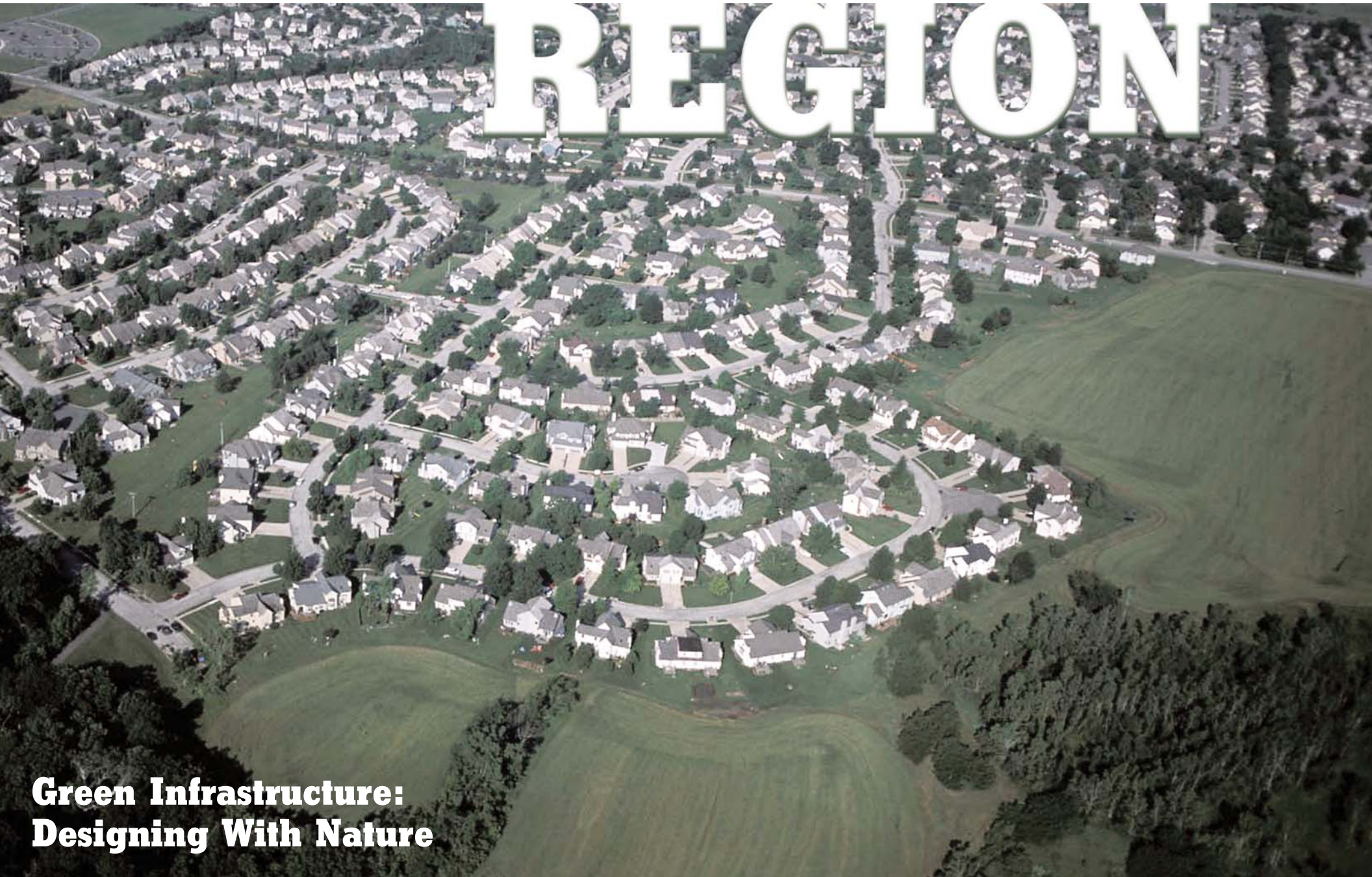
KANSAS CITY REGION



Green Infrastructure: Designing With Nature

Vision

The Kansas City region will strive to create and implement cost-effective green planning and design, approaches that contribute to the health and quality of life of local communities, support wildlife species, maintain natural ecological processes, and sustain air and water resources.

Growth Pressures

Since 1982, the Kansas City metro area population has increased by 17 percent, to nearly 1.8 million. Over the same time period, developed land area increased by approximately 37 percent, more than twice the population growth rate. Like many other locations in the nation, the citizens of the Kansas City area are increasingly concerned with the loss of green space and the many benefits they draw from nature.

When communities construct buildings, sidewalks, and paved parking lots, the covered soil can no longer absorb large quantities of rainwater and moderate the impacts of heavy rain events. The conventional solution is to use more concrete to divert untreated runoff into stormdrains, where it concentrates and eventually discharges into rivers and streams. These massive discharges into natural streams cause bank erosion, channel cutting, and flooding downstream, while producing a general disruption in the ecological function and integrity of our waterways. In extreme cases, the stream channels themselves are lined with concrete. To complicate matters, communities and counties are now required by federal law to treat their stormwater discharges for water quality.

Development patterns are altering the habitat of both wildlife and people. In some communities only small remnants of open or green space remain. When green space is present, it is seldom connected to other vegetated areas in ways that would allow people or animals to travel from one area to another. The many social amenities that trees and other vegetation can provide are lacking where most people live and work.

"Green Infrastructure"

Increasingly, communities have begun to reevaluate the ways in which they develop. They can't simply resort to conventional approaches and expect different results. Communities have long understood the need for infrastructure, like water and sewer lines, power lines, and roadways. With strong support for "Creating Quality Places" and "Metro Green" in the Kansas City region, communities now recognize the value of open and green spaces. Many communities increasingly appreciate the importance of "green infrastructure," — a planned and managed, interconnected network of natural areas like waterways, wetlands, and forests; conservation lands like greenways and parks; and adjacent working lands like farms, ranches, and corporate lands.

MARC

The Mid-America Regional Council (MARC) is the metropolitan planning organization for the 114 city and eight county governments in the bi-state Kansas City region. Through MARC's leadership, local governments and diverse community interests work together to address the region's problems and identify the opportunities for cooperative solutions. These efforts, in turn, enhance the effectiveness of local governments and foster better understanding and cooperation on issues that extend beyond the jurisdiction of a single city, county or state.

MARC recently conducted a greenways/trails survey to gauge citizen concerns and preferences:

- Preserving water quality was cited as the most important issue in every county and the establishment of buffers along rivers and streams was listed as the most important goal.
- By a wide margin, citizens were also supportive of developing multipurpose greenways that could be used as recreational walking/biking trails, serve as transportation linkages between neighborhoods, and provide wildlife habitat.

Watershed / Landscape Scale

To effectively address green infrastructure issues, cities and towns must view themselves as part of a watershed. Water and air flow in and out of communities, as do traffic, people, and wildlife. Urban and nearby rural residents need to learn how their land-use decisions affect one another, and how they might work together to achieve common goals. Tools such as geographic information systems (GIS) enable communities to analyze the surrounding landscapes and watersheds to determine the best locations for environmental conservation and restoration efforts. A GIS provides a spatial context that allows consideration of landscape features, hydrology, and land-use so that benefits such as water quality, erosion control, and wildlife habitat can be evaluated and achieved more easily and efficiently.

Riparian areas are lands that border streams, rivers, and lakes. They

"…provide a wide range of functions critical for many aquatic and terrestrial species, for maintenance of water quality, for aesthetics, for the production of goods and services, and for a wide range of social and cultural values."

- U.S. National Academy of Sciences
  National Research Council (2002)

MARC

Mid-America Regional Council

Tools For Designing With Nature

The Mid-America Regional Council (MARC) will lead this initiative. MARC will work in close partnership with the Environmental Protection Agency (EPA), the University of Missouri - Center for Agroforestry (UMCA), the USDA National Agroforestry Center (NAC), and representatives of interested agencies, organizations, and communities located in the metropolitan area. Efforts will focus on the following:

GIS-based Planning Framework – MARC is currently working on an EPA-funded project to organize maps and data into a regional GIS system that can be used for regional environmental planning purposes. The green infrastructure initiatives will utilize this GIS system and develop methods to help the Kansas City metro area plan for future development that considers natural systems and processes at the landscape level. Individuals with little knowledge of natural resource management and landscape planning, as well as those who wish to work at more detailed levels can use this system.

Best Management Practices – The project will design and test certain best management practices (BMPs), such as the use of native landscaping, to achieve community objectives like stormwater management, habitat conservation, and the creation of recreational greenway corridors. BMP design and evaluation will provide useful guidance for towns, cities and counties.

The project will pursue the increased use of agroforestry practices on agricultural lands, as well as modification of some of these practices for use within communities. For example, field windbreaks can control soil erosion and livestock odors while providing habitat for wildlife and connecting fragmented patches of forests throughout the landscape. Riparian forest buffers along streams can protect surface waters from fertilizers, pesticides, sediments, and animal wastes in agricultural runoff when linked to the effective use of buffers in the surrounding landscape. In urban settings modified riparian forest buffer designs can be installed to protect urban streams, manage stormwater runoff, create wildlife habitat, provide recreational opportunities, and reduce noise, odor and dust.

Demonstrations / Education – The most promising designs and management strategies will be demonstrated on selected sites within the metro region. These sites will be linked to focused research, educational programs, and public outreach efforts. In addition, the project will develop educational materials for elementary students to supplement existing environmental education-related curricula.

Link to Rural Farm Programs – The urban growth edges of many communities are adjacent to agricultural lands. This project will position communities within the metro area to talk with rural watershed partners about shared goals and priorities. Such information will be valuable in targeting the investment of federal landowner cost-share programs like the U.S. Department of Agriculture's Natural Resources Conservation Service Conservation Reserve Program (CRP), Wildlife Habitat Improvement Program (WHIP), and Environmental Quality Improvement Program (EQIP) and the U.S. Forest Service Forest Land Enhancement Program (FLEP), as well as EPA programs for clean water.

For more information contact Tom Jacobs at MARC: (816) 474-4240 tjacobs@marc.org

Photos provided courtesy of Alex S. MacLean, Landslides Aerial Photogrpahy, Cambridge, MA and the Kansas City Design Center.

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