A Casey Trees issue brief

Growing a Healthier DC: Greening Our Streets

In a healthier D.C., streets are green

Vehicles, pedestrians, cyclists, transit and commerce move under the shade of majestic street trees. Our neighborhood streets, avenues, alleys, parkways and urban highways form a connecting network of green corridors for recreation, relaxation and access. Trees and landscaping separate sidewalks, cafes, storefronts and yards from the traffic and noise of the roadway. Attractive stormwater management features are incorporated into traffic islands, medians, landscape areas and tree boxes. Streets are calm and safe for pedestrians, cyclists and drivers.

Green streets

- Have large, healthy street trees that shade and cool
- Calm traffic speeds and soothe driver aggression
- Incorporate stormwater management features to clean and reduce runoff
- Trap and remove many of the air pollutants generated by vehicles
- Are safe and inviting to pedestrians and cyclists
- Connect residents, neighborhoods and businesses
- Serve as vibrant public spaces where people meet, walk, wait, shop and dine

DC's 100,000+ street trees provide more than $10 million of benefits each year.

Streets as green environments

Cooler streets. Trees and landscaping cool the air by evaporating water and providing shade. A healthy canopy of street trees makes summer temperatures more bearable for pedestrians, cyclists, motorists and riders waiting for transit. Cooler temperatures mean less smog and longer pavement life.[1]

Safer streets. Street trees block wind, reduce glare and provide a barrier between vehicles and pedestrians. Roadside trees and landscaping act as traffic calming devices, reducing driver speeds and accidents.[2,3] On green streets driver stress is also reduced. [4,5]

Cleaner air and water. The leaves of trees and vegetation act as air filters, trapping fine particles and removing pollutants. So healthy street trees are especially important along busy streets with high levels of vehicle exhaust. Trees also help to reduce stormwater runoff, a major cause of stream pollution. Directing runoff from streets and sidewalks into infiltration planters and swales traps pollutants, slows runoff and lowers costs for hard stormwater infrastructure.

▶▶▶

Casey Trees®
WASHINGTON DC

PHONE: (202) 833-4010 • FAX: (202) 833-4092 • WWW.CASEYTREES.ORG

Greening Our Streets is one in a series of issue briefs from Casey Trees. The *Growing a Healthier DC* series is a product of conversations with a panel of national and local experts convened in cooperation with District agencies, organizations and foundations. The panel examined how green infrastructure could be used to maximize social, economic and ecological benefits in the District of Columbia.

Visit www.caseytrees.org for more information on the topic addressed in this brief or the complete series:

- Green City
- Green Neighborhoods
- Green Streets
- Green Parks and Open Space
- Green Schools
- Green Business Districts
- Green Parking Lots
- Green Residences
- Green Jobs

Streets, sidewalks and alleys cover 18% of DC land.

The Challenge and Opportunity

Streets are more than thoroughfares for vehicles; they serve as public spaces where people walk, meet, shop, dine and enjoy the range of activities that are part of urban living. Transportation corridors can also perform important recreational and ecological functions by forming linear parks, managing stormwater runoff, cooling paved surfaces and creating corridors for urban wildlife like birds and butterflies. "Context sensitive" designs incorporate these additional services, while efficiently accommodating the various modes of travel.

Trees and green space are essential to multi-functional streets, but urban conditions are hard on them. Many street trees suffer from limited root space, poor and compacted soils, and injuries to their trunks and branches. As a result, street trees often die well before reaching full size. And the increasing demand for space in the public right of way for utilities, security bollards, sidewalk cafes, signs and bus stops often results in fewer and smaller trees. Coordinated design with ample space for growing trees, protection from vehicles and people, and consistent maintenance will help our street trees grow large and thrive for generations.

Recommendations

- Prioritize space and location for street trees in the streetscape design process.
- Incorporate streetside stormwater management techniques like tree box infiltration planters, bioswales and stormwater curb extensions.
- Update streetscape standards to improve conditions for street trees, including soil volumes that ensure tree roots have room to grow.
- Establish partnerships with business districts, community groups, nonprofits and residents to monitor and care for trees and landscape in the public right of way.
- Protect existing trees during streetscape construction and utility work by enforcing regulations and incorporating creative techniques like rubber sidewalks and bump-outs.

Grand boulevards like New York Avenue were once graced with multiple rows of street trees.

[1] *Effects of Street Tree Shade on Asphalt Concrete Pavement Performance* by E. Gregory McPherson and Jules Muchnick, Journal of Arboriculture 31(6), Nov 2005.

[2] *Benefits and Risks of Urban Roadside Landscape: Finding a Livable, Balanced Response* by Karen K. Dixon and Kathleen L. Wolf, Proceedings of the 3rd Urban Street Symposium (June 24-27, 2007), Transportation Research Board of the National Academies of Science, 2007.

[3] *Safe Streets, Livable Streets* by Eric Dumbaugh, Journal of the American Planning Association 71(3), Summer 2005.

[4] *The View from the Road: Implications for Stress Recovery and Immunization* by Russ Parsons, Louis G. Tassinary, Roger S. Ulrich, Michelle R. Hebl and Michele Grossman-Alexander, Journal of Environmental Psychology 18(2), June 1998.

[5] *The Restorative Effects of Roadside Vegetation: Implications for Automobile Driver Anger and Frustration* by Jean Marie Cackowski and Jack L. Nasar, Environment and Behavior 35(6), Nov 2003.