

NATURAL ENVIRONMENT COMMITTEE

STRATEGIC PLAN 2030

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City of Springfield and Greene County
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Committee Co-Chairs:

Matt O'Reilly

Mike Kromrey

Contributors:

Wendy Anderson

Patty Becraft

Tommy Bieker

Vanessa Brandon

Dan Chiles

Brenda Cirtin

Melissa Cox

Dave Fraley

Tracy Frey Krebs

Jason Hainline

Ronda Headland

Joshua Jones

Carrie Lamb

Barbara Lucks

Randy Lyman

Steve Meyer

Jeff Schmitt

Tanner Smith

Tim Smith

Mike Tenneson

DeDe Vest

Stephen Wilson

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STRATEGIC PLAN 2030

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VISION STATEMENT

In Springfield, we cannot afford to ignore our Natural Environment. It provides us with our economy, the food we eat, the water we drink and the air we breathe. History is littered with glittering civilizations who ignored their environment and perished. Our region will prosper if we preserve our natural assets for ourselves and for our children.

As an overview, the Natural Environment Committee recommends these ideas for public consideration:

1. Human dependence on coal for electricity and the indiscriminate burning of other fossil fuels have raised the level of atmospheric CO₂ to levels that threaten our historically mild weather patterns, our food supplies and the delicate natural balance that has allowed almost seven billion people to share this world. The majority of this committee expresses their concern with this worsening situation and calls for a local response to burn less carbon for electricity, transportation and domestic use.
2. The region's mature tree canopy and green space are not luxuries; they are an essential component of our regional wellbeing. They protect our health, safeguard the water supply, clean the air, cool our cities, and encourage recreation. Our regional land use and tax policies should be amended to recognize the value of these critical resources.
3. Our region is almost completely dependent on far-away sources of energy that drain our pocketbooks and leave us dangerously exposed to interruptions, revolutions, wars and dictators. For our own security, we must aggressively transition away from our dependence on coal and oil sources by saving energy and creating our own new sources and supplies.
4. The quality of our waterways and water supply are absolutely dependent on land-use practices. Our region should recognize the value of fresh water and act cooperatively to protect it with new cooperative organizations, public outreach and oversight.
5. Our region should source 20% of our total food requirements from a 100-mile radius by the year 2020. This will produce better food, with less energy, with fewer contaminants. Better and fresher food is one good approach to our growing obesity crisis. New jobs, businesses and industries will be created in the process.
6. Greene County will be asked to accommodate a projected 400,000 new residents in the next 40 years. Failure to plan for these new residents is a plan to fail. Unless we plan with environmental priorities in mind, most people will find new threats to their quality of life, air quality, water quality, personal space, access to transportation and access to the beauty of the Ozarks.
7. All of the new buildings and the infrastructure needed to accommodate our growth should be green. They should be built to new standards of energy efficiency, water efficiency, health, local supply and longevity. Aggressive new programs for sustainable community financing must be made available to help renters and property owners reduce their bills for energy and water.

8. As our region grows, air quality declines. We should host regular meetings in our fifteen county Ozarks Clean Air Alliance region to implement common sense solutions to this common health risk focusing on transportation, combustion sources, agriculture and other sources. There is a very serious and immediate need to address this community's impending non-attainment crisis; otherwise the enforcement ramifications would very much affect this community's freedoms and economy.

9. Our car-based transportation system adequately serves less than 2/3 of our citizens although everyone pays for it. To reduce pollution, improve efficiency, give more people access and minimize environmental damage, we should explore public transportation alternatives including complete street designs to encourage walkers and bicyclists.

10. For the last 60 years, we have enjoyed economically driven cheap energy, cheap water, cheap money, cheap land and cheap food; externalizing the real costs to our environment. Because these things are no longer guaranteed, we must reappraise how we can sustain and improve our quality of life through social, economic, and environmental means. A Triple Bottom Line approach is a means to this end that will transform our community into one that is ready for what the next 20 years has to offer.

GOALS AND OBJECTIVES

Five Year Action Plan

CHIEF SUSTAINABILITY OFFICER

Major Goal: Establish an administrative position which can guide and coordinate many of the measures mentioned within this Natural Environment Chapter.

Assumptions: Municipalities and businesses across the country, including several of Springfield's Benchmark cities, are adopting officers in this position to facilitate sustainability initiatives and responsible growth. By definition, the position of the Chief Sustainability Officer (CSO) creates budgetary savings in that the primary charge is to identify and develop efficiency measures within the community and reduce or eliminate infrastructure costs in many cases. The Chief Sustainability Officer position is this committee's top priority and is instrumental in many of this document's objectives.

Chief Sustainability Officer (CSO)

Establish a position within city staff to facilitate education, implementation, and interpreting of Green Building and LID practices. This staff position could initially be funded by fundraising and transition into a permanent position within the city staff.

- Guiding the City of Springfield toward their mission of sustainable operations (internal review, policy creation, advisory capacity, etc.)
- Communicating the City's mission and accomplishments toward that mission to fulfill the potential of the City of Springfield as a role model for sustainable practices
- Supporting the City of Springfield's position of policy maker and enforcer by effecting policy formation, reviewing policy and practices for those areas in which the City serves in a regulatory, advisory, or enforcement role, including participation in the crafting and implementation of city codes, ordinances and other regulations; reviewing as well as originating such policies; and working with the community to gain input and to educate stakeholders about new policies, regulations, etc.

Responsible Group: Springfield City Council, City of Springfield Administrative Officials

Proposed Performance Measure(s): Draft job description - March 2011. Solicit funding - April 2011-October 2011

Hire Officer by January 2012

Estimated Cost to Achieve: One-Time Cost: Staff time. Ongoing Cost: Approx. \$80,000 salary and benefits, and \$50,000+ for annual programs and education.

Proposed Funding Source(s): Area NGO underwriting and federal/ private grant sources, DOE Match Grant, or, as an offset cost approach; possible use of PILOT (Payment in Lieu of Taxes) and CU granted "free" energy and water. City funds drawn from departments most involved in the activities outlined: Public Works, Planning, Building Development Services, etc.

NON-PROFIT FUNDING

Major Goal: Support local environmental/conservation non-profit organizations

Local, environmental non-profit organizations are valuable assets to the City and County. Partnerships with non-profits help the city receive grants, meet regulatory requirements, and provide outstanding educational opportunities and resources for our community (i.e., Botanical Center, Watershed Center, Springfield Conservation Nature Center.) Partnerships between the City and County, local businesses, non-profits, and citizens to conserve economic and natural resources is a strength of our community to build upon.

Insure Adequate Funding for Non-Profit Organizations

Restore or elevate funding for City/County environmental non-profit partners such as the Watershed Committee of the Ozarks, Ozark Greenways, James River Basin Partnership; consider funding to support new organizations that would address critical issues like air quality (e.g. Ozarks Clean Air Alliance).

Responsible Group: The City of Springfield, Greene County

Proposed Performance Measures: Comparison to pre-financial crisis budgets

Cost to achieve: \$250,000—\$500,000

Proposed Funding Sources: The City of Springfield and Greene County (Non-profits seek other funding continuously)

Utilize Community Partners and Collaborations

Facilitate, encourage and support partnerships and communication between City/County environmental departments and local environmental organizations and non-profits.

Responsible Group: City of Springfield, Greene County, Public Works Departments, Environmental Organizations and non-profits

Proposed Performance Measures: Feedback or evaluations from City/County staff and environmental community, number of meetings and collaborative efforts

to achieve: \$10,000 per year

Proposed Funding Source(s): Solid Waste Management Division – Education Section, Stormwater Services, Sanitary Services Divisions of Springfield Public Works, Greene County, City Utilities, grants

COMPLY WITH NEW AIR QUALITY STANDARDS

Major Goal: Maintain air quality in Springfield and surrounding area in attainment with EPA National Air Quality Standards (NAAQS).

Assumptions: EPA has recently reduced NAAQS levels for ground level ozone, nitrogen dioxide, sulfur dioxide, and lead. The Agency has proposed to further lower the 2007 ozone standard, and is considering further reductions for fine particulate matter. Local air quality has never had a problem meeting existing standards and has improved considerably in recent years. However, the standards under consideration could present attainment problems for one or more pollutants. A non-attainment designation by EPA would set in motion a series of events which would hinder economic development in the area, impose unpopular controls on the

citizenry, and, in the worst case, put federal highway funding at risk. Large industrial sources have reduced emissions to comply with ever-tightening Clean Air Act regulations, so much of the remaining improvement will necessarily come from smaller commercial sources and the transportation sector.

Empowered “Air-Shed” Committee

Transition OCAA to become the coordinating organization with permanent staffing and funding. We observe that Springfield is facing an air problem similar to the water issues that faced the community two decades ago. To help resolve the issues, a coordinating group similar to the successful Watershed Committee of the Ozarks should be established. Clean air grant money should be solicited as initial funding source.

Responsible Group: Ozarks Clean Air Alliance (OCAA), City of Springfield, Greene County, EAB, CPO Environmental Collaborative

Proposed Performance Measures: Comply with measures outlined in the established Clean Air Action Plan (CAAP). Implement aggressive approach to plan by July 2011.

Estimated Cost to Achieve: Detailed in plan.

Proposed Funding Source(s): Federal Clean Air Grant funding and OCAA organizations. Fundraising campaign organized by OCAA.

Air Quality Measures

Maintain efforts to meet new and proposed ozone standards through voluntary measures, while working with state and federal officials to avert non-attainment status. Implement measures embodied in the Clean Air Action Plan prepared by the Ozarks Clean Air Alliance. Specific sub-objectives from the Clean Air Action Plan which municipalities could immediately enact include:

- Implement “Project Air” to improve public awareness and knowledge of air quality issues and pollutants. The program will include educational tools for schools, public service announcements for radio and television, Ozone Alert messages on Missouri Department of Transportation highway message boards, and a speaker’s bureau for specific events.
- Implement community Idle Reduction Program to reduce idling, and associated emissions, from fleets in the region. Due to high fuel prices, many fleets already employ an idle reduction policy. The OCAA encourages organizations to enforce current policies or adopt a policy for their organization to reduce emissions and conserve fuel. Organizations can register online with OCAA that they have an idle policy, have trained personnel, and monitor its performance at http://www.showmecleanair.com/idle_reducton.php. A sample policy is also available at this site for organizations looking to create a policy. [Note: Although the program is voluntary at present, it could be enacted city-wide by ordinance]
- As encouraged in the CAAP: Adopt policy that public small engine equipment be transitioned over time to 100% electric or alternatively powered motors. Also, require that all sub-contractors and suppliers of public organizations do the same.
- Review, promote, and implement innovative energy conservation and efficiency programs as detailed elsewhere in this document.
- Enforce the use of Stage 1 Vapor Recovery Equipment at local gas stations

Responsible Group(s): Springfield/Greene County Air Quality Control office and other governmental groups represented in the Ozarks Clean Air Alliance, and the Ozarks Transportation Organization.

Update Clean Air Action Plan - Additional Pollutants

Extend current ozone efforts to include other EPA criteria pollutants. Draft Clean Air Action Plans for these additional species or extend the existing plan to address them as needed.

Responsible Group(s): OCAA, newly established "Air-Shed" Committee (OCAA)

Proposed Performance Measures: Completion and adoption by June 2013

Estimated Cost to Achieve: \$2500 time and research resources

Proposed Funding Source(s): OCAA budget or community underwriter

LOCAL FOOD

Major Goal: Foster local food production so within the next five years 15% of all food consumed in Springfield and Greene County will be produced in this region.

Assumptions: There is an inherent disconnect between local food consumers and local food producers. This and other barriers lead to decreased consumption of locally grown foods and increased importation of food resulting in such consequences as: a higher reliance on imported foods, increased energy consumption for transportation, an erosion of food security, and perpetuation of a consumer mindset that food comes from the store and not from our local food producers.

Food Policy Council

Create a Springfield/Greene County Food Policy Council to review policies of: land use; city and county food-purchasing policies and way to assure access to healthy affordable and local food for all Community residents. The Food Policy Council will complete an assessment of the regional food supply system within six months of creation by working with University Extension and Outreach, Southwest Missouri Resource and Development Council, and Well Fed Neighborhood Alliance, MO Department of Agriculture .

Responsible Group: Greene County Commission/City Council. Coordinated by City of Springfield CSO.

Proposed Performance Measure(s): By June 2011 have a formalized and functioning Food Policy Council.

Estimated Cost to Achieve: \$5,000 annually for meetings, education, and travel.

Proposed Funding Source(s): Existing budget for City/County

Permanent Farmers Market Location

Procure a suitable location (i.e. old Wal-Mart, strip mall, auto dealership) for a year round Farmer's Market and other local goods. Help promote local businesses by offering spaces for rent. Similar to a community center but for local wares and food.

Responsible Group: Food Policy Council, CSO

Proposed Performance Measure(s): By January 2013 have a functional year round farmer's market.
Estimated Cost to Achieve: \$0.00 City County Funds
Proposed Funding Source(s): State of Missouri Dept of Economic Development, Partnership for Sustainability

Important Soils Preservation

Identify Prime and Statewide Important soils within our Community with a goal of preservation of 75% of Prime Soils and 50% of the soils that are of Statewide Importance of the productive soils. These areas would be off limits to other land uses. The preservation of these areas would be prioritized away from the identified transportation nodes, thus encouraging land use changes more orderly toward the nodal communities (transportation hubs) and away from larger areas of valued production land.

Responsible Group: Food Policy Council, CSO
Proposed Performance Measure(s): By January 2012 have a completed assessment for adoption by the Food Policy Council. *Estimated Cost to Achieve:* \$0.00 City County Funds
Proposed Funding Source(s): Missouri State University, USDA-Natural Resource Conservation Service (NRCS)

Urban Gardens Inventory and Promotion

Identify suitable location for Urban/Suburban Gardening and encourage community gardening. Currently there is no inventory available to use to locate and develop urban food production resources. (This inventory could be conducted in conjunction with the Green Space inventory recommended within the Green Infrastructure section).

Responsible Group: Food Policy Council, CSO
Proposed Performance Measure(s): By January 2012 have completed assessments for adoption by the Food Policy Council.
Estimated Cost to Achieve: \$0.00 City County Funds
Proposed Funding Source(s): Missouri State University, USDA-NRCS, University Extension and Outreach

Food Production Incentives

Review the applicability and usage of tax credits, property tax abatements, or other local, state, and federal programs to promote local food production. When current programs are insufficient, propose changes to the structure to encourage local land use for food production.

Responsible Group: Food Policy Council, CSO
Estimated Cost to Achieve: \$0.00 City County Funds
Proposed Funding Source(s): State of Missouri Department of Economic Development, University Extension and Outreach, USDA-NRCS
Proposed Performance Measure(s): By January 2012 have review completed, proposing local use and additional authorities.

RENEWABLE ENERGY

Major Goal: Increase the amount of renewable energy used in Springfield. This goal addresses renewable energy provided from the grid by City Utilities of Springfield (CU) as well as renewable sources distributed within the municipal electric system.

Assumptions: While providing clean, renewable electricity to consumers is a popular notion in the community, paying for it is not. For example, CU has marketed a green pricing program for customers desiring renewable energy for over a decade. While the contributions of consumers who have supported this effort are laudable, their numbers have never exceeded 0.4% of the local customer base.

Clearly, any additional penetration of renewable energy will require more direct action by CU and the distribution of incremental costs across all customers. This was the model used, for example, in developing the Noble Hill Landfill Renewable Energy Center. CU also has a contract in place for a larger share of wind energy but is not positioned to credit this energy toward a renewable goal. The Missouri renewable energy mandate does not apply to municipal utilities like CU and is not likely to in the foreseeable future. However, the utility may become subject to a future federal renewable mandate, possibly with a provision allowing credit for energy efficiency measures. Distributed generation projects, such as rooftop solar panels or in-system wind generators, could play an increasingly important role in future renewable development, but their treatment in any federal mandatory program is uncertain at this time.

Unlike private developers, CU is unable to take advantage of federal tax benefits for large or small renewable projects, but can benefit indirectly if these benefits translate to lower costs in purchased power agreements. While renewable energy carries a higher out-of-pocket cost for electric customers, these expenditures may be offset, in whole or in part, over time by deferred or avoided system expansion costs and other intangible community benefits.

Promote Distributed Renewables Through Education

Provide increased public education and outreach concerning programs available for distributed generation (DG) within the CU system. While CU has a DG connection and net metering standard in place, it is currently used by only a handful of customers. Increased awareness of these standards could encourage or accelerate the deployment of DG projects in Springfield.

Responsible Group: CU and other interested organizations

Proposed Performance Measures: Completion and annual updating including realistic and recent consumer cost analysis.

Estimated Cost to Achieve: \$20,000-40,000 / yearly

Proposed Funding Source(s): CU Demand Side Management budget, rebates budget.

Renewable Capacity Installation Program (ReCIPro)

Evaluate the feasibility of an Investment Model of CU-provided distributed generation equipment at or near customer locations. A few US utilities have adopted programs to assist DG development by providing capital equipment, installation, and maintenance for DG equipment and recovering the costs for such equipment through monthly utilities billing. However, this business model may or may not be appropriate for a

municipally owned utility, based on differences in regulatory structure, tax implications, etc. An evaluation of whether such a model would be workable of a Missouri municipal utility is required before deploying fuel cells, photovoltaics, or other DG devices as a utility provided service.

Responsible Group: CU Staff

Proposed Performance Measures: Run a Pilot Program by August 2012

Estimated Cost to Achieve: \$100,000 start-up, self-sustaining by definition.

Proposed Funding Source(s): DOE Grants, State Grants, CU Budget,

Renewable Energy Portfolio Road Map

Develop a road map to attain a set goal of renewable energy on the municipal system by date certain. This could be expressed as a percentage of energy delivered to serve native load or as a finite number of megawatt hours. If a percentage, then the Missouri renewable mandate or US Senate Bill S.1462 (The Bingaman Bill, which credits energy efficiency and highly favors distributed sources) might serve as a suitable reference point. Energy efficiency/renewable energy portfolio standards have been both popular and successful in utilities around the US and there are countless programs we could model our targets after.

Responsible Group: CU Staff

Proposed Performance Measures: Complete by January 2012 and update annually to accommodate new legislation. Goals may be expressed as a percentage of load or load growth and efficiency may be included as a part of an overall renewable energy goal.

Estimated Cost to Achieve: CU Staff Time and City Council Time

Proposed Funding Source(s): City and CU operating budget

Fuel Cells

Continue CU's research commitment for DG-scale fuel cell generation technology. The utility has previously expressed interest in acquiring and demonstrating a small (5 to 10kw) fuel cell generator for possible future deployment within the distribution system. CU entered into R&D agreements with at least one fuel cell developer, who was unable to deliver a prototype unit during the term of the agreement. The Utility should continue investigating this technology and maintain the original goal of installing, integrating, and evaluating a prototype unit and sharing the results with the community.

Responsible Group: CU

Proposed Performance Measures: Demonstration Scale Project with 3 years of successful operation.

Estimated Cost to Achieve: \$60,000 up front plus \$54,000 for 5 years of fuel, operations, and maintenance.

Proposed Funding Source(s): CU Budget

Smart Grid Metering

Examine an electric rate structure that broadens the opportunity for customer control and conservation. CU currently offers a time-of-use rate structure for industrial and large commercial customers. This helps large users shift energy usage patterns to times when cost of service is cheaper, but requires intensive metering

systems. With the approach of two-way metering communication (Smart Grid) technology, this benefit could be made available to residential customers as well. Full implementation would require a rate system that provides an accurate price signal reflecting diurnal and seasonal energy price fluctuations to customers.

Responsible Group: City Utilities

Proposed Performance Measures: Full implementation for all meters

Estimated Cost to Achieve: \$20,000,000 over 3 years

Proposed Funding Source(s): DOE Grant Funding, rate adjustment

CONSERVATION AND EFFICIENCY

Major Goal: To significantly increase conservation, energy efficiency, and renewable energy within Springfield-Greene County so future supply above and beyond current generation capacity is met through energy efficiency and renewable energy and NOT the construction of additional fossil fuel based generation.

Assumptions:

- Using untapped efficiency is the single most effective step to reduce environmental pollution, power costs, and price volatility.
- A significant amount of cost-effective untapped efficiency exists in Springfield-Greene County.
- The significant upfront costs associated with large efficiency and renewable energy projects represent the largest barrier to investment.
- Rental properties in Springfield remain very energy inefficient because of the ‘split-incentives’ problem. A split incentive exists because neither the owner nor the renter has a direct incentive to invest meaningfully in efficiency. The owner does not realize the savings and the renter is unlikely to live within the property long enough to recover their investment.
- Increased levels of local investment in efficiency and renewable energy will keep dollars local by putting area contractors to work and by saving residents and businesses money on their utility bills.
- New programs will be marketed by area contractors which will reduce the amount of advertising, marketing, and education costs needed to publicize program information to the community.
- PACE bonds will generate a significant pool of low cost funding in a manner that provides very little risk to the bond rating of the municipality. Bonds are issued and special taxes are assessed to the benefitted property. Property owners opt into the program and fill out thorough application before approval. Increased annual tax payments cover the cost of the bond and the administrative cost of managing the program.

PACE (Property Assessed Clean Energy) Bonds

Within one year be prepared to issue Property Assessed Clean Energy (PACE) bonds to make clean energy investments affordable to area commercial and residential property owners. Passed in the State of Missouri on July 13, 2010 preparations must be made on the local level to implement PACE when it becomes legally permissible.

Responsible Group(s): Greene County

Proposed Performance Measures: Establish PACE advisory committee by March 2011. Project audits to evaluate installation and effectiveness over time.

Estimated Cost to Achieve: \$15,000 + Staff time to administrate initial study and advisory committee.

Proposed Funding Source(s): Self-Funded. Administrative expenses are recovered as a portion of the incremental annual property tax.

Efficiency Funding for Rental Properties

Develop a significant funding source that incentivizes rental property owners and renters to invest in energy efficiency and weatherization projects, providing a reason for over 50% of the areas residential properties to invest in efficiency measures that otherwise would have been financially imprudent. A similar program has been proposed to City Utilities of Springfield (CU) with the major obstacles being the integration of the billing process and the legality of CU's "lending credit" to its subscribers. This legality would need to be overcome voting a "rate increase", perhaps at the same time as the approval for the expansion of the *Rebates and Incentives* rate basis detailed above. A program known as PAYS (Pay as You Save) is available as a benchmarking model or as an "out of the box" service-product that could serve the purposes of this objective.

Responsible Group(s): CU/City Council Vote

Proposed Performance Measures: Study and implement cost recovery program into billing structure of CU. Run pilot program on 3+ properties. Deploy program by May 2013.

Estimated Cost to Achieve: Billing and IT Implementation \$50,000. Program Development and training \$100,000+ ongoing administration fees recovered through rate structures. Ongoing education and advertising: current budget and programming.

Proposed Funding Source(s): Cost of capital installation is amortized into the subscriber's bill. CU would primarily hold the utility customer responsible for repayment but the property owner would be liable in the event payments are missed or late.

Rebate and Incentive Increases

Continue and enhance energy management and conservation programs. For many years CU has provided an array of energy and water conservation programs that resulted in savings on customer bills. Since 2006 these programs have included direct customer rebates as an additional incentive. These programs vary in popularity, but each new one necessarily dilutes the money available to carry them out. Given that many of the programs are oversubscribed, it would appear that there is sufficient interest to continue these incentives and that funding should be increased, at least through the planning horizon of this committee. Although creditable, possibly, toward renewable energy goals, these funds should remain separate from expenditures on new renewable resources.

Responsible Group: CU

Proposed Performance Measures: Vote for Rate Increase by 2011

Estimated Cost to Achieve: \$100,000/ year one, up to 1% of sales over a 3-5 year period

Proposed Funding Source(s): Approved rate increase

Progressive Rate Structure

Implement a progressive rate structure for CU customers in order to discourage excessive energy use for each given user type. The current rate structures (two-tiered progressive in summer, two-tiered regressive in

winter) do not provide adequate incentives for conservation, efficiency, and renewable energy; charging intensive users the same rate as those that conserve and use very little. A progressive rate structure increases the payback of investments in conservation, efficiency, and renewable energy by charging a premium for excessive use. A progressive rate structure encourages investments in energy saving or creating technologies and practices while discouraging wasteful energy consumption. Care must be given to reconcile the Cost of Service rate model.

Responsible Group(s): CU, City Council

Proposed Funding Source(s): General DSM funding, DOE Grant Funding, EPA Grant Funding

Aggressive Clean Energy Transition

Aggressively transition from coal to cleaner energy sources. Through effective long-term planning that values cost-effective and environmentally responsible supply options, the region can eliminate the need for additional coal-fired power generation. This would build on the efforts of the Power Supply Community Task Force and entail focused community discussions regarding the relative societal costs of energy options, including through a focus on demand side management, distributed generation clean base-load generation, and wholesale clean energy sources, including the renewable energy, outlined herein. The area's energy-future will be anchored to assets and resources available and controllable by us locally, instead of the political/economic liability of externally sourced fuel resources.

Responsible Group: Voters, Board of Public Utilities, Power Supply Community Task Force

GREEN BUILDING AND LOW IMPACT DEVELOPMENT

Major Goal: Facilitate local environmental sustainability by transforming Springfield's built environment into one that embraces Green Building, Low Impact Development, and similar development strategies.

Assumptions: Better buildings mean better economy, healthier people, and preservation of our local natural environment. Currently, the building industry is THE most wasteful industry in the country¹, and our buildings constitute the highest demand on our electrical energy production². Furthermore, humans spend more than 90% of their lives indoors³, and better buildings promote better health and productivity. Green building practices can improve economic, social, and environmental parameters, truly improving the foundation of society.

¹ Municipal Solid Waste in the United States: 2007 Facts and Figures. Office of Solid Waste, U.S. Environmental Protection Agency. October 2003. <http://www.epa.gov/epawaste/nonhaz/municipal/msw99.htm>

² Buildings Energy Databook, 2006. US Department of Energy and Annual Energy Review 2007. DOE/EIA-0384 (2007). Energy Information Administration, U.S. Department of Energy. June 2008. <http://www.eia.doe.gov/aer/pdf/aer.pdf>.

³ The Inside Story: A Guide to Indoor Air Quality. U.S. EPA/Office of Air and Radiation. Office of Radiation and Indoor Air (6609J) Cosponsored with the Consumer Product Safety Commission, EPA 402- K-93-007.

Green Building Task Force

Convene an annual task force to investigate the latest in Green Building programs and opportunities within the city, county, and surrounding areas. As previously requested in a letter to city council by the EAB and numerous other local organizations, a task force can identify reasonable and cost effective ways to implement Green Building code and programs into our community; maintaining economic viability of the building industry and encouraging the proliferation of Green Building practices and education.

Responsible Group(s): City of Springfield, Greene County Building and Development

Proposed Performance Measures: Convene a task force by January 2011. Conclude by March 2012.

Repeat annually or every two years.

Estimated Cost to Achieve: Mostly volunteer with some City Staff assistance. Possible budget of 10k-20k for travel and CE courses for returning task force members.

Proposed Funding Source(s): City of Springfield, Partnership for Sustainability, other area organizations

Enhanced Enterprise Zone, Special Assessment Tax Abatement

Eliminate exclusions to the Enterprise Zone businesses which can qualify for the 25% LEED Silver special assessment tax abatement. Offer the additional 25% property tax abatement to ALL commercial businesses that have achieved this goal. The infrastructural demands and subsequent costs of LEED rated buildings are less, despite the category of business operations, and therefore should be assessed within the Enterprise Zone equally. (See [Appendix - Enterprise Zone Excluded Business Types](#)) This will incentivise green building and Third Party Verification by rewarding businesses that exceed building code requirements, as well as stimulate economic health by drawing new responsible business development within the Enterprise Zone, furthering the original intent of the Zone.

Responsible Group(s): Springfield City Council, Enhanced Enterprise Zone Committee

Proposed Performance Measures: Update Enterprise Zone policy by March 2011.

Estimated Cost to Achieve: No one-time cost, lost property tax revenues of 25% of assessed value annually.

Proposed Funding Source(s): none needed

ENVIRONMENTAL/CONSERVATION EDUCATION

Major Goal: Support environmental/conservation education.

Assumptions: The citizens of our community value a healthy natural environment. The quality of the environment is tied to the quality of life and is tied to economic development, now and for future generations. The keystone to environmental understanding, conservation, and stewardship lies in education, which we must support as a community.

Consolidate Services

Increase educational infrastructure and efficiency by consolidating the environmental education services within public works like Solid Waste Management, Stormwater Services, Sanitary Services; increase air quality education efforts.

Responsible Group: The City of Springfield

Proposed Performance Measures: Cost efficiency, staff and community evaluation

Cost to achieve and funding sources: This needs to be evaluated by City.

Insure Adequate Education Funding

Maintain and enhance funding and support for existing activities, programs and projects among city and area environmental/conservation non-profits to address current and emerging issues.

Responsible Group: City of Springfield, area non-profits, citizens,

Proposed Performance Measures: Feedback from City Staff, Universities, and Non-profit community

Cost to achieve and funding sources: Restoring Environment/Conservation Non-Profit budgets from City Budget

SOLID WASTE MANAGEMENT

Major Goal: Reduce solid waste and improve recycling within our community.

Assumptions: The most efficient way to manage solid waste is not to generate it in the first place. Waste reduction must be an integral part of any solid waste management program.

The City's voter-approved Integrated Solid Waste Management System (ISWMS) is the cornerstone of the regional success of recycling and waste reduction efforts because of both the volume/quality of materials generated by the City centers and because of the market development efforts that have nurtured and grown local private-sector recycling infrastructure (processors, end-user, etc.).

In order to keep recycling strong in our region, the City of Springfield's ISWMS must remain strong, i.e. well funded. In 2019, the 10-year contract providing stable funding for the City's ISWMS will have expired. Secure funding for the ISWMS must be in place in order for the programs and services to continue to be operational.

The challenges facing successful recycling vary depending on the segment – residential, business, industrial, multi-family, institutional, etc. All segments must be well-served in order for the overall recycling/waste reduction effort to be considered successful.

Recycling markets are and will always be volatile. Other considerations rather than pricing must be considered when making decisions related to recycling programs and efforts.

The Springfield Sanitary Landfill exists as a significant asset to the region, offering affordable, environmentally responsible, accessible solid waste disposal services. The viability of the Landfill is critical to the overall stability and success of the ISWMS.

Investigate Franchising of Springfield's Solid Waste Collection

Explore City selection of a single or small group of solid waste companies as a vehicle for stabilizing the funding of the ISWMS and improving the efficiency (environmental and economic) of the trash collection system in Springfield.

Responsible Group: Facilitated by the City of Springfield Solid Waste Management Division.

Proposed Performance Measures: 2 year review period with report for Council and community recommendations. If feasible, implementation by 2015.

Advertise Recycling Outlets

Expand participation in existing recycling opportunities through increased educational efforts including the use of paid advertising in addition to current efforts. This includes working with private businesses, waste haulers, and others involved in the recycling activities in Springfield.

Responsible Group: City of Springfield Solid Waste Management Division in cooperation with others listed above.

Proposed Performance Measure(s): During the contract negotiations with the two large solid waste haulers, detailed plans were put forth outlining the amount of tonnage (translated: revenue) needed, what those funds were to be used for and accountability measures for each item.

Proposed Funding Source(s): These items will be funded via the existing resources of the Solid Waste Management Division Enterprise Fund through 2019

*Note: These Measures and Funding Sources apply to all subsequent Objectives in this section

Recycling Areas in New Development

Make recycling for businesses, institutions, multi-family buildings, etc. easier by amending building codes to require space being reserved for recycling containers in addition to trash containers.

Responsible Group: City of Springfield Planning/Building Development Services Departments

Regional Recycling Leadership

The City shall take a leadership role in assisting area municipalities with their recycling/waste reduction programs via cooperation with Solid Waste Management District "O" – one example: making the services of the Household Chemical Collection Center available to the surrounding 5-county area of the Waste District with funding assistance from the Waste District.

Responsible Group: City of Springfield Solid Waste Management Division and Solid Waste Management District "O" Executive Board.

Assist Small Quantity Businesses

Assist Conditionally Exempt Small Quantity Generators (CESQG), or small businesses generating small quantities of hazardous waste, with viable disposal options. These businesses currently are not regulated due to the small quantities of waste generated; however, if they want to dispose of their hazardous waste properly, they must enlist the services of a third party, which can be somewhat costly. The City is working toward facilitating the connection between the CESQG businesses and the City's hazardous waste contractor as a way to assist these small businesses.

Responsible Group: City of Springfield Solid Waste Management Division

Materials Exchange Program

Expand the efforts of placing useable waste via the establishment of a Materials Exchange to "post" available materials and materials needed.

Responsible Group: City of Springfield Solid Waste Management Division

Performance Measures: Measurable offset of landfill waste disposal

GREEN SPACE INFRASTRUCTURE

Major Goal: Integrate nature and the built environment through the use of green infrastructure and a green space system that links the region.

Assumptions: An interconnected network of green space provides ecosystem services that function as infrastructure. Green space can be utilized for stormwater and floodwater management; groundwater recharge; soil and water conservation; pollution filtration for the water we drink, the air we breathe, and the soil that grows our food; brownfield rehabilitation and greyfield re-use; and to provide habitat for pollinators of food crops.

Development expenditures are reduced when green infrastructure is utilized. Additionally, proximity to green space increases property values. A green space system can be used to guide where development or redevelopment occurs. For example, by including floodplains and those areas prone to wildfires such as forests and grasslands into the green space system, the regional community can avoid catastrophic impacts from natural disasters. Conservation of unique natural features and wildlife habitat is accomplished within green space systems. Community character is enhanced and recreation opportunities and routes for non-motorized transportation within green space systems provide benefits for public health as well as for lower-income citizens, especially in urban areas. [Resources supporting these claims can be found in the Appendix.](#)

Green Space Inventory - Connectivity

Inventory existing green space in the region and assess its potential for inclusion within a connected system. Refer to inventories conducted by other groups such as the Missouri Department of Conservation (MDC). MDC has conducted a Forest Resource Assessment and a Comprehensive Wildlife Strategy that has identified places in the region as Conservation Opportunity Areas. Link existing local, state, and federal public lands.

Responsible Group: Planning and Development Department, Ozark Greenways, Southwest Missouri Council of Governments

Proposed Performance Measure(s): Complete inventory by 2012. Establish Connectivity plan by 2013.

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): Existing staff

Conservation Overlay District

Identify ecosystems that can perform green infrastructure services and be integrated into future developments or restored within existing developments. Protect these properties through the creation of a conservation overlay district identifying and utilizing many community benefits. This inter-organizational effort would be coordinated by the Chief Sustainability Officer recommended in this document.

Responsible Group: Public Works, Planning and Development Department, Missouri Department of Conservation, Greene County Planning Department, Springfield Parks

Proposed Performance Measure(s): Create overlay district by 2013. Establish protection parameters and legislation by 2015.

Estimated Cost to Achieve: Staff time
Proposed Funding Source(s): Existing staff

NATIVE PLANTS

Major Goal: Foster the utilization of native plants within our community.

Assumptions: Native plants provide economic, social, and environmental benefits to communities. The benefits include stormwater management services, low irrigation demand, climate adaptability, and habitat protection. Conversely, non-native species can be a detriment to ecological systems and require more resources to water, maintain, grow, and transport within the region. (See Appendix for [Summary of Benefits of Native Plants.](#))

Require Native Plants in all Public Projects and Stormwater Management Practices

Require the use and proper maintenance of native plants in publicly funded projects including landscaping for municipal buildings, streetscapes, parks, and stream stabilization projects. Require the use and proper maintenance of native plants in all Stormwater (public and private) best management practices that utilize plants.

Responsible Group: Stormwater Division of Public Works Department, Parks Department, Springfield Convention & Visitors Bureau

Proposed Performance Measure(s): Assessment list of native plants including site condition requirements for proper growth and stormwater management benefits. Regional tourism to streams and lakes is not negatively impacted due to algae blooms caused by phosphorous loading released from soil eroded in Springfield.

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): Existing staff

Allow and Incentivize Native Plants in New and Existing Developments

Revise the City's Arboricultural Design Guidelines that contain guidance on how to meet the landscape ordinance for new developments to include information on the benefits of using native plants. Update the tree, shrub and grass species lists to include natives. Create an incentive to use native plants in new developments, e.g. revise the landscape ordinance to require twice as many plants if using non-natives. Update the weed ordinance to allow the use of native plants and ban the use of *invasive* non-native species on all properties within the City.⁴

⁴ The U.S. EPA has information on native plant landscaping and model weed ordinances at: <http://www.epa.gov/glnpo/greenacres/weedlaws/index.html>

Responsible Group: Planning and Development Department

Proposed Performance Measure(s): Updated landscape design guidelines, amended building and zoning code, and updated weed ordinance by January 2012.

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): Existing staff

AQUIFER SUSTAINABILITY

Major Goal: Ensure sustainable use of local groundwater resources.

Assumptions: The Ozark Aquifer is a major source of drinking water for Springfield and Greene County residents and an important water supply for area industries. Aquifers decline if more water is withdrawn than can recharge. Understanding the aquifers' safe/sustainable yield is critical to the social and economic well being of our area. The recently published USGS groundwater study (and groundwater model) is an important tool for understanding our aquifers and achieving groundwater sustainability; the accuracy of the model can be improved with better data on water use.

Water Use Reporting

Ensure water use reporting by enacting City/County legislation that provides a penalty provision for major water users who do not follow the state reporting laws, i.e., a penalty for not reporting groundwater use to the Missouri Department of Natural Resources (MDNR).

Responsible Group: City and County Governments, MO Department of Natural Resources

Proposed Performance Measure(s):

1. Percentage of major water users report groundwater usage to MDNR
2. Completion of Springfield Greene County Groundwater Model
3. Establishment of a team to estimate safe yield and explore future issues

Estimated Cost to Achieve: Staff Time

Proposed Funding Source(s): Existing staff

Continue Groundwater Modeling

Continue to improve usage data and update the model and projections on a 5-year basis, the coordinate this information with groundwater users in the study area.

Responsible Group: City and County, Department of Natural Resources, United States Geological Survey and Groundwater Users

Performance Measures: same as above

Estimated Cost to Achieve: Staff Time

Proposed Funding Source(s): Existing staff

Water Wells Within Springfield

Explore the possibility of issuing or requiring permits for the construction of wells drilled within the city limits.

Responsible Group: Department of Planning and Development, Building Development Services or other appropriate City department.

Performance Measures: Same as above.

Estimated Cost to Achieve: Staff Time

Proposed Funding Source(s): Existing staff

WATER CONSERVATION

Major Goal: Use our public water supplies more efficiently, reduce waste, reduce the use of public drinking water for non-potable uses, and encourage water conservation practices in the community.

Assumptions: Compared to many areas, drinking water is inexpensive in Springfield. The perceived abundance and subsequent low cost of drinking water has made it difficult to gain public support for and personal commitment to water conservation. CU has instituted conservation pricing, but only at the residential level. Water has traditionally been priced as a commodity, not as a service, and as a result conservation could lead to reduced operating revenues for the Utility, making it more difficult to cover fixed costs of procuring and providing safe drinking water.

Conservation Programs

Evaluate the effectiveness of current conservation programs, such as even-odd lawn watering, during a dry summer. (We have had primarily wet summers since these programs were implemented). Explore ways to reduce wasteful use such as irrigation of pavement and irrigation without rain sensors.

Responsible Group: City Utilities of Springfield

Proposed Performance Measure(s): Develop measurement metrics and regular reporting protocol for evaluating water conservation programs.

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): City Utilities of Springfield

Service Based Water Pricing

Explore the possibility of pricing water as a community service, rather than as a commodity, with a set amount delivered for a fixed price (basic water service) and increasing rates (premium water service) for amounts used over the “conservation base.” This water service price structure should provide customers with a menu of service levels so each consumer can choose their personal level of consumption. This service-based pricing encourages businesses and homeowners to conserve while meeting CU’s Cost of Service pricing model.

Responsible Group: City Utilities of Springfield

Proposed Performance Measures:

1. Research other cities providing service based water and wastewater
2. Determine revenue requirements, special considerations, cost of service allocations, rate design, etc.
3. Research or develop Request for Proposal (RFP) for 3rd party consultant to determine feasibility of service based pricing structure* and develop a sustainable pricing structure

4. Develop PILOT (Payment In Lieu of Taxes) program to be run on a trial basis with volunteers of the community (subject to local approval).

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): Existing staff, City Utilities of Springfield and Springfield Public Works grants

*Note: This rate adjustment could correspond with the vote for rate adjustments mentioned in the Renewable Energy and Conservation sections of this document

Water Harvesting

Encourage, through ordinance, technical assistance, and other incentives such as cost-sharing, the use of non-public drinking water sources (e.g., harvested rainwater, recycled stormwater or wastewater) for nonpotable uses such as lawn and landscape watering, stool flushing and industrial process waters.

Responsible Group: CU, Springfield Public Works, Watershed Committee of the Ozarks, James River Basin Partnership

Proposed Performance Measure(s):

1. Develop proactive program for educating the community
2. Market program to schools, businesses

Estimated Cost to Achieve: Staff Time. \$20,000/ Advertising Budget

Proposed Funding Source(s): CU, Springfield Public Works, Watershed Committee of the Ozarks Education Programs

STORMWATER FUNDING

Major Goal: Ensure sustainable, adequate City and County stormwater funding for water quality protection and infrastructure management.

Assumptions: Sustainable, adequate funding is needed to ensure City and County compliance with MS4 permits for water quality protection and to address critical aging infrastructure. The Vision 20/20 Water Quality Funding Work Group was convened in 2005 and concluded that an annual budget of \$16.5 million (2005 estimate) is needed, which requires an additional \$10 million annually relative to 2005 funding levels. The capital improvements component of these budget projections only includes high-priority capital projects of around \$80 million. The City alone has about \$700 million in unfunded needs and must maintain an estimated \$700 million of stormwater assets. In 2006, voters passed the Parks/Waterways Sales Tax, which included an additional 1/8-cent to provide \$6 million annually for five years as an interim measure. A study of long-term funding needs and options was completed in September 2009. According to the study, the opinion of City and County staff and the Consulting Team is that a user fee combined with existing current sources (not including the Parks/Waterways Sales Tax) is an option that deserves additional consideration.

City and County staff are planning to seek renewal of the 1/8-cent Parks/Waterways Sales Tax in August 2011 for another 5 years in lieu of pursuing a long-term funding solution. It should be noted that this may not be an available option in subsequent years.

Stormwater Management Funding Programs

Provide sustainable, adequate funding for City/County stormwater management programs.

Responsible Group: Public Works Stormwater Services Division and Greene County Resource Management

Proposed Performance Measure(s):

1. Renewal of the 1/4 cent Parks/Waterways Sales Tax in 2011.
2. Convene a task force in 2014.
3. Sustainable, adequate funding in place when the 1/4 cent sunsets in 2017.

Estimated Cost to Achieve: \$16.5 million annually (2005 estimate)

Proposed Funding Source(s): To be determined by task force

WASTEWATER TREATMENT AND SANITARY SEWER SYSTEM

Major Goal: Renew and replace aging wastewater infrastructure, prepare for community growth, provide higher levels of service and maintain regulatory compliance. Provide better operation or maintenance of facilities, optimize sanitary sewer system capacity, and improve sanitary sewer system design, specifications, construction, and inspection.

Assumptions: The wastewater treatment and collection system of our municipality is an asset worth hundreds of millions of dollars and could cost many millions more to replace or rehabilitate. Sewer rehabilitation to reduce or eliminate Sanitary Sewer Overflows can be expensive, but the cost must be weighed against the value of the treatment and collection system asset and the added costs of this asset if allowed to further deteriorate. Ongoing maintenance and rehabilitation adds value to the original investment by maintaining the system's capacity and extending its life.

Sanitary Sewer Overflows

Reduce or eliminate Sanitary Sewer Overflows (SSO) and bypasses by controlling Infiltration and Inflow (I/I) to Sanitary Sewer System.

- Increase sanitary sewer system cleaning and maintenance.
- Reduce infiltration and inflow through sanitary sewer system rehabilitation and repairing or replacing broken or leaking private service lateral lines
- Enlarge or upgrade sanitary sewers, pump stations, or sewage treatment plant capacity and/or reliability
- Construct wet weather storage and treatment facilities to treat excess flows
- Develop and implement a Master Plan to optimize conveyance and treatment needs of the wastewater utility
- Conduct a Rate Study to adequately and equitably fund the short and long term needs of the wastewater utility
- Review and improve sanitary sewer design, construction, and inspection specifications.
- Maintain an effective Contingency Plan to manage unavoidable SSOs including those occurring from unpreventable vandalism, some types of blockages, extreme rainstorms, and acts of nature such as earthquakes, floods or climate change

Responsible Group: Department of Public Works-Sanitary Sewer Fund

Proposed Performance Measure(s):

1. 50 % of Clay Sewers lined
2. All sewers cleaned in 5 years
3. All sewers televised in 5 years
4. Less than 8 dry weather overflows/year
5. Remove 50% of private-side defects (downspouts, foundation drains)
6. 20% reduction in wet weather overflows/year for 5 year, 6 hour storm
7. Less than 10 basement backups/year

Estimated Cost to Achieve: \$70,000,000 + annual costs

Ongoing Cost: \$5,000,000/year

Proposed Funding Source(s): Sanitary Sewer Enterprise Fund Rate Increases and/or Bond Issues.

WATERSHED IMPACTS

Major Goal: Maintain or restore the pre-development hydrology of our watersheds and protect our waterways from pollution.

Assumptions: Urbanization has hydrologic, geomorphic, and biological effects on a watershed that can be minimized with a holistic, prioritized approach (National Research Council, 2008). Protection of Ozark streams with bank stabilization, riparian corridor restoration, and greenways is a cost-effective way to reduce phosphorus inputs and associated algae blooms in area lakes, and provides significant economic benefits in tourism, health care, and home values⁵. Potential impacts on karst systems and underground infrastructure need to be considered when promoting stormwater infiltration practices.

Public Use of Low Impact Development

Incorporate low impact development (LID) and green infrastructure approaches in the planning and design of capital improvements and other city-funded projects to reduce runoff and pollution.

Responsible Group: Applicable City of Springfield Departments

Proposed Performance Measure(s): Implement policy and procedures to ensure LID and green infrastructure approaches are considered and budgeted in the planning, concept, and design phases of all city-funded projects by July 1, 2011 with metric-based measurements.

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): Existing staff

Coal Tar Ban

Ban the use and sale of pavement sealants containing coal tar.

Responsible Group: Springfield City Council and Public Works Stormwater Services Division

Proposed Performance Measure(s): Adopt ban by July 1, 2011.

⁵ E., Rodgers, K., & Keener, M. (2009 July-August). The Value of Protecting Ozark Streams. *Stormwater* .

National Research Council. (2008). *Urban Stormwater Management in the United States*. Washington, D.C.: The National Academies Press.

Estimated Cost to Achieve: Staff time

Proposed Funding Source(s): Existing staff

Support State Water Pollution Control Regulations

Support legislation to adequately fund the Missouri Department of Natural Resources to ensure they have the resources necessary to enforce the state's land disturbance program and other water pollution control regulations in areas that are not under the jurisdiction of an effective local program.

Responsible Group: Springfield City Council and Greene County Commission

Estimated Cost to Achieve: Costs associated with placing issue on legislative agenda

Proposed Funding Source(s): Existing staff, City/County Legislative Agendas

Riparian Corridor Restoration

Stabilize streambank erosion and restore riparian corridors using geomorphic and bioengineering approaches and native plants.

Responsible Group: Public Works Stormwater Services Division and Greene County Resource Management

Proposed Performance Measure(s):

1. Identify and prioritize the areas of the City that need retrofitted by January 1, 2012.
2. Inventory and prioritize streambank stabilization and riparian corridor restoration needs by January 1, 2013. (This survey should correspond with the Green Space Inventory Recommended in the Green Space Infrastructure section herein)
3. Complete 25% of identified streambank/riparian needs and 5% of retrofit needs by January 1, 2016.

Estimated Cost to Achieve: Base construction costs of retrofits range from \$3 for pond retrofits to \$360 for intensive green rooftops per cubic foot of stormwater treated. Design and engineering costs range from 32% to 40% of base construction costs (Center for Watershed Protection, 2007). Streambank stabilization is a one-time cost of \$260 to \$350 per linear foot; ongoing operation and maintenance cost of 4.5%⁶

Proposed Funding Source(s): Renewal of the Parks/Waterways Sales Tax in 2011 and/or grant funds. (Note: Watershed Committee of the Ozarks, the City, and partners have applied for a DNR 319 grant that includes funds for retrofits and riparian corridor improvements. If awarded, the grant will begin January 1, 2011.)

Stormwater BMP Retrofitting

Retrofit areas where stormwater best management practices do not exist or are ineffective, using low impact development and green infrastructure approaches when feasible.

⁶ Dove, E., Rodgers, K., & Keener, M. (2009 July-August). The Value of Protecting Ozark Streams. *Stormwater*. National Research Council. (2008). Urban Stormwater Management in the United States. Washington, D.C.: The National Academies Press.

Responsible Group: Public Works Stormwater Services Division and Greene County Resource Management

Proposed Performance Measures and Costs: Staff time

TREES

Major Goal: Foster protection and replacement of Springfield's trees

Assumptions: Healthy urban forests provide economic, social, and environmental benefits to communities for example:

- Trees benefit economic conditions by increasing: income in nearby businesses, land and home values, pavement life (by shading asphalt) and yielding wood for building and heating.
- Trees enhance the quality of life by: providing shade, screening bad views, providing visual amenities such as: flowers, fall foliage color, fruit and berries, bark, form, texture, mass, etc.. They calm traffic, create safer walking environments, reduce road rage and crime while increasing security, productivity (when viewed from places of work), attendance rates at schools when viewed by students, improving health issues such as high blood pressure and ADHD. They ease the burden of poverty in inner city neighborhoods, lead to improved test scores, concentration and self-discipline, provide a noise barrier and create a play environment.
- Trees improve health and environmental benefits by: reducing the heat island effect by moderating air temperatures, protecting aquatic wildlife by reducing water temperatures, blocking harmful solar rays and reducing solar glare, reducing impacts from tailpipe emissions, absorbing CO₂ and releasing O₂, removing air pollutants and dust, blocking wind, reducing soil erosion, and sheltering animals, birds, and insects.

Some information taken from Burden, Dan. Glatting Jackson and Walkable Communities, Inc. 22 Benefits of Urban Street Trees. May 2006

Human Environment Research Laboratory. University of Illinois. Oct. 2001

Tree Management Program Funding

Fully fund the City's Tree Management Programs. This would include increased funding for restored (e.g. restore Urban Forester and International Society of Arboriculture Certified Arborists, equipment, contracted services, etc) and additional resources for City Public Works Public Grounds Section as well as fund the restoration of the massive loss of City trees lost during the recent and successive natural disasters, disease and development and provide for the increase of "Community Tree and Landscaping Improvements" , which includes support of the *Neighborhoods* Program.

Responsible Group: Springfield Public Works, Springfield City Council

Urban Forest Inventory

Inventory the public urban forest, determine its economic value to the community, and invest in its ongoing maintenance.

Responsible Group: Springfield Public works, Springfield-Greene County Park Board, City Utilities of Springfield, Tree City USA Citizens Advisory Committee

Tree City USA Advisory Committee

Elevate the Tree City USA Citizens Advisory Committee to perform a more active role in plan and policy review, urban forest preservation and restoration and public education, perhaps via a Technical Subcommittee. Consider the urban forest in such matters and utilize the TCUSACAC as the vehicle for representation to ensure those interests are included. It is also suggested that a Park Board representative be added to the Tree City USA Citizens Advisory Committee and that a Tree City USA Citizens Advisory Committee member be added to the Springfield/Greene County Environmental Advisory Board.

Responsible Group: City of Springfield, Springfield Public Works and Planning and Development Departments, CU.

Proposed Performance Measures:

Cost to achieve: \$560K (\$35K One-Time Cost, \$525K ongoing cost)

Funding sources: CIP Quarter Cent Sales Tax, Level Property Tax, Detention Buyout Fund, Parks Stormwater Improvements Tax (all aforementioned for reforestation improvements) Transportation Fund (operational costs)

Planning and Zoning Regulations

Promote the importance of trees through planning: incorporate tree preservation into the criteria required for new developments and changes in existing developments, preserve or mitigate healthy trees during development via City ordinance, and review/revise the Plan Review Process to include the consideration of the project's impact on existing trees prior to the plan being completed. (The opportunity for such input needs to be made available while there is still the opportunity to make adjustments in the development's plans. Standards need to be developed that can be used to designate specimen trees that merit special attempts to be preserved. Codes and other development guidelines need to be made flexible enough to encourage the accommodation of preservation of such identified specimen trees. In addition, an ordinance needs to be created that requires mitigation of healthy trees that are approved for removal during such development. New trees should either be planted at the development site or in a public place such as a park or school grounds. A master plan of where public agencies want trees planted and what species are desired should be prepared so that developers can choose where their mitigation trees are used.)

Responsible Group: Planning and Development Department, Springfield-Greene County Park Board, Springfield Public Works, City Utilities of Springfield, Springfield Public Schools, Tree City USA Citizens Advisory Committee

Preserve Trees as Stormwater Management Practice

When appropriate, allow trees to be a component of storm water management, including in the design of storm water management infrastructure, such as allowing preservation of trees to count toward water quality requirements. When constructing parking lot areas, include planting area for trees in all parking lots above a specified (to be determined) size. This would support storm water management efforts, reduce heat island effect, etc.

Responsible Group: Planning and Development Department and Storm water Division of Public Works

Strengthen Licensing Requirements for tree care professionals

Ensure the proper maintenance of Springfield’s trees via upgrading Licensing requirements for tree care professionals which include the following requirements: insurance requirements as determined to be usual to the industry; ISA Certified Arborist certification of a specified number of field personnel in each applying company; setting forth minimum care standards which include the prohibition of topping trees.

Responsible Group: Springfield Public Works, Finance Department

APPENDIX

ENTERPRISE ZONE EXCLUDED BUSINESS TYPES

- Gaming Establishments (NAICS industry group 7132)
- Retail Trade (NAICS sectors 44 and 45)
- Educational Services (NAICS sector 61)
- Religious Organizations (NAICS industry group 8131)
- Public Administration (NAICS sector 92)
- Food and Drinking Establishments (NAICS subsector 722)

NATIVE PLANT BENEFITS

- Native plants provide economic benefits by:
 - creating habitat for pollinators that we depend on for food production
 - providing stormwater management services
 - providing a source of bio-mass for fuel production
 - providing agricultural opportunities
 - tree farms
 - forage for livestock
 - providing a local source of land care products
 - mulch
 - compost
 - providing a local source of sustainable building products
 - tree products
 - green roof plants
 - hay insulation
- Native plants provide social benefits by:
 - connecting us with our cultural heritage
 - creating a sense of place – This is the Ozarks
 - providing all the aesthetic amenities associated with landscaping
 - providing visual beauty
 - screening undesirable views
 - blocking solar radiation and glare
 - blocking wind and odor
 - blocking dust
- Native plants provide environmental benefits by:
 - filtering pollutants from stormwater runoff
 - preventing soil erosion
 - creating wildlife habitat – shelter, food, etc.
 - requiring fewer additives such as fertilizers, pesticides, and water than non-native plants for long-term maintenance

SAMPLE OF RESOURCES IN SUPPORT OF GREEN SPACE INFRASTRUCTURE AND TREES

THE ROLE OF ARBORICULTURE IN A HEALTHY SOCIAL ECOLOGY by Frances Kuo
Journal of Arboriculture 29(3): May 2003 pp 148-155

URBAN FOREST LANDSCAPES. INTEGRATING MULTIDISCIPLINARY PERSPECTIVES BY Gordan A. Bradley
University of Washington Press pp 180-194

URBAN FORESTS AND PARKS AS PRIVACY REFUGES by William E. Ilammittf
Journal of Arboriculture 28(1): January 2002 pp 19-26

FREEWAY ROADSIDE MANAGEMENT: THE URBAN FOREST BEYOND THE WHITE LINE by Kathleen L. Wolf
Journal of Arboriculture 29(3): May 2003 pp 127-136

PUBLIC RESPONSE TO THE URBAN FOREST IN INNER-CITY BUSINESS DISTRICTS by Kathleen L. Wolf
Journal of Arboriculture 29(3): May 2003 pp 117-12

FACT SHEET #1: BENEFITS OF THE URBAN FOREST
FACT SHEET #4: CONTROL STORMWATER RUNOFF WITH TREES
Center for Urban Forest Research, Pacific Southwest Research
Station, USDA Forest Service, Davis, California.

ASSESSING THE BENEFITS AND COSTS OF THE URBAN FOREST
Dwyer, J.F.; et al, 1992 pp 227 – 234

BENEFITS OF URBAN STREET TREES By Dan Burden
Glattig Jackson and Walkable Communities, Inc; May, 2006

CROSS CHAPTER REFERENCES

ARTS, CULTURE, AND TOURISM

- [CHIEF SUSTAINABILITY OFFICER](#) **ERROR! BOOKMARK NOT DEFINED.**
- [AIR QUALITY MEASURES](#) **ERROR! BOOKMARK NOT DEFINED.**
- [UPDATE CLEAN AIR ACTION PLAN - ADDITIONAL POLLUTANTS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [CONSERVATION OVERLAY DISTRICT](#) **ERROR! BOOKMARK NOT DEFINED.**
- [ALLOW NATIVE PLANT PRACTICES](#) **ERROR! BOOKMARK NOT DEFINED.**
- [REQUIRE NATIVES IN PUBLIC PROJECTS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [PERMANENT FARMERS MARKET LOCATION](#) **ERROR! BOOKMARK NOT DEFINED.**
- [COMMUNITY GARDENS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [RIPARIAN CORRIDOR RESTORATION](#) **ERROR! BOOKMARK NOT DEFINED.**
- [NEW DEVELOPMENT TREE APPRAISAL](#) **ERROR! BOOKMARK NOT DEFINED.**

EARLY CHILDHOOD DEVELOPMENT

- [PROMOTE DISTRIBUTED RENEWABLES THROUGH EDUCATION](#) **ERROR! BOOKMARK NOT DEFINED.**
- [ENVIRONMENTAL/CONSERVATION EDUCATION RESOURCE EXTENSION](#) **ERROR! BOOKMARK NOT DEFINED.**
- [GREEN SPACE INVENTORY - CONNECTIVITY](#) **ERROR! BOOKMARK NOT DEFINED.**
- [PERMANENT FARMERS MARKET LOCATION](#) **ERROR! BOOKMARK NOT DEFINED.**
- [COMMUNITY GARDENS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [NEW DEVELOPMENT TREE APPRAISAL](#) **ERROR! BOOKMARK NOT DEFINED.**

ECONOMIC DEVELOPMENT

- [CHIEF SUSTAINABILITY OFFICER \(CSO\)](#) **ERROR! BOOKMARK NOT DEFINED.**
- [AIR QUALITY MEASURES](#) **ERROR! BOOKMARK NOT DEFINED.**
- [UPDATE CLEAN AIR ACTION PLAN - ADDITIONAL POLLUTANTS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [FUEL CELLS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [RENEWABLE CAPACITY INSTALLATION PROGRAM \(RECIPRO\)](#) **ERROR! BOOKMARK NOT DEFINED.**
- [REBATE AND INCENTIVE INCREASES](#) **ERROR! BOOKMARK NOT DEFINED.**
- [SMART GRID METERING](#) **ERROR! BOOKMARK NOT DEFINED.**
- [PACE \(PROPERTY ASSESSED CLEAN ENERGY\) BONDS](#) **ERROR! BOOKMARK NOT DEFINED.**
- [EFFICIENCY FUNDING FOR RENTAL PROPERTIES](#) **ERROR! BOOKMARK NOT DEFINED.**
- [PROGRESSIVE RATE STRUCTURE](#) **ERROR! BOOKMARK NOT DEFINED.**
- [NO ADDITIONAL FOSSIL FUEL POWER CAPACITY](#) **ERROR! BOOKMARK NOT DEFINED.**
- [ENHANCED ENTERPRISE ZONE, SPECIAL ASSESSMENT TAX ABATEMENT](#) **ERROR! BOOKMARK NOT DEFINED.**
- [GREEN SPACE INVENTORY - CONNECTIVITY](#) **ERROR! BOOKMARK NOT DEFINED.**
- [CONSERVATION OVERLAY DISTRICT](#) **ERROR! BOOKMARK NOT DEFINED.**
- [INCENTIVIZE NATIVE PLANT USE](#) **ERROR! BOOKMARK NOT DEFINED.**

- [PERMANENT FARMERS MARKET LOCATION](#) ERROR! BOOKMARK NOT DEFINED.
- [COMMUNITY GARDENS](#) ERROR! BOOKMARK NOT DEFINED.
- [FOOD PRODUCTION INCENTIVES](#) ERROR! BOOKMARK NOT DEFINED.
- [STATE AND FEDERAL LOCAL GROWERS ASSISTANCE](#) ERROR! BOOKMARK NOT DEFINED.
- [SAFE YIELD STUDY](#) ERROR! BOOKMARK NOT DEFINED.
- [CONSERVATION PROGRAMS](#) ERROR! BOOKMARK NOT DEFINED.
- [SERVICE BASED WATER PRICING](#) ERROR! BOOKMARK NOT DEFINED.
- [WATER HARVESTING](#) ERROR! BOOKMARK NOT DEFINED.
- [STORMWATER MANAGEMENT FUNDING PROGRAMS](#) ERROR! BOOKMARK NOT DEFINED.
- [PUBLIC USE OF LOW IMPACT DEVELOPMENT](#) ERROR! BOOKMARK NOT DEFINED.

EDUCATION & WORKFORCE DEVELOPMENT

- [CHIEF SUSTAINABILITY OFFICER \(CSO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [PROMOTE DISTRIBUTED RENEWABLES THROUGH EDUCATION](#) ERROR! BOOKMARK NOT DEFINED.
- [RENEWABLE CAPACITY INSTALLATION PROGRAM \(RECIPRO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [SMART GRID METERING](#) ERROR! BOOKMARK NOT DEFINED.
- [GREEN BUILDING TASK FORCE](#) ERROR! BOOKMARK NOT DEFINED.
- [SUSTAINABLE DEVELOPMENT OFFICER](#) ERROR! BOOKMARK NOT DEFINED.
- [ENVIRONMENTAL/CONSERVATION EDUCATION RESOURCE EXTENSION](#) ERROR! BOOKMARK NOT DEFINED.
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- [FOOD PRODUCTION INCENTIVES](#) ERROR! BOOKMARK NOT DEFINED.
- [STATE AND FEDERAL LOCAL GROWERS ASSISTANCE](#) ERROR! BOOKMARK NOT DEFINED.
- [PUBLIC REPORTING SYSTEM AND EDUCATION](#) ERROR! BOOKMARK NOT DEFINED.
- [LAND DISTURBANCE CONTRACTOR CERTIFICATION](#) ERROR! BOOKMARK NOT DEFINED.
- [BMP RETROFITTING](#) ERROR! BOOKMARK NOT DEFINED.
- [RIPARIAN CORRIDOR RESTORATION](#) ERROR! BOOKMARK NOT DEFINED.

GLOBAL PERSPECTIVES AND DIVERSITY

- [PROMOTE DISTRIBUTED RENEWABLES THROUGH EDUCATION](#) ERROR! BOOKMARK NOT DEFINED.
- [NO ADDITIONAL FOSSIL FUEL POWER CAPACITY](#) ERROR! BOOKMARK NOT DEFINED.
- [GREEN BUILDING TASK FORCE](#) ERROR! BOOKMARK NOT DEFINED.
- [ENVIRONMENTAL/CONSERVATION EDUCATION RESOURCE EXTENSION](#) ERROR! BOOKMARK NOT DEFINED.
- [FOOD POLICY COUNCIL](#) ERROR! BOOKMARK NOT DEFINED.
- [COMMUNITY GARDENS](#) ERROR! BOOKMARK NOT DEFINED.
- [CONSERVATION PROGRAMS](#) ERROR! BOOKMARK NOT DEFINED.

HOUSING

- [CHIEF SUSTAINABILITY OFFICER \(CSO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [AIR QUALITY MEASURES](#) ERROR! BOOKMARK NOT DEFINED.

- [RENEWABLE ENERGY PORTFOLIO ROAD MAP](#) ERROR! BOOKMARK NOT DEFINED.
- [PROMOTE DISTRIBUTED RENEWABLES THROUGH EDUCATION](#) ERROR! BOOKMARK NOT DEFINED.
- [RENEWABLE CAPACITY INSTALLATION PROGRAM \(RECIPRO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [REBATE AND INCENTIVE INCREASES](#) ERROR! BOOKMARK NOT DEFINED.
- [SMART GRID METERING](#) ERROR! BOOKMARK NOT DEFINED.
- [PACE \(PROPERTY ASSESSED CLEAN ENERGY\) BONDS](#) ERROR! BOOKMARK NOT DEFINED.
- [EFFICIENCY FUNDING FOR RENTAL PROPERTIES](#) ERROR! BOOKMARK NOT DEFINED.
- [PROGRESSIVE RATE STRUCTURE](#) ERROR! BOOKMARK NOT DEFINED.
- [GREEN BUILDING TASK FORCE](#) ERROR! BOOKMARK NOT DEFINED.
- [SUSTAINABLE DEVELOPMENT OFFICER](#) ERROR! BOOKMARK NOT DEFINED.
- [RECYCLING AREAS IN NEW DEVELOPMENT](#) ERROR! BOOKMARK NOT DEFINED.
- [GREEN SPACE INVENTORY - CONNECTIVITY](#) ERROR! BOOKMARK NOT DEFINED.
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- [ALLOW NATIVE PLANT PRACTICES](#) ERROR! BOOKMARK NOT DEFINED.
- [INCENTIVIZE NATIVE PLANT USE](#) ERROR! BOOKMARK NOT DEFINED.
- [REQUIRE NATIVE PLANTS FOR STORMWATER BMP'S](#) ERROR! BOOKMARK NOT DEFINED.
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- [COAL TAR BAN](#) ERROR! BOOKMARK NOT DEFINED.
- [NEW DEVELOPMENT TREE APPRAISAL](#) ERROR! BOOKMARK NOT DEFINED.

INTERNAL ORGANIZATION

All Objectives detailed here-in are tied to the City of Springfield and Greene County in some organizational way. Every objective in this report will have and influence on the processes and routines of certain departments within our the municipalities.

PUBLIC HEALTH

- [CHIEF SUSTAINABILITY OFFICER \(CSO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [EMPOWERED "AIR-SHED" COMMITTEE](#) ERROR! BOOKMARK NOT DEFINED.
- [AIR QUALITY MEASURES](#) ERROR! BOOKMARK NOT DEFINED.
- [EMPOWERED "AIR-SHED" COMMITTEE](#) ERROR! BOOKMARK NOT DEFINED.
- [UPDATE CLEAN AIR ACTION PLAN - ADDITIONAL POLLUTANTS](#) ERROR! BOOKMARK NOT DEFINED.
- [RENEWABLE CAPACITY INSTALLATION PROGRAM \(RECIPRO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [PACE \(PROPERTY ASSESSED CLEAN ENERGY\) BONDS](#) ERROR! BOOKMARK NOT DEFINED.
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- [GREEN BUILDING TASK FORCE](#) ERROR! BOOKMARK NOT DEFINED.
- [RECYCLING AREAS IN NEW DEVELOPMENT](#) ERROR! BOOKMARK NOT DEFINED.
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- [WATER HARVESTING](#) ERROR! BOOKMARK NOT DEFINED.
- [SANITY SEWER OVERFLOWS](#) ERROR! BOOKMARK NOT DEFINED.
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PUBLIC SAFETY

- [CHIEF SUSTAINABILITY OFFICER \(CSO\)](#) ERROR! BOOKMARK NOT DEFINED.

RECREATION AND LEISURE

- [NO ADDITIONAL FOSSIL FUEL POWER CAPACITY](#) ERROR! BOOKMARK NOT DEFINED.
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- [REQUIRE NATIVES IN PUBLIC PROJECTS](#) ERROR! BOOKMARK NOT DEFINED.
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- [COMMUNITY GARDENS](#) ERROR! BOOKMARK NOT DEFINED.
- [WATER USE REPORTING](#) ERROR! BOOKMARK NOT DEFINED.
- [PUBLIC USE OF LOW IMPACT DEVELOPMENT](#) ERROR! BOOKMARK NOT DEFINED.
- [RIPARIAN CORRIDOR RESTORATION](#) ERROR! BOOKMARK NOT DEFINED.
- [URBAN FOREST INVENTORY](#) ERROR! BOOKMARK NOT DEFINED.
- [TREE MANAGEMENT PROGRAM FUNDING](#) ERROR! BOOKMARK NOT DEFINED.

TRANSPORTATION

- [CHIEF SUSTAINABILITY OFFICER \(CSO\)](#) ERROR! BOOKMARK NOT DEFINED.
- [EMPOWERED "AIR-SHED" COMMITTEE](#) ERROR! BOOKMARK NOT DEFINED.
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[FOOD SUPPLY SYSTEM ASSESSMENT](#) **ERROR! BOOKMARK NOT DEFINED.**

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[NEW DEVELOPMENT TREE APPRAISAL](#) **ERROR! BOOKMARK NOT DEFINED.**

CROSS CHAPTER THEMES

REGIONALISM

Regionalism and the environment go hand in hand. As evidenced in the objectives within this chapter, many of the initiatives have social, economic, and political ramifications beyond the geo-political boundaries of Greene County. When we look at air and water quality in particular, we have to consider where the impact is coming from, and where our community's impact is going; it's certainly not limited to just us and regional cooperation is essential. Efforts regarding these initiatives have very little effect without regional coordination.

Many of the objectives detailed in this chapter will establish Springfield/ Greene County as a leader in the region and prompt other municipalities to follow suit. While we can improve some of our local environment with programs and initiatives, it's only when communities come together as regions, and regions come together as states and Country as a whole that we can effect true and lasting environmental change.

SUSTAINABILITY

By definition, the Natural Environment and our community's interaction with it, has everything to do with Sustainability. Viewed through the lens of the Triple Bottom Line, the objectives within this chapter rely heavily on sustainably minded political and economic thought. The investments called for within this document have returns measured in dollars, but also in more intangible and lasting measures of community health. The end result promises to be one of a substantially increased sense of community Sustainability, increasing the economic, social, and environmental health of the region.

MINIMIZE POVERTY

Poverty is largely a product of poor or inconsistent economic performance. In accordance with the principles of Sustainability, MANY of the objectives in this chapter promote new job creation, economic growth, and efficiency; all of which can help provide increased levels of income and benefit to the citizens of Springfield/ Greene County.

As an example, the PACE program recommended herein could easily create hundreds of area jobs while also lowering utility bills. The ReCIPro program would stimulate a whole new sector of energy jobs pertaining to the construction and installation of distributed energy generation and renewables. Other communities have tapped into these economic streams and it is completely within our community's ability to do the same.

One of the most relevant drivers of economic activity is the condition of the Natural Environment and its resources. The sustainably minded measures proposed here will help insure joblessness, poverty, and hunger in this community are kept at bay.

CIVIC ENGAGEMENT

CONNECTING AND ENGAGING OUR CITIZENS IS ESSENTIAL IN PROTECTING AND BETTERING OUR NATURAL ENVIRONMENT. MANY OF THE ISSUES LISTED HERE CAN BE VOLATILE TOPICS TO ADDRESS. WHILE THEIR BENEFITS ARE MANIFOLD, THEY ARE SOMETIMES NOT THE MOST APPARENT. EDUCATION BECOMES THE MOST IMPORTANT PART OF THESE TOPICS AND THAT IS IMPOSSIBLE WITHOUT CIVIC ENGAGEMENT.

Additionally, there are many existing and established organizations and businesses within the community that can directly influence the implementation of the Natural Environment objectives in this document. Often it's only a matter of asking for the assistance. One of this committee's "maxims" for developing the strategic plan was "don't re-invent the wheel". There are plenty of organizations out there striving to affect change and accomplish something great, many have been mentioned in this document. We have only to reach out to the ones associated with the objectives herein and make that connection.

The success of this plan is integrally tied to our efficient use and development of this community's social capital". Only with Civic Engagement can the community understand and embrace the progress that these Natural Environment objectives mandate.

HOURS

It is estimated that 75% attendance to 2.5 hour meetings every other week, sub-committee meetings of two hours every other week, as well as drafting, preparation, coordination, and editing time, etc.

Approximately 550+ hours have been invested in the creation of this document.