

June 9, 2017

**WATER PROTECTION PROGRAM
FINDING OF NO SIGNIFICANT IMPACT/ENVIRONMENTAL ASSESSMENT**

TO: ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS

In accordance with procedures for environmental review found at 10 CSR 20-4.050, a review has been performed by the Missouri Department of Natural Resources on the proposed action below:

Project Identification: Blacksnake Creek Stormwater Separation Improvement

Applicant: City of St. Joseph Project No.: C295699-03

City: City of St. Joseph County: Buchanan State: Missouri

Eligible Costs:		Ineligible Costs:	
Project Design:	\$10,000,000*	Roadwork:	\$525,000
Project Costs:	\$57,056,000	Park Improvements:	\$49,500
Total Eligible:	\$67,056,000	Total Ineligible:	\$574,500

* The city entered into an up to \$10,000,000 short-term Clean Water State Revolving Fund (SRF) loan in October 2016. The city intends to refinance the 2016 SRF loan as part of the new construction SRF loan.

COMMUNITY DESCRIPTION:

Location: The city of St. Joseph is located in northwest Missouri at the intersection of US Interstate 29 and US Highway 36. It is approximately 30 miles north of the Kansas City Metro area.

Population, Projection and Planning Period: Based on the population projections presented in the city of St. Joseph Facilities Plan Volume I, submitted May 10, 2010, the 2015 population of St. Joseph was estimated to be 79,000. This project has a 30-year planning period. The 2045 population is estimated to be 89,000.

Current Methods of Waste Treatment: Currently, the Blacksnake Creek flows are directed into the combined sewer system that flows to the St. Joseph Water Protection Facility's wastewater treatment plant which discharges to the Missouri River. Blacksnake Creek base flow and extremely small storms currently flow through the combined sewer to the treatment plant. When storm flows exceed the capacity of the sewer and/or treatment plant, the combined sewer flows overflow directly to the Missouri River and are discharged untreated.

St. Joseph Water Protection Facility information:

- Permit No.: MO-0023043
- Receiving Stream: Missouri River
- Activated sludge/ aerobic & anaerobic digester/ sludge disposal is by land application or sanitary landfill
- Design population equivalent is 250,000
- Design flow is 27 million gallons per day (MGD)
- Actual flow is 19 MGD
- Design sludge production is 10,000 dry tons/year

PROJECT DESCRIPTION:

Purpose and Need: The Blacksnake Creek Stormwater Separation Project is part of the city's Long Term Overflow Control Plan. The project will allow the city to comply with the department approved, November 2009 Phase IA Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) implementation schedule. Compliance with the implementation schedule is required by Special Condition B of the Missouri State Operating Permit MO-0023043. The CSO control mandate is described in the Combined Sewer Overflow Control Policy and administered by the Environmental Protection Agency (EPA).

The purpose of this CSO control project is to intercept and redirect Blacksnake Creek stream flows away from the city's combined sewer system to a new and dedicated stormwater conveyance system that will flow directly to the Missouri River, reducing the frequency, volume, and impacts of combined sewer overflows to the river. The overflows contain sanitary sewage and result in adverse water quality problems for human health and the environment.

Additionally, Blacksnake Creek has a continuous dry weather flow that flows to the St. Joseph Water Protection Facility (WPF). The total dry weather base inflow to the combined sewer system from Blacksnake Creek is approximately 2 MGD. It is not necessary to treat the creek flow at the WPF; therefore, removing the base creek inflows will provide substantial treatment cost savings for the city. Removal of Blacksnake Creek base flow will result in approximately \$1.5 million in annual operation and maintenance (O&M) cost savings.

Description of Project:

The Blacksnake Creek Stormwater Separation Project is designed to redirect stormwater from the Blacksnake Combined Sewer System to the Missouri River using a combination of methods, including direct-bury conveyance (box culverts), deep tunnel conveyance, as well as improvement and use of the existing Roy's Branch channel to carry storm flow to the Missouri River. The chosen alignment begins at Karnes Road with the near surface conveyance following along the abandoned railroad corridor located just east of St. Joseph Avenue, from Karnes Road to just north of Highland Avenue. The tunnel conveyance will proceed west under Highland Avenue, from St. Joseph Avenue to Dewey Avenue. The tunnel will then curve to the southwest and cross under I-229 and MacArthur Drive terminating at an outfall portal located south of Highland Drive and between MacArthur Drive and the Burlington Northern Santa Fe (BNSF) railroad tracks. Flow will continue through a steel pipe crossing under the railroad tracks to discharge into the existing Roy's Branch channel.

The project includes the following features and improvements:

- Installation of two inlet structures to the existing combined sewer and new conveyance system;
- Rehabilitation of a screening structure and slide gate within the existing combined sewer system;
- Karnes Road and Northwest Parkway relocation and improvements required to accommodate the stormwater conveyance system;
- Near surface conveyance consisting of approximately 5,775 linear feet (lf) of 7x6 ft. box culverts with four junction structures installed using open cut methods;
- Sewer separation with 8-in and 18-in diameter sanitary sewer lines east of the conveyance near Randolph Street and improvements to the existing combined sewer inlet;
- Approximately 6,648-foot long, 90-inch diameter, lined concrete precast segment tunnel with a 37-ft diameter baffled drop shaft at the upstream end;
- Approximately 306 lf of below grade 90-in diameter steel pipe between the tunnel portal and outfall;
- One energy dissipation structure at the confluence of the tunnel outfall and the existing Roy's Branch Channel;
- Stream bed realignment and stabilization to approximately 900 lf of the existing Roy's Branch channel near the Missouri River;
- Required maintenance access road (approximately 7,700 lf) for Kansas City Power & Light power poles along conveyance corridor;
- Restoration of impacted park facilities;
- Five bioretention facilities along the near surface conveyance corridor; and
- Replacement of trees removed in the project corridor that are six inches in diameter or larger.

Design Factors: The new stormwater conveyance will be designed to divert the Blacksnake Creek base flow (2 MGD), and divert all wet weather events that are equal to or less than Blacksnake Creek Design Event E (representing a 20 hour, 1.8 inch rain event occurring approximately four times a year) out of the combined sewer system. The stormwater separation conduits are not sized to provide complete flood control. Significantly larger pipes would need to be installed to allow the 25-year stormwater to pass through the new conveyance without the occurrence of flooding.

ALTERNATIVES CONSIDERED:

Stormwater Conveyance System Alternatives and Estimated Costs (as presented in the January 2010, Facilities Plan, Technical Memorandum No. TM-CSO-5, Stormwater Separation Conduits):

Not Selected: Open channel concept extending all the way to the Missouri River. This alternative was screened out during preliminary studies due to prohibitive costs and extensive property impacts to residential, commercial and industrial properties. This alternative would require the purchase of 20 commercial and 80 residential properties, construction of ten bridges and would pass through several soil contamination sites.

Not Selected: Alternative A - Pipe In Pipe. This alternative proposed to place the stormwater separation conduit inside the existing large diameter combined sewer. This alternative was screened out early on due to constructability, capacity and O&M issues. This alternative would require diversion of dry weather flows during construction and workers to wear self-contained breathing apparatus protective gear in the confined space, making the project complex, hazardous to workers and costly. Placing the storm sewer inside the combined sewer would also significantly reduce the conveyance capacity of the Blacksnake sewer.

Selected: Alternative B – Pipe along Abandoned Railway. This alternative consists of a new stormwater pipe constructed along the abandoned railroad right of way to ultimately discharge to the Missouri River. This alternative includes open cut pipe, box culvert, and tunneled pipe. A tunnel boring machine (TBM) would be used for tunnel construction. The probable capital cost of Alternative B is estimated to be \$39,707,000, annual O&M costs estimated to be \$40,000 per year.

Not Selected: Alternative C – Pipe to Roy’s Branch Basin. This alternative consists of a new stormwater pipe to divert the creek flow out of the Blacksnake Creek Basin and into Roy’s Branch Basin (i.e. cross-basin transfer) at a location north of the existing combined sewer. Alternative C was dropped from consideration due to the creation of unacceptable flooding, stream bank erosion and other issues with cross-basin transfer to the Roy’s Branch Basin. Cross-basin stormwater transfers are typically avoided by stormwater design protocols and standard engineer practices because they increase peak stream flows, exacerbating existing flooding problems. The city would be required to purchase more than a mile of stream easements and provide additional flood mitigation and stream stabilization projects. The probable capital cost of Alternative C is estimated to be \$26,574,000, annual O&M costs estimated to be \$27,000 per year.

Not Selected: Alternative D – Pipe along St. Joseph Avenue. This alternative consists of a new stormwater pipe and a section of tunneled pipe to divert creek flow directly to the Missouri River along St. Joseph Avenue. This alternative would require significantly more street pavement replacement, traffic control and more community and business disruption than other alternatives. The probable capital cost is estimated to be \$45,018,000, annual O&M costs estimated to be \$45,000 per year.

Not Selected: Alternative E – Pipe along Abandoned Railway with Upstream Detention Basin. This alternative follows an alignment similar to Alternative B (except for the downstream portion through the downtown area) however it added a 150 acre-foot detention basin (15 acre-feet permanent pool, 135 acre-feet flood pool) upstream of the existing combined sewer. This detention basin was estimated to attenuate the peak flow of Design Event E (20 hour, 1.8 inch rain event occurring approximately 4 times a year) from 175 cubic feet per second to 20 cubic feet per second downstream of the basin. The detention basin flow reduction would reduce the required diameters of the stormwater conduits to less than 2 feet. A 20 cubic feet per second pump station would be required to pump creek flows from the basin into the proposed open channel. The probable capital cost is estimated to be \$37,362,000, annual O&M costs estimated to be \$297,000 per year.

Alternatives A through D assumed no inclusion of a detention basin and thus no peak flow attenuation. Therefore, capital cost estimates for alternatives A through D did not include costs for a detention basin. Alternative E investigated whether the combination of a detention basin and stormwater separation conduit was more cost effective by allowing reduction in size of the stormwater conduit. The capital cost estimate for Alternative E included costs for a detention basin.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE:

Selected: Alternative B – Highland Avenue Alignment. Thirty year net present worth is approximately \$89,491,000 (including annual O&M costs).

Alternative B was determined to be the most cost effective, practical, and feasible according to the January 2010 Facilities Plan, Technical Memorandum No. TM-CSO-5. It meets regulatory requirements and minimizes private property impacts. Since the Alternative B construction cost estimate is within 10 percent of the Alternative E cost estimate (i.e. 6 percent), they are considered equal at this level of study. However the annual O&M costs are considerably greater for Alternative E due to addition of a pump station. In addition Alternative B adds 175 cubic feet per second (cfs) of additional conveyance capacity to the Blacksnake Basin, whereas Alternative E only adds 20 cfs of additional conveyance capacity to the Basin due to the reduction in the stormwater pipe diameters based on inclusion of a stormwater detention basin for Alternative E.

Upon selection of Alternative B, the alternative was further refined in the Facility Plan for the Blacksnake Creek Stormwater Separation Improvement Project dated March 2, 2015 (i.e. March 2015 Facility Plan). Stormwater conveyance alignment alternatives were developed and evaluated, with preference given to solutions that minimized construction and operating costs while balancing technical, environmental, safety and health risk elements. Publicly owned right-of-way corridors were selected for detailed evaluation. The near surface portion of the conveyance parallels an abandoned railroad right-of-way. Four possible tunnel conveyance alignments were evaluated:

- Cook Road Tunnel Alignment
- Green Street Tunnel Alignment
- Highland Avenue Tunnel Alignment
- Poulin Street Tunnel Alignment

Cook Road, Green Street and Poulin Street tunnel alignments required inverted siphons to pass beneath BNSF railroad tracks. The O&M costs as well as performance risks of inverted siphons cause these options to be infeasible as these dips in the tunnel allow sediment to deposit in the pipe. Sediment deposition will reduce the design flow and create a bottleneck in the tunnel resulting in upstream flooding. In addition, cleaning and inspection of the tunnel would require specialized equipment and expertise as well as completely dewatering the tunnel to perform these tasks. The Highland Avenue tunnel alignment will free-discharge into existing Roy's Branch channel near Remington Nature Center upstream of the railroad tracks eliminating the bottleneck condition. The Alternative B, Highland Avenue tunnel alignment was found to be the only technically feasible alignment option and was therefore selected as the final stormwater conveyance alignment.

The March 2015 Facility Plan included an option to connect the selected project alternative to a potential USACE funded, Blacksnake stormwater flood detention basin. The stormwater flood detention basin would have been constructed at the upstream end of the alignment to alleviate flooding. Due to lack of funding, the USACE flood detention basin is not being pursued.

The updated 2017 cost estimate of the selected alternative is \$10,000,000 for engineering design and \$57,630,500 for project completion.

The Alternative B Highland Ave Alignment was compared to the No Action alternative (using 2015 costs):

Not Selected: No Action Alternative. Thirty year net present worth is approximately \$140,274,000. Note: This option is not acceptable as it would result in ongoing non-compliance with the city's CSO control mandate but was considered the only other remaining feasible alternative for comparison.

RELATED PROJECTS:

The existing combined sewer is also in need of repair. This project generally consists of inspection, cleaning and repair of concrete and brick cracks in the Blacksnake Combined Sewer pipeline. It includes the removal of encrustation and deposits at select lateral locations, surface repair of plugged lateral connections and repair of existing missing brick locations. The recommended repair methods for the cracks include the use of a hydro-active polyurethane grout or similar material that can be injected into the cracks and seal them from infiltration. The areas with missing bricks or holes will be repaired with a concrete patch or other material suitable for applications in water. The estimated total length of these repairs is 4,800 feet or about 37 percent of the total length of the existing Blacksnake Sewer. The estimated cost of the sewer rehabilitation is approximately \$2,177,000 and is eligible for funding through the State Revolving Fund.

This project is directed solely toward minor rehabilitation of existing facilities, functional replacement of equipment, or minor expansion of the sanitary sewer system that does not affect the degree of treatment or the capacity of the treatment facility. The proposed action does not involve serious local or environmental issues nor does it entail any of the criteria for not granting a categorical exclusion as specified in Section (1)(A)1.B.(I)-(VI) of 10 CSR 20-4.050. Therefore, a Categorical Exclusion Determination was made by the department dated December 21, 2016.

ENVIRONMENTAL IMPACT SUMMARY:

1. Primary:

- a. Construction: Blowing dust, temporary surface disruption, and noise from construction equipment will occur during construction; but, these impacts are expected to be minor and temporary in nature.

Approximately 1,100 trees will be removed within the project corridor during construction. All trees 6 inches or larger in diameter will be replaced in select areas within the project corridor in accordance with city of St. Joseph Tree Ordinance. Trees will be replaced one for one. The majority will be hardwoods from the city's approved list (e.g., maples, ash, and oaks). Approximately 275 will be 2½ inch diameter, approximately 550 will be 1 inch diameter and approximately 275 will be 5 – 6 ft. high seedlings. Spacing is such that not all 1,100 trees will fit in the construction limits. The remaining trees will be used specifically along the parkway and other strategic areas in the Blacksnake watershed.

Permanent removal of a portion of Karnes Road and relocation of Northwest Parkway are necessary for the construction of the new inlet structure. This intersection has been previously identified by the city as needing improvements for traffic safety.

Traffic will be routed from Karnes Road to Northwest Parkway eliminating adjacent intersections with St. Joseph Avenue.

- b. **Environmental:** This project will separate creek flow and stormwater flow from the Blacksnake Creek combined sewer, thereby reducing the number of combined sewer overflows in the city, decreasing dry weather flows to the wastewater treatment facility, and freeing up wastewater treatment facility capacity.

The project area contains one intermittent and two perennial streams. Each of these streams is presumed to be a Water of the United States (WOTUS) because of their direct hydrologic connection to the Missouri River. These WOTUS and potential impacts are summarized as follows:

- i. Blacksnake Creek is a perennial stream which currently flows into the combined sewer system just upstream of Karnes Road and does not daylight prior to being treated and discharged to the Missouri River. A new stormwater intake adjacent to Karnes Road is proposed which will divert the base flow of Blacksnake Creek away from the existing combined sewer intake structure. This new intake and improvements to the existing intake will impact approximately 490 feet of stream channel.
- ii. An unnamed tributary is located near the intersection of Ferndale Avenue and Randolph Street. A proposed replacement inlet will connect this unnamed intermittent tributary to the new stormwater conveyance system. The inlet replacement will impact approximately 55 lf of the intermittent stream.
- iii. Roy's Branch is a perennial stream where the proposed outlet of the new stormwater conveyance system will be located. Roy's Branch will be converted to a stable, engineered channel downstream to its confluence with the Missouri River. The result will be a loss of approximately 289 linear feet and morphological change to approximately 905 lf of Roy's Branch. Relocation of a pedestrian bridge will eliminate stream flow constrictions and current flooding problems.

The U.S. Army Corps of Engineers (USACE) issued a 21-Day Public Notice dated March 10, 2017 and solicited comments regarding the issuance of a Department of the Army 404 site specific permit. Comments were received from the Department of Natural Resources' Stormwater and Certification Unit regarding Water Quality Certification including comments on wetland and stream impacts. Comments were also received from the U.S. Fish and Wildlife regarding project description and a Compensatory Mitigation Plan. Subsequently, the USACE has requested additional information from the city's consultant to address these comments. The USACE will complete its own environmental determination prior to 404 permit issuance.

A wetland delineation report titled "Roy's Branch Wetland Delineation and Investigation of Waters of the U.S." dated October 21, 2016 by Black and Veatch was submitted as part of the 404 permit application. This report concluded that "Based on the findings of our investigation of the area, it is our opinion that the area in question does not meet the requirements necessary for classification as a wetland."

The USACE concurred with these findings by email dated April 3, 2017. No other jurisdictional wetlands outside of Roy's Branch were identified in the project area. The report *Archeological Survey for the Blacksnake Creek Stormwater Separation Improvement Project, Buchanan County, Missouri* by R. Christopher Goodwin & Associates, Inc. (RCG&A) dated January 2017 presented findings of a Phase I archeological survey for the Blacksnake Creek Stormwater Separation Project. The survey identified eight historical cultural resources. Of these, the Northwest Parkway is the only historic property. RCG&A determined that the visual setting of a portion of the Northwest Parkway will be affected by tree removal. Replanting of trees will be consistent with approved restoration to original condition. RCG&A recommends a conditional finding of "no historic properties are adversely affected" conditional on the concurrence of the State of Missouri Department of Natural Resources, State Historic Preservation Office which has been granted by letter dated March 23, 2017.

A bat survey was conducted by HDR Inc. on July 28 and 29, 2016 in coordination with the USACE and U.S. Fish and Wildlife Service. No currently listed federally endangered or threatened bats were captured during the study. The U.S. Fish and Wildlife Service verified that the survey indicated a negative presence/probable absence for federally endangered or threatened bat species by email dated September 19, 2016.

- c. Financials: The current average monthly residential sewer bill is \$63.28/month based on 600 cubic feet/month average winter quarter usage. This project will incur a gradual rate increase over 5 years. The projected average user charge in 5 years will be \$74.48/month. Without this project, the projected average user charge in 5 years is \$72.61/month.

2. Secondary:

- a. Population Impacts: No significant change in population trends is expected to result from this project. This project will not serve any new areas. The project requires a number of permanent easements and land acquisitions, resulting in the displacement of a small number of homeowners.
- b. Land use and Trends: No significant change in land use trends is expected to result from this project. No development of sensitive areas is anticipated. The project will have temporary, but no permanent impacts to public use of the Northside Complex Park. Any temporary construction impacts will be completed within 6 months and then restored to pre-construction conditions. The report *Archeological Survey for the Blacksnake Creek Stormwater Sepwration Improvement Project, Buchanan County, Missouri* by R. Chrisotpher Goodwin & Associates, Inc. dated January 2017 found that there will be no adverse impact on the Northwest Parkway with tree replacement. The State of Missouri Department of Natural Resources, State Historic Preservation Office concurred.

A pedestrian bridge and portion of a walking trail will be relocated at the confluence of Roy's Branch and the Missouri River to accommodate increased flow. Additional multi-use (hike/bike) trails will be incorporated to increase pedestrian and bike traffic within the project area.

- c. Environmental: Secondary environmental impacts caused by this project are not expected to be significant. Loss of sediment due to construction is expected to be minimal by implementation of Best Management Practices. Future stream erosion is expected to decrease due to stream stabilization using rip-rap.
3. Mitigation Measures Necessary to Eliminate Adverse Environmental Effects: Noise, blowing dust, and erosion normally associated with construction should be minimized by good engineering practices. Restoration of disturbed areas will be promptly accomplished. Any debris such as trees or brush shall be disposed of properly.

The city of St. Joseph will be required to comply with the terms and conditions of the USACE 404 site specific permit. Impacts to jurisdictional streams is likely to be offset with In-Lieu Fee approach to mitigation, purchasing credits from a USACE-approved provider. Best Management Practices will be used to minimize stream impacts such as conducting work at low flows, diverting flows during construction, and development of a stormwater prevention plan and erosion and sediment control plan.

4. Irreversible and Irrecoverable Commitment of Resources: Fuel and construction materials will be irretrievably committed to this project. Future funds will be committed to the operation and maintenance of the system.

PUBLIC PARTICIPATION:

1. Public Involvement: A facility's plan alternatives public meeting was held on December 1, 2016, at 4:15 p.m., at the St. Joseph City Hall, in the City Council Chamber, 1100 Fredrick Ave, St. Joseph, Missouri. An environmental impact public hearing followed at 5:00 and a user charge public hearing followed at 5:30. The U.S. Army Corps of Engineers (USACE) issued a 21-Day Public Notice dated March 10, 2017 and solicited comments regarding the issuance of a Department of the Army 404 site specific permit.
2. Public Opposition or Opinions: The public opinions both in favor of and opposed to the project were presented. Responses from the city of St. Joseph to the questions/issues raised at the meeting appear in the Appendix attached to this document. Transcripts of the meetings are available for viewing upon request. No public comments were received from the USACE Public Notice, however, several comments were received from the Department of Natural Resources and U.S. Fish and Wildlife. Responses to these comments are currently being addressed.

COORDINATION AND DOCUMENTATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS:

1. City of St. Joseph, Missouri, Facilities Plan, Technical Memorandum No. TM-CSO-5, Stormwater Separation Conduits.
Dated: January 15, 2010
Prepared By: Black & Veatch

2. **Blacksnake Creek Stormwater Separation Improvement Project, Facility Plan.**
Dated: March 2, 2015
Prepared By: Black & Veatch
3. **Blacksnake Creek Stormwater Separation Improvement Project, Environmental Information Document.**
Dated: March 7, 2016
Prepared By: Black & Veatch
4. **Roy's Branch Wetland Delineation and Investigation of Waters of the U.S., City of St. Joseph, Missouri, Blacksnake Creek CSO Improvements.**
Dated: October 21, 2016
Prepared By: Black & Veatch
5. **Summer Mist Net Survey for Federally Protected Bats for the Blacksnake Creek Flood Risk Management Project, Andrew and Buchanan Counties, Missouri.**
Dated: August 18, 2016
Prepared By: HDR, Inc.
6. **Cultural Resources Literature Review for the Blacksnake Creek Stormwater Separation Improvement Project, Buchanan County, Missouri.**
Dated: November 2016.
Prepared By: R. Christopher Goodwin & Associates, Inc.
7. **Archeological Survey for the Blacksnake Creek Stormwater Separation Improvement Project, Buchanan County, Missouri. Dated: January 2017**
Prepared By: R. Christopher Goodwin & Associates, Inc.
8. **Categorical Exclusion Determination – Blacksnake Combined Sewer Rehabilitations Crack Repair.**
Dated: December 21, 2016
Prepared By: Missouri Department of Natural Resources
9. **St. Joseph, MO: Blacksnake Creek Stormwater Separation Project – Northside Complex Park Project Update.**
Dated: February 17, 2017
Prepared By: Black & Veatch
10. **Federal Agencies: X USFWS X Corps of Engineers**
11. **State Agencies:**
 - a. Missouri DNR – Office of Historic Preservation
 - b. Missouri DNR – Missouri Geological Survey
 - c. Missouri DNR – Division of State Parks
 - d. Missouri Department of Conservation
 - e. Missouri Office of Administration – Federal Assistance Clearinghouse

12. Consulting Engineer: Black & Veatch Corporation
8400 Ward Parkway
Kansas City, MO 64114

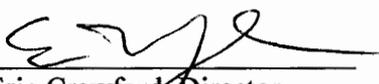
Positive Environmental Effects to be Realized from the Proposed Project: This project will separate creek flow and stormwater flow from the Blacksnake Creek combined sewer. The Blacksnake project will eliminate approximately 303 million gallons per year of combined sewer overflows at public accessible locations within the city. In addition approximately 2 MGD of Blacksnake Creek base flow will be diverted from the wastewater treatment facility, reducing the flow at the plant by over 11 percent. This will free up wastewater treatment facility capacity for wet weather flows and will reduce the facility's costs and environmental footprint. Overall water quality of the Missouri River is expected to improve due to reduction of combined sewer overflows.

Reasons for Concluding There Will Be No Significant Impacts: The proposed project will have a positive impact on water quality and will not result in any significant adverse impacts on rare or endangered species, flood plains, wetlands, recreational areas, cultural/archaeological sites, or air quality. Population densities and land use trends will not be significantly affected. Where minor impacts will occur, appropriate mitigation measures are planned. Numerous environmental and technical documents were reviewed to support the conclusion that no significant impacts will result from this project. Those documents are listed as items number 1 through 9 above under the section titled, Coordination And Documentation With Other Agencies And Special Interest Groups.

This action is taken on the basis of a careful review of the facility plan and associated documents on file in the office of the Missouri Department of Natural Resources' Water Protection Program at 1101 Riverside Drive, Jefferson City, MO 65101. These are available for public scrutiny upon request Monday-Friday, 8:00 a.m. to 5:00 p.m. This agency will not take any administrative action on this project for at least 30 calendar days from the date of this document. Persons wishing to comment on the above environmental decision may submit comments to Ms. Cynthia Smith, P.E., of the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176, during this period. Thank you.

Sincerely,

WATER PROTECTION PROGRAM


Eric Crawford, Director
Financial Assistance Center


Cynthia M. Smith, P.E.
Project Review Engineer

EWC:csc

6/9/17
Date

Attachments

DISTRIBUTION

Department of Conservation
P.O. Box 180
Jefferson City, MO 65102

Conservation Federation of Missouri
728 West Main Street
Jefferson City, MO 65101

Environmental Protection Agency
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11201 Renner Boulevard
Lenexa, KS 66219 (Copy Emailed)
Nix.Tanya@epaemail.epa.gov

Missouri Department of Natural Resources
Missouri Geological Survey
Environmental Geology Section
P.O. Box 250
Rolla, MO 65402-0250

Missouri Department of Natural Resources
Division of State Parks
State Historic Preservation Office
P.O. Box 176
Jefferson City, MO 65102-0176

U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057

National Park Service
Midwest Region
Planning and Compliance Office
Environmental Coordinator
601 Riverfront Drive
Omaha, NE 68102-4226

USDA Rural Development
601 Business Loop 70 West
235 Parkade Center
Columbia, MO 65203

Gilmore and Bell, P.C.
c/o Ms. Shannon Walsh Creighton
One Metropolitan Square
211 N. Broadway, Suite 2350
St. Louis, MO 63102-2741

SRF File C295699-02 (C. Zimmerman)

City of St. Joseph
c/o Mr. Andy Clements, Assistant Director
Public Works and Transportation
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St. Joseph, MO 64501

Black & Veatch
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Kansas City, MO 64114

Missouri Department of Natural Resources
Kansas City Regional Office
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Lee's Summit, MO 64086-4710

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825 Edmonds Street
St. Joseph, MO 64501

Environmental Protection Agency
Office of Federal Activities
Ariel Rios (2252A)
1200 Pennsylvania Avenue, N.W.
Washington, DC 20004

Council of Environmental Quality
722 Jackson Place, N.W.
Washington, DC 20503

U.S. Army Corps of Engineers
Kansas City District
700 Federal Building
601 E. 12th Street
Kansas City, MO 64106-2896

Mo-Kan Regional Council
1302 Faraon
St. Joseph, MO 64501

Lewis, Rice and Fingersh
c/o Mr. David Brown
600 Washington, Suite 2500
St. Louis, MO 63101

GDS, LLC/AMBROZI.U
c/o Mr. Fritz K. Ambrozi, II
f.k.ambrozi@gmail.com

Attached Maps

1. State Map
2. City Map
3. Project Elements Map

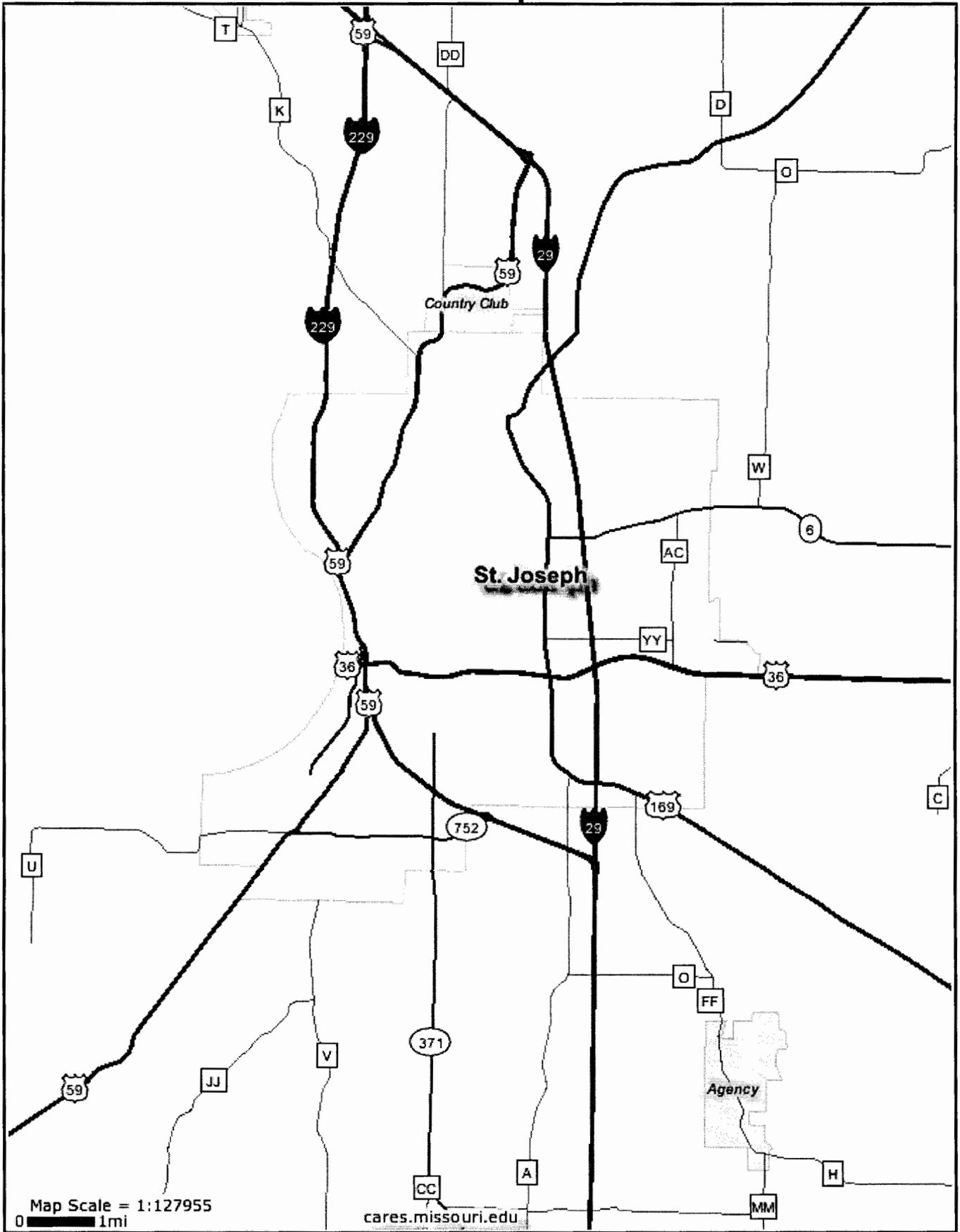
State of Missouri

City of St. Joseph

Buchanan County, MO



St. Joseph





LEGEND

- █ Tunnel Package
- █ Conveyance Package
- █ Sewer Rehabilitation Project

Notes: 1. Tree Clearing throughout the project area included in separate bid package.
 2. Tree replacement and green infrastructure throughout the project area included in separate bid package.



Appendix

Responses to Public Comments from Meetings
and Hearings Held on December 1, 2016

BLACKSNAKE CREEK STORMWATER SEPARATION IMPROVEMENT PROJECT

Responses to:
Final Alternative Design Meeting
Environmental Impact Hearing
User Charge Hearing
Dec. 1, 2016

ALTERNATIVE DESIGN MEETING

Desire for an open channel, green project

The open channel concept extending all the way to the Missouri River was ruled out in conceptual design screening because of major disruptions, property impacts and cost.

To illustrate these impacts, an open channel for flood control would require:

- An approximately 100 foot wide corridor for a flood control channel
- Purchase of an estimated 100 properties:
 - » Approximately 20 of which are estimated as commercial uses (including WireCo/Hillyard Industrial)
 - » Approximately 80 residential properties (~50 homes)
- Construction of at least ten bridges at the following street crossings:
 - » Northwest Parkway
 - » Randolph St.
 - » 5th Avenue
 - » Grand Avenue
 - » Middleton St./N. 4th St.
 - » E. August St.
 - » E. Franklin St.
 - » N. 3rd St.
 - » Main St.
 - » McArthur Drive
- Two railroad crossings
- Fast moving water flow of up to 9 feet per second through residential, commercial, and industrial areas
- 2,000 feet of relocated Blacksake combined sewer (12' to 17' in size) and nearly 4,000 feet of relocated sewer interceptor
- Numerous impacts to KCPL high voltage lines and distribution lines
- New sewage lift station
- Environmental concerns (potential soil contamination) at several sites:
 - » Old railroad yard & roundhouse along corridor
 - » Old landfill site from 1970s near Missouri River confluence
 - » Several former petroleum storage/oil refining facilities sites

In comparison, the current design requires minimal property impacts with no home purchases.

Project funding

The City is receiving a low-interest loan from the Missouri State Revolving Fund (SRF) to complete the Blacksake Stormwater Separation Improvement Project.

The City received a variance from SRF to allow the more favorable 30-year term as compared to the standard 20-year term. The low interest rate and extended payment terms increase the affordability of the project for rate payers, which was a result of the exploration of alternate funding opportunities.

What was the extent of public involvement during 2008 to 2010?

The City of St. Joseph convened a Community Advisory Panel (CAP) which met approximately monthly from June 2009 until January 2010. The group contained 12 members appointed by the Mayor to represent various stakeholder groups. The CAP's charge was to provide input to the recommendations from the perspective of the community. They provided feedback on analysis, alternatives and decisions. The CAP meetings were open for public attendance, with press releases provided in advance to local media outlets. In March 2010, the CAP recommended the Combined Sewer Overflow Control Facilities Assessment be accepted by the City Council.

City Council Briefings were also held during this time on the following dates:

- 2009: March 5, August 11, September 28, November 9, December 7 and
- 2010: January 26, March 4, March 23.

ALTERNATIVE DESIGN MEETING

Why is Black & Veatch the selected contractor? Where are the bids from the other firms?

In the State of Missouri, government entities are required to use a qualifications-based selection process for the selection of engineering professionals to ensure public engineering works provide the required level of quality and service. The City selected Black & Veatch as the project's design engineer based on the City's request for qualifications from a total field of seven qualified engineering firms. The City authorized Black & Veatch to proceed with the project design with a contract start date of November 18, 2013.

The Contractor will be selected on the basis of a competitive bid process. Once selected, the City will award a contract to the Contractor for physical construction of the project. The contract for project construction will be directly between the selected Contractor and the City of St. Joseph.

Does the City have a compliance mandate to do the project? Can the schedule be delayed?

Implementation of the City of St. Joseph's Combined Sewer Overflow (CSO) control program is mandated by USEPA as part of a national program to improve water quality within the nation's water bodies. Additional communities along the Missouri River have likewise been required to implement these water quality improvement projects, including Omaha, St. Louis and Kansas City.

St. Joseph's revised Long Term Control Plan (LTCP) implementation plan, as shown in the Facilities Plan, was approved on November 18, 2009 by MDNR. The letter includes the required nine projects and implementation schedules for each, including the Blacksnake Stormwater Separation Improvement Project to be completed by July 1, 2019.

Discussion related to existing river water quality and impacts

Implementation of the City of St. Joseph's Combined Sewer Overflow (CSO) control program is mandated by USEPA as part of a national program to improve water quality within the nation's water bodies. Additional communities along the Missouri River have likewise been required to implement these water quality improvement projects, including Omaha, St. Louis and Kansas City. Following implementation of the required Phase IA projects, a water quality study (Phase IB of the project) will be performed to quantify the water quality benefits resulting from the first phase. The scope of the Phase II project implementation requirements will be determined based on the water quality results from the Phase IB water quality study.

Project selected meets regulations and minimizes costs and private property impacts

A wide range of alternatives were initially evaluated during preliminary studies, including complete stormwater separation of the Blacksnake Watershed, a treatment facility or large storage basin at the sewer outfall, and use of an open channel for stormwater separation along the entire alignment to the Missouri River. These alternatives were screened out from further consideration due to prohibitive costs and significant property impacts to existing homes and commercial/industrial businesses. From the screening process, a solution was selected which carries water using a mix of technologies including box culverts, open stream channels and a tunnel; and was determined to provide the best value and benefits to the City.

Five alignments between Cook Road and downtown St. Joseph were then evaluated in detail during the project's early phase and presented at the October 2014 public meeting. The recommended Highland Avenue alignment was selected based on a detailed cost/benefit evaluation and to provide the best means for moving the creek water to the Missouri River. In 2014, the conceptual alignments were evaluated against the following project goals:

- Minimize project and operations and maintenance costs and
- Minimize private property acquisition.

ENVIRONMENTAL IMPACT MEETING

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- Minimize project and operations and maintenance costs and
- Minimize private property acquisition.

Is this project considered a "green" project?

The entire project is considered green due to the resulting environmental benefits of reducing the volume of combined sewage flowing directly to the Missouri River. In addition, the project reduces the average annual volume of flow treated at the Water Protection Facility (wastewater treatment plant) by over 11%, reducing the cost and environmental footprint of the associated additional use of chemicals, energy and staff resources.

Species impacts of the project

No threatened and endangered species have been observed in the project area. The proposed project does not reduce wildlife habitat, it increases/improves habitat in the vicinity of Roy's Branch. Following construction of the project, amphibious wildlife and fish will see a water quality improvement.

What was the public education process with dates of meetings? When were alternatives considered and presented to the public? What was the contract duration and compensation amount related to public education?

Multiple public input opportunities have been held throughout the course of the Blacksnake project conceptual and detailed design, from 2013 through 2016. The Public Meeting on October 9, 2014 presented alternatives studied and provided a feedback opportunity on the recommendations. A summary of the public outreach and input opportunities follows:

Event Timing	Public Input Event	Description
Fall 2013	WaterPalooza	Present project, input to green solutions
Spring 2014	Rain Garden Workshop	Input to green solutions
May 30 – June 1, 2014	Northside Festival	Present project, input to green solutions
June 3 – 4, 2014	Washington Park Library	Present project, input to green solutions
June 14 – 30, 2014	Remington Nature Center & Online	Input to green solutions
Sept 2014 – ongoing	Meet with property owners	Present project, community criteria
October 9, 2014 January 26, 2016	Public meetings	Present alignment, conceptual design, and initial public feedback
August 21, 2014 October 14, 2014 February 25, 2016 March 31, 2016 July 13, 2016	City Council Briefings	Update City Council on project, alignment selections and public feedback on basis of design

The public education for the Blacksnake Sewer Separation Improvement project was initiated as part of the overall design contract, with a start date of November 18, 2013. As of November 4, the City has been invoiced \$79,262.61 by Shockey Consulting Services and \$114,065.17 by Black & Veatch for public outreach associated with the Blacksnake project.

Additional public outreach activities are planned to provide additional information as the project moves into construction.

ENVIRONMENTAL IMPACT MEETING

Desire for an open channel, green project

The open channel concept extending all the way to the Missouri River was ruled out in conceptual design screening because of major disruptions, property impacts and cost.

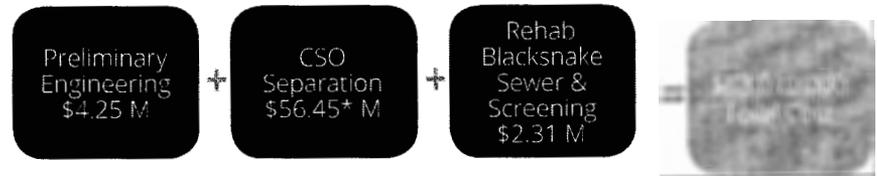
To illustrate these impacts, an open channel for flood control would require:

- An approximately 100 foot wide corridor for a flood control channel
- Purchase of an estimated 100 properties:
 - » Approximately 20 of which are estimated as commercial uses (including WireCo/Hillyard Industrial)
 - » Approximately 80 residential properties (~50 homes)
- Construction of at least ten bridges at the following street crossings:
 - » Northwest Parkway
 - » Randolph St.
 - » 5th Avenue
 - » Grand Avenue
 - » Middleton St./N. 4th St.
 - » E. August St.
 - » E. Franklin St.
 - » N. 3rd St.
 - » Main St.
 - » McArthur Drive
- Two railroad crossings
- Fast moving water flow of up to 9 feet per second through residential, commercial, and industrial areas
- 2,000 feet of relocated Blacksnake combined sewer (12' to 17' in size) and nearly 4,000 feet of relocated sewer interceptor
- Numerous impacts to KCPL high voltage lines and distribution lines
- New sewage lift station
- Environmental concerns (potential soil contamination) at several sites:
 - » Old railroad yard & roundhouse along corridor
 - » Old landfill site from 1970s near Missouri River confluence
 - » Several former petroleum storage/oil refining facilities sites

In comparison, the current design requires minimal property impacts with no home purchases.

Provide basis for project costs. What are the full costs into the future?

As presented during the User Rate Charge meeting, Blacksnake Creek project costs are as follows:



* Includes estimated SRF loan closing cost

Project costs include preliminary engineering, final engineering design, land acquisition, permit applications and bid phase services as well as estimated construction costs. Actual construction costs will be determined through a competitive bidding process.

Ongoing operations and maintenance (O&M) costs for the facilities are not included in the above project costs. O&M costs will be relatively low for the passive system (i.e. limited mechanical equipment). O&M efforts will be required on an infrequent basis for tunnel inspection (after 1 year of operation and then every 3 years afterward) and sediment removal (anticipated every 5 to 10 years). Associated stormwater inlets will need to be cleaned following major storms and a few times a year to prevent vegetation encroachment; these cleaning activities are already required for maintenance of the existing system.

The User Rate Charge meeting covered the average project rate impact for the average customer. In addition, the March 2010 affordability analysis required by USEPA took into account required spending for the City to implement projects involving routine operations and maintenance, replacement of aging infrastructure and implementation of other regulatory requirements, resulting in a Median Household Income (MHI) indicator of 2.09%. The MHI Indicator for the CSO component only is 1.48.

MDNR and USEPA have indicated during previous negotiations the importance of keeping the costs for project implementation for the City of St. Joseph within the 2% MHI indicator. Extension of project implementation schedules and State Revolving Fund (SRF) loan terms are examples of regulatory actions attained through coordination with the City project team intended to address the affordability of the Combined Sewer Overflow (CSO) implementation for the City's residents and which are anticipated to lower the MHI to below 2%.

Has the tunnel option been proposed as a benefit to WireCo [or new owner - Hillyard Industrial]?

The current project configuration has not been recommended to benefit any single or group of business owners. The current project approach with box culvert, tunnel and open channel sections has been recommended because it is the lowest cost solution to improve water quality, meet a regulatory mandate, while minimizing private property impacts.

ENVIRONMENTAL IMPACT MEETING

How much sewer water do we treat, what is the real impact?

Combined sewer overflows (CSOs) to the Missouri River from Blacksnake sewer occur during and shortly after rainfall events. The Blacksnake project will eliminate approximately 303 million gallons in combined sewage that overflows during a typical year under existing conditions (i.e. before the Blacksnake Stormwater Separation project).

In addition, approximately 2 million gallons per day of base flow contributed from Blacksnake Creek will be diverted from the Water Protection Facility (wastewater treatment plant) directly to the Missouri River. This reduces the average annual volume of flow treated at the Water Protection Facility by over 11%, reducing the cost and environmental footprint of the associated additional use of chemicals, energy and staff resources. Removal of the creek flows from the Water Protection Facility also reduces CSOs by freeing up additional sewer and treatment capacity during storm events.

What did the environmental impact study cost? Who performed it? How long did it take?

The Limited Environmental Screening was performed to identify areas of environmental concern along the seven conveyance alignments identified during conceptual design and the area of the previously proposed USACE detention basin. These areas were identified based on reviews of environmental databases, historical records, and site visits. Information from the Limited Environmental Screening was then applied to quantify environmental risks for each alignment, estimate probable cost for each alignment, and identify areas in which environmental testing would be needed during the geotechnical investigations.

The data collection and development of the environmental study took approximately four months. The effort was part of the design contract for the Blacksnake Stormwater Separation Improvement Project, for a total cost of approximately \$24,000. The work was performed by Black & Veatch with support from Environmental Data Resources, Inc.

USER CHARGE MEETING

Are projected rates based on just basic service or is additional use factored in as well?

The projected rate comparison presented on slide 9 of the Estimated User Charge Rate presentation are rates for an average customer, including the Minimum Monthly Service Charge (\$33.40/month) and a Volume Charge of \$4.98/100 cubic feet. The volume rate is based on an average usage of 600 cubic feet/month (which is the average St. Joseph winter quarter usage). Average quarter winter usage is used to estimate sewer volume rates. The rates without the project still show an increase due to other operational, maintenance and regulatory requirements for the City's wastewater system outside of the Blacksnake Creek Stormwater Separation Improvement Project.

How can we help our local contractors?

Local preference is not allowed by SRF but to encourage local bidder involvement, notices will be placed on the City website, and advertised in the St. Joseph News-Press.

Concerns with project costs and affordability to St. Joseph citizens with limited incomes

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The March 2010 affordability analysis took into account required spending for the City to implement projects involving routine operations and maintenance, replacement of aging infrastructure and implementation of other regulatory requirements, resulting in a Median Household Income (MHI) indicator of 2.09%. The MHI Indicator for the CSO component only is 1.48.

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How will construction impact businesses on the avenue [St. Joseph Avenue]? Will there be compensation?

The Contractor will be required to coordinate access and traffic control according to the City's policies and minimize public disruptions to the extent possible. Additional public outreach activities are planned to provide additional details and specific construction related information as the project moves into construction phase. Compensation is not expected unless property easements are required on your property (previously notified by City) or the Contractor causes damage on private property, requiring repair.

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The Contractor for the Blacksnake separation project has not yet been selected. The Contractor will be selected on the basis of a competitive bid process. Once selected, the City will award a contract to the Contractor for physical construction of the project. The contract for project construction will be directly between the selected Contractor and the City of St. Joseph.

Where are the 14 locations the sewer goes into the creek?

There are 14 locations in the City of St. Joseph where diluted sewage overflows into the Missouri River during rain events. These locations are known as combined sewer outfalls. The locations are marked by yellow circles in the following figure.

What is the length of the project and what portion of it is considered "green"?

The approximate lengths of the various project elements are as follows:

- 5,800 feet buried box culvert,
- 6,700 feet tunnel,
- 130 feet of pipe under the railroad, and
- 900 feet of improved channel (at Roy's Branch).

The entire project is considered green due to the resulting environmental benefits of reducing the volume of combined sewage flowing directly to the Missouri River. In addition, the project reduces the average annual volume of flow treated at the Water Protection Facility (wastewater treatment plant) by over 11%, reducing the cost and environmental footprint of the associated additional use of chemicals, energy and staff resources.

