Greening Our Way to Water Security

The Need for Sustainable Water Resources

Healthy urban forests are key to helping our growing cities and towns support their water resources. A collaborative effort is underway to promote the benefits of using green infrastructure to protect drinking water supplies and public health, mitigate overflows from combined and separate sewers, and reduce stormwater pollution. We encourage you to join the effort to move beyond single-purpose projects that do not improve the related problems to one that leverages funds to solve multiple problems and profoundly improve the quality of life of urban residents.

Green infrastructure is directly linked to:

Water solutions meet at the intersection of transportation and land use planning.

Improved Water Quality. Nearly 45% of our nation's water bodies are polluted due in significant part to stormwater runoff and non-point source pollution linked to poor land use management. Paved areas, which account for 20-40% of a city's surface, pollute. Trees help cities meet clean water regulations by preventing polluted rainwater from washing into clean sources. Knowledgeable design of urban development can solve the problem of runoff quality at the source and also reduce cities' costs for stormwater management.[1]

Decreased Risk of Flooding. Community forests function as nonstructural stormwater management facilities. For example, in Washington, DC, Casey Trees modeling determined that urban greening prevents over 1.2 billion gallons of stormwater from entering the sewer system, 10% of the total volume and a savings of $4.74 billion in gray infrastructure costs per 30-year construction cycle.[2]

Recharged local groundwater. We are paving our way to water shortages. Increases in impervious surface cover from unplanned development impair the landscape's ability to recharge aquifers and surface waters. Trees increase soil permeability and facilitate groundwater recharge.[3]

Recommendations:

- Support legislation that directs research, education, and grants to developers, community organizations, and municipal planning agencies utilizing better stormwater management designs that incorporate trees and green infrastructure.
- Ask your local urban forest organization to arrange a field tour of a tangible demonstration projects addressing water resources, and then imagine them scaled-up to the citywide or countywide level.
- Direct agencies, funding, policies, and designs to integrate land use planning that accounts for water resources.

References:
1. Day, Susan et al. "Development of a Green Infrastructure Technology that Links Trees and Engineered Soil to Minimize Runoff from Pavement." November 15, 2008.

2. Deutsch, Barbara et al. "The Green Build-Out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, DC." May 15, 2007.

3. "Smart Growth for Clean Water: Helping Communities Address the Water Quality Impacts of Sprawl." National Association of Local Government Environment Professionals, Trust for Public Land, ERG. 2003.

Tree Benefit Facts

Serving Size 1 Million City Trees (2″ caliper)
Recommended Servings Per City about 40%

Costs	
Volunteer Service $0	Trees $250 million

Annual Value*	
Energy Conservation 30% less usage	
Cost Savings	$10 million
Stormwater 350 million gallons captured	
Cost Savings	$3.5 million
Clean Air 1,000 tons less air pollutants	
Cost Savings	$5 million
Public Revenue 11% more for goods	
Cost Savings	varies by city
Property Value 1-10% higher	
Cost Savings	varies by city
Lower Crime 50% less violent crime	
Cost Savings	priceless
Total Cost Savings	**$18.5 million**
ROI within 14 years not including public revenue, property, and crime benefits.	

* Annual Values are based on studies from the Center for Urban Forest Research, Center for Urban Horticulture, Lawrence Berkeley Lab, and the Univ. of Washington, and vary by city. Approximate values are indicated where the differences vary less significantly by city.

ACTrees

Tree by Tree • Street by Street
Alliance for Community Trees