



## Trees, Parking and Green Law: Legal Tools and Strategies for Sustainability

Parking areas are an integral part of the built landscape of America's cities and towns. Parking lots occupy about 10 percent overall of the land in U.S. cities, and can be as much as 20 to 30 percent of downtown core areas.

Parking spaces are usually required for most urban zoning classes and land uses. It is estimated that 80 to 90 percent of all U.S. parking demand is provided by surface parking lots. Typically 2 or 3 times as much space is dedicated to parking as compared to floor space in the building being served by the parking. Lots for regional malls can be as large as 60 acres.

Parking space is often viewed by developers as being essential to the market success of commercial buildings. Yet city planners must balance this parking need with other community desires, such as more pedestrian-oriented urban design and environmental sustainability.

Parking lots impact the environment. Large surface lots can contribute to drainage and flooding problems, increase urban heat islands, and become visual eyesores. Providing unlimited parking may cause people to avoid alternative transportation (such as mass transit), leading to more severe air quality problems.



### Trees & Green Law Report - Available Online

This fact sheet is an introduction to a technical report sponsored by the USDA Forest Service and Georgia Forestry Commission. The report contains scientific information about environmental impacts of paving in cities. It then provides an overview (including examples) of municipal code and legal tools that can be adopted by communities to reduce environmental effects.

The report is intended for all professionals who are interested in urban sustainability, including city planners, engineers, transportation planners, landscape architects and urban foresters. Community volunteers serving on planning commissions or urban forest councils may also find the report to be informative and helpful.

**DOWNLOAD LINK** - Copies of the trees, parking and urban sustainability report can be downloaded as a PDF file at: <http://www.cfr.washington.edu/research.envmind/transportation.html>

Municipal code about trees, landscaping and environment is referred to as “green law.” More traditional code treats vegetation in urban built areas as “parsley around the pig,” using plants as simply a device for screening or beautification. More recent green law is based on environmental science and addresses how trees can mitigate environmental impacts for community benefit.

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## Paved Area Reduction

One impact of paved parking areas is heat island effects. Some paving materials cause heat build up over a parking lot on hot days. The effect over an entire city is that temperatures rise, leading to increases in air pollution and ozone.

The first approach a community can take to reduce the impacts of parking areas is to simply reduce the amount of paved and impervious surface area.

Analysis of parking space allocations for urban land uses can reveal where reductions are possible. Studies suggest that some cities require more spaces than are actually used for certain commercial land uses. In addition, careful planning of parking space angles and aisle widths can reduce paved area. 90° angle parking is not needed in all parking lots.



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## Paved Surfaces Shading

The next strategy to reduce parking area impacts is to increase the amount of shade over paved areas. Perimeter or buffer plantings may provide visual screening of large areas of parked cars, but interior plantings are needed to provide canopy cover.

There are numerous strategies or standards that increase tree shade levels. Examples include specification of the number of trees per parking spaces, planting space as a percentage of the paved area, or the minimum distance of parking spaces from a tree. Canopy cover requirements specify that a parking lot attain 20%, 30% or 50% shade cover by a specified amount of time after completion of construction (such as 15 years).



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## Stormwater Management

Scientific studies show that vegetation is an effective stormwater management tool. Trees reduce the amount of stormwater that enters engineered drain systems from large paved areas. First, water that falls on the soil around trees can soak into the soil and groundwater. Some water is then taken up and evapotranspired by trees. Also, trees intercept rainfall on the surfaces of leaves and branches. This water then evaporates back into the atmosphere. Bioswales and rain gardens are design features that can be installed in parking lots to control and treat water runoff.



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