



Tree Roots, Driveways and Sidewalks

Trees sometimes have an annoying habit of growing just where we plant them. Thoughts of “Wouldn’t it be nice to have a tree growing right there?” or “It would shade the whole house,” can easily turn to “when did that tree get so big?” and “Look what the roots are doing to the driveway!”

Indeed, when planting trees near our homes, we have to be aware of the serious and expensive consequences of tree roots growing under driveways and sidewalks. Fortunately, planning for tree root growth is really quite simple by keeping a few simple guidelines in mind. Don’t plant large growing trees within 20 feet of sidewalks or driveways, and small trees (under 20’ in height) no closer than 10 feet. The scenario becomes more difficult when existing tree roots already make your driveway unusable or the sidewalk unsafe. Should you cut the roots and replace the driveway? Will cutting the roots kill the tree or make it unstable? Will the roots re-grow and damage the driveway later? And why do tree roots seem to like the space beneath driveways, anyway?

Well, first things first. Tree root systems generally extend about one to one-and-a-half feet out from the trunk for every inch of trunk diameter measured about four feet above the ground (i.e. a 12 inch diameter tree will have roots about 12-15 feet away from the tree in all directions). Tree roots will grow anywhere there is uncompacted soil and oxygen, which is under your driveway and side walk. Tree roots that have been growing in this situation for some time can be quite extensive and can cause cement to buckle four inches or more, creating a significant hazard. Furthermore, building contractors who replace driveways may not be as knowledgeable as they should be about construction impacts to root systems. They are often not the best source to consult when asking, “Will replacing the driveway kill my tree?”

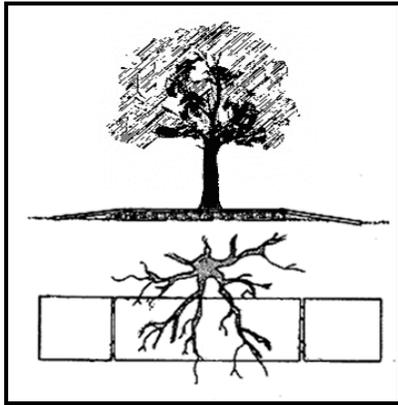


What are the options?

Cutting the roots at the edge of the driveway or walk is seldom a long term option for a number of reasons. First, cut roots more than three inches in diameter are particularly susceptible to insects and disease attack and often rot back into the trunk. This can make the tree structurally unsound over time. Secondly, roots under the driveway are adding to the structural integrity of the tree.

Removing them might compromise the tree's support system, making it prone to being blown over in the wind. Additionally, tree roots less than two inches in diameter can also regenerate. Cutting and pruning roots at the edge of the driveway may become an "every two year" ritual if you stay on top of the situation. Cutting small roots as a preemptive strike can be a reasonable plan to stave off possible encroachment as young trees grow bigger, but once a tree becomes large and the damage severe, removal of the tree is the best long term plan if the driveway is to be replaced.

If you have determined that cutting the roots is not an option and you want to keep your tree, there are some solutions that can help you save your concrete and lessen the impact to the root system. Those options, however, can be expensive.



Bridging: This is a process of constructing a form over the existing damage and pouring a new driveway or section to replace the damaged portion. This is probably the least expensive option, but will leave a "hump" in your driveway or sidewalk. It is likely that this section will also be compromised over a number of years, but it can be removed and repoured when needed. This saves replacement of the entire driveway and removal of the tree.

Alternative surfaces: Cutting and careful removal of the existing damaged concrete is required. The area from which the section was removed is covered with a geotextile fabric, and then three to four inches of "crusher run," which is an angular, fine to medium grade aggregate of crushed stone, usually granite. This stone is not compacted, but is used as a final substitute top surface. Some edging may be required to keep the stone from wandering laterally. Alternatively, a six to eight inch deep layer of coarse mulch can be used in place of the stone. The mulch has a tendency to wash away in heavy rains and will need to be replaced regularly; it will not provide as solid a surface as the aggregate.

These treatments are not offered as solutions in lieu of a consultation with a certified arborist familiar with assessment of the structural integrity of tree root systems and construction techniques. The analysis of your situation by a certified arborist can help determine if the tree in question is healthy and structurally sound and able to survive construction activity. It can be very disappointing to spend a significant amount of time and money to save a tree, only to have it die for lack of attention to details a certified arborist could have provided.