

7.4 Tree Preservation, Protection, and Removal

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.1 Purpose.

Wooded sites provide distinct aesthetic, economic and environmental significance and value as a natural resource of the Town. Existing vegetation plays a critical role in maintaining aesthetics, water quality, minimizing erosion and downstream flooding, and increasing quality of life.

.2 Tree Preservation.

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(a) Applicability.

Significant forest stands, specimen trees, and heritage trees, as defined in this ordinance, shall be preserved. Forested areas and vegetated areas and areas whose physical site conditions render them unsuitable for development shall be set aside as conservation areas or as open space. Wooded sites shall be developed with careful consideration of the natural characteristics of the site. When portions of forested stands must be developed, careful consideration shall be given to preserving wooded perimeters or the most desirable natural features in order to retain the aesthetic or visual character of the site. Isolated pockets of existing trees, specimen trees and heritage trees shall be protected as a valuable asset of the property.

(b) Site Analysis/Existing Features Plan

For the purposes of identification and preservation, a site analysis sealed by a North Carolina Landscape Architect, Engineer, or other professional approved by staff ~~and mapped by a licensed land surveyor~~ is required for all development ~~in residential or commercial zoning districts~~. The site analysis shall be submitted to planning staff prior to sketch plan review and prior to any clearing. The developer and/or the design firm shall review plans with ~~Town~~ staff to determine the best areas for potential tree save. Refer to Section 6.0 of the Subdivision Ordinance for all site analysis requirements.

Comment [BP1]: Staff feels like this requirement needs to be made more flexible. Many projects have engineers not architects working on a project. In addition, depending on the size and complexity of the site, it may not be necessary to have an engineer or architect map out the existing trees of the site. For instance sometimes town staff has been known to assist in mapping the trees for small projects.

(c) Method for Calculating ~~Tree~~Existing Tree Save and Proposed Tree Save Areas

~~Existing~~The ~~tree save~~tree save area shall be considered the area in which the drip line of ~~the existing the saved~~ tree or trees is located ~~on the property~~ plus an additional 5 feet around the perimeter, ~~prior to development~~. ~~Proposed tree save area shall be considered the area in~~

which the drip line of the remaining tree or trees is located on the property plus an additional 5 feet around the perimeter after development. If root disturbance or construction activities occur within the drip line of any trees designated as protected tree save, only the area actually being protected will be included in the calculated-proposed Tree Save Area.

Comment [b2]: This section was added and amended to clarify the intent of subsection "c"; to highlight how to find what areas need to be protected on the property versus what area is actually protected on the property.

~~A newly planted tree shall be equivalent to 2,000 square feet of saved area for each large maturing tree planted and 500 square feet of saved area for each small maturing tree planted. New trees shall be planted at a rate of 18 trees per acre.~~ Additional credits shall be given to preserve Heritage Trees at a rate of 2 times the actual tree save area and Specimen Trees at a rate of 1½ times the actual tree save area. Staff may adjust applicable land development standards to protect and preserve Heritage or Specimen Trees.

Comment [b3]: Staff deleted the calculation above out of this section as it didn't seem related to the section (Method for Calculating Tree Save Area). Rather than being about defining tree save area, the deleted information seemed to be more about mitigation and what credit is received for plantings. This information was relocated below where mitigation is addressed.

(d) Tree Selection Criteria

The ~~Landscape Architect~~development manager, working with staff will determine the trees of greatest priority to designate as tree save areas. The following characteristics shall be considered when selecting trees to be protected and saved:

- (1) Tree vigor. Healthy trees shall be preserved. A tree of low vigor is susceptible to damage by environmental changes that occur during site development. Healthy trees are less susceptible to insects and disease. Indications of poor vigor include dead tips of branches, small annual twig growth, stunted leaf size, sparse foliage, and pale foliage color. Hollow or rotten trees; cracked, split, or leaning trees; or trees with broken tips also have less chance of survival.
- (2) Tree age. Old, picturesque trees may be more aesthetically valuable than smaller, younger trees, but they may require more extensive protection.
- (3) Tree species. Preserve those species that are most suitable for site conditions and landscape design. Trees species that are short lived or brittle or are susceptible to attack by insects and disease are poor choices for preservation.
- (4) Tree aesthetics. Choose trees that are aesthetically pleasing, shapely, large, or colorful. Avoid trees that are leaning or in danger of falling. Occasionally, an odd shaped tree or one of unusual form

may add interest to the landscape if strategically located; however, be certain that the tree is healthy.

(5) Wildlife benefits. Choose trees that are preferred by wildlife for food, cover, or nesting. A mixture of evergreens and hardwoods may be beneficial. Evergreen trees are important for cover during the winter months, whereas, hardwoods are more valuable for food.

(6) Environmental benefits. Choose trees that help to reduce runoff and erosion, disconnect impervious areas, serve as stormwater filters, and/or buffer onsite perennial streams.

(e) Tree Save Delineation

All tree save areas must be specified on the recorded plat, individual recorded deeds, and all property association documents for land held in common.

(f) Tree Preservation in Residential Districts Requirements

Tree preservation areas- (tree save) shall be determined once a site analysis plan has been completed demonstrating the amount of existing tree canopy on a site and identifying specific locations of all heritage and specimen trees. The percentages listed below are based on ~~the~~ existing tree canopy-s as established above under Method for Calculating Existing and Proposed Tree Save Area (7.4.2 C). The following is the minimum tree preservation required per district:

Comment [b4]: This section is proposed to be used for both residential districts and commercial.

<u>Zoning District</u>	Minimum Tree Preservation Required			
	Existing Canopy ≥10% of total site area	Existing Canopy <10% of total site area	Heritage Trees	Specimen Trees
<u>Rural District R</u>	50% of existing trees [notes 2,3,4]	10% of total site area (existing and planted) [1,2,3,4]	100% [2]	50% [2,4]
<u>Transitional District TR</u>	35% of existing trees [2,3]	10% of total site area (existing and planted) [1,2,3]	100% [2]	35% [2]
GR and NR Districts	10% of total site area (existing and planted) [2,3]	10% of total site area (existing and planted) [1,2,3]	100% [2]	10% [2]
<u>TC, CI, TND, NC, TOD, HC, SP, CB, VS Districts</u>	<u>0%</u>	<u>0%</u>	<u>100% [2]</u>	<u>30% [2]</u>

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Comment [b5]: The requirements for residential and commercial previously were separated creating duplication in the mitigation language (one for residential and describing it again for commercial). Keeping the requirements all together in the table and referencing one section for mitigation eliminates duplication.

Notes 1-4 follow:

[1] If the tree save requirement does not meet 10% of the total site area, then additional trees must be planted. Each large maturing tree planted shall be given a canopy equivalent of 2,000 sqft and each small maturing tree planted a canopy equivalent of 500 sqft of canopy

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at a rate of 18 trees per acre to reach the total of 10% of the total site area. Trees planted in buffer yards shall count towards meeting the required planting rate. However, street trees and newly planted residential lot trees shall not. Trees planted shall be a minimum of 2 inches in caliper and shall be 75% large maturing and 25% evergreen.

Comment [b6]: The same canopy calculation that was previously located in the "Method for Calculating Tree Save Area" section was moved here where mitigation is being discussed.

[2] Where circumstances prevent locating the required tree plantings or preservation standards on site and approval by the Planning Board is granted, the developer may mitigate the protected tree canopy removal by planting new trees on the site whose canopy equals that of the canopy to be removed (new tree canopy credits are described above). If site conditions are not conducive for healthy tree replacement planting on site, the developer may contribute to a Tree Fund/Bank set up by the town for the planting and maintenance of such trees elsewhere in the community. A combination of planting and contribution in lieu of planting is acceptable. The amount of contribution is based on the total cost of the required mitigation trees plus that of their installation.

Comment [b7]: This canopy tree save requirement has not changed from how it is currently interpreted and enforced. It is simply reworded and clarified.

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For Specimen Tree Mitigation, the developer may mitigate the removal of protected trees removal by planting new trees on the site whose total caliper (DBH) equals 30% of that of the total caliper of trees (DBH) to be removed above the ordinance requirement (one to one replacement ratio). If site conditions are not conducive for healthy tree planting on site, the developer may contribute to a Tree Fund/Bank as described above. Newly planted street trees and parking lot trees may do not count toward the mitigation calculation. Trees planted to satisfy buffer requirements however may. The amount of the contribution shall be based on the number and species of trees needed to meet the tree save/planting requirement and on the commercial price and installation cost for such trees.

Comment [b8]: This mitigation requirement is new. The existing language allowed the developer to simply replace a large specimen tree with a single 2" caliper new tree.

This language change would require a developer to replace 30% of the caliper he removes above the ordinance requirements. For instance if they removed one 24 inch tree required to be saved, they would need to mitigate 7.2 calipers (30% of 24 = 7.2); or 4-2" caliper trees. Therefore based on the estimation of \$250 of cost to install one 2" caliper tree, mitigation for one 24 inch specimen tree is about \$1,000 each. Bigger trees would be more.

[3] When calculating the tree save area, 150% of the canopy area of each specimen tree and 200% of the canopy area of each heritage tree shall count towards the required tree save area. For example:

<u>Saved Type and Number of Trees</u>	<u>Canopy Area of Saved Trees Total Amount of Canopy Area</u>	<u>Calculated Amount Counted Toward Tree Save Area</u>
4 Specimen Trees	3,900 sf	5,850 sf

<u>Saved Type and Number of Trees</u>	<u>Canopy Area of Saved Trees Total Amount of Canopy Area</u>	<u>Calculated Amount Counted Toward Tree Save Area</u>
2 Heritage Trees	2,000 sf	4,000 sf

[4] ~~In the Rural district (R) m~~Minimum tree ~~save~~preservation required for non-residential uses ~~in the Rural district, are reduced the tree save requirements are reduced~~ to require preservation of >30% of existing canopy and specimen trees.

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~~(g) Tree Preservation in Commercial and Mixed Use Districts~~

~~(1) Tree preservation is determined once a site analysis plan has been completed demonstrating the amount of existing tree canopy on a site and specific locations of all heritage and specimen trees. The percentages listed below are based on the existing tree canopy as established in section 7.3.2(c). The following is the minimum tree preservation required for all development in these districts:~~

~~a) 30% of all specimen trees shall be saved (See Special Cases below)~~

~~b) 100% of all heritage trees shall be saved (See Special Cases below)~~

~~(2) Special Cases~~

~~Where circumstances prevent locating the required tree plantings or preservation standards on site and approval by the Planning Board is granted, the developer will contribute to a Tree Fund/Bank set up by the town for the planting and maintenance of such trees elsewhere in the community. The amount of the contribution shall be based on the number and species of trees needed to meet the tree save/planting requirement and on the commercial price and installation cost for such trees.~~

~~(h) Residential Development along Thoroughfares~~

All residential development fronting a major or minor thoroughfare shall provide a 20-foot landscape easement located within common area between the future right-of-way and any proposed lots or public streets. The easement shall be placed on a map of record and a note on the

Comment [b9]: When the commercial requirements were placed in the table and its mitigation was added to the footnotes, all this information became repetitive and thus deleted.

record plat shall state

"The homeowners association shall be responsible for the continued preservation and maintenance of this area."

All existing vegetation shall remain unless it is determined by the Planning Board that the vegetation is not worthy of preservation and an alternative plan is acceptable. These areas must meet or exceed the opaque screening standards as established in this Article through the use of existing vegetation and supplemental plantings.

Along thoroughfares, berms may be installed in a landscape easement adjacent to residential development only in areas devoid of existing vegetation or vegetation not worthy of preservation and only with the approval of the Planning Board. Installation of berms shall not exempt development from the opaque planting requirement as listed above. If included in the landscape design, berms shall:

- (1) Have a minimum height of 2 feet, a minimum crown width of 8 feet, and a side slope with a width to height ratio of no greater than 3 to 1 (3:1) if 4 feet or less in height. Berms shall not exceed 6 feet in height and, if greater than 4 feet in height, shall have a minimum crown width of 8 feet, and a side slope with a width to height ratio of no greater than 4 to 1 (4:1). Exceptions may be made to the maximum or minimum height of berms by the zoning administrator where, in his opinion, topographical changes dictate such exception.
- (2) Be designed and constructed with an undulating appearance which mimics as much as is practicable a natural topographical feature of the site.
- (3) Be substantially planted and covered with live vegetation. No berm shall consist entirely of turf grass, ground cover, mulch or similar material. If a berm is greater than 2 feet in height all trees shall be arranged so that they are planted within 2 vertical feet of the natural grade, unless irrigation is provided.
- (4) Be fully installed, planted and stabilized prior to certification of zoning compliance.
- (5) Be designed to prevent standing water or to impede the flow of stormwater from adjacent properties.

(6) Free of structures, including fences, unless approved by the Town as part of the landscaping requirements for a development site.

(7) Not be used as part of any outdoor living space by adjacent property owners within the development.

3 Tree Protection

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(a) Applicability

A Tree and Root Preservation Plan delineating areas of tree save shall be incorporated as part of the Landscaping, Grading, and Erosion Control Plans. The following measures shall be followed to protect existing trees on a developing site.

(1) Prior to demolition, clearing, construction, grading, and installation of erosion control measures, tree protective barriers must be installed around all tree save areas by the developer and approved by the Town.

(2) The tree protection barrier fence shall be located along the perimeter of the tree save area (drip line plus 5 feet). Tree protection barrier fencing for a forest canopy stands area is to be located along the perimeter of the tree save area around the forest edge. Tree protection barriers fencing shall consist of orange safety fencing or a combination of orange safety fencing with silt fencing at a minimum of 4 feet in height on metal or wood posts.

(3) All tree protection areas must be designated as such with prominent "tree save area signs" posted in addition to the required protective fencing. Signs requesting subcontractor cooperation and compliance with tree protection standards are recommended for site entrances.

(4) No soil disturbance or compaction, stock piling of soil or other construction material, vehicular traffic, or storage of equipment and materials are allowed within the tree save area.

(5) No ropes, signs, wires, unprotected electrical installation or other device or material, shall be secured or fastened around or through a tree or shrub in a tree save area.

(6) All appropriate protective measures shall be maintained throughout the land disturbing and construction process, and shall not be removed until final landscaping is installed.

(b) Encroachment

If encroachment into a required Tree Save/Preservation Area occurs which causes irreparable damage to ~~the~~ trees, the Tree Preservation and/or Replacement Plan shall be revised to compensate for the loss. Encroachments shall be subject to the penalties listed in Article 7.9. Encroachments, damage and removal of vegetation in a tree save/preservation area shall ~~result in be replantinged~~ in accordance with Article 7.4.5

.4 Tree Removal

~~A~~ Land Disturbing Permit ~~is r~~Required. Land disturbing activities shall not commence until such activities have been authorized by issuance of a valid Land Disturbing Permit as specified under the provisions of the Land Development Standards Manual and Erosion and Sedimentation Control Manual.

.5 Mitigation

If a required tree save/preservation area or required undisturbed buffer yard is disturbed for any reason, it shall be restored at a rate of 10 trees per 1000 square feet. Trees to be planted shall have a minimum caliper of 2 inches, shall be 8-10 feet in height at installation, and shall be at least 75% large maturing ~~hardwood~~ varieties. Where a disturbed area also functioned to buffer adjacent properties or public street(s), at least 50% of the trees shall be evergreen varieties. Trees shall be distributed throughout the disturbed area in such a way as to effectively replace the vegetation disturbed. Where under story vegetation is removed or disturbed it shall be replaced at a rate of 40 shrubs per ~~100 linear feet~~1000 square feet. Shrubs shall be evergreen and 3 feet in height when installed and are expected to reach a minimum height of 6 feet at maturity. When a tree is destroyed due to an act of God, it shall be replaced with the same species or comparable species, 2 inch in caliper in size. A planting plan is required for staff review and approval prior to ~~commencement of~~ planting.