Choosing the best street trees

by Pat Munts, MasterGardener Eastern Editor

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The street trees, above, have been topped to keep branches from touching power lines, affecting the appearance and health of the trees, while only delaying future maintenance issues and expense.

Everyone knows power lines and trees don't always coexist well. We are reminded of that every time a good winter storm sends branches into the lines, cutting our lights and heat. Even worse are the instances when tinder-dry branches are blown onto electric lines resulting in wildfires that destroy property and life.

Unfortunately, when city or utility crews come back to prune trees out of the lines, it often stirs debate in the affected community. On one hand, people don't want their trees pruned into unnatural shapes that don't resemble a real tree. On the other hand, by state law, the utility companies and cities are required to regularly maintain clearances between utility lines and trees to national standards. It's a dilemma that has been going on for decades and will go on as long as we have overhead lines and trees vying for the same space.

The historical perspective

The conflict between trees and utility lines has been in the making for over 100 years, ever since electricity began to power cities and towns at the turn of the twentieth century.

In the first half of the twentieth century, the newfound wealth from forestry, farming, and mining in the Pacific Northwest was building Seattle, Portland, Spokane, and dozens of other towns. Forests were cleared to make way for houses and businesses. Newfangled electric and telephone lines were being strung through neighborhoods now devoid of trees to serve the new homes. After the homes were built and the utility lines installed, many of the neighborhoods were replanted with deciduous trees native to the East Coast. In that era, a mark that a community in the West was "civilized" was that it looked like cities in the East. That meant planting the streets so they looked like eastern boulevards.

Fast-forward to the end of the twentieth century. These once-new neighborhoods have matured. Utility lines which used to be just for electricity and telephone have grown to include fiber-optic cable links and have been beefed up to meet the new demands for power and communication technology. The trees have grown from just a few feet tall to towering giants with crowns that wrap around the utility lines.

In these ensuing decades, the trees took a beating. They were left to grow at will and were treated as little more than a nuisance when it came time to do street and utility work. When there was canopy pruning or digging around their roots, it was done with little regard to the trees' long-term health. If they were pruned,

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A desirable street tree, like the *Zelkova serrata* 'Schmidtlow', above and at left, needs no top pruning because its maximum height is under the power lines. By allowing the tree to grow into its natural habit, the tree retains its beauty year round, has fewer health issues, and requires minimal maintenance.

the trees were usually severely topped or rounded off only to grow back as thickets of brushy branches that further weakened the tree.

Change of direction

It wasn't until about 30 years ago that cities began to realize the value of the urban forest as an important element in the environmental health of a city. In a recent study in Portland, it was found that for every dollar invested in planting and caring for trees, $3.80 was returned in benefits.

At about the same time, a new approach to pruning emerged from the research of Dr. Alex Shigo, a scientist with the U.S. Forest Service.

Shigo found that when a tree was wounded, a series of sophisticated biological mechanisms allowed the tree to wall off and quickly grow callus tissue over damaged areas. As a result, by the late 1980s, his work had turned the centuries-old art of arboriculture on its head and replaced it with a science-based body of knowledge.

Instead of cutting the tree and its branches anywhere that was convenient or topping the tree to reduce its size, arborists now had a body of scientific information that helped them choose where and how to make cuts so that the tree could isolate wounded tissues and maintain a healthy crown. These pruning and care techniques were eventually adopted by the International Society of Arboriculture (ISA) as best management practices for trees in utility corridors.

Urban forestry programs emerged, and communities began to set standards for planting and maintaining street trees. They developed lists of acceptable trees that could be planted in street and utility corridors, instituted permitting processes to ensure that trees were planted and cared for properly, upgraded maintenance schedules, and involved citizens in the process of managing the urban forests.

Two decades of progressive thinking and action, however, can't correct 100 years

of neglect. The conflicts remain. Keeping trees and utility lines separate isn't a matter of choice; it's a matter of public safety that is controlled by the nature of electricity and state law.

Electricity always seeks the ground. Given a chances to complete that circuit, it will jump or arc from the wires to the ground using any conductive object it comes into contact with as a conduit. That can be branches blown into a line in a windstorm, a human coming into contact with a live line, or even the errant squirrel that puts its feet in the wrong place at the wrong time while scurrying around at the top of a utility pole.

Keeping to code

Because of this, utility companies are required by law to maintain a set distance between power lines and the trees and structures close to them. The spacing requirements are set by the American National Standards Institute and legally codified into the Washington Administrative Code. The code requires that there must be ten feet of clearance around the line where it is close to nearby trees or structures.

As a result, with the historical backlog of unmanaged trees and their maturity, the pruning needed to bring established trees in older neighborhoods into compliance can be drastic.

Pruning decisions are supposed to be made based on the ISA-approved techniques developed by Dr. Shigo's research. Referred to as directional pruning, the techniques call for cuts to be made on branches so that the tree is directed to grow away from the power lines and so the pruning wounds will callus over quickly. The techniques vary depending on the tree's natural growth habit, whether it is a conifer or a deciduous tree, and whether the wires are running through the middle of the canopy or to one side. Directional pruning often leaves trees with big holes, V's, or flat sides in the canopy. Because trees grow each year and pruning is usually done every few years, the trees usually have to be cut back further than the required ten-foot distance.

To the layman, this form of pruning doesn't look natural or pleasing. In reality, by leaving as many of the major scaffold

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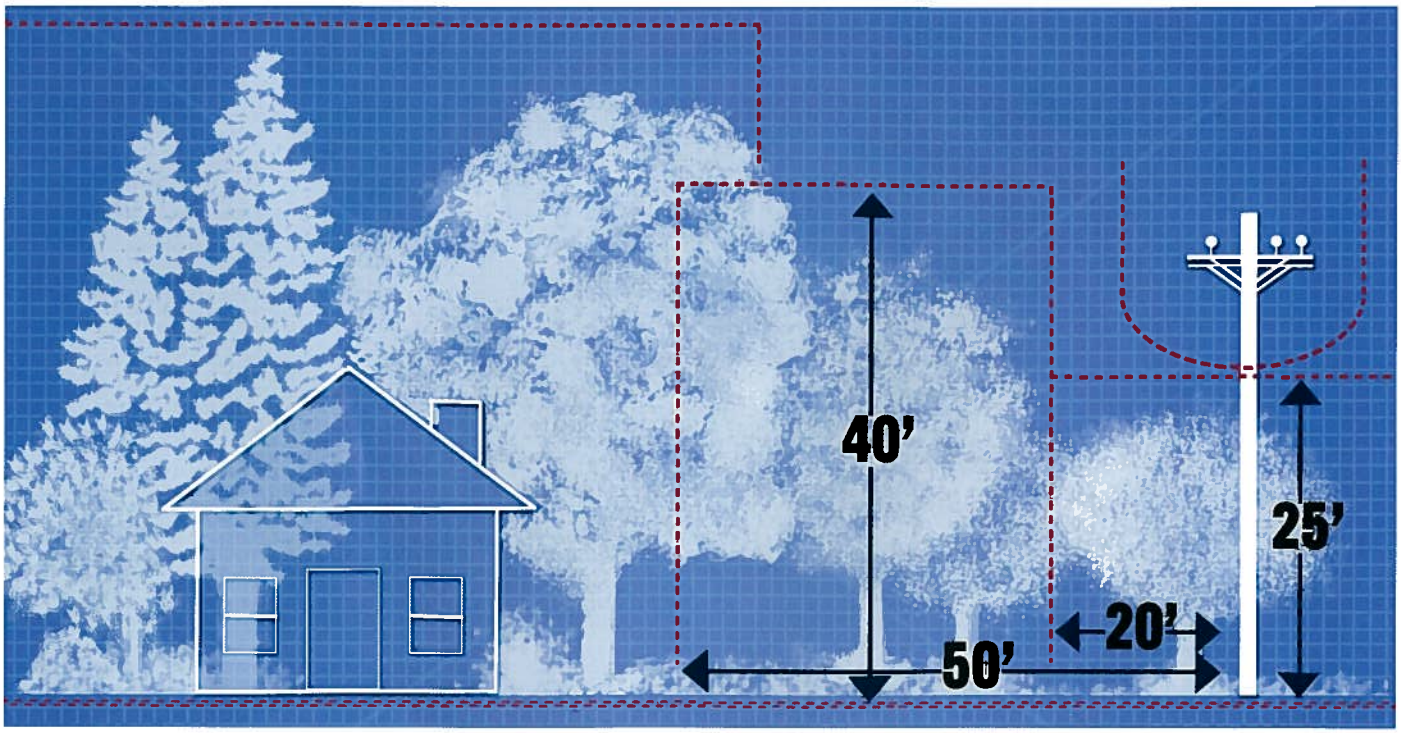
The best trees for under utility lines are smaller, upright trees such as the Adirondack crab apple, top left, or the *Amelanchier x grandiflora* 'Autumn Brilliance' serviceberry, top right, that grow to a height of 25 feet or less. A landscaped utility corridor with lower growing trees under lines and flanked by taller trees away from the lines is shown in middle photograph. A residential yard, bottom photo, has lower growing trees planted near the lines with taller ones further back to still provide the yard with shade.



Home owners are encouraged to plant or replant their property using a zone system that breaks their lot into three areas, with the utility and parking strip area planted with low-growing trees or shrubs. People living near forests or rangelands, however, should follow the stricter guidelines of firewise plantings.

branches in place, the tree's health and structural integrity are still intact. The old techniques that rounded the top of the tree below the lines or topped all the branches may have made the tree look more "natural," but they completely disrupted the tree's growth habit and ultimately led to a weaker tree with a shorter lifespan.

A question that is often asked of urban forestry and utility organizations is whether a homeowner can bring in his or her own arborist to trim the trees. The answer is usually no because of liability issues. Anyone doing arbor work near power lines has to be specially trained and then serve a multiyear apprenticeship to be certified to do the work. Most arborists, even ISA-certified ones, do not have this training.

Why can't utility lines just go underground?

Another question that always gets asked is why utility lines can't be put underground. Seems easy enough, and in new construction, it is often done. However, in older neighborhoods with large established trees, it is another matter. Established trees have extensive root systems that cannot be seen from above ground. There is no way to tell where the main roots are, what problems they are having, or which direction they prefer to grow. As a result, an arborist has no way to tell where to make the best cuts. Consequently, there is a greater potential to severely damage the trees overall by putting the lines underground than would be caused by pruning the crown.

Homeowners can prevent future conflicts between street trees and utility lines by planting the right tree in the right place.

In many cities, it is the responsibility of the homeowner to care for the street trees in front of their homes. To help citizens select appropriate trees for parking strips and utility corridors, many cities have lists that specify what trees can be planted in these areas. To help insure that trees are managed correctly, many require permits to plant, remove, and do major maintenance work on the trees. Some have tree-planting programs that can assist in the acquisition of the appropriate trees and help with planting. Each city is different, so check with your local urban forest program for the permit process and approved tree list in your area. Remember that trees approved for another municipality may not be appropriate for your community.

The zone system

Many utility and street departments are now suggesting that homeowners plant trees using a zone system that breaks a residential lot into three areas; the parking strip and utility corridor, the front and side yards, and the back yard.

In the parking strip area and under utility lines, small trees that mature at a height of about 25 feet work best. They can grow to their full height and still not interfere with the lines. Choose trees with a narrow growth habit for narrow parking strips while trees with a spreading canopy will work better in wider strips. Keep in mind that because a parking strip is in an open, public space, it is better to buy trees with larger trunk diameters so the tree is bigger and better able to stand up to the wear and tear of life on the street.

Front and side yards can accommodate trees 35 to 40 feet tall. Trees with spreading canopies should be planted at least 25 feet from sidewalks, overhead wires, and buildings to keep them from causing problems with existing or future utility lines. Trees with

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Trees selected for interesting traits besides their height can make utility corridor plantings a colorful, vibrant part of a landscape. Some bright possibilities include *Amelanchier laevis* 'Snowcloud' serviceberry, top left, and clockwise, blooms of *Cornus mas*, *Malus* 'Jewelcole', flowering cherry, *Syringa reticulata* 'Ivory Silk' bloom, and *Amelanchier laevis*.

an upright or pyramidal habit can be planted within 10 feet of these structures.

In the back yard, trees of any size can be planted as long as there is room for them to grow to their natural shape. If overhead wires are present or the lot has a utility easement along the back, plant short-growing, narrow trees as are appropriate for the parking strip. Each community may have tree species recommendations based on invasiveness or conflict with commercial agriculture. To avoid problems, check with your local urban forest program or Extension office.

As long as trees and utility lines share space, there will be conflicts. If we manage the conflict in the favor of the trees' health and well being, the trees will continue to grace our cities with their environmental benefits for years to come. ■

SelecTree:
A tree selection guide

The SelecTree Web site allows you to identify tree species with multiple attributes, including utility clearance. It is a California-based site, so it includes some species not adapted to colder climates.

Include hardiness information in your search.

http://selectree.calpoly.edu/utilityTree_zones.lasso