Metro Nashville Street Tree Specifications

Applicability

These street tree specifications apply to trees planted in accordance with MCL §17.24.075 - Plans for street trees and streetscape, and are recommended for street trees receiving credit under MCL §17.28.065 -Trees.

These specifications were developed to comply with transect categories defined in *NashvilleNext, Volume 5: Access Nashville 2040 – Major & Collector Street Plan* and the street tree requirements in MCL §17.37 – Downtown Code.

General Guidelines

- **Plans** The plans and specifications submitted shall be prepared by, or under the direction of, and bear the seal of a professional landscape architect registered in Tennessee.
- **Spacing** Trees shall be planted in the public right-of-way along the length of the lot frontage at a rate of one tree per 30 feet of frontage or portion thereof for canopy trees, and one tree per 20 feet of frontage or portion thereof for understory trees. Adjacent street trees shall have no fewer than 15 feet and no more than 50 feet between them.
- Size Canopy trees are required unless conflicts with overhead electric utilities exist; in those instances, understory trees shall be substituted. At planting, canopy trees shall be at least 2-inch caliper, and understory trees shall be at least 8 feet tall.
- Species Trees shall be chosen from the Urban Forestry Recommended Tree List. (https://www.nashville.gov/departments/codes/land-use-and-zoning-information/urbanforestry/tree-and-shrub-list). The Urban Forester at Codes may approve additional tree species. Special consideration should be given to final tree environment and height/spread when selecting species. Tree species should be varied to avoid impacts from infestations and disease.
- Quality Only use nursey grown material that complies with all required inspection, grading, standards, and plant regulations in accordance with the latest edition of the American Standard for Nursery Stock (ANSI). Heeled-in stock or stock from cold storage shall be planted in a timely manner.

Placement/Location Considerations

- Minimum distance from a tree trunk to the following:
 - Fire Hydrant 3 feet
 - Public Water & Sewer Utilities (not in roadbed) 7 feet
 - Streetlight 15 feet for canopy trees, 10 feet for understory trees
 - Intersections and bus stops 25 feet (see MCL §13.12.190 for more information on intersections)
 - Signage with approval from the Nashville Department of Transportation and Multimodal Infrastructure (NDOT) conflicting signs should be relocated to be visible in front of the tree

- Americans with Disabilities Act (ADA) requirements:
 - Trees shall have a clear height of 80 inches where tree canopy is within a path of travel, and no more than 50% of the tree height shall be cleared to meet the ADA clearance requirements.
 - All grates shall be ADA compliant. Grates are to be installed level with the running grade of the sidewalk. If there is no other option and with approval of the NDOT, solid coverings with no openings may extend out into the walking path of the sidewalk.
- Sightlines (see MCL §13.12.190 for more information)

Soil Volume for Understory and Canopy Trees

Soil depth shall be a minimum of 3 feet. Any soil deeper than 3.5 feet below the elevation of the adjacent sidewalk will not count towards the soil volume calculation.

For trees planted in a continuous pit, 25% of the soil volume can be shared between canopy trees, and 10% can be shared between understory trees.

Minimum soil volume for trees is established by a factor of the furnishing zone width outlined in the Major & Collector Street Plan and is listed in Table 1.

Furnishing Zone/ Planting Strip ¹ (ft)	Canopy Tree Soil Volume (ft ³)	Understory Tree Soil Volume (ft ³)
4	420	280
6	630	420
8	840	560
12	1000	840

Table 1: Minimum soil volumes for canopy and understory trees

¹Measured from the back of the curb

Design Methods for Optimizing Soil Volume

Continuous Tree Pits and Grouped Plantings

The installation of continuous tree pits is encouraged wherever possible. Connecting trees pits provides extra soil volume for root growth by allowing trees to share soil space.

Soil Cells

Soil cells, including Silva Cells[™], RootSpace[™], and Stratavault[™] systems, are plastic structures designed to be filled between the voids with soil and covered with sidewalks, bike lanes, and parking lots to increase the available rooting space. Soil cells can only be installed with NDOT approval and should be clearly marked on submitted plans.

Structural Soil

Structural soils such as CU-Structural Soil can also be used underneath pavement to increase the available rooting space. If structural soils are used, they should be comprised of the following:

- 80% gravel (crushed stone) approximately 1-inch diameter with no fine particles
- 20% loam to clay-loam soil comprised of at least 20% clay
- Small amount of hydrogel

Structural soils do not have the same water holding capacity as topsoil, therefore a planter utilizing structural soils will require 1.3 times the soil volume to support the same tree in a typical growing condition. In addition, only trees that prefer well-drained soil should be used with structural soil systems.

Tree Well Openings

- Trees shall be centered in wells
- Minimal permeable open area within the tree well = 24 square feet
- Permeable open area soil cover options are context dependent and can include the following:
 - o Grass or other ornamental plantings
 - o Mulch shredded hardwood, shredded bark, or pine straw (no cypress or cedar mulch)
 - Pervious concrete and pervious asphalt
 - o Flexible permeable pavement if the soil has settled for a minimum of one year
 - o Permeable pavers
 - o Tree grates removable center rings, minimum 2-inch diameter tree opening required
 - o Approved decomposed granite, stone, or gravel

Planting Specifications

Topsoil Characteristics:

Natural, fertile, friable, productive soil; free of toxic substances, construction debris, stones, subsoil, clay lumps, hardpan, roots, stumps, branches, sticks, and other debris larger than two inches in any dimension; free of noxious weeds, grasses, seeds, plants, extraneous matter, and any substance harmful to plant growth. The soil should fall in the following ranges:

- pH 5.0 to 7.0
- Organic matter 5% to 10%
- Sand 30% to 50%
- Silt less than 30%
- Clay 10% to 25%

Adjustments to content can be made with approval of NDOT or the Urban Forester at Codes. Trees planted in bioretention areas may have different soil specifications (see GIP-01 of Metro's *Stormwater Management Manual, Volume 5, LID Manual* for more information).

Water - Must be irrigated, have watering contract, or have water source within 100 feet of the exterior. Trees shall be thoroughly watered weekly during the first two growing seasons, unless the trees received one inch or more of rainfall during that week, and after that in times of drought. **Drainage** - Tree wells shall be designed and constructed to have adequate drainage. Any tree pit that holds water for more than 24 hours must be remediated. All drainage mitigation must remove the hardpan.

Planting Season - Trees should be planted in November through March.

Survivability and Maintenance

The underlying property owner or subsequent owner is responsible for the maintenance and survival of the street trees planted in accordance with MCL §17.20.120. Trees shall be maintained in accordance with the most recent ANSI A300 standards. For safety operations, refer to the most recent ANSI Z133 standards. Dead, diseased, or dying trees shall be replaced in accordance with this specification.

A Declaration of Restrictions and Covenants outlining the property owner's street tree responsibilities shall be executed, recorded, and submitted with the application/plan.