City of St. Joseph, Missouri
Water Protection Program
Community Advisory Panel Meeting

Date: Thursday, December 10, 2009
4:00-5:30 p.m.

Location: Water Protection Facility
3500 759 Highway (Stockyards Expressway)
St. Joseph, Missouri 64504

Meeting purposes:

- Present findings from the Eastside Water Protection Facility (WPF) Assessment and get Panelists' feedback.
- Receive an update on green solutions.

AGENDA

4:00 p.m.	Welcome & Introductions	Sheila Shockey
4:05 p.m.	Eastside WPF Assessment Findings & Discussion	Page Burks & Sheila Shockey
5:05 p.m.	Green Solutions Update	Jim Schlaman
5:25 p.m.	Announcements & Next Steps *Next Meeting:* *Thursday, January 28, 2010* *Remington Nature Center, 1501 MacArthur Drive*	Sheila Shockey
5:30 p.m.	Adjourn	

Handouts:

October 22, 2009 Community Advisory Panel Meeting Notes

Visit the Water Protection Program website at: www.stjoemo.info/wpc

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ST. JOSEPH, MISSOURI
WATER PROTECTION PROGRAM

COMMUNITY ADVISORY PANEL MEETING

Thursday, October 22, 2009
4:00-6:00 P.M.
Water Protection Facility
St. Joseph, Missouri

MEETING ATTENDEES

Panel members in attendance

- Curtis Grimm, Citizen
- Reba Hebert, St. Joseph School District
- Danielle Hunt, Missouri Western University
- Theresa Moylan, Citizen
- Frank Still, Vernon Company/Parks & Recreation Board

Program Management Team in attendance

- Andy Clements, City of St. Joseph
- Don Gilpin, City of St. Joseph
- Page Burks, Black & Veatch
- Dick Kaufman, Black & Veatch
- Erin Ollig, Shockey Consulting Services
- Jim Schlaman, Black & Veatch
- Matt Schultze, Black & Veatch

MEETING NOTES

I WELCOME & INTRODUCTIONS

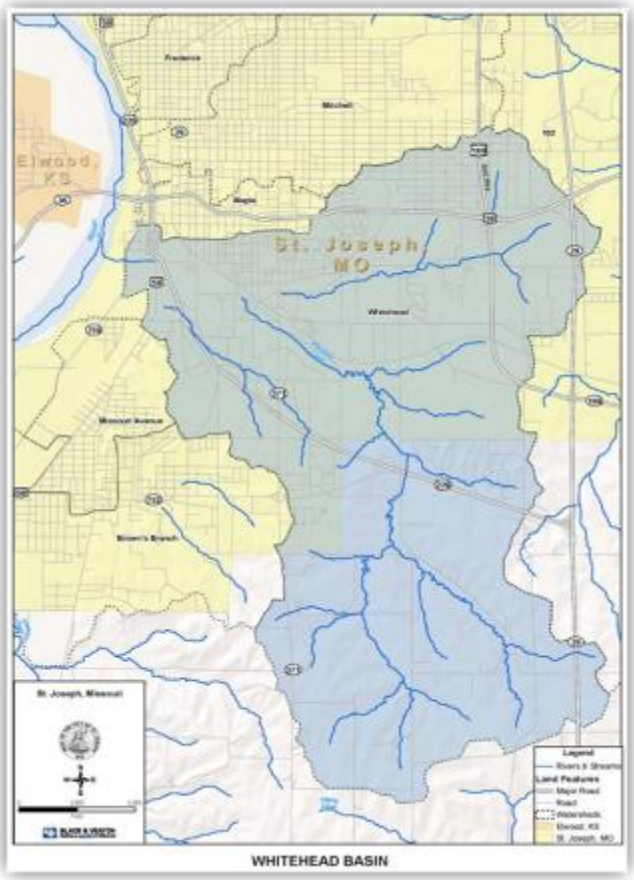
Erin Ollig, Shockey Consulting Services, welcomed the Panel members and thanked them for attending. She walked the individuals through their meeting materials.

II WHITEHEAD DETENTION BASIN PUBLIC MEETING COMMENTS

Matt Schultze, Black & Veatch, gave a recap of the Whitehead Detention Basin Public Meeting that took place on October 7th.

Mr. Schultze showed a map of the Whitehead Basin area. He stated that a significant part of the basin area is outside city limits. In the past there has been significant flooding in the northwest part of the basin area. He reminded participants that any stormwater removed upstream helps the downstream area.

Whitehead Detention Basin



The goals of the project are:

- To provide improved flood protection;
- To improve water quality; and
- To tie-in with the Combined Sewer Overflow improvements.

Mr. Schultze highlighted some of the questions and comments that were made at the public meeting:

Question: Where will these detention basins be located?

Answer: We are looking at several locations within the Whitehead Basin at this time, but no decisions have been made.

Question: What years are you looking at in terms of floods? Are you looking at 1984 and 1952?

Answer: Yes, we are looking at historical flooding and rainfall. Design flood events similar to these years are being considered. We are looking at different levels of protection all the way up to a 100-year flood event.

Question: How do you plan to manage sediment?

Answer: There will likely be forebays above the actual basin. The sediment will need to be cleaned out with regular maintenance. Over time, sediments will collect.

Question: How will it be paid for?

Answer: Right now the majority of Water Protection Program projects are paid for by wastewater user fees. We are not certain how the detention basin will be funded in the future. The City is looking at who causes the problems as a potential way to charge for stormwater projects such as this. There are lots of options under consideration, including a stormwater user fee. We are using life-cycle cost analysis for all alternatives.

Question: How do you make sure the water held will be clean for fishing and swimming?

Answer: Pollutants attach to sediment. The forebays will catch the sediment prior to it getting into the water pool. Plantings also help to soak up the pollutants and maintain proper water quality. Water quality would need to be monitored. We'll also look at greenways to find a holistic approach to implement the project.

Question: Does the City plan to limit growth?

Answer: The City regulates growth and development, but doesn't plan to limit growth. Growth is typically limited by the availability of sewers. As the undeveloped area outside the city limit is developed there will be changes in runoff.

Question: Is this similar to the Blacksnake detention basin project and why isn't the City concentrating on Blacksnake?

Answer: Both of the proposed Whitehead and Blacksnake detention basins are intended to provide flood control improvements for these basins. Blacksnake is a flood control improvement that is a United States Army Corps of Engineers (USACE) project and is being studied slowly by the USACE. We are independently moving on with the Whitehead study without the USACE because we did not want to go through a slow planning process. The City may have to take more control of the Blacksnake planning and design process in the future if the USACE continues to move slowly.

Question: Will you still build the stormwater diversion conduit?

Answer: Yes. It is considered a high priority in the Combined Sewer Overflow (CSO) Program and this conduit is necessary to meet the Phase IA CSO control goal of 60% wet weather capture.

Mr. Schultze asked the participants if they had any comments or questions about the study.

Participant Question: In the long term control plan online there is a lake shown. What is that?

Response: That was just the conceptual plan which has since been revised. When the conceptual plan was developed the lake was proposed based on information from a 10-12 year-old stormwater study. It was intended to be a schematic example - the location wasn't decided.

Participant Comment: I don't think that the detention basins should be paid for out of user fees since it's a stormwater project.

Response: The detention basins are not required by the United State Environmental Protection Agency (USEPA), but this may be a project in which the City wants to invest. The City will have to make the decision to spend a little more money to provide flood protection.

Response (Andy Clements): The City would very likely need to go to a vote to generate a new kind of revenue for stormwater projects.

Participant Question: Why was the Whitehead detention basin included in the plan that is posted online?

Response: The plan posted online is the February 2008 Long Term Control Plan. Subsequent to that time, the plan has been revised through facilities planning conducted in 2009. The Facilities Plan is the first project to be completed as part of the Phase IA improvements.

Participant Question: I read that the City just approved $48,685,000 in bonds. Does that have to do with this?

Response: That is for a disinfection project and other projects associated with the National Pollutant Discharge Elimination System (NPDES) permit and CSO control program. The disinfection project improvements include designing and constructing disinfection facilities and an effluent pump station for Water Protection Facility effluent and future high rate treatment effluent. Elements of both these projects are related to the CSO program as well.

Participant Question: When will the stormwater conduit project start?

Response: We are working on the Work Order for design now. The City hopes to have that completed in January and conduct design activities in 2010.

Mr. Schultze asked the participants a few questions (responses in italics):

- In your opinion, did we get a good representation of attendees?

  No comments

- What are your impressions of the comments in the notes?

  Yes, good comments

- Do you think the community would support making the basin an amenity?

  Yes. Lake Contrary isn't used now though. It's not clean anymore and it's too shallow.

Participant Question: What happened in the 1984 flood?

Response: Too much rain in a 24-hour period. The rivers and creeks were full and the ground was saturated. The water took the path of least resistance which was the streets. Many businesses and homes were flooded.

Participant Comment: I think we have come a long way since then. Even the 1993 flood wasn't as bad at the 1984 flood because we made some changes.

III PHASE II & III COMBINED SEWER OVERFLOW FACILITIES PLAN UPDATE

Matt Schultze presented some information on the future phases of the Facilities Plan beyond Phase I. He reminded the participants of the priority projects for Phase IA:

- Roy's Branch, Blacksnake and Whitehead stormwater separation conduits
- Whitehead pump station improvements (80 million gallons per day)
- Water Protection Facility headworks improvements (88 million gallons per day)
- High rate treatment (61 million gallons per day)

He stated that the ultimate goal is to capture 85% of wet weather flow. About 60% will be captured after the Phase IA improvements have been made, but the USEPA says the City is required to make further improvements.

Phase IB will likely consist of a Water Quality Study. It will be a two-year study to monitor and evaluate the effectiveness of the Phase IA improvements. The Water Quality Study will help refine the scope and size of Phase II and Phase III controls.

Two alternatives for combined sewer overflow (CSO) control were investigated for Phase II and Phase III. Both alternatives focused on providing 85% wet weather capture.

- **Alternative 1 - $310 million**
    - 20-foot diameter deep tunnel to provide 54 million gallons of storage
    - No additional high rate treatment is required since the Phase IA high rate treatment facility will be utilized for flow pumped out of the tunnel after the storm event has passed
- **Alternative 2 - $380 million**
    - 17-foot diameter deep tunnel to provide 39 million gallons of storage
    - 80 million gallons per day of high rate treatment would be added to treat the combined sewage from the tunnel (this high rate treatment would be in addition to that constructed as part of Phase IA)

Although the tunnel would be larger, Alternative 1 is less expensive primarily due to an increased cost associated with providing additional high rate treatment beyond that required for Phase IA. Additionally, Alternative 2 would not provide enough storage in the tunnel during the storm event, so combined sewage would need to be pumped out of the tunnel and treated during the storm event.

Participant Question: Do you have a sense on why the pricing is so different?

Response: Yes, once you've spent the money in getting the tunnel started it doesn't cost much more to make the tunnel larger or longer. It is still a significant cost though.

Response: It also is a redundancy in facilities with a 20-foot tunnel. The 17-foot tunnel would not provide enough storage, so the combined sewage would have to be treated somewhere else until more capacity is available. That would mean building a new high rate treatment facility.

Participant Question: Will you hit water when you dig underground?

Response: The goal is to construct the tunnel in bedrock. We'll do a very detailed geo-technical program to determine the soil, rock, and groundwater conditions.

Participant Question: In Phase IA, when would the high rate treatment facility be done?

Response: We want to try to pull as much water out of the system first by installing the stormwater separation conduits. The high rate treatment would come later - in the last 10 years of Phase IA. The disinfection improvements will also start soon. It needs to be in operation by 2013.

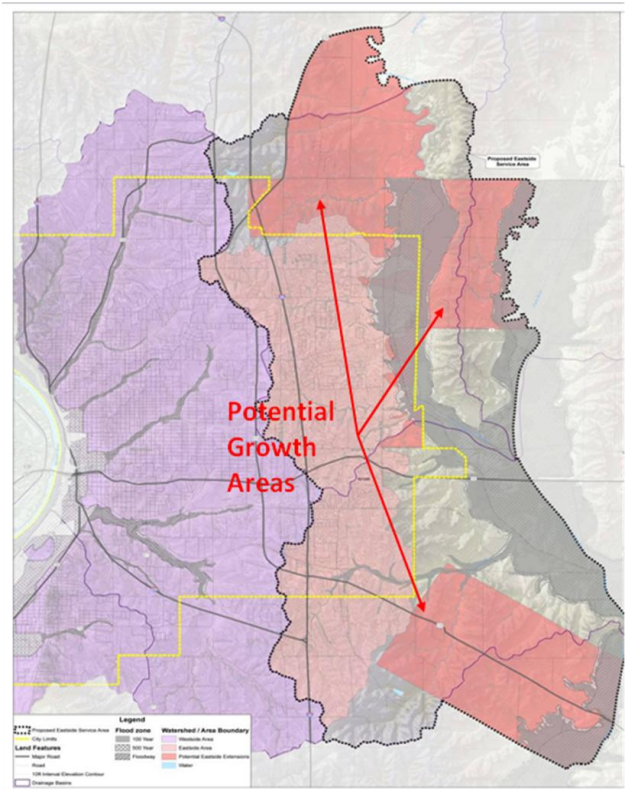
Participant Question: Are you worried about changing technologies?

Response: The high rate treatment technologies are state of the art, tried and true technologies, and we know they work. We intend to implement adaptive management with the CSO control program and we may be able to modify the project details in the future if it's acceptable to USEPA and MDNR.

Mr. Schultze stated that other cities have proposed to build deep tunnels (Kansas City) and some have built them already (Milwaukee and Chicago).

IV EASTSIDE WATER PROTECTION FACILITY ASSESSMENT UPDATE

Page Burks gave an update on the progress of the Eastside Water Protection Facility Assessment. She reminded participants that the existing infrastructure needs immediate attention. The Faraon Street Pump Station is aging and is beyond its useful life. The Easton Road Pump Station flows are beyond station capacity and the location does not allow full service of the future industrial park.



Ms. Burks said that determining the future needs of this area and plan for future growth is necessary in order to plan wastewater infrastructure to serve the Eastside. In order to do that, the team looked at future land use projections, population projections and flagged expected growth areas (see map on right). The existing Eastside Service Area is in light pink and the potential growth areas are in darker pink.

Ms. Burks stated that the total average daily flow in the future (2030) is expected to reach 5.3 million gallons per day compared to 2.8 million gallons per day currently. Eastside service for Phase I will make improvements that will handle an average daily flow of 4 million gallons per day and Phase II will make improvements to handle 6 million gallons per day. Phasing is proposed because growth in the area is not expected to happen all at once.

Ms. Burks stated that the question the City needs to answer is whether a new Water Protection Facility should be built or if a new pump station should be built for the Eastside. The new pump station would continue to pump all flow to the Missouri River Water Protection Facility.

Although the study is not yet finalized, there is some information that is known. It appears that the best treatment facility sites are in the southern half of the Eastside study area. Flow drains from west to east, and north to south in the study area. The sites in the south would work best because gravity draws water naturally in that direction. The program team will also conduct a threatened and endangered species study, historical resources study, and environmental contamination study. An on-site survey will also need to be done prior to land acquisition.

The receiving stream for the various alternatives was discussed. The water would either be pumped to the Missouri River if a new pump station was to be built, or if a new Water Protection Facility was built, the 102 River or the Platte River would be the receiving stream. The Missouri River has higher dilution rates due to its large size and volume. Ms. Burks stated that the technology used at the Missouri River Water Protection Facility may not be used on the Eastside due to different limitations in biochemical oxygen demand, suspended solids, ammonia, and phosphorous on the effluent.

Ms. Burks showed some pictures of existing Water Protection Facilities, including an example in Johnson County, Kansas where there is housing in close proximity. She stated that the city understands that odor is an issue that has been a concern in the past. Whatever route the City decides, odor control will be addressed. There are several ways to do that including covers, ventilation, chemical addition, odor scrubbing and site buffers. Ms. Burks stated that cost and alternatives will be presented in the near future.

Participant Question: Does the Easton Pump Station pump to the Faraon Pump Station?

Response: Yes. Everything on the Eastside is pumped to the Faraon Pump Station, which then pumps all Eastside flows over to the Missouri River Water Protection Facility.

V BLACKSNAKE AND WHITEHEAD CREEK STORMWATER SEPARATION CONDUITS UPDATE

Jim Schlaman gave a presentation about the Blacksnake Creek and Whitehead Creek stormwater separation conduits. He reminded participants that these improvements will be made as part of Phase IA. The goal of the improvements is to get water out of the system, to stop mixing wastewater with stormwater, and to separate it.

Currently Blacksnake Creek and Whitehead Creek drain directly to the combined sewer system. During dry weather, the creek continues to convey stormwater into the combined sewer system and on to the Water Protection Facility for treatment. Between the Blacksnake and Whitehead Creeks, about 4 million gallons of creek flow is sent to the Water Protection Facility during dry weather. That means that 1/4th of what the Water Protection Facility treats on a dry day is creek flow.

The purpose of the separation conduit improvements is:

- to remove dry weather flows from being treated;
- to remove approximately 85% of the annual average of wet weather creek flows from entering the sewer system; and
- to reduce combined sewer overflows to the Missouri River, improving water quality.

Mr. Schlaman stressed to the participants that the size of the conduits has not been established to provide flood control. He reminded participants that stormwater and flood control improvements are not mandated by the USEPA. The improvements proposed in Phase IA are solely to improve water quality and to reduce the amount of water getting into the combined sewer system for CSO control. The City will, however, consider any opportunity for multiple benefits with the sewer improvements.

The Whitehead Creek stormwater separation conduit will remove about 2 million gallons per day of creek flows from the Water Protection Facility during dry weather. Various conduit alignments are being reviewed that direct the creek flows to the Missouri River. He stated that the alignments will work around utilities, the railroad tracks, and buildings. The probable project cost is approximately $18 million for a 6 foot diameter pipe that is approximately 5,000 feet long.

The Blacksnake Creek stormwater separation conduit will remove about 2 million gallons per day of creek flows from the Water Protection Facility during dry weather. Various

alignment alternatives are being reviewed at this location as well. The probable project cost is approximately $27-$39 million for the alternatives.

These projects will be completed early in the plan to remove stormwater out of the combined sewer system.

Participant Question: Would this involve a tunnel as well?

Response: That depends on the alignment that is chosen. Shallow areas near roadways can be chosen or we may have to construct a portion with soft ground tunnels. It wouldn't be a deep tunnel like what was discussed earlier.

Participant Question: Would these conduits replace what is there now?

Response: No, this would be in addition to what is there. The existing system is there for combined sewage.

Participant Question: During dry weather, are we meeting the standards?

Response: The USEPA doesn't require us to treat creek flow.

Participant Question: Are the creeks clean? If they go straight to the Missouri River will that have any impact?

Response: The City is required to meet stormwater quality requirements through the MS4 (Municipal Separate Storm Sewer System) permitting process. The creeks will have contaminants that are present from surface runoff.

Participant Question: Will the conduit only have an effect on dry weather flows?

Response: We will select a pipe that gets creek flow out up to a certain point that is determined to be cost-effective for CSO control (approximately a 3 month return interval storm event).

Participant Question: So, the City will need to choose how much we want to do for flood protection for a 100-year event[1] for instance?

[1] *A flood event is defined as the probability that a given event will be equaled or exceeded in any given year. For instance, a 100-year event has a 1% chance of occurring in a given year. A 3-month rain event would be expected to occur four times in a given year.*

Response: Yes. That hasn't yet been decided. Black & Veatch will give some cost and level of protection information to the City to consider. One strategy that will need to be determined is if you want to make improvements to decrease flooding during lots of smaller storms or during the fewer larger storms. Currently, the conduits are sized for a 3-month return interval event.

VI ANNOUNCEMENTS AND NEXT STEPS

Erin Ollig announced that there currently is not a meeting planned for November and December. She said that a meeting will be held, however, in January. There will also be several presentations given to the City Council in the next few months regarding the Water Protection Program.

Update: the Community Advisory Panel will meet in December 10, 2009 at the Water Protection Facility.