

# Chapter 4—Engineering

## 4.11 Street Trees



### Introduction

Street trees and any type of landscaping are proving to be of great value to people in urban places. The trees provide many benefits and should always be considered as part of the planning and design process for any roadway project. Street trees help with the removal of air pollution, assist with the interception of stormwater runoff, and help to save energy. Street trees refer to any tree that is located along the edge of the roadway, along a sidewalk or in the median of a road (Nelson/Nygaard Consulting Associates).

When planting street trees, it is important that:

- the placement allows for adequate sight distances at intersections and driveways;
- they allow for light to illuminate from street lamps;
- they do not impact overhead or underground utility lines;
- they are trimmed regularly to ensure access to sidewalks for pedestrians; and
- they do not exceed the size that is appropriate for the sidewalk; this will ensure sidewalks are not destroyed due to root growth (also refer to Table 4.11-1).

### Benefits of Street Trees

The following are examples of why street trees are beneficial to any roadway project. Many benefits listed below can also be found in Dan Burden's (2006) article "[22 Benefits of Urban Street Trees.](#)"

- Reduced and more appropriate urban traffic speeds. Street trees create a vertical wall that frames the street and defines an edge for motorists. This helps to guide the movement of the vehicle, which leads to a decrease in speed.
- Create safer walking environments and better aesthetics. Street trees frame a wall between the motorist and pedestrian.
- Improved business. Businesses along tree-covered streets see a higher income stream.
- Rain, sun, and heat protection.
- Gas transformation efficiency. Street trees convert harmful gasses back into oxygen and other natural gasses, more than trees that are planted at a distance from the roadway.
- Lower urban air temperatures.
- Added value to adjacent homes, businesses, and tax base. Increased values of homes.
- Provide a lawn for a splash and spray zone, storage of snow, driveway elevation transition and more.
- Longer pavement life. The shade of street trees can add 40% - 60% more life to asphalt.
- Protect habitat and wildlife.

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### ▲ Good Example

(Photo: MORPC, Columbus, OH)

- The street trees provide shade along the sidewalk and residential street.
- The street trees are used as a buffer between the residential street and sidewalk.



### ▲ Undesirable

(Photo: MORPC, Columbus, OH)

- Trees are placed in the middle of the sidewalk. Pedestrians are not able to walk through without an obstacle being in the way.
- Furthermore, roots are too big and destroy the pavement.



### ▲ Good Example

(Photo: MORPC, New Albany, OH)

- The street trees provide shade along the sidewalk.
- The street trees are trimmed and cut to provide room for pedestrians.



### ▲ Undesirable

(Photo: MORPC, Columbus, OH)

- Overgrown trees are a problem along the sidewalk.
- The overgrown trees reduce the actual space for pedestrians.

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### Choosing the Right Landscape

When designing your roadway and thinking about landscaping, it is important to consider which type of landscape feature and which type of foliage is most appropriate for the setting.

### Street Tree Evaluation

The Ohio Department of Natural Resources conducted a Street Tree Evaluation Project that began in 1971 and ended in 1997. The project examined 53 tree species in five Ohio cities. The following trees were found to be the best types of trees to grow in Ohio,

**Table 4.11-1: Best Types of Trees to Grow in Ohio**

#### 2-4 Feet Lawn Buffer

Armstrong Red Maple	Bowhall Red Maple	Washington Hawthorn
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#### 5-8 Foot Lawn Buffer

Norway Maple	Scwedler Norway Maple	White English Hawthorn
Red Maple	Crimean Linden	Sweetgum
Amur Corktree	Japanese Scholar Tree	Ruby Red Horsechestnut
Cleveland Norway Maple	Fassens Black Norway Maple	Shademaster Honeylocust
Callery Pear	Hardy Rubbertree	Crimson King Norway Maple
Littleleaf Linden	Skyline Honeylocust	Sunburst Honeylocust
American Hophornbeam	Kwanzan Japanese Cherry	

#### 10-16 Foot Lawn Buffer

Trident Maple	Upright Norway Maple	Greenspire Littleleaf Linden
Amur Corktree	Modesto Velvet Ash	Japanese Scholartree
Japanese Tree Lilac	Japanese Zelkova	Sycamore Maple
Littlelead Linden	Callery Pear	Christine Buisman Smoothleaf Elm
Rosebloom Crabapple	London Planetree	Marshall's Seedless Green Ash
Sweetgum	Thornless Honeylocust	Moraine Honeylocust
Cleveland Norway Maple		

#### Homeowner Lawn & 29-foot Buffer

Norway Maple	Sugar Maple	Upright Norway Maple
Red Oak	Littlelead Linden	

### Sidewalk Planters

Sidewalk planters involve removing pavement and planting landscape in its place. It is an easy way to add green space to a wide sidewalk in an area. Sidewalk planters can be found on the side of a road, next to a wide sidewalk, or in the median of a street. They can also create a buffer between pedestrians on the sidewalk and cars on the road. The main purpose of sidewalk planters is to add to the aesthetics of a neighborhood, but also to provide infiltration, detention, and pollutant filtration. When thinking about sidewalk planters, local governments must consider the maintenance of the foliage that is planted. For example, shrubs, bushes, and small trees require less maintenance than most flowers. Also, consider trees that would have green foliage all year round to ensure shade during all months of the year (Nelson/Nygaard Consulting Associates).

Benefits of sidewalk planters include the following:

- Planters add aesthetics to a community.
- They require low maintenance.
- Sidewalk planters are easy to build and design.
- They combine street landscaping with stormwater management treatment.
- They provide infiltration.



#### ◀ Good Example

(Photo: MORPC, Columbus, OH)

- Small trees are planted inside boxes along sidewalk.
- The sidewalk planter serves as a buffer between the cars and pedestrians.
- It provides a more comfortable walking experience for pedestrians.



#### ◀ Good Example

(Photo: MORPC, Columbus, OH)

- Sidewalk planter is placed in the middle of the street to serve as the median.
- Sidewalk planter is used to slow down traffic along street by visually narrowing the road.

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#### Sources

Burden, D. (2006): 22 Benefits of Urban Street Trees. <<http://www.ufe.org/files/pubs/22BenefitsofUrbanStreetTrees.pdf>> (retrieved November 4, 2010)

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Sydnor, D., et al. (1971 – 1997): Street Tree Evaluation Project. <<http://www.dnr.state.oh.us/tabid/5545/Default.aspx>> (retrieved November 16, 2010)