

ST. JOSEPH, MISSOURI WATER PROTECTION PROGRAM



COMMUNITY ADVISORY PANEL MEETING

Thursday, December 10, 2009

4:00-6:00 P.M.

Water Protection Facility

St. Joseph, Missouri

MEETING ATTENDEES

Panel members in attendance

- Tom Bliss, Mo-Kan Regional Council
- Reba Hebert, St. Joseph School District
- Mark Howell, KCPL
- Danielle Hunt, Missouri Western University
- Mark Meyer, Capital Improvements Program (CIP)/Citizen
- 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
- Bruce Woody, 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
- Sheila Shockey, Shockey Consulting Services

MEETING NOTES

I WELCOME & INTRODUCTIONS

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

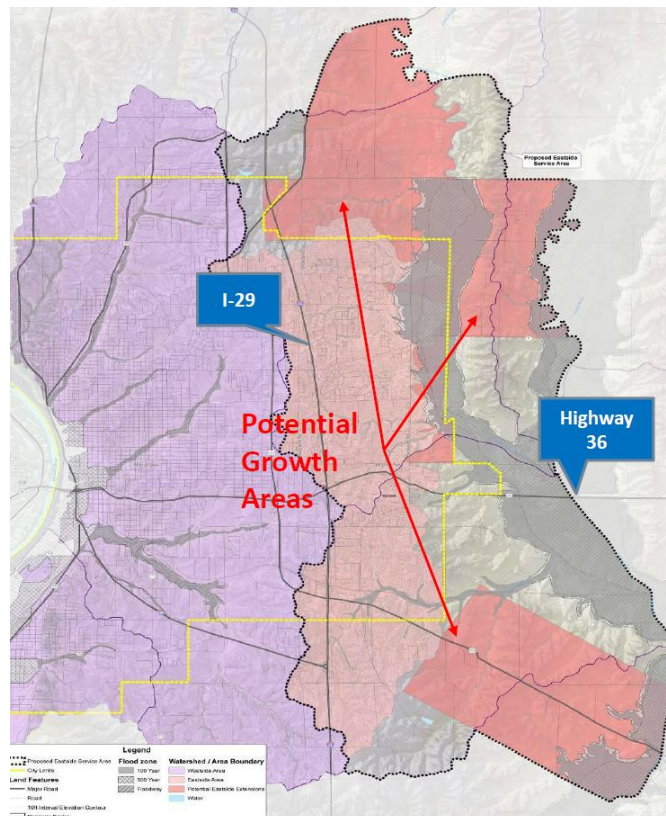
II EASTSIDE WATER PROTECTION FACILITY ASSESSMENT FINDINGS & DISCUSSION

Page Burks, Black & Veatch, gave an update on the Eastside Water Protection Facility Assessment. She reminded the participants that the east side of the City is a separate sewer system, meaning there are two separate pipes- one for wastewater and one for stormwater. The east side is being studied right now because the wastewater infrastructure requires immediate repairs/improvements and the City would like to plan for any growth that may occur. The study considered several alternatives including whether a new water protection facility (wastewater treatment plant) should be built on the east side.

Ms. Burks stated that the Faraon Pump Station is aging beyond its useful life and will need to be replaced. She also stated that the Easton Road Pump Station, which pumps to the Faraon Pump Station, is undersized and is not located to allow service of the new industrial park.

The City would like to plan for growth as well, so as part of the study, anticipated growth was considered for what the future service area may look like. The future service area that was developed served as the basis for the study recommendations on what should be done to improve the wastewater infrastructure on the east side. The figure on the right shows the current service area in light pink and the future growth areas in dark pink. The anticipated service area for east side is shown is bounded in black.

According to the study results, it appears that the best locations for a new water protection facility are in the



southern half of the study area. The southern locations were considered to be more ideal because water naturally flows to the south. The study also conducted desk-top site reviews for threatened and endangered species, historical resources, and environmental contamination. No issues were reported in the southern part of the study area. Ms. Burks stated that before any future construction would begin, a detailed field study would need to be completed to ensure that there are no issues and to meet permit requirements.

Participant Question: Does the Country Club Village wastewater system impact the east side project?

Response: No, that is on the other side of the ridge and is not part of the east side service area. It is in the Blacksnake Watershed.

Ms. Burks stated that various alternatives and sites were considered for the analysis. Two locations were chosen (Site A and Site B) and two alternatives (Alternative 1: build a Water Protection Facility, Alternative 2: build a new Pump Station). She stated that no matter what alternative and site are chosen, each would need to have a new interceptor sewer installed. She discussed some details about the various alternatives.

Alternative 1: System with Water Protection Facility

In this alternative, the existing pump stations at Faraon Street and Easton Road would be taken off-line and a new Water Protection Facility would be constructed. The new interceptor sewer would direct wastewater to the new Water Protection Facility. During times where there are heavy (peak) wastewater flows, the excess would go to a flow equalization basin¹, essentially an underground storage tank. The treated wastewater will go through the treatment process which includes screening and grit removal, nutrient removal, and filtration/disinfection before the water is discharged into the 102 River or Platte River, depending on the site that is chosen.

Alternative 2: Eastside System with Pump Station

In this alternative, the existing Pump Stations at Faraon Street and Easton Road would be taken off-line and a new Pump Station would be constructed. The new interceptor sewer would direct wastewater to the new Pump Station. Just like Alternative 1, during times when there are heavy wastewater flows, the excess would go to a flow equalization basin. The Pump Station would be in a different location from the existing Faraon Street Pump Station to allow it to serve a larger area.

¹ Flow equalization basins are designed to reduce flow to the Water Protection Facility during periods of high wastewater flow. Wastewater stored in the flow equalization basin will be reintroduced to the water protection facility after the peak flow period has passed.

Ms. Burks stated that Site A appeared to be the better location of all the alternatives that were considered. *Table 1* displays some preliminary dollar amounts associated with the alternatives and the sites. The costs displayed include not only the cost of the new facility, but also include the cost of any supporting infrastructure (i.e. interceptor sewer) and the associated engineering design.

Table 1:

	New Water Protection Facility at Site A	New Water Protection Facility at Site B	New Pump Station at Site A *
Opinion of Total Project Cost	\$280 million	\$340 million	\$230 million
Difference from Lowest Cost Alternative	21% more expensive	48% more expensive	--
Difference from Lowest Cost Alternative – without common conveyance	31% more expensive	71% more expensive	--

* *Lowest Cost Alternative*

Ms. Burks summarized the reasons for the differences in total project costs. She stated that the conveyance requirements differed for the alternatives due to site topography. She stated that the Water Protection Facility is more expensive to construct than a new Pump Station and force main. She also stated that dirt will need to be brought in as fill at the site to bring it out of the floodplain. It will be less expensive to do this for a Pump Station as opposed to a Water Protection Facility because the construction area is smaller.

Ms. Burks stated that Alternative 2 at Site A also has the lowest annual Operations and Maintenance (O&M) cost. *Table 2* displays the dollar amounts.

Table 2:

	New Water Protection Facility at Site A	New Water Protection Facility at Site B	New Pump Station at Site A *
Opinion of Annual Operations & Maintenance Cost	\$2.1 million	\$2.2 million	\$1.6 million
Difference from Lowest Cost Alternative	31% more expensive	37% more expensive	--

* *Lowest Cost Alternative*

Ms. Burks explained that because Alternative 2 at Site A had the lowest project cost and the lowest Operations and Maintenance cost, it has the lowest total life cycle cost of all alternatives that were considered; Alternative 2 is the least expensive to construct and operate over a 20-year period. She also explained the reasons for the differences in Operations and Maintenance costs. A Water Protection Facility requires more personnel to run the facility on a daily basis than a Pump Station. However, a Pump Station would require greater chemical usage for odor control in the force main.

Siting wastewater infrastructure is more than an economic decision, it is a community decision. An additional analysis was conducted to help measure value of the alternatives beyond construction and operational costs. A Triple Bottom Line analysis was conducted to measure the alternatives against Environmental, Social, and Economic values. Each value has various factors that need to be considered. Some examples of the factors that were considered include:

Environmental

Water Quality, Endangered Species, Historical Resources, Wetlands Impacts, Site Contamination, Ease of Permitting

Social

Visual Impacts, Noise Control, Odor Control, Lighting Control, Surrounding Land Use, Property Considerations, Traffic Considerations

Economic

Life Cycle Costs, Service Area, Existing Infrastructure, Site Utilization, Floodplain Considerations, Reserve Capacity, Economic Development

To conduct the analysis, each factor and criteria are evaluated and assigned a score. The scores are totaled for a combined score. This analysis is just another technique to evaluate the alternatives. The key differentiators in the Triple Bottom Line analysis for this project were:

- Surrounding land use and nearby neighbors
- Ease of odor control
- Maintenance of reserve treatment capacity (how much is cutting in to the overall capacity)
- Use of existing infrastructure
- Life cycle costs

Alternative 2 at Site A also had the best Triple Bottom Line score over the other alternatives. Based on the life cycle costs and the Triple Bottom Line analysis, construction of a new Eastside Pump Station and Flow Equalization Basin is the highest value alternative

at this time (with the data that is available today). Based on the 20-year growth projections, this alternative meets all east side growth and development needs with the lowest cost to rate payers. The site will be constructed to plan for the construction of a Water Protection Facility in the future when supported by growth.

Ms. Burks stated that although this is technical recommendation minimizes current costs, it looks to the future. Property will be acquired by the City now for a future Water Protection Facility. The Eastside Pump Station and the first phase of flow equalization would be built on the site that is acquired. The interceptor sewer will be built, which will act as the backbone infrastructure to serve future growth. When the Missouri River Water Protection Facility (west side) capacity is reached, a new Eastside Water Protection Facility will be built and the Eastside Pump Station can serve an alternative purpose for the Water Protection Facility.

To help lower the upfront costs in constructing a new Pump Station, the City could develop the Pump Station in phases. The most critical components would be constructed in the first phase. The initial construction costs would be \$103 million. Those components include:

- Building the lower portion of the Eastside Interceptor Sewer
- Reroute the connections from the existing Pump Stations to the new interceptor
- Construct a 3 million gallon Flow Equalization Basin
- Construct the Pump Station
- Build a force main from the Eastside Pump Station to the existing Faraon Street Pump Station so that flow can be pumped to the Westside
- Acquire property

Sheila Shockey reminded the participants that this is a separate sewer system area. This type of sewer system also needs to be a tight system without leaking connections, pipes, and facilities. She said that if the existing Pump Stations fail, the City would face consequences by the United States Environmental Protection Agency.

Participant Question: Would the \$103 million be in the first 20 years?

Response: The entire project would be built in 20 years. The portion that costs \$103 million would be constructed first, however.

Participant Question: Why can't we just fix the existing Pump Stations?

Response: Those Pump Stations can only serve the existing population. When St. Joseph grows, the Pump Stations would not be able to support that growth. Portions of the Eastowne Business Park at the present time already cannot be serviced. The Faraon Pump Station needs to be replaced and the Easton Pump Station is already at capacity.

Participant Question: How long would it take to build Pump Station versus a Water Protection Facility?

Response: The Water Protection Facility would take longer because the facility is more complicated and because it would require additional permitting. It would take about 3-4 years to design and build a Pump Station and an additional 2-3 years to permit, design, and build a Water Protection Facility, including the time to acquire the property.

Participant Question: Would the funding for this come from sewer rates?

Response: Yes

Participant Question: What are the scheduled rate increases?

Response: As of July 1, 2009, the rates will increase 17-18% annually for the next 4 years. Residential and industrial user rates will increase at the same rate, except for those industries that pump flow directly to the secondary treatment system (South St. Joseph Industrial District, National Beef Leathers, and Triumph Foods. These three industries will have slightly lower rate increases.

Andy Clements and Don Gilpin with the City stressed to the participants that the Faraon Pump Station cannot be economically reused or repaired as opposed to replaced. They said it is in serious need of total replacement. There are structural issues with the wet well in addition to mechanical issues in the pump station.

Participant Question: You said the existing Water Protection Facility would do just fine. How are we able to continue to use that facility if a Pump Station is built?

Response: During dry weather, the Water Protection Facility treats 16-18 million gallons per day. During wet weather, though, the primary treatment facility treats 27 million gallons. It can handle the additional flow that would come from the new Pump Station. Our projections show that we will not exceed the capacity of the existing Water Protection Facility in the next 20 years.

Participant Question: How big of an impact does the additional wastewater currently have on the Water Protection Facility?

Response: Flow from the east side is currently minimal and has very little impact. Only 2.4 million gallons per day is pumped on dry weather days and 6 million gallons per day on wet weather days.

Jim Schlaman, Black & Veatch, also reminded the participants that additional hydraulic capacity for treatment will be added when the stormwater conduits are added in the Whitesnake and Blacksnake basins.

Ms. Burks stated that the Project Team will provide the City Council with a technical recommendation in January. She asked the participants what they thought about the information that was just presented and if they had any thoughts that they would like to have passed on to the City Council. Sheila Shockey encouraged the participants to consider the community values and guiding principles that were developed and approved by the Panel a few months ago to help with their decision-making (see Community Values and Guiding Principles in **Attachment A**). The following comments were made:

- In particular, the *Innovation* and *Planning* values were considered during the analysis.
- All of the values look like they were considered – a proactive approach.
- It will be important for the Council to think about planning for the future, not just what it will cost people today. They need to think about the big picture.
- The project should be planned and funded up front so no one will change their mind years down the road.

Participant Comment: I'm surprised that the Pump Station would cost so much.

Response: The Pump Station will be very large – essentially two Pump Stations operating as one. The water will also need to be pumped a long way which is expensive. In addition, more than half of the cost will be associated with building the sewer interceptor (backbone). The sewer interceptor will have a 100-year life-cycle and the pipe will be large enough to handle future growth (beyond 20 years).

Participant Question: Could you reduce the cost of the Water Protection Facility by building in phases like you did for the Pump Station?

Response: Yes, we evaluated costs to build in phases for the Water Protection Facility but the costs are still more.

Participant Question: Why should we spend \$103 million on a Pump Station when we'll have to build a Water Protection Facility in the long run?

Response: We don't want to overbuild. If the growth doesn't happen as currently projected, the need for the Water Protection Facility is not there.

Ms. Burks told the participants that a public meeting will be held in January to present this information to the public, specifically to those who live on the east side. There will also be a presentation to the City Council on January 26th. An email will be sent out to inform the Panel about those meetings.

III GREEN SOLUTIONS UPDATE

Jim Schlaman, Black & Veatch, presented some updated information to the participants about green solutions. Since green solutions were introduced to the Panel a few months ago, a technical paper has been submitted to the City by the consultant that outlines some suggested green solutions that could be installed as part of the Combined Sewer Overflow Control Plan. The green solutions chosen would help reduce the amount of water entering the combined sewer system and improve water quality.

Mr. Schlaman reminded the participants about the differences between traditional combined sewer overflow solutions ("grey" solutions) and green solutions. Grey solutions typically include sewer separation, storage basins, storage tunnels, wastewater plant upgrades, pump station upgrades, and additional hydraulic structures. Green solutions can include dry and wet detention basins, wetlands, infiltration practices, open channel and swale ditches, and filtering practices that are intended to slow the water down or filter the water. The purpose is to remove the volume of water and keep it out of the sewer system.

The green solutions developed as part of the Facilities Plan for St. Joseph focused on large opportunities that include wet detention, source controls, dry detention, and integrated solutions – amenities people can see.

In order to determine where the green solutions could be located, the entire City was put through a "green filter" analysis. The analysis takes into account various site characteristics to determine if the site is a good fit for green solutions. Some of the characteristics that are considered were:

- Soil types
- Slope/topography
- Location of trees
- Property privately owned or publicly owned

Over 2,000 properties were identified, but large city-owned properties were focused on for locations that were suitable for green solutions. Additionally, other areas that were of particular focus were areas where investments could create amenities were considered and places where the tax payers would receive the biggest “bang for the buck” by removing the most water from the system.

Participant Question: Did you look for locations outside of city limits?

Response: We thought it would be best to keep the amenity in the City since the City’s ratepayers will pay for the improvement.

Four large sites were identified and multiple green solutions are proposed within each site. The locations are:

- **Hyde Park:** wetland channel, extended wet detention, residential rain garden and downspout disconnection program
 - *Estimated to detain/retain approximately 1.8 million gallons with a probable project cost of \$1.1 million*
- **Southwest Parkway:** extended wet detention, wetland channel and stream stabilization, extended dry detention, parking lot retrofit, neighborhood rain gardens and green streets with bioretention in the street right-of-way
 - *Estimated to detain/retain approximately 3.2 million gallons with a probable project cost of \$3.9 million*
- **Parkway A:** green streets, neighborhood rain gardens and downspout disconnection, and vacant lot retrofits
 - *Estimated to detain/retain approximately 2.4 million gallons with a probable project cost of \$3.6 million*
- **Corby Parkway Areas:** wetland bench and sediment forebay for Corby Pond, extended detention wetland, neighborhood rain gardens and green streets with bioretention in the street right-of-way
 - *Estimated to detain/retain approximately 2.0 million gallons with a probable project cost of \$2.3 million*

Mr. Schlaman discussed the opportunities for community involvement through green solutions. He said that some workshops may be conducted by the City to educate people on how to build a rain garden, install a rain barrel, and disconnect a downspout. He also stated that the City may conduct road show presentations to various organizations throughout the City.

Participant Question: Why do the green solutions cost so much?

Response: They are engineered to function properly, so designing the solutions goes beyond picking plants. The solution will need to be designed to drain water within 48 hours.

Participant Question: How much participation did you estimate for the neighborhood programs?

Response: We estimated for 100% of properties, which is probably unrealistic.

Mr. Schlaman told the participants that green solutions are not part of the mandated solutions for regulatory compliance as part of the Combined Sewer Overflow Program, but instead will be a choice that the City makes on alternative ways to improve water quality and to reduce the amount of water entering the sewer system.

Participant Question: Will the solutions impact park users?

Response: We will coordinate with the Parks Department. If there are conflicts, we may not be able to develop our full concept, but parts of it.

Participant Question: Is an extended wet detention basin wet all the time?

Response: Yes.

Participant Question: Do your cost figures include costs for improvements on private property

Response: Yes. We included all costs for constructing rain gardens, regardless if the site was on public or private property. The funding breakdown for projects on private property would be determined in the future.

Participant Question: Would the City pay for some of these improvements in the neighborhood?

Response: The City has had some preliminary thoughts on this, but no decision has been made. One thing the City could do is provide a funding match for repairs or provide technical assistance.

Participant Question: Do you know how many downspouts are connected?

Response: We don't have a total number, but we know it is significant.

Participant Question: Is there enough publicly-owned land or would the City need to do any land acquisition?

Response: The proposed improvements utilize publicly owned land. Land acquisition could get very expensive.

Matt Schultze told the participants that the costs that are estimated are current costs and are not the life-cycle costs that would include operations and maintenance. Mr. Schlaman told the participants that there are varying degrees of maintenance for each green solution. Part of that maintenance is training the staff to know how to maintain a green solution.

Participant Question: Would a constructed wetland be regulated?

Response: Potentially

Participant Comment: Green streets seem bad for plows.

Response: There are many different types, but many include curbs where plows can maneuver. They are also good for traffic-calming.

Participant Question: Have you talked about an incentive program for businesses? We have a lot of concrete and parking lots.

Response: Some cities make larger impervious users pay extra towards a stormwater utility fee, depending on the amount of impervious surface they have. St. Joseph currently does not have such a fee. If a fee was to be in place, it would incent businesses to reduce their imperviousness so their bill would be lower.

Participant Question: Have you talked to gardening clubs and Boy Scouts?

Response: Yes. We are drafting a plan right now and part of the plan lists some groups that could be involved.

Participant Comment: I think you should also involve the "Friends of the Parkway" and the landscape design class at Missouri Western University.

Participant Comment: I think you'll have to provide incentives to get residents involved.

IV ANNOUNCEMENTS AND NEXT STEPS

Sheila Shockey offered the participants an opportunity to meet one-on-one with the Project Team to help clarify or discuss some of the information that has been presented thus far. She stated that an email will be distributed so that people can sign up if they wish.

The next meeting is scheduled for **Thursday, January 28th at the Remington Nature Center.** The Panel will be reminded of the upcoming Council presentations as well, and Panelists can attend if they would like.

ATTACHMENT A

Community Values and Guiding Principles

The Community Advisory Panel developed community values to help guide the Panel's recommendations regarding the implementation of the Water Protection Program. Community values should reflect what is important to those who live and work in the community. Guiding principles are based on the community values and help the Panel determine how best to manage the city's resources.

Value	Guiding Principles
Administrative Ease	The cost of administration is minimized and uncomplicated processes are used.
Fairness	Costs are directly linked to the user of the service.
Community Prosperity	Provide public infrastructure to increase community prosperity. Establish a system of funding infrastructure that supports economic development but recognizes the need for parity in funding between tax/ratepayers and developers. Maximize economic, social, and environmental benefits.
Innovation	Foster learning and adjustments to the problems. Let experience form future plans. As the plan evolves over time, we learn from what we have implemented and make adjustments. Think more broadly when developing solutions.
Financial Responsibility	Public dollars will be spent wisely, thinking long-term and broadly.
Optimization	Use existing infrastructure to its best purpose.
Planning	Cultivate long-term thinking and innovative problem solving. Be stewards of the infrastructure investments made and community quality of life.
Public Acceptance	Public perception is that the program is fair and has the right approach. Decision-making is open and is influenced by public input.
Public Benefit	The public needs to see a direct benefit from the investments made. Look for opportunities for added value through investment in amenities and coordinated efforts.
Environmental Stewardship	Meet or exceed all applicable regulations.
Understandability	Ratepayers understand how the program improves water quality and how it is being funded.