

---

*Appendix A:*

# **ENVIRONMENT ELEMENT**

## **SECTION G: POLICIES RELATED TO TREE CANOPY AND VEGETATION**

(DRAFT)

JULY 9, 2020

---

---

## CONTENTS

---

### **Section G. Policies Related to Tree Canopy and Vegetation**

*(Italicized and underlined text indicates proposed language*

Text with a ~~striketrough~~ indicates language to be removed

All other text is existing and unchanged)

## **Section G. Policies Related to Tree Canopy and Vegetation**

---

Tree canopy and vegetation provide numerous benefits to the urban framework. While they provide an aesthetic appeal, they also serve as food and habitat for wildlife, and enhance the well-being of communities and ecosystems, and provide biodiversity, making them an integral part of development and design. Vegetation provides root systems that help maintain soil integrity, function as natural aquifers, and recharge areas. It reduces erosion, particularly on steep slopes and areas adjacent to waterways. Large trees, especially in groupings, are a particularly valuable environmental resource. The tree canopy in Washington, DC includes approximately 2.5 million trees with a tree cover of 36 percent.<sup>47</sup> Urban vegetation can directly and indirectly affect local and regional air quality by altering the built environment. Urban trees can improve air quality by:

- Reducing temperature and energy costs by providing shade and cover.
- Reducing ozone and other pollutant concentrations.
- Mitigating climate change by storing carbon.
- Enhancing water and soil quality through stormwater retention and reduction of soil erosion.

In addition to these environmental contributions, trees also shade buildings and homes, which reduces energy consumption and provides quality settings for habitation, contributing to the community's overall health. The benefits of tree canopy and vegetation highlight the need to protect and restore urban vegetation, including tree canopy, wherever possible.

### **Trees and Vegetation in the Region**

---

The tree canopy coverage in Washington, DC has decreased since 1950. Increased urbanization and growth has reduced a 50 percent tree canopy coverage to a 36 percent tree canopy coverage in 2014.<sup>48</sup> The region is working to restore vegetation. In 2014, over 12,000 trees were planted around Washington. The District adopted the goal of 40 percent tree canopy coverage by 2032 to improve air and water quality in the [\*District of Columbia Urban Tree Canopy Plan\*](#)<sup>49</sup> (2013). Based on current estimates in the plan, the District, federal agencies, and private property owners will need to plant a total of 216,300 trees over the next 20 years. Federal agencies in Washington are encouraged to participate and meet this target.

The federal government should:

- FE.G.1** ~~Preserve existing vegetation, especially large stands of trees,~~ *especially individual trees, stands, and forests of healthy, native or non-invasive species. Account for existing trees early in the planning and design processes when development occurs to*

maximize preservation and incorporate the natural landscape into the design. In addition:

1. Trees 31.8-inches in diameter (100 inches in circumference) or greater may not be removed, unless:
  - a. Removal is critical to accomplishing the mission of the agency and planning/design alternatives that would preserve such trees have been explored and determined incapable of accommodating program requirements, or
  - b. The tree is considered invasive or hazardous per an Arborist's evaluation.

FE.G.2 ~~When tree removal is necessary, trees should be replaced to prevent a net loss to the project area,~~ Transplant or replace existing trees when they are impacted by development and preservation is not feasible, according to the following procedures:

1. ~~An evaluation of potential tree loss should be made prior to removal. Trees shall be replaced according to the regulations of the local jurisdiction.~~ Transplant healthy, native, or non-invasive trees where practicable. Consult an Arborist and consider the following factors when determining if transplanting is appropriate:
  - a. Tree species, size, and condition
  - b. Historic or cultural significance of the tree (e.g., "witness tree")
  - c. Current location of the tree compared with the proposed location of the tree (e.g., urban condition vs. open field; shade vs. sun)
  - d. Soil quality at the current and proposed locations (e.g., sandy loam vs. silty clay; availability of organic matter)
  - e. Percent of critical root area that can be retained
  - f. Maintenance of trees after transplanting
2. ~~Trees of 10 inch diameter or less will be replaced at a minimum of a one to one basis.~~ Replace trees when they require removal. Replacement trees should increase biodiversity, be native species or non-invasive species<sup>1</sup>, and have a mature canopy spread equivalent to, or greater than, the tree(s) removed. Replacement trees should be planted at a minimum caliper size of 2.5 inches for shade trees, 1.5 inches for ornamental trees, and six-foot height for multi-stem and evergreen trees.

Replace trees according to the following procedures:

- a. Trees less than 10-inches in diameter: Replace one tree for every one tree removed (1:1)

---

<sup>1</sup> Unless such specifications are inconsistent with the intent of culturally or historically significant landscapes.

b. Trees 10-inches in diameter or greater: Tree Diameter (in inches) x Species Rating (as percentage) x Condition Rating (as percentage) = Score

i. Trees are replaced at the following rates, based on the Score:

- 1-4.9 = one tree
- 5-9.9 = two trees
- 10-14.9 = three trees
- 15-19.9 = four trees
- 20-24.5 = five trees
- 25+ = six trees

Example: The replacement formula and score for a 25-inch diameter tree, with a Species Rating of 60% and Condition Rating of 75% is:  $25 \times .60 \times .75 = 11.25$ . The resulting score of 11.25 equates to three trees planted to replace the 25-inch tree.

c. Forests and Stands of Trees: Plant 1.5 acres for every 1 acre removed. Consult with federal and local stakeholders to determine the appropriate density, mixture, and size of replacement plantings.

~~3. Significant trees (diameter greater than 10 inch) will be replaced at a rate derived from a formula of the International Society of Arboriculture, or as established by the local jurisdiction's requirements for tree replacement. Locate replacement or transplanted trees, in order of preference, on:~~

- ~~a. The project site (e.g., within or adjacent to the limits of disturbance)~~
- ~~b. The property where the project site is located~~
- ~~c. Another site within the agency's jurisdiction (authority) only if the preferred locations cannot accommodate the replacement trees without overcrowding, or~~
- ~~d. A combination of the above locations.~~

~~4. The replacement of trees should be located on site, on adjacent properties, or in areas within the site's jurisdiction. Ensure the amount of planting soil volume is consistent with current industry best practices. Consult with federal and local stakeholders to determine the appropriate standards based on the type of tree (e.g., shade tree, ornamental, evergreen, etc.) and location (e.g., above structure, on-grade, etc.).~~

5. Specify replacement trees in accordance with the most current edition of ANSI-Z60.1<sup>2</sup>. Transplant, install, and maintain trees in accordance with the most current edition of ANSI-A300<sup>3</sup>.
6. Offset the balance of replacement trees (if the total quantity of replacement trees cannot be met) with sustainable, low impact development practices on the project site or property. These practices should provide similar environmental benefits to those of canopy trees, such as stormwater capture and treatment, reduced urban heat island effect, and/or carbon sequestration.

- FE.G.3 Enhance the environmental quality of the National Capital Region by preserving existing trees, replacing trees where they have died, and transplanting or replacing trees where they have been removed require removal due to development. Tree preservation, transplant, and replacement should adhere to the ~~standards and guidelines of the local jurisdiction,~~ procedures provided herein to but at a minimum prevent a net ~~tree~~ loss of tree canopy in the development area.
- FE.G.4 Incorporate new trees and vegetation into plans and projects to absorb carbon dioxide, moderate temperatures, minimize energy consumption, reduce pollution, and mitigate stormwater runoff. This includes the use of vegetation in the design and development of green roof projects where feasible and consistent with local regulations.
- FE.G.5 Conserve plant communities native to the site's ecoregion (as defined by the [Council on Environmental Quality](#)).<sup>51</sup> Protect and/or restore areas containing native plant communities, and provide habitat corridors connecting to off-site natural areas or buffers adjacent to off-site natural areas for migrating wildlife.
- FE.G.6 Maintain and preserve woodlands adjacent to waterways, especially to aid in the control of erosion, sediment, and thermal pollution.
- FE.G.7 Encourage the use of native plant species and remove invasive plants where appropriate.
- FE.G.8 Protect and preserve all vegetation designated as special status plants.<sup>52</sup>
- FE.G.9 Use vegetation to minimize building heating and cooling requirements.

---

<sup>2</sup> The American Standard for Nursery Stock as produced by American Horticulture Industry Association (formerly American Nursery & Landscape Association) accredited by the American National Standards Institute; ANSI-Z60.1 is a standardized system of sizing and describing plants to facilitate trade in nursery stock.

<sup>3</sup> The American National Standards Institute; ANSI-300 standards are generally accepted industry standards for tree care practices.

**FE.G.10** Use trees and other vegetation to offset emissions of greenhouse gases from operations. Plant and maintain trees and other vegetation to achieve long-term storage of carbon dioxide following accepted protocols that ensure offsets are permanent and verifiable.

**FE.G.11** Support sustainable practices in federal landscape development to include, but not be limited to, the following:

1. Use of sustainable soil amendments.
2. Reduced irrigation runoff.
3. Reduced greenhouse gas emissions.
4. Use of Integrated Pest Management practices.
5. Reduced potable water consumption and recycling of all organic matter.
6. Introduction of plants that support pollinator species.
7. Selection of vegetation in the appropriate [U.S. Department of Agriculture Plant Hardiness Zone](#),<sup>53</sup> while accounting for regional changes in climate.

**FE.G.12** Use of grass species as lawn should be limited to recreational areas so that major reductions in water, chemicals, maintenance, energy, air and water pollution, and noise occur. Where turf grass is used, species and cultivar selection should reflect the local climate and growing conditions to minimize the need for irrigation and the use of chemicals for feeding, and controlling insects and disease.

---

*Appendix B:*

**SUBMISSION GUIDELINES**

**CHAPTER 2. BUILDING, SITE, AND  
PARK PROJECT SUBMISSION  
GUIDELINES**

(DRAFT)

JULY 9, 2020

---

---

## CONTENTS

---

### **2.7 Submission Content for Preliminary Reviews**

Table 6: Project Report Content for Preliminary Review of Building, Site, and Park Projects

### **2.10 Submission Content for Final Reviews**

Table 8: Project Report Content for Final Review of Building, Site, and Park Projects

## 2.7 Submission Content for Preliminary Reviews

Table 6: Project Report Content for Preliminary Review of Building, Site, and Park Projects

*(Italicized and underlined text indicates proposed language*

~~Text with a strikethrough indicates language to be removed~~

All other text is existing and unchanged)

<b>Project Report Content for Preliminary Review of Building, Site, and Park Projects</b>	
<b>Project Overview</b>	
<b>NCCP Plans and Policies</b>	Describe the proposed project and provide a general summary of compliance with NCCP plans and policies. Staff can provide relevant plans and policies to the applicant.
<b>Description of Project Area</b>	Describe the project area (including surrounding areas) and existing site conditions, including sensitive environmental resources onsite (e.g., natural habitat areas, wetlands, trees, etc.).
<b>Description of the Proposed Development and Alternatives</b>	Describe what is proposed for the project site including the total area of the site to be developed (if applicable) and allocation of land to proposed uses. Describe what other alternatives have or are being considered for the project.
<b>Master Plan Alignment</b>	If the project is part of a master plan, describe any discrepancies between the master plan and what is currently proposed.
<b>Schedule</b>	Provide a schedule for project construction and occupancy (if applicable).
<b>Proposed Schedule / Project Cost Estimate</b>	Provide a total estimated cost of the project and its funding status.
<b>Outreach and Coordination</b>	
<b>Public Engagement</b>	Describe community and local coordination conducted for the project, what concerns or issues were raised, and future plans for ongoing coordination.
<b>Coordination with Federal, State, and Local Jurisdictions</b>	Provide the status of coordination with affected federal agencies and state and local governments. Identify concerns or issues that were raised and future plans for ongoing coordination.
<b>Detailed Project Information and Drawings</b>	
<b>Description of Buildings (if applicable)</b>	Describe existing and proposed buildings including mass, height, and bulk.

<p style="text-align: center;"><b>Site Plan</b></p>	<p>Provide a site plan that shows the relationship of proposed improvements to existing site features. The site plan should include:</p> <ul style="list-style-type: none"> <li>▪ Site boundaries, including dimensions</li> <li>▪ Buildings to remain and be demolished</li> <li>▪ Roadways entrances, and parking areas</li> <li>▪ Major utilities</li> <li>▪ Walkways</li> <li>▪ Fences</li> <li>▪ Walls and other man-made improvements</li> <li>▪ Substantial groupings of trees and shrubs</li> </ul>
<p><b>Project Report Content for Preliminary Review of Building, Site, and Park Projects</b></p>	
<p style="text-align: center;"><b>Vicinity Map</b></p>	<ul style="list-style-type: none"> <li>▪ Show the project in its surrounding context. The vicinity map should contain:</li> <li>▪ Boundaries of proposed site, existing uses, building outlines, streets, and other physical features, both within the site and in the surrounding area extending at least 500 feet in all directions.</li> <li>▪ Existing zoning on non-federal lands surrounding the site and related master plans or proposals for the area if applicable.</li> </ul>
<p style="text-align: center;"><b>Architectural and Design Program (if applicable)</b></p>	<p>Describe the site’s existing architectural and design characteristics and the proposed architectural and design program and features proposed, including a description of the signage proposed. The architectural program should be a general summary of major uses and allocation of space. Provide images or drawings, if available.</p>
<p style="text-align: center;"><b>Landscape and Streetscape Plan (if applicable)</b></p>	<p>Describe the existing site landscaping and streetscape and the improvements proposed, including landscaping, perimeter security features, lighting, and signage and discussion of how the proposed improvements will relate to the adjacent public areas (e.g., streets). Provide images or drawings if available.</p>

<p style="text-align: center;"><b>Transportation and Circulation</b></p>	<p>Describe the transportation and circulation plan for the proposed site. The description should include the following:</p> <ul style="list-style-type: none"> <li>▪ Analysis of existing and proposed transportation access to the site (including roads, transit, bicycle, and pedestrian), including expected changes in volumes and impact those changes are likely to have on existing infrastructure and mode share.</li> <li>▪ If the project is part of a master plan, describe how the project supports and is consistent with the master plan’s transportation and circulation elements. Explain and justify any deviations from the approved master plan.</li> <li>▪ Describe planned onsite circulation improvements (walkways, access corridors).</li> <li>▪ Describe approach or strategies to encourage transit use and alternative modes of transportation to access the site.</li> <li>▪ Describe the parking ratios proposed for the project. Explain any inconsistencies between the ratios proposed, and 1) the approved master plan (if applicable) and 2) the requirement set forth in Section B of the Comprehensive Plan’s Transportation Element. If a deviation is sought from Comprehensive Plan requirements, the proposal should include an analysis and evaluation of the proposed ratios, prepared in consultation with NCPC staff.</li> </ul> <p>This information may be cross-referenced with the TMP if one is required for the project. For any project that will increase employment on a work site to 500 or more employees (existing and new), a separate Transportation Management Plan (TMP) is required. TMPs are strongly encouraged for projects that will increase employment to 100 or more employees. See page 30 for more information on the TMP.</p>
<p style="text-align: center;"><b>Perimeter Security</b></p>	<p>If applicable, discuss the perimeter security requirements of the proposed project, justification for the proposed security, and any improvements that will be</p>
<p><b>Project Report Content for Preliminary Review of Building, Site, and Park Projects</b></p>	
	<p>necessary. Discuss any impacts the security infrastructure may have on the public realm (sidewalks, streets, landscaping, access/circulation for all modes). Include the security requirements on the site plan and show diagrams/illustrations as necessary.</p>
<p style="text-align: center;"><b>Photographs</b></p>	<p>Photographs and aerial imagery of proposed project site and impacted project areas.</p>
<p><b>Environmental and Historical Considerations (may be cross-referenced with any NEPA/NHPA documentation)</b></p>	
<p style="text-align: center;"><b>Historic Preservation</b></p>	<p>Identify the Area of Potential Effect (APE), historic resources within the APE, and any potential impacts. If known resources are present, describe the project’s approach to addressing the resource (e.g., avoidance, rehabilitation, preservation, restoration, or demolition).</p>
<p style="text-align: center;"><b><u>Existing Tree Survey and Inventory (if applicable)</u></b></p>	<p><i><u>Provide a survey plan prepared by an Arborist of existing trees located on and within 15 feet of the project site. The survey should document the location, size, species, critical root zone, and the species and condition ratings of individual trees. The survey and inventory should analyze existing and proposed grade changes and</u></i></p>

	<p><i>include notations indicating the likelihood of the tree's ability to survive construction activity.</i></p> <p><i>Provide a Forest Stand Delineation (FSD) plan prepared by an Arborist or Forester for forests and stands of trees located and within 15 feet of the project site.</i></p>
<b>Natural Resources</b>	Describe natural resources on or near the project area, and the project's anticipated effect on these natural resources such as wetlands and waters, endangered and threatened species, unique or critical habitat, trees, migratory birds, etc.
<b>Energy and Sustainability</b>	Describe how the project's design meets energy conservation and sustainability objectives.
<b>Public Realm and View Sheds (if applicable)</b>	In addition to the Landscape and Streetscape Plan, describe how the project would generally affect the public realm in the project area including a description of the addition or removal of trees; existing view sheds and how the project would affect views; and anticipated changes in light and shadow.
<b>Flooding</b>	<p>Describe if the project is a critical action and how the proposed action will generally (in terms of flooding) affect, or be affected by, neighboring properties. Describe how the proposed design will minimize flood risk to the proposed action and the operations it supports. Describe how the proposed design will minimize impacts to the floodplain.</p> <p>Describe the applicant's floodplain management compliance achieved to date. Note: For federal applicants, this refers to compliance with NEPA and/or their own agency floodplain guidance. For other applicants, this refers to NCPC's NEPA requirements and floodplain guidance.</p> <p><u>If the project involves site selection:</u></p> <ul style="list-style-type: none"> <li>▪ Describe the site selection process, including an explanation of the factors used in decision-making. If sites outside the floodplain were not considered, or a site outside the floodplain was considered and rejected, please explain why.</li> </ul> <p><u>If the project involves investment in existing facilities:</u></p> <ul style="list-style-type: none"> <li>▪ Describe if the applicant considered relocation of existing functions. Does the proposed design make the existing facility and its operations more resilient to flood impacts, and if so, describe how.</li> </ul>
<b>Project Report Content for Preliminary Review of Building, Site, and Park Projects</b>	
<b>Stormwater Management (if applicable)</b>	Describe the overall stormwater management approach and indicate whether the physical features of the stormwater management approach are sufficiently sized and located so that the site plan doesn't change. Confirm coordination with the applicable permitting agency.

## 2.10 Submission Content for Final Reviews

Table 8: Project Report Content for Final Review of Building, Site, and Park Projects

*(Italicized text indicates proposed language*

Text with a ~~strikethrough~~ indicates language to be removed)

<b>Project Report Content for Final Review of Building, Site, and Park Projects</b>	
<b>Project Overview</b>	
<b>NCPC Plans and Policies</b>	Describe the proposed project and provide a general summary of compliance with NCPC plans and policies. Staff can provide relevant plans and policies to the applicant.
<b>Description of Project Area</b>	Describe the project area (including surrounding areas) and existing site conditions, including sensitive environmental resources onsite (e.g., natural habitat areas, wetlands, trees, etc.).
<b>Project Report Content for Final Review of Building, Site, and Park Projects</b>	
<b>Description of the Proposed Development and Alternatives</b>	Describe what is proposed for the project site including the total area of the site to be developed (if applicable) and allocation of land to proposed uses. Describe what other alternatives were considered for the project.
<b>Master Plan Alignment</b>	If the project is part of a master plan, describe any discrepancies between the master plan and what is currently proposed.
<b>Schedule</b>	Provide a schedule for project construction and occupancy (if applicable).
<b>Proposed Schedule / Project Cost Estimate</b>	Provide a total estimated cost of the project and its funding status.
<b>Updates to Previous Submissions</b>	

<p style="text-align: center;"><b>Updates</b></p>	<p>Applicants should update the following items to capture changes and the development of more detailed information since the Concept and/or Preliminary Review and whether they were made in response to the Commission’s comments:</p> <ul style="list-style-type: none"> <li>▪ Project Description</li> <li>▪ Employment</li> <li>▪ Schedule and Cost Estimate</li> <li>▪ Transportation and Circulation</li> <li>▪ Site Plan, Boundary Map and/or Vicinity Map</li> <li>▪ Building Description</li> <li>▪ Viewsheds Description</li> <li>▪ Lighting and Streetscape Plan</li> <li>▪ Architectural and Design Program</li> <li>▪ Photographs</li> <li>▪ Energy and Sustainability</li> <li>▪ Flooding</li> </ul>
<p><b>Outreach and Coordination</b></p>	
<p style="text-align: center;"><b>Public Engagement</b></p>	<p>Provide an update on public engagement activities, including a summary of public comments received on the draft NEPA document (if applicable) and other comments or issues raised by the public since Preliminary Review.</p>
<p style="text-align: center;"><b>Coordination with Federal, State, and Local Jurisdictions</b></p>	<p>Provide the current status of coordination with other federal, state, and local agencies and jurisdictions including a summary of received comments. Provide a high level schedule for additional permits and approvals.</p>
<p><b>Detailed Project Information and Drawings</b></p>	
<p style="text-align: center;"><b>Tree Preservation and Protection Plan</b></p>	<p><i>Provide a tree preservation and protection plan prepared by an Arborist or Forester that documents trees to be removed, trees to be saved, and the location and type of proposed tree preservation practices. Tree preservation practices are to be designed and implemented in accordance with the most recent edition of ANSI-A300.</i></p>
<p style="text-align: center;"><b>Landscape and Grading Plan</b></p>	<ul style="list-style-type: none"> <li>▪ The landscape and grading plan must contain the following information:</li> <li>▪ General locations of all existing-to-remain, existing-to-be-removed, and proposed tree shrubs, and other plant materials;</li> <li>▪ <i><u>A chart that demonstrates the required quantity or acreage of replacement trees and the quantity or acreage of trees proposed;</u></i></li> <li>▪ General identification of proposed plant materials, and, at the final stage, a list of the <del>type</del> <u>genus, species</u>, quantity, and size of proposed plant materials; and</li> <li>▪ Depiction of the final site grading plan.</li> </ul>
<p><b>Project Report Content for Final Review of Building, Site, and Park Projects</b></p>	
	<p>Although a separate landscape and grading plan is preferable, it may be combined with the site plan if proposals are clear and readable. If submitted as a separate plan, the landscape and grading plan must be at the same scale as the site plan.</p>

<b>Floor Plans</b>	<p>Must be submitted for each floor of proposed buildings (a single drawing is sufficient for identical floors). Floor plans must contain the following information:</p> <ul style="list-style-type: none"> <li>▪ Uses allocated to all interior space</li> <li>▪ Interior partitions, stairs, and elevators</li> <li>▪ Overall dimensions, including interior spaces</li> <li>▪ Elevation of each floor level</li> </ul>
<b>Elevation</b>	<p>Elevation of all sides (facades) of proposed buildings or structures must indicate the following:</p> <ul style="list-style-type: none"> <li>▪ Height, bulk, and massing of building or structure</li> <li>▪ Pedestrian and vehicular entrances</li> <li>▪ Fenestration</li> <li>▪ Identification of materials</li> <li>▪ Treatment of the roof and all related appurtenances, including features such as penthouses, ventilation shafts, chimneys, smokestacks, antennas, and related screening.</li> </ul>
<b>Cross Sections</b>	<p>Cross sections of proposed buildings and one or more exterior wall sections showing the proposed installation of principal exterior materials.</p>
<b>Roof Plans</b>	<p>Proposed building roof plans must indicate the following:</p> <ul style="list-style-type: none"> <li>▪ Roof design, including materials and finishes to be used</li> <li>▪ Any mechanical equipment, solar arrays or other roof appurtenances in addition to proposed screening.</li> </ul>
<b>Construction and Equipment Drawings</b>	<p>For exterior building features, site work, and any other proposals requiring coordination with offsite facilities and activities.</p>
<p><b>Environmental and Historical Considerations (may be cross-referenced with NEPA/NHPA documentation)</b></p>	
<b>Historic Preservation</b>	<p>Provide any updates to the previously submitted information regarding historic resources within the Area of Potential Effect, and any potential impacts. Describe the project's approach to addressing the resource (e.g., avoidance, rehabilitation, preservation, restoration, or demolition).</p>
<b>Natural Resources</b>	<p>Describe natural resources on or near the project area, and the project's anticipated effect on these natural resources such as wetlands and waters, endangered and threatened species, unique or critical habitat, trees, migratory birds, etc. Describe the project's strategies for minimizing/avoiding impacts to these resources.</p>
<p><b>Project Report Content for Final Review of Building, Site, and Park Projects</b></p>	
<b>Public Realm and View Sheds</b>	<p>Based on a more developed project design, provide an updated description of the project's effect on the public realm in the project area, including:</p> <ul style="list-style-type: none"> <li>▪ The addition or removal of trees</li> <li>▪ Impacts on viewsheds</li> <li>▪ Changes in light and shadow</li> <li>▪ Addition of perimeter security features</li> </ul>

<p style="text-align: center;"><b>Flooding</b></p>	<p>Describe any changes to previously provided information, changes to the action since the preliminary review and steps taken to address issues raised by the Commission.</p> <p>Describe the applicant's floodplain management compliance achieved to date. Note: For federal applicants, this refers to compliance with NEPA and/or their own agency floodplain guidance. For other applicants this refers to NCPC's NEPA requirements and floodplain guidance.</p>
<p style="text-align: center;"><b>Stormwater Management (if applicable)</b></p>	<p>Provide the following:</p> <ul style="list-style-type: none"> <li>▪ A stormwater management narrative explaining how the master plan complies with all applicable federal (1.7" of rain per Section 438 of the Energy, Independence and Security Act), state, and local requirements (varied based on jurisdiction).</li> <li>▪ General calculations including required and provided volume.</li> <li>▪ Description/illustration of the reduction in impervious area.</li> <li>▪ Description of low impact development strategies, including capacity and size.</li> </ul>

---

*Appendix C:*

**RESOURCE GUIDE**

**TREE PRESERVATION AND  
REPLACEMENT**

(DRAFT)

JULY 9, 2020

---

---

## **CONTENTS**

---

**Overview**

**What Does the Comprehensive Plan say about Tree Preservation and Replacement?**

**Legislation and NCPC Authorities**

**Key Definitions**

**Applicant Resources**

## Overview

---

Trees are an important natural resource that provide numerous environmental, health, and community benefits to the National Capital Region (NCR). Individual trees and forest cover provide food and habitat for wildlife, filter groundwater, stabilize soils, and reduce surface runoff and erosion that is harmful to waterways. They sequester carbon and reduce energy consumption with the shade they provide to buildings and outdoor spaces. They also provide quality settings for outdoor gatherings and recreation, reduce pollutants, and improve air quality. Overall, the benefits of trees highlight the need to protect and restore tree canopy affected by development.

Development in the NCR is often necessary to further the missions of federal government agencies. The National Capital Planning Commission's Tree Preservation and Replacement Policy (Policy) establishes procedures that the federal government should follow to prevent and mitigate tree canopy loss due to development. The Policy prioritizes tree preservation and offers alternatives to mitigate tree canopy loss if preservation is not possible. Since development occurs on land in Washington D.C. and the environs in Maryland and Virginia, the Policy incorporates the strengths of tree preservation and replacement practices of multiple jurisdictions in the NCR, resulting in a progressive, consistent approach to preserving and replacing individual trees and forests on federal land throughout the region.

This guide is intended to summarize the tree preservation and replacement policies in the Federal Environment Element of the Comprehensive Plan for development project applicants and also serve as a reference for NCPC staff in review of federal development plans that will affect existing tree canopy.

## What Does the Comprehensive Plan say about Tree Preservation and Replacement?

---

### The federal government should:

- FE.G.1** Preserve existing trees, especially individual trees, stands, and forests of healthy, native or non-invasive species. Account for existing trees early in the planning and design processes when development occurs to maximize preservation and incorporate the natural landscape into the design. In addition:
1. Trees 31.8-inches in diameter (100 inches in circumference) or greater may not be removed, unless:
    - a. Removal is critical to accomplishing the mission of the agency and planning/design alternatives that would preserve such trees have been explored and determined incapable of accommodating program requirements, or
    - b. The tree is considered invasive or hazardous per an Arborist's evaluation.
- FE.G.2** Transplant or replace existing trees when they are impacted by development and preservation is not feasible, according to the following procedures:
1. Transplant healthy, native, or non-invasive trees where practicable. Consult an Arborist and consider the following factors when determining if transplanting is appropriate:
    - a. Tree species, size, and condition

- b. Historic or cultural significance of the tree (e.g., “witness tree”)
- c. Current location of the tree compared with the proposed location of the tree (e.g., urban condition vs. open field; shade vs. sun)
- d. Soil quality at the current and proposed locations (e.g., sandy loam vs. silty clay; availability of organic matter)
- e. Percent of critical root area that can be retained
- f. Maintenance of trees after transplanting

2. Replace trees when they require removal. Replacement trees should increase biodiversity, be native species or non-invasive species<sup>1</sup>, and have a mature canopy spread equivalent to, or greater than, the tree(s) removed. Replacement trees should be planted at a minimum caliper size of 2.5 inches for shade trees, 1.5 inches for ornamental trees, and six-foot height for multi-stem and evergreen trees.

Replace trees according to the following procedures:

- a. Trees less than 10-inches in diameter: Replace one tree for every one tree removed (1:1)
- b. Trees 10-inches in diameter or greater: Tree Diameter (in inches) x Species Rating (as percentage) x Condition Rating (as percentage) = Score
  - i. Trees are replaced at the following rates, based on the Score:
    - 1-4.9 = one tree
    - 5-9.9 = two trees
    - 10-14.9 = three trees
    - 15-19.9 = four trees
    - 20-24.5 = five trees
    - 25+ = six trees

Example: The replacement formula and score for a 25-inch diameter tree, with a Species Rating of 60% and Condition Rating of 75% is:  $25 \times .60 \times .75 = 11.25$ . The resulting score of 11.25 equates to three trees planted to replace the 25-inch tree.

- c. Forests and Stands of Trees: Plant 1.5 acres for every 1 acre removed. Consult with federal and local stakeholders to determine the appropriate density, mixture, and size of replacement plantings.

3. Locate replacement or transplanted trees, in order of preference, on:
- a. The project site (e.g., within or adjacent to the limits of disturbance)
  - b. The property where the project site is located
  - c. Another site within the agency’s jurisdiction (authority) only if the preferred locations cannot accommodate the replacement trees without overcrowding, or

---

<sup>1</sup> Unless such specifications are inconsistent with the intent of culturally or historically significant landscapes.

d. A combination of the above locations.

4. Ensure the amount of planting soil volume is consistent with current industry best practices. Consult with federal and local stakeholders to determine the appropriate standards based on the type of tree (e.g., shade tree, ornamental, evergreen, etc.) and location (e.g., above structure, on-grade, etc.).
5. Specify replacement trees in accordance with the most current edition of ANSI-Z60.1<sup>2</sup>. Transplant, install, and maintain trees in accordance with the most current edition of ANSI-A300<sup>3</sup>.
6. Offset the balance of replacement trees (if the total quantity of replacement trees cannot be met) with sustainable, low impact development practices on the project site or property. These practices should provide similar environmental benefits to those of canopy trees, such as stormwater capture and treatment, reduced urban heat island effect, and/or carbon sequestration.

**FE.G.3** Enhance the environmental quality of the National Capital Region by preserving existing trees, replacing trees where they have died, and transplanting or replacing trees where they require removal due to development. Tree preservation, transplant, and replacement should adhere to the procedures provided herein to prevent a net loss of tree canopy in the development area.

## Legislation and NCPA Authorities

---

The Policy applies to master plans and projects on federal land in the National Capital Region, including commemorative works on land administered by the National Park Service and the General Services Administration.

The Policy does not apply to projects on District land or projects on land in Maryland purchased with Capper-Cramton funds. These projects should comply with the applicable policies and regulations of the local jurisdiction in which the project is located.

## Key Definitions

---

---

<sup>2</sup> The *American Standard for Nursery Stock* as produced by American Horticulture Industry Association (formerly American Nursery & Landscape Association) accredited by the American National Standards Institute; ANSI-Z60.1 is a standardized system of sizing and describing plants to facilitate trade in nursery stock.

<sup>3</sup> The American National Standards Institute; ANSI-300 standards are generally accepted industry standards for tree care practices.

Afforestation: The establishment of forest or planting of trees on an area that was not previously forested.

ANSI-A300: The American National Standards Institute; ANSI-300 standards are generally accepted industry standards for tree care practices.

ANSI-Z60.1: The *American Standard for Nursery Stock* as produced by American Horticulture Industry Association (formerly American Nursery & Landscape Association) accredited by the American National Standards Institute; ANSI-Z60.1 is a standardized system of sizing and describing plants to facilitate trade in nursery stock.

Arborist: A professional certified by the International Society of Arboriculture (ISA), or registered with the American Society for Consulting Arborists (ASCA).

Caliper: Refers to the tree trunk measurement (diameter) of nursery stock trees at 6 to 12 inches above the soil surface.

Condition Rating: A value from 0 to 100 rated in accordance with the 9<sup>th</sup> Edition of the Council of Tree and Landscape Appraisers (CTLA) *Guide to Plant Appraisal*. The value assigned indicates the observed condition of a tree according to factors such as wounds, decay, storm damage, or insect or disease damage.

Diameter: Refers to the diameter of a tree trunk measured at 4.5 feet above the ground.

Forest: A biological community dominated by extensive tree cover and other woody plants, frequently consisting of stands of trees that are often characterized based on species, age, and size class.

Forester: A professional certified by the Society of American Foresters (SAF), or registered with the forester licensing board in the jurisdiction in which the service is provided.

Forest Stand Delineation (FSD): A plan that identifies existing forest cover and environmental features on a proposed development site. An FSD plan includes an accurate depiction of the forest species, composition, age, condition, location, and acreage existing on a property.

Healthy: A tree with a condition rating of "Fair," "Good," or "Excellent" in accordance with the 9<sup>th</sup> Edition of the Council for Tree and Landscape Appraisal (CTLA) *Guide to Plant Appraisal*.

Invasive Species: Alien or exotic plant species whose introduction does or is likely to cause economic or environmental harm, or harm to human health.

Native Species: A plant species that occurs in a particular place without human intervention.

Non-invasive Species: Naturally reproducing, non-native plants that do not invade areas dominated by native vegetation.

Reforestation: The process of planting (or otherwise regenerating) and establishing a desired forest community on a given site.

**Species Rating:** A value from 1 to 100 rated in accordance with the *Mid-Atlantic Tree Species Rating Guide* published by the International Society of Arboriculture (ISA) Mid-Atlantic Chapter. The value assigned to a species is according to factors such as longevity, growth habit, durability, and appropriateness to the growing zone.

**Stand:** An easily defined group of trees of sufficiently uniform species composition, age, size class, and condition and can be managed as a single unit.

## **Applicant Resources**

---

### **American Horticulture Industry Association**

<https://www.americanhort.org/>

### **Arlington County**

<https://environment.arlingtonva.us/trees/support-trees/specimen-trees/tree-preservation-ordinance/>

<https://building.arlingtonva.us/resources/tree-replacement/>

### **Casey Trees**

<https://caseytrees.org/>

### **City of Alexandria**

<https://www.alexandriava.gov/hub.aspx?id=108269>

### **Comprehensive Plan for the National Capital – Federal Elements**

<https://www.ncpc.gov/plans/compplan/>

### **District of Columbia**

<https://ddot.dc.gov/page/tree-regulations>

<https://doee.dc.gov/node/1118761>

### **Fairfax County**

<https://www.fairfaxcounty.gov/publicworks/trees/rules>

**International Society of Arboriculture (ISA)**

<https://www.isa-arbor.com/>

**International Society of Arboriculture, Mid-Atlantic Chapter (MAC-ISA)**

<https://www.mac-isa.org/>

**Maryland National Capital Park and Planning Commission (M-NCPPC); Montgomery County**

<https://montgomeryplanning.org/planning/environment/forest-conservation-and-trees/chapter-22a-revised-in-2018/>

**Maryland National Capital Park and Planning Commission (M-NCPPC); Prince George's County**

<https://www.mncppc.org/1564/Woodland-Conservation-Ordinance>

**Montgomery County Department of Environmental Protection**

<https://www.montgomerycountymd.gov/green/trees/laws-and-programs.html>

**NCPC Submission Guidelines**

<https://www.ncpc.gov/review/guidelines/>

**Prince William County**

<https://www.pwcgov.org/government/dept/development/ld/Documents/DCSM800.pdf>

**Society of American Foresters (SAF)**

<https://www.eforester.org/>

**United States Department of Agriculture PLANTS Database**

<https://plants.sc.egov.usda.gov/java/>