

**City of Springfield and Greene County's**

# Integrated Plan Appendix Environmental Programs- Projects - Initiatives

Ongoing Efforts in Environmental Protection and Sustainability

8/13/2012

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# **Springfield and Greene County's Ongoing Efforts in Environmental Protection and Sustainability**

The City of Springfield and Greene County has compiled a listing of significant environmental programs which have been initiated within Springfield and Greene County. These plans and programs will help protect the environment and improve the regions quality of life for our citizens and visitors.

We have grouped these into the following categories:

- Community Plans & Policies
- Sustainability
- Wastewater
- Stormwater
- Drinking Water
- Air Quality
- Solid Waste Management
- Brownfields
- Community Involvement

## **Community Plans & Policies**

### **Field Guide 2030 – Community Comprehensive Plan**

The new Springfield community strategic plan, Field Guide 2030, includes a Natural Environment chapter that addresses a variety of environmental concerns and challenges, including water quality, stormwater, air quality, local food production, and many others. Additionally, this plan includes four broad "themes" that cut across all thirteen chapters. One of those "themes" is Sustainability. During the development of this new plan, each of the thirteen citizen-based chapter planning committees was asked to address how their chapter topic impacts, influences, and is influenced by the other chapters and each of the four "themes." Thus, the plan includes thirteen perspectives on Sustainability. Additionally, various organizations within the community have volunteered to "adopt" one or more chapters and themes. These adopter organizations will be responsible for evaluating our community's progress toward each of the chapter and theme goals and objectives, and reporting the level of progress to the public annually via a community "report card."

### **Field Guide 2030 - Natural Environment Committee**

Sustainability is the capacity to endure—an important capacity for communities facing ever pressing economic, social, and environmental challenges. Being good stewards of our resources and setting ourselves up to flourish into the future is challenging, especially in a world dominated by cheap and fast. Sustainability requires long-term stewardship and mindfulness of the impacts that our actions may have on future generations.

The **Natural Environment Committee**, comprised mostly of citizen volunteers, convened to address the environment and sustainability. The group collectively spent hundreds of hours researching, debating, and writing. Many specific and important recommendations were made. Perhaps the committee's most important contribution was to urge incorporation of a triple-bottom-line ethos in community decisions and projects that would more equally consider economic, social, and environmental impacts. Sustainability was also a cross-chapter theme which all thirteen planning committees addressed in their chapters, and most topic areas showed strong correlations with sustainability and the recommendations of other chapters.

### **Greene County Land Use Plan**

The current Greene County Land use plan was adopted in October 2009 replacing an outdated plan that was adopted in 1981. The land use plan is an element of the Greene County Comprehensive Plan. It serves as a guide for future land use decisions by the Planning Board and County Commission in regard to providing for future growth in a manner which considers the effects of changes in land use upon existing neighborhoods, the environment, the County's rural character and agricultural base. The land use plan seeks to conserve land, natural resources and farm land, as well as to minimize future infrastructure costs by maintaining a compact pattern of urban growth within areas served by municipal services while encouraging agricultural use outside of these areas..

## **Sustainability**

### **New Sustainability Division and Sustainability Officer**

Sustainability efforts include completion of City/County organization-wide Baseline Sustainability Assessment, including 27 departments/activity centers against the 81-criteria Ozarks GreenScore Checklist; establishment of the Sustainability Officer position and beginning development of Sustainability Plan.

Education/outreach programs include:

- Encouraging and assisting voluntary compliance – helping people understand the why's and how to's toward sustainability
- Targeted programs for business/industry, youth, general audiences
- Technical Assistance: Business assistance via Market Development Specialist
- Role Model/"Coach": Communicating our activities and accomplishments to clear the way for others and to encourage others

- Multi-media education/outreach programs for air quality, water quality/quantity, stormwater, wastewater, solid waste management, waste reduction/recycling, and sustainability.

### **Ozarks GreenScore**

Ozarks GreenScore is a voluntary, non-regulatory program designed to educate, assist and recognize area businesses and organizations as they adopt environmentally sustainable practices. To be considered environmentally sustainable, organizations must score highly on evaluated criteria such as waste management, energy management, policy management, water conservation, and air and water quality protection. Based on their evaluated criteria scores, organizations are awarded a Bronze, Silver, Gold or Green level award. If organizations would like to raise their GreenScore, informational resources and technical assistance are available to identify and implement additional sustainable opportunities.

Ozarks Green Source has 20 organizations and agencies offering technical assistance, including: Drury University's Ozarks Center for Sustainable Solutions; Drury Students in Free Enterprise (SIFE); and the Partnership for Sustainability and Springfield/Greene County Choose Environmental Excellence.

To date there are 20 recognized GreenScores and 93 businesses enrolled.

### **Partnership for Sustainability**

The Partnership for Sustainability Initiative offers businesses, institutions, and organizations the opportunity to lead the community toward sustainability through impact on the environment and economy.

Springfield area businesses, institutions and organizations are in a unique position to contribute to solutions which address water/air quality, recycling, and reducing our impact on the environment. Innovation, creativity, and entrepreneurial talent, all in abundant supply in the Springfield area business community, are essential to success. The relationships employers enjoy with their customers and employees are crucial to communicating the changes needed to effect positive change.

Ultimately, businesses, institutions and organizations have a shared interest in making economic investments that can potentially improve the environment. The Partnership for Sustainability Initiative simply makes good business sense.

### **Energy Management & Conservation**

City Utilities of Springfield is committed to providing Energy Management & Conservation education, training and incentives to its customers. This commitment has been an ongoing effort for three decades and continues today with an enhanced portfolio of programs, based on

the premise that when utility customers take action to use energy and water more efficiently, they conserve the resources our entire community depends upon to sustain an excellent quality of life.

In response to a recommendation made by the Power Supply Community Task Force that City Utilities implement a more aggressive energy conservation program, since 2006 the utility has implemented over sixteen programs and has issued nearly 30,000 rebates to customers. After the first five full years of implementation, these programs have resulted in saving the equivalent of the annual electric consumption of 4,542 homes, the annual natural gas consumption of 2,764 homes, and the annual water consumption of 1,558 homes.

### **Drury University's Implementation Plan Climate Commitments**

Drury University's American Colleges and Universities Presidents Climate Commitment Implementation Plan commits us to: 1) providing a liberal arts education, which develops in students the critical thinking and problem solving skills they will need to lead in a rapidly changing global society; 2) operating in a way to reduce our environmental impact and demonstrate to students how to live in a way that respects the limited natural resources of this planet; and 3) reaching out to our regional and national community to nurture a healthy environment, robust economy, and just society. Established in May 2011, the plan is funded by a Green Revolving Fund which captures savings from energy efficiency investments to re-invest in both further energy saving investments and other aspects of the plan. In May 2012, the first year under the revolving fund was completed, has spun \$82,000 from first year utility savings. About half of this amount has been committed for energy investments and an effort to select projects for the balance of the fund is currently under way. The plan targets 2030 for achieving carbon neutrality, contingent on adequacy of Green Revolving Fund investments.

### **Ozarks Center for Sustainable Solutions**

The Ozarks Center for Sustainable Solutions provides pollution prevention technical assistance and environmental/sustainability awareness to businesses, organizations, local governments and the general public throughout Missouri's Ozarks region. The purpose of the center is to help organizations identify and implement pollution prevention opportunities to reduce pollution and operational costs. Its director is Ms. Amy Strickland-Minor.

### **Edward Jones Center for Entrepreneurship**

By combining entrepreneurship with innovation, the Edward Jones Center will provide individuals inside existing corporations with tools to continually refresh and reinvent their organizations as markets and business environments change. They are also eager to provide employees of existing corporations with tools to continually refresh and reinvent their organizations as markets and business environments change. Their vision for the center is to arm entrepreneurs from many sectors with the acumen to create new, innovative ventures. Its director is Dr. Kelley Still.

## **Students in Free Enterprise**

SIFE is an international non-profit organization that works with leaders in business and higher education to mobilize university students to make a difference in their communities while developing the skills to become socially responsible business leaders. Participating students form teams on their university campuses and apply business concepts to develop outreach projects that improve the quality of life and standard of living for people in need.

## **Dig in R-12**

Springfield Urban Agriculture Coalition has awarded ten Springfield R-12 schools with DIRT Project Gardens. The Dig In R-Twelve (DIRT) Project will plan and install the ten school gardens and, in collaboration with the Drury School of Education, will also provide and teach curriculum to address core state education standards and use the gardens to complement classroom learning by teaching healthy habits in a fun, active, hands-on environment. The DIRT Project aims to address increasing obesity rates in Missouri. It will promote healthy, active lifestyles by providing education to the community and the school children about the benefits of growing and using sustainably produced, locally grown food. This effort is directed by Ms. Lucy Howell.

## **Springfield-Greene County Environmental Report Card**

In 2000, a national effort led by the National Association of County and City Health Officials (NACCHO) developed a community environmental assessment guidance document following the Protocol for Assessing Community Excellence In Environmental Health (PACE EH). Utilizing this protocol, the Springfield/Greene County Health Department called upon the Environmental Collaborative of the Community Partnership of the Ozarks to partner in this community-wide assessment effort. Springfield/Greene County was the first community in Missouri to conduct this comprehensive assessment.

Recognizing the need for a plan to complete the process of developing a large-scale environmental health assessment, the PACE EH became the chosen methodological framework. Thirteen tasks comprise this process.

Working through the thirteen steps, work groups continued their work, offering a number of recommendations related to protecting our natural environment, ensuring a high quality of life and a healthy environment for our citizens, and raising the level of awareness and participation in these efforts. The work product was presented to the community as the “State of the Environment in Springfield and Greene County – 2002.”

Each year following, regular reports are prepared and distributed to the community by the Environmental Collaborative of the Community Partnership of the Ozarks through the “Environmental Report Card for Springfield and Greene County.” Recommendations from the

original report are included with accompanying status reports. Emerging issues and current status reports are also included.

### **Green Building Task Force**

The City of Springfield and Greene County is convening a Green Building Task Force to investigate and evaluate the latest green building policies, procedures and ordinances and recommend their application to regional development. Members of the Task Force will include representatives from the building/development community, planning groups, local green building advocates, code officials, and citizens at large. The Task Force will be assisted by Technical Support Staff.

### **City of Springfield – Department of Environment Services**

Effective July 1, 2011, the City of Springfield created the new Department of Environmental Services (DES) to better address the ever increasing emphasis on environmental issues and to better position the City as an advocate of sustainability and environmental stewardship. The existing Solid Waste Management Division and Clean Water Services (wastewater management) division of the Public Works Department were transitioned to the newly formed DES. A new Environmental Compliance Division and a new Sustainability Division was added to the DES. The City's Air Quality Control Program was moved from the Springfield/Greene County Health Department to the new DES.

### **Environmental Resource Center**

The City of Springfield is just finishing up the rehab of an existing 1930's building to be designated The Environmental Resource Center later this fall. Committed to a minimum of LEED Silver Standards, the building includes state of the art heating and air and mechanical systems. Domestic hot water is heated via roof-mounted solar panels. A cistern is utilized with a roof-top rainwater harvesting system to be used to irrigate native plantings around the foundation of the building. Solartubes provide natural lighting. Recycled/environmentally responsible building materials and furnishings were used throughout. A Community Room meeting room is included with full audio/visual capabilities, as well as several other smaller meeting spaces. A resource area includes an area for public use of printed materials, internet resources, and check-out educational materials. Housed in the newly refurbished facilities will be: Ozark Greenways, Inc., the Water Quality Section of Stormwater Services Division of the Public Works Department, the Solid Waste Management Division, Environmental Compliance Division including the Air Quality Control Section, Sustainability Division, including education/outreach staff and services for Solid Waste Management, Clean Water Services, Air Quality, Stormwater, and Show-Me Yards & Neighborhoods. Several local environmental/conservation organizations have already selected the Environmental Resource Center as their ongoing meeting place.

Green buildings/projects completed:

- Transportation Management Center – LEED Gold
- Environmental Resource Center – LEED Silver is minimum target
- Greene County Archives/Elections Center – LEED Silver
- Watershed Center – LEED Platinum
- Police/Fire Training Center – nearly completion – LEED Silver is minimum Target
- Greene County Public Safety Center – LEED Silver

The new Compressed Natural Gas Station opened this year. Partners in the venture: City Utilities of Springfield, Greene County, City of Springfield.

### **The Urban Forest**

Ozark Greenways has a long history of advocating for the protecting and improving of our urban forest. Our participation has been in the form of public education and outreach, the coordination of volunteer activities to plant and maintain trees, seeking/supporting grants for tree plantings and other urban forestry activities, and promoting the importance of a community's urban forest, and advocating of many current streetscape projects.

The City hosts a Tree City USA Citizens Advisory Committee and has qualified as a Tree City for 27 years. City Utilities of Springfield has earned the Tree Line USA status for 19 years.

The City's Public Works Department and Springfield/Greene County Parks Department have adopted a City Tree Canopy Policy for internal projects. Through quarter cent and other special funding, Public Works staff is working to preserve tree canopy when possible and reforest in areas where tree canopy has been removed or presents a optimal growing environment. General Reforestation Projects, Public Works Construction Projects, Single Tree Permits and the NeighborWoods Program all provide avenues to plant new trees. The key to long term growth and canopy development hinges on the survival of the newly planted trees. Establishment maintenance is provided either through quarter cent funding or by cooperation by citizens and non-profit organizations. Public Works goal is to plant 750 trees each year in an effort to grow our canopy for future generations.

Future generations will receive the benefits of a diverse, uneven aged urban tree canopy. A few of the key benefits are reduced stormwater, reduced air and pavement temperatures and reduced energy consumption, as well as increased pavement life, increased property values, and improved air quality. Each of these areas provide monetary, environmental and quality of life benefits to our citizens and visitors.

The NeighborWoods program has been allocated \$200,000 to plant trees on City right-of-way to be cared for by the residents of the neighborhood. Approved neighborhoods receive training and the trees are monitored to endure proper care.

The first **Diverging Diamond Interchange** in the nation opened to traffic on June 21, 2009, in Springfield, Missouri. The interchange in Springfield where the Kansas Expressway (MO-13) passes over I-44 is a huge success. At peak hours of the day, southbound traffic on MO-13 would back up to one mile and, at times, up to two miles during major traffic generating events. Now, the same traffic moves through the interchange within a matter of minutes, achieving dramatic improvements in travel time and environmental air quality. The interchange was chosen as one of the best new engineering innovations of 2009 by Popular Science magazine and earned the “Project of the Year” award from the American Public Works Association in early 2010.

A diverging diamond interchange (DDI) is a diamond interchange that more efficiently facilitates heavy left-turn movements. While the ramp configuration is similar to a traditional diamond interchange, traffic on the cross route moves to the left side of the roadway for the segment between signalized ramp intersections. By moving traffic to the left, left-turning vehicles can enter the limited access highway without the need for a left-turn signal phase at the signalized ramp intersections. Also, left-turning vehicles on the cross route do not conflict with opposing through traffic and may turn without stopping, creating the unique ‘free-left’ turning motion.

The Link is a planned bicycle and pedestrian route through Springfield’s core that will connect existing and planned greenways. The route will be primarily on existing streets with minimal vehicular traffic. The experiences of walkers and bicyclists on The Link will vary along different routes; however, the ultimate goal is to develop a system of shared-use routes that creates an experience of comfort and safety. The Link will connect more than just greenways. By routing The Link through the core of Springfield, it will connect neighborhoods; other modes of travel; and retail, services and employment activity centers. The centers include: Commercial Street, Drury University, Ozarks Technical Community College, the IDEA Commons, Jordan Valley, Hammons Field (Cardinal’s minor league team), Downtown, Missouri State University, St. John’s Hospital, Battlefield Mall and Cox South Hospital. Where routes intersect a greenway or a transit route, Link Stations are planned. Link Stations are shelters with amenities such as benches, water fountains and bike racks and lockers. This will allow residents to ride a bus to The Link and continue their trips on foot or by bicycle. All City Utilities’ buses have bicycle racks. There are also plans to demonstrate innovative stormwater solutions to reduce localized drainage issues and improve the environment along The Link. The initial routes are in north and central Springfield where many of the City’s low and moderate-income neighborhoods are located. These routes will provide alternative transportation for residents that need it the most.

### **Ozark Greenways, Inc.**

Ozark Greenways is working as the local voice in promoting and encouraging planning, design and public support for alternative transportation modes. The original focus was targeted to bicycle and pedestrian education safety but has expanded into greater involvement in being a strong voice for a cultural shift in our local transportation system. This includes advocating for local infrastructure dollars for all transportation modes. This also includes advocating for public transportation, clean air, Safe Routes to Schools, ride share program, a better connected trail

system, and promoting the health and economic benefits of alternative transportation choices. Two ongoing projects are, Bike to Work Week and the “Let’s Go Smart” initiative.

Trails and greenway projects are the greatest achievement of Ozark Greenways. This involvement is what attracts the community to the other initiatives listed above. It is thru the development of our current 68-mile greenway network that many people become aware of their natural environment and gain the interest to participate in a lifestyle that promote the sustainable choices one can make for their community. Our current community trail inventory also offers nature trails, single track bicycle trails, and smaller exercise/park trails which total 100 miles.

“We cannot afford to build trails for everyone to go everywhere.” To this end Ozark Greenways is leading the charge in advocating for the wiser, safer, shared use of our community infrastructure of streets. We have worked closely with Environmental Services, Public Work and the Greene County Highway Department to establish safer on street facilities which will promote greater use of the bicycle and also walking. The ripple effect to this initiative (Let’s Go Smart”) will have impacts on air quality, public health, and how infrastructure dollars are spent in the future. Currently we have 56-miles of bicycle routes identified in the city and 5.8-miles of bicycle lanes. In the county we have three sections of county highway signed with the appropriate “Share the Road” signage. We are proposing additional locations and routes for consideration that will complement the developing Bicycle Destination Plan.

Ozark Greenway is working on a Greene County Bicycle Destination Plan which is being conducted to promote sustainable eco-tourism. The plan should also promote what the county has to offer its own residents in the way of bike friendly destinations of historic or cultural interest. The sustainability connection here is one of tourism diversification and economic development in attracting people to Greene County, and or convincing current visitors to spend an additional day touring Greene County via their bicycle.

We need to add a paragraph about multiple use of floodplains for linear trails/greenways – that these are both a component of our Parks & Recreation system but also our floodplain and water quality management programs.

## **Wastewater**

### **Wastewater Task Force**

The Wastewater Improvements Task Force includes members from a wide variety of stakeholder groups, representing many points of view. Over a series of eight (8) meetings, members worked together to develop a set of recommendations to guide future decisions about the Wastewater Improvements program. The focus of the conversations were around how to pay for needed improvements to the system to meet regulations, protect public health and improve water quality. Twenty-four (24) Task Force members participated in the meeting

process and stakeholder groups were informed and invited to listen in on meetings. Over 40 additional stakeholders attended Task Force meetings and provided input when requested. The Task Force was charged with making recommendations to the Mayor and City Council regarding the following:

- What principles should guide Springfield's investment decisions and rate setting?
- How much should Springfield invest in maintaining infrastructure?
- How should rates be set to fairly and equitably recover costs from all customers?
- What type of financial best practices should be implemented to improve the financial sustainability of the utility?
- What sort of program should Springfield implement to address basement backups?
- What sort of program should Springfield develop to address private connections and private lateral issues?
- What sort of program should be put in place to address overflows related to satellite communities?

The Task Force provided the Mayor and City Council written recommendations regarding these items in April 2011.

### **Amended Consent Judgment**

In May 1995, the City of Springfield entered into a Consent Decree with the Missouri Department of Natural Resources (MDNR) to study infiltration and inflow (I/I) sources of excessive rain water and groundwater getting into the City's sanitary sewer collection system and to complete specific rehabilitation projects in the City's collection system to eliminate these sources and reduce sanitary sewer overflows. Sanitary sewer evaluation studies were performed for each of the 155 sub-basins in the City's wastewater collection system and the City invested \$21M in select rehabilitation work performed on sewer lines and manholes throughout the system.

The City is committed to continuing its' efforts to further reduce sanitary sewer system overflows within the City' collection system and to protect the water quality of our regions streams and lakes. In 2011 the City commenced the development and implementation of a 7-year Early Action Program to invest \$50M in its wastewater collection system and treatment facilities. This investment will include additional sewer line and manhole rehabilitation within the collection system; the development and implementation of a private sewer repair pilot program to identify and disconnect sources of rainwater and groundwater on private property that are connected to the City's sanitary sewer collection system; the installation of permanent and temporary flow metering stations in the collection system to increase the City's ability to measure flows and quantify the effectiveness of source reduction projects, and verify system performance; increase public education and outreach to encourage public participation in Early Action Program activities and other City programs, including the City's existing Rain Barrel Program, Rain Garden Program, Wastewater Education Program, and educational programs in schools; increase Sewer Maintenance Department staffing to provide an increased

level of sewer maintenance with the goal of reducing blockages that cause overflows and timely response to necessary sewer repairs; upgrade the ozone disinfection system at the City's Southwest Wastewater Treatment plant to increase its capacity, operational efficiency and reliability; and construction of a new 36-inch Spring Branch Trunk Sewer approximately 2 miles in length to replace an aging lift station.

In May 2012, the City and MDNR agreed to amend the original Consent Decree to enable the City to develop and implement an affordable, long-term sanitary sewer overflow control plan. This long-term plan will include additional system improvements to further reduce the occurrence of sanitary sewer overflows events due to excessive rainwater and groundwater getting into the system. The plan will identify the best combination of collection system sewer relief, rehabilitation, and replacement, storage, and treatment plant improvements needed to achieve the desired level of service. These system improvements are expected to cost hundreds of millions and will be constructed between 2019 and 2031. The approved plan will be updated periodically based on the effectiveness of the projects implemented under the Early Action Program and the long-term overflow control plan at reducing the occurrence of sanitary sewer overflow events. The City is committed to making future investments in its sanitary sewer system as needed to effectively and efficiently provide service to its customers, to support community growth and to protect the environment.

### **Phosphorous Removal**

The City of Springfield Southwest Wastewater Treatment Plant currently removes Phosphorus in its effluent to levels below 0.5 mg/l. This is achieved through two processes, one chemical and one biological. The chemical process involves the use of aluminum sulfate to chemically precipitate the dissolved phosphorous and remove it in the plant solids. The biological process utilizes PAO organisms (Phosphorous Accumulating Organism) that utilize the luxury uptake rate to remove phosphorous at increased biological levels and the excess phosphorous is removed in the waste stream solids.

The Southwest Wastewater Treatment Plant does not currently have nitrogen limits except on ammonia; however in a past filter rehab project it was determined the plant could convert the existing polishing filters to de-nitrification filters at little additional cost, this project was completed and the plant now currently removes some of the effluent nitrogen even though not required by regulations.

### **Stormwater**

#### ***Floodplain Acquisition Program***

The City's floodplain acquisition program was implemented in 1993 to acquire flood-prone properties and undeveloped floodplain and riparian corridor. This program has multiple benefits including reducing flood damages and expensive stormwater infrastructure upgrades, protecting water quality, and providing green space and recreational opportunities for the

community. At a cost of approximately \$15 million, the City has preserved over 200 acres of undeveloped floodplain and riparian corridor from future disturbance and development, and purchased over 150 flood-prone residential and commercial properties which have been converted to green space. This program has helped make possible the construction of the Galloway, South and Jordan Creek Greenway Trails, which are heavily utilized by the community.

### ***City of Springfield Stormwater Management***

The City of Springfield was the first in the state to receive its MS4 permit in 2002, a testament to the City's commitment to water quality protection. Prior to receiving its MS4 permit, the City had proactively adopted a Water Quality Protection Policy in 1999 that required stormwater best management practices in its environmentally sensitive watersheds. It has since continued to demonstrate leadership and innovation in the area of stormwater management in many ways.

Valuable partnerships with local watershed groups and other agencies have made possible an outstanding stormwater education program. Some of the highlights include a rain barrel rebate program, rain garden demonstrations, billboards, radio and TV PSA's, and most recently Storm Drain Reveal, a project that engages local artists to paint water quality murals on storm drains. This project has gained national attention and inspired others to start similar projects.

The City has completed a number of projects demonstrating innovative stormwater best management practices. The Jordan Creek North Branch Daylighting Project was the first of its kind in this area, removing a concrete tunnel and reconstructing this urban stream with native plants and a pedestrian trail. Projects at Sequiota, Doling, and Fassnigh Parks and the Dickerson Park Zoo have included stream stabilization, rain gardens, and pervious pavement.

The City has also focused a significant amount of resources on water quality monitoring and studies. It has an extensive program for monitoring the water quality and biological health of urban streams, as well as a program for targeted stormwater monitoring to identify and address stormwater pollution issues. Most recently, the City funded a study that looked at the levels of Polycyclic Aromatic Hydrocarbons (PAHs) in stream sediments and their potential sources and effects on stream health.

The City has also recently committed to spending over \$500,000 in matching funds and in-kind assistance for the Springfield-Greene County Urban Watershed Stewardship Project (Big Urbie) with Watershed Committee of the Ozarks and other partners. This project will fund approximately \$1 million in stormwater best management practices to address nonpoint source pollution.

### ***Jordan Creek Feasibility Study***

The City has been working in cooperation with the United States Army Corps of Engineers (USACE) since 2004 to evaluate the feasibility of constructing storm water improvements in the watershed for the purpose of flood damage reduction and ecosystem restoration. The \$3 million study is set to be completed in 2012 and will lay the groundwork for obtaining federal funds to construct channel and bridge improvements to the creek.

The work identified in the USACE Feasibility Study is part of a larger Community-driven plan called the Jordan Creek Renewal Project. The overall project is planned to serve as a driver of downtown economic development including components such as:

- Flood damage reduction
- Ecosystem restoration
- Bridge, street and infrastructure replacement
- Park-like greenway corridor
- Increased property values and development potential
- Environmental clean-ups
- Pedestrian and bicycle transportation enhancement
- Venues for civic activities and public art

Funding for the project is anticipated to come from federal, state and local agency sources as well as through partnerships with local businesses and organizations.

### **Legacy Trails Low Impact Development Project**

In 2004 a partnership was formed between Greene County and Springfield, Missouri Habitat for Humanity to develop a new residential subdivision using Low Impact Development (LID) techniques. LID design operates under the concept that the most effective way to reduce both flood risk and discharge of pollutants is to reduce total volume of runoff at its source by allowing water to infiltrate into the ground.

Legacy Trails is a 56 lot subdivision in northwest Springfield. Construction of phase one began in 2006 and infrastructure for phase two was completed in 2012.

Legacy Trails utilizes many LID design elements to capture runoff and keep peak runoff rates and total runoff volume the same as they were before development. Bio-retention basins capture and infiltrate runoff from the 95<sup>th</sup> percentile storm (up to 1.5 inches of rain in 24 hours). Curb and gutters were eliminated to allow runoff to enter vegetated swales where it can be filtered by vegetation and have a chance to infiltrate into the ground. Street widths were reduced to 20 feet from the standard 27 feet to minimize the amount of impervious ground cover. Landscaping for the development utilizes native prairie vegetation to improve infiltration, reduce maintenance costs, and eliminate the need for irrigation.

The Legacy Trails subdivision functions as a “living laboratory” to develop and refine the skills and expertise needed to successfully implement LID on a community-wide scale. Our

experience has convinced us that the types of LID techniques utilized at Legacy Trails can be very effective in reducing runoff and pollutant volume on a community-wide basis when used on the appropriate sites with consideration of the underlying soil type and bedrock.

### **Ward Branch Stream Corridor Restoration Project (319 Grant)**

The Ward Branch Preservation, Restoration, and Enhancement Project was the first attempt in Southwest Missouri to stabilize part of an urban stream using alternative “soft” engineering practices. Like many urban streams, the Ward Branch in south Springfield has experienced rapid erosion due to increased stormwater runoff from upstream urban areas.

A variety of stabilization techniques were employed on a total of 3000 feet of stream channel. Design and construction included vegetated rip-rap bank armoring, riparian tree planting and vegetation preservation, grade control structures to reduce water velocity, and the establishment of 2 acres of native grass and wildflower prairie.

The goals of the project were to stabilize a severely eroding section of the stream and then evaluate the effectiveness of the engineering methods utilized for use in future urban stream restoration efforts. Geomorphic monitoring estimates that since construction was completed in 2007 this project has prevented 325 tons of soil and 390 lbs of phosphorus from moving downstream into the James River and Table Rock Lake. The success of this project required cooperation between a number of different organizations including Greene County, the City of Springfield, Missouri Department of Conservation, Missouri DNR, Missouri State University, The Watershed Committee of the Ozarks, USDA-NRCS, and the Missouri Conservation Heritage Foundation.

### **Springfield and Greene County Sinkhole Regulations**

The bedrock that lies underneath Greene County is easily dissolved by water which results in a complex network of sinkholes, caves, springs, and losing streams which collectively are known as karsts topography. The sinkholes in this area provide a direct pathway for surface water and any associated water borne pollutants to enter the shallow groundwater that feeds our springs and streams. People have long known that what goes into our sinkholes comes out in our springs. Consequently one of the most important steps that can be taken to protect water quality in the region is to protect the sinkholes.

Greene County has adopted a sinkhole protection ordinance that is based on the principles of avoidance, minimization, and mitigation. Development activity is to be avoided within any sinkhole if at all possible, the disturbance must be minimized if avoidance is not possible, and any disturbance that takes place must be mitigated through the use of water quality basins, erosion controls, and setbacks. Grading, dumping, and filling, or any other activity that is likely to cause groundwater pollution are prohibited within the sinkhole rim and within 100 feet of a spring. New construction must be 25 feet from the rim of a sinkhole unless further environmental, flooding, and structural analysis is performed. Any new on-site wastewater

treatment system must be 100 feet from the sinkhole rim and 200 feet from any spring. Residential structures and underground utilities other than sanitary sewer are allowed within a sinkhole rim provided they are constructed above the flooding elevation within the sinkhole.

The sinkhole regulations adopted by Greene County serve to protect ground and surface waters from pollution, property from flood damage, and public and private development from safety and structural hazards.

### **Greene County On-site Wastewater Regulations**

Greene County first adopted on-site wastewater treatment system regulations in 1970 as a part of adoption of the BOCA Plumbing Code. In 1984, specific requirements for on-site wastewater treatment systems customized for local conditions were adopted. In 1987, the county began requiring certification of on-site wastewater treatment system installers performing work in the county. With the passage of time, these regulations have become more sophisticated taking advantage of better understanding of soil science and advances in technology. The State of Missouri enacted regulations regarding on-site wastewater treatment systems in 1996 and required certification of on-site wastewater treatment system installers in 2004. These programs are administered through the Department of Health and Senior Services. Greene County staff coordinates with DHSS staff to ensure compliance with state regulations and to provide training opportunities for soil scientists, designers and installers.

### **On-site Waste Water Training Center**

The On-Site Wastewater Training Center located at the Valley Water Mill Equestrian Center provides a hands-on outdoor classroom for instructing on-site wastewater treatment system installers as well as the general public on correct installation and maintenance of different types of on-site wastewater systems. Proper installation and maintenance of these systems is the first step in ensuring that untreated sewage does not reach our waterways either as surface runoff or in groundwater that recharges the areas many springs. The training center contains working, above-ground demonstrations of standard wastewater trenches, low pressure pipe systems, drip-irrigation systems, an assortment of pre-treatment units with different bacterial growth media, as well as a mini lagoon. Most of the materials and treatment systems were donated by their various manufacturers to demonstrate the proper use of the different treatment options. The training center was constructed on land owned by the City of Springfield and managed by the Springfield-Greene County Parks Department. Funding for construction was provided by Watershed Committee of the Ozarks, MDNR (through 319 grant funding) and Greene County. Training classes are held on a regular basis by state and local officials and non-profit organizations to educate installers, designers and homeowners on the proper design, installation, and maintenance of these various systems. Classes focus on state and county regulations, soil suitability, pretreatment systems, and proper trench excavation.

### **Cooperative Water Quality Testing for James River**

Under the Municipal Separate Storm Sewer (MS4) program the stormwater discharge for permitted municipalities is required to meet the pollutant load limits for any Total Maximum Daily Load (TMDL) that has been approved for watersheds within their boundaries. The traditional approach to this regulatory requirement would be for each permitted municipality to initiate their own individual monitoring program to determine compliance with their TMDL pollutant load allocations. Since watershed boundaries typically cross multiple municipal boundaries this results in duplication of efforts and wasted resources.

The James River TMDL was the first EPA approved TMDL in our area that permitted MS4s were required to comply with. The James River includes portions of Greene County, Christian County, and the cities of Springfield, Ozark, Nixa, Battlefield, and Republic, each of which are permitted MS4s and must meet TMDL discharge monitoring requirements. Rather than having each permitted municipality pursue their own monitoring efforts, a cooperative, watershed-based monitoring approach was adopted. Each area regulated MS4 community has contracted with the Ozarks Environmental Water Resources Institute (OEWRI) at Missouri State University to sample 4 storm events and one low-flow event annually to monitor several key water quality parameters. Water samples are analyzed for total nitrogen, total phosphorus, pH, chlorides, specific conductivity, and total suspended solids. All municipalities met together as a group with OEWRI to collectively determine sampling locations that would provide useful data to each individual city or county as well as the watershed as a whole. Although each municipality has separate monitoring contracts, all have signed an intergovernmental agreement to participate in the monitoring efforts and to use OEWRI as a repository for the collected data, thereby making it available to all. This avoids duplication of effort as well as giving a broader picture of watershed wide water quality trends and compliance with TMDL limits.

### **Missouri State University – Ozarks Environmental & Water Resources Institute (OEWRI)**

OEWRI performs work on sustainability including being active in MSU sustainability conferences and working on water conservation, nutrient management, and nonpoint control projects with local communities, watershed groups, and state and federal agencies. OEWRI is the technical center for water and soil conservation and monitoring at MSU. For example, OEWRI is completing the water quality monitoring and analysis components for all 319 grants and MS4 regulations in the Springfield metropolitan community. We work with Springfield, Greene County, Christian County, Nixa, Ozark, and Battlefield at the moment. We may be adding three more communities over the next year.

### **The “Big Urbie” 319 Grant**

The Watershed Committee of the Ozarks was awarded the Springfield-Greene County Urban Watershed Stewardship Project also known as “The Big Urbie Grant” in May 2011 through the Section 319 Nonpoint Source Implementation Grant by the Missouri Department of Natural Resources. The grant total award of \$1,000,000 will be applied over four years toward stormwater best management and low impact design practices to reduce nonpoint source pollutants in Springfield and Greene County. The grant will help fund "green" stormwater

practices that reduce and treat runoff from streets, buildings and parking lots, thereby protecting area streams, lakes and springs. A variety of water quality improvement projects including rain gardens, rainwater harvesting, native vegetation, vegetative filters, infiltration trenches, streetscapes projects, riparian restoration projects and retrofits of standard detention basins will be implemented in four targeted sub-watersheds; Jordan Creek, Fassnight Creek, South Creek and Pea Ridge Creek in Springfield, Missouri. This grant is a collaborative effort including seven partnering agencies submitting one application together, producing a much stronger project. Project partners include City of Springfield Storm Water Services Division, Greene County Resource Management, Ozarks Environmental and Water Resources Institute, Missouri Project WET, James River Basin Partnership and Ozark Greenways.

### **Show-Me Yards & Neighborhoods (SMY&N)**

A component of Springfield/Greene County Choose Environmental Excellence since 2000, Show-Me Yards and Neighborhoods is an educational program designed to raise awareness about the role urban stormwater runoff plays in the water quality of nearby streams, creeks, rivers, and lakes. Through voluntary educational activities, SMY&N offers environmentally responsible alternatives to traditional lawn care and construction practices that contribute to the runoff of contaminants and excess nutrients. SMY&N also recognizes and commends individuals and professionals who put the SMY&N techniques into practice – homeowners can earn an attractive yard sign and professionals can become certified. In 2012, tree care professionals were added to the program. The SMY&N concept has been replicated in several other areas of the state.

### **Show-Me Yards & Neighborhoods, Farms and Ranches Grant**

The focus of the SMYNFR grant is to expand the successful Show-Me Yards & Neighborhoods program into the Pearson Creek watershed. Components of the grant focus on non-point pollution caused by onsite sewage systems, runoff that contains excess nutrients, sediment, and farm, lawn and garden chemicals. The goals of the grant are to provide both urban and rural residents of the Pearson Creek Watershed with information and education on appropriate management of onsite sewage systems, lawn and garden chemicals and manure. One aspect of the project will provide rebates to encourage owners of onsite sewage systems to properly maintain their systems. Agricultural facilities will be offered cost-share opportunities for riparian protection and nutrient management planning.

### **Water Quality Planning Work Group and Water Quality Funding Work Group**

In 1994 the City of Springfield and Greene County initiated an ambitious community comprehensive plan known as Vision 20/20. In 2003, focus groups were convened to implement the second phase of the plan known as Vision 20/20 – The Future is Now. Water quality protection was one of the primary focuses of this phase. The Water Quality Planning Work Group was comprised of citizens and staff. Over the course of one year the work group reviewed all aspects of water quality issues affecting the community including wastewater,

stormwater, and drinking water. This plan still provides the underlying policy framework for City and County water quality management programs.

One area identified in the 2004 report of the Work Group was funding for stormwater management. The Water Quality Funding Work Group consisting of members of the business community and staff was formed to review funding options. The result was the initiative to pass a 1/8-cent sales tax for water quality management programs and implementation of the City and County's MS4 stormwater permits. The sales tax was passed in August of 2006 and has provided funding for these programs for the past five years. Unfortunately this sales tax expired on June 30, 2012. Re-establishment of a reliable funding source for the MS4 permits and water quality management programs is a current community priority.

## **Drinking Water**

### **Watershed Task Force Report – 1982**

In 1982 a blue green algae bloom in McDaniel Lake, one of the city's primary water supply reservoir provoked serious concerns about the quality and vulnerability of the city's water supply. The bloom resulted from eutrophic conditions which developed in the lake as a result of conditions in the watershed. At that time there were few regulations for protecting the watersheds from increasing development. The work of the Watershed Task Force resulted in actions which have now guided planning and policy for the watersheds for 30 years. Among the striking outcomes of this report are:

- The formation of the Springfield Urban Services Area which has resulted in compact urban growth around the City of Springfield.
- Restriction of residential lot sizes to a minimum of 3 acres for use of onsite wastewater (septic) systems.
- Implementation of a training and certification program for septic installation contractors.
- A ban on the proliferation of small privately operated package wastewater treatment systems outside the Urban Services Area.
- Formation of the Watershed Management Coordinating Committee (now the Watershed Committee of the Ozarks) to coordinate the activities of Greene County, the City of Springfield and City Utilities in managing the municipal water supply watersheds.

### **Good Community Committee's Future of Water Committee**

The Good Community is an informal group of top-tier leaders from Springfield who meet monthly with a goal to set their organization's agendas aside and talk about issues and ideas for the good of the entire community. In approximately 2007, the importance of water as a resource was discussed and agreed upon. As a consequence of that discussion, a sub-committee of the Good Community Committee was created, named the Future of Water

Committee (FOW). The FOW Committee meets quarterly in Springfield. Its' members include representatives from the City of Springfield, Greene County, Missouri State University, City Utilities of Springfield, and Tri-State Water Resource Coalition. Its purpose is to provide an opportunity to discuss issues related to water, and share information for the benefit of Springfield and the region.

### **Tri-State Water Resource Coalition**

Tri-State Water Resource Coalition is a nonprofit, 501c4, coalition of cities, counties, and public and private water providers, whose mission is to ensure adequate, long-term water supply for southwest Missouri, northeast Oklahoma and southeast Kansas. Challenges to long-term water supply include additional demand due to rapid growth, cyclical drought and its influence on water resources, increased population densities and draw-downs, aquifer sustainability, and continued economic competition. Coalition members include Springfield, Joplin, Branson, Monett, Lamar, Mt. Vernon, Nixa, Webb City, CU of Springfield, Empire District Electric, Missouri American Water Company, Jasper County, Greene County, Carthage Water and Electric Co., and Springfield Regional Chamber of Commerce. For more information see <http://www.tristatewater.org/>

### **Greene County Groundwater Study**

The sustainability of groundwater as a resource for future use has long been a concern in the Springfield/Greene County area due to the pressures placed on our groundwater by the numerous new wells needed by our rapidly growing population.

In 1987 the U.S. Geological Survey (USGS) conducted a study of the groundwater surface elevation of the Ozark Aquifer in the Springfield area and parts of eight surrounding counties. The study utilized hydrologic use data, historical and current (at the time) water level data to create a groundwater flow model. It and other studies in the 1980's showed a cone of depression centered under Springfield in the groundwater surface elevation that continued to deepen and expand. The 1987 model predicted significant future decrease in groundwater surface elevation based on population growth estimates.

Since the 1987 study was completed, rapid population growth has considerably increased residential, commercial, and industrial uses of groundwater. In 2006 the USGS began a new study of the current groundwater levels in the region with the final report issued in 2010. This study was to update the data used in the 1987 study and develop a new predictive model for policy decisions affecting rate of groundwater use. The 2006 study was a result of the recommendations from the 2003 Water Quality Planning Group formed as part of the Vision 20/20 plan update which recommended an assessment of current groundwater resources. The 2006 study produced a model to predict groundwater surface elevations through 2030 for seven different hypothetical scenarios based on different combinations of population growth, pumping stress, rainfall and drought. The model showed that even with no increase in the current pumping rate or other stressors on groundwater resources, the groundwater surface

elevation is expected to drop at least 60 more feet from 2006 levels. All other scenarios with increased stressors on the groundwater show much greater potential decline.

Half the cost of the 2006 study was paid for by a grant administered by the U.S. Army Corps of Engineers. The remaining cost was paid by a consortium of stakeholders including Greene County, City Utilities, Missouri Department of Natural Resources, City of Nixa, City of Ozark, City of Republic, City of Willard, City of Rogersville, City of Walnut Grove, and Fair Grove Public Water Supply District #5. Data for the study was also supplied by the City of Marshfield, and the City of Strafford.

## **Air Quality**

### **Ozarks Clean Air Alliance**

Springfield/Greene County has enjoyed the benefits of good air quality, but with the tightening of Federal regulations, combined with continued growth of the area, we now find ourselves on the verge of becoming a non-attainment area for Ground Level Ozone (O<sub>3</sub>), Fine Particulates (PM<sub>2.5</sub>), and Sulfur Dioxide (SO<sub>2</sub>). Proactive measures have been undertaken including:

Formation of Ozarks Clean Air Alliance, a committee of the Environmental Collaborative of the Partnership of the Ozarks, OCAA encompasses a 15-county area and has been working since 2008. The group has authored and is implementing the Clean Air Action Plan, including monthly meetings including area stakeholders to track efforts associated with the Plan, identify emerging issues and opportunities and working closely with MDNR and EPA as conditions and regulations change.

In 2011, when both Federal and state funding for the local Springfield/Greene County Air Quality Control program was lost, the City, including the business/industrial community through the Springfield Area Chamber of Commerce, recognized the benefits of maintaining a local program. The City elected to fund the program to keep it in service and added funding for an increased Air Quality Education Program to raise awareness among the local community as to air quality issues and steps that can be taken to protect our air quality.

Following the creation of the new Department of Environmental Services, the Air Quality Control Regulatory and Education Programs were transferred from the Springfield/Greene County Health Department to the new department, where it currently resides.

### **City Utilities – Reduced Emissions**

City Utilities of Springfield has taken steps to significantly reduce emissions from its electric generating units. Between 1998 and 2011, City Utilities reduced annual NO<sub>x</sub> emissions by 3,450 tons from the James River Power Station and 1,599 tons from the John Twitty Energy Center (formerly Southwest Power Station). SO<sub>2</sub> emissions reductions in that same time frame

totaled 3,496 tons for James River and 1,382 tons for Twitty. This is despite a 36% increase in net generation over the period and the 2010 addition of a new 275 Megawatt (net) coal-fired generator at the Twitty plant. The new unit is equipped with state-of-the-art emission controls and complements new control systems added to existing units at both power stations.

### **Solid Waste Management**

The City's award-winning, voter-approved Integrated Solid Waste Management System (ISWMS), in operation since the early 90's includes curbside recycling (provided by private waste haulers), the state's first permanent, year-around Household Chemical Collection Center (open August, 1994, now having accepted well over 1,000,000 pounds of household hazardous waste), Recycling drop-off Centers (accepting approximately 4000 tons of materials annually), a Yardwaste Recycling Center (producing mulch and compost products available for sale to the community), an aggressive Information and Education Program, a Market Development Program, and the Springfield Sanitary Landfill (the primary funding source for the ISWMS). An example of the innovative programs utilized in the Solid Waste Management Division include the Noble Hill Alternative Energy Center, collecting methane gas and converting it to 3.2 megawatts of energy – the equivalent of energy for approximately 2,300 homes annually. Partners in the project include: the City of Springfield, City Utilities of Springfield and the EPA Methane Outreach Program. The feasibility of using the waste heat from this project to furnish energy for a community greenhouse is currently being investigated.

With the City's leadership and ongoing public education efforts, as well as strong commitments from private businesses, Springfield is now considered the recycling hub of Southwest Missouri. Private infrastructure includes 2 full-service recycling processors, an end-user for mixed paper attracted to Springfield as a result of the Market Development efforts of the City, processors for metals, plastics, electronics, and cardboard. The City's "Guide to Recycling in Springfield" contains information on over 125 businesses and organizations that accept a wide range of materials.

### **Solid Waste Management District "O"**

Officially formed in 1992, Solid Waste Management District O operates under the Missouri Department of Natural Resources' Solid Waste Management Program. Our service region consists of Christian, Dallas, Greene, Polk, and Webster counties and our 20 member cities contained therein. District O's primary mission, simply stated, is to divert recyclables from the waste stream. To that end, one of our primary services is the District Grant Program, designed to enable participating counties and communities to provide safe, reliable, and cost effective [efficient/affordable] solid waste disposal, recycling, and waste reduction services throughout the Region. In 2011 alone, District O projects diverted 6,115 tons of material from landfills.

Through years of cooperative effort with our member counties and cities, District O has

managed to expand recycling and resource recovery services throughout our 3,015 square mile service area. Every resident in District O now has access to a recycling facility with 25 miles of their residence. Since its inception in 1992, District O has awarded nearly \$3 million dollars in grant funds for various recycling and waste reduction projects throughout the Region. Of this total, \$927,000 has been awarded to private processors/recycling facilities, \$873,000 to member cities and counties, \$142,000 for business waste reduction, and \$131,000 for hazardous waste disposal.

Our list of grant recipients includes many names familiar to those of us in southwest Missouri: Habitat for Humanity, Computer Recycling Center, Springfield Victory Mission, Urban Districts Alliance, Discovery Center, MoDOT, MSU, Drury, CoxHealth Systems, and Drury University. Previous recipients also include most of the cities found within our region: Springfield, Ash Grove, Fair Grove, Strafford, Republic, Rogersville, Nixa, Willard, and Buffalo.

### **Central Street Recycling Coalition**

The close proximity of several government institutions -- City of Springfield, Greene County, Drury University, Ozarks Technical College, Springfield/Greene County Library, Central High School, City Utilities of Springfield and Missouri State University – has contributed to the success of the Central Street Recycling Coalition (CSRC). The Coalition started their cooperative recycling efforts in March, 2008, with each participating entity investing \$1033. To date, there has been no additional assessment needed and a balance continues in the joint account. Drury University offers the site and the services are provided under the City's recycling contract with several contractors. Items accepted include: glass, mixed paper, mixed plastics, cardboard, tin/steel and aluminum beverage containers.

### **Urban District Alliance/Downtown Entertainment District Glass Recycling**

With grant assistance from Solid Waste Management District "O", over 20 bars and restaurants in the Center City entertainment area are provided curbside glass recycling services by the Urban District Alliance/Community Improvement District. Since beginning the project in August, 2008, over 1,000,000 "adult beverage containers" have been recycled.

The City of Springfield has contracted with Ripple Glass from Kansas City. Ripple transports the glass that is collected by the City from the City-operated Recycling drop-off Centers, as well as from a number of surrounding communities, local businesses and the Downtown Glass Recycling project from Springfield to the Ripple facility in Kansas City where it is processed (at no cost to the City) for use either as new beer bottles or sale to Owens-Corning to be made into fiberglass insulation. Glass recycling in Springfield has increased from an average of 375 tons per year to the current rate of approximately 25 tons per month.

## **Brownfields**

### **City of Springfield – Brownfields Redevelopment Program**

The City of Springfield Brownfields Program began in 1999 to assess, clean up, and facilitate the redevelopment/reuse of potentially contaminated and underutilized properties. To date, The City has received \$2,850,000 in Brownfields Grants for assessment and cleanup. Over \$200 Million in public and private funding has been leveraged to support brownfields redevelopment on sites assessed. An additional \$200 Million has been leveraged in the community as a result of brownfields redevelopment projects.

To-date, over 200 environmental site assessments have been performed, paving the way for purchase, cleanup, and redevelopment of Brownfields sites. 70% of these properties indicated need for additional assessment or cleanup. Redevelopment has occurred on over 80 of the properties assessed with more currently in progress.

Remediation projects currently underway include petroleum cleanup of a former bulk oil and gas station on Historic Route 66, on the bank of Jordan Creek. A number of other cleanups have been completed as a result of assessment findings and either privately funded or reimbursed through Brownfields Tax Credits.

### **Revolving Loan Fund**

In addition to Brownfields Grants used for assessment and cleanup, the City also received \$1,510,000 in grants to be used for a Revolving Loan Fund. The Revolving Loan Fund provides low- interest loans to private parties and sub-grants to non-profit organizations for environmental remediation.

Five environmental cleanups have been directly funded under the Revolving Loan Fund, leading to the creation of eight acres of new green-space, two pocket wetlands, 23,000 cubic meters of additional storm water capacity, and a 36,000 square foot building downtown received asbestos and lead abatement and has subsequently been redeveloped into an offices, lofts, and indoor parking.

### **Jordan Valley Park**

Approximately 50 acres of new greenspace has been created as a result of brownfields redevelopment initiated through this program in support of the Jordan Valley Concept Plan. The Plan is for a “civic park” designed for the community as a central gathering place that includes commercial, residential, historic preservation, community facilities and greenspace. Jordan Valley Park currently includes:

Mediacom Ice Park - an ice skating rink with 2 NHL regulation size ice sheets for recreational and figure skating, along with meeting and part rooms, concessions and outdoor plaza;

The Creamery Arts Center - home to Springfield Regional Arts Council, Springfield Ballet, Springfield Regional Opera and the Springfield Symphony;

Ozark Stream and Fountain – a very popular spot to cool off in the summer designed to emulate an Ozarks stream complete with waterfalls and ripples.

A former limestone quarry has been filled and stabilized to provide for additional public space. Phase I of this project has been completed by grading, landscaping, and revegetation to create “The Commons at Jordan Valley”. A flare system was installed to mitigate potential methane issues and serve as an educational demonstration.

### **East and West Meadows**

The East and West Meadows are additional parts of Jordan Valley Park to primarily be used for greenspace, trails, and flood control. Portions of a former rail yard in the West Meadows area have already been remediated and turned into greenspace. The remainder of the rail yard is currently undergoing cleanup.

In addition to restoration of the former rail yard, assessments are being conducted for over 50 properties along Jordan Creek in an effort to identify environmental concerns as part of the future Corps of Engineers Stream Realignment project. This project is currently wrapping up the Feasibility Study phase and is planned to improve the water quality, reduce flooding, and remove an estimated 100 acres from the floodplain and numerous commercial and industrial buildings. The Corps has estimated over \$50M in potential damages that could potentially be avoided with this flood control project.

### **College Street Corridor Plan**

The College Street Corridor Plan encourages a variety of measures to improve sustainability. While the chapter summarizes existing city initiatives, it focuses on the activities of one household in Springfield who is making a concerted effort to reduce their footprint on the earth while making prudent investment in the future. Gloria and Rick Scarlet live on a small lot in the Rountree neighborhood which they are transforming into a more sustainable property, one step at a time. They generate electricity (which is sold back to City Utilities), they harvest water in a cistern and rain barrels, they are re-designing their property to utilize “permaculture” elements, they grow food in their yard and in the public right of way, they cook with wood, and bicycles are their primary mode of transportation. They are leaving less of a footprint on the earth, becoming more self-sufficient, and having fun doing it!

Rick and Gloria have graciously agreed to serve as a model for future sustainability on College Street. They freely give of their time in providing information, demonstrations, and discussion to help people wanting to make similar achievements. The best way to encourage sustainable measures is leading by example. This chapter is built around their accomplishments toward sustainability with the intent to inspire others to make similar improvements, thus making a better community while becoming more self-sufficient and resilient.

College Street Corridor residents and property owners will be encouraged to evaluate their properties and determine which measures will work for them. The City will search for a “champion” in the area who will be the first to begin this evaluation and process of becoming more sustainable, while providing an example for others to follow.

### **Community Involvement**

#### **Watershed Committee of the Ozarks**

The mission of the Watershed Committee of the Ozarks (WCO) is to preserve and improve the water supplies of Greene County and the City of Springfield through education and effective management of the region’s watersheds. The WCO provides core services to the City and County by helping fulfill federally mandated stormwater requirements, and educating community groups of all ages on pertinent water issues. WCO also serves as a cost effective investment for the City and County. For every dollar of sponsor support invested by the City and County over the last ten years, WCO has averaged about fourteen dollars in return, by applying for grants and donations for mission related projects.

#### **The Watershed Center at Valley Water Mill Park**

The Watershed Center, a project of the Watershed Committee of the Ozarks, is a place developed to teach people about drinking water resources, with the goal of protecting our drinking water through education. The Watershed Center site and facilities demonstrate low impact development, green construction, and stormwater best management practices. Valley Water Mill Park includes a lake, streams, losing streams, sinkholes, and caves. These on-site features, connected to the community’s water supply, powerfully complement educational programs conducted at the Watershed Center.

Watershed staffers educate groups that come to the Watershed Center and also engage in community outreach. Facilities at the Watershed Center are also available for rent to help provide funding for the organization, and interpretive learning opportunities help reach casual visitors. The cooperation and support of City Utilities, Greene County, the Springfield Greene County Park Board, and generous donations, grants, and sponsorships from private and public sources make the Watershed Center possible.

#### **James River Basin Partnership**

James River Basin Partnership (JRBP) is a grassroots, not-for-profit organization formed in 1997 as a project of Southwest Missouri Resource Conservation and Development. In August of 1999, JRBP became an autonomous organization, relying on grant funding and memberships from individuals, businesses and municipalities across the watershed. Areas of emphasis include: implementing water quality evaluation protocol, implementing programs to positively impact water quality, and increasing citizen participation in water quality issues.

### **Ozark Greenways, Inc.**

Ozark Greenways works to establish conservation/recreation/historic/agriculture easements that to improve our water quality, protect our open spaces, and preserve our farm lands. Ozark Greenways in partnership with the local NRCS office were the first in Missouri to successfully use the USDA's Farmland Protection Program to protecting 178-acres of local farm land, and also protect view-shed, and boundary areas adjacent to Wilson Creek National Battlefield. More recently we have participated in a partnership with the James River Basin Partnership to establish volunteer conservation easements along the James River. To date, 3.8 miles and 217-acres have been placed in an easement with this program.

The O'Reilly easement will protect in perpetuity approximately 3.8 miles of riparian corridor along the James River in Stone County. The easement is the result of implementation of a grant the Department of Natural Resources and EPA awarded to the JRBP for the acquisition of riparian easements and restoration of riparian zones within the James River watershed. The easement was donated by the O'Reilly family and will be held and enforced by Ozark Greenways Land Trust. In addition, to permanently protecting an excellent riparian corridor the donated easement will provide protection from nonpoint sources of pollution through filtration of sediments and absorption of nutrients.

Because Ozark Greenways is involved in many aspects of the community, and promotes a strong message in support of the bicycle as transportation, personal health, leaving your car parked, and use of public transportation it is imperative that we participate in these behaviors on a personal level. To this end we have one staff member who participates in working from home two-days a week, thus leaving the car parked, and saving 60-mile of driving a week. Another staff member has given up the family's second car altogether and either bikes, carpools, or bike/buses to work. The Ozark Greenways staff in their fourth year of these practices.

### **Springfield-Greene County Choose Environmental Excellence**

Choose Environmental Excellence (CEE), established in Springfield in 1996, is a voluntary, non-regulatory education program that encourages increased awareness of our impact on our natural environment, presents viable alternatives and recognizes accomplishments that foster environmentally responsible decisions. CEE programs include Show-Me Yards & Neighborhoods; the nationally recognized Mercury Amalgam Dental Recycling Project; the Annual CEE Awards Luncheon (now in the 12<sup>th</sup> year); the website [www.OzarksEnvironment.com](http://www.OzarksEnvironment.com)

(the bulletin board of the Environmental/ Conservation community, including directories of service providers, educational materials/resources, calendar of events); Special Event Recycling services provided through the City of Springfield and grant assistance from Solid Waste Management District "O"; and the Annual Environmental/Conservation Education Summit, now in the 8<sup>th</sup> year, bringing together representatives of nearly 40 agencies and organizations.

### **Community Partnership of the Ozarks Environmental Collaborative**

The Community Partnership of the Ozarks (CPO), working in 21 counties in Southwest Missouri, builds relationships and partnerships to facilitate positive change, designing new ways to use resources to help children, families and neighborhoods, addressing community issues in a holistic manner utilizing both committed staff and community volunteers who combine imagination, vision, creativity and hard work to build strong communities.

The Environmental Collaborative, one of CPO's six collaboratives, which also include Housing, Education, Health, Transportation and Senior-Link, includes representation from area governments, state, federal and local agencies, not-for-profits, and volunteer/membership based organizations.

The Environmental Collaborative's mission is: "To contribute to the protection of the earth's resources through research, teaching, and outreach; to generate knowledge and develop techniques and skills to help practitioners manage and conserve natural and environmental resources to meet the full range of human needs on a sustainable basis."

The Ozarks Clean Air Alliance is a subcommittee of the Environmental Collaborative and the Annual Environmental Report Card is a project of the Collaborative.

### **Stewardship Ozarks Initiative**

The Community Foundation of the Ozarks focused on the sustainability of conservation and environmental non-profit groups in an initiative that began in 2007. Stewardship Ozarks was an effort to strengthen organizations committed to conservation efforts in the Missouri Ozarks by offering challenge grants to help them build endowments for long-term sustainability and also by making grants to conservation-related education projects.

That initiative, which included a lead gift from the Johnny Morris Foundation, now totals about \$1.13 million through gifts to the fund and the money raised by organizations to match the endowment-building challenge grants.

[www.cfozarks.org/initiatives-publications](http://www.cfozarks.org/initiatives-publications)

### **Community Focus Report**

Since 2004, five organizations have partnered to produce the Community Focus Report for Springfield-Greene County. The partners are: Community Foundation of the Ozarks, Junior

League of Springfield, Springfield Area Chamber of Commerce, the Springfield-Greene County Library, and United Way of the Ozarks.

This comprehensive report, published in 2004, 2005, 2007, 2009 and 2011, identifies red flags and blue ribbons across 11 sectors of the community including education, health care, public safety and transportation. The report is used to inform community priorities, policies and grant making decisions using the consensus developed through this collaborative approach. Work will begin this fall on the next edition to be published in fall 2013.

### **Ozarks New Energy**

Ozarks New Energy (ONE) is an organization of community leaders and concerned citizens whose purpose is to promote responsible and sustainable energy choices for the Ozarks, seeking to advance local energy independence, economic vitality and environmental stewardship through the development of clean, renewable energy solutions. ONE serves as a regional clearinghouse for information and ideas, working in the areas of solar, wind, hydro, geothermal, biofuels and conservation, supporting commercialization of products and services that will ensure a secure energy future while protecting our natural environment, our health and natural resources.

### **Interpreters' Coalition of Southwest Missouri**

It has been proven that children acquire fundamental concepts through active participation with their environment and, as young children explore their surroundings, they begin to construct their own knowledge (Lind, 1998). While the school classroom remains the primary instructional center, out-of-classroom experiences can bring a sense of wonderment and curiosity about the world to young learners. The Springfield area is rich with community resources that can provide educational experiences for students that might not otherwise be available to them.

In a truly collaborative effort, the Interpreters' Coalition, utilizes the varied resources of our community toward field education and hands-on learning experiences. The Coalition was formed to help meet the educational needs of students and currently consists of partner members ranging from non-profit organizations to governmental agencies offering over 40 educational field trip destinations or similar resources. This group of non-formal educators represents cross-curricular interests and expertise including science and the environment, history and social studies, communication and technology, and the arts. The Coalition sponsors an annual field trip for teachers, known as —Free-Wheelin' Friday. This event gives local educators an opportunity to find out about the various educational resources available throughout the area.

### **OEWRI**

OEWRI does work on sustainability including being active in MSU sustainability conferences and working on water conservation, nutrient management, and nonpoint control projects with local communities, watershed groups, and state and federal agencies. OEWRI is the technical center for water and soil conservation and monitoring at MSU. For example, OEWRI is completing the water quality monitoring and analysis components for all 319 grants and MS4 regulations in the Springfield metropolitan community. We work with Springfield, Greene County, Christian County, Nixa, Ozark, and Battlefield at the moment. We may be adding three more communities over the next year.