



Trees and Construction BMPs

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Definitions

tree protection zone (TPZ) – area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development. The TPZ should encompass the Critical Root Zone, based on the judgment of the arborist.

critical root zone (CRZ) – area of soil around a tree where the minimum amount of roots considered critical to the health of the tree or structural stability are located.

calculated tree protection zone – a TPZ that is calculated using the trunk diameter and a multiplication factor based on the species tolerance to construction and age of the tree.

specified tree protection zone – a TPZ that is adjusted in size or shape to accommodate the existing infrastructure, planned construction, and specific aspects of the site, while also taking into consideration tree canopy conformation, visible root orientation, size, condition, maturity, and species response to construction.

Development Phase	Arborist involvement
Planning	Resource evaluation Permitting needs Suitability for preservation Tree Inventory
Design	Tree impact assessment Tree protection plan Tree Protection Zones (TPZ) Landscape plan review
Pre-construction	Contractor communication TPZ barrier installation Arboricultural treatments
Construction	Site monitoring Assessing impacts Maintaining TPZ Arboricultural treatments
Landscaping	Site Monitoring TPZ barrier adjustments Mitigate tree impacts
Post-construction	Site Monitoring TPZ barrier removal Mitigate tree impacts Plan for maintenance

Additional Resources

- [Managing Trees During Construction Best Management Practices](#)
- [ANSI A300 Construction Management Standard](#)
- [Why Definitions Matter: The Tree Protection Plan and Critical Root Zone](#)
- [Management of Mature Trees](#)
- [A review of the effects of soil compaction and amelioration techniques on landscape trees](#)
- [Long-term effects and development of a tree preservation program on tree condition, survival, and growth](#)
- [Evaluating the effects of trenching on growth, physiology and uprooting resistance of two urban tree species over 51-months](#)
- [A test of tree protection zones: Responses of Quercus virginiana trees to root severance treatments](#)
- [Root Pruning and Stability of Young Willow Oak](#)
- [ISA's Best Management Practices for Construction near Trees Video](#)

Suitability for Preservation

Suitability for preservation is a categorization of a tree's potential to be an asset to the project following development. While it is future focused, ratings of suitability for preservation are based on the species, current size, current condition, and species tolerance to construction. It is not based on specific construction plans or anticipated impacts to the tree, which may be unknown in the planning phase.

Trees with **low suitability for preservation** include those that are in poor condition, have short remaining life span, have poor aesthetics, are intolerant of construction damage **or** are invasive.

Trees with **high suitability for preservation** are in good condition, have long remaining life span, are desirable, **and** are species that tolerate construction damage.

Trees with **moderate suitability for preservation** are in between these two categories. They may have conditions or qualities that could be mitigated with arboricultural treatments such as pruning, pest management, soil management, or supplemental irrigation.

Species Tolerance to Construction Damage	Relative Tree Age*	Multiplication Factor for Trees in Good Condition
High	Young or semimature	6
	Mature	8
	Old	12
Medium	Young or semimature	8
	Mature	12
	Old	15
Low	Young or semimature	12
	Mature	15
	Old	18

*Young to semimature = less than 40 percent life expectancy, Mature = 40 to 80 percent life expectancy; old = greater than 80 percent life expectancy