and
- iv. Consistency with VMRC permit conditions.

The written determination shall be maintained as part of the application record and facilitates any appeals pursuant to City Code § 14-294. Where buffer width below presumptive standards is approved, the determination shall specifically address how compensatory measures adequately substitute for additional buffer width.

(d) Buffer Management.

The property owner shall manage and maintain the vegetative buffer in perpetuity, using best management practices sufficient to sustain the water quality, soil stabilization, and habitat functions for which the buffer is required. Failure to maintain the vegetative buffer may result in enforcement action by the Administrator. Best management practices shall include, at a minimum:

- (1) Invasive species control;
- (2) Replacement of dead or dying plants; and
- (3) Prohibition on mowing, fertilizer application, or pesticide use within the buffer.

The requirements of this subsection state minimum management standards and do not limit the Administrator's authority to require additional or more stringent management measures as a condition of approval where site conditions warrant.

Section 5.06 Fill Compliance

The project shall comply with all fill conditions established in Section 14-264(5)(f)(4) and implemented through Section 4.05 of these regulations, including:

- (a) Minimum necessary grading and slopes;
- (b) Appropriate fill material characteristics;

- (c) Stormwater management controls;
- (d) Septic system protection (if applicable); and
- (e) Floodplain compliance.

Section 5.07 VMRC

- (a) For projects in VMRC jurisdiction (tidal wetlands, subaqueous lands, coastal primary sand dunes), the applicant shall obtain required approval from the Virginia Marine Resources Commission.
- (b) The applicant shall submit to the Administrator prior to RESMP permit issuance:
 - (1) Copy of approved Joint Permit Application;
 - (2) All permit conditions and required mitigation; and
 - (3) Final approved plans.
- (c) Living shoreline project shall be constructed in accordance with VMRC-approved plans and conditions.

Section 5.08 Application Process for Exemption

- (a) Applicant shall submit request for living shoreline exemption including:
 - (1) Project plans showing living shoreline design;
 - (2) Narrative demonstrating compliance with Section 5.03 conditions;
 - (3) Land disturbance calculations;
 - (4) Vegetative buffer plan;
 - (5) Fill material specifications and calculations; and
 - (6) Status of VMRC.
- (b) Administrator shall review for compliance with exemption criteria.
- (c) If exemption is granted:
 - (1) Water quality impact assessment is not required;
 - (2) Project must still comply with all other applicable City Code requirements; and
 - (3) Chesapeake Bay Site Plan approval still required per Section 14-263(12).
- (d) If exemption is denied:
 - (1) Project must comply with full requirements of Section 14-264;
 - (2) Water quality impact assessment required; and
 - (3) Resiliency assessment required.

Section 5.09 Construction and Post-Construction Requirements

- (a) Pre-construction meeting with City staff required.
- (b) Erosion and sediment control measures per Article V, Chapter 14.
- (c) Construction monitoring and inspections by a City erosion and stormwater inspector.
- (d) As-built documentation required within 30 days of completion, prior to the release of any performance bonds and termination of coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities

- (e) Vegetation monitoring for two years post-construction:
 - (1) 80% survival rate required;
 - (2) Replanting if survival rate not achieved; and
 - (3) Annual monitoring reports to Administrator.

PART VI - BUFFER AREA MODIFICATIONS FOR SIGHT LINES, VISTAS, AND ACCESS PATHS

City Code Section 14-264(5)(b) provides: "Trees may be pruned or removed as necessary to provide for sight lines and vistas, provided that, where removed, they shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution... When trees are proposed for removal to provide for site lines, vista, and access paths, they shall be replaced with trees as appropriate to site conditions and in such a manner as to maximize the buffer function and to protect the quality of state waters."

City Code Section 14-264(5)(c) provides: "Any path shall be constructed and surfaced so as to effectively control erosion."

Section 6.01 Purpose

City Code Section 14-264(5)(b) permits trees to be pruned or removed as necessary to provide for sight lines and vistas, provided that removed trees are replaced with equally effective vegetation. These provisions establish standards for reviewing and approving such modifications.

Section 6.02 Applicability

These provisions apply to requests to modify buffer area vegetation for sight lines, vistas, and access paths as permitted under Section 14-264(5).

Section 6.03 Sight Lines and Vistas - Standards

- (a) Necessity Determination. Tree removal for sight lines and vistas is permitted only when:
 - (1) Property owner demonstrates specific view objectives;
 - (2) Pruning alone is insufficient to achieve objectives; and
 - (3) Removal is limited to minimum number of trees necessary.
- (b) Prohibited Purposes. Tree removal shall not be approved for:
 - (1) General "opening up" of wooded areas without specific view objective;
 - (2) Removal of healthy trees solely for aesthetic preferences;
 - (3) Clearing that would compromise buffer water quality functions; or
 - (4) Negatively impact ecosystem services.
- (c) Preservation Priority.

- (1) Mature trees shall be preserved per City Code § 14-264(5)(a) and Part II of these regulations;
- (2) Pruning shall be employed in lieu of removal where feasible; and
- (3) Understory and shrub vegetation shall be managed to provide sight line while maintaining canopy.

Section 6.04 Application Requirements

Applications for buffer modifications for sight lines and vistas shall include:

- (a) Site plan showing:
 - (1) All existing vegetation with trees identified by species and DBH;
 - (2) Specific trees proposed for removal or pruning;
 - (4) Sight line or vista diagram with angles and distances; and
 - (5) Proposed replacement vegetation locations.
- (b) Written justification including:
 - (1) Description of view objective;
 - (2) Explanation why pruning is insufficient; and
 - (3) Assessment of alternatives considered.
- (c) Replacement and mitigation plan per Section 6.05.
- (d) Photographs:
 - (1) Current conditions from viewpoint location;
 - (2) Trees proposed for removal; and
 - (3) View simulation showing post-modification conditions.

Section 6.05 Replacement Vegetation Requirements

Pursuant to City Code § 14-264(5)(b), trees removed for sight lines and vistas shall be replaced with vegetation that is equally effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution. Additionally, replacement shall include trees as appropriate to site conditions and in a manner to maximize buffer function and protect water quality.

- (a) Replacement Standards
 - (1) Replacement Ratio.
 - i. 2:1 for canopy trees (two trees planted for each one removed); and
 - ii. 3:2 for understory trees (three trees planted for every two removed).
 - (2) Tree Specifications.
 - i. Minimum 2-inch caliper for canopy species;
 - ii. Minimum 1.5-inch caliper for understory species;
 - iii. Native species per Native Plants for Virginia's Capital Region, published by the Plant RVA Natives Campaign are preferred; and
 - iv. Species selection based on site hydrology and soil conditions.
 - (3) Location.

- i. Within buffer area, outside of sight line/vista corridor;
- ii. Positioned to maximize water quality benefits; and
- iii. Consideration given to future mature size to avoid conflicts with sight line.

(b) Supplemental Plantings

In addition to tree replacement, the following supplemental plantings shall be provided:

- (1) Shrubs. Native shrubs to provide low-to-mid level vegetation screening.
 - i. Minimum 3-gallon container size;
 - ii. Ratio: 5 shrubs per tree removed; and
 - iii. Species appropriate for wet to moderate moisture conditions.
- (2) Herbaceous Plants. Native perennials and grasses.
 - i. Planted on minimum 2-foot centers; and
 - ii. Minimum coverage area equal to canopy area of removed trees.

Section 6.06 Access Paths - Standards

Pursuant to City Code § 14-264(5)(c), access paths may be constructed through buffer areas subject to proper surfacing for erosion control.

- (a) Path Width. The Administrator shall approve minimum path width necessary for intended use, considering pedestrian access needs and minimizing buffer impacts.
- (b) Alignment.
 - (1) Shall minimize tree removal;
 - (2) Shall avoid steep slopes and erodible soils where possible; and
 - (3) Shall avoid the seaward 50 feet of the buffer unless to provide access to a bridge over water.
- (c) Surface Requirements.
 - (1) Pervious materials preferred (pervious pavers, crushed stone, wood chips);
 - (2) If impervious surface necessary, path shall be designed with edge treatments to promote infiltration; and
 - (3) Surface shall be stable and prevent erosion during rain events, consistent with Virginia Stormwater Management Handbook standards.
- (d) Erosion Control.
 - (1) Appropriate slope for drainage (minimum 1%, maximum 5%);
 - (2) Water bars or other drainage structures on slopes exceeding 3%; and
 - (3) Side slopes stabilized with vegetation.
- (e) Tree Protection.
 - (1) Mature trees per Part II standards;
 - (2) Path alignment adjusted to avoid root zones where feasible; and
 - (3) Root pruning by qualified arborist if path must cross root zone.

Section 6.07 Maintenance and Monitoring

- (a) Property owner responsible for maintaining replacement vegetation.
- (b) Replacement plants dying within two years shall be replaced.
- (c) Monitoring reports submitted annually for two years.
- (d) Administrator may conduct site inspections to verify compliance.

PART VII - SHORELINE EROSION CONTROL PROJECTS

City Code Section 14-264(5)(e) provides: "For shoreline erosion control projects, trees and woody vegetation may be removed, necessary control techniques employed, and appropriate vegetation established to protect or stabilize the shoreline in accordance with the best available technical advice and applicable permit conditions or requirements... Shoreline erosion control within the resource protection area shall be consistent with the Wetlands Act (Chapter 13, Title 28.2) and the Virginia Marine Resources Commission (VMRC) Tidal Wetlands Guidelines..."

Section 7.01 Purpose

City Code Section 14-264(5)(e) permits removal of trees and woody vegetation for shoreline erosion control projects, subject to specific conditions. These provisions implement standards for reviewing such projects while ensuring consistency with the Wetlands Act and VMRC Tidal Wetlands Guidelines.

Section 7.02 Mature Tree Removal Restrictions

Pursuant to City Code § 14-264(5)(e)(1), removal of mature trees for shoreline erosion control projects shall only be permitted as necessary and consistent with best available technical advice, approved project plans, and applicable permit conditions or requirements.

(a) Determination of Necessity

Mature tree removal shall be considered necessary only when:

- (1) Structural Requirements. Tree location conflicts with essential structural components of approved erosion control design (sills, breakwaters, grading requirements).
- (2) Root System Impacts. Tree roots would be significantly damaged by construction activities, creating safety hazard or likelihood of tree failure.
- (3) Access Requirements. Tree removal necessary for construction equipment access, and no reasonable alternative access exists.
- (4) Safety Hazard. Tree is dead, diseased, dying, or structurally compromised and poses risk to project integrity or worker safety, as certified by an ISA Certified Arborist or a City arborist.

(b) Technical Review Standards

Applications shall demonstrate necessity through:

- (1) Engineering Analysis. Licensed Professional Engineer certification that tree removal is required for project function and safety.
- (2) Design Alternatives. Documentation of design variations considered to avoid or minimize tree removal.
- (3) Construction Sequencing. Plan showing phased approach to minimize impacts to trees during construction.
- (4) Arborist Assessment. For healthy trees proposed for removal, evaluation by an ISA Certified Arborist or a City Arborist of:
 - i. Tree health and structural condition;
 - ii. Potential for tree to survive adjacent construction; and
 - iii. Feasibility of root pruning or protection measures.

Section 7.03 Tree Incorporation Requirements

Pursuant to City Code § 14-264(5)(e)(2), trees shall be incorporated into shoreline erosion control projects as appropriate to site conditions and project specifications, with preference for native species.

(a) Tree Planting as Project Component

- (1) Upland Stabilization. Trees planted landward of erosion control structures to:
 - i. Provide root reinforcement of soils;
 - ii. Reduce surface erosion from upland runoff;
 - iii. Create habitat value; and
 - iv. Maintain buffer functions and ecosystem services.
- (2) Project Integration. Tree planting coordinated with other project components:
 - i. Positioned to not interfere with structure maintenance;
 - ii. Selected for tolerance to site conditions (salt spray, periodic inundation, wind exposure); and
 - iii. Spaced to allow mature growth without crowding.
- (3) Native Species Priority.
 - i. Species from Native Plants for Virginia's Capital Region, published by the Plant RVA Natives Campaign; and
 - ii. Examples include, but are not limited to: River Birch, Black Gum, Sweetbay Magnolia, Bald Cypress, Live Oak, Loblolly Pine.

(b) Planting Specifications

- (1) Tree Size. Minimum 2-inch caliper or 6-foot height for bare root stock.
- (2) Planting Density.
 - i. Minimum 15 trees per 100 linear feet of shoreline;
 - ii. Greater density in areas of tree removal; and
 - iii. Varied spacing to create natural appearance.

- (3) Soil Preparation.
 - i. Appropriate amendments for coastal conditions;
 - ii. Organic matter incorporation; and
 - iii. Mycorrhizal inoculant application.
- (4) Installation. Per industry standards (ANSI A300 Part 6).

Section 7.04 Consistency with Wetlands Act and VMRC Guidelines

Pursuant to City Code § 14-264(5)(e)(3), shoreline erosion control within resource protection areas shall be consistent with the Wetlands Act (Chapter 13, Title 28.2 of Virginia Code) and VMRC Tidal Wetlands Guidelines.

(1) Design Approach Hierarchy

Projects shall follow VMRC's preferred approach hierarchy:

- (1) First Priority. Non-structural approaches (vegetation establishment, beach nourishment).
- (2) Second Priority. Living shorelines (marsh sills with vegetation, oyster reefs).
- (3) Third Priority. Hybrid approaches (combination of natural and structural elements).
- (4) Last Resort. Structural approaches (revetments, bulkheads) only where site constraints preclude other options.

(2) Permit Coordination

- (1) Applications shall include:
 - i. VMRC Joint Permit Application status;
 - ii. Wetland delineation if applicable; and
 - iii. Documentation of compliance with VMRC design standards.
- (2) City approval shall be conditioned upon:
 - i. Receipt of all required state and federal permits;
 - ii. Compliance with permit conditions; and
 - iii. No construction prior to permit issuance.

Section 7.05 Mitigation for Tree Removal

When tree removal is approved as necessary for shoreline erosion control:

- (a) Replacement Ratio. 3:1 for canopy trees removed.
- (b) Planting Location.
 - (1) First priority: Within project area per Section 7.03;
 - (2) Second priority: Elsewhere in buffer area on same property; and
 - (3) Location to maximize erosion control and water quality benefits.
- (c) Species Selection. Native species suitable for coastal conditions.
- (d) Monitoring. Two-year establishment period with annual reports.

PART VIII - WATER QUALITY IMPACT ASSESSMENTS

City Code Section 14-264(6) provides: "A water quality impact assessment shall be required for any proposed development within the resource protection area consistent with this division and for any other development in Chesapeake Bay Preservation Areas that the Administrator determines may warrant such assessment because of the unique characteristics of the site or intensity of the proposed use or development. (a) The purpose of the water quality impact assessment is to identify the impacts of proposed development on water quality and lands in the resource protection areas consistent with the goals and objectives of the Act, this article, and the City's programs, and to determine specific measures for mitigation of those impacts."

Section 8.01 Purpose

City Code Section 14-264(6) requires water quality impact assessments for proposed development within resource protection areas and for other development that the Administrator determines may warrant such assessment. These provisions implement detailed standards for preparing and reviewing water quality impact assessments.

Section 8.02 When Required

A water quality impact assessment is required for any proposed development within the resource protection area consistent with Section 14-264; and any other development in Chesapeake Bay Preservation Areas where the Administrator determines assessment is warranted.

(a) Mandatory Assessment Triggers

A water quality impact assessment is mandatory for development in Chesapeake Bay Preservation Areas that meets any of the following thresholds:

(1) Land Disturbance.

- a. Any project involving land disturbance within the resource protection area; and
- b. Any land disturbance equal to or greater than 2,500 square feet within a resource management area.

(2) Impervious Cover.

- i. Any project creating new impervious surface in a resource protection area;
- ii. Any project creating more than 2,500 square feet of new impervious surface in a resource management area; or
- iii. Any project that would result in total site impervious cover exceeding 15% in a resource management area.

(3) Steep Slopes. Any project disturbing more than 2,500 square feet of land on slopes exceeding 15%.

(4) Proximity to Impaired Waters. Any project within 300 feet of a water body listed on Virginia's 303(d) list of impaired waters.

- (5) Cumulative Development. Any project that is part of a phased development where cumulative disturbance across all phases exceeds thresholds in paragraphs (1), (2), or (3).

(b) Discretionary Assessment Factors

For development not meeting mandatory thresholds in subsection A, the Administrator shall evaluate the following factors to determine if a water quality impact assessment is warranted:

(1) Site Sensitivity Indicators.

- i. Presence of highly erodible soils (K factor greater than 0.35);
- ii. Presence of highly permeable soils (potential groundwater contamination pathway);
- iii. Steep slopes between 10-15% affecting more than 25% of development area;
- iv. Shallow depth to seasonal high-water table (less than 2 feet);
- v. Site drains directly to water body without opportunity for overland flow treatment;
- vi. Previous erosion or sedimentation problems on or adjacent to site; or
- vii. Location in a sub watershed where water quality monitoring shows declining trends.

(2) Project Characteristics.

- i. Use involving outdoor storage of materials, chemicals, or waste;
- ii. High intensity uses (restaurants, vehicle service, industrial operations) with potential for spills or contamination;
- iii. Large-scale grading or fill operations altering natural drainage patterns;
- iv. Project proposing reduction or removal of existing vegetation in buffer areas;
- v. Project located on multiple lots with fragmented ownership making long-term maintenance uncertain;
- vi. Redevelopment project that will significantly increase impervious cover or intensity of use; or
- vii. Project requiring variance or exception from standard requirements.

(3) Receiving Water Considerations.

- i. Receiving water is a public water supply source;
- ii. Receiving water supports rare, threatened, or endangered aquatic species;
- iii. Receiving water has high-quality designation or exceptional recreational value;
- iv. Multiple projects proposed in same sub watershed raising cumulative impact concerns; or
- v. Receiving water is already showing signs of stress (erosion, sedimentation, algae growth).

(c) Decision Framework

(1) Scoring System for Discretionary Assessment.

- i. The Administrator shall assign points based on factors present:

- ii. Each site sensitivity indicator in subsection B(1): 2 points
 - iii. Each project characteristic in subsection B(2): 1 point
 - iv. Each receiving water consideration in subsection B(3): 3 points
 - v. Projects scoring 6 or more points create a presumption that water quality impact assessment should be required.
 - vi. Projects scoring 3-5 points warrant further evaluation by Administrator.
 - vii. Projects scoring less than 3 points generally do not require assessment unless site inspection reveals conditions not apparent from application materials.
- (2) Presumption for Assessment. When the scoring system or other factors indicate potential water quality concerns, there is a presumption that water quality impact assessment should be required unless the applicant demonstrates:
- i. Proposed development incorporates design features that address identified concerns;
 - ii. Standard erosion and sediment control and stormwater management measures are clearly adequate for the site; and
 - iii. The project will not create or exacerbate water quality problems.
- (3) Alternative to Full Assessment. For projects scoring 3-5 points or with limited concerns, the Administrator may accept a simplified assessment that:
- i. Addresses only the specific concerns identified;
 - ii. Relies on standard calculation methods rather than detailed modeling;
 - iii. Demonstrates compliance with applicable BMP specifications; and
 - iv. Includes standard monitoring and maintenance commitments.
- (4) Administrator's Written Determination. When exercising discretion under subsection B, the Administrator shall document in writing:
- i. Score assigned under subsection C(1) and factors considered;
 - ii. Why full assessment, simplified assessment, or no assessment was required;
 - iii. Any specific issues the assessment must address;
 - iv. Any standard conditions or BMPs that will be required regardless of assessment; and
 - v. Consistency with similar past determinations.

The written determination shall reference the specific facts that support the assigned score and explain how the determination is consistent with the decision framework in subsections C(1) through C(3). This documentation shall be maintained as part of the application record and facilitates any appeals pursuant to City Code § 14-294.

- (5) Applicant Request for Determination. An applicant may request written determination of whether water quality impact assessment is required by submitting:
- i. Site plan showing proposed development and limits of disturbance;
 - ii. Preliminary stormwater management approach;

- iii. Soil and topographic information;
 - iv. Identification of receiving waters; and
 - v. Description of proposed BMPs and pollution prevention measures.
- (6) The Administrator shall issue determination within 15 business days of receiving complete request.
- (7) Site Inspection. The Administrator may conduct site inspection before making determination, particularly for projects with limited documentation or unique site conditions.
- (8) Economic and Social Considerations. The Administrator's determination shall consider the economic and social costs and benefits of requiring the water quality impact assessment, balancing water quality protection with reasonable development expectations.

Section 8.03 Assessment Objectives

Pursuant to City Code § 14-264(6)(a), the water quality impact assessment shall identify impacts of proposed development on water quality and lands in resource protection areas and determine specific mitigation measures. An approved assessment shall demonstrate either:

- (a) Absence of significant adverse impacts of nonpoint source pollution on topography, soils, environmentally sensitive areas, hydrology, and quality of State waters; or
- (b) That any such adverse impacts are mitigated through best management practices and design measures.

Section 8.04 Assessment Components

The administrative review process is designed to ensure thorough evaluation of applications for development within Chesapeake Bay Preservation Areas, balancing environmental protection with practical development needs. The following steps outline the procedural requirements and proscribe that water quality impact assessments shall include the following components:

- (a) Existing Conditions Analysis
 - (1) Topography and Drainage.
 - i. Site survey showing existing contours at 2-foot intervals;
 - ii. Drainage patterns and flow paths;
 - iii. Identification of natural depression storage areas; and
 - iv. Mapping of existing stormwater infrastructure.
 - (2) Soils.
 - i. NRCS soil survey identification;
 - ii. Soil boring logs for proposed development areas;
 - iii. Evaluation of erosion potential (K factor, LS factor);
 - iv. Permeability and infiltration rates; and
 - v. Depth to seasonal high-water table.

(3) Vegetative Cover.

- i. Existing land cover classification;
- ii. Tree canopy assessment;
- iii. Vegetation condition in buffer areas; and
- iv. Invasive species presence.

(4) Waters and Wetlands.

- i. Identification of all water bodies with perennial flow;
- ii. Wetland delineation (tidal and nontidal);
- iii. Stream classification and condition assessment; and
- iv. Existing water quality data if available.

(5) Current Impervious Cover.

- i. Calculation of existing impervious surfaces;
- ii. Directly connected impervious area (DCIA) assessment; and
- iii. Current runoff characteristics.

(b) Proposed Development Analysis

(1) Site Plan Description.

- i. Proposed grading and final contours;
- ii. Building footprints and impervious surfaces;
- iii. Stormwater management facilities;
- iv. Limits of disturbance; and
- v. Erosion and sediment control measures.

(2) Impervious Cover Changes.

- i. Net change in total impervious area;
- ii. Change in DCIA; and
- iii. Comparison to existing conditions.

(3) Runoff Analysis.

- i. Pre- and post-development runoff calculations for 1-yr, 2-yr, 10-yr, and 25-yr storm events;
- ii. Time of concentration calculations;
- iii. Peak discharge rates and volumes; and
- iv. Changes in hydrology.

(4) Pollutant Loading.

- i. Calculation of total suspended solids (TSS) loading;
- ii. Total phosphorus (TP) loading;
- iii. Total nitrogen (TN) loading; and
- iv. Comparison of pre- and post-development loads.

(c) Impact Evaluation

The assessment shall evaluate potential impacts on:

(1) Surface Water Quality.

- i. Potential for increased sediment delivery to streams;
- ii. Nutrient loading impacts;
- iii. Temperature impacts from loss of shading; and
- iv. Changes to stream hydrology and geomorphology.

(2) Groundwater.

- i. Impacts on infiltration and recharge;
- ii. Potential contamination pathways; and
- iii. Impacts on groundwater-dependent ecosystems.

(3) Resource Protection Area Functions.

- i. Impacts on buffer effectiveness (75% TSS removal, 40% nutrient removal);
- ii. Impacts on wetland hydrology and functions; and
- iii. Impacts on floodplain storage and conveyance.

(4) Aquatic Habitat.

- i. Stream channel stability;
- ii. Riparian habitat quality;
- iii. Wetland habitat quality; and
- iv. Fish and wildlife impacts.

(5) Cumulative Impacts.

- i. Contribution to watershed-scale loading;
- ii. Consideration of other development in sub watershed; and
- iii. Long-term trends in water quality.

(d) Mitigation Measures

The assessment shall propose specific measures to mitigate identified impacts:

(1) Site Design Techniques.

- i. Conservation of natural areas and vegetation;
- ii. Minimization of impervious surfaces;
- iii. Disconnection of impervious areas; and
- iv. Strategic placement of development.

(2) Stormwater Management.

- i. Selection and design of appropriate BMPs;
- ii. Demonstration of compliance with water quality treatment requirements; and
- iii. BMP performance calculations using Virginia Stormwater BMP Clearinghouse methods or approved alternative.

(3) Erosion and Sediment Control.

- i. Enhanced ESC measures beyond minimum requirements;
- ii. Construction phasing to minimize disturbed areas; and
- iii. Stabilization procedures and timelines.

(4) Buffer Enhancements.

- i. Expansion of buffer widths where feasible;

- ii. Buffer revegetation or restoration; and
 - iii. Removal of invasive species.
- (5) Monitoring and Adaptive Management.
- i. Post-construction monitoring plan;
 - ii. Performance standards and triggers for corrective action; and
 - iii. Long-term maintenance commitments.

Section 8.05 Calculation Methodologies

Pursuant to City Code § 14-264(6)(a)(2), calculations shall be performed in accordance with:

- (a) City-Developed Guidelines. Where the City has established specific calculation methods or tools.
- (b) Generally Accepted Engineering Methods. Including but not limited to:
 - (1) Virginia Stormwater BMP Clearinghouse methods;
 - (2) Virginia Runoff Reduction Method;
 - (3) Simple Method for estimating pollutant loads;
 - (4) TR-55 or similar hydrologic modeling; and
 - (5) Rational Method for small sites.
- (c) Approved Models.
 - (1) P8 Urban Catchment Model;
 - (2) WinSLAMM;
 - (3) EPA SWMM;
 - (4) HydroCAD; or
 - (5) Other models approved by Administrator.

Section 8.06 Professional Qualifications

The water quality impact assessment shall be prepared by qualified professionals:

- (a) Licensed Professional Engineer (Virginia): For hydrologic and hydraulic analysis, stormwater design.
- (b) Licensed Professional Geologist (Virginia): For soil and groundwater evaluations if applicable.
- (c) Certified Professional in Erosion and Sediment Control (CPESC): For ESC planning.
- (d) Environmental Scientists: With demonstrated expertise in water quality assessment.

Section 8.07 Report Format and Content

The water quality impact assessment report shall include:

- (a) Executive Summary. Key findings, impacts identified, mitigation proposed.
- (b) Project Description. Location, proposed use, site layout.
- (c) Existing Conditions. Per Section 8.04(A).
- (d) Proposed Development. Per Section 8.04(B).

- (e) Impact Evaluation. Per Section 8.04(C).
- (f) Mitigation Measures. Per Section 8.04(D).
- (g) Conclusions. Demonstration that impacts are avoided or adequately mitigated.
- (h) Appendices.
 - (1) Calculation sheets;
 - (2) Supporting data;
 - (3) Site photographs;
 - (4) Regulatory correspondence; and
 - (5) Professional certifications and seals.

Section 8.08 Review and Approval

- (a) Administrator shall review water quality impact assessment for:
 - (1) Compliance with Section 14-264(6) requirements;
 - (2) Adequacy of existing conditions analysis;
 - (3) Validity of impact assessment methodologies;
 - (4) Appropriateness of proposed mitigation measures; and
 - (5) Demonstration of compliance with City program criteria.
- (b) Administrator may:
 - (1) Request additional analysis or information;
 - (2) Require revision of proposed development to reduce impacts;
 - (3) Require enhanced mitigation measures; or
 - (4) Consult with Virginia DEQ or other agencies.
- (c) Approval shall be based on finding that assessment adequately demonstrates absence of significant adverse impacts or adequate mitigation of identified impacts.
- (d) Approval is conditioned upon:
 - (1) Implementation of all proposed mitigation measures;
 - (2) Construction in accordance with approved plans; and
 - (3) Post-construction verification of BMP installation and performance.

PART IX - ADMINISTRATIVE PROCEDURES

Authority: City Code §§ 14-181, 14-292, 14-293

Section 9.01 Purpose

These provisions establish administrative procedures for implementing the discretionary authority granted to the Administrator under Article IV of Chapter 14, as required by City Code Section 14-293.

Section 9.02 Pre-Application Meeting

- (a) Pre-application meetings are strongly recommended for:

- (1) Any development in resource protection area;
 - (2) Projects requiring resiliency assessment or water quality impact assessment;
 - (3) Adaptation measures proposed in resource protection area;
 - (4) Projects involving mature tree removal; and
 - (5) Living shoreline projects.
- (b) To request pre-application conference:
- (1) Submit request to Administrator;
 - (2) Provide preliminary site plan and project description; and
 - (3) Conference typically scheduled within two weeks.

Section 9.03 Application Submittal

- (a) Complete Application Package. Applications shall include all materials specified in applicable sections of these regulations.
- (b) Number of Copies.
- (1) Electronic submission preferred; and
 - (2) Application Fee. As established by City fee schedule.
 - (3) Professional Certification. All technical reports shall be signed and sealed by appropriately licensed professionals.

Section 9.04 Completeness Review

- (a) Administrator shall review application for completeness within a reasonable period not to exceed 15 business days.
- (b) If incomplete:
- (1) Administrator issues written notice identifying deficiencies;
 - (2) Application processing suspended until deficiencies corrected; and
 - (3) Review timeframe per Section 9.05 begins upon receipt of complete application.
- (c) If complete:
- (1) Administrator issues written notice of complete application; and
 - (2) Review timeframe per Section 9.05 begins.

Section 9.05 Technical Review

- (a) Standard Review Period. 45 days from acceptance of Chesapeake Bay Site Plan, per City Code § 14-203.
- (b) Extended Review. Administrator may extend review period by 30 days with written notice if:
- (1) Complex technical issues require additional analysis;
 - (2) Coordination with other agencies necessary; or
 - (3) Additional information requested from applicant.
- (c) Review Process.
- (1) Evaluation for compliance with applicable requirements;

- (2) Consultation with other City departments, as needed (may occur in conjunction with a Site Plan Review process or RESMP permit plan submittal);
 - (3) Coordination with external agencies (DEQ, VMRC, etc.); and
 - (4) Site inspection if warranted.
- (d) Requests for Additional Information.
- (1) Administrator may request clarification or additional information;
 - (2) Request shall be in writing with reasonable deadline; and
 - (3) Review period tolled during response period.

Section 9.06 Decision

- (a) Approval. Administrator shall approve application if all applicable requirements are satisfied.
- (b) Conditional Approval. Administrator may approve with conditions to:
 - (1) Ensure compliance with specific standards;
 - (2) Require enhanced mitigation measures;
 - (3) Establish monitoring and reporting requirements; or
 - (4) Address site-specific concerns.
- (c) Denial. Administrator shall deny application if:
 - (1) Applicable requirements not satisfied;
 - (2) Impacts cannot be adequately mitigated; or
 - (3) Proposed development inconsistent with City Code provisions.
- (d) Written Decision. All decisions shall be in writing and include:
 - (1) Findings of fact based on the application record;
 - (2) Conclusions regarding compliance with applicable requirements;
 - (3) Where discretion was exercised, reference to the written determination prepared under the applicable substantive section of these regulations (e.g., Sections 2.03(h), 3.02(C)(5), 4.02(h), 5.04(g), 5.05(c)(5), or 8.02(C)(4));
 - (4) Conditions of approval (if applicable);
 - (5) Basis for denial (if applicable), including specific requirements not satisfied; and
 - (6) Statement of appeal rights per City Code § 14-294.

The written decision, together with all supporting written determinations and the application record, shall constitute the administrative record for purposes of any appeal.

Section 9.07 Appeals

The appeal process provides a structured mechanism for applicants to challenge Administrator decisions, ensuring fairness and compliance with due process. Appeals of Administrator decisions shall be processed in accordance with City Code § 14-294:

- (a) Filing. Appeal filed with Director within 30 days of Administrator decision.
- (b) Fee. \$50 payable to City treasury.

- (c) Hearing. Scheduled within 45 days of appeal filing.
- (d) Decision. Director issues written decision within 15 days of hearing.
- (e) Judicial Review. Appeal to Circuit Court within 30 days of Director decision.

Section 9.08 Modifications to Approved Projects

- (a) Minor Modifications. May be approved administratively if:
 - (1) No increase in impacts;
 - (2) Consistent with original approval; and
 - (3) No change to fundamental project characteristics.
- (b) Major Modifications. Require new application if:
 - (1) Substantial change to project design;
 - (2) Increase in impacts; or
 - (3) Change in development type or intensity.

Section 9.09 Permit Validity and Extensions

- (a) Validity Period. Approvals shall remain valid for a period established by the Administrator, consistent with the City's general practices for development approvals and considering the nature and scope of the approved work.
- (b) Extension Requests.
 - (1) Submitted in writing prior to expiration;
 - (2) Extensions may be granted at the Administrator's discretion; and
 - (3) Extension granted if no material changes to applicable requirements or site conditions.
- (c) Expiration. Approval expires if:
 - (1) Construction not commenced within six months; or
 - (2) Substantial work discontinued for one year.

Section 9.10 Compliance Monitoring and Enforcement

Compliance monitoring and enforcement are critical to maintaining the integrity of Chesapeake Bay Preservation Areas, with the following measures implemented to address violations and ensure adherence to approved plans:

- (a) During Construction.
 - (1) City may conduct site inspections;
 - (2) City may issue stop-work orders for violations; and
 - (3) City may issue corrective actions as required.
- (b) Post-Construction.
 - (1) Perform verification inspections prior to certificate of occupancy;
 - (2) Require as-built documentation; and
 - (3) Compile monitoring reports per approved schedule.
- (c) Enforcement. Violations subject to enforcement under City Code § 14-295:

- (1) Civil penalties up to \$5,000 per day;
- (2) Restoration requirements; and
- (3) Legal action, as necessary.

Section 9.11 Waivers and Special Provisions

- (a) Waivers for redevelopment in Intensely Developed Areas shall be processed per 9VAC25-830-140, requiring demonstration of water quality improvements.
- (b) Applications for such waivers shall include a detailed water quality improvement plan, prepared by a qualified professional, and shall be subject to the written decision requirements of Section 9.06(d).

PART X - FORMS AND REPORTING

Section 10.01 Standard Forms

The Administrator shall develop and maintain standard forms for:

- (a) Resource protection area encroachment/development application;
- (b) Water quality impact assessment checklist;
- (c) Resiliency assessment checklist;
- (d) Mature tree removal application;
- (e) Buffer modification application;
- (f) Living shoreline exemption request;
- (g) Monitoring report templates; and
- (h) Maintenance agreement template.

These forms shall incorporate, where appropriate, templates and checklists from DEQ Bay Act Resiliency Guidance to ensure state consistency.

Section 10.02 Annual Reporting

The Administrator will prepare annual report summarizing:

- (a) Number and type of applications processed;
- (b) Approvals, denials, and conditions imposed;
- (c) Mature trees removed and replacement plantings;
- (d) Adaptation measures approved and installed;
- (e) Water quality and resiliency issues identified; and
- (f) Recommendations for program improvements.

The annual report will be submitted to the Department of Environmental Quality each year.

Section 10.03 Website Publication Requirements

In accordance with Va. Code § 62.1-44.15:67(C), the Department shall maintain on the City's website:

- (a) These regulations and all amendments;
- (b) Elements and criteria adopted to implement the City's Chesapeake Bay Preservation Area program;
- (c) Forms and checklists required under Section 10.01;
- (d) Guidance documents and technical resources; and
- (e) The annual reports required under Section 10.02.

PART XI - EFFECTIVE DATE AND SEVERABILITY

Section 11.01 Effective Date

This Regulation shall become effective after adoption and filing in the Director's Office as required by City Code.

Section 11.02 Severability

If any provision of these regulations is found invalid by a court of competent jurisdiction, the remaining provisions shall remain in full force and effect.

Section 11.03 Amendments

These regulations may be amended by the Director as necessary to:

- (a) Maintain consistency with State law and regulations;
- (b) Incorporate updated technical guidance;
- (c) Address implementation issues;
- (d) Improve program effectiveness; or
- (e) Incorporate periodic reviews, at least every five years or as requested by DEQ under 9VAC25-830-260, to align with state guidance.

Section 11.04 Vested Rights

Nothing in these regulations shall be construed to affect vested rights of any landowner under existing law, as protected by Va. Code § 62.1-44.15:79. Determination of vested rights shall be made in accordance with Virginia common law and statutory provisions governing vested rights.