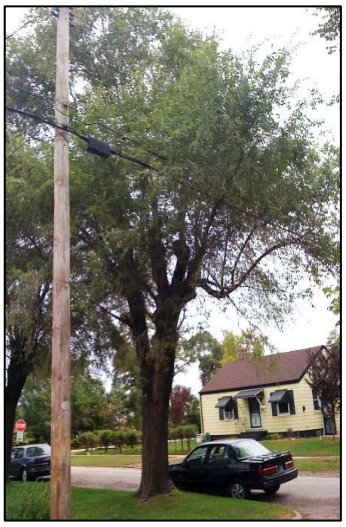
Trees and Overhead Utilities in Indiana

Trees conflicting with overhead utility lines cause power outages and present public safety hazards. Limbs in contact with electric lines provide a path for electricity to travel creating a hazardous situation that may result in fire or electrical shock. Additionally, during severe storms involving high winds, lightning, or ice, trees and tree limbs can disrupt communication and electric power to thousands of utility customers for extended periods. Power loss can seriously affect the everyday operations of a community. It is the utility company's responsibility to deliver power safely and reliably by keeping lines free from interference by trees.

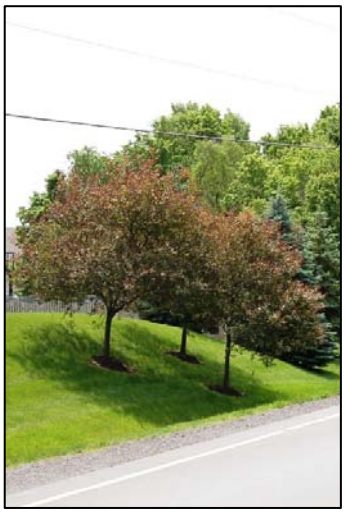


How many street trees are present under overhead utility lines? What is acceptable in the standards of line clearance and limiting maintenance costs? In 2008, Indiana DNR, Division of Forestry, Community and Urban Forestry commissioned a study to assess the status of the state's street tree resource using a sample statewide inventory and analysis. The Sample Urban Statewide Inventory project used the U.S. Forest Service's i-Tree's STRATUM application to calculate urban forest resource structure, function, and value in 23 communities across Indiana. The combination of street tree inventories and STRATUM analyses has provided the state of Indiana with statistically valid and reliable estimates of the frequency of Indiana's street trees conflicting with overhead utility lines.

- 21% of Indiana's street trees are located under utility lines[1], and
- 85% of those trees under utilities are incompatible species[2].

Trees located under utility lines are deemed incompatible when the species' mature growth size exceeds the height restrictions caused by overhead utility lines and encroaches into the area around wires that need to be clear of obstructions.

Incompatible, tall-growing trees (those generally over 30 feet in height) require utility companies to prune limbs to maintain a safe clearance distance between the tree canopy and wires. Utility pruning often results in creating a crown with an unnatural V-shaped or unbalanced appearance, and can lead to additional safety concerns involving the integrity and structural strength of the tree. Trees that undergo multiple, periodic clearance pruning are subjected to increased stress and are more susceptible to insects and diseases. Due to the time spent maintaining proper clearances, the costs of maintaining a tall-growing tree under utility lines are larger than the costs of maintaining a small-growing tree of a more appropriate size. For many reasons, tall-growing trees should not be located under or near aerial utility lines.



When planting trees in the urban landscape, select only small-growing trees to be placed under overhead utilities. Table 1 provides a list of suggested small-growing trees that will perform well as street trees in Indiana communities. In general, small-growing trees reach the height of 30 feet or less at maturity. Choosing urban-tolerant, small-growing trees for use under overhead utilities will allow for decreased pruning and removal maintenance costs, assures the natural form of the tree is maintained, and reduces the number of power outages caused by tree conflicts. Prior to planting trees near utility lines, consider all of the site restrictions and the trees' mature growing-size. The right tree, planted in the right place, will provide a safer environment, reliable power, and natural beauty and value for years to come.

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Table 1. Trees Recommended for Planting Under Overhead Utilities

Duke Energy Suggested Species

Scientific Name	Common Name	Cultivar	Mature Growth Size (Height in Feet)
Acer ginnala	Amur maple	'Compactum'	15 to 20
Amelanchier arborea	Downy serviceberry	'Glenform' and 'Sprizam'	15 to 20
Cercis canadensis	Eastern redbud		20 to 30
Crataegus crusgalli	Cockspur hawthorn	'Inermis' and 'Vaughn'	20 to 30
Crataegus laevigata	English hawthorn	'Crimson Cloud'	15 to 20
Juniperus chinensis	Chinese juniper	'Keteleen', 'Spartan', and 'Spearmint'	15 to 20
Juniperus scopulorum	Rocky Mountain juniper	'Gray Gleam', 'Mofettii', and 'Moonglow'	15 to 20
Juniperus virginiana	Eastern redcedar	'Emerald Sentinel' and 'Hilli'	16 to 20
Magnolia stellata	Star magnolia	'Royal Star' and 'Ann'	15 to 20
Malus species	Flowering crabapple	(disease resistant only)	15 to 25
Prunus species	Ornamental flowing cherries		15 to 25
Syringa reticulata	Japanese tree lilac	'Regent' and 'Summer Snow'	20 to 30
Thuja occidentalis	American arborvitae	'Elegantissima', 'Emerald', and 'Techny'	10 to 15
	Additional Suggested Small-Growing Street Trees		
Acer buergerianum	Trident maple	'Streetwise'	20 to 30
Acer cappadocicum	Coliseum maple	'Aureum'	25 to 30
Acer griseum	Paperbark maple		20 to 30
Acer tartaricum	Tartarian maple		15 to 20
Acer truncatum	Shantung maple		20 to 25
Amelanchier laevis	Allegheny serviceberry		15 to 25
Carpinus caroliniana	American hornbeam		20 to 30
Chionanthus virginicus	White fringetree		25 to 30
Cornus mas	Cornelian cherry		20 to 25
Cornus kousa	Kousa dogwood		20 to 30
Oxydendrum arboretum	Sourwood	'Mt. Charm'	25 to 30
Styrax japonicus	Japanese snowbell	'Emerald Pagoda'	20 to 30
Viburnum lentago	Nannyberry viburnum		15 to 18
Viburnum prunifolium	Blackhaw viburnum		12 to 15
Viburnum rufidulum	Rusty blackhaw viburnum		10 to 20

* Additional suggested species is a mix from the Indiana Community Tree Selection Guide and Davey Resource Group suggested species list.

* All mature growing-sizes are listed from Michael A. Dirr's "Interactive Manual of Woody Landscape Plants".

[1] The inventories from Indianapolis and Muncie did not contain overhead utility information.

[2] Species compatibility was not recorded in data provided by Indianapolis, Muncie, Fort Wayne, Evansville, Bloomington, Greendale, and Madison.