

Watering trees in the ROW

The typical right-of-way is not much like a forest where trees evolved. The soils are compacted; the rooting zone is restricted; often there's no "shared shade"; and reflected heat from pavement raises microclimate temperatures by 10 - 20°F.

By and large, the City chooses trees known for their ability to endure this stressful, alien environment. But even these tough trees survive planting and perform better if you help a bit.

- Newly planted trees are exquisitely vulnerable to even brief water shortages during the establishment/ rooting-out phase (5 - 10 years post-planting).
- Young, established trees still need a watchful eye -- remember, we're asking them to grow in limited soil volumes.

With your support, ROW trees are more likely to get established and reach their genetic potential sooner and live longer before needing to be replaced. Doing so benefits the entire community. Shade-over-pavement is associated with urban cooling. Increased canopy volume improves local air quality and mitigates stormwater problems associated with intense rain events. The numerous other environmental benefits can be left for another article.

When to water

Ideally, before trees are showing stress. Certainly before foliage starts scorching. If you're weather-aware, then start at the onset of forecasts for prolonged heat (>86°F), drought, and/ or breeziness (>12-15 mph).

Under urgent conditions, it's OK to disregard rules you've heard about best time of day to water. Morning application reduces evaporative losses associated with sprinklers. Evening application cools hot soils and aligns with when trees are able to take in the water.

Where to water

If a tree is newly-planted -- water at the trunk/ directly over the root ball. As years pass, gradually extend this zone to support root expansion outside the root ball and beyond the planting hole. Depending on tree species and site factors, it takes trees 5 - 10 years to become fully established.

Established trees -- water within the dripline of the tree, i.e, that area where the tree casts shade when the sun is directly overhead. The extent of rooting goes well beyond this zone, but this is the area of greatest root density and opportunity for uptake of water and nutrients.

How much to water

None, when:

- the rain gauge in *your yard*, not CVG, is recording at least 1.0" per week *in showers*
 - deluges often do not achieve needed soil infiltration
- and temperatures are <86°F
- and breezes are consistently <12 - 15 mph

10 gal/ inch trunk diameter¹/ week when:

- a tree is newly-planted or not established and
- any **one** of these factors is in play
 - your rain gauge records <1.0" per week *in showers*
 - daytime temperatures are >86°F
 - breezes are consistently >12 - 15 mph

10 gal/ inch trunk diameter/ **twice per week** when:

- a tree is newly planted or not established and
- any **two** of these factors is in play
 - your rain gauge records <1.0" per week *in showers*
 - daytime temperatures are >86°F
 - breezes are consistently >12 - 15 mph

Vigorous, middle-aged trees

Of course these benefit from attentive care, but if water conservation is an issue and you've got more vulnerable trees in the landscape, these are the trees that can tolerate some neglect under early/ minimal drought conditions. They have abundant reserves of carbohydrates stored in the root system that provide resilience during stressful environmental conditions.

If drought/ heat stress is prolonged, add these trees to the watering circuit.

- under drought without heat, they need ~1.0" rain per week

¹Trunk diameter is measured 4.5' above grade/ soil level. Use a sewing tape to measure the distance around the trunk at this height (=circumference). Divide by 3 and you'll have trunk diameter in inches. Trees add 0.25 - 0.50" of diameter per year, so re-check this every odd or even year.

- drought with heat or breezes bumps this to 1.5 - 2.0" per week

If these trees are in the ROW, it's tough to water with a sprinkler without wastefully watering pavement. Consider using:

- a soaker hose
- a bubbler/ hose-end breaker device that is allowed to run slowly in several locations over time
- allow devices to run until soil is wet to a depth of 6 - 8 inches
 - check with a trowel, butter knife, screwdriver, you'll feel the difference between wet and dry

For your landscape trees (*especially* those that provide shade-over-pavement)

- set a sprinkler to target the root zone within the dripline
- sprinklers generally provide the equivalent of 1.0" of rain per hour
- but often, urban soils only permit infiltration at a rate of 0.2" per hour
 - when you see run-off, shut off the tap and restart in 30 - 60 min
 - repeat until you've supplied the needed water deficit

Ancient, venerable trees

Providing water during times of shortage will go a long way toward delaying the day that tree enters the downward spiral of decline toward death. These trees provide such great environmental benefits, it's hard to argue against helping them along!

Due to considerable branch spread, at a minimum, focus irrigation to the zone that covers 50% of the distance from trunk to branch tips. Follow tips in the middle-aged trees section, above.

General principles to keep in mind

Remember -- we're only talking survival needs during periods of stress here. This advice does not pertain to "thrival" needs.

Apply water slowly to avoid runoff. Water that soaks in deeply (10 - 12") encourages and maintains deep-rooting. Deep-rooted trees are more drought tolerant than shallow-rooted ones (saving you work in the future).

How do you know for sure that water is needed? Check soil moisture in 4 - 6 locations using a spade, butter knife, screwdriver or similar tool -- if soil is still damp at a depth of 3 - 4" you can put off watering that day and check again the next. Of course, with newly planted trees, *it's only the dampness of the rootball soil that counts.*

Other considerations

If you're a dyed-in-the-wool tree lover, these additional actions will help conserve both shade & water.

Minimize competition for moisture with turf and groundcovers. Turf grasses are highly competitive for moisture in the upper 6 - 8" of soil. Groundcovers like English ivy and euonymus are somewhat less competitive but pose other concerns because they can obscure basal defects and provide cover for rodents that can kill trees in the absence of a drought. Expanding and mulching the turf-free zone ensures the tree gets more of the water you apply.

Mulch wisely: Mulch only to a depth of 2 - 3 inches. This is enough to moderate soil temperatures and prevent most weeds without impeding movement of water into soil. Of special note -- if you use "black gold" type composted wood mulch, cultivate it once or twice a month from July - September to prevent development of a crusty, water-repellent cap over the central root zone.

Due to Wyoming being on the western margin of the transportation/ industrial corridor that is I-75, Vine St. and Reading Rd., and due to prevailing weather patterns, urban heat island effects are increasing the stress on trees and plants in our area. The heat that radiates from extensive pavement and other impervious surfaces causes light rains and showers to dissipate before reaching the ground. Likewise, heavier showers that fall in College Hill or Finneytown, diminish over Wyoming, Lockland, Evendale & Reading, reforming over in Blue Ash. Because of this, we need to work harder to grow the canopy that can mitigate these effects of the built environment.

We thank all of you that help us grow bigger, better ROW (and street-near) trees!!

