How to:
Protect established trees during your landscape conversion

The value of trees
Many yards undergoing a landscape conversion are home to large, established trees—valuable assets that add shade, cooling, beauty, wildlife habitat and more to our urban desert community These trees deserve our special protection and consideration during any landscape renovation.

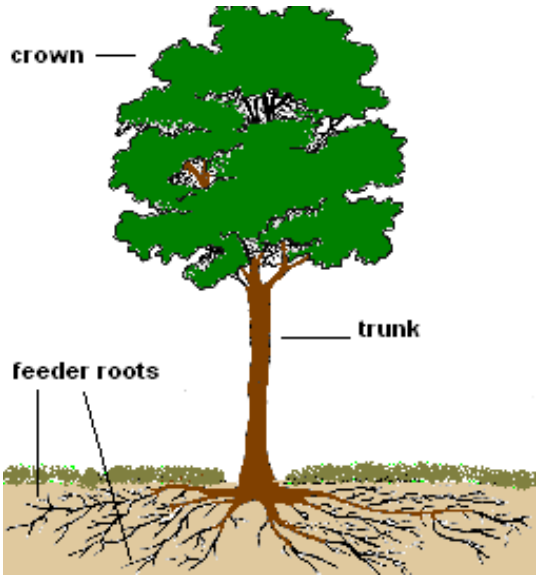
Trees in the lawn
Trees and lawns don't necessarily get along. Above ground, large tree roots that grow to the surface create safety hazards and mowing obstacles. Tree trunks can be damaged by lawn equipment. Below ground, turf and tree roots compete for sunlight, water, nutrients and oxygen. This struggle often produces poor-quality turf and slow-growing young trees. As they adapt to their environment, trees begin to rely on the regular, and sometimes excessive, water and/or fertilizer applied to lawns. Additionally, a lawn thatch can serve as a temperature buffer for tree roots. Once the tree has established itself in or adjacent to a lawn, any disruption to the growing conditions, such as removing the grass, can carry its share of problems—stress, insect infestation and disease. Common disruptions around trees include:

- Mechanical root damage from excavation and trenching equipment
- Physical damage to the trunk, branches or large roots from equipment
- Extreme changes in the amount and distribution patterns of water and/or nutrients
- Compacting the soil with heavy equipment, or changing the final grade around the tree, both of which can smother the roots

Landscape conversions and other construction projects can result in tree damage and loss if you don't consider these conditions.

Why tree roots matter
It's important to protect the tree's roots. Roots store food needed to produce spring foliage, absorb and transport water and minerals from the soil to the rest of the tree and anchor the tree to the ground.

Trees in urban areas seldom develop taproots. Small feeder roots that average only 1/16 inch in diameter, constitute the major portion of the root system's surface area and are located throughout the entire area under the canopy of the tree, often further. Feeder roots usually grow up toward the soil surface, where they mix with lawn and shrub roots and compete for the water, oxygen and minerals that are more abundant near the surface.



Even with careful planning, a tree's root system is often disturbed during landscape conversions or other construction projects. Roots left behind lose the temperature buffer and water source provided by the lawn and sprinkler system, which leads to desiccation and additional root loss.

Evaluating your trees
Before you start your conversion, take some time to evaluate the trees that may be impacted by your project. For each tree, ask:

- Is the tree healthy? Healthy enough to survive the stress the construction will cause? Some trees may already be in a state of decline before the project starts.
- Is the tree worth saving? Some species are more prone to problems.
- Will the tree be able to adapt to the new environment?
- Is the tree compatible with the new landscape? Does the tree fit the design? Is the tree's water use compatible with the plants that will be installed around the tree?

If the answers to these questions are yes, the tree is worth saving. Turn over this page to learn nine ways you can protect our mature tree.

Nine ways to safeguard a mature tree

Do your conversion when it is cooler: Leaves lose less moisture in cool temperatures, so less water will be needed. Deep water your trees several times in the weeks prior to starting your conversion to help them build up reserves**.**

Identify and protect major roots: Identify and note roots close to the surface around the area of the trees. Keep root removal and damage to an absolute minimum.

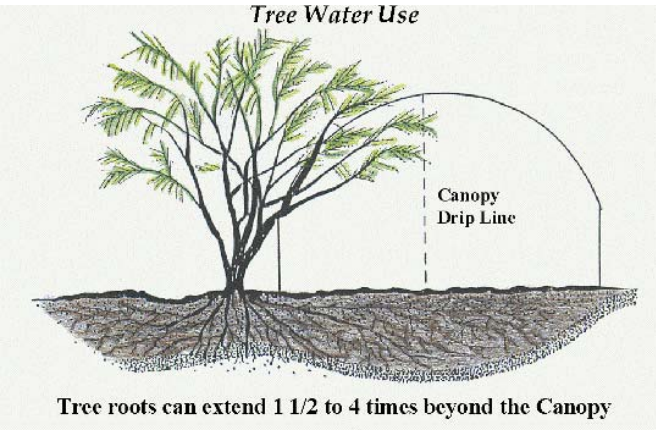
Remove turf carefully: Turf around trees is best removed with herbicides and a dethatcher. Heavy machines can crush existing tree roots, break branches and wound bark tissue.

Create a protection zone: If you must use a tractor, sod cutter or other heavy equipment, erect a protective barrier around the tree at the edge of the canopy. This will help keep equipment at a safe distance from the tree, avoid physical injury to the trunk and branches and reduce damage to the large woody roots and soil compaction.

Distribute the weight: If the use of heavy equipment is unavoidable, use plywood where possible to spread the weight of the machine over a larger surface area to reduce soil compaction.

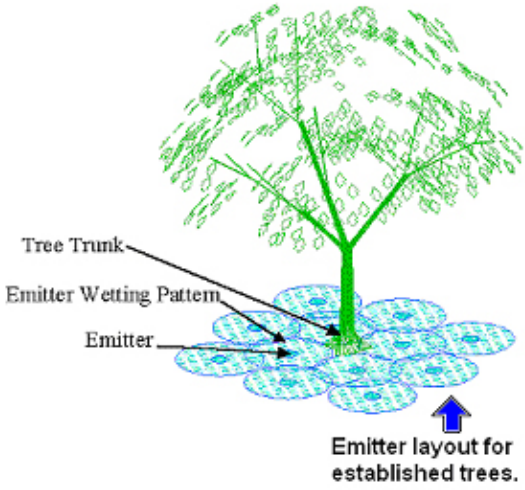
Limit trenching: Try to avoid making any trenches under the canopy of trees to minimize cutting roots. Remove any damaged roots, making a clean cut to help the root heal and regenerate. Consider tunneling under roots instead of trenching.

Place emitters wisely: In lawn conversions, sprinkler systems are typically replaced with drip systems. When installing the new irrigation system, you must supply water where it will be needed—under the canopy, at least out to the dripline.



Tree roots can extend 1 1/2 to 4 times beyond the Canopy

Three or four emitters at the base of a mature tree won't cut it: They cannot wet the entire established root zone. Emitters must be installed throughout the root zone. This is critical to regenerating feeder roots that may have been lost. The goal is to provide water to 50 to 75 percent of the root zone area that received water before the conversion. If other plants are being installed under or near the tree canopy, those emitters will also provide some of the water the tree needs. Choose shrubs with the same water-use requirements as the tree to avoid compromising the watering schedule.



Emitter layout for established trees.

Use a permeable weed barrier: Don't use plastic sheeting under rock or organic mulches. Water and oxygen cannot penetrate the film. Instead, use landscape fabrics, also known as geotextiles or weed blocks, which allow water and oxygen to penetrate the soil and reduce weed growth.

Use mulch: Mulch must be installed correctly. If it's too shallow, you won't receive the benefits; too deep, and you can cause harm to trees and other landscape plants. While deep mulch layers work well to suppress weeds, they can promote excess moisture in the root zone, leading to stress and root rot. Keep the mulch 2 to 4 inches thick and taper it away from the base of the tree for long-term results.

Resources

Southern Nevada Water Authority
snwa.com
258-SAVE (Conservation Helpline)

Southern Nevada Arborists Group
702-225-SNAG
2375 E. Tropicana Ave. # 109
Las Vegas, NV 89119

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