

1. Meeting Agenda (PDF)

Documents: [AGENDA AND INFO - 11-15-12 \(PDF\).PDF](#)

2. PowerPoint (PDF)

Documents: [POWER POINT- 11-15-12 \(PDF\).PDF](#)

City of Springfield - Greene County, Missouri
Stormwater Management Task Force Meeting



Date: Thursday, November 15, 2012
 5:00 to 7:00 p.m.

Location: Public Safety Center
 330 West Scott Street
 Springfield, Missouri 65802

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4:00 - 4:45 p.m.
Optional Tour:
Public Safety Center
Green Roof

Meeting purposes:

- Select guiding principles to assist the Task Force members in their role, process, and issues to be addressed.
- Provide background on Flood Damage & Risk Reduction:
 - What is the City and County doing to reduce flood damage & risk?
 - How do we compare to other communities?
 - What still remains to be accomplished?
 - Where should the community focus its flood risk and damage reduction efforts?

AGENDA

4:00 p.m.	Optional Tour: Public Safety Center Green Roof	Kevin Barnes, Greene County
5:00 p.m.	Welcome	Co-Chair Fred Palmerton Co-Chair Dan Hoy
5:15 p.m.	Guiding Principles Survey	Sheila Shockey, Shockey Consulting
5:50 p.m.	Flood Damage & Risk Reduction	Todd Wagner, City of Springfield Kevin Barnes, Greene County
6:20 p.m.	Task Force Discussion	Sheila Shockey
6:45 p.m.	Next steps - Information needed for upcoming meetings	Sheila Shockey
6:55 p.m.	Closing Remarks	Co-Chair Fred Palmerton Co-Chair Dan Hoy
7:00 p.m.	Adjourn	

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.

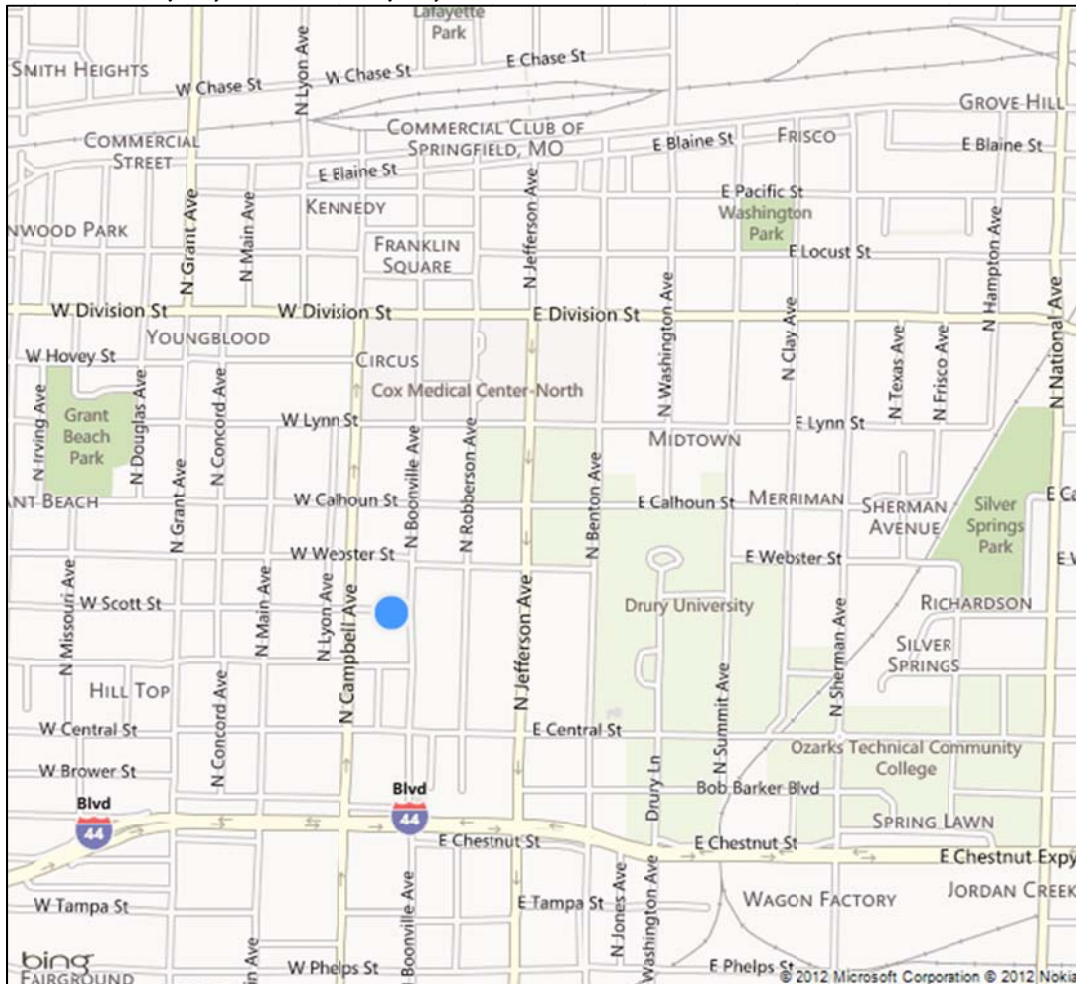
Handouts:

1. Task Force Meeting #1 Meeting Notes pages 4-8
2. Guiding Principles Survey Results pages 9-15
3. Flood Damage and Risk Reduction pages 16-32

Meeting Site:

Public Safety Center
330 West Scott Street
Springfield, MO 65803

For assistance call (417) 864-1901 or (417) 818-6091



Directions:

From the North: Travel south on N. Kansas Expressway to Chestnut Expressway. Turn left or east and travel to North Booneville Avenue. Turn left and proceed 3 blocks to Scott Street. The Public Safety Center is on your left.

From Highway 65: Take the Division Street exit. Turn west (right if coming from the north, left if coming from the south) and travel to Booneville Avenue. Turn left and travel about 5 blocks to Scott Street. The Public Safety Center is on your right.

From the west and I-44: Take the Chestnut Expressway east to Booneville Avenue. Turn left onto Booneville Avenue and travel 3 blocks to Scott Street. The Public Safety Center is on your left.

Task Force Commitment

The Stormwater Management Task Force will meet approximately eight times from October 2012 through April 2013. Meetings will be held approximately every three weeks except during the holiday season for up to two hours.

Remaining meeting dates are Thursdays from 5:00 to 7:00 p.m. on:

- December 13
- January 17
- February 7
- February 28
- March 21
- April 4

Contacts

Please contact the Project Team whenever you have questions or concerns.

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Springfield/Greene County, Missouri
Stormwater Management Task Force Meeting #1
Meeting Notes
October 25, 2012

DRAFT

Welcome & Introductions

The Springfield/Greene County, Missouri Stormwater Management Task Force met in the C.W. Titus Education Facility at the Watershed Center. The meeting commenced at 5:00 p.m.

Greg Burris, City Manager and Tim Smith, County Administrator welcomed the Task Force members and community members in attendance. Those present included the following.

Task Force

Stacey Armstrong
Matt Bailey
Bill Bretall
Geoffrey Butler
Chris Carson
King Coltrin
Eric Dove
Dana Elwell
Tiffany Frey

Patty Hamilton
Patrick Harrington
Casey Haynes
Ronda Headland
Andy Hosmer
Dan Hoy
Jerany Jackson
Tom Kissee
Chris Macioce

Dave Murray
Fred Palmerton
Brian Perdue
Matthew Pierson
Rick Scarlet
Karen Spence
Aaron Wahlquist

Absent: Daniel Beckman, Tom DeWitt, Erik Fjeseth, Harlan Hill, Fred Schlegel

City and County Staff

Kevin Barnes
Vanessa Brandon
Phil Broyles
Greg Burris
Chris Coulter
Sarah Davis

Tim Davis
Carrie Lamb
Barbara Lucks
Cody Marshall
Fred Marty

Steve Meyer
Cora Scott
Tim Smith
Todd Wagner

Community Stakeholders:

David Casaletto
Milton Dickensheet
Mike Pessina

Sheila Shockey introduced herself and explained the Task Force purpose, ground rules and described the agenda for the meeting. She introduced the two co-chairs, Dan Hoy and Fred Palmerton. They introduced themselves and then each Task Force member and attendee introduced themselves. Sheila walked the group through the notebooks prepared for each Task Force member. She asked them to bring them to each meeting and include the information emailed out in advance of each meeting.

Presentation Defining Stormwater Management

Carrie Lamb made a presentation describing what stormwater is, its potential impacts, and how it can be managed to minimize these impacts. She explained that the more impervious or hard surfaces a community has, that more stormwater runoff is generated. Stormwater doesn't soak in or evaporate as much as it did before the hard surfaces were installed. Springfield's watersheds are covered with about 25 to 35% impervious surface area. She said Springfield is at the top of two watersheds. Carrie described how impervious cover influences the flows in streams during dry weather (reduces the amount of inflow from ground water or subsurface seeps since less has infiltrated), increases flood flows, negatively impacts fish and critters in the streams and causes stream bank erosion. She talked about common pollutants including lawn fertilizer, litter, and motor oil, and how stormwater runoff carries these pollutants into streams. The potential impacts of poor stormwater management include: public health and safety, property damage, devaluation of property and neighborhoods, degradation of waterways, and negative impacts to the regional economy from fishing, recreation, and tourism. Good stormwater management includes: minimize flood impacts; maintain infrastructure; attractive, multi-purpose spaces; floodplain/riparian corridor protection; water quality and habitat protection; regulatory compliance; and improved quality of life and economic development.

Carrie showed a map of the infrastructure Springfield needs to maintain. The City of Springfield has over 600 miles of stormwater conveyance and over 15,000 inlets. The total with Greene County is more than 800 miles of conveyance structures and more than 20,000 inlet structures. She described a typical stormwater system and showed examples of the infrastructure and explained their purpose. She said that this system manages the quantity of stormwater. In addition, infrastructure can be designed to also improve water quality. This is a shift in how stormwater is managed. The goal is to achieve multiple benefits and create amenities with investments. She showed examples of how this has been done in Springfield and Greene County. She described how the impacts of development is being minimized using Best Management Practices (BMPs). She showed several photos of the BMPs in the community.

Presentation on Past Funding

Sheila gave a brief overview of past funding sources and levels for the stormwater management program for both the City and for the County. These funding sources have included the following.

- Level Property Tax
- Detention Buy-out or In-lieu payments
- Parks and Stormwater Sales Tax
- Capital Improvements Sales Tax
- General Obligation Bonds
- General Fund
- Federal and State Grants

For the City of Springfield, total revenue generated for the stormwater management program was \$90.6 million for the years 1995 to 2012. In Greene County, the total revenue generated for the years 2000 to 2013 was \$9.9 million. Charts were displayed to provide a visual picture of the revenue sources in the past.

Presentation on Past Accomplishments

Todd Wagner explained the three areas of stormwater management: flood risk and damage reduction,

water quality protection, and maintenance infrastructure investment. This part of the Task Force meeting will describe what has been done in the past in these three program focus areas in the City. Kevin Barnes will talk about what has been done in the County. Todd described what was accomplished with the investments made.

- Voluntary flood buyout program: >\$10M
- Flood reduction projects: \$70M
- Stormwater Permit Compliance: >\$400k annually.
- Water quality improvements projects -Stormwater Best Management Practices (BMPs)
- Infrastructure repairs: minimal, some projects are replacement of old infrastructure
- Public Education and Outreach

The voluntary flood buyout program accomplishments include the following.

- Stopping the cycle of repeated flooding of individual homes or entire neighborhoods, which leads to lower property values and dilapidated properties.
- Over \$10 million has been spent since 1994.
- Over 200 acres have been acquired, mostly in or adjacent to floodplains.
- Nearly 200 individual parcel acquisitions are included in this program.
- Approximately 150 structures have been removed from flood prone areas.
- The City program was matched by approximately \$750,000 in FEMA funds.

He said that the floodplain acquisition program was important to the greenway trail system development. Todd showed a map to illustrate this point. He said about 211 acres were acquired for approximately \$2.5 million. Todd described the details behind historic floods and the changes made through the flood acquisition program.

Kevin Barnes gave the history of investments made in stormwater management in Greene County. He described the historic floods and impacts on properties and public safety in the County. He gave an overview of major projects completed by the County.

Carrie gave an overview of regulatory issues and how the City and County comply with the Clean Water Act through their Municipal Separate Storm Sewer System (MS4) permits. A portion of the resources the City and County have expended are to comply with regulatory requirements including the following activities: development review process, land disturbance permit program, municipal operations good housekeeping, illicit discharge/industrial runoff, public education and involvement, and water quality monitoring. Clean Water Act requirements are fulfilled through local policies, programs, ordinances, permits, inspections, and standard operating procedures. Select examples described during the Task Force meeting include the following.

- Land disturbance permits are issued by both the City and County for construction where 1 acre or greater of land is disturbed. The property owner must provide erosion and sediment control per

City and County ordinances to minimize runoff of sediment and other pollutants from the construction site. City and County staff periodically inspect the erosion control practices for compliance. Training is provided to contractors so they understand the state and local regulatory requirements, inspections, and enforcement for noncompliance.

- The City and County have programs for investigating illicit discharges (dumping or discharging pollution to the stormwater system), sweeping public streets, and proper handling of materials and waste in municipal operations and maintenance (good housekeeping).
- The City and County have partnered with several community groups and non-profits to carry out public education and involvement programs. These programs include storm drain inlet marking and murals, Adopt-a-Stream cleanup activities, and workshops on rain barrels and rain gardens.

Presentation on Current and Future Needs

Todd Wagner gave an overview of the current and future stormwater management needs. He showed a map of the service requests for the City of Springfield that total about 3,000 addresses. He explained the needs are estimated to be two-to three-times the number of calls made to the City. One need the City has is to comply with state and federal regulations for water quality. This can also mean cleaning and maintaining the system properly. Another issue is infrastructure maintenance. A third issue Springfield is facing is channel stabilization and erosion control, which include utility protection. Todd said the unfunded needs to address flooding issues are approximately \$700 million.

Of course, all of these cannot be addressed; between \$100 million to \$200 million are priority needs. Todd explained that the City and County haven't had the resources to reinvest in the stormwater system. The cost to gradually replace the system overtime would be \$5 million per year for the City. To stay in compliance with stormwater regulations the City currently spends about \$500,000 and the County spends \$300,000. More regulations will be imposed upon both the City and the County in the next permit cycle beginning in June 2013. For the City, the cost could be as much as \$1 million annually.

Questions and Answers

Task Force members asked questions and the following answers were given by the support team:

Question: Does the limestone under the soil impact how we manage stormwater?

Response: Yes, our community has karst topography which means we have sinkholes, caves and underground streams. Because sinkholes are a direct connection to groundwater, we need to be careful about keeping pollution out of them. Karst topography also limits our ability to use stormwater best management practices that are designed to allow large quantities of runoff to soak into the ground in a small area because this can cause a sinkhole collapse.

Question: Is the City measuring the quality of water being discharged from the stormwater system?

Response: Yes, Springfield has had a stream sampling program for 10 years and has good baseline data. The County has a similar program for stream sampling.

Question: What is the population of the City and the County?

Response: The population of the City is 160,000 and the County (including the City) is 275,000.

Question: Do you know how many more properties will need to be bought out?

Response (Todd Wagner): The City has a list of properties in the FEMA floodplain and has a list of properties that are flood-prone. We can provide a total and general location to the Task Force at a future meeting.

Question: Do we have better ordinances and practices in place so we don't cause these problems in the future?

Response: As our knowledge has evolved, we have changed the way we manage stormwater. Springfield and Greene County have in place ordinances and development review procedures that require developments to meet certain standards to minimize potential flood impacts and protect water quality. These techniques are evolving but the goal is to better manage water quantity and quality as we develop.

Question: How does pervious concrete hold up?

Response: It is primarily used on the outside lanes of streets and parking lots. Techniques and practices are evolving and many of the design professionals on the Task Force have good experience implementing pervious concrete.

Question: How does Springfield stack up against others in the country in terms of stormwater management practices?

Response: Are we doing all the right things? We can share with you best practices at a future meeting and how our community compares.

Next Steps and Closing Remarks

Sheila asked the task force about time of day for the meetings. Most participants felt like the current time worked. One participant said he would like to see it at 5:30 p.m. since he works until 5 p.m. The Task Force also reviewed the dates proposed for future meetings and agreed to meet at the New Public Safety Center for future meetings.

Dan Hoy and Fred Palmerton made closing comments as co-chairs of the Task Force. Dan Hoy said we need to think about how we can care for the quality of our waterways. Fred Palmerton encouraged members to prepare for the meetings, give some thoughts to the questions at hand and share your ideas and experiences, and let's focus on the task force questions.

The meeting was adjourned at 7:11 p.m.

City of Springfield - Greene County, Missouri
Stormwater Management Task Force
Guiding Principles Survey Results
11/8/2012

As part of the stormwater management process, the Stormwater Management Task Force had the opportunity to respond to a survey to develop a discussion regarding guiding principles for stormwater management.

Twenty four Stormwater Management Task Force members completed the survey, which comprised of a series of 8 questions, 7 of which were statements respondents were asked their "level of agreement." Five response options were provided" strongly agree, agree, neutral, disagree and strongly disagree. Respondents were also asked to leave their comments on the eighth question.

The results have been categorized in terms of statements with:

- Strong support: majority of respondents strongly agreed and agreed;
- No support: majority of respondents strongly disagreed or disagreed; and
- No clear consensus/split vote.

Statements with Strong Support

1. *Innovation/Planning*: The long-term stormwater management program should be flexible to adapt to new technologies and innovations
2. *Understandability/Public Education*: Citizens should be made aware of how they can protect water quality through their actions
3. *Public Acceptance*: The public perception should be that the stormwater management programs are fair; decision-making is open and is influenced by public input.
4. *Understandability/Public Education*: Citizens should understand how improvements help protect water quality and how improvements help water quality and how improvement programs are funded
5. *Conservation*: The efficient use of resources should be encouraged
6. *Environmental Stewardship*: I think it's more important to protect drinking water sources and improve the quality of water in streams in Southwest Missouri.

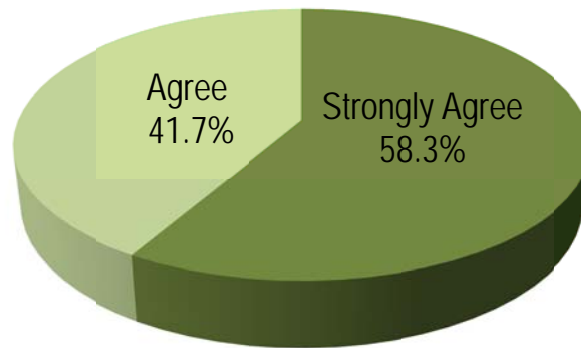
Statements with Split Vote

1. *Public Benefit*: The public should see a direct benefit from the investments made in stormwater management.

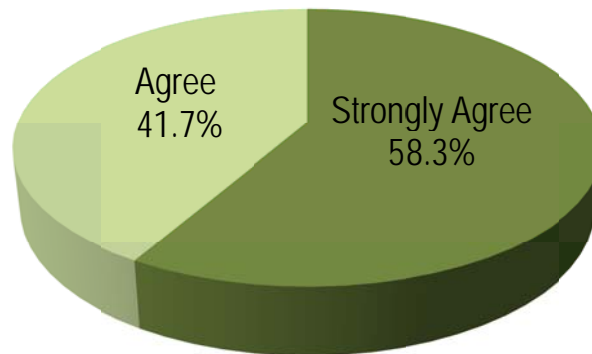
Charts illustrating the responses appear on pages 10-13.

Strong Support

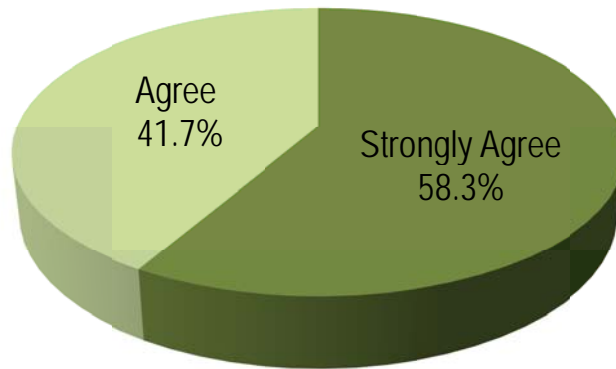
Innovation/Planning: The long-term stormwater management program should be flexible to adapt to new technologies and innovations.



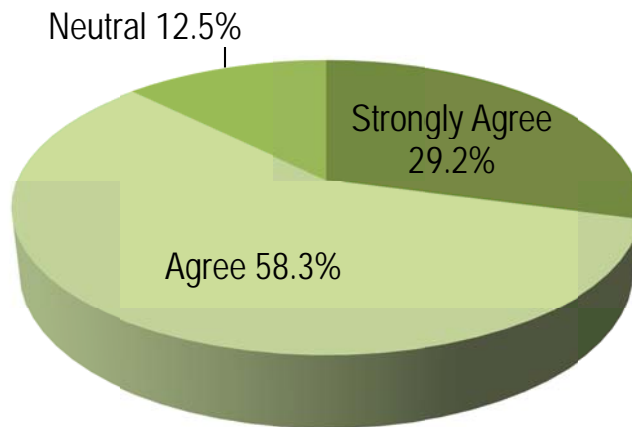
Understandability/Public Education: Citizens should be made aware of how they can protect water quality through their actions.



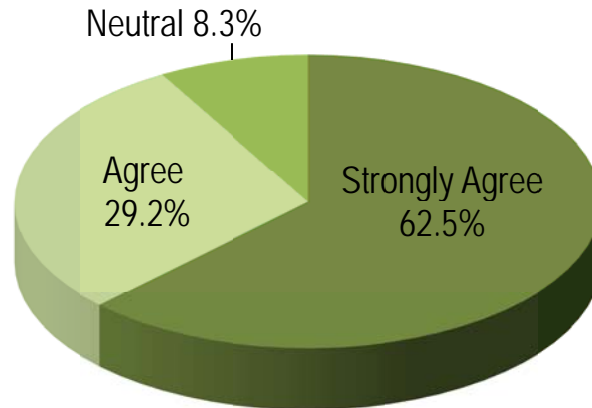
Public Acceptance: The public perception should be that the stormwater management programs are fair; decision-making is open and is influenced by public input.



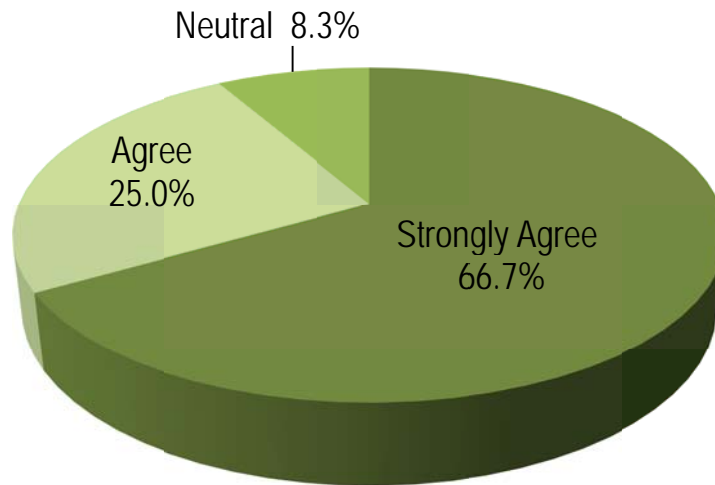
Understandability/Public Education: Citizens should understand how improvements help protect water quality and how improvements help water quality and how improvement programs are funded.



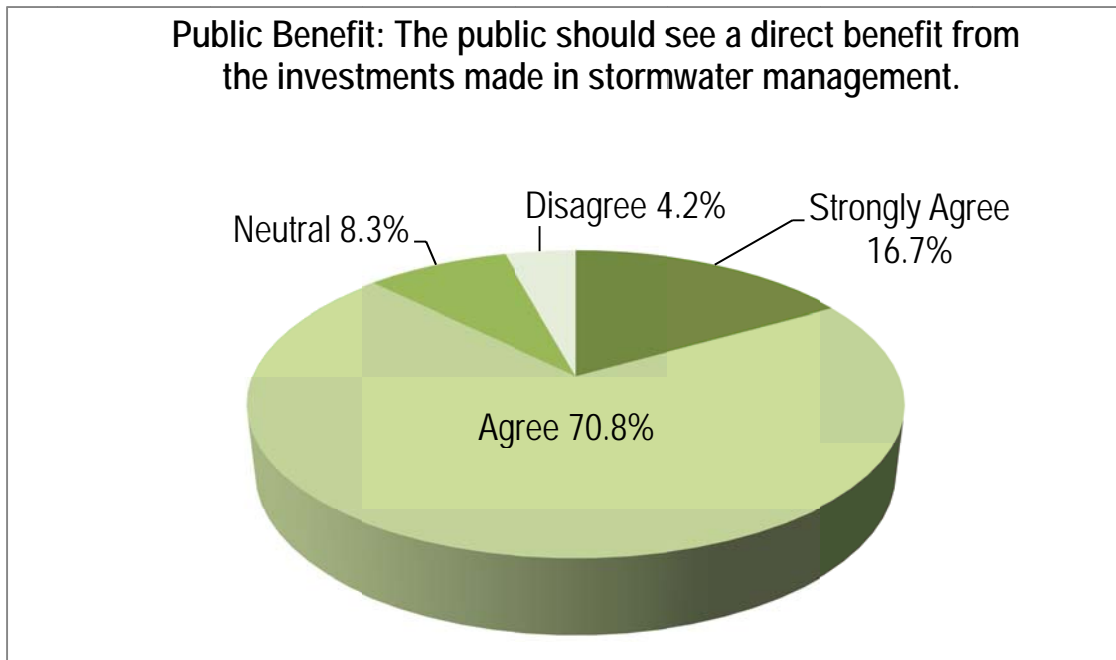
Conservation: The efficient use of resources should be encouraged.



Environmental Stewardship: I think it's more important to protect drinking water sources and improve the quality of water in streams in Southwest Missouri.



Split Vote



Challenges: What are the most critical challenges our community faces regarding stormwater management?

- Our citizens take the availability of good quality drinking water for granted. There is a broad misconception that the actions of one will not impact the many. Public education of the critical nature of our stormwater policy making, the state of our water quality and the availability of drinking water is necessary.
- Creating policy that will allow development without creating new problems that have to be solved later.
- Finding the money to correct past mistakes.
- Motivating a majority of the public to support policymakers' efforts towards good stormwater management.
- Economic constraints to implement effective solutions. Direct impact of solutions on property owners i.e. land acquisition, required easements, etc.
- Budgets are limited, how do we fund the EPA required water quality elements? Budgets are limited, how do we fund maintenance/ replacement of infrastructure? How do we attract industrial/manufacturing companies if the cost of stormwater treatment and management is higher than our neighboring communities? How do we keep the cost of living (taxes) low so that we can give our residence a high standard of living? Several detention ponds have caused the formation of sink holes. These many times cannot be detected prior to construction and they are generally "unknown". How do we infiltrate water as suggested by EPA to meet the TMDL standards without causing multiple sink holes to open? We need to change the State Statues to allow an "urban

stream" category that would apply to streams in a fully urbanized watershed. Retrofitting the watershed by installation of a lot of stormwater treatment to meet pristine stream standards does not seem reasonable. It may not even be technologically achievable. We should look at regional BMP's rather than hundreds of "pot holes" that are nearly impossible to manage. The private community is not properly trained to manage these "pot hole" BMP's and generally does not want them. The City however is held responsible by EPA & MDNR as part of the MS4 permit. Regional BMP's would be owned and maintained by the City. The regional BMP's should have multiple purposes such as soccer fields, parks and urban fisheries. Finding locations for regional facilities are difficult and the cost is high. The cost for installing and maintaining hundreds of pot holes would however be even higher. EPA is moving in the direction of integrated management of wastewater treatment plants and stormwater treatment. Missouri house bill 89 discusses the affordability of wastewater treatment upgrades. It might be advantageous for Springfield to re-organize to combine wastewater treatment plants and stormwater treatment under one Utility. The required installation of water quality treatment improvements from either wastewater treatment plant upgrades or from stormwater treatment upgrades would be limited to 2% of the MHI based on house bill 89. Springfield & Greene County could choose to install additional measures over and beyond 2% of the MHI.

- Adequate funding to do what is right for the community is the most critical challenge.
- It is always about the money. We must determine the most cost effective and proven methods first and experiment with new technology in smaller increments to see if they can be applied in the future. Stormwater and water quality is critical and should not be taken lightly.
- Funding the necessary improvements to implement additional stormwater measures.
- Funding, public perception, understanding and adoption, and acceptance of change
- Striking balance between ideal and practical (i.e. if it is not affordable it is not sustainable) Improving citizens awareness of each and everyone's ownership stake in stormwater management and water quality in general.
- From what I have learned so far as a task force member is that a serious funding shortfall is looming. It also appears that most of the funding since 1995 has been used to deal with issues that had been created prior that time. Going forward there needs to be some source of funding to deal with continued corrections to existing problems, a plan to fund repairs to the existing aging system, and funding to meet future requirements of state of federal regulations.
- Growth in this area with construction of residential and commercial properties The age of a lot of the stormwater drainage lines
- Determining how to measure and verify what effect a particular technology has on water quality. Finding affordable solutions.
- Who is going to pay for all the improvements?
- Finding the balance between the environmentalists that want to vegetate every foot of stream corridor and the engineers that are trying to design stream corridors to remove flood waters efficiently to reduce damage from floods to urban structures. Development pressures to fill sink holes or add fill to floodplains to make valuable property near busy intersections is a big problem. These losses of natural flood water storage should not be happening.
- How to fund it and what projects take priority.

- Achieving a paradigm shift in how practices that are effective at managing stormwater may utilize design and long-term maintenance techniques that cause the land to look different from the status quo.
- Funding
- Getting citizens of the area to understand they are part of the solution as well as part of the problem. The local governments also need to understand that they don't need to pave everything in sight to control dust.
- Do not set the bar so high we can't get there. What is very much needed is prioritize needs. Life safety number one. What I fear is penalizing existing citizens, developers for the sins of others, not only lousy developers but our own gov't that permitted building in areas that should never have been developed to begin with. I fear the wish list no matter how noble it maybe will fall under the weight of trying to do too much without resources to pay for them. The private sector is hurting so we cannot over burden them with fixing problems that they didn't create or we run the risk of winning a battle and lose the war- economic development and jobs that are needed in order to run our community.
- To educate the citizens on the importance of stormwater in our community and how it is connected to our health, public safety, economy and vitality.
- I think one of the biggest challenges will be how the community strikes a balance between encouraging growth and development on the one hand and making sure that that growth and development is done in conjunction with sound and strong stormwater management policies.
- Community willingness to help OTHERS in the community pay for improvements that do not directly impact all community members. i.e. I live on the north side, why should I pay taxes to fix the west sides problems. Or I live on high ground why should I help people who bought low ground.
- Funding, how do you pay for the needed improvements without killing growth by creating more taxes

City of Springfield - Greene County, Missouri

Stormwater Management Task Force

Flood Risk and Damage Reduction

Historic flood events in the community defined Springfield's and Greene County's stormwater management programs during much of the past twenty years. The focus of the stormwater program in the City and County was correcting issues that caused flooding with "hard" solutions, aimed at conveying stormwater away quickly and efficiently. In the last 5 to 10 years the focus has begun to shift toward more "soft" solutions using water quality protection and considering how to develop multi-purpose projects.

What is the City and County doing to reduce flood damage and risk?

Springfield and Greene County have plans, policies, codes and ordinances that direct staff in the execution of their duties. The stormwater design standards provide the necessary requirements and guidance to reduce flood damage to property and safety risk to humans. The City and County use the following strategies to reduce flood damage and risk:

- Enact proper ordinances & regulations to minimize future problems;
- Properly plan for new development and redevelopment;
- Buy-out priority properties in the floodplain on a voluntary basis;
- Participate in the National Flood Insurance Program (NFIP) to allow citizens to utilize the program to purchase insurance; and
- Build new stormwater management system improvements.

Ordinances & Regulations

Springfield and Greene County have adopted ordinances that address stormwater runoff from new development to help minimize downstream flooding and address water quality. Like many communities, the first regulations adopted by the City and County primarily addressed the flooding aspect of stormwater runoff.

In 1983, the City was one of the first communities to adopt stormwater detention requirements on all new developments. Early computational methods were very simplified and it became apparent that detention basins did not always provide protection of downstream properties that met the public expectation. The first detention design standards only considered the 100-year storm event and simplified methods were not always accurate.

After the 1993 floods, the standard for detention design changed to more complex computer modeling methods resulting in better performance at controlling a range of flood events. At that time, the design requirements were changed to consider storm events ranging from the 2- to 100-year recurrence intervals for pre-development and post-development conditions. (A 2-year storm event is one that has a 50% chance of occurring in any given year. A 100-year storm event is one that has a 1% chance of occurring.)

Regional detention basins and conveyance improvements were funded in the City and a payment in lieu of detention was allowed in some cases in order to promote more effective regional flood control. In the late 90's, the City and County regulations were modified to address the water quality aspect of stormwater runoff providing extended detention and other practices to capture runoff from more frequent rainfall events (1 inch or less). In addition to reducing pollutants in stormwater, holding runoff from the 1 inch rainfall can provide an added benefit of reducing downstream erosion. *Figure 1* describes the commonly used design storms.

The current regulations have played an important role in reducing flood damage, improving water quality and improving downstream bank stability. However, they have not adequately addressed the change in total *volume* of runoff that occurs due to the increase in impervious surface area. Nationally, the trend has been to promote infiltration of stormwater runoff in order to mimic pre-development rates *and* volume. The Environmental Protection Agency (EPA) is currently considering a national stormwater rule that could mandate volume reduction from new and re-development. We will address this topic in more detail when we discuss water quality issues in Meeting #3.

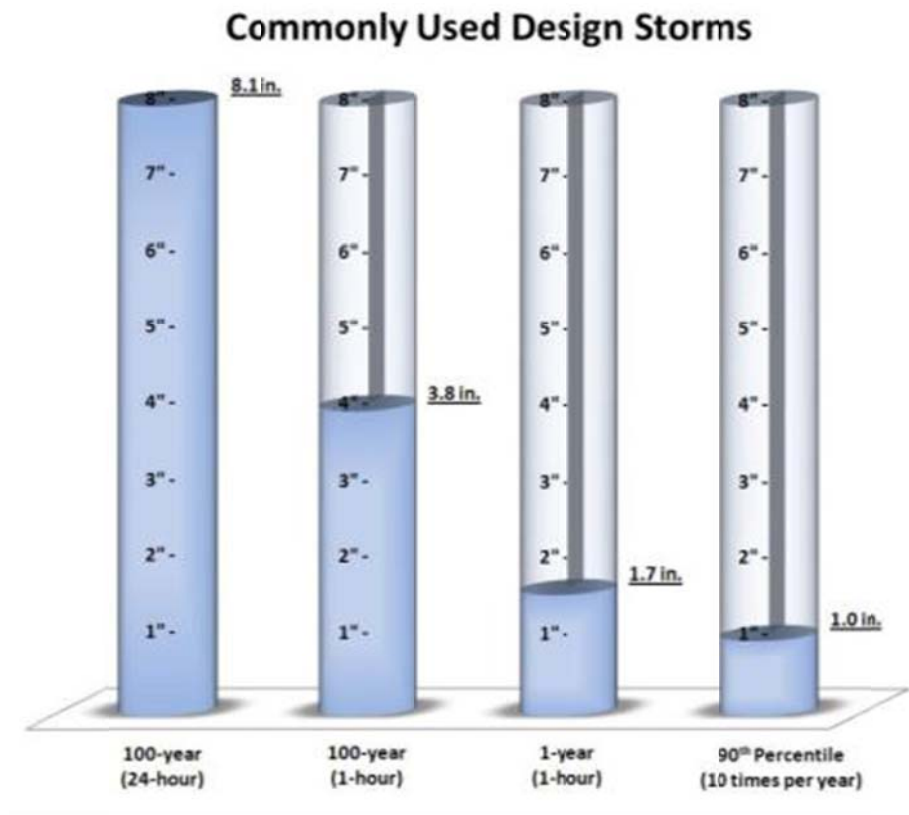


Figure 1. Commonly Used Design Storms

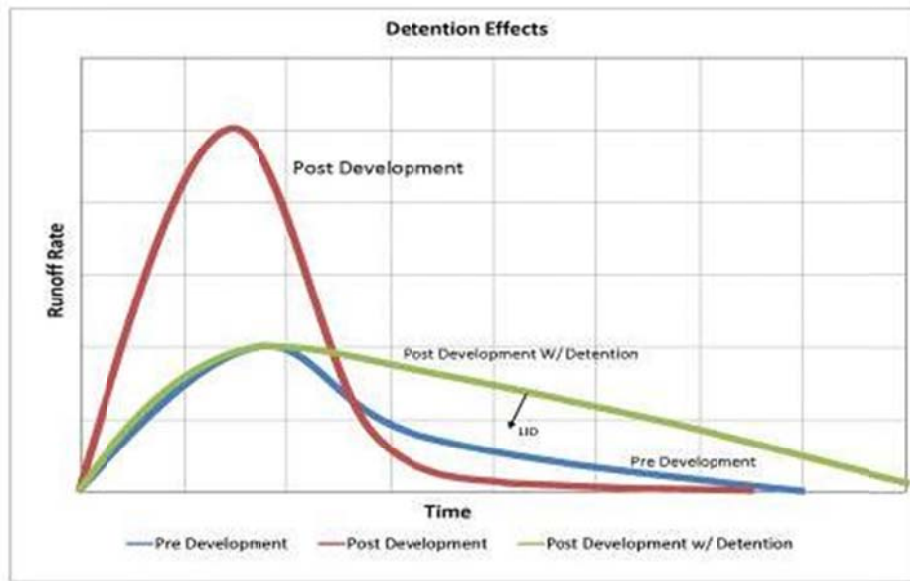


Figure 2. Hydrograph

To illustrate these concepts, *Figure 2* shows a hydrograph which is a plot of flow vs. time draining from any given watershed. The figure shows a hypothetical hydrograph from an area being developed, pre-development and post-development. The blue line shows a typical hydrograph in the pre-development conditions, typically a grass/forest area. The red line is the hydrograph in the post-development conditions, with no detention, showing an increase in peak flow and volume of flow (runoff volume is the area under the curve). The green line shows the hydrograph when detention is provided for a development, storing the additional runoff and releasing it over a longer period of time. There is still a larger total volume of runoff but the peak flow is the same as pre-development conditions. Low Impact Development (LID) seeks to reduce the volume of flow and mimic pre-development conditions, moving the green line closer to the blue line. LID is typically implemented through rainwater reuse (irrigation or gray water), evapotranspiration (plants and trees) or infiltration (pervious pavement or infiltration trenches).

There are many other design standards implemented by the City/County to reduce flooding. While detention requirements are intended to prevent new development from causing downstream flooding problems, other standards are developed to ensure channels, pipes and culverts are designed properly to minimize street and structure flooding. At stream crossings, culverts are typically designed to prevent road overtopping up to a 100-year event. Local drainage on streets is typically designed to allow for travel movement up to a 2- to 5-year event and the safe passage of emergency vehicles up to a 100-year event. Drainage systems around buildings are designed to keep water below the floor of the building up to the 100-year event. The City and County both have Stormwater Design Manuals that provide detailed criteria for the many aspects of stormwater design. Many facilities in the City and County do not meet current standards as they were constructed prior to the standards existing. This is the cause of the vast majority of the current problems.

Development Planning & Review Process

When a property owner wants to develop, redevelop, or improve their property, the community development process provides several opportunities to reduce the risk of property damage and loss from flooding events. These opportunities include the following.

- Preliminary meeting between the property owner and staff to discuss the project, applicable ordinances, any restrictions, and permits required.
- When property is being sub-divided, a preliminary plat is submitted along with supporting documents showing adherence to ordinances and codes.
- Preliminary plat is submitted to the Planning & Zoning Commission for review and approval.
- Plans for construction of stormwater improvements for a subdivision or a building site development are submitted. Plans are routed to the Stormwater Engineering Division to ensure they comply with ordinances and standards.
- Improvements must be completed or escrowed prior to the recording of the final plat or building occupancy.
- Property owner applies for all necessary permits and inspection of land disturbances and stormwater improvements takes place to ensure compliance of construction.

**It is important to note that private, onsite stormwater improvements receive inadequate inspection due to lack of funding or staff to do these inspections. It is expected that this will become a require function by regulation in the near future. Additional funding for this function may be required by the state/federal regulation.*

Buy-out of Flood Prone Properties

Based on the recommendations of the 1993 Citizens Stormwater Committee, the City and enacted a Voluntary Flood Acquisition Program to prevent future property loss from flooding events. This program includes both removal of structures from flood prone areas and preserving and restoring streams and riparian corridors. The primary benefit of the program is stopping the cycle of repeated flooding of individual homes or entire neighborhoods which leads to lower property values and often dilapidated properties. Over \$10M has been invested since 1994. More than 200 acres have been acquired from voluntary sellers, mostly in or adjacent to the floodplain. Over 200 parcels have been acquired with approximately 150 structures, approximately 75 of these properties were homes located in sinkholes that flooded on a repeated basis. Funding for the program has been matched to leverage approximately \$750,000 in FEMA funds.

Table 1 and Table 2 list the major riparian corridor preservation areas that are used for greenway trails for both the City and County funded projects.

Table 1: City of Springfield -- Major riparian corridor preservation areas used for greenway trails

Watershed	Year of Program	Size (acres)	Funding Amount
Galloway Creek	1998, 2003	59	\$425,000 + private funds
South Creek	1998, 2001	72	\$1,390,000
Wilson's Creek	2001	52	\$482,545
Fassnight Creek	2005	4	\$30,200
Jordan Creek	2004	30	\$172,500
Total (10 properties)		211	\$2,500,245

Table 2: Greene County -- Major riparian corridor preservation areas used for greenway trails

Watershed	Year of Program	Size (acres)	Funding Amount
Ward Branch	2001, 2002	25	\$1,800,000
Total (15 properties)		25	\$1,800,000

A summary of the flood acquisition program is provided in Table 3. These are part of projects completed by the City and County in the past 15 years. From 2001 to present, a total of 38 houses were purchased by the County due to flooding using Federal, State, and local funding. 22 of these houses were located in the floodplain.

Table 3. Summary of Flood Risk Reduction Program, Springfield and Greene County

Flood Risk Reduction Element	City of Springfield	Greene County
# of Structures removed in Buy-out program (to date)	163	38
# Structures removed, not in floodplain	70	16
# Parcels with no structures in Buy-out Program	45	0
# of remaining structures with repetitive loss from flooding	5	3
# of remaining Structures with repetitive loss, not in floodplain	3	2
Amount spent to date	\$16,000,000	\$5,000,000

National Flood Insurance Program Participation

Springfield and Greene County participate in the National Flood Insurance Program (NFIP). The benefits to the community for this participation include:

- Property owners are able to purchase NFIP flood insurance policies with premiums backed by the federal government.
- Federal grants or loans administered by Federal agencies such as the Department of Housing and Urban Development, Environmental Protection Agency, and Small Business Administration are available even in identified flood hazard areas.
- Federal disaster assistance for flood damage may be provided to repair insurable buildings located in identified flood hazard areas.
- Federal mortgage insurance or loan guarantees, such as those written by the Federal Housing Administration and the Department of Veteran Affairs, are provided in identified flood hazard areas.
- Federally insured or regulated lending institutions, such as banks and credit unions, are allowed to make conventional loans for insurable buildings in flood hazard areas.
- The community is eligible for Federal grants and loans for economic development and disaster assistance from other natural disasters.

Flood Prone Areas

Initial flood hazard boundaries were identified for the City and County in 1974 and 1978, respectively. The first Flood Insurance Rate Maps (FIRMs) for the City of Springfield were completed on July 3, 1978. They were used for informational purposes until the City joined the NFIP in 1989, passing a floodplain ordinance and adopting the maps. Greene County adopted their first FIRMs on June 15, 1983. In order to participate in the NFIP, the City and County had to adopt stringent requirements regarding development in the floodplain. The difference in development standards for floodplain properties can be seen in *Figure 3*.

The current FIRMs, adopted December 17, 2010, were a cooperative effort between the City and County to convert paper maps to a seamless county-wide digital map. Both entities joined the Cooperating Technical Partners (CTP) program as a part of this process. The



Figure 3. Development Standards for Floodplain Properties

City of Springfield is one of only three cities in Missouri participating in the CTP program. Greene County is one of only two Missouri counties participating. Several streams in the City of Springfield were restudied as a part of this mapping process. These streams were restudied using more accurate 2-foot ground contours and much more detailed computer models to greatly improve the accuracy of the maps. The City adopted a 2-foot freeboard, meaning building floors must be elevated 2 feet above the flood elevation. This exceeds FEMA minimum requirements and provides a greater level of safety for new structures in the City.

Flood Insurance Policies

Repetitive loss properties are tracked by FEMA for informational and planning purposes. FEMA defines a repetitive loss property as: "any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling ten-year period, since 1978. At least two of the claims must be more than 10-days apart but, within ten-years of each other. A repetitive loss property may or may not be currently insured by the NFIP." There are only five repetitive loss properties remaining in the City of Springfield and three repetitive loss properties remaining in the unincorporated portion of Greene County. The low number of repetitive loss properties may be attributed somewhat to the purchases made by the City and County but also may be related to the lack of flood insurance coverage in this area.

There are 172 flood insurance policies in unincorporated Greene County (as of 8/31/2012) having an insured value of \$41,706,000 and a premium of \$109,679. There are 255 flood insurance policies in Springfield having an insured value of \$57,814,300 and a premium of \$181,674. Using averages, a citizen living in the city or unincorporated portion of the county pays \$682 a year for \$233,000 of flood insurance. From 1978 to date, there were 52 flood insurance claims in unincorporated Greene County, of which, 43 were paid a total amount of \$580,935.11. During that same time period, there were 67 claims in Springfield, of which, 55 were paid a total of \$999,619.59. Just for illustration, the average payout in Springfield/Greene County was \$16,128 per accepted claim and 18% of claims were "closed without payment." Since flood insurance is not required by lenders for structures located outside the floodplain, flood insurance policies purchased for properties located outside the floodplain are often an indicator that flooding is a real, or at least perceived, problem.

Projects Planned or Underway

Table 4 lists nine (9) City projects to be completed in the next 2 years. The total estimated construction cost is approximately \$7 million. At this time, there are no immediate plans for more capital improvements until additional funding is secured. Reserves in the Parks/Stormwater Tax are being used to fund regulatory requirements through Fiscal Year 2014.

Greene County has no funds available for future capital improvement projects to address flooding.

Table 4. Current City Funded Major Stormwater Projects

Project Name	Funding Source	Completion
Fassnacht Creek Phase 2, Campbell to Jefferson	Level Property Tax	2013
Ward Branch Stream Stabilization/Trail	Parks/Stormwater Tax	2013
Close Park Lake Spillway Stabilization	Parks/Stormwater Tax	2013
Big Urbie Grant Match (flow reduction and treatment)	Parks/Stormwater Tax	2015
Edgewood Drainage	¼ Cent Sales Tax	2013
Golden and Pacific Drainage	¼ Cent Sales Tax	2013
Cooper Park Detention Expansion	¼ Cent Sales Tax	2014
Grand and Holland Drainage Phase 1	¼ Cent Sales Tax	2014
Renew Jordan Creek Detention Phase 1	Level Property Tax	2014

In terms of flood damage and risk reduction, what still remains to be accomplished?

Watershed and Stormwater Master Planning

Many communities such as Kansas City, St. Louis and Tulsa have developed watershed master plans throughout their cities to prioritize and plan for future expenditures. In the past, the City has typically maximized limited funding by using nearly all available funds for capital improvements, addressing the many severe flooding problems that existed 20 years ago. Today, the most severe problems are not so obvious. While many streets and properties still suffer from regular flooding, the remaining problems are not demanding the urgent attention to the degree that was after floods in 1993 and 2000 and others. This, combined with the increasing needs for infrastructure replacement and water quality protection, points to the need for more planning than in the past, emphasizing efficient and effective use of funds to complete prioritized projects.

Following are examples of focus tasks for watershed planning:

- Establish high priority riparian corridor areas, both planning ahead in developing watersheds and retrofitting developed watersheds.
- Prioritize remaining flood-prone areas for action, by either flood acquisitions or capital improvements.
- Develop BMP strategies to address watershed-specific impairments and identify opportunities to retrofit areas with water quality BMP's.
- Complete condition assessments on all stormwater facilities within the drainage system.

Unfunded Capital Project Needs

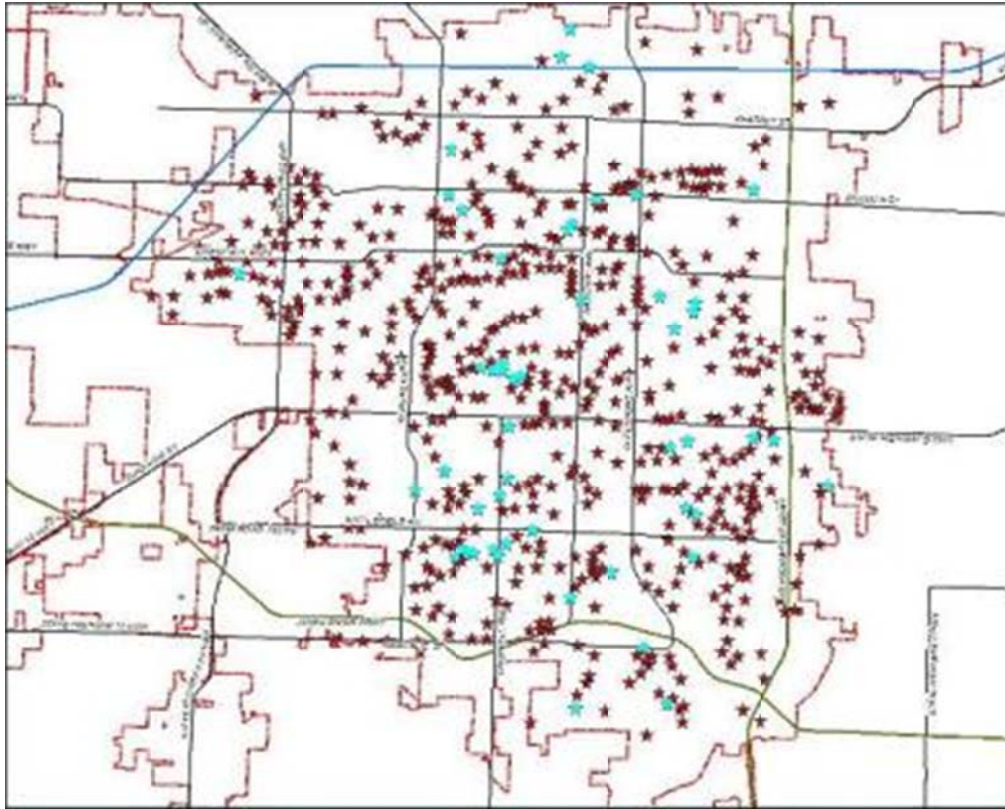


Figure 4. City Unfunded Needs List

Figure 4 shows projects on the City Unfunded Needs List, developed several years ago. There were a total of 660 projects with a total cost of about \$700 million. It was developed from records of areas of known flooding, many reported after the 1993 and 2000 floods, and other known flood-prone areas. A recent review and update of the data has found that about 50 of these project areas (in blue) have been constructed or have funding for construction, reducing the unfunded needs list by about \$50 million.

In a report prepared for the Water Quality Funding Work Group in April, 2005, the County identified \$25 million in priority projects affecting 100 frequently flooded homes and 300 homes with frequent property damage. This list has not been further refined due to the lack of funding. Citizen complaints regarding flooding continue to be recorded and damage assessments are performed following each flood event.

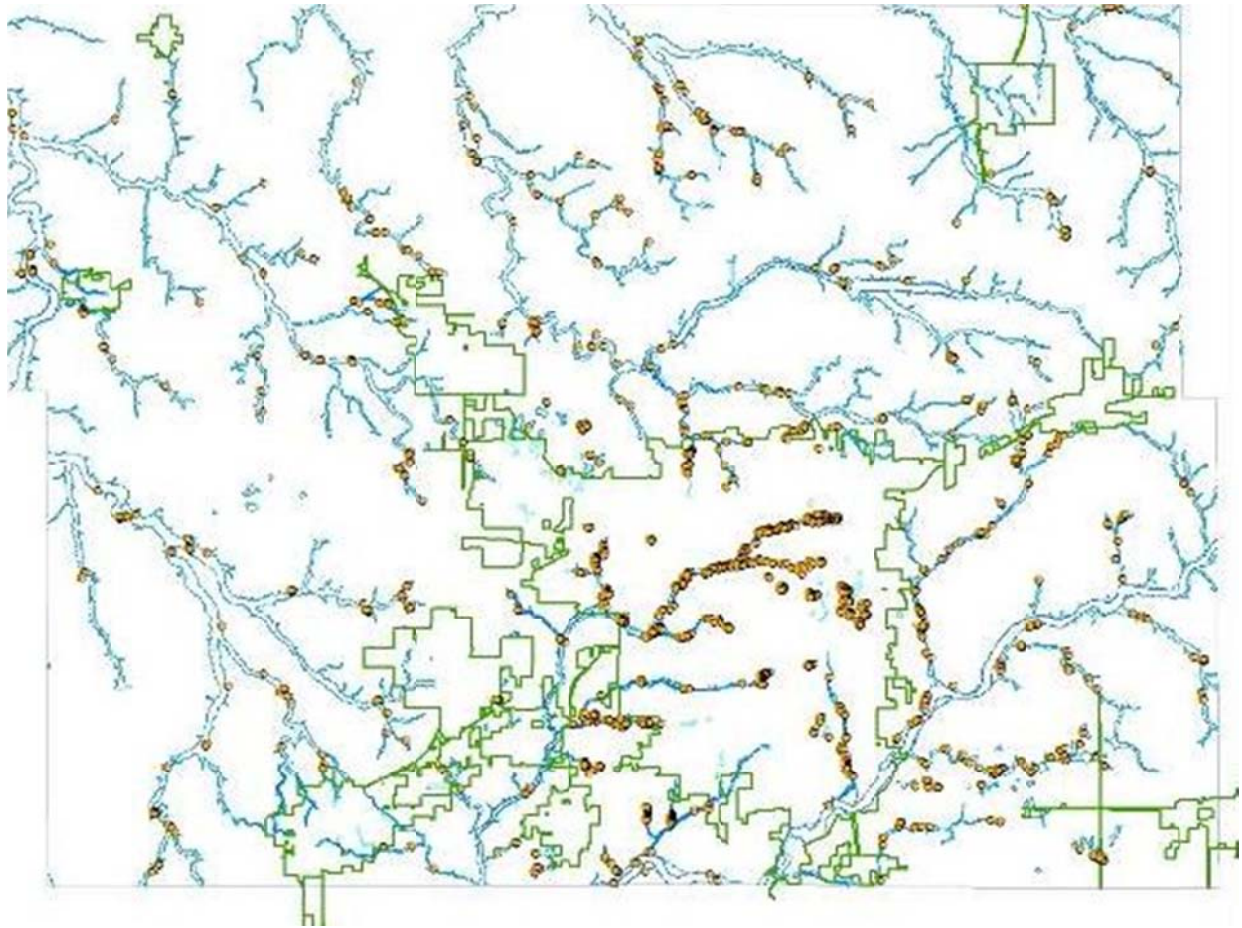


Figure 5. Greene County Structures in the Floodplain

Figure 5 illustrates the structures in the floodplain in all of Greene County including the City of Springfield. In July 2009, Greene County identified 329 residential (1-4 family) structures and 513 other structures located in the floodplain. Since that time, one house in the floodplain burned and was rebuilt outside the floodplain, three houses and one outbuilding were purchased and demolished by the County, and 64 houses were removed from the floodplain by Letter of Map Change using information provided by the County.

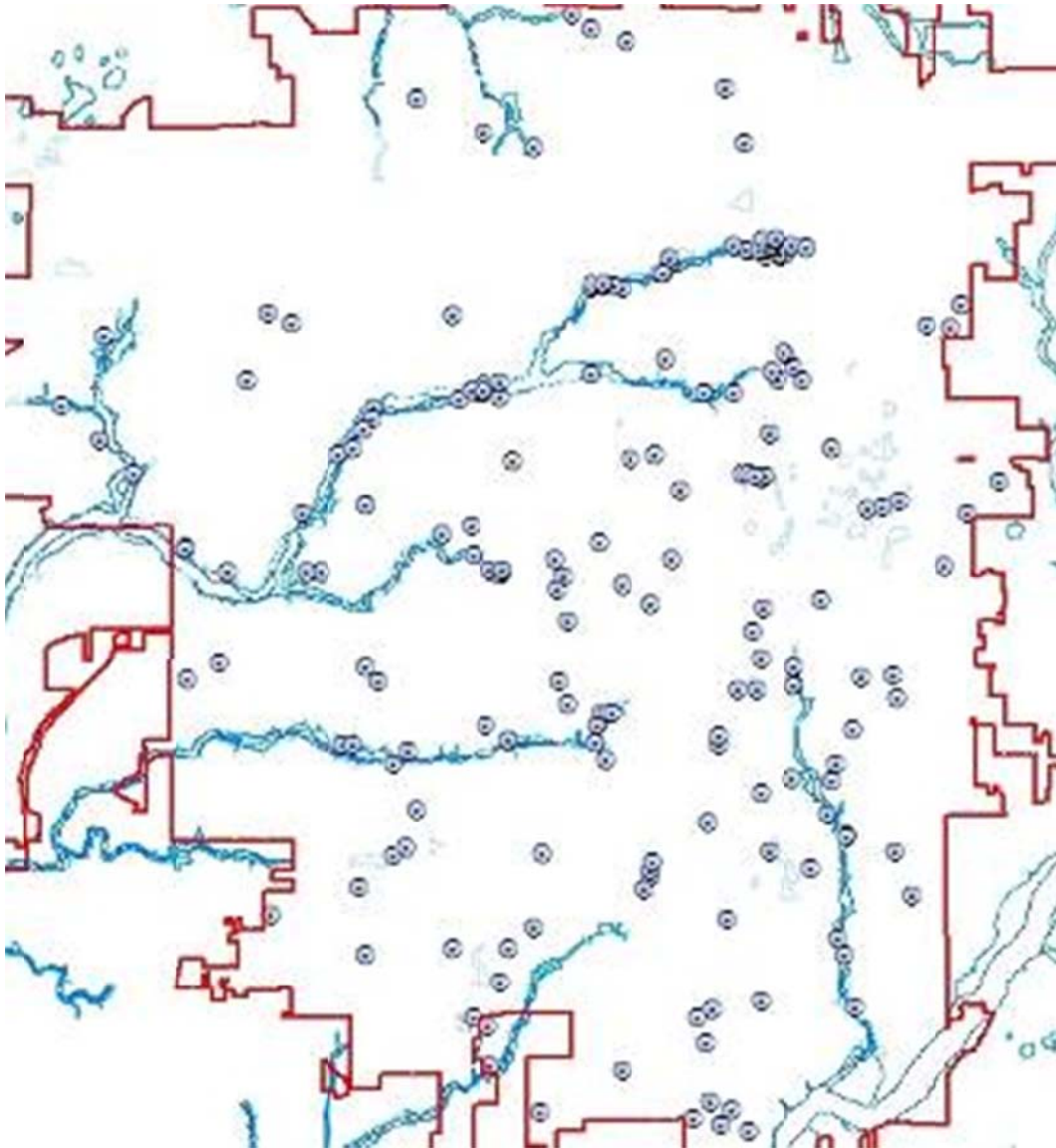


Figure 6. Properties with Flood Insurance (Springfield)

Figure 6 is a map showing the properties that have purchased Flood Insurance from the National Flood Insurance Program in the City of Springfield. Some of these properties are outside of the mapped floodplain which indicates that there is flood damage outside of the mapped floodplain.

What are the Unfunded Stormwater Improvement Projects that could reduce risk?

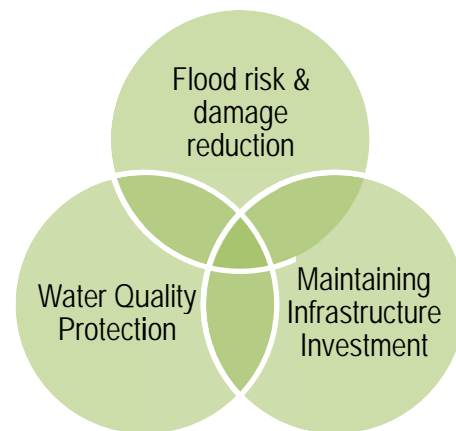
The City and County continue to work towards risk reduction for high precipitation events. Table 5 highlights two major projects (Lower Jordan Creek & Fassnight Creek.) on City of Springfield's list that result in high priority flood risk reduction.

Table 5. City Unfunded Stormwater Improvement Needs in Springfield with Flood Reduction Elements

Watershed	Length (feet)	Estimated Cost (dollars)
Spring Branch	17,421	6,970,000
Pea Ridge Creek	62,310	22,930,000
South Dry Sac	15,300	6,550,000
Lower Jordan Creek	148,782	74,560,000
N. Branch Jordan Creek	80,836	51,540,000
S. Branch Jordan Creek	1,647,000	80,200,000
Upper Wilson Creek	196,452	76,296,000
Lower Wilson Creek	52,100	20,850,000
South Creek	145,160	58,870,000
Fassnight Creek	186,875	89,520,000
Galloway	192,615	89,620,000
Thompson	36,900	13,740,000
Inman Creek	61,902	27,200,000
Ward Branch	111,700	48,820,000
James River	75,975	44,360,000
Totals	3,031,328	\$712,026,000

Where should the community focus its flood risk & damage reduction efforts?

In the past, our community has focused its flood risk and damage reduction efforts on projects that reduce structure flooding and severe street flooding. Property damage is the second priority. Many communities are now focusing on projects that also protect water quality and reinvest in maintaining the existing system. These types of projects produce multiple benefits to the community as shown as the intersection of the three areas in *Figure 7*.



Example Multi-Benefit Projects

Renew Jordan Creek

The Renew Jordan Creek is a City-driven project to continually enhance and restore the creek that runs through the heart of Springfield. It encompasses several miles of stream and will address some of the city's most impacted waterways. The project includes new bridges, stream restoration and regional detention basins for flood

control. *Figure*
waterway.

along the

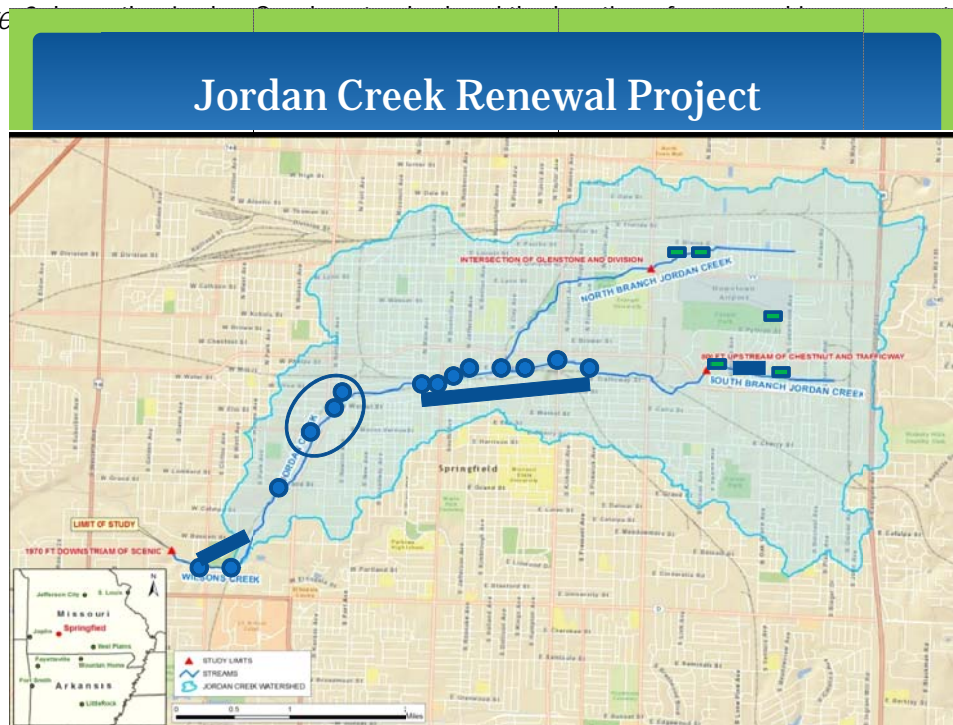


Figure 8. Jordan Creek Renewal Project

An important component of stream restoration through old industrialized areas is to clean up contaminated area near the creek and establish a clean buffer zone. *Figure 9*, *Figure 10* and *Figure 11* show the West Meadows area in the early 20th century with Jordan Creek meandering through it and the West Meadows today after restoration of its floodplain.



Figure 9. West Meadows Area



Figure 10. West Meadows Area

Nearly \$10 million has already been invested in Renew Jordan Creek using local, state and federal funds. Improvements include stream restoration projects, floodplain property acquisition, environmental cleanups and preliminary design work.



Figure 11: Jordan Creek Restoration

It is vitally important to make Renew Jordan Creek a community-driven project and meet multiple quality of life objectives. This rendering near the developing MSU downtown campus shows how daylighting the creek from its culvert across downtown could open opportunities for park-like landscaping, public gathering places, water quality protection, habitat improvements and even incorporation of public art. The community will help determine exactly what Renew Jordan Creek looks like.



Figure 12. Jordan Creek Flood Control Feasibility Study

There are multiple community partners being developed and numerous local and non-local funding sources being explored to continue the project for years to come. Cost estimates for all of the improvements are near \$100 million. It is hoped that with all levels of public and private investment over several years, Renew Jordan Creek will become one of many outstanding community assets in downtown Springfield.

Fassnight Watershed Projects

An important consideration when developing prioritized capital improvements program is the approach of hard infrastructure vs. soft infrastructure. Many of our minor waterways that are tributary to major waterways such as Jordan and Fassnight Creeks, were enclosed many years ago and neighborhoods built on top of them. Today, these systems typically suffer from inadequate capacity, deteriorating conditions and are transporting flow and pollutants downstream very efficiently, causing harm to the major stream. A hard infrastructure approach replaces and adds to these systems more structures with greater flow capacity, continuing to harm receiving streams. A green approach uses opportunities to restore waterways to increase capacity, but also provide flood storage and water treatment to help protect downstream receiving waters. This approach can provide community space for recreation. The concepts below show a flood-prone area tributary to Fassnight Creek with these two options. The initial cost of the soft approach is generally less, regular maintenance is higher, but long-term life cycle replacement is lower. These concepts and approaches to projects will be discussed in more detail at the meeting.



Figure 13. Existing Conditions Map

What is the financial outlook for stormwater management in our community?

Financial Forecast

Tables 7 and 8 show the decline in revenue Springfield and Greene County is facing for their stormwater management programs.

Table 7. Financial Forecast for City of Springfield Stormwater Revenue

Revenues	2012	2013	2014	2015	2016	2017
Level Property Tax	\$2,000,000	0	0	0	0	0
General Fund (current level)	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Parks/Stormwater Sales Tax	\$2,000,000	0	0	0	0	0
Capital Improvements Sales Tax	\$1,000,000	\$1,000,000	0	0	0	0
Payment in Lieu of Detention	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Federal/State Funds	\$300,000	\$200,000	\$200,000	0	0	0
Cash reserves	\$2,000,000	\$2,000,000	\$1,000,000			
TOTAL REVENUES	\$7,900,000	\$3,800,000	\$1,800,000	\$600,000	\$600,000	\$600,000

Table 8. Financial Forecast for Greene County Stormwater Revenue

Revenues	2012	2013	2014	2015	2016	2017
General Fund (current level)	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
Parks/Stormwater Sales Tax	\$1,100,000	0	0	0	0	0
Cash reserves	\$500,000	\$500,000	\$500,000			
TOTAL REVENUES	\$1,850,000	\$750,000	\$750,000	\$250,000	\$250,000	\$250,000

NEXT STEPS

What are the next topics for the Task Force to consider?

Meeting #3 – Water Quality & Environmental Compliance.



Meeting #4 – Maintain Infrastructure Investment in Existing System.

Springfield/Greene County Stormwater Management Task Force

November 15, 2012

Facilitator: Shockey Consulting

Staff Support:
City of Springfield
Department of Public Works
Stormwater Engineering
Greene County
Resource Management



Welcome to Meeting #2



Sequoia Park

Co-Chairs

- Introductions
- Meeting Notes
- Future Meeting Dates



Green Circle Shopping Center

Task Force Agenda

Guiding Principles Survey

Flood Damage & Risk Reduction

- What has been done
- What is being done
- What is left to do

Task Force Discussion

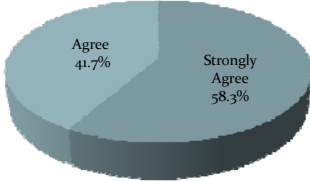
Guiding Principles Survey

Purpose: What statements guide our development of recommendations?

Participation:
24 Task Force members responded

Innovation/Planning:

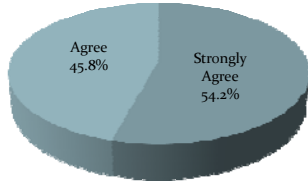
The long-term stormwater management program should be flexible to adapt to new technologies and innovations.



Response	Percentage
Agree	41.7%
Strongly Agree	58.3%

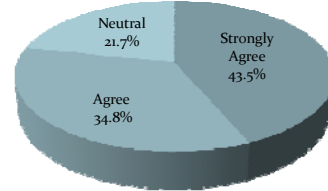
Understandability/Public Education:

Citizens should be made aware of how they can protect water quality through their actions.



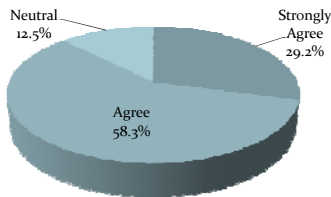
Public Acceptance:

The public perception should be that the stormwater management programs are fair; decision-making is open and is influenced by public input.



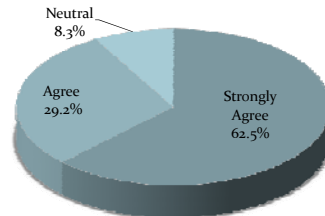
Understandability/Public Education:

Citizens should understand how improvements help protect water quality and how improvements and programs are funded.



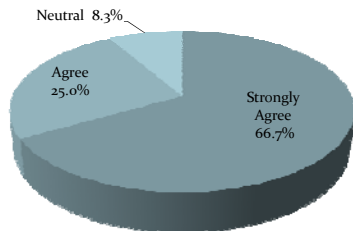
Conservation:

The efficient use of resources should be encouraged.



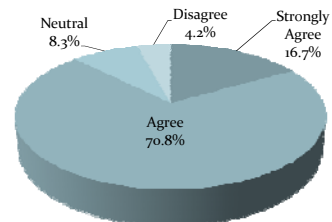
Environmental Stewardship:

I think its important to protect drinking water sources and improve the quality of water in streams in Southwest Missouri.



Public Benefit:

The public should see a direct benefit from the investments made in stormwater management.



Challenges:

What are the most critical challenges our community faces regarding stormwater management?

- Public Education of the following:
 - the critical nature of our stormwater policy making,
 - the state of our water quality and;
 - the availability of drinking water is necessary.
- Create policies that allow sustainable development.
- Concerns of aging infrastructure.
- Development of effective technologies and best management practices for maintenance and sufficient water quality.
- Funding
 - Economic constraints on implementation solutions.

Video: 2009 Jordan Creek Flood



Flood Damage & Risk Reduction



What is the City and County doing to reduce flood damage and risk?

- Ordinances, regulations and standards for new development and redevelopment
- Planning – Site-level and Watershed-level
- Acquisition of flood prone properties
- NFIP participation so flood insurance is available
- Building stormwater management improvements

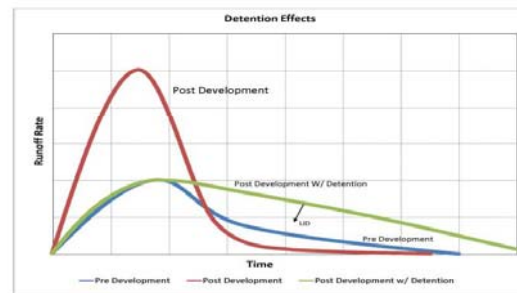
Ordinances, Regulations and Standards

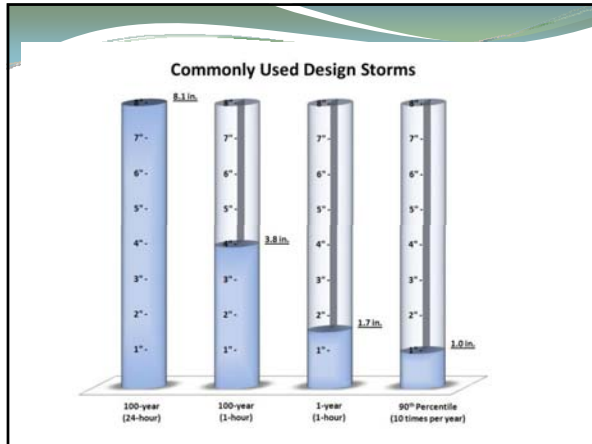
State law related to flooding comes from case law – Reasonable Use
Detention required on all new developments
Detention design considerations (4 progressive levels)

- **Flood Control:** 100-year standard; 1983 (simplified), 1994 (hydrograph)
- **Channel Protection:** 1-year standard; 2002 +/-
- **Water Quality Protection:** 1" rain – 90th percentile storm; 1999 in sensitive watersheds and 2005 city-wide (treatment - extended detention)
- **Volume Reduction (not required);** Low Impact Development: eliminate ½" to 1" through infiltration; evaporation; reuse.

Give Local Example

Understanding Detention





- ### Detention Basin Benefits
- Reducing downstream impacts from new development
 - Reduced need to upsize downstream conveyance
 - Protection of downstream channel banks
 - Improvement in downstream water quality



Harrison Elementary Detention Basin

Return Frequency (yrs)	Pre-Development Flowrate (cfs)	Post-Development Flowrate (cfs)	Basin Outlet Flowrate (cfs)
2	5	15	< 1
10	11	30	1
25	15	40	2
100	23	57	5

Future Requirements

Largely driven by fed/state regs:

- Add RE-development standards
- Volume reduction – LID
- Best Management Practices (BMPs) construction inspection
- BMP inspections for operation and maintenance (regular private inspections/reporting; less frequent public inspections)

Planning – Site-level and Watershed-level

- Apply codes and ordinances and NFIP floodplain requirements
- Good design – review by Stormwater staff
- Permits
- Inspections
- Watershed planning has been very limited



Acquisition of Flood Prone Properties

1993 Citizens Stormwater Committee recommended the Voluntary Flood Acquisition Program

Flooding leads to lower property values, dilapidated properties

Stops the Cycle of Repeated Flooding of individual homes or entire neighborhoods



Voluntary Flood Buyout Program - City

Over \$10M spent since 1994

- Over 200 acres acquired, mostly in or adjacent to floodplain
- Nearly 200 acquisitions – 75 in sinkholes – about half in FEMA floodplain and half out
- Approximately 150 structures
- Matched approximately \$750,000 in FEMA funds

Voluntary Flood Acquisition Program - City

Major riparian corridor preservation areas used for greenway trails

Watershed	Year of Program	Size (acres)	Funding Amount
Galloway Creek	1998, 2003	59	\$425,000 + private funds
South Creek	1998, 2001	72	\$1,390,000
Wilson's Creek	2001	52	\$482,545
Fassnight Creek	2005	4	\$30,200
Jordan Creek	2004	30	\$172,500
Total (10 properties)		211	\$2,500,245

Greene County Program: Buy-out Flood Prone Properties

Major riparian corridor preservation areas used for greenway trails

Watershed	Year of Program	Size (acres)	Funding Amount
Ward Branch	2001, 2002	25	\$1,800,000
Total (15 properties)		25	\$1,800,000

Role of Floodplain Buyouts in Trail Development

The map displays a network of greenways (indicated by green lines) following the paths of several creeks: Jordan Creek, Fourmile Creek, and South Creek. Red squares on the map represent the locations of city-owned properties that have been bought out. A legend in the bottom left corner identifies the green lines as 'PROPOSED GREENWAYS' and the red squares as 'CITY OF SPRINGFIELD'.

National Flood Insurance Program

- Identifies flood prone areas in watersheds > 1 square mile
- Local government must adopt and enforce floodplain ordinance
- Provides federally backed flood insurance
- Community is eligible for disaster assistance, grants, and loans

- Greene County joined NFIP in 1983
- Springfield joined NFIP in 1989

An aerial photograph of a residential area is overlaid with various colored lines and polygons representing different floodplains. Labels on the map include 'Flooded 1993' (orange), 'Flooded 1995' (red), and 'Flooded 1998' (green), indicating the extent of flooding during those specific years.

New Maps

The image shows a technical drawing of a Flood Insurance Rate Map (FIRM). It includes an aerial photograph of a residential area with floodplains overlaid in green and blue. To the right is a detailed title block for the FIRM, which includes the title 'FIRM FLOOD INSURANCE RATE MAP', the project name 'WARD BRANCH CREEK', and the effective date 'DECEMBER 11, 2010'. The title block also contains the FEMA logo and other regulatory information.

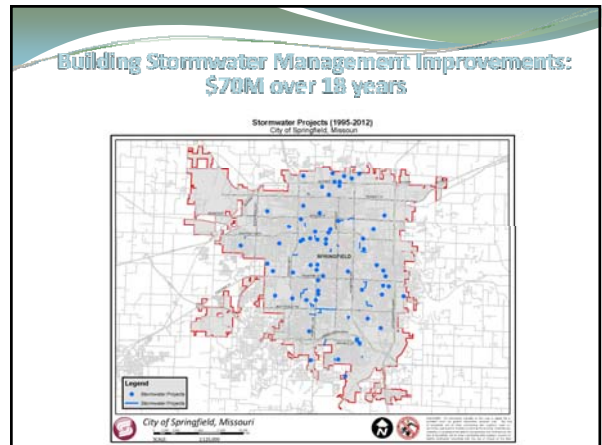
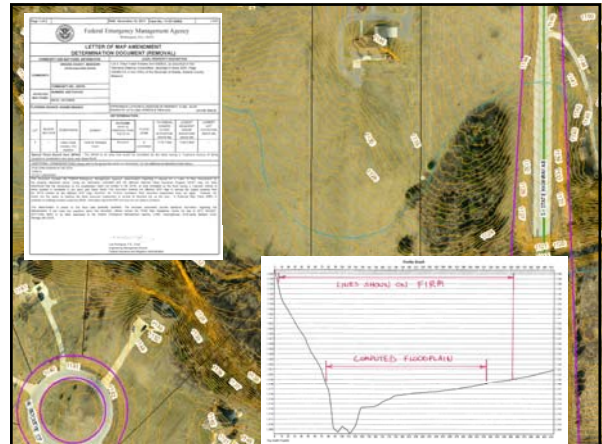
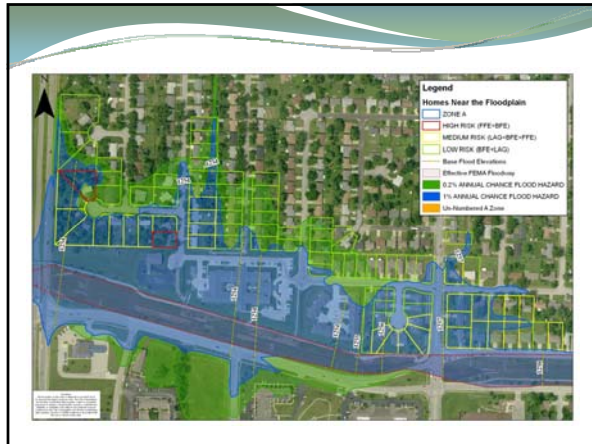
ELEVATION DATA COLLECTION

- City identified over 800 Residential Structures impacted by the new mapping
- Two consulting firms were hired to collect all information needed to complete an elevation certificate and LOMA. Cost: \$115 per home
- Data was used to prioritize stormwater management decisions

The image displays a technical drawing of an elevation certificate, which is a form used to document the elevation of a structure and its components relative to a base flood elevation. Next to it is a data table with multiple columns and rows, likely representing the collected elevation data for the structures.

Stormwater Management Task Force

November 15, 2012



Currently-funded Major Stormwater Projects in the City

Project Name	Funding Source	Completion
Fassnight Creek Phase 2, Campbell to Jefferson	Level Property Tax	2013
Ward Branch Stream Stabilization/Trail	Parks/Stormwater Tax	2013
Close Park Lake Spillway Stabilization	Parks/Stormwater Tax	2013
Big Urtle Grant Match (flow reduction and treatment)	Parks/Stormwater Tax	2015
Edgewood Drainage	¼ Cent Sales Tax	2013
Golden and Pacific Drainage	¼ Cent Sales Tax	2013
Cooper Park Detention Expansion	¼ Cent Sales Tax	2014
Grand and Holland Drainage Phase 1	¼ Cent Sales Tax	2014
Renew Jordan Creek Detention Phase 1	Level Property Tax	2014

Greene County has no capital projects planned due to lack of funding.

What still remains to be accomplished?

- Flood damage reduction & public safety
- Water quality protection & federal and state regulatory compliance
- Infrastructure replacement & maintenance

Building stormwater management improvements

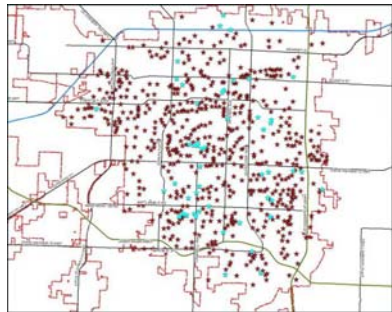
City of Springfield -- Update on requests for service

Approximately 4,100 service requests related to flooding
Now updating by categorizing over 400 service requests as resolved and taken off of unfunded needs list
Approximately 3700 requests for service remain unfunded
Approximately \$50M being removed from the unfunded needs list

City of Springfield
Map of Unfunded Needs for Flood Risk Reduction


Blue = 50 projects completed

Red = remaining flood prone areas

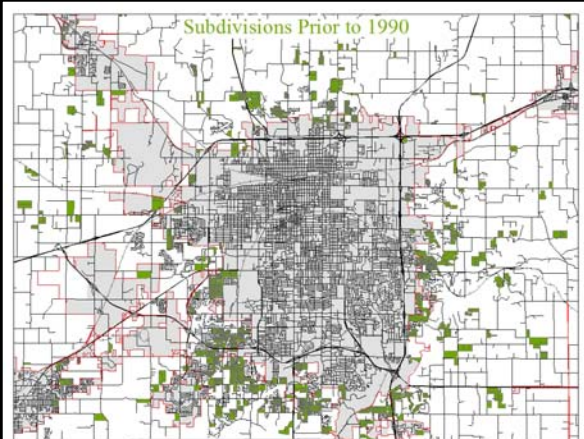


County Identified Flood Projects


- \$25 million in priority projects
 - 100 frequently flooded homes
 - 300 homes with frequent property damage.
- This list has not been further refined due to the lack of funding.
- Citizen complaints regarding flooding continue to be recorded and damage assessments are performed following each flood event.



Subdivisions Prior to 1990

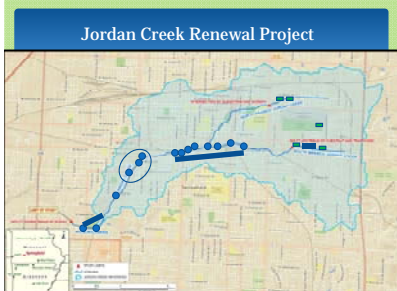


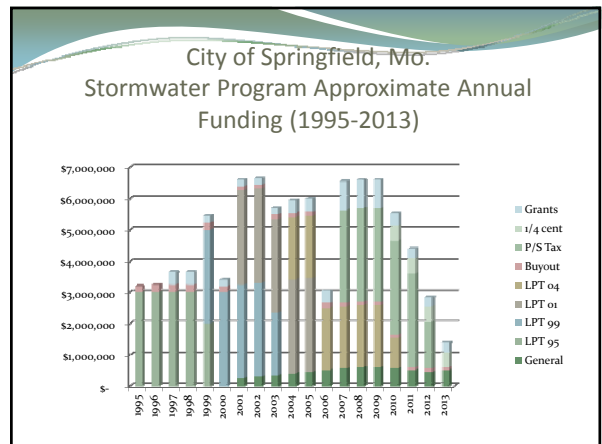
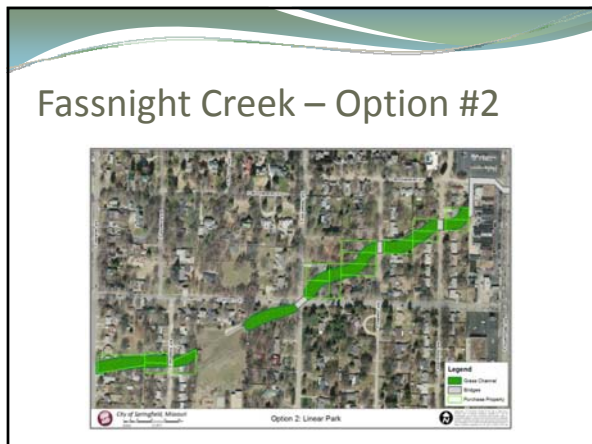
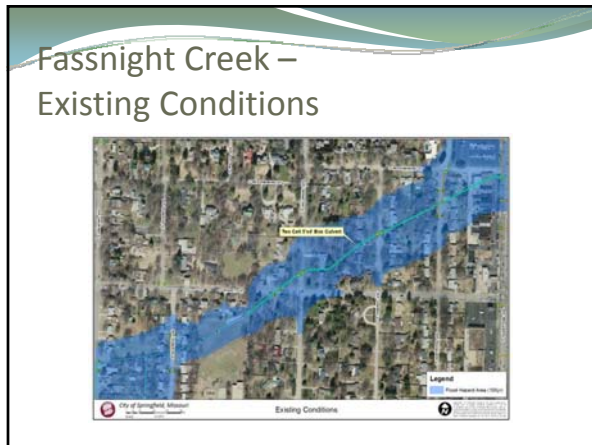
Where should the City and County focus future resources?



Renew Jordan Creek

Jordan Creek Renewal Project





What is the financial future of stormwater management in our community?

Springfield Revenues	2012	2013	2014	2015	2016	2017
Level Property Tax	\$2,000,000	0	0	0	0	0
General Fund (current level)	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Parks/Stormwater Sales Tax	\$2,000,000	0	0	0	0	0
Capital Improvements Sales Tax	\$1,000,000	\$1,000,000	0	0	0	0
Payment in Lieu of Detention	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Federal/State Funds	\$300,000	\$200,000	\$200,000	0	0	0
Cash reserves	\$2,000,000	\$2,000,000	\$1,000,000			
TOTAL REVENUES	\$7,900,000	\$3,800,000	\$1,800,000	\$600,000	\$600,000	\$600,000

What is the financial future of stormwater management in our community?

Greene County Revenues	2012	2013	2014	2015	2016	2017
General Fund (current level)	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
Parks/Stormwater Sales Tax	\$1,100,000	0	0	0	0	0
Cash reserves	\$500,000	\$500,000	\$500,000			
TOTAL REVENUES	\$1,850,000	\$750,000	\$750,000	\$250,000	\$250,000	\$250,000

Discussion



Task Force Meetings #3 and #4

- December 13 – Water Quality and Environmental Compliance
- January 17 – Maintain Infrastructure Investments in the Existing System

Task Force Support Team

- Springfield staff
- Greene County staff
- Shockey Consulting Services



Closing Remarks

