



Executive Director's Recommendation

Commission Meeting: July 9, 2020

PROJECT Comprehensive Plan for the National Capital: Federal Elements - Amendments to the Federal Environment Element Tree Replacement Policy and Submission Guidelines Update N/A	NCPC FILE NUMBER CP01B
SUBMITTED BY National Capital Planning Commission	NCPC MAP FILE NUMBER 00.00(00.00)45157
REVIEW AUTHORITY Preparation and Adoption of Federal Elements per 40 U.S.C. § 8721	APPLICANT'S REQUEST Authorization to release draft recommendations for a 60-day public comment period
	PROPOSED ACTION Approve as requested
	ACTION ITEM TYPE Staff Presentation

PROJECT SUMMARY

Staff is requesting the Commission authorize release of draft policies of the Federal Environment Element, Section G: Policies Related to Tree Canopy and Vegetation and draft revisions to the associated Submission Guidelines for a 60-day public review and comment period. The National Capital Planning Commission (NCPC) last approved the Federal Environment Element of the *Comprehensive Plan for the National Capital* (Comprehensive Plan) along with six other elements in 2016. The policies related to tree canopy and vegetation at that time generally remained the same as the policies in the 2012 Federal Environment Element update. The current draft for release is focused on a subset of these policies with an update to those pertaining to the preservation and replacement of trees on federal development sites.

The existing policies related to tree preservation and replacement advocate for the preservation and replacement of trees when development occurs to prevent a net loss of trees on a site. These policies refer to the regulations of the local jurisdiction or an International Society of Arboriculture (ISA) formula to determine the method for quantifying the number of replacement trees. Several issues occur with this method and areas for improvement exist in other aspects of the policies which are described further in the Analysis section of this report.

The draft policies expand on the principles of the existing policies with an enhanced focus on tree preservation, alternatives to mitigate tree canopy loss if preservation is not possible, and more specific guidance on replacement tree ratios, specifications, and locations. In addition, the draft policies incorporate strengths of tree preservation and replacement practices of multiple jurisdictions in the National Capital Region (NCR), resulting in a progressive, consistent approach to preserving and replacing individual trees and forests on federal land throughout the region.

KEY INFORMATION

- Staff requests release of the draft Federal Environment Element, Section G: Policies Related to Tree Canopy and Vegetation for a 60-day public comment period.
- The draft focuses on updates to policies FE.G.1, FE.G.2, and FE.G.3 within Section G of the Federal Environment Element which are the policies related to tree preservation and replacement for federal development sites. The remainder of the Environment Element will remain unchanged.
- The draft update to this element has been vetted through internal staff review and in discussions with external subject matter experts.
- The public comment period for this draft will conclude on Wednesday, September 16, 2020. Within that timeframe, NCPC staff will hold focus group discussions to present the updates to key internal and external stakeholders and interest groups.
- The draft includes revisions to the Submission Guidelines and Resource Guide to support implementation of the updated policies.

RECOMMENDATION

The Commission:

Authorizes the release of the draft policy updates to the *Comprehensive Plan for the National Capital*, Federal Environment Element, Section G: Policies Related to Tree Canopy and Vegetation and associated draft Submission Guidelines for a 60-day public comment period pursuant to 40 U.S.C. § 8721.

PROJECT REVIEW TIMELINE

Previous actions	1981 – Adoption of the Federal Environment Element of the Comprehensive Plan.
	2001 – Adoption of a revised Federal Environment Element of the Comprehensive Plan.
	2004 – Adoption of the update Comprehensive Plan which included the Federal Environment Element.
	2012 – Adoption of a revised Federal Environment Element of the Comprehensive Plan.

	2016 – Adoption of the updated Comprehensive Plan (with the exception of the Parks & Open Space Element), which included the Federal Environment Element
Remaining actions (anticipated)	November 2020 – NCPC staff will return to the Commission for approval and adoption of the final Federal Environment Element, Section G: Policies Related to Tree Canopy and Vegetation after the comment period has closed and all received comments have been addressed.

PROJECT ANALYSIS

Executive Summary

The draft policies for the Federal Environment Element of the Comprehensive Plan include revisions to FE.G.1, FE.G.2, and FE.G.2 in Section G: Policies Related to Tree Canopy & Vegetation. These three policies specifically relate to tree preservation and replacement on federal development sites. The draft policies prioritize tree preservation and refine the standards for replacing trees when trees cannot be preserved. In addition, the draft includes updates to NCPC's Submission Guidelines and Resource Guide to support implementation of the policy. A detailed analysis of the existing policy issues and proposed draft policies is provided in the following analysis.

Analysis

Development on federal land in the NCR is often necessary to further the missions of the federal government. However, development can have significant impacts on existing trees. NCPC recognizes that trees are an important natural resource that provide numerous environmental, health, and community benefits that trees provide. These benefits emphasize the need to protect and replace trees that are affected by development. The Federal Environment Element currently includes policies related to tree preservation and replacement on development sites. While the current policies have good intentions for protecting and restoring trees on federal land, the policies can be strengthened and clarified to better direct project applicants and NCPC staff in the preparation and review of development plans to maximize tree preservation and restore tree canopy that is removed.

The following paragraphs summarize existing issues and areas for improvement in the Comprehensive Plan's current policies for tree preservation and replacement on development sites, and outlines the draft amendments that address these issues with the intent of implementing a more consistent, sustainable approach to development on federal land in the region.

Current Tree Replacement Policies – Issues and Areas for Improvement

The current policies related to tree preservation and replacement on federal development sites are addressed in FE.G.1, FE.G.2, and FE.G.3 in Section G of the Federal Environment Element of the Comprehensive Plan with an overarching goal to prevent a net loss of trees to the development area. In summary, FE.G.1 advocates for preservation of existing trees; FE.G.2 outlines procedures to replace trees when they are removed; and FE.G.3 summarizes the preceding policies and reiterates the policy's goal.

While the current policy has good intentions for preserving and replacing trees on federal land, the policy could be improved to provide more guidance for preserving trees and clarifying the mitigation practices when trees are removed due to development. A summary of the current policy issues and areas for improvement is provided in the following points:

- The current policy does not address or prioritize the species (e.g., native vs. invasive), size, and health of existing trees to be preserved.
- Reliance on the regulations of the local jurisdiction to determine mitigation measures for trees that are removed is not enforceable on federal land.
- Various ISA formulas exist to determine the monetary value of replacing trees, but none exist that quantify the replacement of trees with other trees.
- Preference is not stated for on-site replacement of trees, leading to the potential loss of habitat, soil degradation, and potentially other negative environmental effects such as an increased urban heat island effect in the development areas.
- The current replacement procedures do not account for the size and health of trees that are removed. For example, a large, healthy shade tree that has reached mature canopy spread can be replaced with one nursery stock tree that will typically range between two and three inches in caliper and take up to twenty years to reach a mature canopy.
- Direction is not provided for the species or type of tree (e.g., shade tree, ornamental tree, evergreen tree, etc.) that should be planted in replacement of the one removed.

Overall, these issues and areas for improvement have led to inconsistencies in how the policies are interpreted by staff and applicants. For example, when a development applicant seeks to remove significant trees on federal land in Washington, DC (the District), the Comprehensive Plan policies direct the applicant to follow the District's regulations for mitigating tree loss. However, the District's regulations exempt development on federal land from compliance with their tree preservation, removal, and mitigation regulations. This situation results in the applicant and staff resolving how to mitigate tree removal on a case by case basis.

Methodology and Approach

In developing the draft policies for tree preservation and replacement on federal development sites, staff considered ways to update the policies to be more efficient, effective, and useful for staff, agencies, and the public. As indicated above, staff analyzed the existing policies and identified issues and opportunities for improvement. One of the primary changes proposed is the policy related to tree preservation on development sites which now identifies considerations for preserving trees early in the design and planning process and a threshold size for trees that should not be removed unless other options are explored and determined incapable of accommodating the project's programmatic requirements. Another significant change is the expansion of policy FE.G.2, which now more specifically addresses mitigation measures when tree preservation is not possible. This policy no longer relies on the regulations of the local jurisdiction to mitigate tree canopy loss and defines an approach that can be applied consistently to federal development projects throughout the region.

Staff considered the update in the context of other Federal Elements. The Urban Design, Parks & Open Space, and Visitors & Commemoration Elements include policy guidance that shape the urban, open, and commemorative spaces in the region; therefore, it is important that the elements work together to reinforce key policy directives. For example, the Urban Design Element defines the natural setting of the region as a main component of the urban design framework and includes policies that reinforce concepts included in the Parks & Open Space Element. Additionally, the Visitors & Commemoration Element includes policies related to preserving existing natural features that influence the visitor experience. The natural features within the spaces that these elements shape likely include existing trees, some of which may be individual and others that may be large stands or forests. Therefore, the tree preservation and replacement policies must be considered when developing new sites, facilities, and commemorative works to understand expectations for preserving existing trees and mitigating their loss prior to significant advancement of the design.

Since development occurs on federal land in Washington, DC and the environs of Maryland and Virginia, the draft policies also incorporate strengths of tree preservation and replacement practices of multiple jurisdictions in the NCR, including the District's preservation standards for Heritage Trees and Arlington County's per-diameter inch formula for replacing individual trees that are removed. In addition, staff consulted internal and external subject matter experts, referenced industry standards and best practices, and performed case studies in development of the draft policies to create a progressive and practical approach for tree preservation and replacement on federal development sites in the region.

Summary of Draft Policies

The draft policies for FE.G.1, FE.G.2, and FE.G.3 aim to address the issues and areas for improvement in the current policy. The draft policies are shown in the following paragraphs with *italicized* text preceded by a summary of the changes proposed and followed by an analysis of those changes. A line by line view of the changes to Section G of the Federal Environment Element are included in the attached Appendix A for reference.

- **FE.G.1 Tree Preservation**

Summary: This draft policy expands on the existing policy's tree preservation language to include preservation of individual trees, stands, and forests of healthy, native or non-invasive species. This policy also directs applicants to account for existing trees early in the planning and design processes to maximize preservation and incorporation of the natural landscape into the design. In addition, the policy includes a new procedure to preserve trees that measure 100 inches in circumference (31.8 inches diameter) or greater, unless the removal is necessary to accomplish the mission of the agency and it is determined infeasible to preserve these trees and accommodate the program requirements of the proposed development; or if the tree is considered to be invasive or hazardous, as determined by an Arborist.

Draft Policy: *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.*

Analysis: Expanding the policy to emphasize preservation of individual trees acknowledges the environmental benefits that individual trees provide collectively throughout the region. The preservation of trees 100 inches in circumference or greater corresponds with the District's definition of a Heritage Tree. The District prohibits removal of Heritage Trees unless deemed invasive or hazardous and in such cases a permit is required. Although this District regulation does not apply to federal property, staff finds preservation of trees this size to be a leading practice in the region that would provide significant environmental benefits to the NCR if also applied to federal development sites. This draft policy includes exceptions that facilitate exploration of other planning/design alternatives prior to removing the tree to determine if removal is necessary to meet program requirements and advance the mission of the agency.

- **FE.G.2 Tree Replacement and Mitigation**

Summary: The draft FE.G.2 continues to be the primary policy for tree replacement procedures when preservation is not feasible on federal development sites. However, the existing four points are revised and expanded to six points in the draft policy to capture alternatives to mitigate tree loss (transplanting vs. replacing) and more comprehensively address tree replacement quantity, size, species, and typology; the location for planting

replacement trees; and other specifications to support the health and longevity of those trees.

Draft Policy: *Transplant or replace existing trees when they are impacted by development and preservation is not feasible, according to the following procedures:*

The first point outlines considerations for transplanting existing trees, rather than removing them when they are affected by development:

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*

The second point defines procedures for replacing trees when they are unable to be preserved or transplanted:

2. *Replace trees when they require removal. Replacement trees should increase biodiversity, be native species or non-invasive species¹, 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:

The second point has three components:

Component (a) indicates that trees measuring 10-inches in diameter or less should be replaced with one new tree for every tree removed.

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

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

Component (b) provides a defined formula to determine the number of replacement trees necessary based on the existing tree's size and species and condition ratings.

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.

Component (c) provides a replacement rate for removal of forests or stands of trees, with direction to coordinate with federal and local stakeholders to determine the appropriate density, mixture, and size of replacement plantings.

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.

The third point provides options for the location of replacement trees, listed in order of preference. The fourth and fifth points address the size of replacement trees, the availability of planting soil volume, and the appropriate industry reference standards to follow:

- 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*
 - 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. Transplant, install, and maintain trees in accordance with the most current edition of ANSI-A300.*

Lastly, the final point in FE.G.2 encourages projects that cannot plant the total quantity of required replacement trees to implement other sustainable, low impact development practices on the project site that would provide similar environmental benefits to those of shade trees:

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.*

Analysis: Since the policy no longer refers to local jurisdiction regulations, or an assumed formula by the ISA, additional guidance and specificity is necessary in this policy to ensure consistent mitigation practices for replacing existing trees are implemented when preservation is not possible.

FE.G.2 (1): The option to transplant existing trees encourages applicants to consider moving trees to a different location rather than automatically assuming their removal when they will be impacted by development. There are many factors to consider when transplanting a tree such as its size, species, soil conditions, location, etc. which are listed in the policy for the applicant and staff's reference. Transplanting trees may not always be the best option based on these considerations and other factors; therefore, the second point outlines procedures to replace trees when they must be completely removed.

FE.G.2 (2): The three components of the second point outline procedures to replace trees based on their size or character (individual trees vs. groupings). The first component (FE.G.2a) recommends a one tree replacement for every one tree removed that measures less than 10 inches in diameter since these trees can be easily replaced by nursery stock trees. The replacement tree will measure at least 2.5 inches in caliper for shade trees, 1.5 inches caliper for ornamental trees, and 6-foot height for evergreen and multi-stem trees. The tree replacement formula in the second component (FE.G.2b) emulates a per-diameter inch replacement formula developed by Arlington County to replace trees larger than 10 inches in diameter based on their size and species and condition ratings.

Staff finds that per-diameter inch replacement methods are a prevailing practice for mitigating individual tree loss in the region as both Arlington County and Montgomery County utilize such practices. The Arlington County formula quantifies the number of replacement trees required by generating a score resulting from the species and condition ratings of the existing tree (as a decimal) multiplied with its size (in inches). Therefore, an

existing large tree with a high species classification in good condition will require more trees to replace it than compared to a similar size tree with a low or moderate species classification in poor condition. Staff applied this formula to several NCPC projects of various scales and found that the formula would not be onerous to implement and also results in a greater number of replacement trees than the current policy requires, with the results being much closer to the actual quantity of trees that are proposed on the plans. This outcome shows that the formula will formalize the work that is currently being done by applicants and staff to maximize the number of trees proposed on federal development projects as replacement for those removed.

The last component of this point (FE.G.2c) recommends a ratio of 1.5 acres planted for every 1 acre of tree stands or forest removed. Staff finds that stands of trees and forests provide unique value to the NCR and are a priority to maintain for their benefits to wildlife; air, water, and soil quality; and their recreational, visual, and health benefits to the surrounding community. Therefore, the proposed ratio is meant to encourage applicants to carefully consider the amount of clearing necessary with a development and to mitigate those areas removed by replanting a larger area in return. This component of the policy also recommends coordination with local and federal stakeholders to determine the appropriate density, mixture, and size of replacement plantings which may vary based on the site's conditions and needs of the surrounding community.

FE.G.2 (3): The third point addresses the location of replacement or transplanted trees with preference made for replanting on the project site or within the property limits where the project site is located, with an option to plant on another site within the agency's jurisdiction if the preferred locations are unable to accommodate the total number of trees required. Priority is given to replanting on-site or within property limits to retain the environmental benefits provided by the trees within the vicinity of the area that is disturbed.

FE.G.2 (4) and (5): The fourth and fifth points of the policy relate to the technical aspects of the replacement trees including soil volume and industry reference standards for their specification and care. These points collectively ensure that current industry best practices are followed in specifying and planting trees that will promote their longevity.

FE.G.2 (6): The final point encourages other sustainable practices on the development site if the total quantity of replacement trees cannot be provided in some combination of the recommended locations, with the sustainable practices being ones that provide similar environmental benefits to those of canopy trees such as sequestering carbon, filtering stormwater, reducing the urban heat island effect, etc.

- **FE.G.3 Summary of Policies**

Summary: The draft policy is written similarly to the existing policy which reiterates that trees should be preserved and transplanted or replaced where they require removal due to development per the standards provided in the Comprehensive Plan. This policy also states an overarching goal of preventing a net loss of tree canopy in the development area.

Draft Policy: *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.*

Analysis: The draft policy reiterates the points in the preceding policies related to these matters and clearly states an overarching goal to prevent a net loss of tree canopy in the development area. This differs from the current policy's goal to prevent a net loss of trees (the quantity) in the development area. The canopy of existing individual trees, stands, and forests provides substantial environmental and community benefits. Staff finds the most effective way to achieve and maintain tree canopy in the NCR is to preserve existing trees and account for the size and quality of the trees that are removed in their replacement. The replacement formulas provided in FE.G.2 consider these factors when calculating the number of trees necessary to mitigate canopy that is lost when individual trees, stands, and forests are removed.

Submission Guidelines

An amendment to Chapter 2 of the Submission Guidelines for building, site, and park projects is proposed to include two new project report materials that support the draft policies. A draft of the revisions to the Submission Guidelines is included in Appendix B of this report for reference.

First, a survey and inventory of existing trees prepared by an Arborist is requested with the preliminary plan submission (Section 2.7 Submission Content for Preliminary Reviews, Table 6). The survey will identify the size and location of existing trees and the inventory will list the trees' size, species, and condition and species ratings. Trees are typically identified on the plan with a number or symbol that corresponds with the inventory for clarity. The guideline also recommends that the survey and inventory analyze existing and proposed grade changes and include notations indicating the likelihood of the tree's ability to survive construction activity. Arborists are specially trained in developing tree surveys and inventories and their professional preparation of these materials will provide quality assurance. Similarly, a Forester may prepare a tree stand delineation plan for forests and stands of trees. The survey and inventory information is essential to understand when to preserve trees and the size and condition of trees that will be removed, which informs the formulas provided in the policy to determine the acreage or number of replacement trees required.

Secondly, the landscape and grading plan requested in the final plan submission (Section 2.10 Submission Content for Final Reviews, Table 8) proposes that applicants include a chart that demonstrates the quantity or acreage of replacement trees required and the quantity or acreage of trees proposed. This new standard will ensure compliance with the proposed replacement formulas in the policy.

Resource Guide

NCPC staff developed a resource guide to correspond with the Comprehensive Plan's tree preservation and replacement policies. The 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 serve as a reference for NCPC staff in review of federal development plans. The resource guide was originally developed in 2016 and will be updated with the adoption of the proposed policies. The guide will also include new and updated definitions that correspond with the terms used in the proposed policies to ensure accuracy and consistent application of the policies. While the Commission does not formally approve or adopt the resource guide, a draft of the guide is included in Appendix C of this report for reference.

CONFORMANCE TO EXISTING PLANS, POLICIES AND RELATED GUIDANCE

Comprehensive Plan for the National Capital

The updates to the Federal Elements of the Comprehensive Plan are provided in accordance with the provisions of the preparation and adoption of Federal Elements of the Comprehensive Plan specified at 40 U.S.C. § 8721.

National Historic Preservation Act

This proposal does not sustain characteristics as a federal undertaking. The proposal of policy revision does not implement, contract, or take other actions that would preclude consideration of the full range of alternatives to avoid or minimize harm to federal historic properties. Consequently, the proposed action does not require review pursuant to the National Historic Preservation Act, Section 106 process.

National Environmental Policy Act

Staff reviewed the proposal in accordance with NCPC's implementation of the National Environmental Policy Act and determined that the amendments to the Federal Elements can be categorically excluded from further environmental analysis and documentation. The action is determined by the staff to qualify as NCPC's Categorical Exclusion: (4) Adoption of a Federal Element of the Comprehensive Plan or amendment thereto or broad based policy or feasibility plans prepared and adopted by the Commission in response to the Comprehensive Plan.

CONSULTATION

The draft update to the tree preservation and replacement policies in Section G of the Federal Environment Element has been coordinated with internal and external subject matter experts. NCPC will host a focus group discussion with representatives from key federal agencies and an informational session with interest groups during the 60-day comment period.

ONLINE REFERENCE

The document will be available online for public comment, following Commission action:
<https://www.ncpc.gov/initiatives/treereplacement/>

Appendices

Appendix A – Federal Environment Element, Section G *Draft*

Appendix B – Submission Guidelines, Chapter 2. Building, Site, and Park Project Submission
Guidelines *Draft*

Appendix C – Resource Guide for Tree Preservation and Replacement *Draft*

Prepared by Stephanie Free
06/09/2020

POWERPOINT (ATTACHED)

Federal Environment Element

Section G: Policies Related to Tree Canopy and Vegetation

Submission Guidelines Resource Guide

Draft for Public Comment

Existing Tree Replacement Policy

The federal government should:

FE.G.1 Preserve existing vegetation, especially large stands of trees.

FE.G.2 When tree removal is necessary, trees should be replaced to prevent a net tree loss to the project area, according to the following procedures:

1. An evaluation of potential tree loss should be made prior to any removal. Trees shall be replaced according to the regulations of the local jurisdiction.
2. Trees of 10-inch diameter or less will be replaced at a minimum of a one-to-one basis.
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.
4. The replacement of trees should be located on-site, on adjacent properties, or in areas within the site's jurisdiction.

FE.G.3 Enhance the environmental quality of the National Capital Region by replacing existing trees where they have died or where they have been removed due to development. Tree replacement should adhere to the standards and guidelines of the local jurisdiction, but at a minimum prevent a net tree loss in the development area.

Existing Tree Replacement Policy - Issues

- Has good intent but language could be strengthened.
- Does not address health or species (invasive vs. non-invasive) of trees for preservation, nor the size and species of replacement trees.
- Reliance on the local jurisdiction regulations is complicated:
 - The regulations vary greatly which results in lack of consistency and creates possible loss of significant tree canopy in areas that are largely limited by state-enabling legislation (e.g. Virginia is a Dillion Rule state).
 - Some local jurisdiction policies exempt federal properties from complying with their landscape/canopy regulations.
 - Many localities have lengthy permitting processes and/or in-lieu fee policies (\$55 per/inch in DC) to remove trees, which the federal government cannot collect or pay to the locality.
- Various ISA formulas exist to determine the value (\$) of replacing trees but do not quantify the replacement of trees with other trees.
- No priority or preference made for on-site replacement leading to potential loss of habitat, soil degradation, and other negative effects (heat island, etc.) on or near the project site.

Proposed Tree *Preservation and* Replacement Policy

Proposed Tree *Preservation and* Replacement Policy

Highlights:

- Places priority on tree preservation and offers alternatives (transplant, replace) if preservation cannot be achieved.
- Incorporates the strengths of tree preservation and replacement standards of various local jurisdictions under one policy resulting in a progressive, consistent tree preservation and replacement policy on federal land throughout the region.
- Clear and concise guidance on tree replacement species, size, and location.
- Enhanced submission guidelines to ensure policy is being followed.
- Updated resource guide to support plan preparation and review.

Proposed Tree *Preservation and* Replacement Policy

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.1 Preserve existing vegetation, especially large stands of trees.

Proposed Tree *Preservation and* Replacement Policy

The federal government should:

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

FE.G.2 When tree removal is necessary, trees should be replaced to prevent a net tree loss to the project area, according to the following procedures: Trees shall be replaced according to the regulations of the local jurisdiction. 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.

Proposed Tree *Preservation and* Replacement Policy

The federal government should:

FE.G.2 (cont'd) Transplant or replace existing trees when they are impacted by development and preservation is not feasible, according to the following procedures:

2. Replace trees when they require removal. Replacement trees should increase biodiversity, be native species or non-invasive species, 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

FE.G.2 When tree removal is necessary, trees should be replaced to prevent a net tree loss to the project area, according to the following procedures: Trees shall be replaced according to the regulations of the local jurisdiction. 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.

Proposed Tree *Preservation and* Replacement Policy

The federal government should:

FE.G.2 (cont'd) Transplant or replace existing trees when they are impacted by development and preservation is not feasible, according to the following procedures:

2. (cont'd) Replace trees when they require removal. Replacement trees should increase biodiversity, be native species or non-invasive species, and have a mature canopy spread equivalent to, or greater than, the tree(s) removed. Replace trees according to the following procedures:
 - 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
 - d) A combination of the above locations.

FE.G.2 (4) The replacement of trees should be located on-site, on adjacent properties, or in areas within the site's jurisdiction.

Proposed Tree *Preservation and* Replacement Policy

The federal government should:

FE.G.2 (cont'd) Transplant or replace existing trees when they are impacted by development and preservation is not feasible, according to the following procedures:

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. Transplant, install, and maintain trees in accordance with the most current edition of ANSI-A300.
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.

Proposed Tree *Preservation and* Replacement Policy

The federal government should:

FEG.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.

FE.G.3 Enhance the environmental quality of the National Capital Region by replacing existing trees where they have died or where they have been removed due to development. Tree replacement should adhere to the standards and guidelines of the local jurisdiction, but at a minimum prevent a net tree loss in the development area.

Proposed Submission Guidelines

1. 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. 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. *(preliminary submission requirement)*
2. 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. *(final submission requirement)*
3. A chart that demonstrates the required quantity or acreage of replacement trees and the quantity or acreage of trees proposed *(final submission requirement)*

Proposed Resource Guide Definitions

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 9th 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 9th 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.