

# A City's Best Defense Against Climate Change? Its Trees, Wetlands, and Watersheds

Green infrastructure protects against extreme weather and cleans up urban environments.

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(Photo: Mike Segar/Reuters)

June 26, 2014 | *By Hannah Hoag*



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**F**aced with aging infrastructure and extreme weather, mayors of American cities are moving to reconnect urban areas with nature to protect drinking water, coastlines, and air quality as climate change accelerates.

When a city incorporates natural infrastructure into its planning, it turns to living assets such as urban trees, wetlands, and watersheds to reduce pollutants and provide protection from storms and hurricanes. So effective is the strategy that the United States Conference of Mayors on Monday approved a resolution that encourages its 1,400 members to start building green bulwarks against climate change.

Philadelphia, for instance, already is using green infrastructure to manage its storm water challenges. Runoff from the city's streets, parking lots, roofs, and playgrounds once triggered sewer overflows that inundated waterways with pathogens, debris, and other pollutants, and made rivers unsafe for swimming and boating after storms. The storm water also eroded riverbanks, uprooting vegetation and sending sediment into pools and to the bottom of streams, upsetting the habitat for fish and bugs. X

The city has designed and constructed several blocks of porous streets and basketball courts made of permeable paving material that lets water pass through the surface to an underground stone reservoir before entering the soil—never becoming runoff. It also has trenches, planters, street bump-outs, rain gardens, and other natural features that have land acting like a sponge to slow down the flow of rainwater into the waterways and keep storm water out of the sewers.

New York and San Jose are among the other cities with green infrastructure plans in place. Washington, D.C., is considering a \$90 million Clean Rivers Project, which would eliminate concrete tunnels in areas where wastewater and storm water share a drainage system. The tunnels would be replaced by plant-filled drainage areas, rain gardens, cisterns, and green roofs to capture, slow down, and clean the storm water before it enters the sewer system.

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“The Clean Rivers Project plan leverages the strengths of both the gray and the green,” said Bethany Bezak, the D.C. Water and Sewer Authority’s green infrastructure project manager.

More than 80 percent of Americans live in cities, and half live in a coastal watershed. Yet the infrastructure we rely on to funnel clean water to our taps, keep sewage out of rivers and lakes, and protect coastlines is under strain. U.S. cities need to spend \$3.6 trillion on upgrading roads, levees, and water mains, according to the American Society of Civil Engineers, which last year delivered a D+ grade to the country’s infrastructure.



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Green infrastructure can make cities more resilient to the impact of climate change. The additional green space can help lower urban air temperatures and improve air quality. "Green infrastructure can manage storm water at the source rather than having us collect it and manage it downstream," said Bezak.

"In some cases green infrastructure might not save money, but it can add value to a project," said Laura Huffman, state director of The Nature Conservancy in Texas. "For the same amount of money, you might be able to solve an important infrastructure problem but also protect or clean up a river, or create an open space that citizens value."

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