Springfield – Greene County, Mo

Integrated Plan for the Environment

Environmental Priorities Task Force

Date: Tuesday, June 3, 2014
4:30 to 6:30 p.m.

Location: Greene County Archives Building
1126 N Boonville Ave
Springfield, MO 65802

Map to meeting site on page 2

Meeting purpose:

- Discuss how we use our water resources.
- Develop water resource priorities.
- Get input on random sample survey questions.

AGENDA

4:30 p.m.	Welcome & Introductions	Fred Palmerton, Co-Chair
4:35 p.m.	Water Resources/Use Presentation	Kevin Barnes, Greene County
4:50 p.m.	Water Resources/Use Exercise	All
5:15 p.m.	Water Resources Goals & Prioritization	Errin Kemper, City of Springfield
5:45 p.m.	Prioritizing Investments Exercise	All
6:15 p.m.	Random Sample Survey Discussion	Sheila Shockey, facilitator
6:30 p.m.	Closing Comments & Adjourn	Dan Hoy, Co-Chair

In accordance with ADA guidelines, if you need special accommodations when attending any City meeting, please notify the City Clerk's office at 864-1443 at least three days prior to the scheduled meeting.

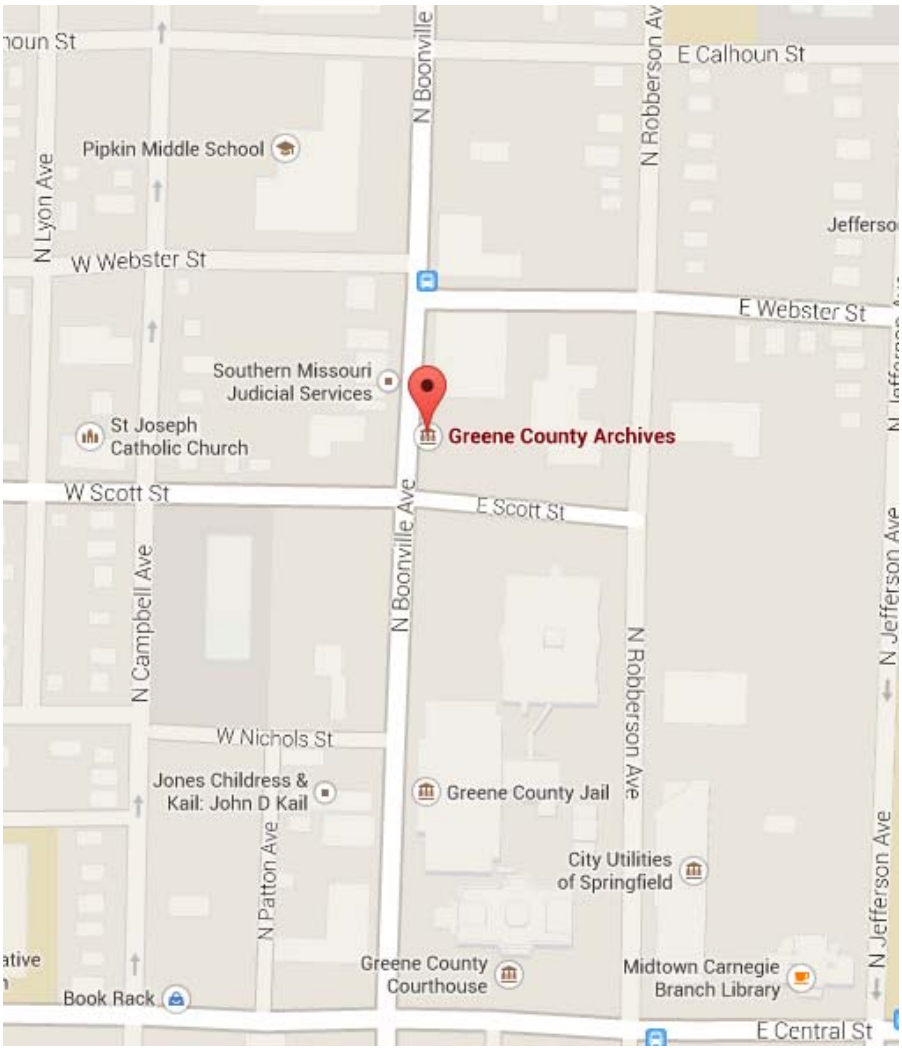
Handouts:

1. Background Information pages 3 - 17

Meeting Site:

Greene County Archives Building
1126 N Boonville Ave
Springfield, MO 65802

For assistance call 417.861.7102



Springfield – Greene County, Mo

Integrated Plan for the Environment

Water Quality Background – Water Resource Use

Introduction

Water is why people settled here and is how Springfield got its name. A Tennessee homesteader, John Polk Campbell was the founder of Springfield, announcing his claim in 1829 near Fullbright Spring. Springfield and Greene County have a history of commitment to water quality protection through proactive efforts, citizen-driven planning and priorities, and ongoing support and partnerships. Protecting our area water resources for drinking water supply, protection of aquatic life, industrial and agricultural supply, and recreational uses is vital to our regional economy. Our community's environmental past and the future vision s established by our community describe how we use our valuable water resources. How we want to use our lakes, rivers and streams determines how clean they should be including the levels and types of pollutant present in the water resource.

Uses of Our Water Resources

What do regulations say about how we use our water resources?

The 1972 federal Clean Water Act (CWA) regulates the discharge of pollutants to waterways and sets water quality standards to protect them. The CWA contains a step-by-step process intended to ensure waterways in the U.S. are clean and healthy. In most states, the job of enforcing the step-by-step process is given to the state agency; in Missouri it is the Department of Natural Resources (MDNR). First, all "waters of the state" are protected under the CWA and the narrative criteria later discussed. Some of these waters of the state are given additional protection as "classified waters" and are assigned uses and numeric criteria in addition to the narrative criteria. These are the ones shown on the maps to follow. Second, the "beneficial uses" of each waterway are determined. These designations might be such uses as drinking water supply, aquatic life protection (fish, macroinvertebrates[1]), and/or recreation (swimming, boating) (The

[1] *Macroinvertebrates* are organisms that are large (macro) enough to be seen with the naked eye and lack a backbone (invertebrate). They inhabit all types of running waters, from fast-flowing mountain streams to slow-moving muddy rivers. Examples of aquatic macroinvertebrates include insects in their larval or nymph form, crayfish, clams, snails, and worms. Most live part or most of their life cycle attached to submerged rocks, logs, and vegetation. Aquatic macroinvertebrates are used as indicators of overall stream quality because they are affected by the physical, chemical, and biological conditions of the stream.

phrases 'beneficial uses' and 'designated uses' are often used interchangeably). Finally, there are water quality standards developed by each state, to protect those beneficial uses.

The Missouri Department of Natural Resources (MDNR) establishes the protected waterways, the beneficial uses of each waterway and the corresponding water quality criteria to protect those uses; , MDNR is also responsible for determining if a waterway is not meeting those criteria. If it is found that the criteria for a certain water body is not being met, MDNR will place the water body on a list of 'impaired waters' (called the 303(d) list) and some action for reducing the source of impairment (or pollution) will be established. The corrective action is called a Total Maximum Daily Load (TMDL), designed to discover the pollutant and reduce it. The intent of the CWA is to improve water quality to meet designated uses, with the goal of making all surface waters clean enough to be "fishable and swimmable."

The following is a list of the designated uses for water bodies in our region:

- Protection of Warm Water Aquatic Life - Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a wide variety of warm-water biota, including naturally reproducing populations of recreationally important fish species. (There are also protections for other types of habitats. For example: protection of Cold Water Aquatic Life would include trout fisheries.

- Cool Water Fishery - Level of protection assigned to waters in which naturally occurring water quality and habitat conditions allow the maintenance of a sensitive, high quality sport fishery (including smallmouth and rock bass) and other naturally reproducing populations of recreationally important fisheries.

- Whole Body Contact Recreation - Activities in which there is direct human contact with the raw surface water to the point of complete body submergence. The raw water may be ingested accidentally and certain sensitive body organs, such as the eyes, ears, and the nose, will be exposed to the water. Although the water may be ingested accidentally, it is not intended to be used as a potable supply unless acceptable treatment is applied. Water so designated is intended to be used for swimming, water skiing, or skin diving. Category A includes public swimming areas and Category B includes waters designated for whole body contact recreation that are not public swimming areas.

- Secondary Contact Recreation - Uses include fishing, wading, commercial and recreational boating, any limited contact incidental to shoreline activities, and activities in which users do not swim or float in the water. These recreational activities may result in contact with the water that is either incidental or accidental and the probability of ingesting appreciable quantities of water is minimal.

- Industrial process water and industrial cooling water - Water to support various industrial uses.

- Irrigation - Application of water to cropland or directly to plants that may be used for human or livestock consumption. Occasional supplemental irrigation, rather than continuous irrigation, is assumed.

- Livestock & Wildlife Watering - Maintenance of conditions to support health in livestock and wildlife.

- Drinking water supply - Maintenance of a raw water supply which will yield potable water after treatment by public water treatment facilities.

The current list of water bodies and their associated designated uses are listed in Table 1 for the James River Watershed. The list of water bodies to be regulated and their associated designated uses will be expanded starting July 1, 2014. Table 2 list of water bodies and their associated designated uses as of July 1, 2014 for the James River Watershed. Table 3 has the current list of water bodies and their associated designated uses for Sac River Watershed and Table 4 has the proposed for the Sac River Watershed.

Table 1. Current Designated Uses for Regional Water Resources – James River Watershed

		Existing Designated Use										
Watershed	**Water Body**	**Protection of Warm Water Aquatic Life**	**Cold Water Fishery**	**Cool Water Fishery**	**Drinking Water Supply**	**Industrial Water Supply**	**Irrigation of Crops**	**Livestock and Wildlife Watering**	**Secondary Contact Recreation**	**Whole Body Contact Recreation A (for public swimming areas)**	**Whole Body Contact Recreation B (Boating & Wading)**	**Human Health Protection Fish Consumption**
James	Davis Cr.	√						√			√	√
James	Fassnight Cr.	√						√			√	√
James	Galloway Cr.	√						√			√	√
James	Hunt Br.	√						√			√	√
James	James R.	√		√	√		√	√	√	√		√
James	Jordan Cr.	√						√			√	√
James	Millan Hollow	√						√				√
James	North Branch Wilsons C	√						√			√	√
James	Pearson Cr.	√						√		√		√
James	Sawyer Cr.	√						√			√	√
James	Shuyler Cr.	√						√			√	√
James	South Cr.	√						√			√	√
James	Trib. to N. Br. Wilsons C	√						√			√	√
James	Turner Cr.	√						√			√	√
James	Ward Br.	√						√			√	√
James	Wilsons Cr.	√						√			√	√
James	Workman Br.	√						√			√	√

Table 2. July 1, 2014 Designated Uses for Regional Water Resources – James River Watershed

		Proposed Designated Use										
Watershed	**Water Body**	**Protection of Warm Water Aquatic Life**	**Cold Water Fishery**	**Cool Water Fishery**	**Drinking Water Supply**	**Industrial Water Supply**	**Irrigation of Crops**	**Livestock and Wildlife Watering**	**Secondary Contact Recreation**	**Whole Body Contact Recreation A (for public swimming areas or waters with documented existing whole body contact recreational use by the public.**	**Whole Body Contact Recreation B (waters designated for WBC not contained in category A)**	**Human Health Protection Fish Consumption**
James	Davis Cr.	√					√	√	√		√	√
James	Fassnight Cr.	√					√	√	√		√	√
James	Galloway Cr.	√					√	√	√		√	√
James	Hunt Br.	√					√	√	√		√	√
James	James R.	√		√	√		√	√	√	√		√
James	Jordan Cr.	√					√	√	√		√	√
James	Millan Hollow	√					√	√	√			√
James	North Branch Wilsons Cr.	√					√	√	√		√	√
James	Pearson Cr.	√					√	√	√	√		√
James	Sawyer Cr.	√					√	√	√		√	√
James	Shuyler Cr.	√					√	√	√		√	√
James	South Cr.	√					√	√	√		√	√
James	Trib. to N. Br. Wilsons Cr.	√					√	√	√		√	√
James	Turner Cr.	√					√	√	√		√	√
James	Ward Br.	√					√	√	√		√	√
James	Wilsons Cr.	√					√	√	√		√	√
James	Workman Br.	√					√	√	√		√	√
James	Trib. to Workman Cr.**	√					√	√	√		√	√

Table 3. Current Designated Uses for Regional Water Resources – Sac River Watershed

		Existing Designated Use										
Watershed	**Water Body**	**Protection of Warm Water Aquatic Life**	**Cold Water Fishery**	**Cool Water Fishery**	**Drinking Water Supply**	**Industrial Water Supply**	**Irrigation of Crops**	**Livestock and Wildlife Watering**	**Secondary Contact Recreation**	**Whole Body Contact Recreation A (for public swimming areas)**	**Whole Body Contact Recreation B (Boating & Wading)**	**Human Health Protection Fish Consumption**
Sac	Asher Cr.	√						√			√	√
Sac	Burney Br.	√						√			√	√
Sac	Clear Cr.	√						√			√	√
Sac	Dry Br.	√						√			√	√
Sac	Flint Hill Br.	√						√			√	√
Sac	King Br.	√						√			√	√
Sac	L. Pomme de Terre R.	√						√			√	√
Sac	L. Sac R.	√		√				√	√	√	√	√
Sac	Mutton Hollow	√						√			√	√
Sac	N. Dry Sac R.	√						√			√	√
Sac	Pea Ridge Cr.	√			√			√			√	√
Sac	Pickerel Cr.	√						√	√		√	√
Sac	Pomme de Terre R.	√						√	√	√		√
Sac	Pond Cr.	√						√			√	√
Sac	S. Dry Sac R.	√						√	√	√	√	√
Sac	S. Fk. Pomme de Terre	√						√	√	√		√
Sac	Sac R.	√					√	√	√	√	√	√
Sac	Selph Br.	√						√			√	√
Sac	Sims Br.	√						√			√	√
Sac	Spring Br.	√						√			√	√
Sac	Sycamore Cr.	√						√			√	√

Table 4. July 1, 2014 Designated Uses for Regional Water Resources – Sac River Watershed

		Proposed Designated Use										
Watershed	**Water Body**	**Protection of Warm Water Aquatic Life**	**Cold Water Fishery**	**Cool Water Fishery**	**Drinking Water Supply**	**Industrial Water Supply**	**Irrigation of Crops**	**Livestock and Wildlife Watering**	**Secondary Contact Recreation**	**Whole Body Contact Recreation A (for public swimming areas or waters with documented existing whole body contact recreational use by the public.**	**Whole Body Contact Recreation B (waters designated for WBC not contained in category A)**	**Human Health Protection Fish Consumption**
Sac	Asher Cr.	√					√	√	√		√	√
Sac	Burney Br.	√					√	√	√		√	√
Sac	Clear Cr.	√					√	√	√		√	√
Sac	Dry Br.	√					√	√	√		√	√
Sac	Flint Hill Br.	√					√	√	√		√	√
Sac	King Br.	√					√	√	√		√	√
Sac	L. Pomme de Terre R.	√					√	√	√		√	√
Sac	L. Sac R.	√		√			√	√	√	√	√	√
Sac	Mutton Hollow	√					√	√	√		√	√
Sac	N. Dry Sac R.	√					√	√	√		√	√
Sac	Pea Ridge Cr.	√			√		√	√	√		√	√
Sac	Pickerel Cr.	√					√	√	√		√	√
Sac	Pomme de Terre R.	√					√	√	√	√		√
Sac	Pond Cr.	√					√	√	√		√	√
Sac	S. Dry Sac R.	√					√	√	√	√	√	√
Sac	S. Fk. Pomme de Terre R.	√					√	√	√	√		√
Sac	Sac R.	√					√	√	√	√	√	√
Sac	Selph Br.	√					√	√	√		√	√
Sac	Sims Br.	√					√	√	√		√	√
Sac	Spring Br.	√					√	√	√		√	√
Sac	Sycamore Cr.	√					√	√	√		√	√
	Various Small Streams	√					√	√	√		√	√

Figure 1. Current Designated Uses for Regional Water Resources

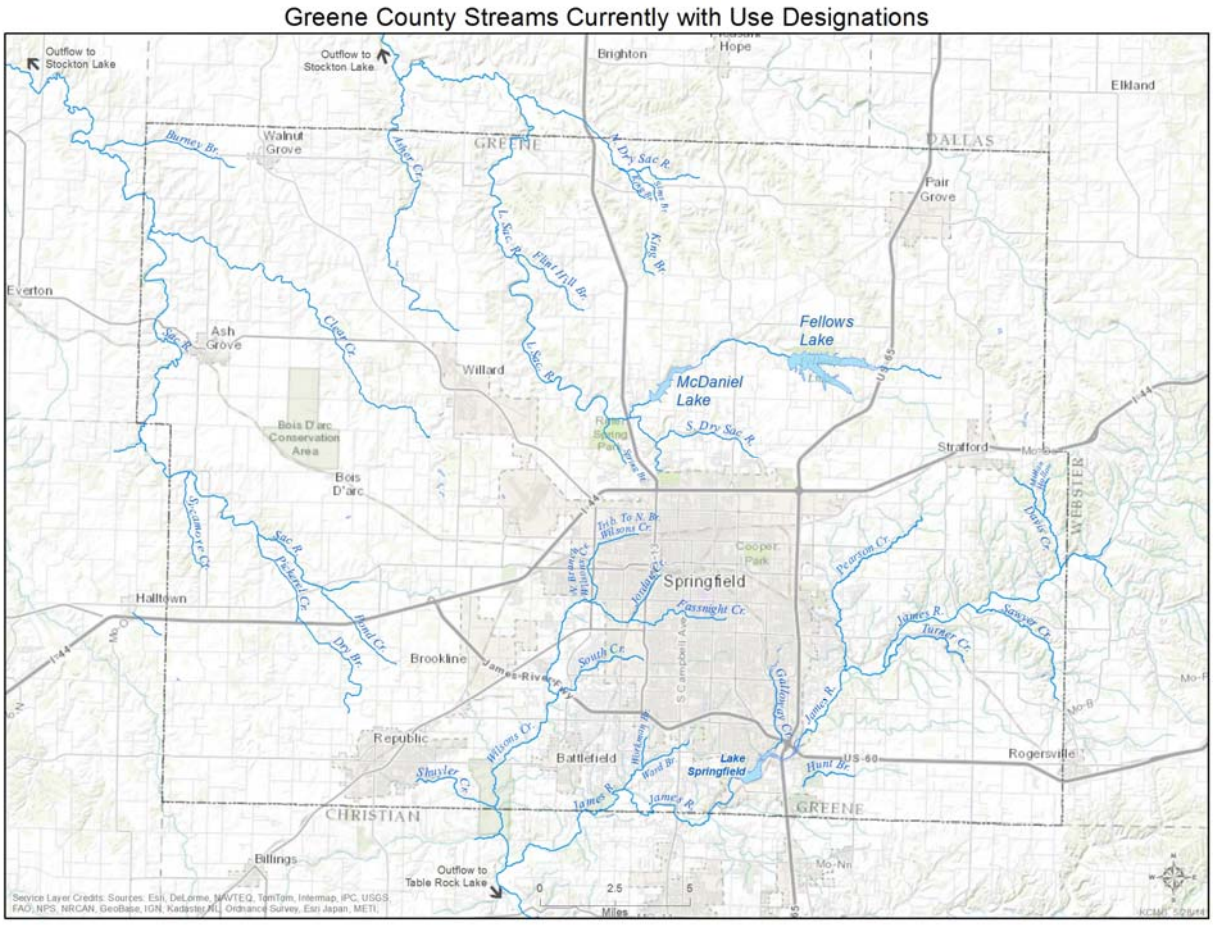
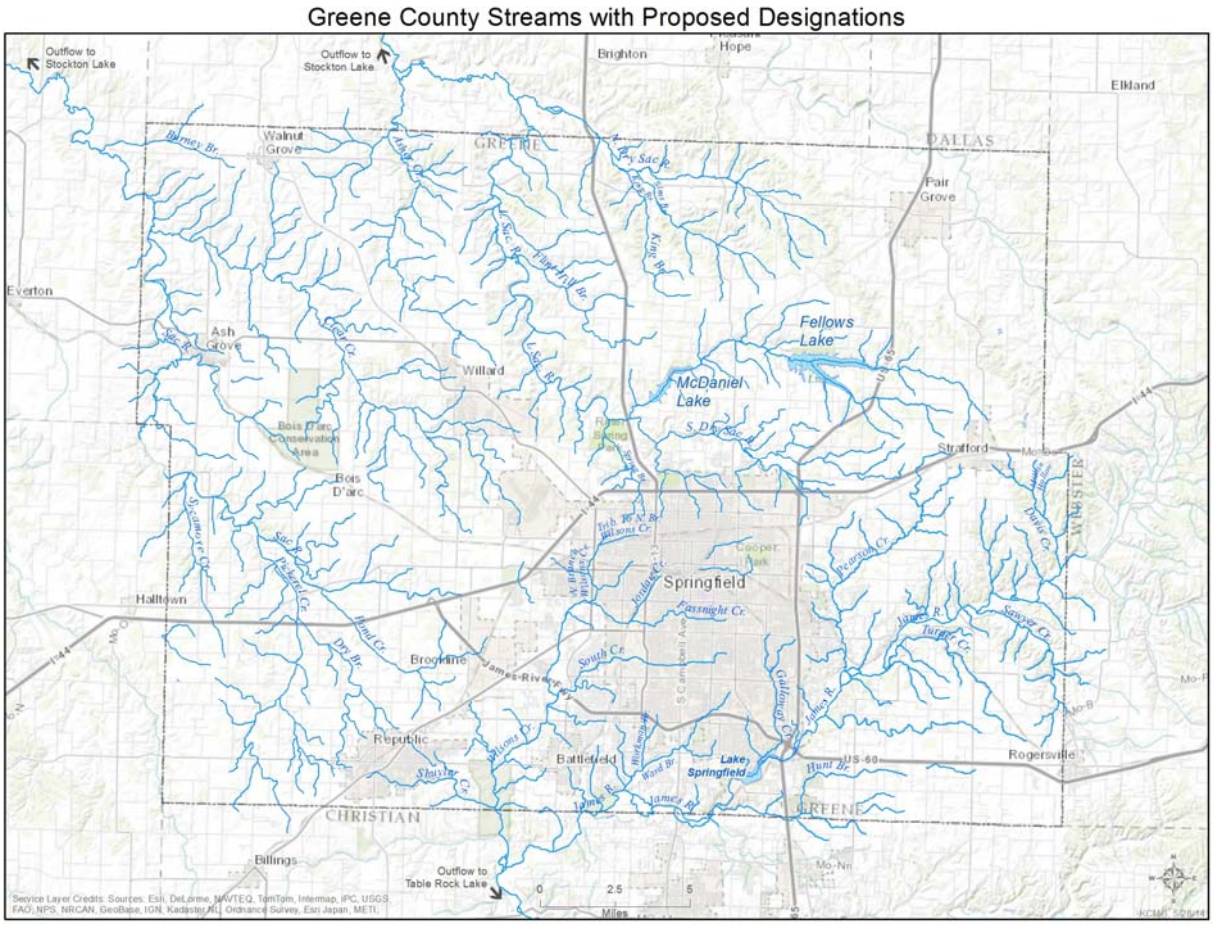


Figure 2. July 1, 2014 Designated Uses for Regional Water Resources



The state's water quality criteria established by DNR include chemical, physical, and biological properties that are necessary to protect the beneficial uses of a water body. These criteria are separated into numeric criteria and narrative criteria. Numeric criteria are numeric limits on the amount of pollutants in the water. Examples of narrative criteria are prohibitions on used tires, solid waste, and substances that cause unsightly color or offensive odor. The narrative criteria also prohibit physical, chemical, or hydrologic changes that impair the natural biological community.

These criteria are meant to achieve the goal of the CWA to attain fishable/swimmable waterways throughout the United States. To meet these criteria and achieve the overall CWA goal, point sources[2] of pollution are required to meet numeric pollutant limits such as not exceeding a specified concentration of metals in their discharge, or non-numeric pollutant limits such as reducing the discharge of pollutants to the "Maximum Extent Practicable." The requirements are mandated through permits issued under the National Pollutant Discharge Elimination System (NPDES) permitting program. The impact of nonpoint sources of

[2] A Point Source is be a known, permitted discharge of water into a water body, such as municipal stormwater, industry, or wastewater treatments plant discharge.

pollution on waterways is generally addressed on a voluntary basis because it is unregulated. Point sources of pollution are specific points of origin where pollutants are released. Nonpoint sources are diffuse pollution sources that are not recognized to have a single point of origin. These terms are explained in more detail below.

Determining whether or not the water quality criteria are met is usually done through water quality sampling that shows a specific pollutant (metals, bacteria, phosphorus) is present in a concentration that meets or exceeds the numeric water quality criteria that has been assigned for a water body A waterway may also be determined as not meeting the narrative criteria due to conditions such as algae blooms or turbidity (a measure of how deep light penetrates through water, usually affected by suspended sediment or algae) that affect beneficial uses such as recreation and fishing. Sampling of macro invertebrates (insects, crustaceans, mollusks) or fish might also be done to determine if a water body meets the narrative criteria for a healthy biological community. Healthy waterways have a certain abundance and diversity of aquatic life. A waterway that is not meeting the water quality criteria (whether numeric or narrative)for its designated beneficial uses is put on the State's "impaired waterways" list, also known as the 303d list, which refers to Section 303(d) of the Clean Water Act.

If a waterway is placed on the 303d list, the next step is to develop a Total Maximum Daily Load (TMDL). A TMDL defines the total amount of pollutant the waterway can handle, from all sources, without exceeding the water quality standards for that pollutant. Developing a TMDL requires a study which first determines the pollutant impairing a waterway, then establishes a maximum amount of pollutant that stream can handle and meet the water quality criteria. All of the sources of the pollutant are identified, including "point" sources such as wastewater treatment plants, industries, and Municipal Separate Storm Sewer System (MS4s), and "nonpoint" sources such as agriculture and runoff from suburban areas. Stormwater pollution from point sources and nonpoint sources is a challenging water quality problem. Unlike discharges from industry or sewage treatment facilities, which can be regulated through a permit, stormwater pollution is caused by the daily activities of people everywhere. Rainwater and snowmelt run off streets, lawns, farms, construction and industrial sites, and pick up fertilizers, dirt, pesticides, oil and grease, and many other pollutants on the way to our rivers, lakes, and coastal waters. Stormwater runoff is the nation's most common cause of water pollution.

The TMDL establishes a maximum "load" of the pollutant that the point and nonpoint sources can discharge into the stream, and allocates an allowable load to each source. The point sources are required to meet their load limits through their respective NPDES permits. A pollutant load is a calculation that includes both the concentration of a pollutant and the volume of the discharge. If the entity that holds the discharge permit fails to reduce their pollutant load to the required level, then enforcement action by the permitting authority can result. In Missouri, DNR is the permitting authority but the U.S. Environmental Protection Agency (EPA) oversees DNR's implementation of CWA requirements, including the NPDES program, and is sometimes involved in enforcement. The City, County and City Utilities must all comply with the TMDL requirements that have been or will be developed for waterways to which they discharge. The nonpoint sources are not regulated but there are grant funds and cost-share programs that allow DNR and other federal/state agencies and nonprofits to assist landowners with voluntarily reducing their pollution loads.

What is the quality of our water resources?

MDNR's list of impaired waterways in our area are listed in Table 5. The James River and the Little Sac River were listed as impaired in 1998. The James River was listed as impaired due to excess nutrients that caused significant algae blooms. The Little Sac River was listed as impaired because the levels of bacteria exceeded the water quality criteria. TMDLs were developed for the James River and the Little Sac River in 2001 and 2006, respectively, with an update to the James River TMDL in 2004. Requirements for phosphorus removal at wastewater treatment plants in the James River watershed have dramatically decreased the phosphorus levels in the James River.

Efforts are ongoing to reduce the amount of phosphorus to the James River from stormwater runoff and agriculture. It is anticipated that numeric water quality criteria for nutrients will be promulgated by MDNR in the near future that may be lower than the target levels in the James River TMDL and could result in Lake Springfield, Table Rock Lake, and possibly other smaller streams being listed as impaired.

The Little Sac watershed is largely rural. Runoff from Springfield and the surrounding urbanized areas is estimated to account for only 2-6% of the bacteria in the river. Efforts to reduce bacteria will need to mostly focus on other sources which include springs, livestock, and wildlife. The City and County must address both of these TMDLs as part of their stormwater programs by conducting stream monitoring, and focusing education and implementation efforts on best management practices that reduce nutrients and bacteria such as getting a soil test before fertilizing your lawn and picking up pet waste.

Pearson Creek, Wilsons Creek and Jordan Creek have also been determined by DNR to be impaired. Pearson Creek and Wilsons Creek were listed as impaired in 1998 because the diversity and abundance of macro invertebrates (aquatic insects) are low compared with pristine streams such as Bull Creek and the North Fork River. Jordan Creek, a tributary of Wilsons Creek, was listed for the same reason in 2008. A specific pollutant causing the impairment has not been identified. TMDLs for these streams were issued by EPA in 2011. Based on concerns about the potential excessive economic hardship such requirements could place on the citizens of Springfield/Greene County, and what the City believed to be a legally and technically flawed and ineffective approach, the City filed a complaint about these TMDLs and the TMDLs were withdrawn by EPA. EPA, working with the City, is currently conducting water quality monitoring and sampling to redevelop an appropriate TMDL for these three creeks. Pearson Creek and Wilsons Creek were also listed as impaired by DNR in 2006 because the levels of bacteria exceeded the water quality criteria. It is not known at this time what additional impacts that may have on the City and County in terms of regulatory compliance.

Table 5. Impaired Waterways & TMDL Status in the Springfield/Greene County Area

Waterway	Impairment Pollutant	Pollutant Source	TMDL Status
James River	Nutrients	Urban Point and Nonpoint Sources (e.g. wastewater treatment plants and stormwater runoff), Agricultural Nonpoint Sources	Issued 2001; Updated 2004
Little Sac River	Fecal Coliform	Point and Nonpoint Sources	Issued 2006
Pearson Creek	Unknown (causing low macroinvertebrate populations)	Unknown	Withdrawn. New one not yet issued.
	Bacteria	Multiple Point & Nonpoint Sources	Not Yet Issued
Wilsons Creek	Unknown	Multiple Point Sources & Urban Nonpoint Sources	Withdrawn. New one not yet issued.
	Bacteria	Point Sources & Urban Nonpoint Sources	Not Yet Issued
Jordan Creek	Unknown	Urban Nonpoint Sources	Withdrawn New one not yet issued.

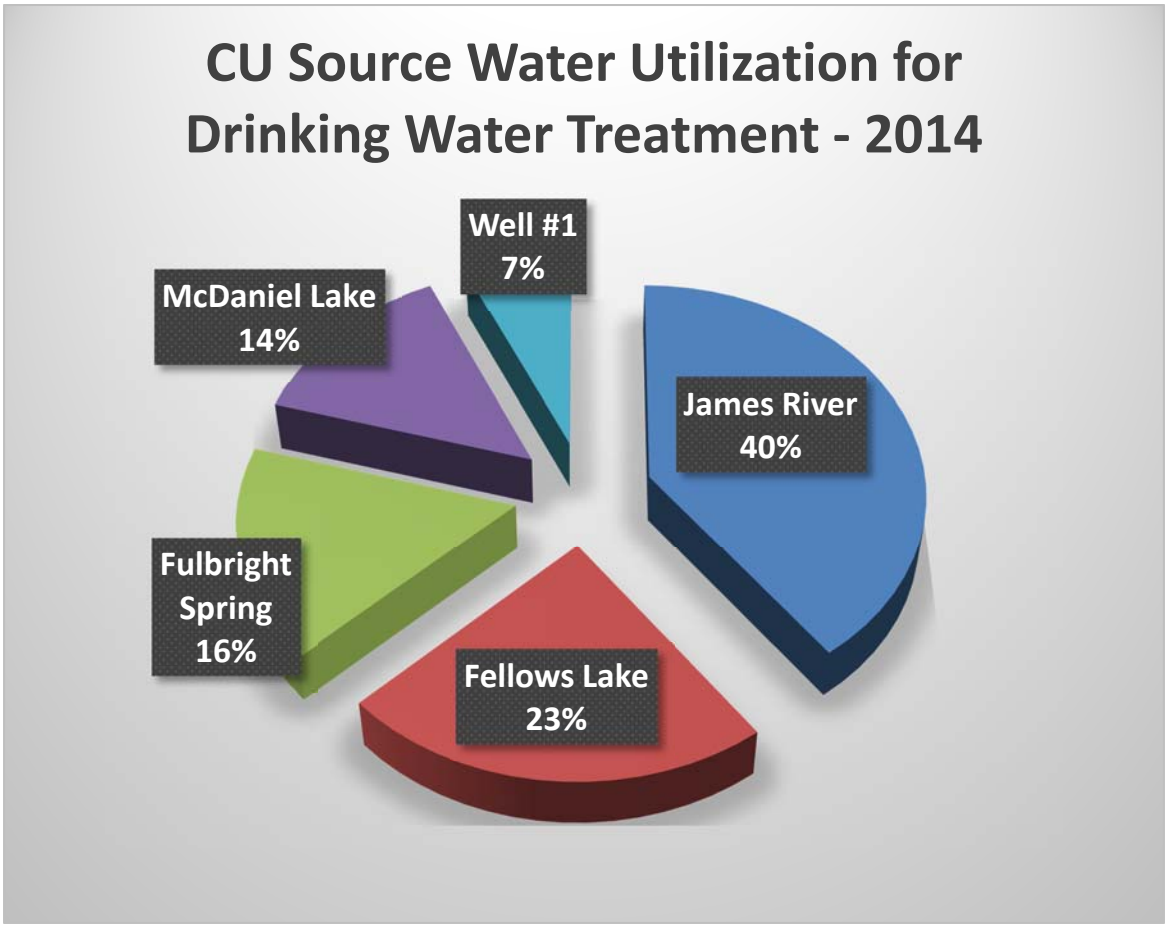
Drinking Water Supply: City Utilities provides the majority of the public drinking water supply in the community, serving an estimated 180,000 people. In addition to City Utilities, there are six municipal water systems and three rural water districts providing drinking water to customers; approximately 95,000 people in Greene County rely on either municipal or private wells as their source of drinking water.

City Utilities of Springfield, Missouri (CU) provides drinking water to just over 80,000 customer accounts, or approximately 160,000-180,000 people, in the Springfield metropolitan area. CU provides water to residential, commercial, and industrial customers. In addition to the customer base, many people visit Springfield each day for work, shopping, and tourism – these visitors also rely on the provision of safe drinking water from CU while they are here.

CU's drinking water comes from surface water and groundwater from the following sources: Fellows Lake, McDaniel Lake, Stockton Lake, Fulbright Spring, deep groundwater wells, and the James River. CU currently operates two drinking water treatment plants that utilize a mixture of surface (lake and river),

groundwater under the influence of surface water (spring), and groundwater sources. The surface water and spring sources account for approximately 90-95% of the City of Springfield's drinking water supply – these waters are treated to provide drinking water for the citizens of Springfield (and the people who visit the city) – on a daily basis. The approximate fractions of source water utilization are presented in Figure 3.

Figure 3: Drinking Water Sources for City Utilities and Springfield, MO



CU has, for many years, employed preventive measures to safeguard the quality of water in both Fellows and McDaniel Lakes. Restrictions on boating and boat motor size at Fellows (and a ban at McDaniel), and restrictions on recreational activities have been adopted to prevent the introduction of contaminants into the drinking water sources for Springfield. Figure 3 shows that Fellows and McDaniel account for approximately 35-40% of the source water supply in a typical year.

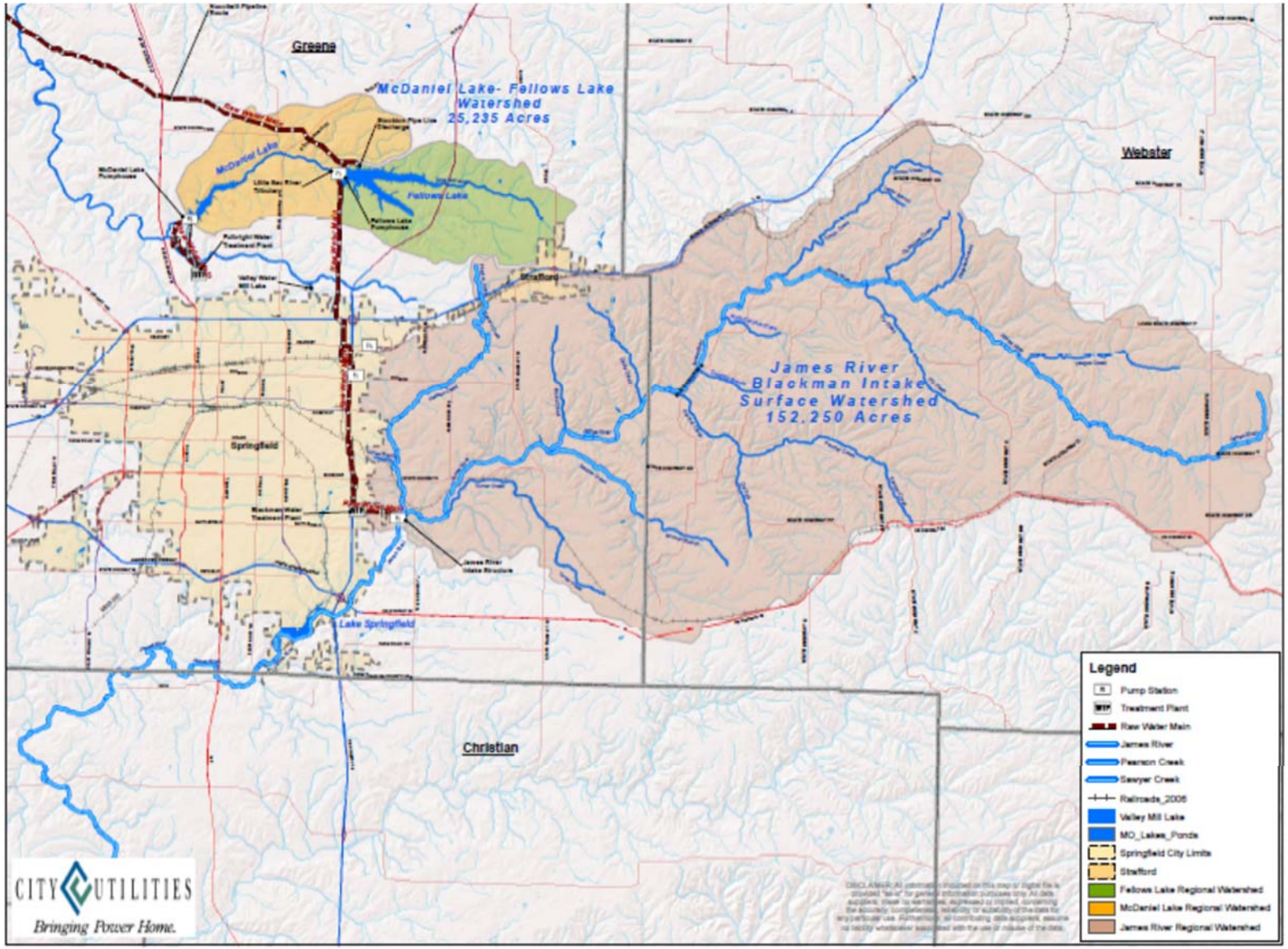
The James River is also a major source for CU, accounting for around 40% of supply. Preventive measures are more difficult to implement along the James River and its tributaries than around CU owned lakes. It follows naturally that the river is more vulnerable to contamination – in part due to a much larger watershed that drains into the river and associated tributaries, and in part due to a wide range of activities that occur within the James River watershed (i.e. agriculture, septic systems, ranching, industry, etc.)

Public drinking water systems, the EPA, and state regulatory agencies all have recognized the need to identify potential sources of contamination to drinking water sources of supply. The EPA required (in the early 2000s) that individual states conduct source water assessments – termed *Source Water Assessment*

and Protection, or SWAP, reports - for drinking water utilities in order to determine what contaminants each system was most likely to encounter in source waters. In Missouri, the MDNR conducted the assessments and generated the SWAP reports for each public water system (PWS).

Any body of water may reasonably be expected to contain some contaminants. The types of contaminants depend on many factors and can originate from a wide range of sources, such as: land use activities, industrial, commercial, and residential chemical usage and containment practices, agriculture and ranching activities, recreational activities in or near source waters, septic systems, wastewater treatment, sewer collection system integrity, stormwater and runoff from precipitation events, and naturally occurring contamination from soil erosion. This is not an exhaustive list, but rather is provided to illustrate the wide variety of sources from which contamination can be introduced into source waters (streams, lakes, rivers, ponds, etc.). Figure _4 illustrates the different source waters (and the watersheds that drain into each) for City Utilities' drinking water treatment facilities.

Figure 4: Source Waters for Drinking Water Treatment – Springfield, Missouri



Based on the results of the SWAP report prepared by MDNR in 2003, CU source waters are highly susceptible to microbial contamination (virus and bacteria). More recent monitoring (conducted separately from SWAP report efforts) of the James River and some tributaries indicates that the watershed is also susceptible to contamination from *cryptosporidium* and *giardia*. These organisms are microbial pathogens often associated with cattle and wildlife, although they can also be introduced into water by humans that are infected.

The source waters were also deemed to be moderately susceptible to chemical contamination from a variety of commercial, industrial, agricultural, and residential activities that occur within the watersheds. The detailed SWAP report identifies many of these potential contamination sources and the types of pollutants associated (i.e. bacteria and nutrient loading from agriculture and ranching). The SWAP report can be found here: http://drinkingwater.missouri.edu/swap/index.html.

Activities within a watershed will affect the water quality within that watershed. Efforts to minimize pathogen and chemical contamination of natural waters not only improve water quality for multiple purposes (i.e. habitat, fishing, recreation, etc.), it also reduces the burden on treatment systems to remove increasing amounts of these contaminants so that the water is safe for potable use. The reduction of pollutant loading to area waterways is an excellent preventive measure in the effort to protect public health.

Conclusion

Water is vital to our community. MDNR, with oversight by EPA, has developed a list describing how we use our water bodies and what steps we must take to improve water quality for these uses. Through the Integrated Planning Process, our community will determine how we want to use our water bodies and how to best support those desired uses. We as a community are most familiar with our waters, have a wealth of local knowledge about them, and understand our own long history of water protection. For example, local fisherman know that Wilson's Creek now has 15 inch small mouth bass just downstream of the wastewater treatment plant where once only carp could live in the putrid water. The long history of water protection in our area includes the purchase of Valley Water Mill by the Springfield water company to protect Fulbright Spring, formation of the Watershed Committee of the Ozarks to help protect our drinking water supply, and phosphorus removal at the Southwest Clean Water Plant (SWCWP) before it was required by law.

Through the integrated planning process our community and our citizens are able to better determine how we should and do use our water resources, how best to protect them, and how best to implement the protection measures we think are the most important. Priorities will be defined so we can work on the most important water bodies and pollutant issues first. More study is needed to determine the level of pollution and source for each priority water resource so the right solution can developed.