Planting Trees in Parking Lots

Description

Parking lots have two distinct areas where trees can be planted—the interior and the perimeter—each of which has unique planting requirements and considerations (Figure 43). The parking lot interior can be a very harsh planting environment for trees, due to higher temperatures of the pavement, little water, exposure to wind, air pollution, and potential damage from automobiles. Landscaped islands are typically used within parking lots to provide a separation between parking bays and to meet landscaping requirements. These islands may be planted with grass, trees, or other vegetation and can be designed to accept storm water. Typically, most traditional parking lot islands do not provide adequate soil volumes for trees.

Trees planted along the perimeter of a parking lot provide a screen or buffer between the lot and an adjacent land use or road. Perimeter planting areas often provide a better planting environment for trees and good opportunities for conserving existing trees during parking lot construction.

The many benefits of incorporating trees in parking lots include shade for people and cars, reduction of the urban heat island effect, interception of storm water, improved esthetics, improved air quality and an increase in or creation of habitat for birds.
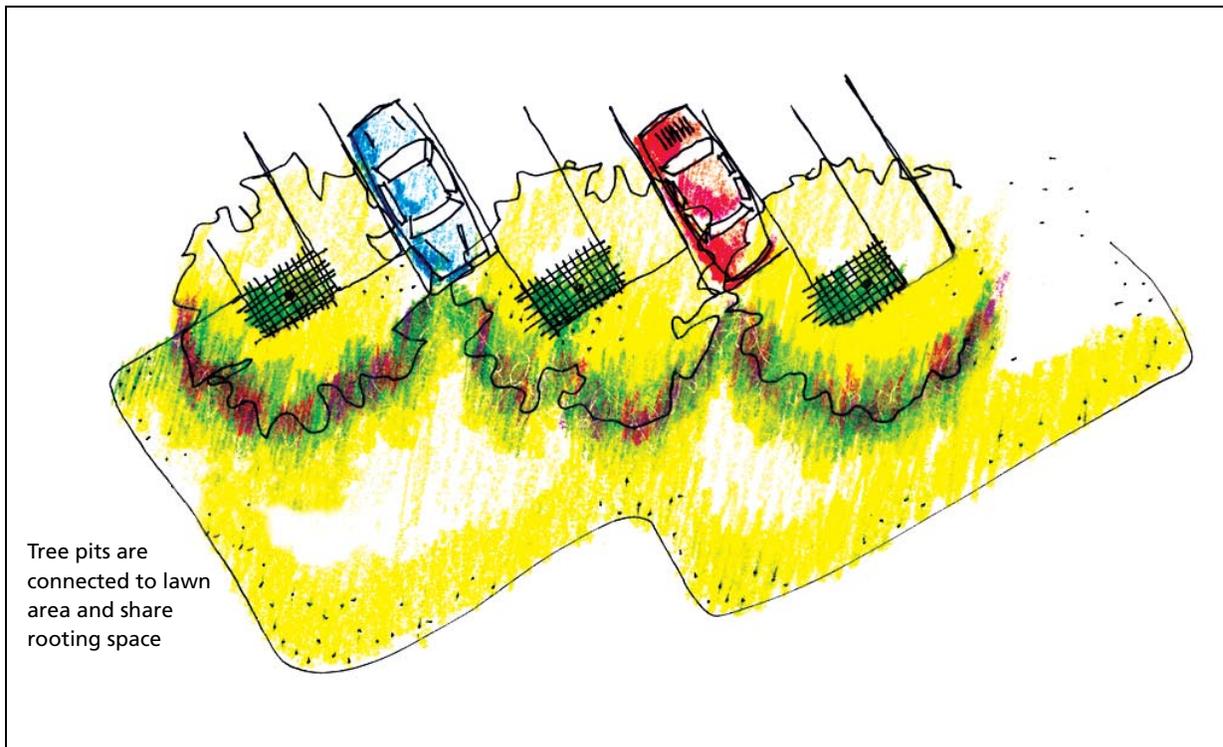

Tree pits are connected to lawn area and share rooting space

Figure 1. Parking lots can be designed to provide larger spaces to plant trees.

Pre-Planting Considerations

Before planting trees in parking lots, designers need to address some important considerations:

☐ How to provide clear lines of sight, safe travel surfaces, and overhead clearance for movement of pedestrians and vehicles within the lot

☐ How to prevent compaction of planting area soils by construction and foot traffic

☐ How to resolve potential conflicts between trees and surrounding utilities, pavement, and lighting

☐ How to maximize canopy coverage and shading in the lot and make it more attractive with plantings

☐ How to reduce exposure of trees to auto emissions, polluted runoff, wind and drought

☐ How to provide adequate soil volume for trees in the confined space of a parking lot

☐ How to prevent damage to trees from cars

☐ How to address concerns about safety, increased maintenance due to tree litter, damage to cars from trees (e.g., sap, branches), and snow removal and storage

☐ How to maximize plantings for visual screening and buffers, at the same time offering view corridors to merchants

Species Selection

Species selection is important in urban parking lots because it is such a stressful environment. Tree species that comprise a diverse mix of hardy, native species that are adapted to soils and site conditions are needed.

The following characteristics should be sought when selecting a parking lot tree:

☐ Tolerant of salt

☐ Tolerant of drought and extreme temperatures

☐ Tolerant of poor, highly compacted soils

☐ Tolerant of urban pollutants

☐ Tolerant of inundation, if used for storm water treatment

☐ Does not produce abundant fruits, nuts, or leaf litter

☐ Wide-spreading canopy

Site Preparation	☐	Improve soil drainage by tilling soils and adding compost.

General Planting Guidance	☐	Use structural soils below pavement to allow for root growth where possible.
	☐	A few great trees are better than a lot of smaller ones.
	☐	Design concave planting areas to discourage pedestrian traffic.
	☐	Provide adequate setbacks from utilities, signs, lighting, and pavement.
	☐	Plant only species that are appropriate for parking lots.
	☐	Maintain appropriate setbacks from edge of planting strip or island to allow clear sight lines and reduce heat impact on trees (generally 4 feet).
	☐	Maintain an adequate setback between parking stalls and trees to prevent damage from cars.
	☐	Plant large balled and burlapped stock.
	☐	Have a landscape architect design the parking lot planting plan.

Specific Planting Guidance	*Interior*	Use alternative planting clusters in parking lot islands that allow shared rooting space and provide additional soil volume for trees.
		Employ "better site design" techniques, which include reducing the size of parking stalls to make the parking lot more efficient and to provide more room for trees (CWP, 1998)
	Perimeter	Use trees to provide shade over pedestrian walkways.
		Maintain a 6- to 8-foot overhead clearance for pedestrian walkways.
		When planting on steep slopes, use tree clusters and create small earthen berms around the group to retain moisture.
		When planting along a flatter slope, use linear spacing for safety and functionality

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Maintenance	☐	Use mulch to retain moisture.
	☐	Plan for minimal maintenance (watering may not be feasible).
	☐	Have trees pruned by a qualified arborist to maintain sight lines and overhead clearance.
	☐	Monitor and control invasive species.

Potential for Storm Water Treatment

Ordinances usually require developers to landscape a minimum percentage of parking lot interiors. When properly built, these landscaped areas can double as storm water treatment facilities, which can result in cost savings for the developer. Storm water forestry practices for parking lots include:

☐ Parking lot interiors—Bioretention and bioinfiltration facilities, alternating side slope plantings or tree check dams, linear storm water tree pits

☐ Parking lot perimeters—Bioretention and bioinfiltration facilities, forested filter strips, and multi-zone filter strips

See Chapter 3 for more detail on storm water forestry practices.

Further Resources

Appleton, B.; Horsley, J.; Harris, V.; Eaton, G.; Fox, L.; Orband, J.; Hoysa, C. 2002. Trees for parking lots and paved areas. In Trees for problem landscape sites. Publication No. 430-028. Blacksburg, VA: Virginia Cooperative Extension. www.ext.vt.edu/pubs/trees/430-028/430-028.html.

Center for Urban Forest Research. 2002. Fact Sheet #3: Making parking lots more tree friendly. Davis, CA: USDA Forest Service, Pacific Southwest Research Station. http://cufr.ucdavis.edu/products/CUFR_181_UFfactsheet3.pdf.

Center for Urban Forest Research. 2002. Where are all the cool parking lots? Davis, CA: USDA Forest Service, Pacific Southwest Research Station. http://cufr.ucdavis.edu/products/3/cufr_151.pdf.

Center for Watershed Protection. 1998. Better site design: a handbook for changing development rules in your community. Ellicott City, MD.

City of Sacramento, CA. 2003. Parking lot tree shading design and maintenance guidelines.

Costello, L. R.; Jones, K. S. 2003. Reducing infrastructure damage by tree roots: a compendium of strategies. Cohasset, CA: Western Chapter of the International Society of Arboriculture.