Building Resilient Communities: Green Infrastructure for Counties

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Trees, wetlands, greenways, parks and other natural elements provide innumerable benefits to counties across the US. These natural elements, known collectively as “green infrastructure,” save energy, absorb floodwater, provide vital ecosystems, protect community health and boost local economies. Green infrastructure refers to a planned and managed system of green spaces, greenways and natural lands that offer benefits of water conservation, filtration and absorption as well as air particle removal and heat relief. Natural spaces also contribute to the health and quality of life of our communities.

Counties face an increase in the cost of energy while trying to cut costs and emissions to provide efficient services to citizens. Treating and conveying wastewater and storm water with traditional treatment and conveyance systems have further increased the costs of maintaining a safe and secure water supply. Combined with a decrease in federal and state funding support and an increase in regulation, counties across the United States face pressure to conserve energy and treat water effectively while attempting to upgrade out of date infrastructure. Beyond these concerns, counties also face an increase in diet-and-exercise-related health costs as well as a lack of affordable opportunities for recreation.

From an economic standpoint, green infrastructure helps protect homes, businesses and industries in several different ways. Combined Sewer Overflow (CSO) systems impact water quality, leading to closed beaches, water advisories and threats to human and animal health. Closed beaches also threaten tourism revenues as many of these closures happen in summer months. Many coastal counties depend on tourism revenue as the main economic driver to sustain local economies. Low water quality also threatens aquatic habitat both in freshwater and saltwater ecosystems and negatively impacts fisheries.

Flooding, especially along our nation’s major river basins and in our coastal areas, has proven costly to our counties, both in lives lost and damages to neighborhoods and businesses. Severe floods can destroy communities and take years to rebuild local economies. According to the National Weather Service, 404 people died from floods between 2006 and 2010. The National Weather Service also estimates that flooding damages from 2001 to 2010 cost a total of over $102.5 billion, at an average of $10.27 billion per year. The average flood insurance claim between 2001 and 2010 was $48,000.00.

Many counties lack resources to provide adequate green spaces and public parks for county residents, especially those living in underserved communities. This contributes to a number of growing health concerns including childhood and adult obesity, food safety and availability, and mental health. County-based programs that provide green infrastructure, including programs that increase the number and access to community parks throughout the county, may include boosting the tree canopy; protecting and restoring wetlands; and incorporating rain gardens, porous pavement, green roofs and rain barrels. These efforts may help counties address these challenges in a systematic and multifaceted approach. Community gardens offer green infrastructure benefits while also alleviating food insecurity for counties’ underserved populations. By utilizing green infrastructure tools and techniques, counties can serve multiple constituencies and leverage resources to meet a broad range of goals for our communities.

Green infrastructure already exists in every county in the US, either in county parks, urban tree canopies, wildlife corridors or backyards. The purpose of this brief is to provide resources for county officials and staff to increase knowledge of green infrastructure techniques and learn how they can be applied in our counties. This brief also highlights some of ways that counties already have applied green infrastructure practices to filter and mitigate water pollution, provide recreational activities, enhance community health, support wildlife conservation and preserve county natural and cultural heritage for future generations.
Trees, wetlands and other natural infrastructure provide substantial benefits to counties. These benefits are displayed as a large return on investment through energy savings, water filtration, floodwater absorption, air quality improvement, infrastructure preservation and wildlife habitat. Experts usually refer to these benefits as “ecosystem services” because the services provided by this type of infrastructure would otherwise need to be provided by man-made infrastructure.

**Energy Savings**

Trees provide shade and wind breaks that reduce heating and cooling costs. In urban areas, this effect is especially pronounced because of the prevalence of pavement, concrete and other non-porous surfaces. These surfaces absorb heat and reflect it back. Trees, shrubbery and other vegetation shade sidewalks, streets and buildings while absorbing sunlight and moisture before it hits the pavement.

Scientists first discovered the heat island effect in the 1800s when they observed cities growing warmer than surrounding rural areas, particularly in summer. Urban surfaces of asphalt, concrete and other materials — also referred to as “impervious surfaces” — absorb more solar radiation by day. At night, much of that heat is given up to the urban air, creating a warm bubble over a city that can be as much as 1 to 3°C (2 to 5°F) higher than temperatures in surrounding rural areas.5

NASA researchers studying urban landscapes have found that the intensity of the “heat island” created by a city depends on the ecosystem it replaced and on the regional climate. Urban areas developed in arid and semi-arid regions show far less heating compared with the surrounding countryside than cities built amid forested and temperate climates.6 The impervious surfaces of cities also lead to faster water runoff from land, reducing the natural cooling effects of water on the landscape. More importantly, the lack of trees and other vegetation means less evapotranspiration — the process by which trees “inhale” carbon dioxide and “exhale” water and oxygen.

Tree planting can help alleviate this phenomenon. Besides slowing down water runoff, trees provide shade, a secondary cooling effect in urban landscapes.7 Increasing the tree canopy by planting new trees and maintaining established trees increases the amount of oxygen in the air and decreases carbon dioxide in the local atmosphere.
Computer simulations using prototypical building and tree configurations for cities across the US indicate that shade from a well-placed, mature tree (about 25 ft crown diameter) reduces annual air conditioning use 2 to 8 percent and peak cooling demand 2 to 10 percent. In urban, suburban and rural areas, trees and other vegetation act as windbreaks, slowing or preventing winds from directly blowing onto homes, businesses and farms. These windbreaks reduce heating energy demand and help protect farmland from wind damage and erosion.

Green roofs can also reduce energy loss by insulating buildings and homes and reducing the amount of sunlight and heat energy reflecting roofs.

These techniques also sustain developed areas and preserve infrastructure to extend its life cycle. Using green infrastructure such as strategic tree planting, green roofs and small parks known as “pocket parks” in urban areas, counties can reduce the effects of urban heat islands, insulate homes and businesses from energy loss, and also extend the life of built infrastructure.

Water Filtration and Reuse

Trees and other plants consume water and release it slowly, removing nutrients, bacteria and other contaminants before water reaches municipal storm water drains, lakes, rivers and streams. Green infrastructure stores water and reduces peak flows during rain events and erosion that causes sediment release into waterways.
Impervious surfaces can cover as much as 85% of the surfaces in urban areas. Rain gardens and other “bioretention areas” (gardens or small vegetated ponds which collect rainwater and slowly release it) can filter most common pollutants from runoff of these surfaces entirely. Using these types of green infrastructure elements: rain gardens, retention ponds and green roofs, a county can greatly reduce water quality impairment.

Green infrastructure reduces stress on grey infrastructure through this filtration and absorption. Tree planting, green roofs, rain gardens and other bioretention areas like swales, planted medians on roads, community gardens and water harvesting techniques like rain barrels and cisterns are examples of green infrastructure practices that provide this benefit. These techniques capture water before it is flushed over streets and other impervious surfaces, collecting contaminants removed by water treatment systems. Capturing water before it hits the ground allows for homeowners to use collected rainwater to water plants and lawns, reducing the demand for the county water supply.

Water-conservative landscaping techniques also help conserve and reduce wasted water, reducing stress on county water systems. In Santa Cruz, California, officials calculated that residents used one third of the county’s water supply on landscaping and irrigation. To reduce this load, a resource was created for homeowners that outlines water-smart gardening and water collecting and gray water reuse. Santa Cruz, like many counties across the United States, has also found that providing rain barrels at a discount to residents can save money in the long run by encouraging water reuse and lessening stress on water treatment systems.

A number of counties also utilize rain barrels, green roofs and rain gardens on county properties as well as encouraging their use on private property. County buildings provide an opportunity to not only collect, filter and reuse rainwater, but also to provide education to residents about the benefits of water retention and reuse. Rain gardens on county school properties have increased in popularity to take advantage of the educational opportunity and community involvement of working with local schools, while retaining water from parking lots, building roofs and streets. Many counties own and operate school properties, providing a unique community support and engagement opportunity, as well as using green infrastructure to filter rainwater runoff.

**Floodwater Absorption**

Several green infrastructure techniques improve floodwater absorption and improve air quality. Tree planting, wetlands, vegetated stream and river buffers, green roofs and rain gardens provide green infrastructure that absorbs storm and flood water. Plants, especially wetlands and marshes, soak up water and release it slowly. Vegetated stream buffers will absorb excess floodwater and release that water into the stream, groundwater system or river over time, recharging streams and aquifers. If these buffers are not maintained or restored, floodwaters seep into adjacent homes, businesses and roads because of the lack of protection. Without these buffers, greater damage occurs to surrounding properties and exacerbates erosion, water contamination and risky high-velocity water energy.

**Air Quality Improvement**

Along with water contaminants, plants absorb carbon dioxide needed for energy production and release oxygen. They also filter particulate matter out of the air supply and store carbon instead of releasing it into the atmosphere.

Planting trees especially helps to improve air quality. Trees exchange gases with the atmosphere and capture particulates harmful to people. The rate at which trees remove gaseous pollutants such as ozone, carbon monoxide and sulphur dioxide depends primarily on the amount of foliage, number and condition of the plants, and meteorological conditions. Results from computer studies indicate that trees can substantially reduce the amount of ozone in polluted air. Pine trees in Los Angeles were projected to remove from the atmosphere (under 400 meters) about 8% of the ozone and decrease the ozone concentration around the leaves by 49%.13

**Infrastructure Preservation and Habitat Conservation**

Along with the benefits to built infrastructure from water absorption, filtration and reuse, increasing
green infrastructure like a healthy tree canopy can preserve the lifespan of roads and sidewalks. Tree canopies provide shade that protects pavement and extends the life of asphalt paving, reducing the need to repave streets. Researchers from the U.S. Forest Service worked with the City of Modesto, California to determine whether trees providing shade improved the lifespan of paved roads. This study found a correlation between tree shade and better pavement performance. It also demonstrated the economic benefits of increased pavement durability and reduced maintenance costs associated with increased tree shade, which include savings to the local government in pavement seals and repaving. Larger-scale green infrastructure practices such as greenways, wildlife corridors and parks provide habitat and migration space for animal species. These areas serve a large number of flora and fauna whose habitat may be threatened or endangered by development, invasive species or other habitat loss. Counties face an increase in federal regulation to protect habitat for federal protected and endangered species. Greenways provide connections between conservation areas, parks and preserves allowing animals to migrate between these areas. With county involvement and participation, some large-scale corridors have been created to increase this space to multiple states incorporating county parks as well as national forests, parks and preserves.

Jefferson County, CO Creates Opportunities for Recreation and Resource Protection

In 2001, Jefferson County acquired over 1,400 acres for a passive, open space park with trail-based, non-motorized recreational opportunities within the county’s metro area. Jefferson County manages the land, now called Hildebrand Ranch, to reflect the County’s Open Space mission of balancing human use with resource preservation. Hildebrand Ranch Park is actively managed to sustain existing scenic, historic and natural resources, such as the park’s rugged landforms and serves as a gateway to the other park resources of Jefferson County. Hildebrand Ranch Park trails provide a link to a greater, regional trail system.

In designing Hildebrand Ranch, the county faced the challenge of providing public parking at the facility while meeting strict environmental controls on water quality, long-term maintenance projects and desired aesthetic objectives. The County installed permeable, inter-locking concrete pavers across the ranch’s 33,000 square foot parking lot, thus creating one of the largest mechanical permeable paver installations in Colorado. The system provides infiltration and treatment of runoff to improve water quality and eliminate the need for a detention basin.

This project involved a larger initial construct cost, which the county committed with the recognition that long-term maintenance costs would be significantly reduced. Permeable pavers reduce the long-term maintenance costs typically associated with asphalt parking lots and also provide pleasant aesthetics. The project was accomplished through the cooperation of several county divisions, as well as a partnership with Urban Drainage and Flood Control District.

For more information: http://jeffco.us/openspace/openspace_T56_R25.htm

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Green Infrastructure Supports Healthy Communities

Green infrastructure provides health benefits to local communities. From recreational opportunities to psychological impacts, exposure to green spaces helps communities to maintain healthy lifestyles. Natural habitats preserve local cultures and help invest communities in the places we live, reducing crime and stress on residents. Many different types of green infrastructure can offer benefits for healthier communities and provide basic environmental education to residents. Tree planting, creating and maintaining parks and urban agriculture provide noise reduction, improve community cohesion and reduce stress on residents.

Encourage Exercise, Activity and Healthy Eating

County parks, trails and recreational areas offer citizens low-cost avenues for exercise and outdoor activities. County parks also provide green infrastructure that helps achieve multiple goals for the county including ecosystem services but also recreational opportunities to combat sedentary living and support active lifestyles. Counties have also led efforts to combat food deserts and create farmers’ markets to help increase access to fresh fruits and vegetables. Community gardens provide opportunities to install

Lake County, IL Green Youth Farm and WIC Garden Partnership

In Lake County, Illinois, the Chicago Botanic Garden partnered with the Lake County Forest Preserve District and a number of community partners to develop the Green Youth Farm program. The program focuses on youth leadership, offering students the opportunity to learn about organic gardening and nutrition. The students gain knowledge about healthy eating, teamwork, professional skills and engage in service to their local community while supporting green infrastructure in the form of fruit and vegetable plants.

The Green Youth Farm also partners with the Lake County Health Department’s Women, Infants and Children program (WIC), supporting a local WIC garden and participating in educational sessions for program participants. The Youth Farm established an agreement to sell produce at a local farmers’ market, which offers coupons to WIC participants, allowing greater access to healthy foods for the county’s low income population. This type of intra-county partnership to achieve multiple goals has spread in recent years as counties develop innovative solutions to demands on limited resources. The garden provides green infrastructure and ecosystem services, but also provides nutrition education, healthy food and an opportunity for young people to invest in their county.

For more information: www.chicagobotanicgarden.org/greenyouthfarm

Contact: Angela Mason, Director, Community Gardening and Green Youth Farm

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Dakota County, MN Greenway Collaborative

Dakota County established a Greenway Collaborative to deliver 200 miles of greenways for its residents. The greenways provide trails, natural habitat, improved water quality and non-motorized transportation options for recreation. This program grew from the Dakota County’s Park System Plan, adopted in 2008. Participants in the public process recognized that the county and cities within had great parks but they were not connected or coordinated to maximize benefits to the community. A greenway vision evolved that would connect city parks, regional parks, rivers, wetlands, open space and existing trails and community centers in a web of interconnected loops.

As part of the county’s collaborative Active Living study, County staff considered barriers that impede walking and biking in the county and opportunities to promote walking and biking, rather than reliance on cars. The Park System’s greenways and trails remove barriers to physical activity around popular destinations, including schools, parks, and athletic complexes. To accommodate an aging population, the Park System invested in shorter paved trail loops to improve accessibility for people of all ages and abilities.

Dakota County worked with city, state, school districts, and federal agencies and attracted funding from diverse sources. Dakota County developed a guidebook to clarify the role of each partners in the planning, funding, development and operation of the greenways to help other counties offer similar solutions to these complex problems.

For more information: www.co.dakota.mn.us/Departments/OPA/Reports/GreenwayCollaborative.htm
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Create Safer Communities

County parks provide space for recreation and relaxation, providing respite in crowded areas. Several studies show that in housing developments for underserved populations, green spaces and trees had a statistically significant effect on behavior. Researchers from the University of Illinois found that for children with ADHD, time spent playing in natural environments reduced symptoms, leading to improved school performance.

In a separate study, University of Illinois researchers investigated the correlation between exposure to natural elements (trees and other landscaped areas) and aggression and violence in an urban public housing development. Because housing in this development was randomly assigned, researchers could study the impacts of nearby nature and its effects on residents’ behavior. The study demonstrated a link...
between the amount of natural area nearby a resident’s apartment and the levels of aggression and mental fatigue reported by participants.16

Besides offering respite from stress and fatigue, trees, parks and green spaces increase pride of place, softening neighborhoods and the increasing value that people place on their homes, improving their quality of life. These areas connect people to nature in the neighborhoods they live in and help develop lasting relationships between people and their counties.

**Connect People to Local Culture and History**

Conservation of wildlife areas helps protect legacy areas tied to the history of people in our counties for future generations while providing recreational opportunities for residents. Across the US, land use and the environment relate directly to culture. In local communities, the natural elements of a county relate directly to cultural activities, historic events and the history of communities. These natural features support cultural and educational activities, helping residents understand the history of their county as well as the role that historical figures and cultures play in communities today.

Green infrastructure, in the form of large parks and wildlife conservation areas, protects native animal habitats, preserving fishing, hunting and recreational opportunities that link people to the places they live and the historical and cultural context of American history.

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**Yolo County, CA Heritage Plan**

The Yolo Natural Heritage Program is a county-wide Natural Communities Conservation Plan/Habitat Conservation Plan. The program conserves the natural open space and agricultural landscapes that provide habitat for many species found within the County by establishing a comprehensive, scientifically-sound plan. The Yolo Natural Heritage Program will provide a means for maintaining compliance with state and federal endangered species laws for public and private activities throughout Yolo County.

Since farmland provides habitat to almost 40% of “watch” species, the county decided to brand the county’s habitat conservation plan with a focus on the county’s agricultural economy. A media campaign was launched that highlighted quality of life; compact, vibrant cities, open space and an agriculture-centered economy. By joining the values of habitat conservation and agricultural preservation, the county has garnered diverse support for their program.

When developing the habitat conservation plans, county staff assesses current biological data about species and habitat types and land use planning information about projected future development opportunities. Rather than simply regulating area farmers and ranchers, staff performs an economic analysis for the given land area to identify conservation opportunities and incentives to create effective regulatory compliance. Conservation easements, voluntary agreements between private landowners and a non-profit land trust or government, have proven a useful tool for Yolo County in conserving natural habitat and agricultural land.

**For more information:** [www.yoloconservationplan.com](http://www.yoloconservationplan.com)

**Contact:** Maria Wong, Executive Director, Yolo County Habitat/Natural Heritage Conservation Plan

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Sustainable Fisheries
Healthy wetlands and streams provide habitat for fish, providing spawning and juvenile habitat, which sustain marine and freshwater fisheries. This habitat shelters young aquatic species and keeps the marine and coastal food web intact to support fisheries. Many of these fisheries require healthy green infrastructure like wetlands, trees, stream and river environments to foster healthy ecosystems.

Salmon fisheries in particular rely on this type of green infrastructure to provide spawning habitat in fresh water and in salt water for adult habitat. The Pacific Northwest estuaries support more than 90% of the nation’s harvest of wild and hatchery-raised salmon.17 The combined effects of altered productivity and overfishing have already led to declines in salmon populations both in the U.S. and in international fisheries. The United States has spent more money to rebuild the salmon population than it has on any other endangered species. In 2004 alone, the U.S. invested $350 million in salmon restoration efforts.18

In 2009, the most recent data, NOAA National Marine Fisheries Service calculated that US Fisheries supported over one million jobs in coastal watershed counties. Because of spawning habits, this includes areas not traditionally thought of as coastal environments, such as the Columbia River basin that extends into Idaho, Montana, Nevada, Utah and Wyoming.19 Sustaining productive green infrastructure, including wetlands, riverbank areas and streams is vital to protecting the health and viability of this industry.

Tourism
Healthy green infrastructure improves a county’s attractiveness to tourists who generate revenue for the county. Green infrastructure can include recreational sites such as golf courses, parks and beaches if counties utilize sustainable practices to protect land and water resources. These areas will attract not just residents, but outside visitors from other counties, states and countries as well as businesses and corporate residents.
Sustainable beaches on our coasts as well as river and lake beaches include healthy aquatic habitats as well as marshes and dune habitats. Counties can also manage these areas to provide recreational opportunities for beachgoers, including boating, snorkeling, beach activities and swimming. Sustainable coastal green infrastructure helps build resiliency in delicate coastal economies threatened by natural disasters, ensuring that coastal communities mitigate damage and recover faster.

Building tourism opportunities for local beaches and marketing these areas effectively can help sustain a county’s marine and coastal environment and foster communities that support local businesses such as hotels, shops and other tourism-related industries. Green infrastructure, like wetlands in the Pacific Northwest, local habitats like mangrove forests in Florida or dune habitats in the Great Lakes, helps sustain beach-based economies through protecting marine species and improving water quality.

Lack of green infrastructure can be costly. Beach closures due to water quality warnings or ratings can cost local communities thousands or even millions in lost revenue. In the Great Lakes, public health officials estimate the economic cost from a closed beach at about $5 million per day in lost revenues.20 When properly managed, green infrastructure in our wetlands, healthy rivers and forests and recreational areas can keep water quality from degrading and costing millions in lost revenue. By sustaining the green infrastructure that maintains healthy habitats and supports these types of tourism, counties keep industries viable in their communities, sustaining jobs for residents and local businesses.

**Improved Property Value**

Restoring green spaces to neighborhoods increases property values, decreases graffiti and vandalism and helps citizens take pride in their neighborhoods. Green spaces also provide benefits to counties through tax revenue from increased property values.

University of Georgia researchers conducted a study in 2004 that illustrated the relationship between property values and proximity to parks, preserves and open spaces. The study found a significant increase in property values when homes and businesses were located near these spaces. The impact diminished and disappeared the farther away the property was from these areas.21 This impact has significant meaning for counties collecting property taxes. If property values rise, so do county tax assessments and revenues.

As counties face property value declines in the recent foreclosure crisis, creating parks, open spaces and preserves on unused properties may increase the value of remaining properties in the county.

**Local Businesses and Corporate Campuses**

Business districts also do better and attract more customers when there are landscaped areas and green infrastructure present in shopping areas. Researchers from the University of Washington surveyed urban neighborhoods in cities of the Pacific Northwest, Austin, Los Angeles, Chicago, Pittsburgh and Washington D.C. and found that shoppers preferred greatly to shop in areas with green spaces and trees.
On average, respondents’ measured about 12% higher for products in the landscaped shopping areas compared to the no-tree district. This was true of low-price, impulse-buy convenience items as well as more expensive items. With retail businesses’ usual low profit margins, landscaping can provide a significant amenity bonus and can encourage shoppers and businesses in local business districts. The “urban forest,” the trees, urban parks and other vegetation found in urban areas, encourages small business owners and entrepreneurs by attracting shoppers and customers and can help a county to revitalize local business districts.

Corporate campuses offer additional avenues for incorporating green infrastructure into development or redevelopment planning. These areas offer public access, educational opportunities and deliver the benefits of attracting local customers and clients because of the environment. This makes these campuses an ideal place for both business support and for citizen exposure and education about green infrastructure practices. Bioretention areas, storm water runoff mitigation landscapes, water-smart landscaping and rain gardens help businesses to reduce runoff from parking lots and paved areas. Green roofs and tree canopies also assist companies to reduce energy usage and lower heating and cooling costs all while providing retail and office spaces that attract both workers and customers. By partnering with local businesses, counties may establish partnerships to both reduce the negative effects of traditional infrastructure by lessening stress on water treatment facilities and energy infrastructure, but also ideal spaces for community education and support.

**Lexington County, SC Preserves County Character with Local Landscape Plan**

Lexington County’s comprehensive Landscape and Open Space Plan is a vision for maintaining natural aesthetics throughout the county. In 2010, the county updated its existing Landscape Plan, which mainly addressed urban and suburban portions of the county. The plan protects and enhances the character, appearance, and image of Lexington County through landscape design and open space. A newly adopted plan successfully addresses the maintenance of trees in residential subdivisions through mandated open spaces and transition areas. The county preserved over 250 miles of scenic, canopyed tree corridors.

The most important aspect of the entire project is the flexibility of both the Zoning Ordinance and the new Landscape and Open Space Ordinance that allows the County to personalize the implementation of these restrictions to fit the geography, vegetation, personality and character of the wide variety of regions within the 755 square-mile county. Lexington County can select specific aspects of both ordinances that apply in a given area and designate scenic corridors from three different options.

The Landscape and Open Space Ordinance applies to all residential attached (3 or more units), all residential subdivisions, and all non-residential development in the designated portions of the County’s unincorporated areas. A certificate of occupancy cannot be issued until a landscape plan has been approved by the county.

**For more information:** [www.lex-co.com/departments/communitydevelopment/LandscapeOrdinance.html](http://www.lex-co.com/departments/communitydevelopment/LandscapeOrdinance.html)

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County Green Infrastructure in the 21st Century

Green infrastructure provides countless benefits to counties and municipalities across the U.S. across a wide spectrum of interests. These planned and managed systems offer energy savings, water quality improvement, healthy communities and a sustainable economy. While counties across the U.S. struggle to “do more with less,” green infrastructure techniques offer options to address multiple goals at once. Tree planting, green roofs and water harvesting help reduce energy bills, saving money while cooling streets and preserving roads and walkways. Trees, rain gardens, bioretention areas and wetlands help filter air and water as well as absorb floodwater, improve water retention and reuse while recharging aquifers.

Trees, parks and other recreational spaces provide areas for local residents to exercise, improving community health through physical activity as well as psychological health. Exposure to these areas helps residents relax and de-stress, leading to better educational and mental health outcomes. Community health also receives a benefit from local gardens which give all of the benefits of rainwater absorption, filtration and recharge while also providing nutritious fruits and vegetables to combat obesity and food deserts. Green infrastructure also supports industries in our counties like fisheries and tourism, as wetlands and vegetated streams and rivers provide healthy habitat for aquatic species and improve water quality on our beaches. These areas also support businesses and help provide community education on the benefits of green infrastructure like water-smart landscaping, water reuse and energy savings through tree canopies and green roofs.

Our nation’s counties have shown themselves as leaders of creative thinking, incorporating many green elements into storm water plans, recreational opportunities, food security, wildlife habitat and natural and cultural heritage. Green infrastructure already exists in every county in the U.S., in county parks, urban tree canopies, wildlife corridors and backyards. Counties have proven that, with innovation, these natural spaces can work to achieve many goals.

Leaders in the counties highlighted in this brief have already incorporated green infrastructure techniques with great success and many see the opportunity to reevaluate infrastructure plans and open space protection to include green infrastructure. This opportunity allows county officials to solve multiple goals through more comprehensive planning and partnerships. With counties struggling to do more with less, the opportunity for incorporating green infrastructure practices aids local leaders to solve these goals and lead our counties into the twenty-first century.
For more information and training about green infrastructure, please visit:

www.fs.fed.us/ucf
The United States Forest Service Urban and Community Forestry site for urban and community forests.

www.greeninfrastructure.net
The Conservation Fund’s resource for the Green Infrastructure Community of Practice.

http://cfpub.epa.gov/npdes/home.cfm?program_id=298
The US Environmental Protection Agency’s Managing Wet Weather with Green Infrastructure website.

www.extension.org
The Cooperative Extension System website that can connect you to your local county cooperative extension office with resources for green infrastructure and community health.
References


6. Ibid.

7. Ibid.


