



# A Tree for Every Space

TREE CITY USA®  
BULLETIN

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*Whether it is curbside along a street or a small space by the backyard patio, there is usually a space where a tree can — and should — be planted. The social and ecosystem benefits provided by urban trees more than justify the little effort needed to use more places for trees.*

When Dr. Gregory McPherson of the U.S. Forest Service and his colleagues studied the inventory data gathered from cities in California, they found that nearly 64 percent of the city streets had vacant planting sites. This amounts to some 16 million places where trees could be planted. The researchers also pointed out that the annual air-cleansing service alone of existing trees was equivalent to taking 120,000 cars off the road! When all ecosystem services are considered, California's street trees contribute \$110.63 each — every year. Imagine how

Now is the time for imagination and innovation to make better use of small spaces for trees in urban settings. Even the smallest of trees can provide flowers to brighten spring days, shade for small spaces, berries and other fruit for birds, and pleasing shapes for the winter landscape.

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these numbers would change if trees were added to the 16 million empty spaces.

The above example reflects the situation in many U.S. cities, but opportunities for planting go far beyond our streetscapes. While streets offer excellent opportunities for municipal officials to increase the urban tree canopy, adding more trees is something every resident and many business owners can do on their own property. Included in this issue are examples of how even small spaces can be used to provide more trees and more benefits.



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# Finding Space for More Street Trees

*The many empty planting spaces available on streets throughout the nation offer an opportunity to plant trees of all sizes and from a diverse range of genera. To maximize benefits, the largest-maturing trees should be given high priority if utilities, buildings, and other structures allow. But large or small, space can either be found — or created. Here are some examples.*

## 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.

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 out into the roadway. 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.

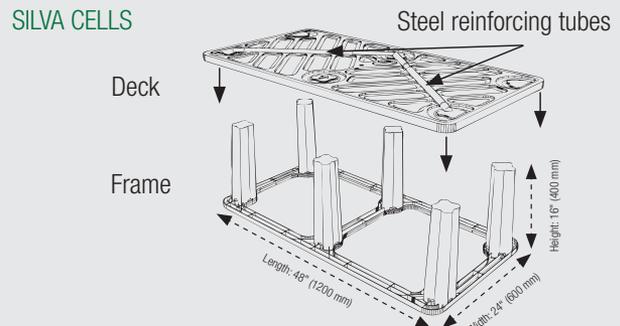
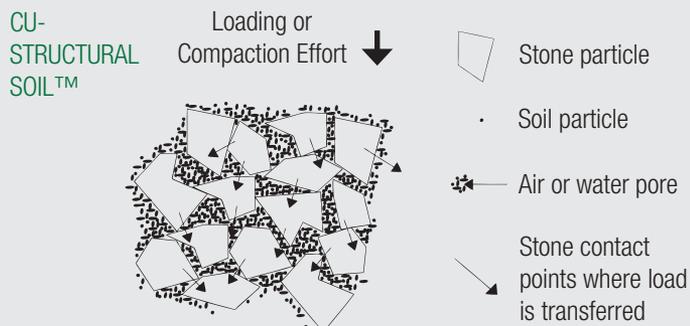
This bump-out in Fort Collins provides space for public art and a tree that has been carefully selected to allow pruning of the lower branches. In all cases, vegetation should be planned so it does not obstruct visibility. Common sense, rather than rigid rules or specifications, can make this possible.



## MAKING SPACE BENEATH SIDEWALKS

Ideally, street trees would have enough natural space available for roots, but this is rarely the case. To accommodate both pavements and growing space, two innovations have been developed and should be part of any new or renovated street project. The earliest technique is CU-Structural Soil™. Developed at Cornell University,

this process uses a patented combination of angular rock, hydrogel, and soil to provide growing space for roots while at the same time adhering to engineering standards for load-bearing pavement. Similarly, Silva Cells are a system of modular, interlocking, rigid frames and decks that provide surface support as well as uncompacted soil space and stormwater storage.





## SIDEWALK MODIFICATIONS

Trees and sidewalks sometimes cause conflict. However, when there is a will, there is a way to resolve the conflict. Above are some examples that not only provide for safe use of sidewalks, but also make room

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

for street trees, including the space they need for roots and diameter growth.

## 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.

Scientific Name	Common Name	Height at Maturity
<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'	Fastigate 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 Tuliptree	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'

# Parks and Building Grounds

*Parks and the grounds of public and private institutions offer opportunities for adding trees to the landscape. Here are some successful examples.*

## NEW YORK'S HIGH LINE

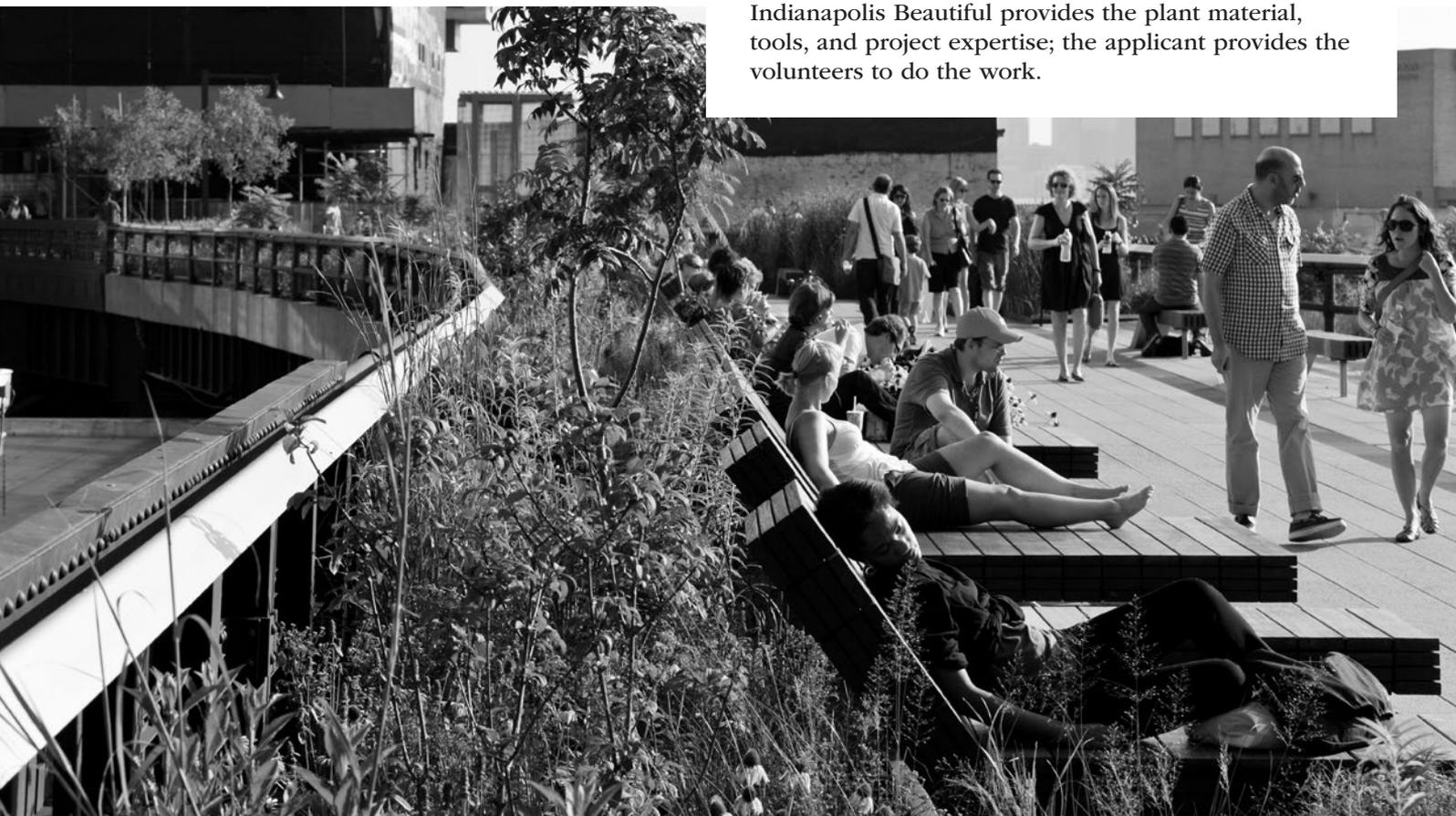
For 25 years, a section of New York City's elevated rail tracks stood idle, a remnant of the era when freight trains were the lifeline of factories and meatpacking plants in the area. Beneath the tracks, the land is a hodgepodge of parcels in private and governmental ownership. When the structure was threatened with demolition in 1999, New Yorkers came together to form a community-based nonprofit, Friends of the High Line. Thanks to vision, private donations, and the cooperation of the mayor's office and Department of Parks and Recreation, 1.45 miles of tracks 30 feet above ground were transformed into a public walking park and saved from destruction. Volunteers help with the maintenance, and thousands of New Yorkers benefit from this linear oasis on the west side of Manhattan.

Volunteers and city crews removed rails and converted an elevated train track into a landscaped linear park. The design follows green roof principles, retaining up to 80 percent of rainwater for use by more than 350 species.

## INDIANAPOLIS TRANSFORMS UNLOVED PLACES INTO COMMUNITY ASSETS

Every city has its vacant lots, odd parcels of unused land, and other sites that invite litter, illegal dumping, or worse. The nonprofit organization Keep Indianapolis Beautiful Inc. has made it a goal to convert such unlovely and often dangerous places into little patches of beauty that serve local residents and build community pride.

Much of the focus in Indianapolis is on pocket parks, defined as areas under one-fourth of an acre in size. Street plantings, recycling projects, and educational events are part of the activities that accompany the creation and maintenance of the sites. Each year since its inception in 1976 (then called Indianapolis Clean City), Keep Indianapolis Beautiful has supported an average of 500 community improvement projects with the help of tens of thousands of volunteers. More than 40,000 trees have been planted, and miles of median strips have been adopted by residents. The organization works in partnership with the city and offers grants on a competitive basis. When a grant is awarded, Keep Indianapolis Beautiful provides the plant material, tools, and project expertise; the applicant provides the volunteers to do the work.



## THE ELABORATE AND THE SIMPLE

Preserving open space or creating a place of beauty among the built environment can be done in any community regardless of the size of the space available or property ownership.



Greenacre Park is a plot of land about 60 feet wide and 120 feet deep containing a 25-foot-high waterfall that lends a peaceful sound to the chaotic noise of midtown Manhattan. Owned by the Greenacre Foundation, the little park is a philanthropic project to honor Laurance Rockefeller. The multi-level site includes an overlook, seating, and a place to enjoy food.



Drake Garden is a vacant lot in Chicago that was transformed by the Drake Garden Volunteers into a place where neighbors gather and get their hands dirty working with plants and soil. The site is divided into spaces for trees, shrubs, flowers, and open space. Support and ownership is created by using the site for occasional block parties and rummage sales. The nonprofit organization NeighborSpace helped acquire legal ownership of the property.

## SPACES FOR WORKING AND LIVING

Social scientists have confirmed what most people already knew — a workplace with trees and a little space contributes significantly to employee satisfaction. Whether it is a shaded picnic table or a leafy streetside café, even the smallest connection with nature can help busy people relax. Numerous research studies have also shown the positive effects of interactions with nature in settings such as hospitals and schools. In the public forum, the use of small spaces becomes an issue of not only aesthetics but public health.

A groundskeeper for Good Samaritan Village in Moscow, Idaho, leads a tour of Garden Club members around the grounds of the retirement facility. Smooth paths, benches for seating, and an abundance of trees and flower beds make life more pleasant and healthful for residents who choose this as their home.



## AN URBAN FORESTER SAVES TIME AND MONEY

When a new restaurant in Boise, Idaho, submitted its development plan to the city, one of the reviewers required was the city forester. The proposed establishment included a narrow stretch of greenery around the store and screening around the parking lot, including a number of trees. Unfortunately, the landscape architecture firm that was hired for the job

had its offices in a city more than 1,000 miles away. The local forester immediately spotted tree species he knew would not survive the city's soil and climate conditions. The plan was changed, and today the restaurant blends nicely into the neighborhood with its green surroundings.

# Trees Around the Home

*There are often spaces around the home that can use a new tree. An informal inventory can reveal nooks and crannies or larger spaces where a tree can be planted. Whether an apartment complex, duplex, or single-family house, an added tree can upgrade living space, increase value, and provide numerous other benefits.*

## SINGLE-FAMILY YARD TREES

For every street tree, there are said to be as many as 10 trees on private property. This makes an enormous contribution to a community's air and water quality — and more yard trees would mean an even healthier environment. In many cases, trees can also replace grass and save on water bills and time spent on lawn maintenance.



## SHADING PLAY AREAS

As health officials learned more about the increase in melanoma skin cancer, they began to issue warnings that most cases stem from exposure to the ultraviolet rays in sunlight and that much of the sun exposure occurs during childhood. The damage may take years to manifest itself. One means of prevention is to shade children's play areas. Recommendations include:

- Strategically planting shade trees to provide shade for kids from 10 a.m. through 4 p.m.
- Planting hardwoods since summer shade, when leaves are out, is more important due to more skin exposed than in winter.
- Use species with dense foliage such as oaks, catalpa, maples, hackberry, and lindens.





## ROW HOUSES

Residents in some of the most densely populated sections of Camden, New Jersey, 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. Project managers are 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.

## APARTMENT COMPLEXES

Residents of Louisa Apartment Building enjoy a garden-like environment thanks to their green roof that contributes to cleaner air, stormwater control, and other environmental benefits. Portland, Oregon, is a leader in the art and science of green roof technology. More than 300 green roofs have been constructed in Portland, many with technical assistance and financial incentives from the city. The city's Bureau of Environmental Services oversees the program and promotes green technology through publications, workshops, and aggressive publicity.

## THE COMMUNITY CANOPY™ PROGRAM

The Arbor Day Foundation's Community Canopy program was created to engage residents to plant more trees and to provide education surrounding strategic tree planting to maximize environmental and community benefits — including energy conservation, air and water quality, and carbon sequestration. The program combines trees and technology for a turnkey approach to a private property tree giveaway. Cities, utilities, and other organizations partner with this program to offer trees free or at a discounted price to homeowners for planting in their yards.

The homeowners utilize an interactive website, customized for the individual partner, to reserve their trees. The software shows the participant an aerial view of their property, and they can then “place” a tree in various locations and see which planting site will help them save the most money on their energy bill, in addition to contributing to the betterment of their community. Their tree(s) are then provided either by mail or at a pick-up location courtesy of the program partner. For more information please visit [arborday.org/communitycanopy](http://arborday.org/communitycanopy).

# No Planting Space? No Problem

Sometimes there is simply no earth available for planting a tree. An alternative is use of a tree planter box or container. These perform best in warmer climates, but with care can also be used in northern areas of the country. Planter boxes are commercially available or can be constructed. They come in all sizes, but the general rule — for root growth, at least — is, the bigger the better. The advantages of using tree planters are: (1) they are better than not being able to have a tree at all, (2) if space allows, they can be moved indoors when necessary, (3) they can be used to avoid de-icing salt drainage or other local soil problems, and (4) they add interest to even the smallest of outdoor spaces. The disadvantage is that they do require careful maintenance.

## SOME MAINTENANCE TIPS

- To reduce weight and aid aeration, a soil mix of coarse sand, organic matter or perlite, and a small amount of loam soil works well. Your local nursery can provide more guidance.
- Check soil pH to make sure it is the correct level for the species of tree you are using.
- Soil in planters tends to dry out rapidly in warm weather. Water at a rate of about 1 inch per week but use a moisture meter to determine if this is too much or too little at the root level and adjust accordingly.
- Make certain the bottom of the planter has holes to drain off excess rainwater.
- Help avoid freezing by placing the planter in a sheltered location. There is insulating material available that is specifically designed for winterizing containers.
- Root pruning can be used to help control tree size if necessary.

## FOR MORE INFORMATION

For quick links to additional information about trees for small places, please visit [arborday.org/bulletins](http://arborday.org/bulletins).

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## SOME TREES SUITABLE FOR CONTAINERS

Citruses	Holly	Star magnolia
Crapemyrtle	Japanese maple	Yew
Dwarf conifers	Palo verde	Witch hazel
Dwarf fruit trees	Privet	
Fig	Southern magnolia	

Tree planters come in all shapes, sizes, and colors. They provide growing space when none other is suitable and can complement small space landscapes.

