Standards for Right of Way Trees

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- Tree Planting Standards
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- Tree Clearance Requirements
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Overview
The following standards regarding trees in the public right of way of Louisville Metro maintained streets are set forth and maintained by Louisville Metro Government’s Division of Community Forestry (Division), the governing body of public trees excluding parks, parkways, and state roads. No tree may be planted, pruned, or removed/replaced in a public space, which includes the green verge* or a tree well in the public right of way, without a permit issued by the Division. Permits for planting new trees will not be allowed if the width of the green verge is less than three (3) feet, the proposed location does not meet the below specified tree spacing standards, and/or Division tree planting standards are not adhered to.

The Division maintains a Master Tree List (refer to Appendix 1A) that clarifies permitted and prohibited tree species. Prohibited tree species listed in the Master Tree List are not allowed to be planted. If a prohibited species is planted, the Division can require the abutting property owner to remove the tree at their expense. **The Division has the right to grant permits to plant species not on the list, and the right to waive a standard.**
Tree Size Types and Tree Wells
The following tree size types are recognized by the Division and are outlined in the Master Tree List:

<table>
<thead>
<tr>
<th>Tree Size Types</th>
<th>Based on height at maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: 50’ +</td>
<td>B: 25’ - 50’</td>
</tr>
<tr>
<td>C: 0 - 25’</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Allowable Size Types for the Green Verge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Verge Width*</td>
</tr>
<tr>
<td>3 - 8’**</td>
</tr>
<tr>
<td>8’ +</td>
</tr>
</tbody>
</table>

All tree size types are allowed that comply with the Division’s planting standards.

*The “green verge” is the pervious surface strip of land in the public right of way. The green verge width is the distance of the green space between the curb and the sidewalk.

Tree Spacing
The following spacing will be observed based on the lateral distance from the center of the tree trunk.

A. New and Existing Trees: The minimum spacing between two newly planted trees of the same size type is as follows:

<table>
<thead>
<tr>
<th>Tree Size Type</th>
<th>Minimum Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30 - 40 feet</td>
</tr>
<tr>
<td>B</td>
<td>20 - 30 feet</td>
</tr>
<tr>
<td>C</td>
<td>15 - 20 feet</td>
</tr>
</tbody>
</table>

Figure 1. Spacing of newly planted trees based off of tree size type A, B, and C (Figure not to scale).
The minimum spacing between existing trees and a new tree will be the distance of one-half of the new tree’s mature spread as listed in Michael Dirr’s “Manual of Woody Landscape Plants”.

B. **Street Corners:** No tree, whether on public or private property within Louisville Metro, shall be planted closer than twenty (20) feet from any street corner intersection, measured from the point of the nearest intersection’s curbs or curb lines.

C. **Driveways and Alleys:** No tree, whether on public or private property within Louisville Metro, shall be planted closer than ten (10) feet from any driveway or alley in the public right of way intersecting with any Louisville Metro street, measured from the point of the nearest curb or curb line of that driveway or alley.

D. **Accessible Parking Zone for Handicap Parking:** In cases where current accessible parking zones are established for handicap parking on streets, no trees can be planted in the zone (sign to sign).

E. **Planting Distance from Curb or Sidewalk:** A newly planted tree will be planted at the halfway point between the curb and sidewalk in green verges with widths of three (3) feet or greater, unless the Division determines that another location is suitable.

F. **Overhead Electrical Utility:** The following tree size types will be considered when planting in specified distances from overhead electrical utilities:

<table>
<thead>
<tr>
<th>Distance from Overhead Electrical Utility</th>
<th>Tree Size Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 15 feet</td>
<td>C</td>
</tr>
<tr>
<td>15 - 45 feet</td>
<td>B</td>
</tr>
<tr>
<td>45 feet or greater</td>
<td>A</td>
</tr>
</tbody>
</table>

G. **Underground Utility:** No trees may be planted closer than 36 lateral inches on either side of any buried or underground water, sewer or natural gas utility line.

H. **Other Utilities:** No trees may be planted closer to listed utilities other than the defined distances:

<table>
<thead>
<tr>
<th>Other Utilities</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Hydrant</td>
<td>5 feet</td>
</tr>
<tr>
<td>Utility Pole (Without Street Lamp)</td>
<td>5 feet</td>
</tr>
<tr>
<td>Street Lamp</td>
<td>15 feet</td>
</tr>
<tr>
<td>Electric Transformer Box</td>
<td>10 feet</td>
</tr>
</tbody>
</table>
I. **Traffic Control Signals and Signs**: No tree, whether on public or private property within Louisville Metro, shall be planted in such a manner that the tree blocks a traffic control signal or sign. The following are approved distances from sign types for tree plantings:

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>No Tree Shall Be Planted Closer Than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory (Stop, Yield, Speed Limit, One Way)</td>
<td>20 feet</td>
</tr>
<tr>
<td>Warning (Intersection, Sharp Curve, Deer Crossing)</td>
<td>10 feet</td>
</tr>
<tr>
<td>Parking or Parking Meter</td>
<td>2 feet</td>
</tr>
<tr>
<td>Pedestrian and Bicycle Crossing</td>
<td>10 feet</td>
</tr>
<tr>
<td>Railroad Crossing</td>
<td>20 feet</td>
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</tbody>
</table>

**Tree Planting Standards**

A permit issued by the Division is required prior to planting a tree in the public right of way. Adherence to the conditions listed on the permit is required. The Division has the right to waive these standards.

- Permits for planting new trees will not be granted if the width of the green verge is less than three (3) feet.
- Kentucky811 (Before You Dig) has to be contacted and underground utilities marked prior to planting.
- All new trees need to be at least 1.5 inch caliper size and branched up to 4.5 feet above ground. Note: Caliper size is measured 6 inches above ground for smaller trees (4 inch caliper size or less).
- All approved trees must have a single trunk, unless waived by the Division.
- At the time of planting, all trees must be healthy with normal well-developed branching and a fibrous root system. Trees must be free of defects and insect infestations.
- Division spacing standards must be adhered.
- Scheduled watering should take place at the time of planting, and shall continue for three years. Refer to DCF Tree Watering Regimen (Appendix 1B).
- At the time of planting, branching of the tree must be orientated in a manner that discourages obstruction of vehicular and pedestrian pathways.
- At the time of planting, trees are required to be mulched and mulched yearly. A 2 inch mulch free radius surrounding the base of the trunk is required. Note: Do not use the volcano mulch method.
The act of planting the tree is in accordance with the American National Standard (ANSI) A300 Planting and Transplanting Practices:

- **Digging:** Depth of planting hole shall be equal to the depth of the root ball measured from the **shallowest location on the bottom of the trunk flare** to the bottom of the root ball (Figure 2). The width of the hole shall be a minimum of 2 times the root ball diameter. The sides of the hole shall be sloped and loose (scarify sides to deter compaction).

- **Supporting materials:** If the tree is in a container, remove the entire container at the time of planting. If the tree is balled and burlapped, **remove the entire wire basket and a minimum of 2/3 of the burlap from top of root ball if not able to remove all.**

- **Planting Depth:** The shallowest bottom of the trunk flare should be planted at finished grade, not exceeding ¼ inch above grade (Figure 2). If the bottom of the trunk flare is not visible, excavate and remove excess soil from top of root ball.

- **Root system:** Install the tree in a manner that allows for the root system to be evenly distributed. Prune any girdling or circling roots.

- **Backfill:** Backfill the hole with soil in layers to prevent air pockets. Tap soil down lightly every 6 inches. Do not over compact backfill. Remove any foreign material in the soil. Backfill until finished grade is reached, not exceeding the bottom of the trunk flare.

- **Root Barriers:** A root barrier shall be installed if the root ball is within three (3) feet of any infrastructure or when the green verge width is 6 feet or less. Root barriers are required adjacent to sidewalks. Barrier installation is also required adjacent to the following curb types: vertical curb and gutters, standard roll curbs and depressed roll curbs. Please refer to DCF Root Barrier Installation (Appendix 1C) for root barrier installation instructions and curb types.

Figure 2. Location of bottom of trunk flare (begin here to measure depth of hole).
Root Barrier Specifications:

<table>
<thead>
<tr>
<th>Material</th>
<th>Injected molded Polypropylene or other compatible material that has a minimum PSI of 3800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>18 inches</td>
</tr>
<tr>
<td>Length</td>
<td>72 inches or 6 feet</td>
</tr>
<tr>
<td>Thickness</td>
<td>0.080 inch minimum</td>
</tr>
<tr>
<td>Joints</td>
<td>Interlocking, tongue and groove, or zipper</td>
</tr>
</tbody>
</table>

- **Berm**: Create a circular soil berm 4 inches high and 8 inches wide (Figure 3). The berm should be located along the perimeter of the hole. If sod is dug in creation of the hole, the Division recommends using sod as base for berm. Flip sod over so grass is facing the ground, and then cover with excess soil.
- **Water**: Slowly add 20 gallons of water. Water should be applied prior to mulching in case the tree shifts.
- **Mulch**: Apply premium hardwood mulch at a depth 4 inches and taper to trunk, with a depth of 1 inch over root ball. Do not apply mulch to the base of trunk --- leave a 2 inch radius of space between trunk and start of mulch. Note: Mulch ring of mature trees should extend to dripline.
- **Staking**: Only stake tree if necessary. Refer to Tree Staking Standards.
Figure 3. Street tree planting standard with berm, root barrier and staking (Louisville Metro Public Works & Division of Community Forestry Standard Plan No 100).
Tree Pruning Standards

A permit issued by the Division is required to prune trees in the public right of way or public space. A permit is not required for pruning a branch that is less than a four inch diameter AND causing obstruction of pedestrian traffic, cross-visibility and/or traffic controls.

- **Equipment**: All equipment that is used to perform pruning should be clean of containments to prevent the spread of disease. Climbing spurs are prohibited for pruning.
- **Limb Removal**: Do not cut into branch collar zone (Figure 4, 5). Using the three-cut method (Figure 6), starting with A and ending with C, remove a limb without cutting into the branch collar zone. Do not use wound treatments to cover pruning cuts.
- **Limb Reduction**: Reduce limbs using the limb reduction method (Figure 7), specifically a and b. Cut should be made at a lateral branch or node/bud.
- **Crown Reduction**: Crown reduction is the selective pruning of limbs to decrease the height and/or spread of a tree. No more than 25% of a crown may be removed annually unless permitted by the Division.
- **Thinning**: Thinning is the selective pruning of branches to reduce the density of live branches. No more than 25% of a crown may be removed annually unless permitted by the Division.
- **Root Pruning**: Please contact the Division if root pruning will be conducted.

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Figure 4. Deciduous tree branch collar zone.

Figure 5. Coniferous tree branch collar zone.

Figure 6. Three-cut method.

Figure 7. Limb reduction method.
Tree Clearance Requirements
- **Sidewalk:** 24 inches to 72 inches clearance (LMCO 97.051)
- **Street:** 13.6 feet clearance (LMCO 94.80)

Tree Removal Standards
A permit issued by the Division is required to remove trees in the public right of way or public space. All removals will take place within the timeline specified by the Division. The entirety of a tree must be removed. All excess wood must be removed from site. Stumps must be ground within three months of the removal. Stump grinding is required to a depth of 18 inches below grade.

Tree Replacement Standards
All trees removed are to be replaced within one year of removal and according to Division standards.

Tree Staking Standards
If staking is necessary, use three (3) stakes (Figure 3). Stakes are oriented in a triangle formation around the tree with one stake on the windward side and stake pole on the leeward side. The remaining stake is to be placed at the last vertex point to form a triangle. Stakes are to be driven into the ground at a depth of 6 inches to 1 foot, and outside the root ball. Use tree tie webbing only for securing the tree to the stake; do not use metal material. Tree tie webbing is to be looped loosely around the tree to provide a 1 inch slack for trunk growth and securely tied to the stake. Check the stakes and ties periodically, and remove after one year installation.

Tree Protection
**Critical Root Zone:**
The Critical Root Zone (CRZ) is the area of soil adjacent to the trunk, containing critical roots for stability and tree health. The Critical Root Zone is equal to one (1) foot diameter per one (1) inch of trunk diameter, measured at breast height. Diameter at breast height or DBH is measured at 4.5 feet above grade. For example, a twenty (20) inch DBH tree has a 40 foot diameter CRZ (Figure 8).

**Tree Protection Zone:**
The Tree Protection Zone (TPZ) is the area that restricts activities during construction, minimizing or preventing injury to the tree(s). This area includes the CRZ or beyond based off of tree age and tolerance to construction. The TPZ should include fencing, signage, and trunk protection. No clearing, grading or construction shall take place in the TPZ. No structure shall be placed closer than 15 feet from TPZ fencing or boundary line. No vehicle, equipment or retaining wall shall be used or placed closer than 10 feet from TPZ fencing or boundary line. Consult with the Division or International Society of Arboriculture’s Best Management Practices: Managing Trees During Construction, 2nd Edition 2016 for specifics on installation of TPZs.
**Appendix**

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1A- Master Tree List

Please click on hyperlink below for Master Tree List (Revised 2015):
https://louisvilleky.gov/sites/default/files/community_forestry/community_foresty_files/dcf_master_tree_list.pdf
1B- DCF Tree Watering Regimen (DCF Form_0002)

Tree Watering Regimen for Newly Planted Trees

The best method for watering a tree is to ensure the roots get plenty of water, thus apply water to the entire root zone, not just at trunk. Water slowly and evenly across the root zone. Irrigation systems or a watering bag (e.g., 20 gallon watering bag) are helpful. Make sure the soil is damp and not soggy. Please refer to Watering Bag Instructions (Appendix 1D) for guidance on watering bag usage.

1 water application = 20 gallons of water slowly applied to root zone

Scheduled watering should take place at time of planting, and for three years after installation:

- **Planting Day:** Tree needs to be watered immediately.
- **Year 1:** Water tree once a week. Enough water should be applied, so the tree receives the equivalent of one (1) inch of rainfall weekly* when temperatures are in the high 70s (°F) or above**. The watering schedule should start approximately in May and conclude in October.
- **Year 2:** Water tree every other week from May through October, or when temperatures are in the high 70s (°F) and above.
- **Year 3:** Water tree once a month from May through October, or when temperatures are in the high 70s (°F) and above.

*If a rainfall event produces one (1) inch or more of rainfall, there is no need to water trees. Over watering can damage trees. One can test the soil moisture levels adjacent to the root zone by digging at a depth of two (2) inches, and then feel for moisture.

**Adjust timing of watering start and/or end dates based on current temperatures experienced.

Helpful Links:

- Arbor Day Foundation: [https://www.arborday.org/trees/tips/watering.cfm](https://www.arborday.org/trees/tips/watering.cfm)

March 2018
DCF Form_0001
1C- DCF Root Barrier Installation Instructions (DCF Form_0010)

Figure 1-A. Root barrier installation zone.

1. Install Tree.
2. Place tarp over sidewalk with edges folded over.
3. Center root barrier with trunk center and remove sod adjacent from sidewalk or curb. Sod strip must be 6 inches wide.
4. Remove soil in root barrier installation zone and place on tarp.
5. Place root barrier in hole (top of root barrier should be flush with top of sidewalk).
6. Drape tarp over root barrier, so soil does not get in between sidewalk and root barrier while back filling. Back fill and tap down soil in hole.
7. Place sod on top of filled hole.

Helpful Video: [https://www.youtube.com/watch?v=88KX3lkoego](https://www.youtube.com/watch?v=88KX3lkoego)
Curb Types (Root Barrier Required):

Figure 1. Standard Roll Curb.

Figure 2. Vertical Curb and Gutter.

Figure 3. Depressed Roll Curb.

Figure 4. Median Curb.

Please refer to Louisville Metro Government’s Standard Plan No 410A (2015 Edition) for specific details on curb types:
**1D- DCF Watering Bag Instructions (DCF Form_0009)**

**Step 1:**
Place back of watering bag against trunk, with zippers on the uphill side of tree. Wrap both sides around trunk until zippers meet together. Zip both sides of bag together from bottom to top.

**Step 2:**
Lift up tag at top of bag to expose fill opening. Insert water hose (up to 3" diameter) into fill opening, turn on water supply and begin filling. **NOTE:** Fill bag only to approximately 1/4 capacity.

**Step 3:**
Gently lift up on the two black straps at top of bag in order to fully expand bottom.

**Step 4:**
Fill with water to the top of bag. The watering bag will be empty in approximately 5 to 9 hours. Small holes are located at the bottom of the bags to release water. Please make sure these holes do not become clogged. One can remove bags after water is released or keep on trees for the duration of the watering season. **However, please make sure to remove bags from trees post watering season.** We do not encourage putting fertilizer in the watering bags or fertilizing the trees. Fertilizers usually damage young trees.

*Make sure lawn mowers or string trimmers do not hit base of trees or watering bags.
*Use watering bags on 1 inch or greater caliper trees.

Helpful video: [https://www.youtube.com/watch?v=GMpVdCkM7ho](https://www.youtube.com/watch?v=GMpVdCkM7ho)

Questions? Please contact the Division of Community Forestry at (502) 574-3927 or CommunityForestry@louisvilleky.gov.