PERRY COUNTY COMMUNITY CONSERVATION PLAN

By: Perry County Community Economic and Environment Committee

PROTECTING OUR WATER TO PROTECT OUR COMMUNITY

Perry County Missouri

DRAFT submitted April 7, 2013

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Welcome to Perry County

Nationally recognized for its stability, economic recruitment, expansion and growth, and for progressive initiatives, Perry County, Missouri and its county seat, Perryville, are located in southeast Missouri, approximately 80 miles south of St. Louis. Interstate-55 transects the county with exits at the rural towns of Brewer, Biehle, and Perryville at Missouri State Highway 51 which leads to the Mississippi River Bridge to Chester, Illinois. Perry County's and Perryville's location affords easy accessibility to metropolitan St. Louis, Missouri's, population of 2.6 million, as well as Lambert-St. Louis International Airport, and southern Illinois and the I-57 and I-24 corridors. Approximately 70 percent of all North American manufacturing and 30 percent of the US population can conveniently travel to and through Perry County.

Perry County's economic and population growth can be attributed to both its geographic location and the influx of immigrants from the Saxon region of Germany, as well as settlers of French heritage who made their way up the Mississippi River. Both groups provided settlers with deep religious convictions, dedication to family and education, a strong work ethic and a sense of stewardship of the land, in agriculture, business and industry. Their descendants make up a strong workforce and a populace with a dedication to the land and its resources, care of the environment, community betterment and each other.

The City of Perryville has grown as a commercial and service center for the surrounding rural area, and in its function as the county seat. Perryville was incorporated as a village in 1831 and became a fourth class city in 1882 by ordinance. It remains a fourth class city to date, although it meets the standards for third class status. It has enjoyed and sustains strong economic base consisting of several businesses and industries.

According to the 2010 census data 18,971 people live in Perry County, with 8,225 residing in Perryville. The remaining population is dispersed among smaller incorporated communities and in the unincorporated part of the county. The city population increases 42 percent each day due to thriving local industries and businesses.

The focus of economic and industrial development in Perry County has been and continues to be based on diversification. For almost 90 years city and county officials and local business leaders have worked closely together to build and improve employment and business opportunities throughout the local area. This process began in 1923 with the formation of the Perryville Chamber of Commerce which launched one of the first economic development initiatives in the nation; continued in 1954 with the establishment of the Perryville Development Corporation to promote future industrial development; culminated in 1980 with the creation of the Perry County Industrial Development Authority with its focus on business recruitment, a collaborative effort which has succeeded in attracting, growing and expanding business and industry in the area. All have contributed to a broad economic base that does not rely solely on just one sector of business or manufacturing, lessening the chance of setbacks during economic downturns.

A major employer in Perry County is Toyoda Gosei (TG-Missouri), a manufacturer of interior and exterior automotive products, including moldings, consoles, dash-boards, steering wheels and airbags for Toyota and a other auto manufacturers. Established in Perryville in 1986 as a cooperative venture with its Japan-based parent company, TG-Missouri currently employs over 1,200 and is in the process of further expansion and product development.

Another major local industry is Gilster-Mary Lee, a private label food company, employing as many as 1600 at its five Perry County plants that process and package baking mixes, cereal and popcorn. Gilster-Mary Lee recently expanded in Perryville, consolidating its trucking operation and building a new truck service facility, as well as a large warehouse in the industrial park. Gilster-Mary Lee has discussed the possibility of additional future expansions.

At the Perryville Municipal Airport, Sabreliner Corporation continues to reconfigure, service and refurbish jet airplanes, helicopters and fixed-wing aircraft, both for the private sector as well as the US military. A large percentage of their employees are highly skilled mechanical, airframe and paint technicians with many years of service to the company. Approximately two years ago, Sabreliner also expanded, adding a multi-million dollar state-of-the-art paint facility. Unfortunately, federal cutbacks have led to a company-wide slowdown.

Other local businesses encompass a wide spectrum and include diverse businesses such as barrel coopers, plastics manufacturers, large construction firms, hardwood and lumber production, wineries, decorative and construction stone suppliers, and a number of third- and fourth-generation businesses. Local industrial parks comprise over 100 acres of industrially-zoned property, well equipped with the necessary infrastructure, concrete streets, street lights and utilities and ready for additional development. Recent engineering studies support the ability to provide adequate water supply and wastewater treatment for future expansion.

Agriculture was the keystone to early settlement and growth in Perry County and remains a viable industry to this day. According to the 2007 Census of Agriculture, there are 983 farms in Perry County representing 238,893 acres. These are modern farms, many of which are, using current best environmental practices and scrupulous stewardship of the resources available. A variety of agricultural boards and organizations support the industry through programs, resources and expertise.

Perry County is progressive with a strong history of self-reliance and community stewardship. Anyone visiting Perryville, the county seat, will notice the clean streets and sidewalks, beautiful parks and the obvious care and pride the community takes in itself. We take personal responsibility for ourselves, the community and our environment. We work collaboratively to problem solve and be proactive to address any current or future issues. We are able to maintain a quality of life that includes building a thriving economy through our multigenerational work ethic. Our local families, work-force and businesses are hardworking, dedicated and community minded. Our business and industry sector is committed and involved in the community of Perry County and is invested in both time and dollars.

We are not a passive community. Historically we self-regulate, not waiting for external regulations and policies to be implemented, but create local policies and practices that address issues long before external legislative bodies and regulating agencies take action on a state or national scale. Our proactive nature is because we simply believe community and environmental stewardship is the right thing to do. Our self-reliance and self-sufficiency mean we are able to put words to action. If there is a problem we fix it. We are able to blend community ideals with action because of our strong community values and the strength of our local leadership.

Our diverse community groups actively work to retain and recruit business and industry and are quick to point out they do not recruit jobs just for jobs sake We have a history of thoughtful recruitment including giving consideration to a possible employer's potential environmental impact. Local industry, city and county programs continually meet or exceed environmental standards.


Blue Spring Branch


Natural Sinkhole


Cedar Spring

Karst & Water

The grotto sculpin (*Cottus specus*) is a cave-dwelling fish that exhibits characteristics typical of troglomorphic (adapted to living in constant darkness) organisms, including greatly reduced or absent eyes and skin pigmentation (Burr et al. 2001). The grotto sculpin is currently found in two karst areas (limestone regions characterized by sink holes, abrupt ridges, caves, and underground streams) in Perry County, Missouri: Central Perryville and Mystery-Rimstone (Burr et al. 2001). The grotto sculpin occurs in Blue Spring Branch (from the Moore Cave System resurgence to the confluence with Bois Brule Creek) and the Cinque Hommes Creek drainage, including underlying caves, and Cinque Hommes Creek, its tributaries, resurgences, and springs. Within the Cinque Hommes Creek drainage, populations have been documented in five cave systems: Moore Cave, Crevice Cave, Mystery Cave, Rimstone River Cave, and Running Bull Cave (Adams et al. unpub. data; Adams 2012, pers. comm.). Within these cave systems, grotto sculpin occur in cave streams and associated resurgences and springs. Thus far Cinque Hommes Creek and Blue Spring Branch are the only surface streams where grotto sculpin have been found. Cinque Hommes Creek is the primary resurgence stream for caves in the Mystery-Rimstone Karst and Crevice Cave in the Central Perryville Karst, whereas Blue Spring Branch is the resurgence stream for the Moore Cave System (Burr et al. 2001). (Courtesy US Fish and Wildlife)

The grotto sculpin requires karst habitats that provide consistent water flow, high organic input, and connection to surface streams, which allow for seasonal migrations to complete its life cycle. The karst

topography in Perry County is characterized by thousands of sinkholes (Vandike 1985) and over 700 caves (Fox et al. 2009)—more than any other county in Missouri. Water flow in karst systems occurs by way of surface features, such as sinkholes and losing streams, as well as connectivity to the underlying aquifer.

The quality of life for the people of Perry County has historically been and currently *is* integrated with the local karst system. Through generations our community has demonstrated environmental stewardship and has developed best management practices for sinkhole stabilization. Many of these are included in this community plan. The community of Perry County proposes continuing these solid practices that have proven to be effective, some for decades or longer, and further developing these practices. Because times and technologies change, our plan has been drafted a living document with an adaptive management approach.

Overall community and agricultural practices have changed and evolved through time. As a community we are aware of old historical practices that, unfortunately, at the time unknowingly were not best management practices. As a progressive community we have actively worked through the years not only to correct past mistakes but have consistently acted in a proactive manner to do our best to continue to be good environmental stewards and maintain the quality of life that we have come to value. We work for our community's quality of life today and into our children's future.

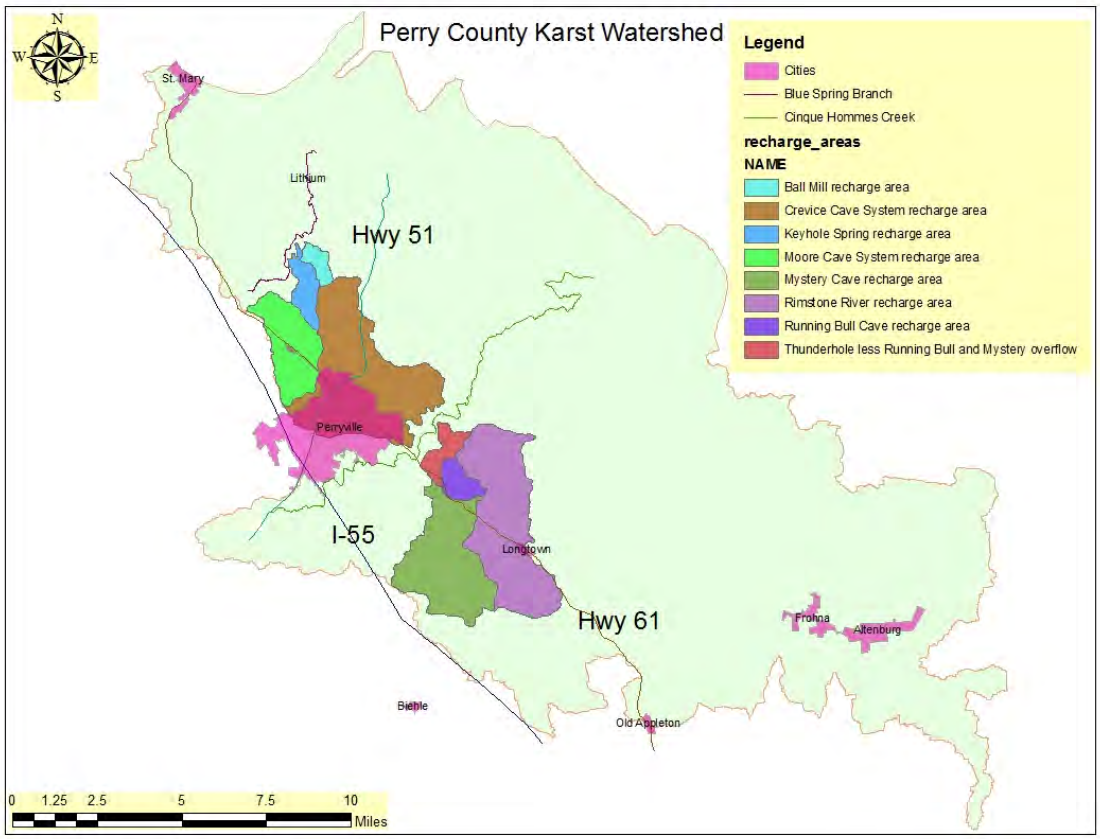
Phase 1

The community of Perry County has assembled this draft of our community plan to integrate and maximize our current environmental stewardship practices and refine and expand those practices where feasible. Although we have an excellent track record of leveraging funds, still the most limiting factor has been and will most likely continue to be funding.

Community stakeholders are helping shape our community plan: City of Perryville, Perry County Presiding Commissioner, Perry County Commissioner District 1 & 2, Perry County Economic Development Authority, Perry County Industrial Development Authority, Perryville Development Corporation, Perryville Area Chamber of Commerce, Perryville & Chester Economic Development Board, Perry County Farm Bureau, Perry County Soil & Water District, Perry County Health Department, Southeast Missouri Regional Planning & Economic Development Commission, University of Missouri Extension, Perry County Extension Council, Bank of Missouri, Robinson Construction, Klaus Construction Co., Schumer Bros. Heating & Air Conditioning, SEMCO Distributing, Inc., Citizens Electric Corporation, Baer Engineering, TG Missouri, Gilster-Mary Lee Corporation, Buchheit, Inc., Rozier Mercantile Company, Sabreliner Corporation, Perryville Higher Education Center, Perry County District 32 Career & Technology Center, Richard DeWilde CPA, Guyot Lumber & Hardware Co., Perryville Overhead Door, Richardet Floor Covering, Dreyer Electric, Perry County Mutual Insurance, Meyer Bus Line, Edward Jones Investments, Healthcare Equipment & Supply, Toohey Law Firm, The Arbeiter and Brewer Law Firm, P.C., Scott Hotop, CPA, Sears, Eagle Bank & Trust, Regions Bank, Rozier's True Value Hardware, Zoellner Construction Co., Rozier's Radio Shack, Modern Woodmen of America, Perry

County 4-H Council, Perryville FFA Chapter, Sequin Moreau Napa Cooperage, Hoff Brothers, Inc., Perryville Pumpkin Farm, Hoff Brothers LP Gas, Steinbecker Livestock Farms, Loida Ag Service, MFA Incorporated, Agricultural Producers of Grain & Livestock and representatives from private land owners.

Below is the Perry County karst watershed map. Our plan encompasses all of the watershed area but we are prioritizing our efforts to focus on Grotto Sculpin recharge areas. The bigger light green area represents the application area for our plan. The recharge areas for the caves listed in the plan legend are the known habitat of the grotto sculpin.



The karst area, mapped above, has thousands of sinkholes and miles of caves. It has the highest density of sinkholes and cave miles of any similar area in Missouri and nearly any area of the United States. The vast majority of the sinkholes in Perry County are in their natural undisturbed state. The soils of this area are very erodible and some of the unimproved sinkholes show moderate to heavy levels of erosion. This has led to the community working to stabilize those sinkholes that show the worst erosion. These efforts include grass buffers, waterways and stabilization structures. A very small percentage of sinkholes have, in the past, been used as dump sites. Those sites have been replaced with a county landfill/transfer station and numerous trash services throughout the county for the disposal of household waste. Also, the use of sinkholes as trash dumps is no longer an accepted practice by conscientious landowners.

What areas are the priority recharge areas for the grotto sculpin?

The area that recharges the four caves that include 36.28 square miles of underground aquatic habitat in recharge areas plus 19.2 miles of surface stream as the habitat for the grotto sculpin. The first area is the recharge areas of the Moore Cave System, the Crevice Cave System, Ball Mill Spring, and Keyhole Spring. The second area is the recharge areas of Mystery Cave, Rimstone River Cave, Running Bull Cave, and Thunderhole Resurgence. The third is the 4 miles of Blue Spring Branch from its emergence within the Moore Cave System to its confluence with Bois Brule Creek. The fourth area is 15.2 miles of Cinque Hommes Creek from its emergence near Mystery Cave and Resurgence to its confluence with Bois Brule Creek.

Working in partnership with U.S. Fish and Wildlife the following environmental concerns and objectives have been identified: S*inkhole clean-up.* ¤ *Minimize movement of surface chemicals to groundwater* ¤ *Application of vertical drain practice and sinkhole stabilization/protection* ¤ *Improved vertical drain installation and maintenance* ¤ *Proper installation and function of septic tank or sewage lagoon* ¤ *Improved runoff control along roadways* ¤ *Improved management of wastewater outflows* ¤ *Improved management of storm water outflows* ¤ *Continue to ensure chemical spill plans are available* ¤ *Proper installation and maintenance of storage tanks* ¤ *Improve animal waste management* ¤ *Minimization or avoidance of livestock waste in streams and sinkholes* ¤ *Proper disposal of animal carcasses* ¤ *Minimization of erosion and sediment transport to aquatic systems.* Current practices addressing these concerns as objectives are listed in the corresponding appendices.

Objective 1)

Sinkhole Cleanup

To prevent using sinkholes for disposal

A31,B1, B2, B3, B4, B5, B6, C1, C2, C32, C33, C34, C70, C71, C87, C91, C96, C100, C132, E1, E2, E3

Sinkhole clean up

A28, B1, B2, B3, B4, B5, B6, C17, C26, C70, C71, C87, C91, C96, C100, C101, C131, C132, E1, E2, E3

We recommend prioritizing clean-up of sinkholes in locations where the current landowner believes there may be contaminants even if not known.

Objective 2)

Minimize movement of surface chemicals to groundwater

- Adequate filter strip around sinkholes where possible
- Adequate filter strip around vertical drainpipes where possible
- Apply herbicide according to instructions on the label maintaining appropriate set back requirements keeping in mind any aquatic life restrictions.

Chemicals

Surface chemicals and other foreign substances getting into groundwater

A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32, A33, A34, A35, A36, A37, B1, B2, B3, B4, B5, B6, C2, C38, C43, C99, D10, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, E1, E2, E8, E9, E11, E13, E14, E15, E16, E17, F16

Pesticide application near groundwater or ground water access

A1, A2, A7, A9, A10, A27, C132, D19, D23, E16

Disposal of chemical containers

A27, B1, B2, B3, B4, B5, C2

Vegetative strips around sinkholes

A1, A2, A3, A4, A5, A6, A7, A9, A10, A12, A13, A14, A15, A16, A17, A18, A19, A20, A21, A24, A25, A26, A27, A28, A29, A30, A31, A34, A35, A36, A37, C17, C117, C131, C132

Vegetative buffers around sinkholes range from 0-200 feet. Many of these buffers are in unmanaged or unimproved areas where the natural geology, weather and geography have created those buffers.

Objective 3)

Application of vertical drain practice concern: continue to review what qualifies a sinkhole for vertical drain installation and explore other options for sinkhole stabilization/protection.

Educational objective: Application of vertical drain practice and sinkhole stabilization protection.

How sinkhole management practices might differ in stable versus unstable sink holes

C4, C5, C6, C7, C8, C9, C13, C14, C17, C19, C60, C101, C132

Objective 4)

Improved vertical drain installation or maintenance

Vertical drains and vertical drain management

A13, A14, A15, A24, A25, C4, C5, C6, C7, C8, C9, C13, C14, C17, C19, C60, C100, C101, C131

Strips are buffers around vertical drains

A1, A2, A3, A4, A5, A6, A7, A10, A13, A14, A15, A24, A25, C131, C132

Objective 5)

Proper installation and function of septic tank or sewage lagoon

Septic and Sewer

C10, C72, D1, D2, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, E9, E10, E12, F9

Any problematic sewage lagoons

C10, C72, D1, D2, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, E9, E10, E12, F9

We recommend prioritizing any funds for this effort to assist any informal neighborhoods with wastewater management.

Objective 6)

Improve runoff control along roadways

Runoff

A4, A6, A8, A9, A11, A12, A14, A15, A16, A17, A18, A19, A20, A21, A23, A24, C15, C17, C19, C23, C25, C26, C30, C36, C37, C43, C44-59, C60, C78, C79, C86, C90, C100, C101, C131, C132. D15, D16, F4, F5

Objective 7)

Improved management of wastewater outflows

Wastewater

C9, C13, C16, C20, C24, C27, C36, C43, C61, C62, C63, C64, C65, C66, C67, C68, C72, C81, C82, C83, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, E9, E10, E12, F9, F18, F18

Objective 8)

Improved management of storm water outflows

Storm Water Runoff

A1, A2, A7, A9, A10, A11, A12, A14, A15, A16, A17, A18, A19, A20, A21, A23, A24, C15, C17, C19, C23, C25, C26, C36, C37, C43, C44-59, C60, C78, C79, C86, C90, C100, C131, C132, D15, D16,F4, F5

Storm Water Drains

A12, C4, C5, C6, C7, C8, C9, C13, C14, C16, C19, C23, C25, C30, C36, C37, C43, C60, C78, C86, C90, C101, C131, C132, D15, D16,F4. F5

Objective 9)

Continue to ensure chemical spill plans are available

Disaster chemical spill plans

A27, C132, D21

We recommend continuing guidance be provided to review community and private business spill plans through the appropriate local and regional organizations

Objective 10)

Proper installation and maintenance of underground storage tanks

C130

Objective 11)

Improve animal waste management

A19, A20, A21, A23, A24, A25

Objective 12)

Minimization or avoidance of livestock waste in streams and sinkholes

Lower Livestock Waste in Streams and Waterways

A19, A20, A21, A23, A24, A25

Objective 13)

Proper disposal of animal carcasses

Animal Carcass Disposal

A26, C64

This is regulated by DNR and Missouri law refers to University of Missouri Extension guides for education and understanding of compliance. The local Extension center has increased educational efforts for dead animal disposal.

Objective 14)

Minimization of erosion and sediment transport to aquatic systems

Ways to Address Erosion and Sediment

A1, A2, A3, A4, A8, A9, A10, A11, A12, A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24, C4, C5, C6, C7, C8, C9, C13, C14, C16, C17,C19, C23, C25, C30, C36, C37, C44-59, C60, C78, C79, C86, C90, C100, C101, C117, C131, C132,F4, F5

Environmental Concerns (general)

E4, E5, E6, E7, E18

Assets the community has that work toward addressing the above threats

Our community's capacity to leverage funds and collaborate for projects and examples of progressive community actions

Our ability to successful leverage funds and economic development practices are in appendices E and F .

Caving and the Perry County Karst

Most private caves in Perry County are just that, private caves. For those caves within our karst that allow cavers or people to enter more than one cave we recommend the following:

Use of Clean Caving strategy as defined by National White-Nose Syndrome Decontamination Protocol - Version 06.25.2012 refer to WNS decontamination protocol for cavers as recommended by US Fish & Wildlife.

Phase 2

- Develop educational objectives that correspond to environmental concerns
- Begin to expand educational opportunities that relate to environmental concerns
- Begin to identify and prioritize action items
- Begin to identify additional local, regional, state and national resources and partners to help implement and continue to draft our plan.
- Begin increasing public awareness of the importance of water quality

Educational Objectives& Activities

Dry Fork

Vertical Drain

Cinque Hommes Creek

Our Mission

Improve water quality throughout the Perry County Karst Watershed and Perry County through outreach and education.

Our Goal

Through continuing community outreach, educational efforts, civic engagement, and interagency support we will be able to continue, initiate and implement good land stewardship to promote good water quality and a sustainable biota.

Activities

Sinkholes

- By increasing the number of tire collections, e-cycling, recycling, prescription disposal and trash forgiveness days more people will continue to keep possible contaminants out of the watershed. These programs also help increase the number of sinkholes cleaned out by private landowners.
- Prioritizing clean-up of sinkholes in locations where the current landowner believes there may be contaminants even if not known.
- Further prioritizing sink hole clean-up to those that could have the greatest impact on our watershed.
- We have already identified that we will need to use nontraditional marketing methods to increase awareness of these events (Fliers in local businesses, word of mouth etc.).
- Additional sinkholes could be cleaned out if funding were available to assist private landowners.
- The community is already working with MDC, US Fish and Wildlife and DNR to assist in the sinkhole clean-out process.

- Sinkhole stabilization has been a generational objective and remains an ongoing priority.

The City of Perryville

- The City of Perryville has increased their annual budget to nearly $62,000 annually to help provide sinkhole cleanup, maintenance and repair.
- Additional work needs to be done in this area. The city also requires additional easements to fully complete the work and provide proper maintenance. Additional money is also necessary for staffing as chemical treatments will no longer be applied near sinkholes and surface water.
- Grand Street's sewer was only partially replaced. This was related to budgetary constraints in the sewer fund. More work is needed on Grand Street and throughout town to address Inflow and Infiltration issues.
- More money is needed to continue to bring necessary infrastructure to neighboring communities (e.g. Shakertown) with substandard infrastructure.
- Storm water continues to be a significant concern for our system. There are some months our sewer plant treats more water than we produce (attributed to Inflow and Infiltration).
- The recycling center needs additional capacity, equipment and space to continue to service the community and take additional material.
- Northdale Park needs significant attention. We dug it up once before to no avail. The hole is very small and it provides drainage for a large area of the city.
- Other "new" sinkholes continue to open up throughout the city, often very close to homes, schools, hospitals and other developed areas.

Within the City of Perryville

Sinkhole Improvement Plan

Policy Statement

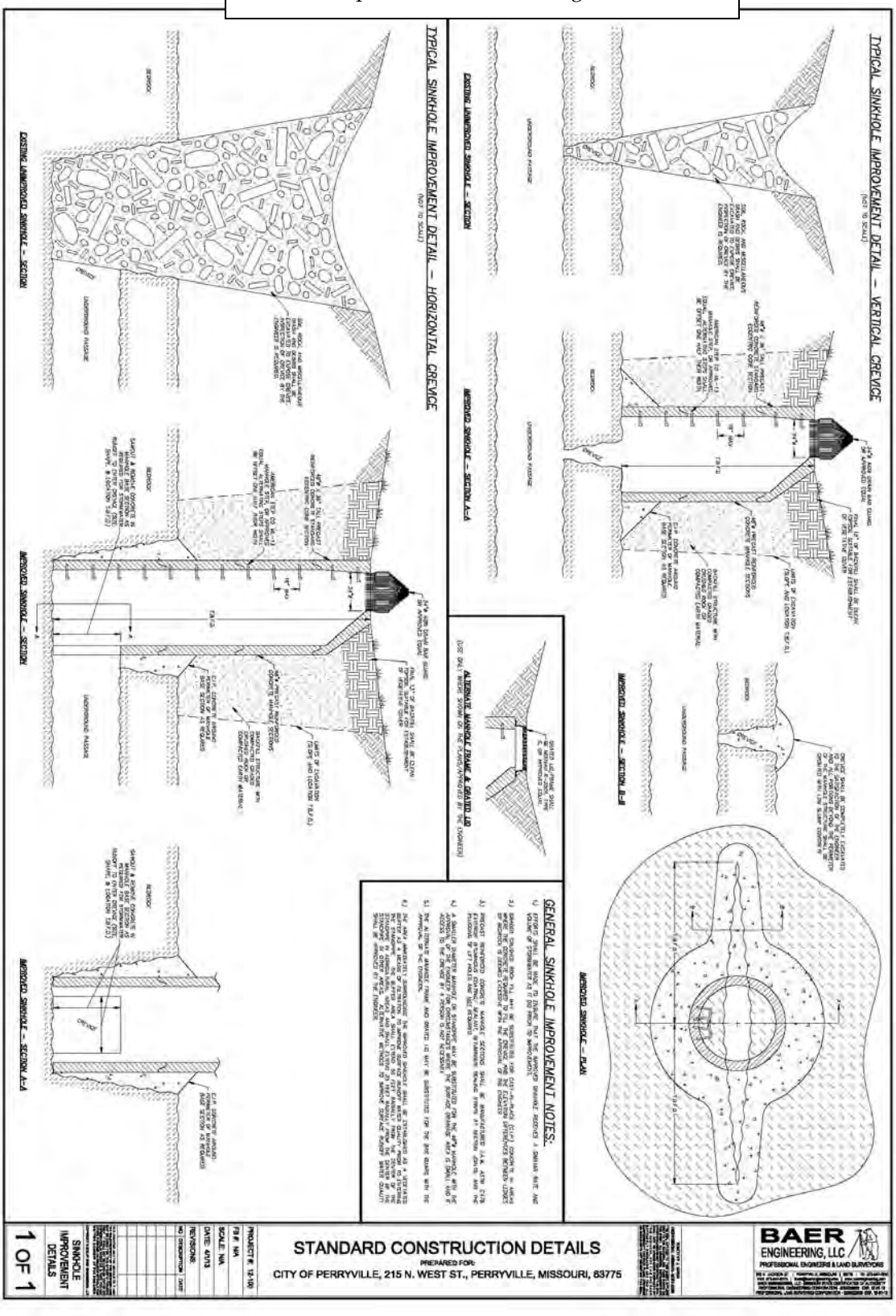
Sinkholes provide a vital storm water function within the City of Perryville. The Karst topography of the area is very prone to sinkholes and it is our responsibility to ensure proper sinkhole maintenance and development to best protect our citizens, our property and our environment. The goal is not to develop every sinkhole within the City of Perryville but only those which are believed necessary. This policy shall serve to guide that improvement.

Preferred Sinkhole Improvement Method

The City of Perryville's typical sinkhole improvement process consists of excavating the depression and removing any debris (e.g. trash, soil, mud, gravel, etc.) present to expose the crevice, or opening in

the bedrock of the karst subsurface system. Ideally, the crevice is excavated completely and a vertical standpipe (a 48" diameter pre-cast concrete manhole preferred) is installed over the crevice. Any portions of the crevice that extend beyond the edge of the standpipe are grouted with low-slump concrete to effectively prevent groundwater from penetrating the crevice except through the opening within the standpipe. The standpipe is extended to the existing or proposed final ground elevation and the structure backfilled with graded crushed rock and compacted earth. The area around the standpipe is graded to allow surface runoff to drain into the standpipe opening. The standpipe shall be covered with a trash rack or other suitable grated intake to help ensure safety and prevent larger debris from entering the standpipe. Wherever possible, the area immediately surrounding the improved sinkhole is established as a vegetative buffer as a means of filtration to prevent sediment and other contaminants from entering the standpipe. The city shall acquire a permanent easement for perpetual maintenance of the improved sinkhole. In general, the agricultural areas within the city limits will minimally require a 50-foot easement, measured from the center of the standpipe, to be used as a vegetative buffer area. In other areas within the city limits, the preferred easement and vegetative buffer area will minimally be a 25-foot radius measured from the center of the standpipe. It may be possible to reduce this vegetative buffer provided property owners apply herbicide in strict accordance with the instructions found on the label, maintaining appropriate set back requirements while also keeping in mind any aquatic life restrictions (See Diagram 1).

Sinkhole Improvement Details Diagram 1



Alternative Sinkhole Improvement Methods

Each sinkhole improvement is unique due to variables such as the crevice depth and geometry, surface runoff drainage area, and the location of the sinkhole relative to existing and proposed developments. It may be necessary to take a customized approach on a specific sinkhole improvement and assess various design alternatives. These alternate approaches to improving the sinkhole may include, but are not limited to, the following:

- Using a smaller diameter standpipe if the surface drainage area is small and/or if access to the crevice by a person is not necessary.

- If the sinkhole location does not allow for the preferred buffer, and with the approval of the city, storm water runoff can be directed to a sedimentation or detention basin upstream of the sinkhole standpipe, mechanical filters upstream of the piping connection to the standpipe may be utilized, or other suitable methods to improve surface runoff water quality may be used with the approval of the city.

Temporary Best Management Practices

Prior to, during, and after sinkholes are improved it is important that any necessary best management practices (BMP's) are utilized when construction or land disturbance activities are performed within the watershed of a particular sinkhole. When any activities are performed upstream of the sinkhole that may induce sedimentation and pollution of surface water runoff, siltation and erosion control methods shall be installed. Additionally, any work on or in the immediate vicinity of the sinkhole shall be performed with siltation and erosion control measures in place and shall be timed with concern for weather conditions to minimize the possibility of sedimentation and polluted runoff from entering the sinkhole.

Permanent Best Management Practices

After sinkholes are improved it is important that any necessary best management practices (BMP's) are implemented. The primary BMP for surface water runoff quality shall be the vegetative buffer, or alternatively sedimentation or detention basin, mechanical filters, or other method as approved by the City. Sinkholes will be inspected regularly and vegetative buffers shall be maintained by mowing or trimming methods rather than using chemical treatment. Grass clippings or other debris shall be kept clear from the standpipe opening.

Long-term priorities

We would like to retrofit existing streets to improve collected storm water by adding a cleansing process of sorts. This should include the storm drains on curbed streets and general runoff on streets without curbs. External sources of funding will be necessary for this to occur; however new streets are and will be designed giving consideration to these matters.

Challenges within the City of Perryville as we move forward

- More money is needed to continue to bring necessary infrastructure to neighboring communities (e.g. Shakertown) with substandard infrastructure.

- Storm water continues to be a significant concern for our system. There are some months our sewer plant treats more water than we produce (attributed to Inflow and Infiltration).More work is needed to replace sewer lines throughout town to address Inflow and Infiltration issues. In addition, there have been many unfunded mandates of late that have severely reduced our meager reserves.

Educational Objectives and Activities

How we will achieve our goals: Building on our strengths, we are, and will be able to implement actions more effectively. We will use traditional and nontraditional approaches to have the greatest educational reach possible. These include workshops, for credit courses, continuing education credits, workshops and field days. By maximizing our existing education networks of Perryville Area Higher Education, Southeast Missouri State University, Mineral Area College, University of Missouri Extension Perry County, Perry County District 32 we will be able to reach more people.

Increasing Public Awareness

A county wide Stream Team with participation of the residents of the City of Perryville, Perry County, business and industry and youth increases awareness and improves our area while building on our intergenerational strengths.

Increase existing signage near storm drains, on street catch boxes and in the watershed area to further educate the public, including the visiting public, about the importance of water quality.

Poster and Coloring Contest

- Activity provides a theme connected with soil and water conservation to educate youth in Perry County
- Poster Contest offered to all schools in Perry County for 4 & 5 grade students. First three place winners and families are invited to annual meeting and presented an award. **Recent award April 4, 2013**
- Coloring contest offered to all schools in Perry County for 1 & 2 grade students. First three place winners and families are invited to annual meeting and presented an award. **Recent award April 4, 2013**

Newsletters

- Newsletters containing educational information, upcoming events, and programs available through both the Perry County Soil & Water Conservation District and Natural Resource

Conservation Service are sent to approximately 700 landowners/operators in the county. **Recent mailings- January 2013 and March 2013**

Grassland Contest- Local & State Sponsor

- Contest consists of four sections: (1) Grassland Condition, (2) Soil Evaluation, (3) Wildlife Habitat and (4) Plant Identification and is available for students who are currently enrolled at high school level FFA or 4-H.
- The Perry County SWCD gives financial support to local and state contest, along with personnel time at local level for this program. **Last contest October-November 2012**

Envirothon- Local & State Sponsor

- Contest consists of five sections: soil, aquatic, forestry, wildlife, and current environmental issues and is available for High School Science classes.
- The Perry County SWCD gives financial support to local and state contest, along with personnel time at local level for this program. **Local March 2013, State May 2013**

Perry County Health Department

- A priority is to connect any neighborhoods to sewers who may not be connected at this time
- Monthly check with 911 office for new addresses in the county, we then notify the property owner of the State On-Site Sewage laws
- Host on-site waste water installers educational training and workshop
- Enforce state on-site sewage system program
- Provide one-on-one consultations with homeowners and installers to ensure correct installation, i.e. Plan reviews
- Investigate waste water complaints
- Issue waste water violations and enforce compliance schedule
- Maintain on-site waste water records
- Provide permits to install on-site sewage systems in accordance with the Missouri State Laws
- Provide on-site evaluations and inspections to ensure compliance
- Emergency planning for safe wastewater disposal
- Collaborate with soil scientists and professional engineers regarding the best design for the site
- Provide official free private drinking water analysis for coliform bacteria and inorganic substances completed by health department
- Provide individual homeowners with sampling bottles for coliform bacteria
- Provide drinking water consultations for homeowners and businesses
- Provide guidance and resources in response to DNR public drinking water boil orders

- Emergency planning for safe drinking water
- Collaborate with well drillers regarding drinking water issues
- Work with homeowners on well placement
- Establish and maintain private drinking water analysis records
- Communicable disease investigations of waterborne illnesses
- Consult and educate private homeowners on drinking water issues

Business and the Community

The Perryville Development Corporation was established to promote economic development in Perry County by making suitable land available to business prospects. Part of the Corporation's mandate has always been to ensure that new developments meet all relevant state and federal requirements. This policy remains in place. When necessary educate potential business and work with prospects to network with appropriate agencies.

The Perry County Economic Development Authority (EDA) is a long standing public /private partnership, the Perryville Development Corporation (PDC) and the local government's willingness to invest in the infrastructure and marketing (the economic office itself was established when many communities had no plan to do such an activity) to be prepared when the opportunities arose.

The Citizens of Perry County have clearly demonstrated the progressive thinking required to move the community forward and provide the advantages we have today. The Perry County Economic Development Authority will continue to support our local businesses and help foster entrepreneurship development. We are proud to continue marketing Perryville and Perry County as a great place to locate a new development.

The EDA has established itself as a professional and reliable source of information for many new area developers as well as to existing Perryville businesses. We will continue to cultivate those relationships for additional development in Perryville.

The Perryville Industrial Park is owned by the Perryville Development Corporation which is a non-profit corporation. They currently own around 90 acres of available land that has all of the infrastructure in place to provide new or expanding business the ability for fast startup times.

When a company has been identified that is searching for a new or expanding area of land, the EDA will create a project proposal package for the client. The needs of the business determine the amount of land that is required. Also, the requirement is evaluated based on historical sinkhole emergence patterns.

Once the location is selected we have an engineering firm that is familiar with our Karst environment. The engineering firm will take core samples to evaluate the level of rock, if there are any sinkholes present and created a project area plan to mitigate the sediment that enters the Karst system. We follow the City of Perryville's sinkhole management policies.

The EDA working with the PDC is always looking towards the future growth of the community. There has been discussion about further diversification and expansion of our economic base. Some of the industries that we have been targeting are green industry and technology based businesses.

Local business and industry have a solid history of community partnership. We have identified volunteers from the business and industry sector and city and county to participate in a Perry County Stream Team. MDC has offered the idea for train the trainer workshops so we can implement the stream team approach more quickly.

The local electric utility, Citizens Electric Corporation, whose service territory encompasses Perry County, has used best judgment when designing electric lines as to avoid locating electric poles in and in very close proximity to known sinkholes. In the 66 year history of the corporation, there is no report or memory of ever having an auger pierce a hidden cavern during the pole digging work procedure.

Moving forward, per an email received by the Service on August 24, 2012, CEC will implement these avoidance and minimization measures even though negative impacts to a cavern are unlikely:

1) If an auger were to penetrate a cavern, CEC would use directed effort to protect the cavern integrity by: i) investigating the best method to plug the auger hole, ii) placement of an unvented pipe in the auger hole to seal the opening, iii) rerouting the electric line for an alternate pole location.

2) During the planning phase of the placement of the pole locations, the avoidance measures include maintaining a buffer zone distance of 100 feet from any known sink hole along the selected route.

3) CEC received and accepts the Missouri Department of Conservation's Best Management Practices (BMP's) as recommendations for construction projects affecting Missouri Karst areas.

4) CEC also utilizes the City of Perryville's "Sinkhole Improvement Specification" (BMP's) as recommendations for construction projects affecting sinkholes.

Aquatic Life, Watershed and Karst Education

Director of the District 32 Career Center and the director of the Perryville Area Higher Education Center have agreed to integrate the introduction of watershed/karst/conservation-related topics as an addition to existing agriculture and science curricula at the Career Center and Perryville High School, and science education at PAHEC. Presentations and personnel from Missouri Department of Conservation and the Department of Natural Resources will be needed. We have identified agency personnel to help with this project.

MDC has a curriculum for every grade level of schools and it is called the Discover Nature Schools. This grade level appropriate curriculum has an aquatic component for middle school. This unit includes:

- Aquatic ecosystem investigation
- Watershed mapping

- Water runoff and infiltration
- Sampling macro-invertebrates for water quality
- Fishing
- Network schools with MDC so they can take advantage of the field trip grants for schools for schools participating in the above programs.

MDC can also train teachers on use of two nationally renowned and tested collections of curricula. The curricula can't be purchased it has to be obtained through a workshop. Curriculum includes:

Project Wet Teacher Training

- Water quality
- Watershed dynamics
- Point and nonpoint pollution sources
- Groundwater contamination
- Waterborne illnesses
- Obtain funding so teachers can participate

Project Aquatic wild

- Fish form and function
- Obtain funding so teachers can participate

MDC has agreed to teach a *Cave Life for Teachers* workshop that deals with:

- Karst topography
- Cave geography
- Cave formation
- Cave and groundwater function and flow
- Cave life form and function
- Cave ecosystems
- Sinkholes
- Practices that promote ground water health

- Watershed and ground water movement
- Human impacts on caves
- Course costs revolve around college credit
- Obtain RPDC funding

The above information was provided in partnership with Missouri Department of Conservation

Educational Objectives Rural Landowners and Livestock Producers

Landowner cooperation is essential, and voluntary, incentive-based programs should be used to assist individuals in improving practices on their private land. Selection and use of Best Management Practices (BMPs') must be tailored to the given situation to maximize their impact and effectiveness. Recognizing that not all landowners have or will want to participate in cost share and/or incentive programs, continued encouragement of BMP usage is essential. Educational efforts should build on the substantial successes while still bringing in new farmers and landowners for BMP adoption. Educational efforts should be in a variety of formats including workshops, meetings, field days, newspaper, internet media and school curriculum to increase impact. Ideally, these programs will be administered locally through agencies such as Perry County Soil and Water Conservation District, Natural Resource Conservation Services, Missouri Department of Conservation, University of Missouri Extension, Perry County Farm Bureau etc. which already have a strong relationship with the members of the community. Programs for maximum benefit are coordinated and marketed locally with all of our community partners.

Rural Sinkhole Management Education

- Critical area planting/filter strip or buffer planting for filtration of contaminants including sediment
- Proper pesticide use around sinkholes and vertical drains
- Benefits of sinkhole cleanup
- Benefits of the natural conditions
- Stabilization of sinkhole to control erosion

Education planned to promote rural community awareness about sinkhole management includes providing information on proper techniques on buffers using vegetation and grasses to filter contaminates from entering the underground water system. Also, proper maintenance of sinkholes, vertical drains and grade stabilization will be provided with environmental awareness concerns. Information regarding the correct installment of future vertical drains will be provided. Grazing school will be offered to help enhance vegetative cover, therefore preventing erosion. Information regarding

program availability of cost share programs is routinely available through the Perry County Soil and Water Conservation District (SWCD) office. To increase awareness of these programs SWCD will also offer public meetings on rural sinkhole education and conservation. Notices for these meetings will be sent out by fliers and radio announcements along with the use of newspaper and internet media. Written articles on best management practices of rural sinkholes will be submitted to local news media by the University of MO Extension office. The Perry County University of MO Extension Agriculture and Natural Resources faculty will also offer meetings and workshops to promote BMPs for rural sinkholes.

Our rural cleanout objective: increase sinkhole cleanout annually, prioritize clean-up according to the proximity of sinkhole locations to the Recharge Area. We will seek new funding to promote cleanup and cost share for debris removal. We have had discussions with the Fish and Wildlife Service, MDC, and DNR regarding the possibility of acquiring cost share funding for landowners. Perry County 4-H Clubs working together with the Perryville FFA Chapter are just two of the organizations that have volunteered to help landowners clean historic debris. Applications will be made for Building Communities Together Service grants, Missouri 4-H Foundation and other community service grants to partially fund the clean-up projects. Local labor and donations will be used. We will promote a better understanding of how water moves in the karst system. This knowledge, partnered with our county's history of pride in our community, will have a positive impact on rural sinkhole cleanup. We will provide landowners and the public with information regarding the process for record keeping of cleaned sinkholes. Record keeping of our successes will be kept by our long term community group.

Pasture Management Education

- Benefits of cross-fencing.
- Benefits of exclusionary fencing and limit grazing of riparian corridors.
    - Some landowners may want to participate in agency cost share programs
    - Interagency coordination of incentive programs for landowners
- Benefits of perennial forage species to reduce erosion.
- Benefits of warm and cool season forages.
- Benefits of legume establishment in pastures.
- Benefits of vegetative filter strips along drainage ways and streams to reduce sediment, organic material, and nutrient runoff.
- Benefits of soil testing for nutrient content.
- Benefits of cover crops for managing nutrients
- Benefits of establishing nutrient management plans.

Manure Management Education

- Benefits of managing stored manure by maintaining buffer strips of vegetation between manure storage areas and waterways to filter sediments and absorb nutrients.
- Benefits of storing stockpiled manure on flat ground.
- Benefits of removing stockpiled manure on a regular basis.
- Benefits of how and when composting manure piles should be kept moist and well aerated to speed decomposition and manure pile temperature should be above 131 degrees F.
- Benefits of monitoring manure piles for rain runoff to prevent contamination of surface and/or ground water.
- Benefits of following appropriate manure application setback distances around drinking water supplies, lakes, streams, wetlands, springs, cave entrances, sinkholes, and residences.
- Benefits of using of buffer strips that do not receive fertilizer applications around a stream, pond, sinkhole, or wetland area.
- Benefits of using fertilizer spreader calibration to ensure proper application.
- Benefits of effective record keeping to ensure a properly managed manure application process

Pasture and cropland management education of landowners and livestock producers will be provided by workshops and field days with cooperation of the Soil and Water Conservation District, Missouri Department of Conservation, University of MO Extension, and the Perry County Farm Bureau. Written articles on best management practices of pasture management and manure management will be submitted to local news media by the University of MO Extension office. We will seek funding to promote soil testing, nutrient management education, and to establish nutrient management plans. Local FFA teachers will be encouraged to include pasture and manure management in their curriculum. Perry County 4-H youth development will annually train county 4-H livestock leaders, parents and youth on proper pasture and manure management in their livestock programs.

Our goal is to promote best management practices especially for use by landowners and livestock producers within our karst areas, to help improve our water quality and aquatic ecosystems. Knowledge of the practices and benefits of good BMPs will help our conscientious citizens be even better stewards of the land. Seeking funding for these measures from the Perry County Soil and Water Conservation District, MDC, and DNR will help to encourage their participation.

Managing Water Sources

- Benefits of developing off-stream water sources.
- Benefits of fencing cattle from streams and ponds.

- Increased awareness of cost share programs that are available for landowners
- Benefits of using permanent cattle waterers located away from streams that have an improved apron around them of concrete or gravel.

Sharing of best management practices of livestock water sources with livestock producers and landowners will closely correlate with BMPs for pasture management. Providing information on the benefits of developing off-stream water sources and the placement of those waterers along with information on preventing livestock from eroding stream banks and ponds can be presented in the same workshops, meetings, and field days with the cooperation of the Perry County Soil and Water Conservation District, MDC, University of MO Extension office, and the Perry County Farm Bureau. Written articles on best management practices of livestock water sources will be submitted to local news media by the Perry County University of Missouri Extension Agriculture and Natural Resources faculty. We will seek funding to promote education. Local agriculture education teachers/FFA advisors will be encouraged to include water source management in their curriculum. Perry County 4-H youth development will annually train county 4-H livestock leaders, parents and youth on proper water source management in their livestock programs.

Our objective is to reduce soil erosion and nutrient leaching by the use of BMPs. By better informing landowners and livestock producers, we will reduce the possibility of sediment and excess nutrients in our local water, therefore, creating a better habitat for all aquatic life. By using educational opportunities with our youth, we can promote good stewardship practices for future generations.

Dead Animal Management

This is regulated by DNR and Missouri law refers to University of Missouri Extension guides for education and understanding of compliance. The local Extension center has increased educational efforts for dead animal disposal.

Hay Waste Management

- Benefits of placing round bale feeding sites away from any watershed or riparian areas.

We increase the awareness of and better inform the public and landowners of the proper placement of bale feeding areas in order to decrease the possibility of forage materials entering the water. Also, we plan to educate landowners and livestock producers on the current Missouri law and DNR regulations regarding the proper disposal of dead animals through the cooperation of the Perry County Soil and Water Conservation District, Perry County Farm Bureau, and the Perry County University of Missouri Extension Agricultural and Natural Resources faculty. With the use of workshops, newspaper articles, and internet media, landowners and livestock producers will become familiar with the BMPs for animal disposal. The Perry County University of Missouri Extension Natural Resource Engineer continues efforts to educate the public regarding new and emerging proper dead animal disposal methods. We will seek funding to educate, promote, and establish livestock producer composting sites for dead

animals. Local agriculture/FFA teachers will be encouraged to include proper feeding placement and dead animal management in their curriculum. Perry County 4-H youth development will annually train county 4-H livestock leaders, parents and youth on proper feeding placement and dead animal management in their livestock programs.

Our goal is to increase the awareness of and better inform the public and livestock producers on the current laws and regulations to keep unwanted forage materials and nutrients out of our water system. By using BMPs and current information on dead animal composting, we will help to protect our local waters. Seeking funding for these measures will help to encourage participation. We believe landowners will embrace this information because of their past history of good stewardship and the desire of our community to be proactive in protecting the environment.

General Continuing Education in Agriculture

- Establish a Community Water Quality Education Committee facilitated by the Perry County University of Missouri Extension Staff to plan and implement education efforts. Topics to be addressed include:
- Water Testing
- Manure management record keeping
- Proper petroleum product storage
- Proper pesticide management
- Soil Testing
- Manure sampling
- Rotational grazing practices
- Forage choices
- Nutrient management plans
- Alternative water sources for livestock
- Using GPS for herbicide application
    - Commercial and individual education
- Additional educational opportunities to address emerging issues.

Water Testing Clinic

The University of Missouri Extension Natural Resources Engineer will annually conduct at least one water testing clinic for private wells evaluating the potential for nitrate contamination. Data will be tracked and compared to baselines. **July, 2013**

Recycling Pesticide Containers

- Increase the number of Perry County sites for recycling triple rinsed pesticide containers.

Commercial and Private Pesticide Applicator Training

New in January, 2013, the Cape Girardeau annual commercial applicator training conducted by University of Missouri Plant Science Department included best management practices and requirements for pesticide application around sinkholes. This is mandatory yearly training for all commercial applicators to receive a license from the Missouri Department of Agriculture. **January, 2014**

The 2013 Private Applicator Training, conducted by University of Missouri Extension Agriculture and Natural Resources faculty, emphasized the rules for pesticide application near sinkholes. This is mandatory training for every pesticide applicator who purchases and applies restricted- use pesticides. The Missouri Department of Agriculture issues a permit to each operator upon completion.
February, 2014

Regional University of Missouri Extension Corn, Soybean and Wheat Meetings

Encourage Perry County agricultural producers to utilize the latest crop scouting techniques to determine if/when pesticides are necessary for application. **January-February, 2014**

Perry County Scrap Tire Collection Day

Free disposal of scrap tires from Perry County private citizens is being offered by Perry County Administration and Soil and Water Conservation District of Perry County in cooperation with the State of Missouri Solid Waste Management Department. **August 17, 2013.**

Perry County Soil and Water Conservation District Annual Meeting

- Reaches out and educates community through displays and formal program.
- Approximately 225-250 landowners/operators attend this meeting. **Next meeting March, 2014**
- Presentations on Karst, watershed and environmental concerns listed in this plan

Perry County Farm Bureau Annual Meeting

- Educates community through speakers and displays directed toward the general welfare of all aspects of farm and rural life through this to the general welfare of Perry County.
- Perry County Farm Bureau is an independent, non-governmental, voluntary organization of 682 farmer and rural citizen members in Perry County. **September, 2014**

Women in Agriculture Tour/ Meeting - Local & State

- Education program for women landowners/operators.
- The Perry County SWCD gives financial support to local and state tours / meetings along with personnel time at local & state level for this program. **Local tour May 2013, State tour Sept 2013**

Grazing Schools

- Outreach and education for landowners/operators about Grazing Systems including, forages and there management, water, its distribution and preservation.
- Various schools are held throughout the state. The Perry County SWCD gives financial support to these events as well as personnel time. **One scheduled April 18-19, 2013 Jackson Mo.**

Teacher Workshops

At least one time annually, a workshop will be held for county teachers encouraging educators to incorporate curriculum into the classroom that teaches students to be good stewards of the land and water as well the source of their food and water. It will be coordinated by the Perry County Farm Bureau Promotion and Education Committee in conjunction with Missouri Farm Bureau Promotion and Education Director and Perry County University of Missouri 4-H staff. Teacher resources from various sources will be highlighted. Each year different grade levels will be targeted and the program will be approved for Perry County School District #32 Professional Development (PD) hours. An initial introductory workshop was held March, 2013 for all grade levels K-12 and the next workshop will be held summer 2013 for grade K-6 teachers. Promotion of workshops will be through the Perry County School District #32 on-line PD system, e-mails/letters to all public and parochial schools in the county. Surveys will be conducted to determine the number of youth reached through this effort. **July-September, 2014**

Cooperation among farmers and landowners is essential to improving water quality and habitat for the species. Sharing relevant, cost-effective BMPs and providing cost-share assistance through voluntary programs will increase landowner and farmer interest in taking additional action(s) on the property. Our local economies benefit from farming and ranching, therefore it is imperative we (including state and federal agencies) work with farmers and landowners to keep land in production while putting in place common-sense, cost-effective BMPs.

Benjamin Franklin is quoted as saying, "An investment in knowledge pays the best interest." With the knowledge our community will gain through the programs and measures we have planned, the payoff will be a cleaner, safer water supply for all. By educating our children and passing on our community pride and good stewardship practices, we will guarantee the future water quality of our karst system.

Best Management Practices Applied and Currently Utilized

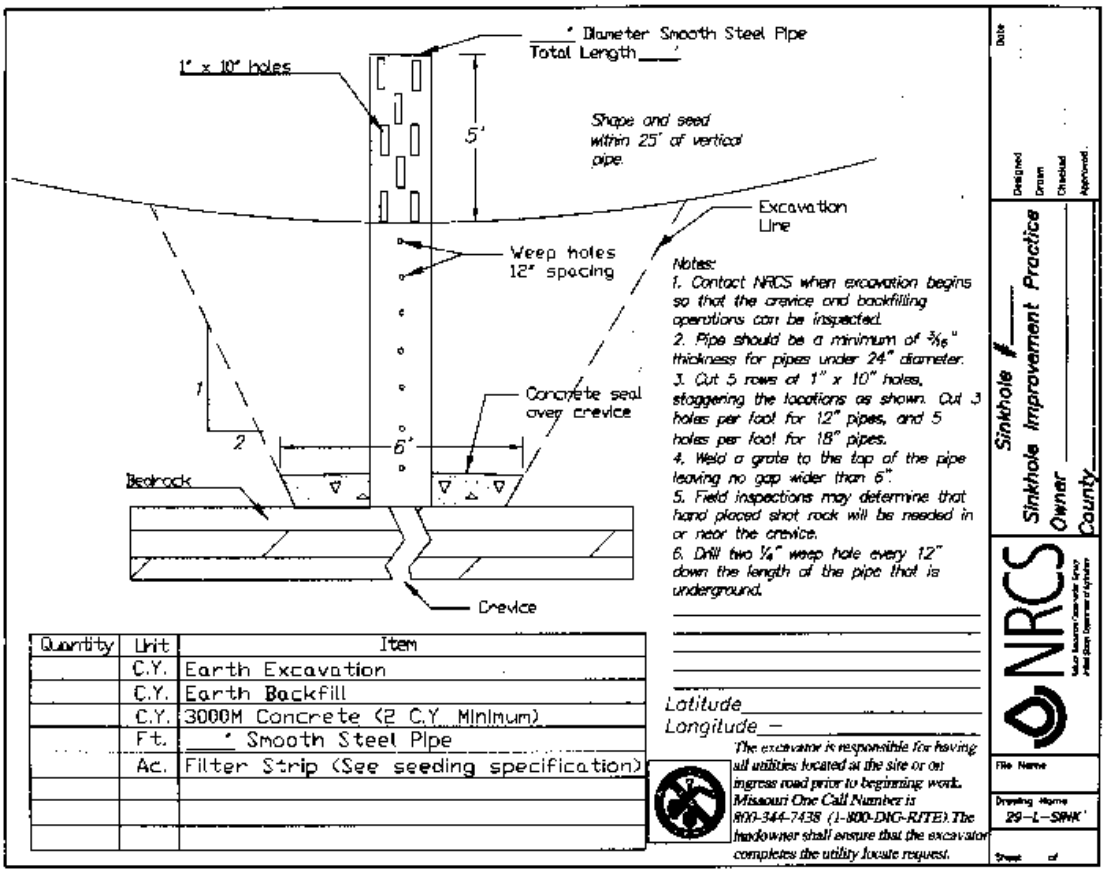
TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS
Forage and Biomass Planting	*Grasses and/or legumes are seeded or reseeded *Perennial forage species, warm and cool season grasses are used.	Reduced soil erosion by providing soil cover. Provides higher quality forage for livestock.
Conservation Cover	Grass and/or legume plantings	Reduced soil erosion by providing soil cover. Cover also benefits wildlife
Conservation Crop Rotation	Uses a diverse crop rotation	Reduced soil erosion by providing soil cover. Improved soil health
Cover Crop	Temporary cover planted to fallow land	Reduced soil erosion by providing soil cover. Trap nutrients, and improves soil health
Critical Area Planting	Planting of permanent vegetative cover on steep slopes	Reduced soil erosion by stabilizing steep slopes, usually done with other practices
Field Border	Permanent grass/legume planting at edge of field	Reduced soil erosion by using vegetative buffer at edge of field. Buffer also traps sediment
Filter Strip	*Permanent grass/legume planting near streams and ponds *Vegetative filter strips are planted along drainage and waterways	Buffer reduces sediment, organic material and nutrient runoff. Reduced soil erosion by using vegetative buffer to slow runoff entering a water body.
Terrace	Constructed ridge to collect water in field and guides to conduit for safe discharge	Reduced soil erosion by controlling overland flow
Grade Stabilization Structure	Embankment constructed with a conduit discharge	Reduced soil erosion by controlling runoff.
Grassed Waterway	Channel constructed for water passageway	Reduced soil erosion by channeling runoff into grassed structure. Traps sediment
Pond	Embankment constructed to hold water permanently	Reduced soil erosion by controlling runoff. Provides water for livestock, fish, recreation,. Traps sediment
Water and Sediment Control Basin	Embankment constructed to pool runoff and discharge safely through a conduit	Reduced soil erosion by controlling runoff. Traps sediment
Vertical Drain (See Diagram 2 & appendix AA1 & AA2)	Structure by which water safely is outlet through a conduit	Reduced soil erosion by controlling runoff.
Vertical Drain Incentive	Continued management/ maintenance of buffer around completed vertical drains	Maintains reduced soil erosion. Landowner incentive payment
Riparian Buffer	Tree/shrub planting along streams and other water bodies	Reduced soil erosion by filtering runoff near streams and other water bodies. Traps sediment

Conservation Tillage	Tillage that leaves crop residue on top of soil	Reduced erosion by minimum tillage or notill . Promotes soil health
General Conservation Reserve Program	Vegetative plantings in whole field situations	Reduced erosion by removing cropland out of ag production to permanent cover.
Continuous Conservation Reserve Program	Vegetative plantings near sensitive areas	Reduced erosion by removing sensitive cropland/pastureland out of ag production to permanent cover.
Access Control	*Fence is constructed to control livestock access * Cattle fenced from streams	Reduced erosion by limiting livestock access to water bodies, woodlands, & sensitive areas
Nutrient Management	Regulate/reduce excessive nutrients *Use of soil testing analysis eliminates excessive nutrient applications. * Fertilizer/manure spreaders calibrated to insure proper application.	Reduced nutrient leaching. Proper application of nutrients based on crop needs. Timing of application. Safe handling of nutrients (fertilizer and manure)
Prescribed/ Rotational Grazing	* Controlling livestock density * Cross fencing	Reduced erosion by controlling livestock grazing. Improved forage utilization.
Livestock Water Development	* Well drilling * Off stream water sources * Permanent Cattle waterers located away from waters of the state * Stream hard access * Spring development, * Pond development. *Use of other water sources for livestock	Reduced erosion and nutrient entry by eliminating livestock concentrations near/in water bodies. Provides source of clean water for livestock
Livestock Water Distribution systems	Installation of pipeline and tanks for water throughout grazing area	Reduced erosion and nutrient entry by eliminating livestock concentrations and herding near/in water bodies. Provides source of clean water for livestock
Livestock Feeding Sites	Select proper sites, ie. level ground, away from riparian Areas	Reduced erosion and nutrient entry by use of feeding sites away from sensitive areas
Manure Management	Proper handling of manure storage, processing & application	Reduced entry to water bodies because of safe handling, timing of application, proper application methods including separation distances, barriers /buffer around feedlots stockpiles etc. soil testing
Dead Animal Disposal	Disposal of dead animals in a timely manner according to state law	Reduced entry of nutrients to water bodies because of safe handling, timing of disposal

Pesticide Management	* ALL private and commercial applicators attend an Applicators Training program and receive a license from the Missouri Department of Agriculture. * Crops are scouted to determine if applications are necessary based on established economic thresholds. * Pesticide and herbicide applications are made as required by law on the individual label of each product which includes the separation distances from waters of the state. * Crop protection applications are managed by accurate recordkeeping. * Sprayers are calibrated to insure proper application and are operated in accordance with training guidelines to insure safety to the environment and the individual applicator.	Reduced entry to water bodies by safe handling, timing of application, proper application methods including separation distances, sprayer operation.
Sinkhole Trash Cleanout	* Private landowners have removed solid waste and trash from sinkholes * Costs of sink hole cleanout were tracked in Past 319 project, ranging in cost from $2400-$8000	Reduced entry to water body by trash and undesirable materials not being in sinkholes
Above Ground Fuel Storage	Secondary containment best management practices and emergency containment equipment are used.	Reduced entry to water body by containment of leak
Underground Fuel Storage	Removal of tanks	Reduced entry to water body by tanks and undesirable material not being in the ground
Rubber Tire Disposal	Pay fee when new tire purchased, participate in tire collection programs	Reduced entry to water body by rubber tires not being present.
Forest Stand Improvement	Removal of undesirable woody vegetation to promote growth on desirable vegetation	Selective cutting to improve forestland for timber &/or wildlife
Upland Wildlife Habitat Management	Structural and management practices	Wildlife practices mainly for small game
Sinkhole/ Vertical Drain Livestock Exclusion	Livestock exclusion is only needed if adequate grass buffer cannot be maintained around the sinkhole.	Reduced erosion, traps sediment, nutrients and other contaminants for reduced entry to cave (water bodies)

Sinkhole/ Vertical Drain Buffer On Cropland	Vegetative plantings surround a sinkhole extending a distance	Reduced erosion, traps sediment, nutrients and other contaminants for reduced entry to cave (water bodies)
Sinkhole/ Vertical Drain Buffer On Pasture	Vegetative plantings are part of pasture fields surrounding a sinkhole	Reduced erosion, traps sediment, nutrients and other contaminants for reduced entry to cave (water bodies)
Sinkhole/Vertical Drain in Forest/woodland	Tree/Shrub and ground floor protection	Erosion control provided by undisturbed environment
Stream Team/Environmental Stewardship	* Stream Team and Environmental Stewardship activities have been consistently conducted with youth at 4-H camps, 4-H clubs and schools in Perry County during the past 20 years. Programs have included but are not limited to the following: Streets to Streams activities, Missouri Ground Water Flow Program, Enivroscape Program (watershed & erosion), Bottle Biology, Recycle-Reduce-Reuse.	County youth are educated about water quality and environmental stewardship and they are moved to action to protect the quality of area waters and the environment in both present day and throughout their lifetimes.
Water Testing Clinics Septic Tank Installers Training.	* Helping landowners make good decisions with water supplies and on-site sewage systems, follow state and county rules.	* Several hundred private wells have been test with follow-up on those indicating issues * 54 on-site contractors have been trained for site evaluation and system selection
Abandon Well Plugging Program	Education of home owners and contractors on proper techniques for managing abandon wells	4 demonstration sites used
Watershed location education / signage	Education local community on the boundaries of the watershed drainage to caves and streams	Signage on roads as they cross the boundaries of drainage

NRCS Sinkhole Improvement Practice
Diagram 2



Quantity	Unit	Item
	C.Y.	Earth Excavation
	C.Y.	Earth Backfill
	C.Y.	3000M Concrete (2 C.Y. Minimum)
	Ft.	___" Smooth Steel Pipe
	Ac.	Filter Strip (See seeding specification)

Dollars invested and acres covered by the Perry County Soil Water Conservation District & Natural Resource Conservation Service in partnership with local landowners

2002-2012				
TOPIC/ PRACTICE	PURPOSE/ WHAT THIS ADDRESSES	KNOWN OUTCOMES/ IMPACTS	QUANITY APPLIED	DOLLARS APPLIED
ACCESS CONTROL	Control livestock access to water bodies, woodlands, & sensitive areas	Reduces sheet, rill, and gully erosion; Improves water & timber quality	954 ac	$47,866
PERMANENT COVER ESTABLISHMENT	Seeding & Reseeding of Pastureland and Grass Cover	Reduces soil erosion; Improves soil & water quality	191 ac	$9,017
CONSERVATION COVER	Permanent vegetative plantings	Reduces erosion; Provides Wildlife protection; Improves soil & water quality		
CONSERVATION CROP ROTATION	Crop rotations that improve soil quality	Reduces sheet & rill erosion; Improves water quality		
COVER CROP	Annual crop planted while land is fallow	Reduces sheet & rill erosion; Improves soil & water quality	20.7 ac.	$829
CRITICAL AREA PLANTING	Permanent vegatative cover on steep slopes	Reduces sheet, rill, and gully erosion	104.9 ac	$104,990
FIELD BORDER	Vegative buffer at edge of fields	Reduces sheet & rill erosion; Traps sediment along with other particals attached to the sediment	10.2 ac.	$1,638
FILTER STRIP	Vegative buffer to slow runoff near streams and ponds	Reduces sheet & rill erosion; Traps sediment along with other particals attached to the sediment	12.3 ac.	$1,025

FOREST STAND IMPROVEMENT	Selective cutting to improve forestland for timber &/or wildlife	Improves forest health and wildlife habitat	1093.1 ac.	$111,289
GRADE STABLIZATION STRUCTURE	Erosion control structure	Reduces gully erosion; Traps sediment along with other particals attached to the sediment	9 no.	$12,783
GRASSED WATERWAY	Erosion control structure	Reduces gully erosion; Traps sediment along with other particals attached to the sediment	15.8 ac	$42,224
NUTRIENT MANAGEMENT	Improves water quality by reducing excessive nutrients	Improves water quality	4550 ac	$69,146
POND	Erosion control structure	Reduces gully erosion; Traps sediment along with other particals attached to the sediment	125 no	$625,690
PRESCRIBED GRAZING	Matches stocking density with available forages	Reduces sheet & rill erosion through improved grassland mgt	3602 ac	$53,064
RIPARIAN FOREST BUFFER	Buffer to slow runoff near streams and ponds	Reduces sheet & rill erosion; Traps sediment along with other particals attached to the sediment	10.2 ac.	$1,860
TERRACE	Intercepts and guides runoff to safe outlet	Reduces sheet, rill, and gully erosion	20263 ft	$62,979
VERTICAL DRAIN	Erosion control structure	Reduces gully erosion; Traps sediment along with other particals attached to the sediment	781 no	$1,156,436
UPLAND WILDLIFE HABITAT MANAGEMENT	Wildlife practices mainly for small game	Improves wildlife	950.7 ac	$28,938
WATER AND SEDIMENT CONTROL BASIN	Intercepts, pools, and releases runoff slowly	Reduces sheet, rill, and gully erosion	250 no	$529,272

	Total	$2,859,046

All 24,000 +or- ac. in the recharge area are determined highly erodable land, (HEL).

653 or 82% of vertical drain practices listed above are in the recharge area.

You can see a significant percentage of practices are applied to recharge areas.

Future application funds will provide emphasis to expand practices in this community area.

Practices above are known to occur as they are used for landowner/operator to meet erosion requirements on highly erodible land, (HEL). Perry County has 69,401 determined HEL acres for FSA farm program payments. No direct cost share available. The above cost share dollars represents a minimum of $3.8 million ($2.8 mil /75% cost-share) of best management practices applied to the land in Perry County.

Vertical Drain & Gulley Erosion Practice Signups vs. Projects Funded

	# Of Landowners Signed Up For Cost Share			# Of Landowners Served	% Of Landowners Served	# Of Projects Funded		
	Vertical Drain Practices	**Gulley Erosion Practices**	**Total**			**Vertical Drain Practices**	**Gulley Erosion Practices**	**Total**
2002			101	56	55%	89	47	136
2003			131	54	41%	59	56	115
2004			170	52	31%	48	49	97
2005			187	54	29%	61	59	120
2006			211	59	28%	62	53	115
2007			207	43	21%	58	43	101
2008			169	43	25%	36	48	84
2009			164	39	24%	53	36	89

	# Of Landowners Signed Up For Cost Share	# Of Landowners Served	% Of Landowners Served	# Of Projects Funded	20%	82	30	112
2011	58	107	165	48	29%	80	40	120
2012	55	110	165	39	24%	64	47	111
Total	**187**	**357**	**1884**	**529**	28%	**692**	**508**	**1200**
Uncompleted FY 2013	33	118	151			40	35	
Just completed 2014 signup	19	101	120					
Historically demand for cost share funds has far exceeded funds available.								
Frustration from landowners has occurred.								

Vertical Drain Incentive Program For Continued Maintenance

Eligible For Extended Maintenance	Maintenance Ending	# Vertical Drains Eligible	# Vertical Drains Renewed	# Of Landowners Participated
2006	**1997**	19	3	2
2007	**1998**	30	12	6
2008	**1999**	34	5	2
2009	**2000**	44	20	6
2010	**2001**	54	1	1
2011	**2002**	89	3	3
2012	**2003**	59	18	4
2013	**2004**	59	28	3
Total		388	90	27

A one-time $300 incentive payment is paid to landowner to renew A 10 year maintenance agreement.

Letters were mailed to 134 landowners notifying them of eligibility.

Above demonstrates recent developed and implemented best management practice through outreach, education, and incentive.

COST SHARE ADMINISTRATION

Funding of Historical Practices

- **Federal Dollars**
    1. Administered by NRCS
    2. Funded by USDA
    3. 4 year Farm Bill

4. Requires congressional renewal

- **State Dollars**

1. Administered by Missouri DNR through local SWCD offices
2. Funded by the 1/10 cent state sales tax
3. 10 year referendum (will expire in 2016)
4. Requires simple majority voter approval

State Program Policy

- Allows for 75% cost share of practices performed.

Perry County District Policy

- Maximum of $8500 per landowner per eligible funding.
- Lottery System whereby landowner may enter annually, however no landowner may be eligible for funding any 2 consecutive years.
- Landowner must draw in separate lottery for practices they wish to participate in.

Recent Additions to Vertical Drain Practice

- In 2008 a one-time incentive program (approved by Missouri DNR) was initiated for continuation of vertical drain maintenance. Land owner receive a onetime $300.00 payment for renewal of 10 year maintenance agreement.

Adopted by Perry County Board of Supervisors

- On September 3, 2008 the board initiated a spot check program whereby 15% of vertical drain practices within the 10 year maintenance period are checked annually.
- On December 29, 2011 the board approved a policy that before any landowner can qualify for new cost share on vertical drains all past cost-shared vertical drain practices must be in compliance with current vertical drain cost share guidelines.

Conclusion

- Landowners are willing to participate in programs; many at a level greater than 25% cost-share

Plan Implementation

Because our plan is a living document we have already been able to move words to action. A short term list of project outcomes that are already in progress are listed below.

Our community advocates regular and ongoing water sampling in cooperation with US F&W, DNR and local resources. Our approach uses long term sampling methods with an adaptive management approach to address any problems that may arise. In partnership with US Fish and Wildlife, DNR and local SWCD begin training additional local individuals to assist in gathering water samples. September, 2013

Perry County

November 2012	Established our Perry County Community Economic and Environment group.
November, 2012	Volunteers, local government organizations and agencies have invested thousands of hours to create and implement this plan. The local cost of assembling this plan including cost of volunteer time during the first 90 days was over $250,000 in time and labor. This represents a substantial community investment that is ongoing. No end date, continuous.
March, 2013	Local landowner in partnership with MDC and area volunteers removed more than 350 tires from sink holes
April, 2013	Perry County Community Economic and Environment group becomes a permanent group based out of the University of Missouri Extension Council, Perry County.
April, 2013	Permanent community group becomes central record keeper for activities and events related to water quality.
December, 2013	Additional trash forgiveness recycling days have been added
November, 2012	Funds set aside to assist with the plan process by local nonprofits $20,000
March, 2013	K-12, first teacher signed up for Project Wet
March, 2013	Local Envirothon - Aquatic, Soils and Grotto Sculpin Education
April 4, 2013	Perry County Soil and Water Conservation District Annual Meeting – Karst and Watershed Education
April 18-19, 2013	Grazing School – Preventing Erosion and Promoting Water Quality in Karst Areas
May, 2013	Women in Agriculture Local Tour/ Meeting – Karst and Watershed Education for Women Landowners

May, 2013	State Envirothon – Aquatic and Soils Education
June, 2013	The City of Perryville adds a prescription disposal station at the local police station to assist residents countywide in keeping these potential contaminants out of our watershed.
July, 2013	Water Testing Clinic – Private Wells
July, 2013	Cave Life for Teachers MDC Workshop
August, 2013	Completed draft watershed plan in partnership with MDC, DNR and other relevant agencies. Community stakeholders recognize that a Perry County Karst Watershed Plan would maintain and enhance ecological, agricultural, educational, and the quality of life in the Perry County Karst Watershed. It will assist in monitoring water quality and provide guidance as well as cost-share assistance for agricultural landowners in the karst region in order to implement best management practices.
July-September, 2013	Teacher Workshops – Karst and Water Quality Education
August 17, 2013	Perry County Scrap Tire Collection Day
September, 2013	Women in Agriculture State Tour/Meeting–Karst & Watershed Education for Women Landowners
September 4, 2013	Perry County Farm Bureau Annual Meeting – Presentation on Perry County Karst and Watershed Issues
September 20-21, 2013	East Perry Community Fair - Informational Booth on Perry County Karst and Water Quality Issues
January, 2014	Educational outreach programs reach 800 landowners and stakeholders see Appendix AA3 for historic information from one local agency.
January, 2014	Commercial Pesticide Applicator Training including a Karst educational component
January/February, 2014	Regional University of Missouri Extension Corn, Soybean and Wheat Meetings Karst Pesticide Application Techniques
January, 2014	Host on-site waste water installers educational training and workshop
February, 2014	Private Pesticide Applicator Training with Karst component
February, 2014	Emergency planning for safe drinking water

March-April, 2014 SMQA Training – Livestock Water Source Management; Feeding Placement and Dead Animal Management; Pasture and Manure Management

Regular and Ongoing Programs by the Perry County Health Department

- Monthly check with 911 office for new addresses in the county, we then notify the property owner of the State On-Site Sewage laws
- Enforce state on-site sewage system program
- Provide one-on-one consultations with homeowners and installers to ensure correct installation, i.e. Plan reviews
- Investigate waste water complaints
- Issue waste water violations and enforce compliance schedule
- Maintain on-site waste water records
- Provide permits to install on-site sewage systems in accordance with the Missouri State Laws
- Provide on-site evaluations and inspections to ensure compliance
- Emergency planning and updating for safe wastewater disposal
- Collaborate with soil scientists and professional engineers regarding the best design for the site
- Provide official free private drinking water analysis for coliform bacteria and inorganic substances completed by health department
- Provide individual homeowners with sampling bottles for coliform bacteria
- Provide drinking water consultations for homeowners and businesses
- Provide guidance and resources in response to DNR public drinking water boil orders
- Collaborate with well drillers regarding drinking water issues
- Work with homeowners on well placement
- Establish and maintain private drinking water analysis records
- Communicable disease investigations of waterborne illnesses
- Consult and educate private homeowners on drinking water issues
- See Appendix DD1 for 3 year plan

City of Perryville Current Projects

- The City of Perryville continues educating ourselves through attending "2013 Show-Me Stormwater Management Webinar" sponsored by the *Show-Me Stormwater Management and The Center for Watershed Protection.* The following workshops will be attended:

  1. **April 17, 2013** - Watershed Arithmetic -- Crediting & Counting Your Watershed Practices Towards TMDL Goals

  2. **May 15, 2013 -** Please Come Audit My MS4

  3. **June 19, 2013** - Mastering the Language of Talking to Elected Officials

4. **September 18, 2013** - Combining Green & Grey in Combined Sewer Watersheds

5. **October 16, 2013** - Stormwater Trading – Markets or Mayhem?

6. **November 20, 2013** - Stormwater Utilities: Reckoning the Cost Side of the Equation:

2012-2013

- Development of a new sinkhole policy
- Modified specifications for existing street project (Rand Street/Elk Drive) to include catch box notice that inlets drain to water
- Developed a sinkhole improvement budget to track our financial efforts
- Increased budget by an estimated $15,000, priorities include:
    - Retrofitting improvements on existing sinkholes (including BMPs)
    - Added part-time maintenance staff to aid in mowing around sinkholes (done to eliminate the process spraying chemicals for weed control around sinkholes)
- Worked with SEMO RPC to inventory sinkholes (includes identifying numbers, GPS location, aerial photo, BMP radius, and condition grading)
- Incorporated vegetative buffers (BMPs) into recent street design (Rand Street/Elk Drive)
- Ongoing acquisition of easements for existing and "new" sinkholes throughout town to help ensure proper improvement and subsequent maintenance (city to assume all costs as a property owner incentive)
- City has developed and proposed a new policy to address sinkhole development. Includes standards. Requires significant money to retrofit existing sinkholes and ensure proper development of future sinkholes.
- City has budgeted to replace TV camera for sewer lines which aids in this process. Storm water continues to be a significant concern for our system. There are some months our sewer plant treats more water than we produce (attributed to Inflow and Infiltration).More work is needed to replace sewer lines throughout town to address Inflow and Infiltration issues. In addition, there have been many unfunded mandates of late that have severely reduced our meager reserves.

About our plan

Our plan was written by our community. We used a facilitator to help us with the overall process and public meetings. The facilitator was Community Development Specialist, Celeste Vanderbrugen M.S., University of Missouri Extension. The narrative was written by core board members and incorporated public comments from meetings and interviews conducted in conjunction with the facilitator. Formal and informal educational sessions, public meetings and interviews were conducted from November 1 through April 6th. Every effort was made to make the process as broad and inclusive as possible that the condensed timeframe would allow.

As of this date, April 7, 2013, our plan is in an early draft format. As a living document it will continue to grow and evolve. By using adaptive practices we are able to grow our best management practices as technology and local need evolves. To all of the people and organizations who helped make this possible, thank you.

The performance of the activities, goals and timing of the Plan may be affected by events beyond the control of the community. The community plan will be impacted by acts of God, public disaster, fire, terrorism, civil discord, flood, war, government laws/regulations, state and federal budgets, economic downturns, interruptions of communication, transportation or electricity and the availability of state, federal and private funding specifically allocated to the activities of the plan.

This is a draft version of our community plan. We are still developing additional goals, benchmarks and indicators. See timeline above.

Appendix Table of Content

Appendix A

Agriculture

Appendix A

Best Management Practices

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A1	Water Quality	Forage and Biomass Planting	*Grasses and/or legumes are seeded or reseeded *Perennial forage species, warm and cool season grasses are used.	Reduced soil erosion by providing soil cover. Provides higher quality forage for livestock			
A2	Water Quality	Conservation Cover	Grass and/or legume plantings	Reduced soil erosion by providing soil cover. Cover also benefits wildlife			
A3	Water Quality	Conservation Crop Rotation	Uses a diverse crop rotation	Reduced soil erosion by providing soil cover. Improved soil health			
A4	Water Quality	Cover Crop	Temporary cover planted to fallow land	Reduced soil erosion by providing soil cover. Trap nutrients, and improves soil health	NRCS & SWCD participated w/landowner planting, Fall 2012. EQUIP sign ending 1-18-13 indicates further interest		
A5	Water Quality	Critical Area Planting	Planting of permanent vegetative cover on steep slopes	Reduced soil erosion by stabilizing steep slopes, usually done with other practices			

	PURPOSE/ WHAT THIS ADDRESSES	**TOPIC/ PRACTICE**	**ACTIVITIES/ CHARACTERISTICS**	**KNOWN OUTCOMES/ IMPACTS**	**ANY FUTURE IMPROVEMENTS OR EXPANSIONS**		
A6	Water Quality	Field Border	Permanent grass/legume planting at edge of field	Reduced soil erosion by using vegetative buffer at edge of field. Buffer also traps sediment			
A7	Water Quality	Filter Strip	*Permanent grass/legume planting near streams and ponds *Vegetative filter strips are planted along drainage and waterways	Buffer reduces sediment, organic material and nutrient runoff. Reduced soil erosion by using vegetative buffer to slow runoff entering a water body.			
A8	Water Quality	Terrace	Constructed ridge to collect water in field and guides to conduit for safe discharge	Reduced soil erosion by controlling overland flow			
A9	Water Quality	Grade Stabilization Structure	Embankment constructed with a conduit discharge	Reduced soil erosion by controlling runoff.			
A10	Water Quality	Grassed Waterway	Channel constructed for water passageway	Reduced soil erosion by channeling runoff into grassed structure. Traps sediment			
A11	Water Quality	Pond	Embankment constructed to hold water permanently	Reduced soil erosion by controlling runoff. Provides water for livestock, fish, recreation, Traps sediment			

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A12	Water Quality	Water and Sediment Control Basin	Embankment constructed to pool runoff and discharge safely through a conduit	Reduced soil erosion by controlling runoff. Traps sediment			
A13	Water Quality	Vertical Drain	Structure by which water safely is outlet through a conduit	Reduced soil erosion by controlling runoff.	Landowner participation decline. Local policy change effective fiscal year 2013- previous cost share drains must be in compliance prior to new cost share. Fear of the uncertain with the proposed Endangered listing.	Education on correct maintenance	Currently up to 75% cost share from SWCD. NRCS removed practice for fiscal 2014 EQUIP program
A14	Water Quality	Vertical Drain Incentive	Continued management/ maintenance of buffer around completed vertical drains	Maintains reduced soil erosion. Landowner incentive payment	23% of drains eligible have incentive applied. Landowner number % small.		Currently $300 payment for new 10 yr contract. Consider Increased incentive

	PURPOSE/ WHAT THIS ADDRESSES	**TOPIC/ PRACTICE**	**ACTIVITIES/ CHARACTERISTICS**	**KNOWN OUTCOMES/ IMPACTS**	**ANY FUTURE IMPROVEMENTS OR EXPANSIONS**		
A15	Water Quality	Riparian Buffer	Tree/shrub planting along streams and other water bodies	Reduced soil erosion by filtering runoff near streams and other water bodies. Traps sediment			
A16	Water Quality	Conservation Tillage	Tillage that leaves crop residue on top of soil	Reduced erosion by minimum tillage or notill . Promotes soil health	Notill provides for very effective erosion control for $ spent. Program drills old and not economical for upkeep.		Seek source of grant money to replace drills
A17	Water Quality	General Conservation Reserve Program	Vegetative plantings in whole field situations	Reduced erosion by removing cropland out of ag production to permanent cover.	Landowner interest by commodity prices		FSA Funded
A18	Water Quality	Continuous Conservation Reserve Program	Vegetative plantings near sensitive areas	Reduced erosion by removing sensitive cropland/pastureland out of ag production to permanent cover.	Educate landowners use for expanded buffer		Possible piggyback funding
A19	Water and Timber Quality	Access Control	Fence is constructed to control livestock access	Reduced erosion by limiting livestock access to water bodies, woodlands, & sensitive areas			Equip Funded

	PURPOSE/ WHAT THIS ADDRESSES	**TOPIC/ PRACTICE**	**ACTIVITIES/ CHARACTERISTICS**	**KNOWN OUTCOMES/ IMPACTS**	**ANY FUTURE IMPROVEMENTS OR EXPANSIONS**		
A20	Water Quality	Nutrient Management	Regulate/reduce excessive nutrients *Use of soil testing analysis eliminates excessive nutrient applications. * Fertilizer spreaders calibrated to insure proper application.	Reduced nutrient leaching. Proper application of nutrients based on crop needs. Timing of application. Safe handling of nutrients (fertilizer and manure)			
A21	Water Quality	Prescribed/ Rotational Grazing	Controlling livestock density	Reduced erosion by controlling livestock grazing. Improved forage utilization.	Interest decline as crop prices increased	Grazing Schools	
A22	Water Quality	Livestock Water Development	Well Drilling, stream and spring development, pond development, use of public water supply	Reduced erosion and nutrient entry by eliminating livestock concentrations near/in water bodies. Provides source of clean water for livestock	Awareness because of drought, Many operators not eligible because of guidelines.		
A23	Water Quality	Livestock Water Distribution systems	Installation of pipeline and tanks for water throughout grazing area	Reduced erosion and nutrient entry by eliminating livestock concentrations and herding near/in water bodies. Provides source of clean water for livestock			

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A24	Water Quality	Livestock Feeding Sites	Select proper sites, ie. level ground, away from riparian areas	Reduced erosion and nutrient entry by use of feeding sites away from sensitive areas			
A25	Water Quality	Manure Management	Proper handling of manure storage, application	Reduced entry to water bodies because of safe handling, timing of application, proper application methods including separation distances, barriers /buffer around feedlots stockpiles etc. soil testing			
A26	Water Quality	Dead Animal Disposal	Disposal of dead animals in a timely manner according to state law	Reduced entry of nutrients to water bodies because of safe handling, timing of disposal	Cost of use of and lack of rendering facilities. Alternative methods include composting. Explore a composting Company.		

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A27	Water Quality	Pesticide Management	* ALL private and commercial applicators attend an Applicators Training program and receive a license from the Missouri Department of Agriculture. * Crops are scouted to determine if applications are necessary based on established economic thresholds. * Pesticide and herbicide applications are made as required by law on the individual label of each product which includes the separation distances from waters of the state. * Crop protection applications are managed by accurate recordkeeping. * Sprayers are calibrated to insure proper application and are operated in accordance with training guidelines to insure safety to the environment and the individual applicator.	Reduced entry to water bodies by safe handling, timing of application, proper application methods including separation distances, sprayer operation.	Applicator training program to include more emphasis on buffers and separation distances. GPS guided application equipment.		

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A28	Water Quality	Sinkhole Trash Cleanout	* Private landowners have removed solid waste and trash from sinkholes * Costs of sink hole cleanout were tracked in Past 319 project, ranging in cost from $2400-$8000	Reduced entry to water body by trash and undesirable materials not being in sinkholes	Identify known dumps. Landowner hold harmless		Seek Funding incentive, Goal 4-5 sinkholes per year
A29	Water Quality	Above Ground Fuel Storage	Secondary containment best management practices and emergency containment equipment are used.	Reduced entry to water body by containment of leak	Watchful eye , Price of fuel will control leaks		
A30	Water Quality	Underground Fuel Storage	Removal of tanks	Reduced entry to water body by tanks and undesirable material not being in the ground	Will any fuel supplier deliver to underground on farm storage?	Test fuel for water contain ment	
A31	Water Quality	Rubber Tire Disposal	Pay fee when new tire purchased, participate in tire collection programs	Reduced entry to water body by rubber tires not being present.	Participate in DNR solid waste clean up programs		
A32	Water and Timber Quality	Forest Stand Improvement	Removal of undesirable woody vegetation to promote growth on desirable vegetation	Selective cutting to improve forestland for timber &/or wildlife	Future landowner desire to maintain quality because of whats there now		

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A33	Water Quality	Upland Wildlife Habitat Management	Structural and management practices	Wildlife practices mainly for small game	Earthen structural practices reduce erosion		
A34	Water Quality	Sinkhole/ Vertical Drain Livestock Exclusion	Livestock are limited a distance from entry point	Reduced erosion, traps sediment, nutrients and other contaminants for reduced entry to cave (water bodies)	Planting of cover crop during dormant season of prominent cover		
A35	Water Quality	Sinkhole/ Vertical Drain Buffer On Cropland	Vegetative plantings surround a sinkhole extending a distance	Reduced erosion, traps sediment, nutrients and other contaminants for reduced entry to cave (water bodies)	Planting of cover crop during dormant season of prominent cover		
A36	Water Quality	Sinkhole/ Vertical Drain Buffer On Pasture	Vegetative plantings are part of pasture fields surrounding a sinkhole	Reduced erosion, traps sediment, nutrients and other contaminants for reduced entry to cave (water bodies)	Improved grazing practices enhance vegetative cover	Grazing Schools	
A37	Water Quality	Sinkhole/Vertical in Forest/woodland	Tree/Shrub and ground floor protection	Erosion control provided by undisturbed environment			

	PURPOSE/ WHAT THIS ADDRESSES	TOPIC/ PRACTICE	ACTIVITIES/ CHARACTERISTICS	KNOWN OUTCOMES/ IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS		
A38	Water Quality	Stream Team - Environmental Stewardship	* Stream Team and Environmental Stewardship activities have been consistently conducted with youth at 4-H camps, 4-H clubs and schools in Perry County during the past 20 years. Programs have included but are not limited to the following: Streets to Streams activities, Missouri Ground Water Flow Program, Enivroscape Program (watershed & erosion), Bottle Biology, Recycle-Reduce-Reuse.	County youth are educated about water quality and environmental stewardship and they are moved to action to protect the quality of area waters and the environment in both present day and throughout their lifetimes.			
A39		Water Testing Clinics Septic Tank Installers Training.	* Helping landowners make good decisions with water supplies and on-site sewage systems, follow state and county rules.	* Several hundred private wells have been test with follow-up on those indicating issues * 54 on-site contractors have been trained for site evaluation and system selection			

	PURPOSE/ WHAT THIS ADDRESSES	**TOPIC/ PRACTICE**	**ACTIVITIES/ CHARACTERISTICS**	**KNOWN OUTCOMES/ IMPACTS**	**ANY FUTURE IMPROVEMENTS OR EXPANSIONS**		
A40		Abandon Well Plugging Program	Education of home owners and contractors on proper techniques for managing abandon wells	4 demonstration sites used			
A41		Watershed location education / signage	Education local community on the boundaries of the watershed drainage to caves and streams	Signage on roads as they cross the boundaries of drainage			

Appendix AA1

DSP-31 Sinkhole Improvement

Appendix AA1

DNR/SWCD Sensitive Areas Resource Concern

DSP-31 Sinkhole Improvement

Purpose

Prevent or reduce erosion and prevent or reduce pollution of the land or water from agricultural or silvicultural nonpoint sources.

Applicability

1. Limited to Cape Girardeau, Perry, and Ste. Genevieve counties.
2. Applies to specific problem areas on farms where runoff to sinkholes causes gully erosion and carries substantial amounts of sediment or runoff containing pesticides or nutrients, which constitute a significant pollution hazard.
3. According to the Geological Survey and Resource Assessment Division, the drainage modifications must not overwhelm the karst drainage system; and the use of the practice should be limited to sinkholes having chronic drainage problems that cannot be alleviated by other reasonable alternatives. Storm water drains or drainage wells should be kept as shallow as possible. They should serve to enhance entry of storm water into the caves, conduits or other openings that the sinkholes would ordinarily drain into even if the drainage structures were not used. Drains or drainage wells should not penetrate bedrock any appreciable depth and should not be used to drain storm water into zones deeper than the shallow karst drainage system.

Erosion Requirements

Practice is eligible for cost-share based on gully erosion. Post-installation erosion rates must be less than pre-installation erosion rates.

Gully Erosion Checks: PRE-INSTALL > POST-INSTALL

Specifications - http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/

The completed practice must meet the NRCS Standards and Specifications for Critical Area Planting (342), Filter Strip (393), and Vertical Drain (630) contained in the Field Office Technical Guide.

Policies

1. Cost-share is authorized for:
    a. Crevice-type sinkholes compatible with the proposed structures.
    b. Active gullies with an annual erosion rate of 10 tons or more.
    c. Sinkhole structures part of an approved conservation plan that addresses the entire sinkhole area.
    d. Critical Area Seeding. Permanent vegetative cover based on the Critical Area Seeding component.
2. Cost-share is not authorized for:
    a. Sinkholes utilized as garbage dumps or to dispose of other wastes and contaminates.
    b. Sites that receive runoff contaminated by animal waste from lots or buildings.

c. Vertical drains that would cause a change in water delivery, such as blocking a sinkhole and delivering runoff to a second sinkhole.

Maximum State Cost-Share

Assistance is limited to 75% of the county average cost, not to exceed the state average cost.

Map Requirements

A map that displays the completed practice must be scanned and attached as a “Map Document” in MoSWIMS prior to contract payment submission.

Technical Responsibilities

Technical staff has the responsibility for determining the need for the practice, for design of the practice based upon the minimum extent necessary, and to certify that the completed practice meets NRCS standards and specifications within commission policy.

Acres Served

Drainage Acres.

Extent Installed

Cubic Yards.

Maintenance Life

10 years.

Appendix AA2

BDSP-31 Buffer Sinkhole Improvement

STATEMENT OF WORK
Vertical Drain (630)
National Template

These deliverables apply to this individual practice. For other planned practice deliverables refer to those specific Statements of Work.

DESIGN

Deliverables:

1. Design documents that demonstrate criteria in practice standard have been met and are compatible with planned and applied practices
    a. Practice purpose(s) as identified in the conservation plan.
    b. List of required permits to be obtained by the client
    c. Compliance with NRCS national and state utility safety policy (NEM part 503-Safety, Section 503.00 through 503.6)
    d. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
        i. Hydrogeology
        ii. Sediment Removal
        iii. Materials
        iv. Environmental Considerations (e.g. water quantity and quality)
2. Written plans and specifications including sketches and drawings shall be provided to the client that adequately describes the requirements to install the practice and obtain necessary permits.
3. Operation and maintenance plan
4. Certification that the design meets practice standard criteria and comply with applicable laws and regulations (NEM Subpart A, 505.3).
5. Design modifications during installation as required

Note: *State-Specific Deliverables may be added as appropriate*

INSTALLATION

Deliverables

1. Pre-installation conference with client and contractor
2. Verification that client has obtained required permits
3. Staking and layout according to plans and specifications including applicable layout notes
4. Installation inspection
    a. Actual materials used
    b. Inspection records
5. Facilitate and implement required design modifications with client and original designer
6. Advise client/NRCS on compliance issues with all federal, state, tribal, and local laws, regulations and NRCS policies during installation
7. Certification that the installation process and materials meets design and permit requirements (NEM Subpart A, 505.3).

Note: *State-Specific Deliverables may be added as appropriate*

CHECK OUT

Deliverables

1. As-built documentation
    a. Extent of practice units applied
    b. Drawings
    c. Final quantities
2. Certification that the installation meets NRCS standards and specifications and is in compliance with permits
3. Progress reporting

Note: *State-Specific Deliverables may be added as appropriate*

STATEMENT OF WORK
Vertical Drain (630)
National Template

REFERENCES

- Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard – Vertical Drain, 630.
- National Engineering Manual
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook

Note: *State-Specific references may be added as appropriate*

Appendix AA3

Landowner Meeting History

Landowner Meeting History

- Landowner Meeting – Perry County Karst Overview, Perryville MO. April 2005, 12 people in attendance.
- Landowner Meeting – Perry County Karst Overview, Perry County Soil and Water Conservation District Annual Meeting, March 2007, Approximately 230+ people in attendance.
- Landowner/Homeowner Meeting on the Perry County Karst was held in Perryville on May 15, 2007, 8 citizens attended. Water quality and karst publications were distributed to those attending.
- Landowner/Homeowner Meeting on the Perry County Karst was held in Perryville on August 15, 2007, 10 citizens attended. Water quality and karst publications were distributed to those attending.
- Local news station produced a segment on grotto sculpin and the Perry County Karst that was aired in October 2007.
- Landowner Meeting – Perry County Karst Issues and Concerns, Perry County Soil and Water Conservation District Annual Meeting, March 2008, Approximately 200 people in attendance.
- Perry County Soil and Water Conservation District and Missouri Department of Conservation – Informational Booth on Perry County Karst, East Perry Community Fair September 2008, Approximately 5000+ in attendance.
- Local NPR radio station KRCU conducted a radio interview in Tom Moore Cave that focused on the Perry County Karst and cave fauna, August 2009.
- Informational Booth on Perry County Karst and Water Quality Issues, East Perry Community Fair, September 2009, Approximately 5000+ in attendance.
- Presentation on GIS information and water quality issues to the Southeast Regional Planning Commission in Perryville, October 2009.
- Presentation on “Issues and Remedies for Our Water” was given at the Perry County Soil and Water Conservation District Annual Meeting, March 23, 2010, approximately 230+ in attendance.
- Informational Booth on Perry County Karst, Water Quality Issues, and The Relationship of Sinkhole Buffer Strips to Crop Profitability and Water Quality, East Perry Community Fair, September 2010, Approximately 5000+ in attendance.

Appendix B

Perry County Recycle

Appendix B

Recycle Program

B1 - Recorded data from Perry County Transfer Station for the years 2006 – 2011

A total of **87,696 tons** of landfill debris has been received at our transfer station during this 6-year period; an average of 14,616 tons per year or **1218 tons** per month. This is the amount on which the County has paid to be transported to an active landfill site.

B2 - Officials in Perry County and the City of Perryville realized the need for recycle efforts. So, after a team of six volunteers for months visited other communities already doing recycle services and detailing items to be recycled, it came to pass that on October 30, 2000 the Recycle Center was opened. During the first year over 692,473 pounds or **346 tons** was recycled. As you see, recycling has had a great increase of support over the years since.

B3- This report reflects the same period of 2006 – 2011 so that the amount of debris which remained out of the landfill can be noted.

Glass	699.56T	Magazines	418.26T	Newspaper	619.52T
Cardboard	5,473.12T	Assorted Plastics	191.98T	Office Paper	351.26T
Chip Board	9.67T	Tin Cans	34.40T	Steel Cans	31.45T
Alum Cans	9.24T	Sheet Alum	495 #	Alum Foil	94 #
Alum Cast	366 #	Batteries	64 #		

TAG	Purpose/What this addresses	Topic	Activities/Characteristics	Known outcomes/impacts	Any future improvements or expansions
B4	**Decrease trash in landfill**	Recycling program	E-waste program; city/county resident clean-up day annual in April, Hazard Waste – ½ day community participation	7,839 tons of trash recycled and not in landfill.	"Old Tire Clean-Up" in 2013

B5 - In order to decrease the trash at our transfer station, Perry County implemented several recycling programs and annual clean-up days.

These programs have kept a minimum of **7,839 tons** of trash out of our landfill and increased community awareness of recycling.

B6 - In August 2010 an E-cycle Program began. In 2010 there were 27 Monitors, 36 TVs, and 2 Laptops brought to the Recycle Center;

In 2011 there were 61 Monitors, 26 TVs received in the E-cycle Program.

Please note that due to the data for 2012 not being completed, partial year records are not entered for comparison.

The programs have been so successful that we are expanding them to include an "Old Tires Clean Up" planned in August 2013.

Future actions cannot create economic hardship, nor limit industry. A healthy community strives to help itself keep **clean!**

Appendix C

City of Perryville

Appendix C

City of Perryville

#	TAG	Purpose/What this addresses	Topic	Activities/Characteristics	Known outcomes/impacts	$ cost/Any future improvements or expansions
C1	**AN**	**Decrease trash in landfills**	Recycling program	In December 2005, City of Perryville and Perry County jointly begin recycling program pilot. In October 2006, City of Perryville makes recycling program permanent by ordinance and pledges staff and equipment support.	14,000 tons of trash recycled and not in landfill annually	County cost $28,000 per yr.
C2	**AN**	**Hazardous Waste in landfill**	E-Cycling and hazardous household waste	In 2010, the community began promoting regular collection events for household hazardous waste, e-waste (e.g. electronic equipment and appliances), tires and prescription drugs		
C3	**AO**	**Clean Air**	Ozone	Facing a possible nonattainment Area designation, Perry County community formed SE Missouri Air Quality Committee, a business and government task force to address this ozone concerns. Perryville Board of Alderman passed Resolution #2008-04 to support position		

				paper and this group, led by SEMO RPC, was recognized with a 2010 NADO Innovation Award for its efforts.		
C4	**AP**	**Surface Water Runoff**	Perryville Code of Ordinances, 12.12.010	Policy Definitions include items such as sinkhole, storm water, surface water and watercourse.		
C5	**AP**	**Surface Water Runoff**	Perryville Code of Ordinances, 12.12.020	Policy states obstructions of watercourses and sinkholes prohibited		
C6	**AP**	**Surface Water Runoff**	Perryville Code of Ordinances, 12.12.030	Provides violations of Surface Water Runoff policy prosecutable as a public nuisance		
C7	**AP**	**Surface Water Runoff**	Perryville Code of Ordinances, 12.12.040	When issuing a building permits, city administrator shall ensure "adequate provisions are made to protect the watercourse or sinkhole from any work being performed pursuant to the building permit" and provisions for the applicant to, "guarantee that the work will not interfere with the use of the watercourse or sinkhole."		
C8	**AP**	**Surface Water Runoff**	Perryville Code of Ordinances, 12.12.060	Policy states, "Any person who shall destroy, tear up or otherwise injure, or fill up or otherwise obstruct any sewer, gutter, trench or channel dug, made or used for the purpose of carrying off water		

				from or draining any street within the city shall be deemed guilty of a misdemeanor."		
C9	**AQ**	**Sewer problem**	Letter	Code Enforcement officer letter sent to landowners concerning sewer violations on their property, pursuant to section Perryville Code of Ordinances 13.16.120. This letter follows prior unsuccessful attempts by Water/Wastewater Superintendent to achieve property owner's compliance with the same. Problems are identified through City "smoking" lines in storm water basins throughout town.		
C10	**AR**	**Annexation**	Copy of several annexation ordinances	Documented history of the City annexing property to allow property owners access to the City of Perryville's sewer system		
C11	**AS**	**Water System Supply Study**	Letter	City contracted with Horner and Shrifrin, Inc. to study utility capacities for proposed Liberty Green Renewables site for biomass energy facility; study revealed system had sufficient capacity (estimated need of 604,050 gallons/day)		
C12	**AV**	**Ordinance Combining Waterworks and**		Ordinance provided for combined water and sewer utility system.		

		Sewage System;				
C13	**A**	**The Land Subdivision Regulations of Perryville, Missouri**	Originally Adopted in March 15 1979	This provides for the land development policies of the Perryville Board of Alderman. It is revisited regularly and was last amended December 2011		
C14	**B**	**Surface Water Policy**	In place since June 1988 but officially adopted by Board of Alderman on February 7, 1990	Policy includes statement, "It is essential for the benefit of the entire population to undertake to manage and control development and activities that affect major sinkholes, water courses and surface streams as the improper management thereof will directly affect the economic development, commercial propriety and quality of life of all citizens of the City." Includes surface drainage map.		
C15	**AG**	**Sludge Mgt Plan**	Feb 1991	City contracted with Burns and McDonnell to develop policy for land applying sludge. It was reviewed and approved by Missouri Department of Natural Resources. Narrative includes a general discussion, summary of current Sludge Processing/Disposal Land application considerations and site considerations.		
C16	**C**	**Fifth Revision of Street Policy**	Adopted August 1, 2000	Established design and construction standards for City streets and states, "the	City devised plan to use only special	

		Preamble		construction of streets with concrete curb and gutters and storm water facilities…aids in the correction of storm water problems…"	assessment for improvement portions of the MO State Statute to improve streets	
C17	**D**	**Sinkhole Repair at Higher Education Center**	Ordinance NO 4290 Bill NO 4044	City accepted easement from the Congregation of the Mission, Midwest Province to provide for sinkhole repairs and maintenance. The City has hundreds of similar sinkhole easements through town.		
C18	**E**	**Enterprise Zone funding**	**October 18, 2005**	Alderman Prost discussed newly proposed Enterprise Zone funding. The present Enterprise Zone would expire in 2006, and the city would not quality for an Enterprising Zone within the City limits. However, the City could qualify for an Enterprise Zone outside the City limit yet inside Perry County.	Alderman Dunlap made a motion and it was seconded by Alderman Leible, "to send a letter to Larry Tucker, Perry County Industrial Development Authority Director, indicating that the City of Perryville is in support of an Enterprise Zone."	
C19	**F**	**Walgreen Store and Gilster Mary-Lee (GML) detention**	**Notter letter dated July 18, 2006; GML site plan undated (circa 2010)**	Letter from John F. Notter, partner in the Blackstone Group; Re: Walgreens store. Includes conceptual site plan (sheet AO-1 Site Plan B) last revised June 27, 2008.	Surveying and civil work will be done by Baer Engineering. Also requests that the City	

		basin area		"…conducting the due diligence such as environment Phase I, geotechnical, title, etc." Both plans included detention basins in plan for storm water concerns.	consider participating in a new proposed thru street.	
C20	**G**	**Construction of the City of Perryville Ind. Park Lift Station**	**Notice to proceed**	In connection with the construction of the City of Perryville Industrial Park Lift Station. NOTICE TO PROCEED to Naeger Brothers Excavating, Inc. May start work by February 17, 2006; date of completion estimated May 17, 2006		
C21	**H**	**Recreational Hiking & Biking Trails (Shared Use Path)**	**Grant award letter from MoDOT dated September 26, 2007**	Project was a progressive recreational trail through City Park. Letter explaining obligation of federal funds for construction authorization for project STP-5000(005). City must advertise for bids. Contractors must be MoDOT approved. Attached is a copy of the FHWA Cost summary.		
C22	**H**	**Shared Use Project**	**Bid award letter for Shared Use Paths Project (described above), dated December 19, 2007**	Letter to Mr. Randy Lappe of Lappe Cement Finishing, Board of Alderman executed an agreement in the amount of $365.169.56. Includes copies of agreement and Notice to Proceed.		
C23	**I**	**Storm Water Improvements**	**Ordinance 5039** **Bill NO 4803**	Hume Street and Old St. Mary's Road Storm Water Improvements: An agreement was set between the City of Perryville and the owner of Clifton Farms,		

				Inc. ($20,021.50) Employer's Affidavit, Employment Verification, & Certificate of liability insurance. Project added storm water inlet to street to divert storm water through Northdale Park.		
C24	**J**	**Perryville/Sabreliner Waste Water system Improvements**	letter to Business and Community Services, Jefferson City dated July 30, 2009	Informing that the City was awarded a CDBG grant to make wastewater system improvement to assist Sabreliener Corporation in an expansion which will create approximately 23 new jobs.		
C25	**K**	**Dry Run Branch Improvement Project**	Ordinance 5055 Bill 4819	An agreement between the City and Christisen Enterprises, LLC. ($14,925.25) to address erosion concerns along the banks of Dry Run Branch.		
C26	**Z**	**Karst Dye Tracing of Perry County area caves**	November 2010	Joint report by Philip Moss, PG, and Brad Probst, Missouri Department of Conservation. Report summarizes study of groundwater movement in Perry County and goes into detail of which areas were dye tested (includes Blue Spring Branch, Apple Creek and Cinque Homes Creek), the outcome and recommendations.	SEE SCAN Z	
C27	**L**	**Grand Ave. Sewer Replace Project**	Ordinance 5164 Bill 4929	2010 project for Grand Avenue Sewer Replacement Project: An agreement between the City and Lappe Cement Finishing, Inc. ($73,400.45). This area had		

				been identified for replacement partially due to known Inflow and Infiltration issues.		
C28	**M**	**Proposed I-55 Interchange**	Documentation showing the community's ability to collaborate to address issues and problems	The City of Perryville facilitated a meeting of community organizations (Board of Aldermen, Perry County Commission, Perryville Development Corporation, Economic Development Authority, Chamber of Commerce, School District #32 and Planning & Zoning Commission) to settle long standing debate over a preferred new I-55 interchange. Includes letters of "thanks" to Mr. Jay Lancaster, Dept. of Transportation, and Mr. Craig Brewer, Brewer Law Firm, for helping at the meeting November 30, 2010, to select the T road option as the preferred site for an additional Interstate interchange; a letter announcing the meeting on November 30, 2010; sign in sheet of who attended the meeting.		
C29	**N**	City of Perryville Comprehensive Plan: Prepared by the Southeast Missouri Regional Planning Commission.	Circa 2011	Land Use: Inventory and Analysis – The focus of the effort was to determine whether uses were correctly shown. Where errors were found, the necessary corrections were made. The survey was conducted in the City of Perryville and in the unincorporated area one mile around	Part of Summary: These cave systems serve much the same purpose as streams in other parts of the state. Development in the wrong area can	

				the City limits.	result in urban flooding and possible collapse of sinkholes under buildings. It can also result in street flooding and cause damage to utilities. As a result, the City has an active policy of protecting sinkholes and drainage areas.	
C30	**O**	Land and Water Conservation Fund (LWCF) Outdoor Recreation Grant	Assorted Reports, submitted August 14, 2012	Post-Completion, Self-Certification Reports for the following: Perryville City Park, Bank of Missouri Soccer Park, Chamber of Commerce Park, School Street Park, Viola Blechle Park, Northdale Park.		
C31	**P**	P.A.T.H Grant	Ordinance 5060 Bill 4824	An agreement between the City and The Missouri Foundation for Health relative to Grant Award (P.A.T.H. Grant). Also includes letter to future gardeners announcing meeting to be held March 10, 2010 to promote community garden		
C32	**Q**	Scrap Tire Surface Material Grant	Ordinance 5126 Bill 4894	Agreement between the City and The Department of Natural Resources relative the Financial Assistance Agreement for Scrap Tire Surface Material Grant. Grant amount: $9,940; Grantee amount $6,620;		

				Total project $16,560. Project used recycle rubber from tires to create play surface for playground, first of 3 annual projects in the City of Perryville, beginning 2010		
C33	**R**	Pour in Place Playground	Ordinance 5234 Bill 4999	Agreement between the City and All Inclusive Rec, LLC, relative to Pour-in-place Playground, contracted installation of the Scrap Tire Surface Material Grant		
C34	**S**	Scrap Tire Surface Material Grant	Agreement	Agreement between the City and The Department of Natural Resources relative the Financial Assistance Agreement for Scrap Tire Surface Material Grant. Grant amount: $9,527; Grantee amount $9,528; Total project $19,055. Includes General Terms and Conditions.		
C35	**T**	Perryville Municipal Airport Crushed Aggregate Materials	Ordinance 5152 Bill 4927	Agreement between the city and Christisen Enterprises, LLC. Relative to Perryville Municipal Airport Crushed Aggregate Materials Project ($98,952). Overall this project located, cleaned and improved the storm sewer lines, added a lift station and completely replaced the sewer treatment plant at the airport.		
C36	**U**	Perryville Municipal	Ordinance 5174	Agreement between the City and Vern		

		Airport Wastewater Improvements	Bill 4939	Bauman Contracting, Co., relative to Perryville Municipal Airport Wastewater Improvements ($519,086). Overall this project located, cleaned and improved the storm sewer lines, added a lift station and completely replaced the sewer treatment plant at the airport.		
C37	**V**	Perryville Municipal Public Improvements	Ordinance 5175 Bill 4946	Agreement between the City and Lappe Cement Finishing, Inc. relative to Perryville Municipal Airport Public Improvements project ($486,431.42). This piece of the project included new concrete aprons and associated storm water inlets.		
C38	**W**	Airport Hanger Epoxy Floor Coating Project	Ordinance 5220 Bill 4985	Agreement between the City and Loyd Slinkard Painting Co., Inc., Perryville Municipal Airport Hangar Epoxy Floor Coating Project ($32,655). This piece of the project painted the floors of the new paint hanger with an epoxy sealant meant to further protect the water table in case of a paint or chemical spill.		
C39	**X**	Airport Hangar Wash Water Reclamation Equip	Ordinance 5270 Bill 5035	Agreement between the City and ETI Services, Inc., relative to assignment of contract, consent to assignment and acceptance if assignment for the		

				Perryville Municipal Airport Hangar Wash Water Reclamation system Equipment ($182,563). This treatment process conserved water and allowed for its reuse in industrial processes.		
C40	**Y**	Amendment #1 to State Block Grant	Ordinance 5360 Bill 5125	Agreement between the City and Missouri Highways and Transportation commission relative to providing Non-Primary entitlement funds for design fees associated with the runway safety area grading and airfield lighting improvements at the Perryville Municipal Airport.		
C41	**Y**	Additional Grant	Ordinance 5360 Bill 5125	The Commission grants to the Sponsor an additional sum not to exceed One Million Forty-three Thousand Five Hundred Eleven dollars ($1,043,511.00). This number represents the total cost of the electrical project, less the City's match.		
C42	**AA**	Annual Water Quality Report	2011 Report	Report shows annual water quality testing is done within the City of Perryville and also shows there was no violation during the 2011 calendar year.		
C43	**AB**	Perry County Sanitary Landfill	Invoice for March 2012	The Perry County Landfill contracts with the City of Perryville to haul leachate from the lagoon, located at the Perry County Sanitary Landfill for deposit and		

				treatment in the City of Perryville's Sewer System. Invoice provided for March 2012 as an example of this contract provides 53 loads were hauled representing 185,500 gallons at a total cost of $6,625.00		
C44	**AC**	Spoils application request	Various letter and reports	**June 7, 2012:** Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to 2019 E Harvest Circle to be used for filling depressions and gulleys. Summary: city policy allows individual property owners to request spoils such as dirt, or mud, concrete chunks, asphalt chunks, gravel or Street Sweeping to be delivered to their property to aid in erosion prevention. Policy also includes provision for land application of sludge.		
C45	**AC**	Spoils application request	Various letter and reports	**March 21, 2012**: Biosolids from the Wastewater Treatment Facility to be delivered to 595 Leisure LN to be used for pasture, hay.		
C46	**AC**	Spoils application request	Various letter and reports	**February 18, 2010:** Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to 700 South Shelby Street to be used for wood chips, clean dirt.		

C47	**AC**	Spoils application request	Various letter and reports	**January 21, 2010:** Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to property off HWY 61 South, abutting PCR 500 to be used for pasture grounds		
C48	**AC**	Spoils application request	Various letter and reports	**January 21, 2010:** Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to 7615 South HWY 51 to be used for fill.		
C49	**AC**	Spoils application request	Various letter and reports	**January 21, 2010**: Biosolids from the Wastewater Treatment Facility to be delivered to 7615 South HWY 51 be used for pasture ground.		
C50	**AC**	Spoils application request	Various letter and reports	**January 21, 2010:** Biosolids from the Wastewater Treatment Facility to be delivered off HWY 61 South, abutting PCR 500 to be used for pasture ground		
C51	**AC**	Spoils application request	Various letter and reports	**October 21, 2009**: Biosolids from the Wastewater Treatment Facility to be delivered to Pine Lane off HWY N to be used for crops		
C52	**AC**	Spoils application request	Various letter and reports	**December 23, 2008:** Biosolids from the Wastewater Treatment Facility to be delivered to 5359 HWY D to be used for forage crop.		

C53	**AC**	Spoils application request	Various letter and reports	**December 3, 2008**: Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to5232 North HWY 51 to be used for fill.		
C54	**AC**	Spoils application request	Various letter and reports	**July 16, 2008**: Biosolids from the Wastewater Treatment Facility to be delivered to 3231 HWY P to be used for hay.		
C55	**AC**	Spoils application request	Various letter and reports	**July 16, 2008:** DENIED Biosolids from the Wastewater Treatment Facility to be delivered to property located behind the 2200 block of West St. Joseph Street. The Board decided that the City would no longer accept applications for biosolids within the city limits.		
C56	**AC**	Spoils application request	Various letter and reports	**July 3, 2008:** DENIED Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to 1122 Rand.		
C57	**AC**	Spoils application request	Various letter and reports	**June 19, 2008**: Spoils of leaves and woodchips only to be delivered to PCR 704 and 2217 North Kingshighway to be used for a tree farm		
C58	**AC**	Spoils application request	Various letter and reports	**May 18, 2007**: Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered		

				to 157 Crosswinds LN (Union Town, MO) to be used for fill.		
C59	**AC**	Spoils application request	Various letter and reports	**Date unknown:** Spoils such as dirt, or mud, concrete chunks, or Asphalt chunks, gravel or Street Sweeping to be delivered to 73 Crosswinds LN (Union Town, MO) to be used for fill.		
C60	**AD**	Improving sinkholes	Letter dated August 2, 2012	Copy of a letter to an architectural design company providing design work for Industrial expansion. The letter included details on the City's standard for improving sinkholes and required detention basins.		
C61	**AE**	Discharge of sewage, wastes and polluted waters into natural outlet.	Perryville Code of Ordinances, Chapter 13.04.130	States, "It is unlawful to discharge to any natural outlet within the city, or in any area under the jurisdiction of the city, any sewage, industrial wastes or other polluted waters, expect where suitable treatment has been provided in accordance with the provisions of this chapter."		
C62	**AE**	Pollution of groundwater sources.	Chapter 13.04.140	States, "It is unlawful for any person to pollute groundwater sources by discharging sewage into any well, cistern, spring, sinkhole, cave, mine shaft, tunnel, pit, quarry or other excavation, or into any fissure or crevice leading to		

				underground waterbearing strata."		
C63	**AF**	Disposition of Sewage	Ordinance 1097 Bill 981 Section 7.01	Section 7.01 – It shall be unlawful for any person to place deposit, or permit to be deposited in any unsanitary manner upon public or private property within the City of Perryville or in any area under the jurisdiction of said City any human or animal excrement, garbage, or other objectionable waste. It shall be unlawful to discharge to any natural outlet within the City or in any area under the jurisdiction of the City, any sewage, industrial wastes, or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this ordinance.		
C64	**AF**	Disposition of Sewage	Ordinance 1097 Bill 981 Section 7.01 & 7.02	7.01 states, "It shall be unlawful for any person to place, deposit, or permit to be deposited in a unsanitary manner upon public or private property within the City of Perryville or in any area under the jurisdiction of said City any human or animal excrement, garbage, or other objectionable waste…" 7.02 states, "It shall be unlawful for any person, persons, firm, association, or corporation to pollute ground water		

				sources by discharging sewage into any well, cistern, spring, sink hole, cave, mineshaft, tunnel, pit, quarry, or other excavation, or into any fissure or crevice leading to underground water bearing strata."		
C65	**AH**	Contract between the City and G & C Contracting, Inc	Ordinance 4344 Bill 4099	Contract for 2003 sanitary sewer replacement for HWY 61 widening. ($120,219)		
C66	**AI**	Contract between the City and Naeger Brothers excavating, Inc	Ordinance 4368 Bill 4122	Contract for 2003 sanitary sewer repair project ($48,120)		
C67	**AJ**	Contract between the City and Naeger Brothers excavating, Inc	Ordinance 4450 Bill 4207	Contract for 2004 sewer repair project ($53,486)		
C68	**AK**	Contract between the City and Naeger Brothers excavating, Inc	Ordinance 4528 Bill 4285	Contract for 2004 sewer repair contract 2 ($99,218.12)		
C69	**AL**	Contract between the City and Sabreliner Corporation relative	Ordinance 5135 Bill 4900	20-year lease agreement between Sabreliner and the City of Perryville relative to the new paint facility located at the airport. Also included is a copy of a		

		to lease and agreement regarding Paint Shop		Sabreliner pamphlet promoting this facility.		
C70	**AM**	Outdoor/Open Burning	Ordinance 5096 Bill 4861	**Section 8.04.070** Outdoor burning furnaces—any furnace, stove or boiler designed to burn wood or other material for the purpose of heating a building where the unit is not located within a building intended for habitation by humans. Includes list of provisions what can be burned and required setbacks.		
C71	**AM**	Outdoor/Open Burning	Ordinance 5096 Bill 4861	**Section 8.05.10** Open Burning permit-open burning is prohibited within the city limits of Perryville without an open burning permit obtained from Missouri Department of Natural Resources. Includes a list of conditions for burning.		
C72	**AW**	Oaklane subdivision annexation	Agreement, circa 2007	Oaklane subdivision brought onto city system. The City bore the costs of these improvements and tax billed the associated properties. The agreement states, in part, "it is deemed necessary that sewers be constructed in the District Sewers No. 9C-1 as provided for in Chapter 88 of the Revised Statutes of the Missouri as amended, without delay, in order that the sanitary conditions existing		

				in said territory be improved…"		
C73	**AX**	Perry Park Center	Newspaper article May 13, 1999	$9.5 million Perry Park Center opens which is an exceptional facility for a community the size of Perry County.		
C74	**AY**	Pride in Park CTR	Newspaper article May 18, 99	Citizens express pride, joy in opening of Perry Park Center		
C75	**BA**	Perryville Area Career & Tech	Webpage, printed November 16, 2012	Courses offered at the Perryville Career & Tech Center includes Agriculture Education Courses such as Natural Resources Management, Horticulture, and Landscaping and Turfgrass Management		
C76	**BB**	TG to expand	Newspaper article March 20, 2012	Governor Nixon in Perryville to announce TG Missouri has plans to expand and add 200 new jobs over the next 5 years		
C77	**BC**	Forbes Article	Webpage, printed November 28, 2012	National article, "How a Small Town in MO Became a Manufacturing Oasis" celebrates and summarizes business practices and recruitment strategies that have made Perryville and Perry County successful in Industrial Development		
C78	**BD**	Surface Water Runoff Policy	Webpage ordinance printed December 26, 2012	City has extensive policies concerning Surface water runoff, obstruction of watercourses & sinkholes prohibited, building permits, posting of land &		

				obstructing drainage		
C79	**BE**	Street design standards	Webpage ordinance printed November 28, 2012	Existing city policy has street design standards that include curbs for storm water		
C80	**BF**	Perry County Memorial Hospital (PCMH) first in state to install 3T MRI	Newspaper article Nov 15, 2011	Shows progressive community in that local hospital was the first in the state to install this technology		
C81	**BG**	Perryville Police offer residents opportunity to safely dispose of prescription Medications	Webpage article printed November 28, 2012	City promotes safety of water supply by collecting old medications		
C82	**BH**	National Drug Take-Back Day	Newspaper article, printed April 20, 2012	Advertising for drug collection (allows for proper disposal of drugs to protect water quality)		
C83	**BI**	PD (Police Department) accepting unused, expired drugs	Newspaper article September 6, 2012	Allows for proper disposal of drugs protects water		
C84	**BJ**	PCMH (Perry County Memorial Hospital) Expansion Complete	Newspaper article March 27, 2012	Estimated $15 million hospital expansion completed in 2012		

C85	**BK**	Sabreliner restores former presidential helicopter	Newspaper article May 24, 2011	President Regan's helicopter was restored by Sabreliner to be displayed in museum		
C86	**BL**	Wal-mart site plans		In 1997, City required Wal-mart Supercenter to include a detention basin in their site design		
C87	**BM**	Open burning permit	Ordinance 4384 Bill 4141	Ordinance stopped people from burning in sinkholes		
C88	**BN**	Let's keep it clean Mud Festival	Magazine Article	City-sponsored free community event to promote recycling & curb side cleanup		
C89	**BO**	Berome Moore Cave	Magazine Article	Grand opening of cave celebrated by community, including Mayor Gahan		
C90	**BP**	Girl Scout troop Request	Journal of the Board of Aldermen (meeting minutes)	The Board of Aldermen approved request by local Girl scouts troop to paint notices on catch boxes. Goal was to alert community about storm water system being connected to water sources and should not be polluted		
C91	**BR**	Recycling Center	Newspaper Article September 21,2000	Perry County Recycling center opens; includes free curbside pickup for city residents		
C92	**BS**	Southeast University	Newspaper Article October 19, 2000	Southeast signs lease for Higher Education Center offering classes through both Mineral Area Community College		

				and Southeast Missouri State University		
C93	**BT**	County, city population	Newspaper Article March 22, 2001	County (8.9%) , City (10.6%) population shows significant growth		
C94	**BU**	Higher Ed Center	Newspaper Article September 20, 2001	Higher Ed Center receives $555,850 in tax credits from State of Missouri		
C95	**BV**	Gas bond issue proposed	Newspaper Article January 22, 2004	$3.7 million gas bond issue on April ballot to upsize gas lines to 8 inches		
C96	**BW**	Recycling center	Newspaper Article November 2, 2000	Perry County recycling center opens near Sereno		
C97	**BX**	Rezoning	Newspaper Article March 20 2001	P&Z approves rezoning for business expansion (McDonald's)		
C98	**BY**	Drinking water improvement	Newspaper Article October 12, 2000	Drinking water improvement project progresses as scheduled ($8.85 million water treatment plant)		
C99	**CA**	Sabreliner dedicates new paint hanger	Newspaper Article September 27, 2011	This included environmentally friendly systems (Wash water reclamation booth. Epoxy floor)		
C100	**CB**	Clippings cause problems for city	Newspaper Article October 2, 2001	Public Education article regarding grass clippings being blown into the street, includes City ability to ticket property		

				owners for noncompliance		
C101	**CC**	Drainage problem	Newspaper Article July 11, 2000	Excavation under way to correct drainage problem at Northdale Park – large basin located in a city park was excavated in hopes of rectifying some drainage problems		
C102	**CD**	Industrial water needs	Letter	City letter to TG Missouri states city will be able to meet the needs of the water supply under the current utility agreement		
C103	**CE**	Economic Development Authority Established	Newspaper Article, February 21, 1985	City and County work jointly to hire first Perry County Economic Development Authority (EDA) director		
C104	**CF**	Economic Development Progresses in Community	Newspaper Article, January 17, 1985	Highlights include motel construction, NPS expansion, restaurant & bar under construction, Hwy 51 bypass survey		
C105	**CG**	Loans, grants available in sewer extension areas	Newspaper Article May 15, 1985	Community obtained CDBG funds to assist low and moderate income families with sewer improvements		
C106	**CH**	Presidential award for spelunkers	Newspaper Article April 18, 1985	President Ronald Regan presents Tex Yokum receives Presidential Award for his work relating to locating and surveying Perry County caves		

C107	**CI**	Moore to visit Japan	Newspaper Article June 6, 1985	Progressive efforts to get business send EDA Director Diana Moore to Japan		
C108	**CJ**	More on TG	Newspaper Article July 1985	Three details remain for Japanese plant, provides additional details on the progress of landing TG Missouri		
C109	**CK**	More on TG	Newspaper Article July 26, 1985	Moore comments on rumors concerning plant location, provides additional details on the progress of landing TG Missouri		
C110	**CL**	Efforts to save downtown	Newspaper Article, Date Unknown (most likely appeared in the mid to late 80's)	Tour with Historic Preservation Professor to provide background for Downtown Revitalization talk		
C111	**CM**	Hwy 51 Bypass	Newspaper Article September 1985	Discussion with MoDOT indicates Highway 51 bypass to begin next year (1986)		
C112	**CN**	New businesses opening in Perryville	Newspaper Article May 1985	Community celebrates new businesses set to open—Best Western Motel & Dairy Queen		
C113	**CO**	Upgrade Industrial Park	Newspaper Article November 1985	City receives $282,040 CDBG to upgrade industrial park for a TG (Toyoda Gosei) expansion		
C114	**CP**	TG (Toyoda Gosei)	Newspaper Article October 1985	Toyoda Gosei officials announce Perryville plant; plant initially began on 12 acres of property and had 20 employees		

				(currently employees about 1400 employees from throughout the region)		
C115	**CR**	TG land purchase	Newspaper Article December 1985	Toyoda Gosei purchases land from the Perryville Development Corporation for $46,800		
C116	**CS**	KC housing project	Newspaper Article	Schemel is low bidder on KC housing project to deliver 33 low-income apartments to City of Perryville		
C117	**CT**	Crop workshop	Newspaper Article March 20, 1986	MU Extension offers specialty crop workshop at local extension office for growers to learn about alternative crops		
C118	**CU**	TG Groundbreaking	Newspaper Article, date unknown, estimated circa 1986	Governor Ashcroft to be here for TG groundbreaking		
C119	**CV**	Gas bond	Newspaper Article, date unknown, estimated circa 1986	$2.1 million gas bond issue vital to deliver gas to all parts of the City of Perryville; done in part to prepare for TG Missouri arrival		
C120	**CV**	Perry County caves	Newspaper Article	Professor Stanley Sides gives presentation to 4th graders regarding the tours and mapping he has done of Perry County caves		
C121	**CW**	Local Vo-ag program	Newspaper Article	District #32 instructor Marty Frick named		

			1986	outstanding vo-ag teacher; Vo-Ag program named best in the state		
C122	**CX**	Gas bond issue	Newspaper Article 1986	84% of Perryville voters approve $2.1 million bond issue, in part, to help provide needed capacity for TG Missouri		
C123	**CY**	KC Housing Project Groundbreaking	Newspaper Article 1986	Ground broken for K of C housing project Monday (33 low-income apartments)		
C124	**CZ**	Buchheit Inc. Groundbreaking	Newspaper Article 1986	Buchheit Inc. holds groundbreaking Tuesday to building 25,000 square foot building to replace store that burned about 3 months earlier		
C125	**DA**	Community Better Award Grand prize	Newspaper Article 1986	Perryville wins Community Betterment grand prize for 3rd time (most in the state)		
C126	**DB**	TG Installing equipment	Newspaper Article January 1987	TG Missouri installs equipment in preparation of plant opening		
C127	**DC**	Glister May-Lee expansion	Newspaper Article 1987	City helps facilitate Gilster May-Lee expansion by relocating water lines allowing for 56,000 square foot warehouse		
C128	**DD**	Water system project	Newspaper Article January 12, 1999	$8.85 million water system project begins to upgrade water supply; includes drilling two new deep wells, increasing size of impoundment on Saline creek and		

				construction of new water treatment plant		
C129	**DE**	Name chosen for multipurpose facility	Newspaper Article February 11, 1999	Community-wide contest to chose Perry Park Center as name for county's brand-new multipurpose facility		
C130	**DF**	Tank Removal	2009	City contracted with Herlacher Angleton Associates, LLC to remove underground fuel storage tanks at the airport		
C131	**N/A**	Mapping of sinkholes	Currently underway	The City contracted with SEMO RPC in December 2012 to completely map the City's sinkhole system. This mapping will include an overhead photograph delineating vegetative buffers for each sinkhole.		
C132	**DG**	Sinkhole Policy	Currently underway	Previous sinkhole policy and guidelines were less "formal" and largely unwritten. In light of this process, those practices are being formalized and will be presented to the Board of Aldermen for codification.		
C133	**N/A**	Hazmat Training	Ongoing	The Perryville Fire Department regularly sends firefighters to Hazmat Training in preparation for potential emergency situations with a minimum standard for all firefighters to receive Hazmat Awareness and Operations Training		

Appendix D

Perry County Health Department

Appendix D

Perry County Health Department

ACCOMPLISHMENTS OVER THE LAST 10 YEARS

- D1 - Oak Ln. Subdivision annexed into the City of Perryville and then connected into city sewer system (1997)
- D2 - Cities of Frohna and Altenburg established and completed community sewer system
- D3 - Monthly check with 911 office for new addresses in the county, we then notify the property owner of the State On-Site Sewage laws
- D4 - Small public waste water treatment system was installed at the lake community of Lake Kah-Tan-Da
- D5 - Added another Environmental Public Health Specialist to the County Health Department to enhance and assure that current laws and regulations are enforced
- D6 - Hosted on-site waste water installers educational training and conference
- D7 - Enforce state on-site sewage system program
- D8 - Provide one on one consultations with homeowners and installers to ensure correct installation, ie. Plan reviews
- D9 - Investigate waste water complaints
- D10 - Issue waste water violations and enforce compliance schedule
- D11 - Established and maintained on-site waste water records
- D12 - Provide permits to install on-site sewage systems in accordance with the Missouri State Laws
- D13 - Provide on-site evaluations and inspections to ensure compliance

- D14 - Emergency planning for safe wastewater disposal
- D15 - Required landscaping such as berms and curtain drains to divert surface water from infiltrating the on-site sewage systems
- D16 - Collaborate with soil scientists and professional engineers regarding the best design for the site
- D17 - Provide official free private drinking water analysis for coliform bacteria and inorganic substances completed by health department
- D18 - Provide individual homeowners with sampling bottles for coliform bacteria
- D19 - Provide drinking water consultations for homeowners and businesses
- D20 - Provide guidance and resources in response to DNR public drinking water boil orders
- D21 - Emergency planning for safe drinking water
- D22 - Collaborate with well drillers regarding drinking water issues
- D23 - Work with homeowners on well placement
- D24 - Establish and maintain private drinking water analysis records
- D25 - Communicable disease investigations of waterborne illnesses
- D26 - Consult and educate private homeowners on drinking water issues
- D27 - 2012 – 43 official water samples, 36 satisfactory (83.7%), 7 total coliform (16.2%)
- D28 - 2011 – 31 official water samples, 29 satisfactory (93.5%), 1 total coliform (3.2%), 1 E. Coli (3.2%)

	D29 - On-Site Sewage Systems - Installed and Replaced from 2002 – 2012								
	In Critical Habitat	Out of Critical Habitat	Replacement	New	Replacement In Habitat	Replacement Out of Habitat	New In Habitat	New Out of Habitat	Total
Residential	79	88	106	61	62	44	17	44	167
Business	10	10	9	11	2	6	8	4	20
Total	89	98	115	72	64	50	25	48	187

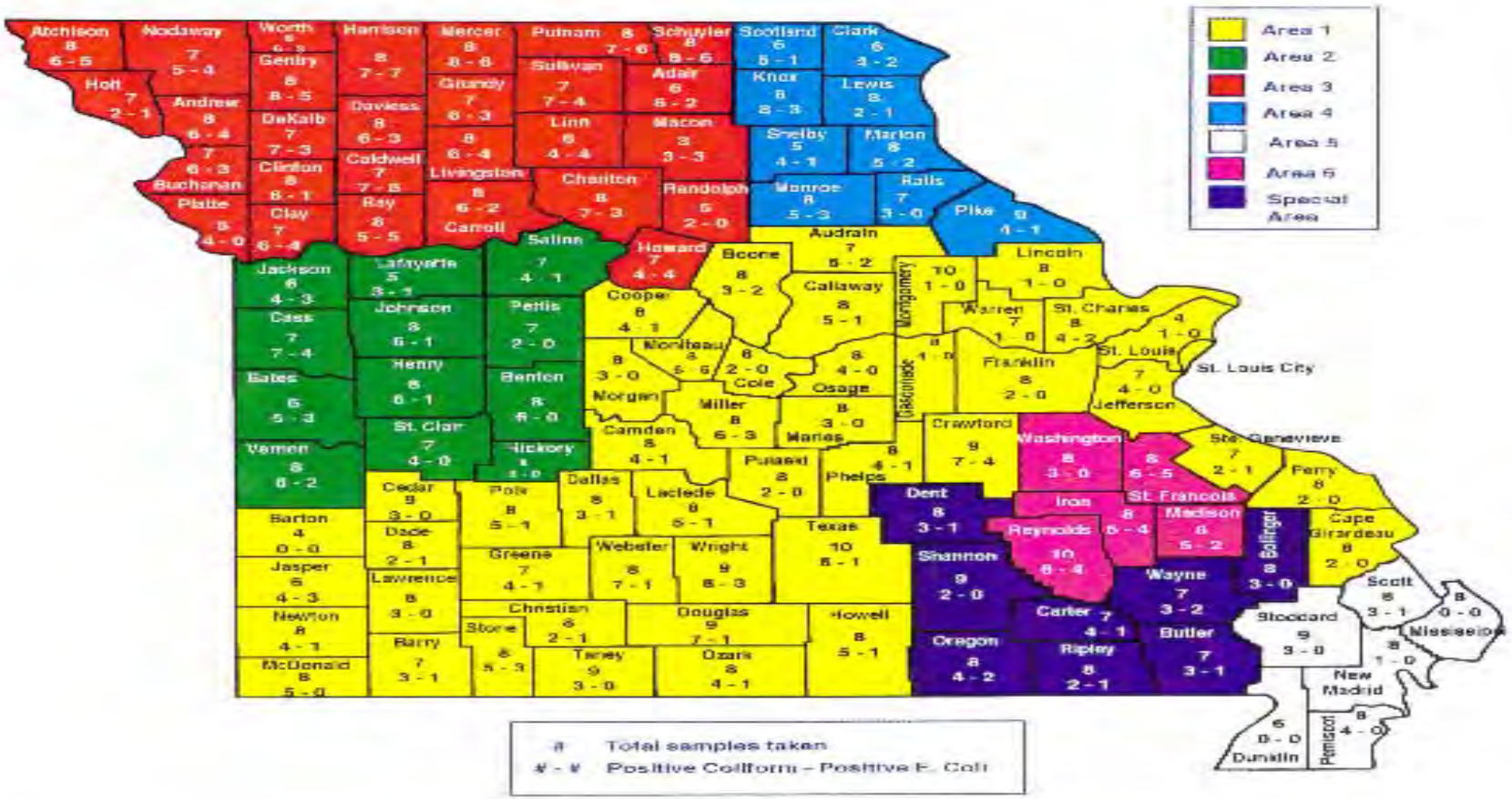
- D30 - 79 residential systems in the area at the rate of 240 gallons of wastewater per day
- D31 - 240 gallons estimated wastewater generated per household per day (conservatively figured at 2 bedrooms per household)
- D32 - 10 business systems in area at the rate of 100 gallons of wastewater per day (100 gallons is the minimum requirement for businesses)
- D33 - A minimum 45,674,640 gallons of residential water have been placed into on-site sewage systems since 2002 based on 240 gallons of wastewater per day per household.
- D34 - A minimum of 8,545,928 gallons of business water have been placed into on-site sewage systems since 2002 based on an average of 354 gallons of wastewater per day.
- D35 - A combined total of 54,220,568 gallons of residential and business wastewater have been placed into on-site sewage systems since 2002.

- D36 - A total of 96,552,720 gallons of residential wastewater have been placed into on-site sewage systems in the county since 2002.
- D37 - A total of 17,296,620 gallons of business wastewater has been placed into on-site sewage systems in the county since 2002.
- D38 - In the county a total of 113,849,340 gallons of wastewater has been placed into on-site sewage systems since 2002.
- D39 - 184 on-site sewage systems installed from 1997 to 2002 in Perry County, averaging a total of 48,355,200 gallons of wastewater was treated by an on-site sewage system in those five years.
- D40 - In 1994, the Missouri Department of Health and Senior Services conducted a statewide private water well survey – Perry County had a total of 8 samples collected, 2 tested positive for total coliform, 0 tested positive for E. Coli, 6 satisfactory, all 8 tested <0.1 mg/L for Atrazine, 3 tested <0.05 mg/L for Nitrates, the other 5 tested between 0.45 mg/L to 8.1 mg/L for Nitrates – Refer to Table #2 – State Water Well Survey 1994 – Perry County Results
- D41 - During this 1994 survey: St. Genevieve County had 7 total samples, 2 positive for total coliform, 1 positive for E. Coli; Madison County had 8 total samples, 5 positive for total coliform, 2 positive for E. Coli; Bollinger County had 8 total samples, 3 positive for total coliform, 0 positive for total coliform; Cape Girardeau County had 8 total samples, 2 positive for total coliform, 0 positive for E. Coli; St. Francois County had 8 total samples, 6 positive for total coliform, 5 of which were positive for E. Coli – Refer To Table #3 State Water Well Survey 1994
- D42 - The 1994 statewide water well survey map showing the Individual County Results for Coliform and E. Coli is enclosed. A**s the results show, Perry County was as good or better than most of the counties statewide.**

D43 - Table #2 – State Water Well Survey 1994 – Perry County Results					
	Total Samples	Positive for Total Coliform	Positive for E. Coli	Atrazine mg/L	Nitrates mg/L
Perry County	8	2	0	All <0.1 mg/L	3 - <0.05 mg/L
					5 - 0.45 mg/L to 8.1 mg/L

D44 - Table #3 – State Water Well Survey 1994			
	Total Samples	Positive for Total Coliform	Positive for E. Coli
St. Genevieve County	7	2	1
Madison County	8	5	2
Bollinger County	8	3	0
Cape Girardeau County	8	2	0
St. Francois County	8	6	5

Missouri
Individual County Results for Coliform and E.Coli



Areas on above map are a Department of Health modification of DNR drilling areas for private well construction.

Bureau of Community Environmental Health
September 9, 1991

Appendix DD1

Perry County Health Department

3 Year Plan

Appendix DD1

Perry County Health Department 3 Year Plan

PURPOSE/ WHAT THIS ADDRESSES	TOPIC	ACTIVITIES/CHARACTERISTICS	KNOWN OUTCOMES/IMPACTS	ANY FUTURE IMPROVEMENTS OR EXPANSIONS
Increase the number of approved on-site sewer systems	On-site sewer program	Funding/Education	Improved water quality, decreased surface and ground water contamination	
Increase the number of community sewer systems to include lake communities, villages and smaller populated areas	Waste water treatment	Funding	Improved water quality, decreased surface and ground water contamination, Protect public health	
Upgrade existing community sewer systems	Waste water treatment	Funding	Improved water quality, decreased surface and ground water contamination	
Expand free private drinking water sampling done by Perry County Health Department	Water Quality	Funding/Outreach	Improved water quality for private water systems which results in less aquifer contamination	
Increase private water sampling by individual homeowners	Water Quality	Funding/Education/Outreach	Improved water quality for private water systems which results in less aquifer contamination	
Upgrade and expand existing community water systems	Water Quality	Funding	Improved water quality	

Capabilities to sample surface and recreational waters by Perry County Health Department	Water Quality	Funding/Lab Availability	Improved public health, Increased water quality	
Develop educational and resource materials for new and current residents[1]	Education	Funding/Collaboration	Increased community knowledge of environmental responsibilities	
Local educational programs for on-site wastewater installers with site emphasis on Perry County topography and land characteristics	Education/Waste water treatment	Funding/Local and State collaboration	Increase knowledge and further advance installation technology of on-site sewer systems unique to Perry County, Improve water quality	
Public Information – Website, Social Media	Water Quality, Recycling, Waste Water treatment and Solid Waste Disposal, Environmental Responsibilities	Funding/Education	Increased awareness, Community involvement	
GIS mapping of private wells tested in Perry County with analysis results	Water Quality Mapping	Funding	Increased tracking of water quality	
GIS mapping of on-site sewer systems installed – Date installed, Type of System, Size	Wastewater Quality Mapping	Funding	Increased tracking of water quality	

GIS mapping of public water supplies in county	Water Quality Mapping	Funding	Awareness of public water service areas	
GIS mapping of public wastewater systems in the county	Wastewater Quality Mapping	Funding	Awareness of public wastewater service areas	

1. Perry County Health Department will develop an information pamphlet to distribute to Perry County residents. Pamphlet will include information on uniqueness of the counties topography. County rules and regulations and resources for recycling, trash pickup services and other opportunities for such within the community.

ACCOMPLISHMENTS OVER THE LAST 10 YEARS

- Oak Ln. Subdivision annexed into the City of Perryville and then connected into city sewer system (1997)
- Cities of Frohna and Altenburg established and completed community sewer system
- Monthly check with 911 office for new addresses in the county, we then notify the property owner of the State On-Site Sewage laws
- Small public waste water treatment system was installed at the lake community of Lake Kah-Tan-Da
- Added another Environmental Public Health Specialist to the County Health Department to enhance and assure that current laws and regulations are enforced
- Hosted on-site waste water installers educational training and conference
- Enforce state on-site sewage system program
- Provide one on one consultations with homeowners and installers to ensure correct installation, ie. Plan reviews
- Investigate waste water complaints
- Issue waste water violations and enforce compliance schedule
- Established and maintained on-site waste water records
- Provide permits to install on-site sewage systems in accordance with the Missouri State Laws
- Provide on-site evaluations and inspections to ensure compliance
- Emergency planning for safe wastewater disposal

- Required landscaping such as berms and curtain drains to divert surface water from infiltrating the on-site sewage systems
- Collaborate with soil scientists and professional engineers regarding the best design for the site

- Provide official free private drinking water analysis for coliform bacteria and inorganic substances completed by health department
- Provide individual homeowners with sampling bottles for coliform bacteria
- Provide drinking water consultations for homeowners and businesses
- Provide guidance and resources in response to DNR public drinking water boil orders
- Emergency planning for safe drinking water
- Collaborate with well drillers regarding drinking water issues
- Work with homeowners on well placement
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- 79 residential systems in the critical area at the rate of 240 gallons of wastewater per day
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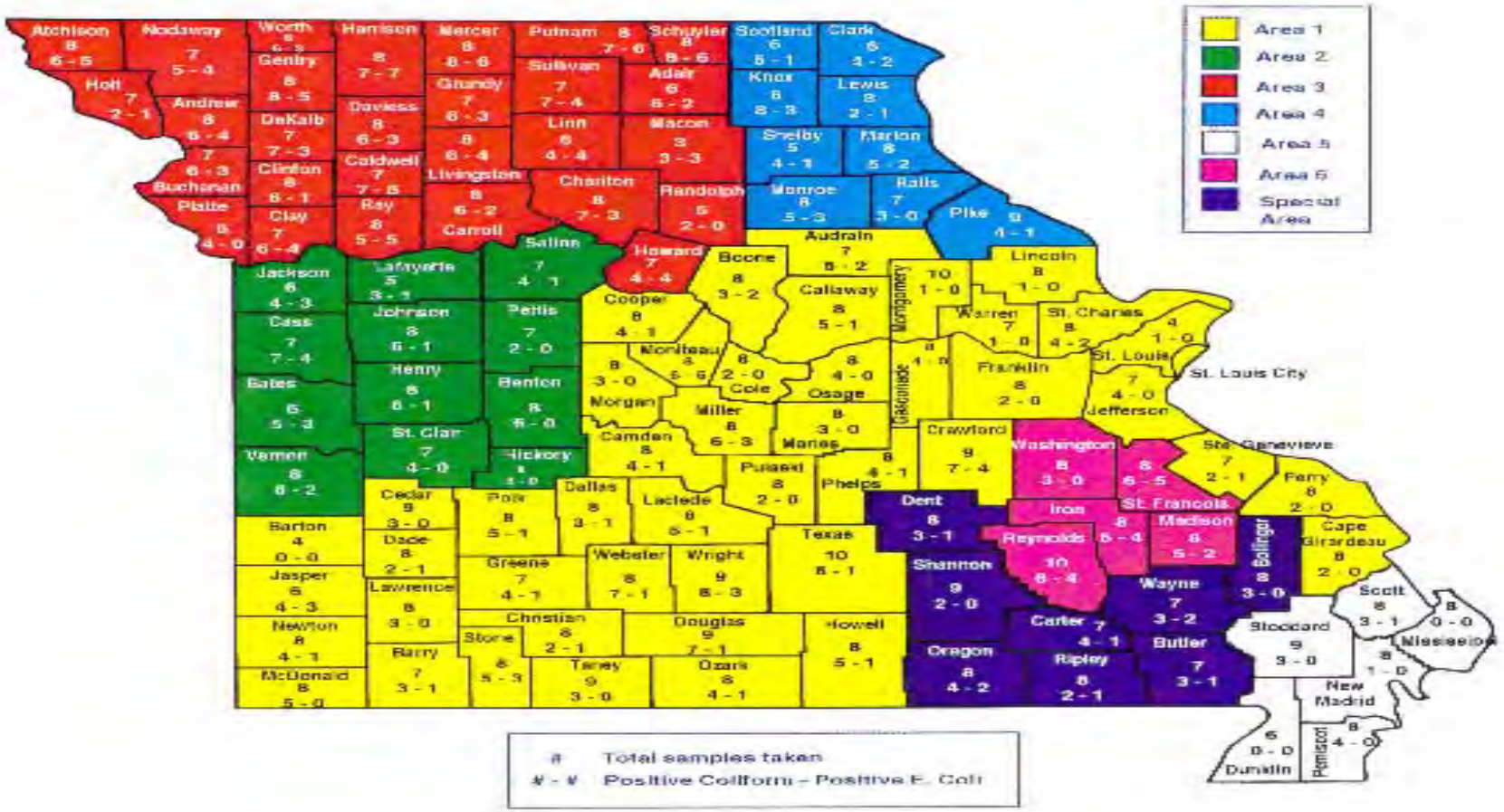
Missouri
Individual County Results for Coliform and E.Coli



Areas on above map are a Department of Health modification of DNR drilling areas for private well construction.

Bureau of Community Environmental Health
September 9, 1991

Appendix E

Southeast Regional Planning &

Economic Development Planning Agency

Appendix E

Adapted From David Grimes, SEMO Regional Planning

Perry County History of Environmentally Sensitive Activities

Perry County is generally rural. Of a total population of 18,971 persons (2010 Census data), 8,225 persons resided within the City of Perryville. The remaining population is dispersed in smaller incorporated communities and the unincorporated areas of the County.

Most directly related to the *grotto sculpin* habitat, both the City of Perryville and Perry County have a long history of working to protect and maintain the environment. Specifically:

E1. Local recycling – Perry County has sponsored and supported the Perry County Recycling Center since its inception. City and county funding was required to get the program started and it is now essentially self-supporting. This program has been so successful that a recent grant obtained from the Southeast Missouri Solid Waste Management District will help fund an expanded facility since the existing building has been outgrown.

E2. Regional recycling – Perry County and the City of Perryville are both members of the Southeast Missouri Solid Waste Management District. They have participated in the District to a level that the Chairman of the District, in fact, is an Associate Commissioner from Perry County.

E3. County-wide tire Collection – Perry County, like all rural areas, suffers from scrap tire accumulation. These scrap tires are environmental hazards for several reasons. They are virtually indestructible. Given their shape they are natural water traps and, as such, natural mosquito breeding grounds. They also harbor other pests. Perry County has demonstrated awareness and planning by arranging for a scrap tire cleanup event to be held in the Summer of 2013 in cooperation with the Missouri Department of Natural Resources.

E4. Air quality committee – Perry County, along with Ste. Genevieve County to the north, contain air monitors that test for ground-level ozone. When new National Ambient Air Quality Standards (NAAQS) were issued in 2008 it appeared that one or both of these counties might be designated as nonattainment areas. An *ad hoc* committee was formed to address these concerns. Once the final designations were made under that NAAQS the *ad hoc* committee was formalized as the Air Quality Committee of the Southeast Missouri Regional Planning Commission. This committee has demonstrated a true private/public partnership in the most direct way possible – funding has been provided 50-50 by local governments and private sector contributors. At present, the Chair of this committee is the Mayor of Perryville. In 2010 this committee provided oversight in the preparation of a Clean Air Action Plan for the Region. That plan has received formal Resolutions of Support from all seven member counties and all of the larger communities. The plan received an Innovative Program award from the National Association of Development Organizations.

E5. Air quality committee – the Air Quality Committee recently recommended to the Board of Directors of the Southeast Missouri Regional Planning Commission that staff be authorized to move ahead with seeking acceptance into the U.S. Environmental Protection Agency's Ozone Advance program. The necessary applications were prepared and the Commission has been accepted into the program. The Mayor of Perryville, as Chair of the Air Quality Committee, has been an active participant in the preparation of the "path forward" under this program which will be submitted to EPA early in 2013.

E6. Air Quality – Diesel emission reduction act. The City of Perryville and Perry County are both participating at present in a program with the Missouri Department of Natural Resources to install Diesel Oxidation Catalysts on publicly owned vehicles. These improvements will protect the air quality.

E7. Energy conservation – One of the best, most cost-effective ways to protect the environment is to conserve energy. To that end both Perry County and the City of Perryville, along with the Perryville School District, participated during the past two years in a program developed by the Southeast Missouri Regional Planning Commission to replace old, relatively inefficient fluorescent lighting with new, modern, high-efficiency fluorescents.

E8. Water quality – The Perry County Health Department has developed a formal 3-Year Plan. This plan includes 18 separate identified elements focused on water quality issues. These range from improving/upgrading potable systems to increasing/upgrading sewer/septic systems to mapping systems. A large education/outreach component is also included in the health department's plan.

E9. Water quality – The Perry County Health Department undertakes a monthly check with the E-911 office for any new addresses in the county. Notification is sent to property owners of the Missouri On-Site Sewage laws. To support this effort the Perry County Health Department has added a Public Health Specialist to review and enforce sewage regulations. This program includes one-on-one counseling and plan reviews.

E10. Water quality – The Perry County Health Department investigates any waste water complaints and issues violations when warranted.

E11. Water quality – The Perry County Health Department has established and maintains on-site waste water records.

E12. Water quality – The Perry County Health Department provides permits to install on-site sewage systems and provides on-site evaluations and inspections to ensure conformance with relevant laws. Specifically included are requirements for appropriate berms or curtain drains to divert surface water from infiltrating on-site sewage systems.

E13. Water quality – The Perry County Health Department works with soil scientists and professional engineers regarding the best design for a site.

E14. Water quality – The Perry County Health Department provides free drinking water analysis, including sampling bottles, for coliform bacteria and inorganic substances.

E15. Water quality – The Perry County Health Department provides drinking water consultation for homeowners and businesses.

E16. Water quality – The Perry County Health Department collaborates with homeowners on well placement and with well drillers regarding drinking water issues.

E17. Water quality – The Perry County Health Department has established and maintains private drinking water analysis records and consults and educates private homeowners on drinking water issues.

E18. Private Industry – Private industries in Perry County have been, by policy, good environmental corporate neighbors. The Saberliner Corporation, for example, went to added expense of a completely sealed and impermeable envelope for their new paint booth when they expanded in 2010-11.

E19. Economic Development – Perhaps the best example of local forward thinking, coordination and cooperation is in the arena of economic development. For almost 90 years the City of Perryville, the Perry County Commission and the local business community have worked together to promote the development of the area. The essential timeline is:

- 1923 – The Perryville Chamber of Commerce formed specifically to promote the "betterment of Perryville."
- 1925 – Efforts by the Perryville Chamber of Commerce were successful when International Shoe Company opened a manufacturing operation in a building that the Chamber had constructed.
- 1939 – International Shoe Company opens a second plant in another building financed and constructed by the Perryville Chamber of Commerce.
- 1954 – The Perryville Development Corporation was established specifically to promote future industrial development. The Perryville Chamber of Commerce shifted focus to local business and community promotion.
- 1957 – The Perryville Development Corporation succeeds in bringing Premier Panels Company of St. Louis to a new building that the Development Corporation financed and constructed. That building is still being used today by Gilster-Mary Lee Corporation.
- 1960 – The Perryville Development Corporation invests in a new start-up company called Gilster-Mary Lee Corporation. This business is the largest single employer in the County today, and provides food products to a national market.

- 1964 – The Perryville Development Corporation purchased a tract of land north of Perryville which became the core of the present-day industrial park.
- 197? – The Perryville Development Corporation purchased and improved the Perryville Airport as a direct support for Saberliner Corporation.
- 1980 – The Perry County Industrial Development Authority was formed. This county-controlled entity completes the "triad" of development. The Industrial Development Authority focuses on recruitment and development, the Development Corporation continues to provide the financing for physical plant development, and the Chamber of Commerce continues to promote the local business community.
- 1986 – The Perry County Industrial Development Authority succeeds in attracting Toyoda-Gosei (later TG USA) after several marketing trips to Japan. This company continues to be a major employer.
- 1993 – The Perryville Development Corporation financed the construction of a "spec" building. Initial occupant was Tennessee Corrugated Box Company. The building is used at present as a Gilster-Mary Lee facility.
- 2002 – The Perryville Development Corporation was the key player in establishing the Perryville Higher Education Center which houses remote campuses for Mineral Area College and Southeast Missouri State University. Over $600,000 was invested in this project.
- 2008 – The Perryville Development Corporation donated land for a new water tower at the Perryville Industrial Park.
- 2011 – The Perryville Economic Development Authority was created. This new organization cements the long-standing cooperation. Under the cooperative agreement:
    - Perry County
    - City of Perryville
    - Industrial Development Authority
    - Perryville Development Corporation

All agree to work together under the auspices of a single entity to cooperate in economic development projects.

Appendix F

Community Funds Leveraged

Appendix F

PROJECTS FUNDED (Courtesy Chauncy Buchheit SEMO Regional Planning)

TAG	DATE	GRANT RECIPIENT	TYPE PROJECT	PROJECT DESCRIPTION	TOTAL PROJECT COST	FUNDING AGENCY	AMOUNT OF GRANT/LOAN	AMOUNT OF LOCAL FUNDS	OTHER GRANT FUNDS	PRIVATE FUNDS	JOBS CREATED SAVED
F1	**Nov-75**	Perry County	Park	Funding will be used for the acquisition of land for park expansion.	49,426	Mo. Bureau of Outdoor Recreation	24,713	24,713			
F2	**May-79**	City of Perryville	Park	Funding will be used to develop a vest-pocket park.	124,440	Heritage Conservation Recreation Service	62,220	62,220			
F3	**Sep-90**	City of Perryville	Water	Funding will be used to extend a water line to the airport and to extend the runway at the airport.	2,551,180	EDA	1,386,439	1,164,741		2,500,000	300

F4	**Mar-94**	Perry County	Flood	Funding will be used to acquire and demolish 42 flood-damaged residential parcels.	586,347	FEMA	150,455		319,768	
F5	**Apr-94**	Perry County	Flood	Funding will be used for the reconstruction of the Bois Brule Levee & Drainage District levee which was breached during the flood of 1993.	358,000	CDBG	358,000	0		
F6	**Sep-94**	City of Perryville	Flood	Funding will be used for the repair/rebuilding of hangars at the Perryville Municipal Airport damaged by the flood of 1993.	625,000	CDBG	625,000	0	1,562,500	350
F7	**Sep-94**	City of Perryville	Manufacturing Expansion	Funding will be used to provide a low interest rate loan to TG (USA), Inc. for a plant expansion.	5,000,000	CDBG	5,000,000	0	12,500,000	167

F8	**1-Oct**	City of Perryville	Higher Ed Center	Funding will be used to upgrade the former library building at the Seminary of St. Mary of the Barrens for use with the Center for Industry and Education.	2,076,002	MO. Development Finance Board	1,111,700	964,302	
F9	**2-May**	City of Altenburg	Sewer	Funding will be used to construct a sewage collection system for the City and a treatment plant in conjunction with the City of Frohna.	1,432,200	USDA Rural Development	1,367,000	65,200	
F10	**4-Jan**	Perry County	Hazard Mitigation	Funding will be used to prepare an all-hazard mitigation plan for the County.	15,450	SEMA	15,450	0	

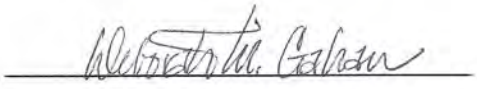
F11	**4-Oct**	City of Perryville	Road	Funding will be used to construct a turn lane to serve TG Missouri.	257,140	Delta Regional Authority	25,000	232,140		257
F12	**5-Jun**	City of Perryville	Transportation Enhancement	Funding will be used to construct a hiking/bicycle trail to connect City parks.	461,250	MoDOT	296,000	165,250		
F13	**6-Aug**	Perry County/SEMCO	Road	Funding will be used to improve County Road 819 to facilitate the expansion of the SEMCO quarry operation.	144,300	Delta Regional Authority	69,300	75,000		12
F14	**8-Oct**	Perry County/Beelman	Road	Funds will be used to asphalt a road leading to a new river terminal in Perry County.	148,606	DRA	60,000	88,606	500,000	5
F15	**9-Oct**	City of Perryville	Infrastructure	Gilster Mary Lee Expansion, Road, Water, Sewer	4,101,855	CDBG	674,655	427,200	$3,000,000	75

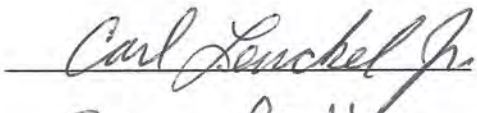
F16	**9-Oct**	City of Perryville	Infrastructure	Water and sewer at airport to serve Sabreliner	618,400	CDBG	230,000	388,400		23
F17	**10-Mar**	Perry County	Energy Efficiency	Funding will be used to replace existing lighting at the Perry County Sheriff's Department with energy efficient solar-powered lighting.	47,610	US Department of Energy	30,000	17,610		
F18	**10-Sep**	City of Perryville	Streets	Funding will be used to construct street, sewer and sanitary sewer facilities to accommodate the construction of a new building for Sabreliner Corporation.	1,000,000	CDBG	1,000,000			122

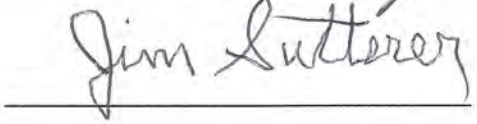
F19	**10-Sep**	City of Perryville	Electric	Funding will be used to construct a new transformer needed to accommodate expansion of TG Missouri.	3,000,000	CDBG	500,000		$2,400,000	50
F20	**12-Mar**	City of Perryville	Infrastructure	Funding will be used to assist the construction of a 33,000 square foot addition to the TG Missouri Plant	11,102,000	CDBG	1,000,000	200,000.00	$9,902,000	200
F21	**12-Mar**	City of Perryville	Infrastructure	Funding will also be used to assist the expansion at the TG Missouri Plan		Delta Regional Authority	200,000			

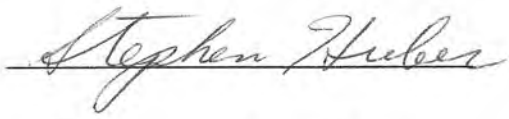
Perry County Community Economic and Environmental Committee

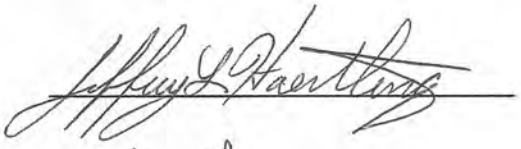
Signature Sheet

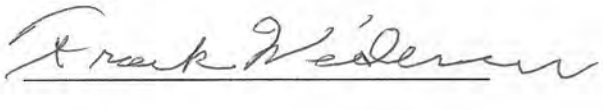


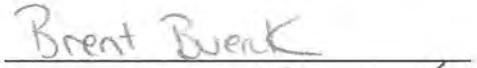


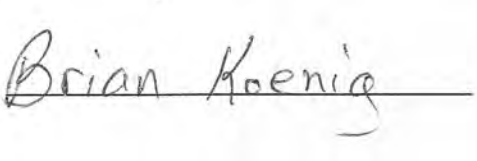


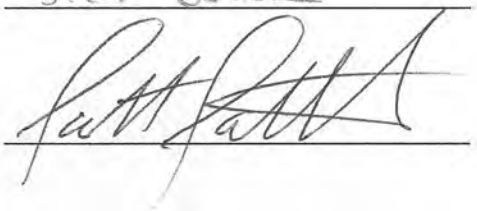












Submitted: April 7, 2013