



**TREE CITY USA®  
BULLETIN  
69**

No.  
Dr. James R. Fazio, Editor • \$3.00

# Make Room for Trees

Whether in traditional suburban areas or redeveloped urban sites, sharing our environment with trees continues to be critically important. Even though the practical benefits of trees are becoming better known, competition for ever-scarcer space requires determination and techniques to include trees in the landscape.



James R. Fazio

*When a property owner sees the value of trees, or when ordinances require the inclusion of trees, a little imagination can make it possible to find ways to make room for them in just about any situation.*

**T**he social science literature is rife with interesting experiments about the influence of urban environments on human behavior. For example, when researchers intentionally littered a parking lot and then placed fliers on windshields, nearly half of the drivers tossed the fliers on the ground. When the scientists repeated the experiment by first sweeping the parking lot clean, only one in ten of the motorists threw down the fliers. In this experiment, condition of the environment made the difference. In urban forestry, other researchers have shown the importance of including trees in the environment. These studies have shown how trees help reduce crime, increase healthful exercise, improve mental states and make other positive behavioral contributions to society.

Professor Adam Alter, writing in the *New York Times*, noted that we humans are “more like chameleons who instinctively and unintentionally change how we behave based on our surroundings.” He added that “environmental cues can shape and reshape us as quickly as we walk from one part of the city to another.”

With all the evidence available today that trees play an essential role not only in modifying social behavior but also in providing environmental services ranging from cleaner air to reducing storm runoff, the question should not be whether we include trees in the landscape, but how to make room for them. In this issue we provide some of those ways and some examples of communities that are giving trees the priority they deserve.

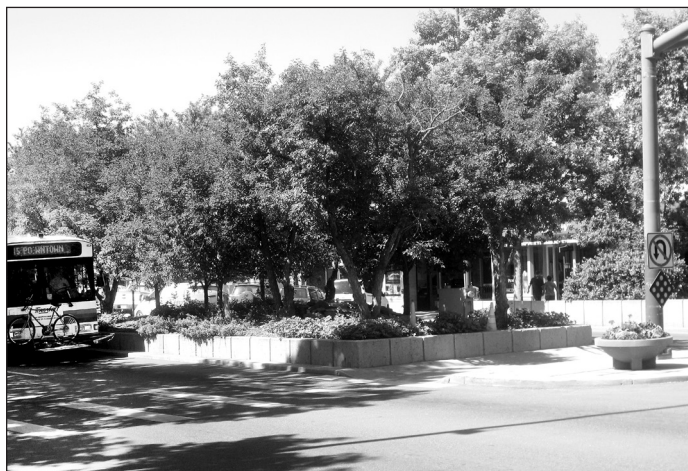
# Some Techniques that Work

**“With...increasing urban and suburban density, there is often less room for green spaces. However, further integrating different types of high-performing green spaces, or green infrastructure, into the built environment is becoming a priority.”**

– American Society of Landscape Architects

## Traffic Islands

Traffic islands have been called refuges for pedestrians. They also provide a place for traffic signals and signs, separate traffic flow and calm traffic. When trees are included, they break up the harshness of the built environment, contribute to the visual appeal of an area and provide numerous eco-benefits. Elongated traffic islands are called medians and can provide many of the same benefits.



James R. Fazio

▲ A broad traffic island in Fort Collins, Colorado provides an urban haven for trees. The trees are set back sufficiently from the intersection to allow a clear line of site for motorists. The use of deciduous species eliminates winter shading that can sometimes slow the melting of ice or snow.

## Bump-Outs

Bump-outs are extensions of the curb. They are often used at intersections to help shorten the distance pedestrians have to cross a street. They can also be used as a place to cluster trees when they cannot be planted along the street. A drawback is that bump-outs may eliminate some parking spaces, but one can argue that the benefits they provide, especially when containing trees, outweigh the few spaces required.



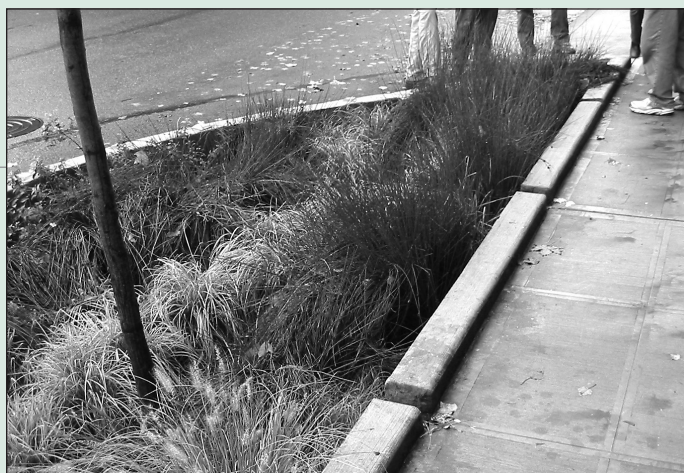
James R. Fazio

▲ This bump-out in Fort Collins provides space for public art and a tree that has been carefully selected to allow pruning of the lower branches. In all cases, vegetation should be planned so it does not obstruct visibility. Common sense, rather than rigid rules or specifications, can make this possible.

*Curb cuts can be used to eliminate puddles at bump-outs and to allow water to enter traffic islands. Not only is this a way to help irrigate vegetation, it also reduces stormwater runoff and helps filter out pollutants.*

## Curb Cuts for Drainage

Providing gaps in a newly formed curb or adding them by cutting concrete in older curbs offers several benefits. It is a way to help provide water for tree roots and other vegetation. It also directs water off streets but keeps it onsite, reducing stormwater runoff and helping to keep waterways clean.



James R. Fazio

## Sidewalk Modifications

Trees and sidewalks sometimes cause conflict. *Tree City USA Bulletin No. 3* addresses this important issue. Basically, when there is a will, there is a way to resolve the conflict.

Here are some examples that not only provide for safe use of sidewalks, but also make room for street trees, including the space they need for roots and diameter growth.



Arbor Day Foundation



David Stephenson

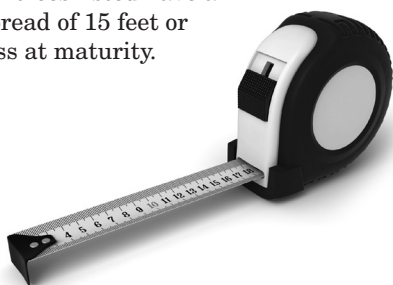


James R. Pazio

▲ Sidewalks can be modified in numerous ways to provide for trees as well as pedestrians.

## Trees for Narrow Places

In many urban situations – both in business districts and residential areas – a tree with wide-spreading limbs could cause problems. Fortunately, many cultivars have been developed with narrow, or ‘columnar’ growth forms. These trees provide the beauty, diversity and practical benefits of popular species but with the additional attribute of being able to fit in confined spaces. This partial list is made available to the public by the City of Reno’s Department of Parks, Recreation and Community Services and can serve as a starting point in many other cities. All trees listed have a spread of 15 feet or less at maturity.



<i>Scientific Name</i>	Common Name	Height at Maturity
<i>Acer platanoides</i> ‘Columnar’	Columnar Norway Maple	35'
<i>Acer platanoides</i> ‘Crimson Sentry’	Crimson Sentry Maple	25'
<i>Acer rubrum</i> ‘Armstrong’	Armstrong Maple	45'
<i>Acer saccharum</i> ‘Barrett Cole’ PP	Apollo Maple	25'
<i>Carpinus betulus</i> ‘Frans Fontaine’	Frans Fontaine Hornbeam	35'
<i>Fagus sylvatica</i> ‘Dawyck Purple’	Dawyck Purple Beech	40'
<i>Fagus sylvatica</i> ‘Fastigiata’	Fastigiata Beech	45'
<i>Ginkgo biloba</i> ‘Princeton Sentry’	Princeton Sentry Ginkgo	40'
<i>Liquidambar styraciflua</i> ‘Clydesform’	Emerald Sentinel Sweetgum	30'
<i>Liriodendron tulipifera</i> ‘Fastigiatum’	Columnar Tulip Tree	50'
<i>Pyrus calleryana</i> ‘Capital’	Capital Pear	35'
<i>Quercus palustris</i> ‘Pringreen’ PP	Green Pillar Oak	50'
<i>Quercus robur</i> x <i>Q. alba</i> ‘Crimschmidt’	Crimson Spire Oak	45'
<i>Tilia cordata</i> ‘Corzam’	Corinthian Linden	45'

# More Techniques that Work

*Attractive traffic islands in this parking lot provide visual, physical and economic benefits to the site. Studies have shown that trees attract shoppers and the shoppers claim they are willing to spend more at businesses where trees are present.*



*Georgeh Roman / Shutterstock.com*

## Parking Lots

At least ten percent of the surface area in urban areas is dedicated to parking space and nothing is as bleak and desolate as a parking lot without trees. From a practical standpoint, shoppers are known to prefer lots with trees and they almost invariably vie for spaces in shade on a hot day. Islands, median strips, end zones and runoff catchment basins provide opportunities to plant trees in parking lots.



*James R. Fazio*

*Let me out!*



*James R. Fazio*

*Better.*



*James R. Fazio*

*Best.*

▲ *Three kinds of planting spaces on a single street in Moscow, Idaho.*

## Look Upward and Forward

One of the most difficult parts of making room for trees is trying to envision the space the tree will need when it is no longer the size you are planting. Know its mature height and spread, and always consider overhead lines and nearby structures. Select species that fit both the above ground space and available soil below.



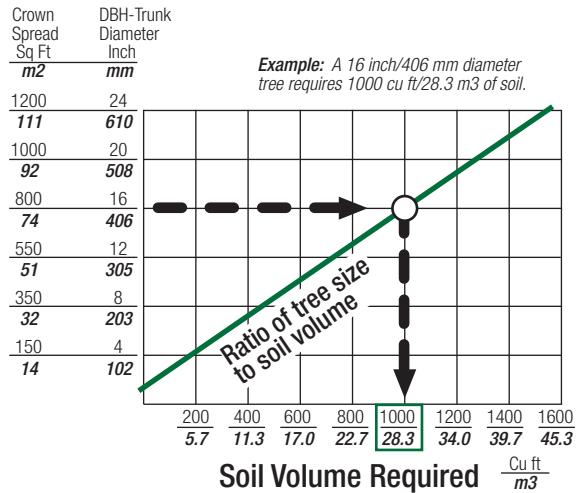
# Making Room for Roots

Roots are the lifeline of a tree. They anchor the tree, store its source of energy over winter, and absorb essential water and elements. They need space to do their work and keep the tree healthy, just as the trunk needs room to expand.

## How much space is needed?

Landscape architect Jim Urban is one of the nation's leading experts on the soil conditions needed for healthy tree growth. Based on his experience, this chart can be used as a guide for allowing the ideal minimum space for roots. This is from his book, *Up by Roots*, (International Society of Arboriculture, 2008) which is highly recommended reading before street redesign or planting. For a link to more information, please see page 8.

## Ultimate Tree Size

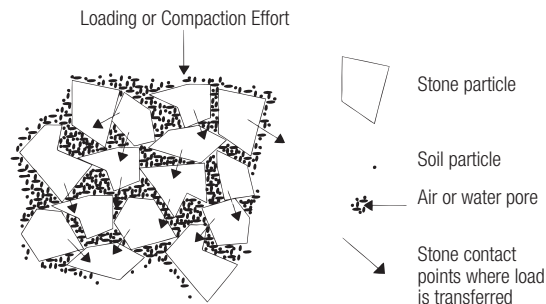


## Soil Conditions

A soil test for pH and available elements is always a good idea before planting. This will help guide species selection. If the soil is suitable, backfilling with the same soil as the surrounding area is a good rule of thumb. Sometimes soil amendments are added to the tree pit, but if these provide a texture or other conditions more favorable to the roots than the soil outside the pit, it is an invitation to encircling roots and premature loss of the tree.

Both adequate volume and growing conditions can be provided by large tree lawns with turf, ground cover or mulch. In tight quarters, soil vaults beneath the sidewalk or other surrounding pavement can be used. To provide support for the pavement without compacting the soil beneath it, two methods are available. These are: (1) C-U Structural Soil™, a carefully-researched mixture of angular rock, hydrogel and soil, and (2) Silva Cells, a series of modular, interlocking, rigid frames and decks that are backfilled with soil.

## C-U Structural Soil™



## Silva Cells

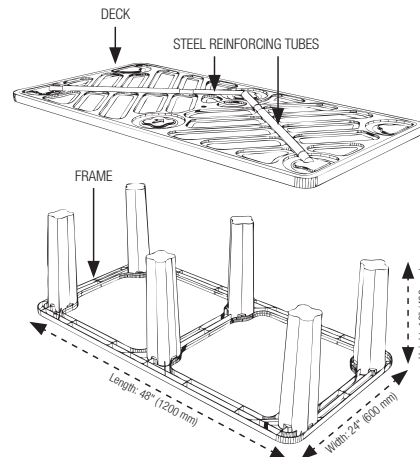


Image courtesy of Deep Root Partners, L.P.

# Communities Making Room for Trees

Progressive communities throughout the United States are recognizing the benefits of trees and making room for them as streets and shopping centers are re-designed. Here are just a few examples from Tree City USA communities.

## Covington, Kentucky

Restaurant owners and the city have cooperated in restoring trees to the historic downtown area of Covington. Where trees were absent, the sidewalk was expanded outward to allow for outdoor seating and tree wells. Four parking stalls were lost but restaurant owner Paul Weckman says, "These trees allowed us to add value to our business by creating a desirable outdoor dining area and increasing overall pedestrian traffic along the street." Cost of the redesign was split 50/50 between the city and the businesses adjoining the newly landscaped bump-out.



Paul Weckman / Emily Wolf

A view of restaurants in Covington's historic district with outdoor seating enhance with trees.

## Camden, New Jersey

Residents in some of the most densely populated sections of Camden appreciate the opportunity to add trees to their barren streets. And The New Jersey Tree Foundation makes this possible. Through the Urban Airshed Reforestation Program, residents are asked if they would like a tree. After an intensive public involvement and training process with residents and volunteers, a planting date is set. Prior to the date, city and county permits are obtained and utilities are located. Then, contractors cut 4' x 4' or 4' x 8' sections of concrete and fill them with soil or mulch until planting day to prevent tripping hazards. Jessica Franzini, who manages the projects, is careful not only about safety and winning support of residents, but also about placing the right tree in the right place. Decisions are based on site and neighbor preferences with 137 species or cultivars used. Small-maturing trees are planted under overhead lines and larger ones on the opposite side of the same street.



New Jersey Tree Foundation

New Jersey Tree Foundation volunteers and residents pitch in to make room for trees in a high density residential section of Camden.



Paul Albers

Before



After

Paul Albers

Before and after photos of Minster's Fourth Street. Making room for trees and tree wells has not only changed the ambience of the street, it has reduced flooding of basements.

## Minster, Ohio

Stormwater surface runoff was a problem in Minster until the street redesign added trees and tree wells. To accommodate root growth and increase water storage, concrete adjoining the trees was underlain with Silva Cells. Paul Albers, a business owner who used to have his basement flooded testifies, "The stormwater system along Fourth Street now directs water to tree roots. (This also) helps clean the water before it gets to the water table."

## Reno, Nevada

City forester Steve Churchillo is always looking for places to plant or protect existing trees. In residential areas, he works with residents when they replace sidewalks to find a method that protects the roots of existing trees. One technique that is gaining favor is the placement of a ½" aluminum diamond plate forming a 'bridge' between concrete sections where the sidewalk is close to a tree. Specs for this technique are available from the City of Reno Urban Forestry Division.

### 'Reno's Recipe' for new and reconstructed sidewalks in business areas:

- 1 5' x 5' curbside cut-outs for tree wells.
- 2 Use existing soil, but add 30% organic matter if soil condition requires.
- 3 Secure root ball with underground Duckbill® anchor system.
- 4 Use tree grates to prevent tripping and that are designed to allow center enlargement as the tree grows.
- 5 Provide irrigation using in-line emitters circling the root ball and pit perimeter.



Steve Churchillo / City of Reno

Reno's downtown area is enhanced by a double row of trees in 5' x 5' cut-outs. City forester Steve Churchillo reports that the city is fortunate to have soil that supports root growth despite tree wells smaller than recommended in Jim Urban's chart on page 3.

## Fort Collins, Colorado

Fort Collins has been making room for trees in its downtown business district since the 1970's. That was when malls began drawing off business and merchants became seriously concerned. "Downtown was collapsing," says city forester Tim Buchanan. Redesign – with abundant trees – was the answer. Tim now says that "during the recent recession, downtown did better than other areas, based on sales taxes collected." Today, the mature landscape featuring diverse species provides welcome shade and an attraction to shoppers and recreationists.



James R. Ruzio

The downtown area near Colorado State University is the thriving heart of the city.

## Tree City USA Growth Award

Communities that make a special effort to make room for trees can qualify for points leading to the Tree City USA Growth Award. For example, in Activity Category A (Education and Public Relations), publicity or training programs related to making room for trees would qualify; in Category B (Partnerships), there are opportunities such as organizing a new project, engineering/forestry coordination, or a variety of partnerships; and in Category C (Planning and Management), a new sidewalk/curb policy would qualify, improving an ordinance or standards and specifications, and creating a management plan. For complete information about requirements and activity opportunities, please enter 'Tree City USA Growth Awards' in the search box at [arborday.org](http://arborday.org).



# Making Room for Kids and Trees

Children everywhere deserve to have a connection with nature. That is a goal of Nature Explore and one of its programs – Outdoor Classroom Design Services. This service is available to assist any community, school or other sponsor of a Nature Explore Classroom design with nature when creating an outdoor classroom. Through the use of specially-trained landscape architect/educator teams, vegetation can be made an integral part of even the most urban outdoor space. When possible, existing trees can be saved. Where none currently grow, they can be planted.

For example, in central Milwaukee, a cracked asphalt schoolyard at the Brown Street Academy has been transformed into a pleasant blanket of grass with several shady trees. According to landscape architect Jim Wike, about half of a 20,000 square-foot area of non-permeable surface was removed. Not only has this provided a place where children can be introduced to nature using the research-based principles behind Nature Explore Classrooms, it contributes to stormwater control in the area. In an effort to relieve pressure on the city's combined sanitary stormwater sewer system, some 200,000 square feet of asphalt have been removed by city crews or contractors and replaced with sod and trees.

Protecting existing trees is also important. At a Domestic Violence Center in Colorado, the Nature Explore design team carefully planned the entire classroom around established trees as well as adding several new native species. The older trees were pruned to make them safer and healthier. Together, the old and the new helped transform the space into a wonderful landscape for the children of families with a history of abuse.

For more information about the fundamentals of Nature Explore and its available services, please visit [natureexplore.org](http://natureexplore.org).



Before

Making room for existing and new trees had a powerful impact on this Colorado Classroom.

## For More Information

For quick links and additional information about making room for trees, please visit [arborday.org/bulletins](http://arborday.org/bulletins) and click on No. 69.

*Tree City USA Bulletin* © 2013 Arbor Day Foundation. John E. Rosenow, publisher; James R. Fazio, editor; Carrie Benes, graphic designer. Technical reviewers for this issue: Tim Buchanan, City Forester, Fort Collins, Colorado and Steve Churchillo, City Forester, Reno, Nevada.

Published for the *Friends of Tree City USA* by



**Arbor Day Foundation**

100 Arbor Avenue • Nebraska City, NE 68410

[arborday.org](http://arborday.org)



## Tree City USA Bulletin ORDER FORM

Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

### Bulletins Especially Related to Making Room for Trees

For a complete list, visit [arborday.org](http://arborday.org)

	1 Issue \$3.00 ea.
3. Resolving Tree-Sidewalk Conflicts	3.
4. The Right Tree for the Right Place	4.
5. Living With Urban Soils	5.
7. How to Save trees During Construction	7.
9. Writing a Municipal Tree Ordinance	9.
10. Plant Trees for America!	10.
11. How to Prevent Tree/Sign Conflicts	11.
12. What City Foresters Do	12.
14. How to Kill a Tree	14.
17. How to Landscape to Save Water	17.
18. Tree City USA Growth Award	18.
19. How to Select and Plant a Tree	19.
20. A Systematic Approach to Bldg. w/Trees	20.
21. How Trees Can Save Energy	21.
22. Tree City USA: Foundation for Better Mgt.	22.
24. Trees and Parking Lots	24.
25. Tree Line USA	25.
26. Understanding Landscape Cultivars	26.
30. Ten Tree Myths to Think About	30.
31. Tree Protection Ordinances	31.
35. Protect Trees During Underground Work	35.
43. Selling Others on Tree Programs	43.
45. Trees for Better Streets	45.
47. How to Bring 'Nature Explore' to Your Community	47.
48. Teamwork Strengthens Community Forestry	48.
50. Tree Campus USA	50.
52. Making Good Use of Small Spaces	52.
54. How to Grow a Great Tree Board	54.
55. How Trees Can Retain Stormwater Runoff	55.
57. Trees and Public Health	57.
58. Community Engagement	58.
59. Permaculture and the City	59.
60. Learning Opportunities in Urban Forestry	60.
61. Trees and Green Space Make Economic Sense	61.
65. Create an Arboretum	65.
66. Not Your Father's Arboriculture	66.
-- Tree City USA Annual Report	
<b>TOTALS:</b>	<b>\$</b>

### Annual Friends of Tree City USA

Membership .....\$15.00 \$ \_\_\_\_\_

Tree City USA Bulletin 3-Ring Binder .....\$ 5.00 \$ \_\_\_\_\_

Complete Bulletin Set, in binders.....\$99.00 \$ \_\_\_\_\_

**TOTAL PAYMENT:** ..... \$ \_\_\_\_\_

Order Tree City USA Bulletins online at [arborday.org](http://arborday.org) or send this form and mail with your payment to:

**Arbor Day Foundation,**  
211 N. 12th St., Lincoln, NE 68508  
888-448-7337

(Make checks payable to Arbor Day Foundation)