

Livable Places Update

Emerging Trends in Community Planning and Design

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Cities Save Money While Improving Water Quality: Cities forced to cut their budgets during these economically challenged times will be pleased to learn that sometimes better ways of providing services can actually cost less! This can be the case when treating urban runoff.

As urban runoff travels through some kinds of ecosystems, especially wetlands, it gets filtered in a natural way, much like the filtration process in the usual sewage plant. We once called this natural drainage, today it is being labeled green infrastructure.

A recent study co-authored by the American Society of Landscape Architects, American Rivers, the Water Environment Federation, and ECONorthwest looked at 479 case studies of green infrastructure projects around the U.S. and found that 44% of the projects studied have reduced the cost of treating their urban runoff water. Measures studied included technologies like permeable pavements and recessed areas incorporated into the landscape that allow runoff water to collect and be absorbed into the ground.

The economic savings were particularly significant for cities that have combined sewer systems that collect both sewage and stormwater. These systems tend to overflow during very heavy periods of rain, leaving cities with significant clean up costs.

According to the report, Chicago's green infrastructure projects, including alleys designed to absorb runoff water, diverted about 70 million gallons of stormwater in 2009, water that would otherwise have been sent to the water treatment facility, at considerable expense to the city.

The report notes that water and waste water systems use a significant amount of energy — for many cities it's the largest single source of energy consumption. Using nature to treat water instead of mechanical systems can save significant sums — New York City expects to save about \$1.5 billion in treatment and infrastructure costs over 20 years by installing green infrastructure.

Meanwhile, in Seattle, permeable pavement and other green infrastructure have cut paving costs almost in half. The City has also found that natural drainage is 25% cheaper to build than conventional roadside development. In addition, the plants and trees not only maintain themselves but their effectiveness increases as they grow.

Authors of the green infrastructure study revealed that about a quarter of the green projects they reviewed actually cost more than the traditional systems. LGC's experience indicates that this may be a result of public works departments, uncomfortable with deviating from their usual practices, requiring redundant systems. Find more information at: www.theatlanticcities.com/

technology/2012/04/green-infrastructure-could-cities-save-billions/1832/

One of the first natural drainage or green infrastructure systems — now highlighted by the EPA as a model — faced opposition by dubious public works officials way back in 1975. The 60-acre Village Homes development in Davis, completed in the early eighties, has for 35 years been holding and absorbing 100 percent of the mixed-use neighborhood's urban runoff water.

During the planning stages, water engineers declared that the system would function well, but city public works department officials required that a bond be posted just in case the then-unheard of natural drainage idea didn't work. The bonding requirement was repealed when, during a once-in-a-100-year storm, the development not only absorbed all its own water, it easily handled water running off from adjacent neighborhoods. This system cost about \$700 less per home (in 1970 dollars) than the traditional drainage system of underground pipes.



A sidewalk planter strip provides natural drainage, now known as green infrastructure.
Portland, Oregon

Installing green infrastructure doesn't have to mean ripping up streets and starting over. The City of Seattle has developed an innovative website called the "Residential RainWise Program" that encourages property owners to control their own rainwater by reducing impervious surfaces, to "help the rain soak into the soil, just like it does in ... native forests." The website makes it easy for residents to find the footprint of their property and select the appropriate interventions from a list of recommendations. The site offers a database of licensed contractors, engineers, and landscape architects ready to help the homeowner develop his/her own system. Visit: www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/GreenStormwaterInfrastructure/ResidentialRainwiseProgram/index.htm

Seattle is providing rebates to residents that install rain gardens or cisterns when they live in areas of the city that are served by combined sewer overflow issues and hope to expand the rebate program to other areas of the city.

Experience shows that even a street tree program can double as a water management system. Street trees alone diverted 41.8 million gallons of stormwater in Pittsburgh in 2011. Other studies have simulated urban forest effects on stormwater and reported annual runoff reductions of 2 to 7%.

In July of 2008, the City of Ventura's City Council directed staff to begin incorporating "Green Streets" elements into routine street maintenance projects. Whenever a street is scheduled to be repaved, the public works department will install green infrastructure features such as permeable concrete sidewalks and gutters, bioswales, and larger tree canopies. The Council has committed up to \$0.6 million per year toward expanding green streets projects.

For more information, see *Livable Communities and Urban Forests*, a free 4-page fact sheet which can be downloaded as a PDF at www.lgc.org/freepub/community_design/factsheets/urban_forests.html

Community Greening as a Crime Prevention Strategy: Some years ago, the City of Seattle's Department of Neighborhoods discovered that their community gardening program, called the P-Patch, was not only helping residents grow their own food and beautifying vacant lots, it was reducing crime. Today, some communities around the country are also observing this phenomenon as they turn to community gardens to increase food security and reduce obesity.

Finally researchers are documenting what others have been simply observing over the years. A before and after of community greening, undertaken by the University of Pennsylvania, recently found that greening public spaces reduced the number of assaults with a deadly weapon.

Over a period of 10 years the Pennsylvania Horticultural Society has reclaimed 4,400 vacant lots in the City of Philadelphia — planting trees and gardens and surrounding the plots with 3-foot fences. University researchers measured the crime rates in the areas surrounding the renewed lots and found a significant number of reduced shootings. Charles Branas, the epidemiologist who released the study on the project late last year observed, "People just became more in touch with their neighbors. People felt more connected to one another." He found that, as a result, people in the neighborhood began to call the police for minor disturbances, something they hadn't done before.

Over a decade ago, University of Illinois researchers noted that simply providing trees could reduce violent behavior. They studied residents in a 28-building, public housing project in Chicago, comparing the observations of residents of buildings surrounded only by concrete and asphalt to those that offered trees. They found that outdoor spaces with trees were used significantly more often than identical spaces without trees; and residents of the buildings with trees experienced less violence. Researchers

postulated that the stronger sense of community resulting from residents having a pleasant place to gather was responsible for the reduction in violent crime rates. The study concluded that, "urban forests are not mere amenities — they are a basic part of the infrastructure of any city, as necessary as streets, sewers and electricity."

The relationship between trees and violent behavior was studied again, just this year, when University of Vermont professors looked at the crime reduction impacts of simply planting trees in and around the City of Baltimore. This time the researchers had access to sophisticated tools not readily available in the year 2000. University of Vermont researchers used GIS maps to overlay crime data with tree cover. They controlled for socioeconomic factors such as race and income levels, and the variables associated with tree cover — including ruralness, and population density.

The results of the study, published just this June, revealed that for every 10 percent increase in trees there was a 12 percent decrease in crime. Austin Troy, the lead author, noted that a well-tended bunch of trees sends a warning to would-be robbers that stoop-sitters and dog-walkers are watching. "If I was a criminal, that's probably not where I'd want to be" he notes.

Parklets Growing In Number: The act of taking back streets for people using parklets seems to be spreading quickly. Parklets are miniature open space projects where one or more parking spaces is converted into a small park right on the city street. The Los Angeles City Council has recently approved four "pilot" parklets, two on Spring Street in Downtown LA near the City Hall.

The four parklets would join the existing Sunset Triangle Plaza as examples of the city making use of its abundance of curbside parking to create open space for all residents. Funding has already been identified for two of the projects and the Downtown Los Angeles Neighborhood Council promises that private and in-kind donations will fund construction of two more. Members of the Neighborhood Council have already invested \$20,000 in volunteer work to design the two parklets.

Councilmember José Huizar, who sponsored the resolution and represents the area where the parklets will be built has said, "From Downtown, to El Sereno, to Highland Park — community members have spoken and they want more pedestrian-friendly public spaces that support local businesses and neighborhoods. It's a marked shift back to community planning of decades past, where now, like then, we are emphasizing local, sustainable communities where residents can shop, relax and spend time in their own neighborhoods. I look forward to seeing parklets launched Citywide."

Could parklets also be a crime prevention strategy? We anxiously await the next university research project to answer this question.