Kansas City, Missouri
Water Services Department

Overflow Control Program

2008 Annual Report

February, 2009

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Best Management Practices	BMPs
Blue River Interceptor System	BRIS
Blue River Watershed Association	BRWA
Conceptual Control Plan	CCP
Closed Circuit Television	CCTV
Capacity, Management, Operations and Maintenance	CMOM
Cardiopulmonary Resuscitation	CPR
Continuous Simulation Modeling	CSM
Combined Sewer Overflow	CSO
Combined Sewer System	CSS
Dry Weather Overflows	DWOs
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Quality Assurance/Quality Control	QA/QC
Supervisory Control and Data Acquisition	SCADA
Significant Industrial User	SIU
Sanitary Sewer System	SSS
Total Suspended Solids	TSS
United States Environmental Protection Agency	USEPA
United States Geological Survey	USGS
Water Services Department	WSD
Wet Weather Overflow	WWO
Wastewater Treatment Plant	WWTP

1 EXECUTIVE SUMMARY

This Annual Report documents progress and accomplishments related to the Overflow Control Program (OCP) and the Nine Minimum Controls (NMCs) program during 2008. The OCP is responsible for overall program management, public involvement, and regulatory agency coordination associated with the development and submittal of the Water Services Department's (WSD's) *Overflow Control Plan* (Plan). Significant WSD accomplishments in 2008 include:

- Continuation of public participation efforts
- Continuation of program coordination with regulatory agencies
- Completion of the financial capability assessment (FCA)
- Formation of the Utility Funding Task Force (Funding Task Force), formed to help integrate community values into a funding strategy
- Presentation of the draft Overflow Control Plan to the City Council on May 8, 2008, initiating a 30-day public review and comment period
- Establishment of the Green Integration Collaborative Team (GICT) to investigate how the Plan could be modified to cost effectively incorporate more green solutions
- Modification of the Plan to reflect review comments and recommendations
- Update of capital and incremental operations and maintenance cost estimates for Plan components
- Evaluation and finalization of:
  - Plan alternatives
  - Funding
  - Implementation options
- Whole plant stress testing with primary flow bypass was conducted at the Blue River WWTP
- Completion of the Rock Creek / Line Creek Pilot Sewer Rehabilitation Project
- Completion of the Ruskin Heights Sewer Rehabilitation Project
- Initiation of the Middle Blue River Basin Green Solutions Pilot Project
- Continuation of the Routine Receiving Water Monitoring Program
- Preparation and submittal of a draft *Capacity, Management, Operation, and Maintenance (CMOM) Plan*

The goal of the NMC program is to reduce overflows from the combined sewer system (CSS) and their effects on receiving water quality. Typically, measures are low cost and do not require extensive engineering studies or major construction. Minimum controls are permanent measures that relate to components in the overflow control planning process and Plan development. Implementation of the NMC Program continued in 2008 with accomplishments that include:

- Removed 1,079 tons of grit and debris from pump stations and wastewater treatment plants (WWTPs)
- Performed 1,967 investigations resulting in 324,959 feet of sewer televised
- Inspected 1,103 private sewer lines
- Cleaned 1,611,342 feet of sewer lines removing 433 cubic yards of material
- Removed an additional 609 cubic yards of material through use of contracted services
- Repaired 3,882 feet of sewer lines
- Repaired 3,154 feet of private sewer lines
- Replaced 18,545 feet of sewer lines
- Inspected 256 manholes and replaced 39 manholes
- Rehabilitated 173 manholes
- Inspected and cleaned 12,630 storm inlets
- Repaired or replaced 293 storm inlets
- Swept 14,878 miles of streets
- Installed approximately 90 combined sewer outfall signs.

The Wastewater Line Maintenance Division reported the occurrence of 32 dry weather sanitary sewer system (SSS) overflows and 21 dry weather CSS overflows in 2008. The Wastewater Treatment Division reported the occurrence of 54 wet and dry weather SSS bypasses and 5 wet and dry weather CSS bypasses in 2008. Combined, there were 112 overflows/bypasses reported in 2008, which is slightly below the average number reported (115) for the 3 previous years.

2 OVERFLOW CONTROL PROGRAM

The OCP is responsible for overall program management, public involvement, and regulatory agency coordination associated with the development and submittal of the WSD's *Overflow Control Plan* (Plan). This chapter provides information on the work conducted in 2008 by the OCP including:

- *Overflow Control Plan* development
- Public Participation Program
- Program coordination with Missouri Department of Natural Resources (MDNR) and the United States Environmental Protection Agency (USEPA)
- Pilot/Demonstration Projects
- Water Quality Monitoring
- CMOM and NMC Program development

2.1 Overflow Control Plan

As in most U.S. cities, Kansas City's sewer system is subject to wet weather overflows and basement back-ups. The occurrence of these events results from a number of causes including build-up of grease, roots, and debris as well as infiltration and inflow (I/I), vandalism, and aging sewer infrastructure. The WSD's objectives include:

- Comply with federal and state requirements
- Substantially reduce basement back-ups and overflows
- Protect public health and the environment
- Prolong the useful life of sewer system assets
- Provide adequate system capacity for the current and future needs of Kansas City residents and businesses

Pursuant to federal and state permit requirements, and in conformance with Work Plans approved by MDNR and USEPA for both the CSS and the SSS, Kansas City completed development of the *Overflow Control Plan* in 2008 and it was submitted on January 30, 2009. In 2008, Kansas City evaluated alternatives and finalized improvements, funding, and implementation options. The public was given meaningful opportunities to participate and provided input during final development of the Plan.

A summary of work completed or initiated in 2008 on the various Plan components is described in the following sections.

2.1.1 Financial Capability Assessment and Water Services Utility Funding Task Force

The WSD entered into a contract for services in late-2007 with the Economic Center for Education and Research, an affiliate of the College of Business at the University of Cincinnati. The scope of the contract included development of a draft FCA in accordance with applicable USEPA guidance.

The FCA was developed in 2008 based on an estimated capital cost of between $2.4 and $3.0 billion (June, 2006 dollars) and a suggested implementation period of 25 years or longer as described in the September 2007 Conceptual Control Plan (CCP). The 25 year implementation period was deemed to be necessary to complete implementation of the CCP without imposing an undue burden on the community and to maximize the benefit of green solutions.

The principal conclusion of the draft FCA was that the CCP, with an approximate capital cost of $2.6 billion implemented over a 25-year period, would impose a very heavy burden on sewer ratepayers in the City's retail service area. The FCA is described in detail in Chapter 11 of the Plan.

A Water Services Utility Funding Task Force (Funding Task Force) comprised of community leaders was appointed by City Mayor Mark Funkhouser in January 2008 to help integrate community values into a funding strategy for the City's water, sewer, and stormwater utilities. Principal recommendations from the Funding Task Force to the City Council that directly affect possible implementation schedules for the *Overflow Control Plan* include:

- Funding of the Plan should be primarily accomplished through increased sewer rates, unless other funding mechanisms become available
- City Council should support future voter-authorized debt to utilize a blend of pay-as-you-go and revenue bonds, with approximately 50 percent cash financed and 50 percent debt financed
- Other funding mechanisms should be explored throughout the life of the Plan, including operational efficiencies, use of sales tax, and the pursuit of state and federal grants

These recommendations were subsequently accepted through a resolution of the City Council at its December 11, 2008 meeting.

2.1.2 Further Evaluation and Refinement of Alternatives Presented in the Conceptual Control Plan

The projected performance of the facilities identified in the CCP was initially evaluated using basin models and discrete design storms. Consolidated area-wide models that used existing basin models were developed by the OCP to perform continuous simulation modeling (CSM) of the facilities identified in the CCP for the recreation season. Detailed modeling results for discrete design storms and for CSM were in reasonable agreement. Results indicated that the overall capture of wet weather inflows projected in the CCP would be exceeded if facilities described in the CCP were constructed. Updated capital cost estimates for the combined sewer overflow (CSO) controls outlined in the CCP were prepared in 2008;

those updated capital cost estimates aggregated to $2.8 billion (in 2008 dollars, Engineering News Record Construction Cost Index = 9180).

Considering revised projections of CCP facilities performance and cost, CSM results, and the draft FCA findings, work continued to identify an affordable city-wide plan that would meet regulatory requirements and address the community's goals and objectives. A series of seven additional alternatives for controlling CSOs were developed. Each alternative represented an incremental modification to CSO control facilities in which the capacity of those controls was reduced, and associated capital costs and wet weather performance levels were estimated. The SSS control plan elements were the same for each alternative, but were revised from those anticipated in the CCP to:

- Eliminate components associated with growth (i.e., WWTP expansions)
- Limit planned I/I reduction efforts to those basins and sub-basins where such work was expected to be cost-effective

The incremental reduction in CSO control performance for each alternative was computed based on a CSM analysis for the typical year recreation season. The incremental reductions in the nature and cost of CSS controls were sequential in nature (i.e., Increment 1 would be the first reduction, followed by Increment 2, etc.); each increment built upon the previous increment(s). Increment sequencing was determined based on guidance provided by the Wet Weather Community Panel.

A summary of the changes to the CSO components of the CCP under the various increments is presented in Table 2-1. The base case is composed of the facilities contemplated in the CCP, expanded to include an "express sewer" for conveyance of SSS flows from the 87th Street and Round Grove Pumping Stations to the Blue River WWTP. For that base case, the estimated capital cost of the Plan was $2.9 billion (in 2008 dollars). The estimated capture of typical year wet weather flows originating in the CSS was 92 percent.

The recommended update to the CCP was developed to support the CSS improvement strategies recommended by the Wet Weather Community Panel. Emphasis was placed on retaining overflow control components that would contribute to reduced bacteria loads in the Blue River and its tributaries. However, as a result of the need to reduce the overall cost of the Plan, many of the flood damage reduction and storm drainage benefits associated with the CCP were eliminated.

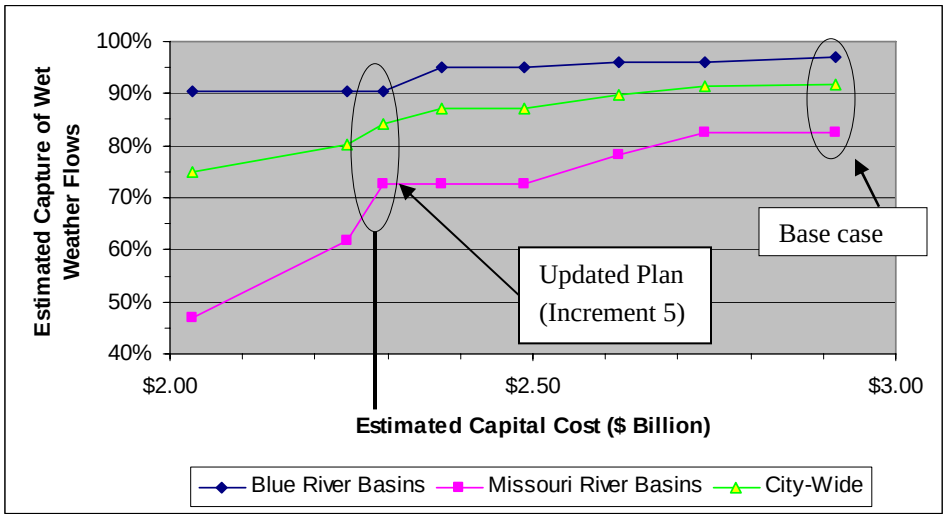
A summary of the percent capture versus estimated capital cost of the CSO components of the CCP under the various increments is shown in Figure 2-1. The base case is shown on the far right and each increment is shown moving from right to left. The recommended increment had an estimated capital cost of $2.3 billion and an estimated elimination or capture for treatment of approximately 85 percent of the typical year wet weather flows originating in the CSS.

Table 2-1 Increments Considered in Update of Conceptual Control Plan

Description	Summary of Changes to Combined Sewer Controls Contemplated in Conceptual Control Plan
Base Case	Facilities contemplated in Conceptual Control Plan, with addition of "Express Sewer" from 87th Street Pumping Station to Blue River WWTP.
Increment 1	Shorten Town Fork Creek tunnel; eliminate Gillham tunnel; reduce diameter of remaining Brush Creek, Town Fork Creek, and Gooseneck Creek tunnels; eliminate tank storage in Lower Blue River basin; separate sewers in Brookside sub-basin of Brush Creek basin.
Increment 2	Eliminate South Bank tunnel in Northeast Industrial District.
Increment 3	Shorten OK Creek tunnel; eliminate Westport tunnel.
Increment 4	Replace "Express Sewer" with High Rate Treatment facility at confluence of Brush Creek and Blue River; modify proposed wet weather treatment facilities at Blue River WWTP.
Increment 5 **(Recommended)**	Eliminate Gooseneck Creek tunnel (retain in-line storage in existing arch).
Increment 6	Reduce diameter of remaining OK Creek tunnel.
Increment 7	Eliminate remaining OK Creek tunnel (retain in-line storage in existing culvert, new Turkey Creek pump station and force main).

With consideration of SSS flows from the 87th Street and Round Grove Pumping Stations (both of which discharge to the Blue River Interceptor Sewer in the CSS), the capture of all wet weather flows in the CSS upon Plan completion was estimated at approximately 88 percent. Estimated capital cost were based on inspection and adjustment of estimates prepared by the various Basin Engineers for facilities contemplated in the original CCP, and required confirmation by the Basin Engineers.

Figure 2-1 Summary of Incremental Analysis



2.1.3 Draft Control Plan Summary and Public Review and Comment

A draft Overflow Control Plan, Control Plan Summary was presented to the City Council on May 8, 2008. That May 8 presentation initiated a 30-day public review and comment period, which ended on June 6, 2008.

Concurrent with the public review and comment period, the Basin Engineers developed final planning estimates of the capital and incremental operations and maintenance costs for the draft Plan.

Comments received during the public review and comment period were considered in subsequent modifications of the draft Plan. Most significantly, at the direction of the City Council, the WSD commissioned an independent review of the draft Plan to identify opportunities to further integrate and increase reliance on green solutions and green infrastructure.

The WSD established an independent peer review team called the Green Integration Collaborative Team (GICT) to investigate how the Plan could be modified to cost effectively incorporate more green solutions. The GICT consisted of representatives from Mid-America Regional Council, BNIM Architects, Low Impact Development Center Inc., Conservation Design Forum, Tetra Tech, and Burns & McDonnell.

Over several months, the GICT worked to develop its recommendations. The GICT gave two reports to the City Council's EPA Response Team (October 20, 2008 and November 17, 2008) and also held a Stakeholder Forum on November 18, 2008 to present their recommendations to the public.

2.1.4 Modification of Draft Plan in Response to Public Review and Comment

A number of adjustments were made to the draft Plan in consideration of comments received during the public review and comment period. Those adjustments resulted from a combination of continued technical evaluation of the potential for combined "gray-green" approaches to CSO control; final estimates of capital and incremental operations and maintenance cost provided by the Basin Engineers; and recommendations made by the independent review team.

2.1.5 Results of Review for Potential "Gray-Green" Infrastructure

The various CSO control components described in the Draft Control Plan Summary were reviewed to identify cost-effective opportunities to increase early investment in green infrastructure and reduce subsequent reliance on conventional structural controls. A series of preliminary analyses were conducted in four basins to assess the potential cost impact that would result from modification of the CSO control components identified in the draft Plan to incorporate a combination of gray and green technologies. The results of those analyses were presented in a series of OCP technical memoranda. The four basins evaluated include:

- Approximately 4,770 acres in the Turkey Creek basin tributary to a proposed CSO storage tunnel along the original alignment of OK Creek
- Approximately 7,000 acres in the Brush Creek and Town Fork Creek basins tributary to a proposed CSO storage tunnel system paralleling those two creeks
- Approximately 744 acres in the Middle Blue River basin tributary to two proposed CSO storage tanks

- Approximately 367 acres in the Town Fork Creek basin tributary to six different outfalls in the vicinity of the Forest Hills cemetery

The following is a summary of principal conclusions reached in those preliminary analyses:

- In general, the overall capital cost (considering both public and potential private investment) of integrated gray and green alternatives for CSO control could be expected to exceed the capital cost for gray-only control. However, it was also concluded that, with sufficient private investment, public investment could be reduced with integrated gray and green alternatives.
- It could be cost-effective to completely replace the proposed storage tanks at Outfalls 059 and 069 in the Middle Blue River basin with distributed green storage in their tributary areas.
- It was concluded that it would not be cost-effective to eliminate consolidation piping between Outfall 097 and the Brush/Town Fork Creek tunnel by constructing distributed green storage in the areas tributary to Outfalls 092-097. It was further concluded that an investment in green storage could reduce the frequency and volume of CSOs to Forest Hills Cemetery, although at an increase in the overall cost of the CSO control program.

Given those principal conclusions, two CSO storage tanks in the Middle Blue River basin upstream of Outfalls 059 and 069 included in the draft Plan were replaced in the selected Plan with green storage distributed throughout the 744 acres tributary to those outfalls.

2.1.6 Updated Cost Estimates

Updated estimates of capital and incremental operations and maintenance costs for Plan components included in the May, 2008 Draft Control Plan Summary were prepared by the Basin Engineers. The net effects of those updated estimates (all estimates expressed in 2008 dollars) were to:

- Increase the estimated capital cost of the Plan from $2.3 to $2.4 billion
- Increase the incremental operations and maintenance cost from $30 million per year to $33 million per year.

2.1.7 Additional Changes Recommended by Independent Review Team

The following additional changes and adjustments to the draft Plan were recommended by the GICT (independent review team commissioned by the WSD), and are reflected in the selected Plan:

- Approach: An adaptive management approach has been incorporated throughout the Plan. This approach enables the City to minimize risk and uncertainty associated with the performance, acceptability, and cost of the various plan components. The Plan is founded upon a holistic, watershed perspective to CSOs. This perspective will result in more comprehensive, cost-effective solutions that involve watershed stakeholders from various jurisdictions throughout the planning and management process. In addition to regulatory reviews of the Plan scheduled to

occur every five years, intermediate, internal program reviews at the mid-point of each five-year cycle are incorporated into the Plan and will focus on the direction of the Plan and its benefits to the rate payers and citizens of the City.

- Green Infrastructure Pilots and Partnerships: The Plan includes $28 million to develop large scale, green infrastructure pilots and partnerships in the CSS basins. Pilot projects will focus on incorporating and evaluating green infrastructure as part of the proposed basin specific solutions. Green infrastructure partnerships will concentrate on creating private sector participation in both the pilots and final basin solutions.
- Rain Gardens and Downspout Disconnects: The City's award winning "10,000 Rain Gardens" campaign will be expanded as part of the comprehensive solution to downspout disconnects and green infrastructure development on private land. Funding in the amount of $5 million is estimated for this effort.
- Green Collar Jobs and Workforce Development: The City's $2.4 billion investment in its sewer infrastructure presents significant opportunities for local businesses and residents. The Plan will fund $5 million to work with job creation and work force development organizations in the development and implementation of training programs, including a green collar jobs program.
- Blue River Watershed Management Plan: Funding for the development of a Blue River Watershed Management Plan in conjunction with Johnson County, Kansas and other stakeholders has been increased to $2 million. This plan will represent a bi-state, comprehensive effort to identify watershed solutions to water quality improvement needs and facilitate reduced structural controls within the selected Plan.
- Enhanced Model Development: Detailed monitoring and modeling activities are required to better understand how the system will respond to green infrastructure and structural solutions. The plan allocates $24 million for these activities. The results of this extensive monitoring and modeling effort will not only be important to the City, but will also provide invaluable information about green solutions implementation opportunities nationwide.
- Public Education and Outreach: The City will engage neighborhood associations, businesses, civic groups, non-profit entities, universities, and citizens in a public dialogue designed to educate and inform the community about the Plan as implementation progresses, and to seek input and involvement from all sectors of the community. The Plan allocates $12 million for public education and outreach. This initiative will allow for ongoing education and input from impacted neighborhoods and from the community at large throughout the life of the Plan.
- Institutional Strategies: Implementation of pilot projects will provide opportunities for the City to assess and recommend revisions to a host of planning and design processes nested within the City's current institutional structure. Recommendations may include revisions to the City's development code, engineering and design standards and specifications, and standard operating procedures for a range of City functions. City processes and project implementation strategies will be evaluated to see if new approaches for communications between departments, citizens and neighborhoods can be provided. City staff, at all levels, will undergo appropriate training on new approaches and technologies to best serve the citizens of the City.

The last of the above changes (Institutional Strategies) is beyond the direct control of the WSD. Its contribution to the overall success of the selected Plan will be determined by the long-term commitment of the City as a whole to the development and implementation of green infrastructure as an integral component of efforts to improve water quality in Kansas City's lakes, streams, and rivers.

2.2 Public Participation Program

The Wet Weather Solutions Program includes the OCP and Stormwater (KC-One Program and Waterways Program) within the WSD. These programs are coordinated within the Wet Weather Solutions Program to create a consolidated public participation effort led by the Program Team.

2.2.1 Public Participation Stakeholder Groups

The public participation program is designed to educate and involve the public on activities of the OCP. The Public Participation Program is designed to inform and secure support for the control plans as they are developed. Existing stakeholder groups consist of the public and interested stakeholders, officials of all levels from many city departments, and the WSD staff. Public meetings were held at various locations throughout the City in 2008 to provide progress updates on the development of the Plan. The following provides a description of active stakeholder groups.

a) **Wet Weather Community Panel** – In 2008 the Community Panel met ten times. An average of sixteen Community Panelists and 46 other attendees attended each meeting. Representatives from the MDNR and the USEPA attended some of the meetings. Table 2-2 contains a list of meeting agenda items. Most meetings included various Plan discussions, program updates such as updates from the Water Services Utility Funding Task Force, updates from the City Council, and projects related to wet weather. Reports were also given by the green solutions subcommittee at several meetings.

   Community Panel meeting information was distributed by:

   - Email to a notification list consisting of over 500 interested persons
   - Press releases
   - Postings on the City calendar through the City Clerk's office
   - Postings on the wet weather website

   In January 2008, a new Panelist Orientation Session was held. This meeting gave Panelists who had never received an orientation an opportunity to catch up on the various Wet Weather Solutions Program topics. All Panelists were invited to attend even if they had already attended an orientation session before.

   The Community Panel has completed many tasks over the past five years, including:

- Establishment of Guiding Principles by the Guiding Principles Subcommittee
- Establishment of Wet Weather Solutions Program Goals and Objectives
- Endorsement of the Wet Weather Solutions Program Public Participation Plan
- Establishment of priority factors for evaluation of basin plans
- Determination of evaluation criteria for basin plans
- Discussion of potential strategies, service levels and performance measures
- Discussion of potential technologies for each basin
- Development of an interim Sewer Back-Up Program by the Sewer Back-up Program Subcommittee
- Development of a Green Solutions Position Paper
- Endorsement of the Stormwater Policies created by the KC-One Program
- Endorsement of the City Planning and Development Department's Stream Buffer Ordinance
- Endorsement of the draft Overflow Control Plan
- Endorsement of the KC-One Stormwater Management Plan
- Endorsement of the *Overflow Control Plan*

Table 2-2 Wet Weather Community Panel Meeting Agenda Items

Meeting Date	Agenda Item
January 8, 2008	Philadelphia Green Solutions Presentation by CDM
	Green Solutions Subcommittee Update
	Little Blue River Education Project
	Presentation by the USEPA Region VII Office
	Presentation on the Possible Steps to Incorporate Green Into City Projects
	Update from the Green Solutions Demonstration Projects Team
	Presentation by Ray Coveney on Neighborhood Impacts in Brookside
February 5, 2008	Update from the Mayor and Councilmember Marcason
	Green Solutions Subcommittee Update
	Presentation on an Integrated Watershed Management Plan for the Blue River
	Preliminary Discussions on an Implementation Strategy
	Funding Task Force Update
	Panelist Open Discussion
March 11, 2008	Wet Weather Solutions Program's Systematic Approach to Green Solutions Discussion
	Green Solutions Subcommittee Update
	Guiding Principles Subcommittee Update
	Provide Input to Water Services Utility Funding Task Force
	Receive a Recap on the Portland, Oregon Trip from Councilwoman Marcason

Meeting Date	Agenda Item
March 11, 2008	Panelist Open Discussion
April 8, 2008	Funding Task Force Update
	Stormwater Funding Discussion
	Presentation on the Proposed *Overflow Control Plan*
	Panelist Open Discussion
May 13, 2008	City's Approach to Green Solutions from WSD Acting Director John Franklin and Councilwoman Marcason
	Funding Task Force Update
	Stream Buffer Ordinance Update
	Blue River Waterways Project
	Rain Gardens Update
	Overflow Control Plan Discussion
	KC-One Stormwater Management Plan Recommendations
	Panelist Open Discussion
June 10, 2008	Funding Task Force Update
	KC-One Stormwater Management Plan Discussion
	City Council Update
	City Departmental Green Workshop Recap
	Overflow Control Plan Discussion
	Green Solutions Recommendation and Next Steps Discussion
August 12, 2008	Funding Task Force Update
	Overflow Control Plan Extension Discussion & Update
	KC-One Stormwater Management Plan Discussion
	Green Solutions Subcommittee Update
	Public Participation Committee Update
	Upper Blue River Watershed Alliance Information
September 9, 2008	Funding Task Force Update
	KC-One Stormwater Management Plan Priorities Committee Report
	City Council's USEPA Response Team Update
	Green Solutions Integration Collaborative Team Discussion
October 14, 2008	Blue River Watershed Association Presentation
	Green Solutions Integration Collaborative Team Update
	KC-One Stormwater Management Plan Discussion
	Middle Blue River Green Solutions Pilot Project Update
December 9, 2008	Finalize discussions on the *Overflow Control Plan*
	Finalize discussions on the KC-One Stormwater Management Plan

Community Panel Subcommittees –Wet Weather Community Panel members have participated in subcommittees to discuss parts of the program in greater detail. The subcommittees that met in 2008 include:

- **Green Solutions** – This Community Panel subcommittee began meeting in January 2007 as a result of increased interest in green solutions. In 2008, the subcommittee met three times, including a joint meeting in April with the Guiding Principles Subcommittee. At the meetings, the subcommittee members discussed an overall Green Solutions Strategy for the Wet Weather Solutions Program as well as ideas on how the members can be active advocates for green solutions in the future.

- **Public Participation** – This Community Panel subcommittee began meeting in 2005. In 2008, the subcommittee met once in August to discuss the future role of public participation in the implementation of the Wet Weather Solutions Program.

- **Guiding Principles** – This Community Panel subcommittee began meeting in 2005. The subcommittee members met in 2008 to evaluate how the guiding principles and goals and objectives were applied in the Draft Overflow Control Plan. The meeting was a joint meeting with the Green Solutions Subcommittee.

b) **Town Hall Meetings and Public Comment** – A 30-day public comment period was initiated on May 8, 2008 for the Draft Control Plan Summary, following its presentation to the City Council. During the 30-day period, three Town Hall meetings were held across the City on May 15th, May 22nd, and May 28th. An informal meeting was also held north of the river on May 27th. The attendees were given a brief summary of the draft Plan at the Town Hall meetings. Attendees were then allowed to provide comments and ask questions. Approximately 90 people attended the four meetings. A feedback form was distributed at the meetings that helped to provide additional feedback that may have not been discussed during the comment and question portion of the meetings.

Persons could also provide public comment by responding to an informal survey located on the Wet Weather Solutions Program website homepage where the Draft Control Plan Summary was posted. Persons could also mail or email comments to the OCP.

c) **Green Solutions Integration Collaborative Team**

The November 18, 2008 Stakeholder Forum held at Union Station provided an opportunity for the public to hear the recommended green solutions improvements to the Plan. The Program Team utilized several outreach techniques to invite the public to this forum. Those techniques included:

- Emailed an invitation to over 500 people on the Wet Weather Solutions Program distribution dist (included USEPA staff, MDNR staff, previous participants of Wet Weather Solutions Program meetings, Wet Weather Community Panelists, etc.)
- Emailed an invitation to 200 neighborhood leaders
- Mailed a postcard invitation to 175 neighborhood leaders
- Posted Stakeholder Forum information on the homepage of the WSD website
- Posted a banner on Channel 2 with the Stakeholder Forum information
- Posted Stakeholder Forum information on the homepage of the City's website
- Advertised Stakeholder Forum information in Kansas City Call, Kansas City Globe, KC Hispanic News, and Dos Mundos (information was translated into Spanish for Dos Mundos)
- Posted a notice in the Kansas City Star's Press Release Central
- Posted a Public Meeting Notice in the Kansas City Star

Over 120 people attended the Stakeholder Forum where the independent GICT gave a PowerPoint presentation on its recommendations and where attendees had the opportunity to vote on related questions by using a clicker voting remote.

d) **Water Services Utility Funding Task Force**

In January 2008, a group of individuals was appointed by the Mayor to help integrate community values into forming a funding strategy for the City's water, wastewater, and stormwater facilities. While the Funding Task Force membership was designed to reflect a balance of interests, the members were encouraged to think about all sides of the issues discussed.

The Water Services Utility Funding Task Force (the Funding Task Force) met over 14 times to develop guiding principles for the creation of user charges and fees that are fair, equitable, and sufficient to meet revenue requirements. The Funding Task Force also provided guidance on how to fund the Plan.

The Funding Task Force supplied written recommendations for funding the Plan (wastewater), water, and stormwater utilities to the Mayor and City Council for their consideration.

At the first of several meetings, the Funding Task Force became familiar with the current funding methods used by the WSD, the City budget, economic trends of the City, and the revenue requirements for the Plan. Once the initial education was complete, the Funding Task Force began deliberating issues and providing direction on recommended policies. The Funding Task Force:

- Evaluated a wide variety of funding methods (taxes, user charges, special assessments, system development charges, etc.)

- Completed a policy survey
- Worked with the business community to develop stormwater program incentives to reduce the quantity of water entering the system and improve water quality
- Evaluated options for a customer assistance program
- Discussed best management and financial practices, ratemaking methodology, and cost of service

In March, April, and June 2008, the Funding Task Force held five public hearings in locations throughout the City. Residents and business leaders provided input at the hearings. The public hearing in June was planned specifically for the industrial and business community.

e) **KC Green Summit**

The first ever KC Green Summit held in April 2008. Over 450 interested stakeholders from a variety of backgrounds attended the one-day workshop. The event focused on opportunities for citizens to learn how the City plans to be truly green. The summit included professional presentations about green solutions and green infrastructure and featured over 30 exhibits by local companies and corporations that currently utilize green solutions. An afternoon interactive session allowed participants the chance to work with elected officials, environmental professionals, and other interested citizens to help shape the future of some of the City's largest green projects.

2.2.2 Public Education and Outreach

Coordination with public participation stakeholder groups in 2008 was complemented by additional progress on other public education and outreach activities.

a) **Summary Report of Findings from Qualitative and Quantitative Research** –In 2008, the OCP conducted a second wet weather survey. The intent of this survey was to follow-up on several key questions asked in a 2006 survey, as well as to ask respondents to answer questions related to funding of capital improvements. ETC Institute administered the second survey in late-January 2008. The four-page survey was mailed to a stratified random sample of households in the City. The sample was designed to ensure the completion of at least 200 households in each of the six council districts, as opposed to the twelve designated basins targeted in the 2006 survey. A total of 1,318 survey responses were received giving the survey statistical significance with a 95 percent level of confidence and a precision of at least $\pm$ 2.7 percent. Some of the key results from the 2008 survey include:

- 76 percent of the residents surveyed thought City leaders should place a very high or high priority on maintaining and protecting streams
- 90 percent of those residents surveyed indicated that they value natural resources

- 86 percent of those surveyed thought that it is was important to improve the quality of streams in Kansas City
- 82 percent of those surveyed thought that it is was important to make improvements to minimize sewer overflows into creeks and streams during heavy rains
- 41 percent understood that stormwater runoff contributes the most to pollution in lakes, rivers, and streams
- 62 percent of residents indicated they would support an increase of $5 a month per household to fund improvements to the City's sanitary sewer system to reduce damage from flooding and to help protect the water quality in the City's lakes and streams

b) **Wet Weather Solutions Public Participation Plan –** In 2008, continued progress was made in furthering various activities outlined in the November, 2005 draft Public Participation Plan.

- **Elected Officials Communications Plan –** This plan guides communications between the WSD and the City Council and promotes open, two-way communication between the WSD and the Council as well as working closely with the City Council. One-on-one meetings were conducted with council officials in 2008. Additionally, Councilwoman Jan Marcason continued to act as the sewer liaison and worked closely with the WSD officials on bringing items before the Council and committee. The OCP was able to make several presentations to the Transportation and Infrastructure Committee.

- **Citizen Action Kit –**A Citizen Action Kit was developed in 2006 to inform residents about what the WSD is doing and to educate citizens about what they can do. The kit was distributed at Town Hall meetings, Road Shows, and by mail as requested. In 2008, an additional flyer was added to the kit with general information about the Wet Weather Solutions Program.

- **CSO Notification Program Plan** – Outfall signs were installed in 2008 at approximately 90 locations. Additionally, some previously installed CSO notification signs had to be replaced or repaired due to vandalism.

- **Newsletters, E-blasts, and Fact Sheets –** Throughout the public participation process, many articles on various topics were published in existing city publications such as *Waterlines* (water bill insert) and *Connections*. In 2008, articles were published in each distribution of *Waterlines*. The articles included:

  - *Winter Watershed Tip*
  - *WSD Utility Funding Task Force Begins Meeting*
  - *What is Backflow?*
  - *Spring Watershed Tip*

- *Project Blue River Rescue*
- *Wet Weather Solutions Program Presents Draft Overflow Control Plan*
- *Overflow Control Plan Overview*
- *What is a Storm Drain?*
- *Overflow Control Plan Extension Granted*
- *Citizens Work Five Years on City's Water Issues*
- *WSD, Parks Partner for Tree Planting Program*

Additionally, nearly 70 e-blasts sharing information regarding wet weather issues and related news articles were distributed by email in 2008 to over 500 people that are on the Wet Weather Solutions Program Notification Email List.

- **Wet Weather Video –** The Wet Weather Solutions Program video was revised and updated in 2008 to include more information on the Stormwater Program. The video updates also included some details on the Plan, funding issues, and green solutions.

- **Road Show –** The Wet Weather Solutions Program staff began making presentations in 2006 to neighborhood groups, professional organizations, and various City departments. The road show includes a presentation of the updated Wet Weather Video and a PowerPoint presentation with details on wet weather-related information. In 2008, a second round of letters were distributed to nearly 400 neighborhood organizations asking if they would like to have a presentation made to their group. The offer was well-received with 33 organizations, departments, or neighborhood groups requesting a road show presentation. Approximately 950 persons attended road show presentations.

d) **Wet Weather Website / Information Voicemail & Email Address/ Channel 2 Programming-**

- **Wet Weather Website –** The WSD and Wet Weather Solutions Program created a website (www.kcmo.org/wetweather) in 2004 to highlight the planning process, problems, and projects in both the OCP and the KC-One Stormwater Management Plan. Website revisions and updates to include more information on the KC-One Stormwater Management Plan and updates on the *Overflow Control Plan* were initiated in late 2008. The revised website will be posted early in 2009.

- **Information Voicemail & Email Address** – The Wet Weather Solutions Program information voicemail (816-513-0124) was monitored regularly in 2008. Requests for information are responded to in a timely manner. Citizens and interested persons leave messages with questions on topics such as public meeting information or where to purchase a rain barrel. An email address (KC-OCPInfo@kcmo.org) was also created for the same purpose. The voicemail number and email address are published on all documents that are distributed to the public including the Citizen Action Kit documents.

- **Channel 2 Programming – S**everal programs on wet weather related topics were aired in 2008 on the local television access channel (KCCG-TV Channel 2). The Program Team helped to prepare script and talking points for several of the shows for WSD staff. The shows and topics include:

  - *City Works*- Wastewater Management (February 8, 2008)
  - *On Tap*- What to Flush, Backflow Preventers, Video Investigations of Sewers (February 8, 2008)
  - *Talk of the Town*- Flooding (March 21, 2008)
  - *On Tap*- Rain Gardens (May 29, 2008)
  - *Ask Your Councilmember*- Councilwoman Jan Marcason (July 1, 2008)
  - *On Tap*- WSD Rain Garden Groundbreaking, Soil Testing (August 11, 2008)
  - *On Tap*- Missouri River Relief, Stream Teams, Green Infrastructure Streetscapes (October 14, 2008)
  - *On Tap*- Smoke Testing Sewers, Middle Blue River Green Solutions Pilot Project (December 26, 2008)

  Additionally, the Channel 2 website (www.kcmo.org/kccg) has originally produced video segments on Disconnecting Your Downspouts and How to Construct a Rain Garden available on demand.

e) **Rain Gardens Initiative and Best Management Practices –** The 10,000 Rain Gardens Initiative is a metropolitan plan to improve water quality by reducing stormwater runoff and pollutants. The goal of the initiative is to actively engage homeowners, churches, businesses, non-profit groups, and schools to voluntarily reduce wet weather problems. Citizens are encouraged to register their rain garden on the 10,000 Rain Gardens website (www.rainkc.com).

WSD Rain Garden Ground Breaking

In 2008, WSD staff displayed information and provided handouts on rain gardens at the Flower & Garden Show. WSD staff also displayed rain garden information at the Earthworks' Earth Day Celebration on April 26th and Science City's Family Fun Night on April 18th. A rain garden dedication event involving the Kansas City Art Institute, University of Missouri-Kansas City, and Brush Creek Community Partners was held at Theis Park. An additional planting event was held at Loose Park in June. The www.rainkc.com website was updated in March and included additional information on plant selection.

Congressman Emmanuel Cleaver was the spokesperson in a round of television commercials that aired in March. The rain gardens website received 8,500 visits with 11 pages viewed per visit after the commercials aired. The 10,000 Rain Gardens Initiative was also highlighted in the May issue of *Stormwater* magazine and the August/September issue of *Planning* magazine.

In June, WSD constructed a rain garden on their headquarters property. Public officials attended the ground-breaking ceremony; WSD employees and volunteers participated in building the rain garden.

f) T.R.U.E. Blue Program & Community Stewardship Activities- Beginning in November 2007, the Blue River Watershed Association (BRWA) helped to extend the public education outreach to school children. The T.R.U.E. (Teaching Rivers in an Urban Environment) Blue Program focused specifically on schools in the Blue River watershed to provide an activity-based, watershed literacy program for K-12 students. The T.R.U.E. Blue Program was designed to train and equip teachers and students to establish school-based stream teams to monitor water quality at their local stream. Participants learned about the detrimental effects of pollution on urban rivers and streams, and then performed hands-on activities to assess water quality. From November 2007 to November 2008, over 70 classes at 19 schools were involved in the education and implementation of the T.R.U.E. Blue Program. Over 100 adult volunteers helped nearly 1,400 students during the year.

In addition, several presentations were made to local businesses, educating employees about the T.R.U.E. Blue Program, as well as providing an opportunity to recruit volunteers for the implementation program.

Education efforts also were extended to neighborhood associations. The BRWA was also tasked with identifying and recruiting neighborhood associations within the Blue River watershed to complete a stewardship activity. Organizations were encouraged to become engaged in stewardship activities designed to protect and restore the watershed through the reduction of stormwater runoff, and through other innovative approaches to water quality degradation issues. Some activities included water quality monitoring of local streams, trash pickups, and installation of green solutions, such as rain gardens.

BRWA staff met with larger neighborhood organizations to solicit interest from neighborhood association representatives. The staff then met with interested groups and helped the groups identify a stewardship project that they would like to implement. The following neighborhood associations became involved:

- Linden Hills neighborhood (located south of Bannister Rd., north of I-435, east of Holmes Rd., west of Blue River Rd.): Participated in Blue River Rescue Event on April

5, 2008; group plans to install a rain garden; group participated in Household Hazardous Waste (HHW) event in August 2008

- Santa Fe Hills Homes Association (located south of 85th St., north of 89th St., east of Wornall Rd., west of Holmes Rd.): Received presentation on water quality issues and water quality improvement projects
- Washington Wheatly Neighborhood Association (located south of 18th St., north of 27th St., east of Paseo, west of I-70): Met with neighborhood representatives about conducting a water quality workshop. BRWA also worked with the UMKC School of Architecture, Urban Planning and Design in this neighborhood to develop a Green Block Project, as well as to plant a rain garden at Wheatly Elementary School (2415 Agnes Avenue)

2.3 Program Coordination with the MDNR and the USEPA

The WSD coordinates and consults with the MDNR and the USEPA frequently and routinely on many issues. This coordination includes formal meetings to discuss issues of common interest and to help assure that OCP efforts are consistent with regulatory requirements and agency expectations.

a) **Meetings** – The WSD has met with the USEPA and the MDNR on a regular basis since 2003. The following is a summary of the meetings held in 2008, identifying those topics discussed which directly impact the OCP:

- **June 16**
  - Meeting With Office Of Water
    - Overview of Draft Control Plan Summary
    - Overview of Other Kansas City "Green" Initiatives
    - Discussion – Incorporation of Green Solutions in *Overflow Control Plan*
    - Kansas City's On-Going Desktop Analysis of Gray-Green Alternatives
    - USEPA Suggestions for Additional Analysis
    - Site Visit to Suggested "Green" Focus Areas
  - Status of Agency Response to Kansas City's Request for Extension in *Overflow Control Plan* Submittal Date.
  - Clarification of USEPA Response to Kansas City's Request for Partnering in Development of "Model Green" Long-Term Control Plan
  - Nature of Potential "Green" Component of Possible Consent Decree
  - Review Listing of Technical Documents Previously Made Available
  - Draft Control Plan Summary, May 6, 2008
  - Summary of Public Comments Received
  - Status of Control Plan Document Development
  - City Council Meetings and Discussions
  - Significant Agency Concerns with Draft Plan Summary and Discussion

- **December 16**
  - Status of Agency Response to technical submittals made pursuant to Kansas City's Request for Extension in *Overflow Control Plan* Submittal Date.
  - Status of emergency rule for Whole Body Contact Class B criteria
  - Changes to Control Plan recommended by Green Integration Team
  - Recommended *Overflow Control Plan*
  - Plan Components, Projected Performance, Projected Cost
  - Water Services Utility Funding Task Force
  - Status of City Council consideration of Recommended Plan
  - Disinfection at all WWTPs
  - Ammonia Reduction at Blue River WWTP
  - Anticipated Cost and Schedule
  - Summary of Capital Improvement Needs other than OCP
  - Anticipated Cost and Schedule
  - Funding Projections and Implementation Schedule

b) **Other Meetings** – In addition to the above meetings, the WSD presented the draft FCA to USEPA and MDNR staff at WSD on April 30, 2008. WSD also met with Mr. Ben Grumbles, USEPA Assistant Administrator for Water, on December 8 to present Kansas City's approach to integrating green solutions into the Plan.

c) **Technical Conference Calls** – The MDNR, the USEPA and the WSD continued monthly conference calls to review technical issues associated with the development of the Plan. Technical conference calls were held in most months in 2008. Topics for each conference call varied, but all pertained to technical interpretation and explanation of documents related to Plan development.

2.4 Blue River WWTP Stress Tests

Whole plant stress testing with primary flow bypass was conducted in 2008 at the Blue River WWTP. This was the final in a series of six stress tests conducted at the Blue River WWTP. The ultimate goal of these stress tests was to assess the process and hydraulic plant capacities. The intent was to confirm the maximum plant treatment capacity. This information was used in the evaluation of alternatives during development of the Plan and also serves to guide plant wet weather operation to assure that treatment of wet weather flows is maximized.

A comprehensive report documenting stress test results was prepared and includes conclusions reached regarding unit process capacities for the Blue River and Westside WWTPs. The report also includes recommended modifications to optimize wet weather treatment at the plants. The report is included in the Plan appendices.

2.5 Pilot/Demonstration Projects

Projects for early implementation of improvements benefiting the public and City system are ongoing and will be identified, evaluated, designed and ultimately constructed. Projects that were initiated, in-progress, or completed in 2008 include:

2.5.1 Rock Creek / Line Creek Pilot Sewer Rehabilitation

This project involved rehabilitating existing sewers and manholes to demonstrate effectiveness of I/I removal. Located in two sub-basins of the Line Creek / Rock Creek Basin Area, the project included:

- Over 1,600 feet of pipe replacement
- Approximately 11,400 feet of pipe rehabilitation
- 145 new cleanouts
- 6 new manholes
- Rehabilitation of 51 manholes

Post-construction flow monitoring was finalized in 2008. The results indicate that the rehabilitation reduced I/I volumes and peak flow rates from pre-construction levels. Reductions in I/I volumes and ranged from 18 to 90 percent and peak flow reductions ranged from 11 to 71 percent depending on the extent of rehabilitation in each basin.

2.5.2 Ruskin Heights Sewer Rehabilitation

The Ruskin Heights watershed is a tributary to the Little Blue Valley Sewer District. The project purpose was I/I reduction and elimination of basement backups. Approximately 100 manholes and 50,000 feet of 8-inch and 15-inch diameter pipe were rehabilitated in three sub-basins using a variety of methods. Post-construction flow monitoring was finalized in 2008 and the results indicate that the rehabilitation reduced I/I volumes and peak flow rates from pre-construction levels. Volume reductions ranged from 9 to 62 percent and peak flow reductions ranged from 17 to 80 percent depending on the extent of rehabilitation in each basin.

2.5.3 Middle Blue River Basin Green Solutions Pilot Project

In 2008, the City began a bold campaign to address overflows from the aging CSS by investigating and implementing ways to reduce stormwater runoff with green solutions. As part of the Target Green campaign, the City has initiated a green solutions pilot project in an area within the Middle Blue River Basin. The pilot project will measure and evaluate the performance of new methods for capturing stormwater prior to it entering the combined sewer system. These green solutions are an alternative to more traditional gray stormwater improvements such as underground storage tanks and pumping facilities and could save the City time and valuable resources.

The Middle Blue River Green Solutions Pilot Project area encompasses approximately 100 acres and extends from 73rd Street to 77th Terrace and Holmes Road to Paseo Boulevard. Lessons learned from the

pilot project will be used in future planning for widespread use of green solutions in 744 acres of the Middle Blue River Basin and for green solutions implementation throughout the City.

In late 2008, field studies and survey work were completed to evaluate the existing sewer system. Work performed included:

- Rainfall and sewer flow monitoring
- Inlet and sewer line cleaning
- Manhole and stormwater inlet inspections
- Utility surveys
- Smoke testing
- Closed Circuit Television (CCTV) of the entire public sewer system
- Development of base mapping
- Computer model development
- Coordination with other City Departments and utilities

The field data will assist with determination of the preliminary number, location, and size of green solutions to control and store a volume of storm runoff necessary to achieve CSO reduction goals in the pilot project area.

A public participation program has been implemented by WSD to support the pilot project during the conceptual design and final design phases. The goals of the public participation program are to inform, educate, and obtain feedback from residents about the proposed green solutions. The program is also intended to obtain citizen participation for implementation of green solutions on private property.

2.6 Water Quality

The WSD continued to conduct the Routine Receiving Water Monitoring Program throughout 2008. Field measurements and collection of water quality samples were conducted at a total of ten sites divided into two circuits. Monitoring was conducted weekly and alternated between sites on Brush Creek and Town Fork Creek and sites on the Blue River, the Missouri River, and Penn Valley Lake. In-stream measurements were conducted for dissolved oxygen, temperature, pH, and conductivity. Samples were collected and analyzed for fecal coliform, E. coli, and total suspended solids (TSSs). Additional quality assurance/quality control (QA/QC) samples were also collected and analyzed.

The WSD also continued financial support of and cooperation with the United States Geological Survey (USGS) on an on-going water quality study of the Blue River basin in 2008. The USGS maintains streamflow gaging sites on the Blue River and Brush Creek. The USGS also conducts continuous water quality monitoring as well as baseflow and stormflow sampling and analysis for a variety of parameters.

2.7 Capacity, Management, Operation and Maintenance (CMOM) Program

A draft CMOM Plan was prepared and submitted to MDNR and USEPA on October 31. The primary purpose of the CMOM Plan is to document operational procedures currently in-place, and enhancements and modifications that can be made to more effectively achieve regulatory compliance and minimize overflows throughout the Kansas City, Missouri (KCMO) service area. The overall goal of the activities contained within this Program is to improve water quality and meet or exceed the regulatory requirements. The WSD intends to use this CMOM Plan to manage its collection systems' assets and operations.

One component of the overall CMOM Plan is the NMC Plan. Typically, the NMC Plan is a stand alone plan put in place to reduce overflows from the combined sewer system. Because many of the practices and procedures required for implementation of a NMC Plan are similar or identical to those contained in a CMOM Plan, WSD elected to combine the NMC Plan with the CMOM Plan.

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3 OPERATION AND MAINTENANCE

The Water Services Department published the draft *Capacity, Management, Operations, and Maintenance Plan (CMOM) & Nine Minimum Controls Plan* in October 2008. This report was submitted to both the MDNR and to the USEPA. The purpose of the CMOM portion of this report is to document both the condition and practices of the existing program, as well as present the proposed program improvements that are intended to increase the overall level of regulatory compliance and minimize overflows throughout the service area. Consequently, the focus of this chapter is to list what was done in 2008 to reduce overflows.

3.1 Operation and Maintenance Activities

3.1.1 Wastewater Treatment Division

The operation and maintenance of 38 wastewater pump stations, 17 stormwater pump stations, and 7 WWTPs is the responsibility of the Wastewater Treatment Division. Treatment plants in operation are Todd Creek, Rocky Branch, Northland Mobile Home Park, Fishing River, Birmingham, Blue River (primary and secondary), and Westside. The remainder of this section covers O&M activities typical for all pump stations and treatment plants.

The Blue River and Westside WWTPs receive flow from both combined and separate sewer system areas. The Wastewater Treatment Division maintains Wet Weather Operating Guidelines for these plants. The Guidelines provide guidance for reducing overflows by emphasizing:

- Implementation of proper operating practices
- Minimization of bypasses at the pump stations and treatment plants
- Maximization of treatment plant capacity

Operation of existing interceptors and pump stations to control the flow rate to treatment plants is essential to minimizing plant or upstream manhole overflows. Pumping rates may be increased at one location and decreased at another to maximize flows to the treatment plants while minimizing upstream overflows.

Aeration basins are operated such that flow is consistent and the maximum volume is processed through the plant while minimizing solids washout. Facility operations are typically inspected daily depending on past operational experience specific for each facility. Pumps, motors, blowers, fans, air compressors and control panels are inspected manually, visually and environmentally. This inspection includes the following activities:

- Unusual noises and odors are recorded on mechanical equipment
- Motors are checked for hot spots

- Water/grease/ trash around pumps are recorded and cleaned
- Pump seals are checked for leaks
- Valves are opened and closed checking for movement
- Wet wells are checked and cleaned of grease and other debris
- Sump pumps are activated to ensure operation
- Sump pits are cleaned to prevent pump blockage
- Control panels and breakers are checked for unusual appearance, odors, excessive hot spots
- Telemetry/SCADA are checked to determine conditions of the remote monitoring equipment and hazardous materials
- Chemical storage tanks are checked for spills
- Indoor air quality at each facility is checked for unusual odors and hydrogen sulfide levels
- Air emissions of the incinerator are checked for increased smoke or dust

Finally, the following are checked for stock/accessibility/completeness and/or functionality:

- Spill kits
- Eyewash/shower
- Warning signs
- Emergency signs/procedures
- Fire extinguishers
- Emergency communication device/ placarding
- Material Safety Data Sheets and first aid kits

Operations Division personnel troubleshoot problems, note findings and make corrections. All unresolved issues are reported as a work order. Work orders are submitted to the Maintenance Division.

Management of maintenance procedures involves recording work performed, materials purchased and used, and man hours expended to complete the work. Routine facility maintenance inspection activities include:

- Opening and closing gates
- Adjusting pumping operations
- Cleaning trash racks and bar screens to remove collected debris
- Grit and debris removal (from grit chambers, rock boxes, mechanical bar screens, and vortex/aerated grit processes)
- The operation of primary clarifier sweep arms and skimmers are checked, cleaned and repaired as needed
- Levels and sludge pumps in clarifiers are checked to ensure that excess solids are not held in the clarifier and that excess water is not pumped to the solids storage tank

- Sludge collectors and sludge skimmers in clarifiers are checked to prevent wash out of solids
- Trickling filters operation is monitored by checking that the distributor arm is properly rotating
- Grit conveyor belts are checked for alignment and tracking and cleaned of excessive grit buildup

Grit chambers are cleaned regularly to reduce rocks, grit and other large debris from entering the plant. Rock boxes are cleaned weekly, the day prior to forecasted rain, and daily during rain events. Mechanical bar screens are checked twice per shift (three shifts per day) and emptied as needed thus allowing maximum and consistent plant flow. Trash racks and screens are checked and cleaned as needed during a rain event to maintain consistent and maximum flow through plants.

The total amount of grit and debris removed from all pumping stations and WWTPs in 2008 by the Wastewater Treatment Division was 1,079 tons.

3.1.2 Wastewater Line Maintenance Division

The Wastewater Line Maintenance Division is responsible for operating and maintaining the collection system. Operation and maintenance of the collection system involves the use of Sewer Cleaning, Sewer Investigation, and Sewer Repair Sections. The Division staffs trained specialists to perform routine maintenance on the system including television/inspection, cleaning, and repairing sewer lines and manholes. Additionally, the Division uses contract services to perform select operation and maintenance services.

The Sewer Investigation Section responds to complaints received from the public, and other City departments. Inspections include direct manhole observation and televising sewer segments to identify overflows. Inspections typically reveal excessive I/I, record structural deterioration, and determine repair needs. Before televising, cleaning crews remove blockages or accumulated debris.

The Sewer Investigation Section performed 1,967 investigations in 2008. These investigations resulted in 324,959 feet of sewer televised. In addition, the Sewer Investigation Section inspected 1,103 private lines connecting to the City sewer in 2008.

Line Maintenance Division sewer cleaning crews typically bucket, reel, or vacuum sewer line segments and manholes to remove and prevent accumulations of debris and sediment that restrict flow. The Division cleaned 1,611,342 feet of sewers in 2008. This effort resulted in removal of 433 cubic yards of material from sewer mains and manholes. In addition, the City has a City-Wide Sewer System Cleaning contract used on an as-needed basis to assist cleaning in problematic areas. Cleaning through this contract removed approximately 609 cubic yards of material.

The Sewer Repair Section completes necessary system repairs or replacement of sewer lines and manholes. Additionally, the Systems Collections Division administers contracts for sewer line and manhole repairs. System repairs typically involve open excavations to replace sewer pipe or manholes.

Manhole rehabilitation involves minor repairs such as patching or raising manhole adjustment rings. Private contractors are utilized to supplement the efforts of the Line Maintenance Division.

The Sewer Repair Section and the Systems Collection Division collectively repaired 3,882 feet of sewer mains, replaced 18,545 feet of sewer mains, and repaired 3,154 feet of private lines in the City right-of-way in 2008. Also, 39 manholes were completely replaced and 173 manholes were rehabilitated during 2008.

3.2 SSS Overflows Summary

The Wastewater Line Maintenance Division records the total number of dry weather overflows (DWOs) occurring in the sanitary sewer collection system. The Wastewater Treatment Division records DWOs that occur at treatment plants and pump stations. Collectively, 38 DWOs were reported in 2008 for the entire SSS. Table 3-1 summarizes the varied DWO causes in the SSS.

Table 3-1 Causes of DWOs in the SSS in 2008

Cause	Number of dry weather overflows
Grease stoppages	6
Root invasion	11
Debris in sewer line	3
Debris in manholes/structures	5
Vandalism	1
Broken and collapsed main lines	3
Pipe Deterioration	2
Equipment failure	7
TOTAL	38

Corrective actions including cleanup and repairs on collapsed lines and damaged structures were completed for each overflow event.

The Wastewater Treatment Division also records wet weather bypass events that occur at the treatment plants and pump stations. The above average rainfall for the Kansas City area resulted in a total of 48 wet weather overflows reported in 2008 for the SSS. Bypasses for 2008 were reported to the Kansas City Regional Office of MDNR.

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4 NINE MINIMUM CONTROLS

The condition and practices of the existing NMC program are reported in the draft *Capacity, Management, Operations, and Maintenance Plan (CMOM) & Nine Minimum Controls Plan.* This chapter focuses on documenting program accomplishments in 2008.

The goal of the NMC is to reduce overflows from the CSS and their effects on receiving water quality. By definition, the NMC's are low cost measures. As such they do not require extensive engineering studies or major construction and should be capable of implementation in less than approximately two years. Minimum controls are not temporary measures, but are related components in the overflow control planning process and development of the *Overflow Control Plan.*

Table 4-1 identifies each NMC and summarizes significant control measure accomplishments for 2008. Control measure accomplishments are explained in further detail under the applicable NMC section.

Table 4-1 2008 NMC Accomplishments

	Minimum Control	Control Measure Accomplishments
1	Proper operation and regular maintenance programs	✓ Routine maintenance procedures ✓ Routine inspection schedules ✓ Emergency response protocol ✓ Training and safety practices ✓ Wet weather overflow reporting procedures ✓ Inspected flow regulating structures ✓ Conducted CCTV inspections ✓ Cleaned CSS interceptor & collection lines
2	Maximization of storage in the collection system	✓ Source control technologies ✓ Optimized sewer system ✓ Inflow reduction and storage
3	Review and modification of pretreatment requirements	✓ Inventory nondomestic CSS discharges ✓ Assessed nondomestic CSO discharge impacts ✓ Evaluated feasible modifications
4	Maximization of flow to Publically Owned Treatment Works (POTW)	✓ Updated wet weather operating guidelines ✓ Controlled & optimized WWTP grit & flow ✓ BRWWTP Stress Testing
5	Elimination of CSOs during dry weather	✓ Inspected to identify DWOs ✓ Corrected primary causes of DWOs ✓ Dry weather overflow reporting procedures ✓ Routine preventative cleaning of system
6	Control of solids and floatable materials in CSOs	✓ Repaired & cleaned catch basins ✓ Street sweeping ✓ Construction site erosion control ✓ Grit removal
7	Pollution prevention programs to reduce contaminants in CSOs	✓ Household Hazardous Waste Program ✓ Keep Kansas City Beautiful Campaign ✓ 10,000 Rain Gardens – Media/Education Campaign ✓ Food Code Training Classes ✓ Industrial Waste Newsletter
8	Public notification	✓ CSO notification ✓ Public education program
9	Monitor to characterize CSO impacts and effectiveness of CSO controls	✓ Inspected CSS interceptor & collection lines ✓ Compiled CSS interceptor into database ✓ Identified & mapped CSO structures & outfalls ✓ Water quality monitoring

4.1 NMC 1 – Proper Operation and Regular Maintenance Programs

"The first minimum control should consist of a program that clearly establishes operation, maintenance, and inspection procedures to ensure that a CSS and treatment facility will function in a way to maximize treatment of combined sewage and still comply with NPDES permit limitations. Implementation of this minimum control will reduce the magnitude, frequency, and duration of CSOs by enabling existing facilities to perform as effectively as possible. Essential elements of a proper operation and maintenance (O&M) program include maintenance of suitable records and identification of O&M as a high management priority." - USEPA, **CSO Guidance for Nine Minimum Controls**

4.1.1 Operation & Maintenance Control Measures

The Wastewater Line Maintenance Division of WSD is responsible for O&M control measures in the CSS. This Division performs regular inspection, cleaning and repair of the collection system. The Wastewater Treatment Division is responsible for the O&M of the Blue River and Westside WWTPs which treat all the flow from the CSS areas.

The O&M of the CSS involves the use of the:

- Sewer investigation section
- Sewer cleaning crews
- Sewer repair section

Line Maintenance Division has three sewer cleaning crews dedicated to flow regulating structure cleaning, inspection and maintenance. This work is separate from the inspection work performed by the Engineering Division under NMC 2 or the Industrial Waste Control Division under NMC 3.

The Line Maintenance Division adheres to guidelines established in the CSO Sewer Maintenance Manual. The Manual, updated annually, provides guidelines to personnel for the proper O&M of the CSS. Guidelines include:

- Schedules for routine inspections
- Emergency response protocol
- Dry weather overflow reporting procedures
- Training and safety practices

4.1.2 Wet Weather Operating Guidelines

The Wastewater Treatment Division maintains Wet Weather Operating Guidelines for Blue River WWTP and Westside WWTP. The goal of the guidelines is to reduce sewer overflows by maximizing the flow through the treatment plants.

4.1.3 Routine Maintenance

Sewer cleaning crews and the sewer repair section perform routine maintenance of the system. Crews routinely cleaned sewer line segments and flow regulating structures throughout 2008, as detailed in Chapter 3. The WSD also contracted with private industry to provide supplemental cleaning support services. The WSD keeps a wastewater maintenance log that tracks the year's maintenance activities.

The Stormwater Line Maintenance Division also performed routine maintenance within the CSS areas. There were 12,630 storm inlets cleaned and inspected and 261 storm inlets repaired or replaced in 2008.

The Public Works Department continued its program to limit infiltration into sanitary sewer manholes by replacing leaky manhole rings and lids. This program was responsible for the replacement of 578 rings and lids in 2008.

4.1.4 Non-Routine Maintenance and Emergency Procedures

The sewer investigation section, sewer cleaning crews, and the sewer repair section respond to all reported bypasses. The WSD website provides an after-hours emergency number for citizens or businesses to call upon discovery of bypasses in progress.

4.1.5 Training and Safety Practices

Training for personnel involved in the sewer system O&M is primarily on-the-job-training, in a classroom, or during 15-minute tailgate sessions. Training is provided by experienced Crew Leaders, Supervisors, the Maintenance Superintendent of the Line Maintenance Division, WSD's Safety Officer, and when necessary outside professionals. All personnel involved in O&M received training in the following:

- First aid (CPR is optional)
- Driving (safe / defensive procedures)
- Traffic control (proper procedures, setup and safety)
- Confined space entry (proper use of equipment)
- JetVac cleaning or backhoe operations
- Competent person shoring
- WinCan TV inspection software
- General safety procedures for driving, trench, equipment operation, fall protection, fire prevention, ladder safety, and lifting/back

4.1.6 Summary of 2008 Inspections, Maintenance and Cleaning

The WSD performed inspections and maintenance activities on the collection systems, treatment plants, and flow regulating structures. The summary of activities includes:

- Wet weather overflows (WWOs) reporting procedures

- Inspected flow regulating structures
- Conducted CCTV inspections
- Cleaned CSS interceptor and collection lines

The Wastewater Treatment Division is responsible for reporting WWOs (bypasses) which occur at pump stations and WWTPs. A bypass event starts when a gate is opened and ends when the gate is closed. An event might last four hours or four days as a result of one rainfall or a series of rainfall events. There were 2 WWOs reported in 2008 for the CSS area.

The CSS contains diversion structures that are designed to direct dry weather flows to Blue River WWTP or Westside WWTP. These structures direct a portion of wet weather flows to Brush Creek, Blue River, Kansas River, and Missouri River or their other immediate tributaries. The inspection interval varies for each structure based upon historical records of performance and the sensitivity of nearby surroundings and surface waters. The Line Maintenance Division continued their diversion structure inspection program in 2008. Inspections were conducted, mainly during dry weather, to identify:

- Overflows
- Accumulated debris and blockages
- Excessive I/I
- Operational status of the structure
- Repair needs

The Line Maintenance Division stores internal line CCTV data in the Hansen maintenance management system database where it can be retrieved. The Hansen database is maintained and organized by sewer line. In 2008, 324,959 feet of sewer were televised. In addition, a private contractor conducted city-wide television inspection on 92,311 feet of sanitary sewer. This digital video inspection will help to evaluate conditions and recommend the necessary repairs.

The WSD's sewer cleaning program assures and maintains the available system conveyance and storage capacities. The WSD supplements this program with a city-wide sewer system cleaning contract. Private industry is contracted to remove and prevent accumulations of debris and sediment that restrict flow on an as-needed basis. Contracted services cleaned 4,360 feet of sewer in 2008. The annual total cleaning production for contracted services and Line Maintenance Division crews in 2008 was 1,615,702 feet.

4.2 NMC 2 – Maximization of Storage in the Collection System

"The second minimum control consists of making relatively simple modifications to the lines to enable the system to store wet weather flows until downstream sewers and treatment facilities can handle them. More complex modifications should be evaluated as part of the LTCP." - USEPA, **CSO Guidance for Nine Minimum Controls**

4.2.1 Procedures in Place for Maximizing Collection System Storage

The WSD focused its efforts in 2008 on rehabilitation, modification, and cleaning of critical sewers in the CSS to assure maximum collection system storage capacity. Sewer rehabilitation and sewer cleaning were performed throughout the year to address critical areas found through smoke testing and inspections.

During CCTV inspection, the sewer line is cleaned of all debris then televised. Capacity increases when clogged lines are cleared of debris. The inspection also identifies any necessary repairs required to assure maximum capacity is available. The repairs may include trenchless cured in place pipe lining, trenchless sliplining, pipe bursting, or open cut sewer replacement. The Engineering Division typically bids this work out to private contractors when the Line Maintenance Division does not have the technology or manpower to perform the work.

4.3 NMC 3 – Review and Modification of Pretreatment Requirements

"Under the third minimum control, the municipality should determine whether non-domestic sources are contributing to CSO impacts and, if so, investigate ways to control them. Once implemented, this minimum control should not require additional effort unless CSS characterization and modeling indicate that a pollutant from a non-domestic source is causing a specific health, water quality, or environmental problem." - USEPA, **CSO Guidance for Nine Minimum Controls**

The Industrial Waste Control Division continued to regulate non-domestic discharges in 2008. The Division is responsible for implementing and enforcing Chapter 60 Article IV of the Kansas City Code of Ordinances. The Division also administers several city-wide programs including:

- The Federal Pretreatment Program
- The Surcharge Program for high strength wastewaters
- The Oil & Grease Management Program
- An annual review of pretreatment requirements
- The Inter-jurisdictional Sewer Service Program

These activities are described in further detail in the draft *Capacity, Management, Operations, and Maintenance Plan (CMOM) & Nine Minimum Controls Plan* report. Division accomplishments in 2008 include:

- A list of significant industrial users (SIUs) that were non-compliant with Federal Pretreatment Program requirements during 2008 was published as a "Public Notice" in the Kansas City Star on February 8, 2009
- There were 28 inter-jurisdictional agreements in 2008 that regulate flows to the City's collection system
- The Federal Pretreatment Program maintained a list of SIUs that have dropped their permit status or became newly permitted in 2008

- Notices of Violations (NOVs) – A list of 29 NOVs issued in 2008 (11 in first half; 18 in second half of 2008), with assessed financial penalties totaling $13,680
- The surcharge program applied a total of 250 surcharges in 2008 to individual contributors
- A total of 938 food service facilities were inspected in 2008 as part of the Oil & Grease Program, of which 646 were in the CSS area
- The Oil & Grease Program imposed 52 enforcement actions for notices of violation for fats, oils, and grease (FOG) in 2008

The annual joint industrial users seminar is a joint effort between KCMO's Industrial Waste Control Division and the Water Pollution Control of the Unified Government of Kansas City, Kansas. The event was held May 15, 2008 at KCMO Water Supply, 1 NW Briarcliff Road in Kansas City, Missouri.

The agenda included presentations on:

- Pretreatment program updates
- Understanding QA/QC in laboratory Reports
- Overflow Control Program updates
- Missouri water supply standards
- A state coordinators update

4.4 NMC 4 – Maximization of Flow to the POTW for Treatment

"The fourth minimum control entails simple modifications to the CSS and treatment plants to enable as much wet weather flow as possible to reach the treatment plants. The objective of this minimum control is to reduce the magnitude, frequency, and duration of CSOs that flow untreated into receiving waters. Municipalities should identify and evaluate more complex CSS and POTWs (publicly owned treatment works) modifications as part of their LTCPs." - USEPA, **CSO Guidance for Nine Minimum Controls**

Control measures maximizing wet weather flows to the Blue River and Westside WWTP reduce the volume of overflows from the CSS. Documentation of flow maximizing control measures provided a resource to identify and evaluate simple modifications affecting capacity including:

- Updated wet weather operating guidelines
- Controlled grit removal
- Optimized flow rate
- Studied WWTP capacity impacts

4.4.1 Wet Weather Operating Guidelines

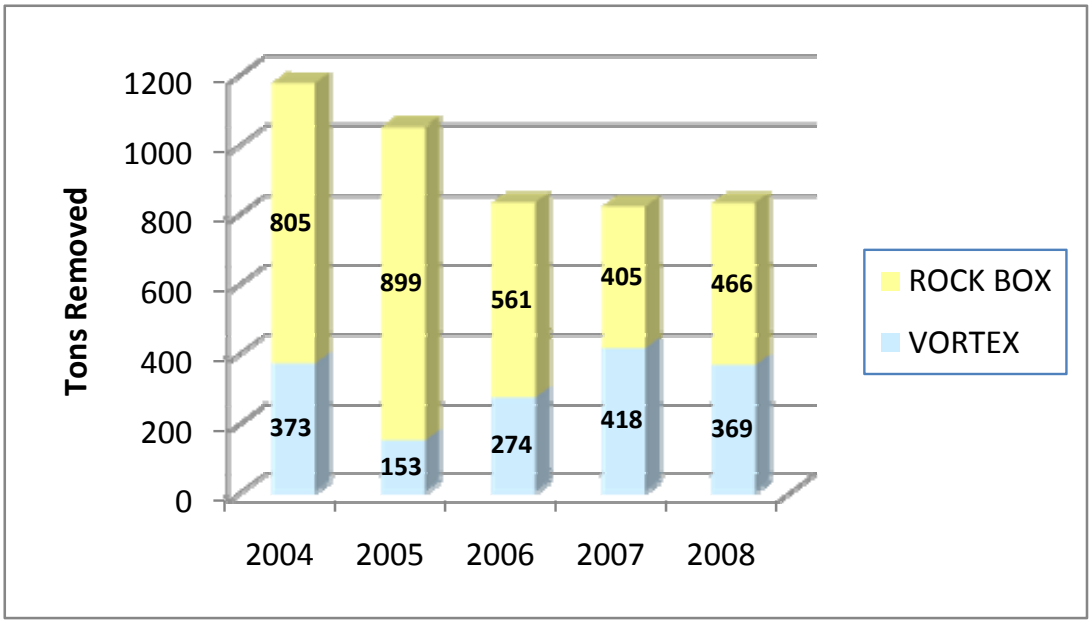
Wet Weather Operating Guidelines were last updated in February 2005 and distributed to Chief Plant Operators for implementation. The goals of the guidelines include the following:

- To prepare the WWTP for storm events by reducing rocks and grit accumulation
- To reduce overflows from the CSS by monitoring pumping levels
- To minimize bypasses at diversion structures by regulating incoming flow
- To maximize treatment of wet weather flows by balancing process operations

4.4.2 Controlled Grit Removal

All efforts to control the quantity of grit reaching the WWTP will maximize and improve the efficiency of treatment processes. Grit entering the WWTP is removed by a number of methods including the rock box, mechanical bar screen, vortex separator, and an aerated grit chamber. Figure 4-1 compares the annual tons of grit removed by the rock box and the vortex system at the Blue River WWTP for the past several years.

Figure 4-1 Grit Removal-Blue River WWTP



4.4.3 Optimized Flow Rate

The Blue River WWTP receives flow from the Blue River Interceptor Sewer (BRIS) and the NEID interceptor sewer. The diversion chambers ahead of Blue River Pump Station and the NEID Pump Station regulate flow to the plant to avoid internal WWTP overflows.

All flow to the Westside WWTP is pumped from the sources listed below. Collectively, these pump stations have enough pumping capacity to overload Westside WWTP. These conveyance systems are managed to maximize the wet weather flows to the plant.

- Turkey Creek Pump Station - Monitored and balanced CSS flow to WWTP
- Santa Fe Pump Station - Monitored and balanced CSS flow to WWTP
- Line Creek Pump Station - Monitored SSS flow only; with approximately 50% to Westside WWTP and 50% to Blue River WWTP via the collection system. Normal operational methods give Line Creek Pump Station preference during wet weather events to minimize sanitary sewer overflows
- Downtown Airport Pump Station – CSS & SSS flow
- Harlem Pump Station – SSS flow

4.4.4 WWTP Capacity Impacts

Whole plant stress testing with primary flow bypass was conducted in 2008 at the Blue River WWTP. This was the final in a series of six stress tests conducted at the Blue River WWTP. The ultimate goal of stress testing was to assess the processing and hydraulic plant capacities. The intention was to confirm the maximum plant treatment capacity. This information will serve to guide plant wet weather operation to assure that the maximum wet weather flow receives treatment. Maximizing treatment of wet weather flow will reduce the overall impact of bypass flows on receiving streams.

4.5 NMC 5 – Elimination of CSOs During Dry Weather

"The fifth minimum control, elimination of CSOs during dry weather, includes any measures taken to ensure that the CSS does not overflow during dry weather flow conditions. Since the NPDES program prohibits dry weather overflows (DWOs), the requirement for DWO elimination is enforceable independent of any programs for the control of CSOs. DWO control measures include improved O&M, as well as physical changes to regulator and overflow devices..." - USEPA, **CSO Guidance for Nine Minimum Controls**

The WSD continues to implement measures to minimize DWOs. Control measures implemented in previous years that were continued in 2008 included:

- Inspect to identify DWOs
- Correct primary causes of DWOs
- Notification to MDNR when DWO occurs
- Routine preventative cleaning of system
- Report DWOs by Wastewater Treatment Division

4.5.1 Inspect to identify DWOs

The Line Maintenance Division inspects all flow regulating structures on a routine basis to verify that they are functioning properly. This includes diversion structures and flow splitters. Diversion structures are defined as structures that direct excess wet weather flows to receiving waters. Flow splitters are defined as structures that divert flows in the CSS but do not direct flow to receiving waters (one or more flow regulating structures are downstream of the structure, upstream of the receiving waters). The

inspection interval varies for each structure based on historical records of performance and the sensitivity of the area surrounding the structure. Structures are inspected to assure proper operation and to identify the occurrence of dry weather overflows. Inspections identified 21 dry weather overflows in the CSS area in 2008.

4.5.2 Correct Primary Causes of DWOs

The causes for DWOs in 2008 were varied and include grease stoppages, root stoppages, debris stoppages, and structural pipe problems. The primary cause of each DWO is corrected and MDNR is notified of the occurrence within 24 hours. Follow-up written reports are made within five days of the original notification. In all occurences, the area around the DWO is cleaned and inspected for any debris or contaminants. If grease was determined to be a primary cause of the DWO, the Industrial Waste Control Division is notified of the occurence for further investigation.

4.5.3 Routine Preventative Cleaning of System

The City continued its preventative cleaning program in 2008 as described in Chapter 2. The City-Wide Sewer System Cleaning project primarily involved cleaning of larger diameter sewers, heavily silted lines, or lines that had severe blockages. This was a city-wide project, but many of the lines cleaned were in the CSS. The primary purpose of this contract was to supplement the sewer cleaning efforts of the Line Maintenance Division.

4.5.3.1 Reported DWOs by Wastewater Treatment Division

DWOs or bypasses which occur at pump stations and WWTPs are investigated and reported by the Wastewater Treatment Division. MDNR is notified within 24 hours of discovery and a Wastewater Bypass Report Form is submitted within 5 days of the occurrence. There were three reported DWOs in the CSS in 2008.

4.6 NMC 6 - Control of Solids and Floatable Material in CSOs

"The sixth minimum control is intended to reduce, if not eliminate, visible floatables and solids using relatively simple measures. Simple devices including baffles, screens, and racks can be used to remove coarse solids and floatables from combined sewage . . ." - USEPA, **CSO Guidance for Nine Minimum Controls**

The WSD and other City departments employ several methods for preventing extraneous solids and floatables from entering the CSS including:

- Repair and clean catch basins
- Street sweeping
- Construction site erosion control

4.6.1 Repair and Clean Catch Basins

WSD is responsible for the proper functioning of all catch basins throughout the City. The Stormwater Line Maintenance Division performs catch basin cleaning and repairs. The Division cleaned and inspected 12,630 inlets in 2008.

4.6.2 Street Sweeping

The Water Services Department sweeps streets on a routine schedule to reduce trash, silt and other debris on the streets and in the sewer system. Improved residential streets city-wide are swept on three cycles May through December and once between January and April. The main arterial system is swept on four cycles between May and November. The Downtown system (within the downtown loop) is swept on 61 cycles between May and November and on 19 cycles between December and April. The Department swept 14,878 miles of streets in 2008.

4.6.3 Construction Site Erosion Control

Soil erosion from construction activity can increase the quantity of turbidity, nutrients, metals and sediment in the receiving sewer and waters. Sedimentation problems can potentially reduce the hydraulic capacity of sewer lines, leading to overflows. The implementation and enforcement of erosion control regulations can be an extremely effective method reducing these constituents in the flow in the CSS. Construction work is required to conform to City engineering and construction standards for all public or private work.

4.7 NMC 7 – Pollution Prevention Programs to Reduce Contaminants in CSOs

"The seventh minimum control, pollution prevention, is intended to keep contaminants from entering the CSS and thus receiving waters via CSOs. Most of the suggested measures involve behavioral change rather than construction of storage or treatment devices." - USEPA, **CSO Guidance for Nine Minimum Controls**

The pollution prevention measures covered in this minimum control were implemented by WSD to encourage residents and business owners to minimize or eliminate their contaminants from entering the combined sewers and, in turn, the rivers and streams. The programs and documentation include:

- Household Hazardous Waste Program
- Keep Kansas City Beautiful Campaign
- 10,000 Rain Gardens
- Food Handler Training Classes
- Industrial Waste Newsletter
- Street sweeping (see NMC 6)

4.7.1 Household Hazardous Waste Program

The HHW Program continued to accept, manage and recycle or safely dispose of excess or unwanted household chemicals in 2008. The program accepted chemicals from residents in 34 communities throughout Cass, Clay, Jackson, Platte, and Ray counties as well as residents in unincorporated areas of Jackson and Clay Counties. The program provides residents a clean alternative for disposal of used oil and other chemicals that may otherwise be disposed in storm drains or other inappropriate places. In addition, the program accepts conditionally exempt quantities of hazardous materials from city-operated facilities. Throughout the year the program served approximately 8,446 households and took in approximately 1,148,761 pounds of household hazardous waste. As a part of this program, WSD manages a permanent HHW Facility and the Swap Shop. A Regional HHW Collection Program is coordinated by the Mid-America Regional Council (MARC) Solid Waste Management District in cooperation with Kansas City and the City of Lee's Summit. The regional program sponsors HHW Mobile Collection Events as summarized in Table 4-2. This program was recognized by the USEPA for excellent implementation of an Environmental Management System. The mobile collections events collected in excess of 250 tons of waste in 2008.

Table 4-2 2008 HHW Mobile Collection Events

Date	Host Community	Total Pounds Collected
April 5	Independence	71,586
April 19	Blue Springs	44,637
May 3	Garden City	9,888
May 17	Gladstone	19,319
May 31	Peculiar	13,311
June 7	Northland KC	46,051
June 14	Belton	32,521
June 21	Central KC	18,200
June 25	Ball Metal	3,077
June 28	Oak Grove	9,941
August 2	Excelsior Springs	24,769
August 2	KC Southland	22,948
August 16	Platte County	37,062
September 6	Cass County	54,495
September 20	Smithville	20,900
September 27	Ruskin	9,237
October 4	Parkville	23,560
October 18	Sugar Creek	11,468
October 25	Liberty	38,061
Note: These events accepted HHW including automotive fluids, batteries, fuels, household cleaners, lawn & garden products, pesticides, paints and related products.		

4.7.2 Keep Kansas City Beautiful Campaign

The Keep Kansas City Beautiful Campaign efforts in 2008 included litter prevention, community beautification and waste reduction and recycling through various programs highlighting these specific issues. The campaign's current focus areas include litter abatement, public awareness and education, with programs including:

- EarthFest/EarthWalk
- Great American Cleanup
- Kansas City Environmental Education Network
- Week of Water

a) **EarthFest/EarthWalk**

WSD took part in the 12th annual Kansas City EarthWalk and EarthFest on April 19 at Shawnee Mission Park. More than 4,500 people participated in EarthFest. Teams of more than 700 people walked trails to raise money for local environmental education programs. A record number of exhibitors informed and entertained the public with planet-friendly education and activities for children and adults. WSD supported the 2008 Kansas City EarthFest by donating bottled water to the walkers.

b) **Great American Cleanup**

In 2008, Kansas City's Great American Cleanup™ spanned from March through May. Supplies, project coordination, marketing, and publicity support were provided by 180 communities who sponsored 64 cleanup, recycling, beautification and environmental education events. More than 5,400 volunteers worked to:

- Clean 121 tons of trash
- Clear 53 illegal dumping sites
- Recycle more than 2,400 pounds of metal
- Collect 3,575 scrap tires

c) **Kansas City Environmental Education Network (KCEEN)**

KCEEN is a program supported by the MARC which focuses efforts on environmental education in the Kansas City region. KCEEN plans environmentally-themed events, publishes an e-newsletter and provides resources to area schools, youth organizations and environmental educators on environmental topics for lesson plans and activities. As an active participant, the WSD serves as a catalyst to help unite environmental educators with resources such as curricula for their classrooms.

d) **Week of Water**

The 6th annual Missouri River Watershed Festival was held at La Benite Park in Sugar Creek, Missouri on Friday, October 3. The WSD was one of the exhibitors and major sponsors for the event. This event included over 30 exhibitors conducting interactive river stewardship and

education activities for area 5th graders. The festival rallied nearly 300 students (grades 6-8) from the region.

On Saturday, October 4 volunteers from the general public, various government agencies and schools were ferried to the banks and islands along the Missouri River to clean up debris that was washed ashore as part of the Missouri River Relief. Boats were provided by local government agencies and businesses. The event attracted 411 volunteers to help with clean-up activities. The event was a success with 351 bags of trash and an estimated 10 tons of other debris collected.

4.7.3 10,000 Rain Gardens

The 10,000 Rain Gardens program was initiated in fall 2005 to improve water quality by reducing stormwater runoff and pollutants. Kansas City is researching available water quality grants to fund the construction of rain gardens in the urban core neighborhoods. Potential grant funding and local matching funds will also include installation of rain barrels and disconnecting of downspouts. Rain gardens provide an opportunity to reduce water pollution and stream degradation by establishing this low impact development technique as a standard best management practice (BMP) for city departments, property owners, businesses, and developers.

4.7.4 Food Handler Training Classes

Since the fall of 2001, the Industrial Waste Control Division and the Food Protection Program of the Health Department have offered training classes to restaurant personnel on code compliance. The Food Handler Training Class is mandatory and designed to provide information necessary for restaurant personnel to operate their food establishments in compliance with the City Food Code and City Sewer Use Ordinance. Each class is offered approximately every month. The classes include a section on BMPs for FOG and are taught by the Oil & Grease Management Program Coordinator from WSD. The purpose is to teach participants the proper disposal methods for FOG and the negative impacts when they are not disposed of properly.

4.7.5 Industrial Waste Newsletter

The Industrial Waste Control Division distributes an "Industrial Waste Newsletter" periodically to permittees. In 2008, approximately 70 SIUs who carry a wastewater discharge permit in KCMO and Kansas City, Kansas received the newsletters. The newsletter provides informative news articles about a wide variety of topics. Readers are also encouraged to submit letters and articles relevant to industrial waste issues. The major topics in 2008 included:

- Implementation of the Green Solutions Policy Resolution
- Presentation of the Overflow Control Plan Draft
- Overflow Control Plan extension granted
- The USEPA awards $1.17 million for wetland program development

4.8 NMC 8 - Public Notification to Ensure the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts

"The intent of the eighth minimum control is to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities curtailed as a result of CSOs. The measure selected should be the most cost-effective measure that provides reasonable assurance that the affected public is informed in a timely manner." - USEPA, **CSO Guidance for Nine Minimum Controls**

4.8.1 CSO Notification

The WSD installed a sign at each of the 90 outfall locations in 2008. Each sign identifies the outfall and provides a telephone number directing the caller to the WSD dispatcher on call 24 hours per day, 7 days per week. Citizens can report CSOs to the dispatcher, who then forwards the messages to the appropriate WSD staff. In addition, a contact number is provided if the public wants more information.

4.8.2 Public Education Program

WSD's extensive public education program continued in 2008. The 2008 program elements are highlighted in the *Overflow Control Plan.* The program goal was to raise awareness, educate and connect with the public on issues concerning CSOs and other wet weather issues.

4.9 NMC 9 – Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls

"The ninth minimum control involves visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs. This minimum control is an initial characterization of the CSS to collect and document information on overflow occurrences and known water quality problems and incidents that reflect use impairments by CSOs. Changes in the occurrences of such incidents can provide a preliminary indication of the effectiveness of the NMC" - USEPA, **CSO Guidance for Nine Minimum Controls**

The City continued to conduct regularly scheduled visual inspections of both the system's diversion structures and the receiving streams to determine the occurrence and apparent impacts of overflows in compliance with conditions of the Blue River and Westside WWTP operating permits.

* * * * *

5 PROJECTS

This section provides information about capital improvement projects initiated, extended through, or completed in 2008 that relate to the Wet Weather Solutions Program and the OCP. The capital projects generally fall into one of the three following categories:

- Collection system projects
- In-Fill sewer projects
- Facilities projects

A project data sheet is presented for each project. The capital project data sheets contain the following information where applicable and available:

- Project Name
- Council District(s)
- Watershed(s)
- Contract Number
- Project Number
- Scope
- Location
- Description
- Benefit
- Project Manager
- Planner
- Designer
- Contractor
- Design / Construction Start
- Design / Construction End
- Operational Date
- Project Cost
- Project Status
- General Location Map – if applicable
- Project Photograph – if available

5.1 Collection System Projects

5.1.1 Brookside Sanitary Sewer Improvements Phase 3A & 3B
5.1.2 Brookside Sanitary Sewer Improvements Phase 4
5.1.3 Brookside Sanitary Sewer Improvements Phase 5
5.1.4 City-Wide Television Inspection of Sanitary Sewers 2008
5.1.5 City-Wide Sewer System Cleaning 2008
5.1.6 City-Wide Sewer Repair Contract 2008
5.1.7 Sewer Line Root Control 2008
5.1.8 Ruskin Heights Sewer Rehabilitation
5.1.9 Middle Blue River Green Solutions Pilot Project

5.2 In-Fill Sewer (Septic Tank Elimination Program)

5.2.1 59th Street & Norfleet Road
5.2.2 NE 88th & N Forest
5.2.3 135th Street & Cherry Street
5.2.4 48th Street & Logan Avenue
5.2.5 48th Street & Emery Avenue

5.3 Facilities Projects

5.3.1 Asset Management Program
5.3.2 Santa Fe Pump Station Improvements

* * * * *

Council District(s): ***4***
Watershed: ***Brush Creek***

Brookside Sanitary Sewer Improvements Phase 3A & 3B

Contract No.: ***654***
Project No.: ***81000654***

Scope: The project consists of catch basin repair, construction of new storm drains, and sanitary sewer repair.

Location: The Brookside Neighborhood is generally bounded by 57th to 65th Street and Ward Parkway to Wornall.

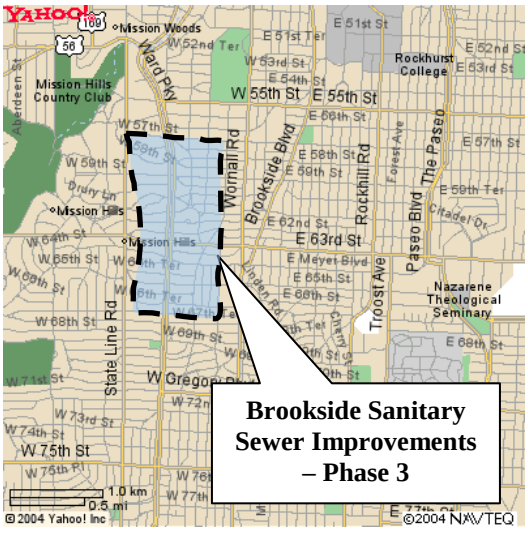
Description: The third phase of improvements is designed to reduce flooding and sewer back-ups through replacement of catch basins in streets to carry stormwater runoff, upsizing approximately 21,500 feet of existing storm drainage, and upsizing approximately 2,900 feet of sanitary sewer pipe system primarily located within yards. The larger pipes will increase the carrying capacity of both the storm drainage and sanitary sewer systems.

Benefit: Removal of infiltration/inflow sources, reduction of sewer back-ups, and increased pipe capacity.

Project Manager: Karine Papikian
Planner: Burns & McDonnell
Designer: Burns & McDonnell
Contractor: Dennis Johnson Construction, Inc. – Phase 3A

Design Start: April 2004
Design End: December 2007-Phase 3A
Notice to Proceed: April 2008
Operational Date: Summer 2009 – Phase 3A

Project Cost: $8,000,000 (Design and Estimated Construction – Phase 3A & 3B)
Project Status: Currently under construction – Phase 3A
Design – Phase 3B



Kansas City Overflow Control Program

Council District(s): ***4***
Watershed: ***Brush Creek***

Brookside Sanitary Sewer Improvements Phase 4 (Crestwood)

Contract No.: ***654***
Project No.: ***81000654***

Scope: The project consists of catch basin repair, construction of new storm drains, and sanitary sewer repair.

Location: Crestwood Neighborhood is generally bounded by 54th to 56th Street and Brookside Boulevard to Holmes Road.

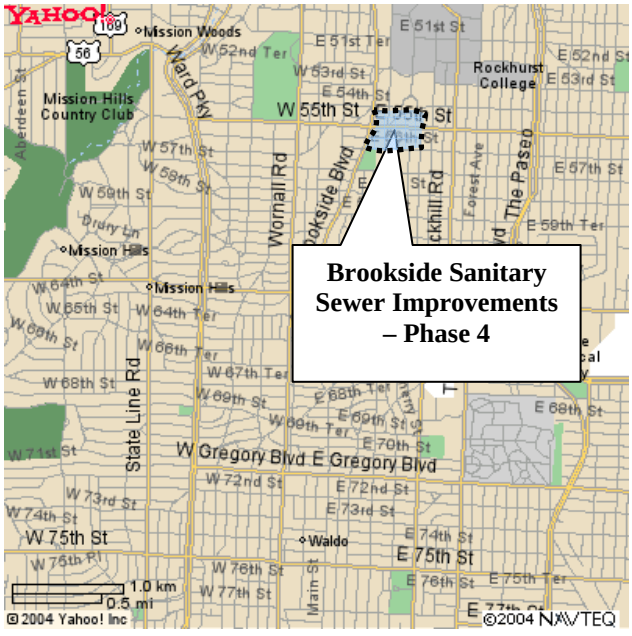
Description: The fourth phase of improvements is designed to reduce flooding and sewer back-ups through replacement of catch basins in streets to carry stormwater runoff, repair of approximately 5,500 feet of the sanitary sewer systems and possible upsizing of approximately 4,500 feet of storm drainage. The project also includes some separation of the combined sewer system.

Benefit: Removal of infiltration/inflow sources, reduction of sewer back-ups, and increased pipe capacity.

Project Manager: Karine Papikian
Planner: Burns & McDonnell
Designer: Burns & McDonnell
Contractor: GC Construction Company

Construction Start: September 28, 2006
Construction End: July 14, 2008
Operational Date: May 15, 2008

Project Cost: $6,159,114
Project Status: Construction completed



Kansas City Overflow Control Program

Council District(s): ***4***
Watershed: ***Brush Creek***

Brookside Sanitary Sewer Improvements Phase 5

Contract No.: ***654***
Project No.: ***81000654***

Scope: Soil drilling, sampling, alignment routing study, and final design of a large interceptor sewer.

Location: The project is located along Oak Street from Brush Creek Boulevard to 51st Terrace and along Brookside Boulevard from 51st Terrace to Meyer Boulevard.

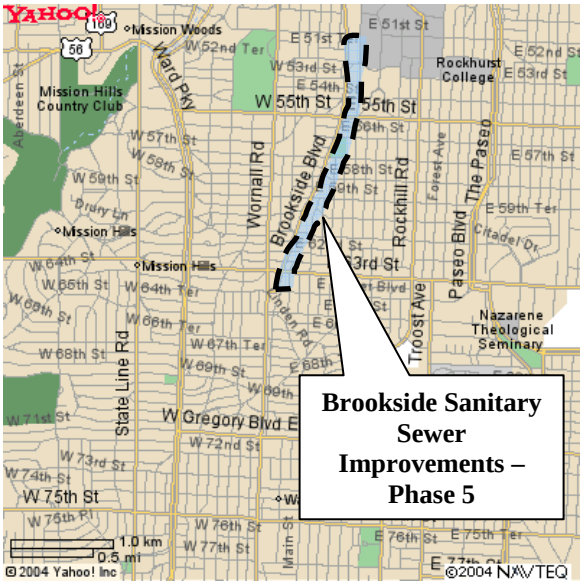
Description: The fifth phase of improvements primarily consists of the design and construction of a new larger relief sewer parallel to the existing storm drainage interceptor pipe. The design also includes upsizing approximately 10,500 feet of the existing sanitary sewer pipe to increase carrying capacity and to reduce flooding and sewer back-ups in the vicinity.

Benefit: Removal of infiltration/inflow sources, reduction of sewer back-ups, and increased pipe capacity.

Project Manager: Karine Papikian
Planner: Burns & McDonnell
Designer: Burns & McDonnell
Contractor: N/A

Preliminary Design Start: June 2005
Preliminary Design End: March 2007
Operational Date: Estimated May 2012-Phase 5A, 2014 – Phase 5B

Project Cost: $30,000,000 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

Council District(s): ***All***
Watershed: ***All***

City-Wide Television Inspection of Sanitary Sewers 2008

Contract No.: ***926***
Project No.: ***61000040***

Scope: Closed circuit television inspection contract to identify areas for rehabilitation work.

Location: The project is located primarily in (but not limited to) downtown Kansas City, Missouri.

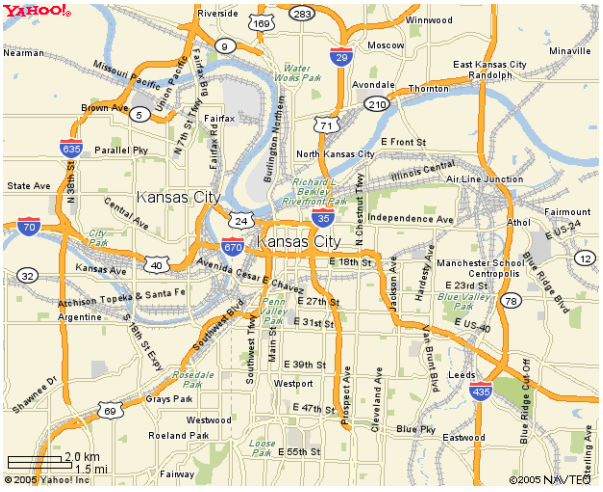
Description: The project involves digital video recording the inspection of approximately 166,666 feet of various diameters of sanitary sewer in portions of the City's sewer system citywide.

Benefit: Recommendations for future rehabilitation to extend the life of the sewer system.

Project Manager: Matt Thomas
Planner: Water Services Department
Designer: Water Services Department
Contractor: ACE Pipe Cleaning, Inc.

Project Start: March 1, 2007
Project End: September 1, 2009
Operational Date: N/A

Project Cost: $250,000
Project Status: Active



Kansas City Overflow Control Program

Council District(s): ***All***
Watershed: ***City-Wide***

City-Wide Sewer System Cleaning 2008

P.O. *Contract No.:* ***PA-3745***

Scope: Cleaning of Sanitary Sewers

Location: City-Wide

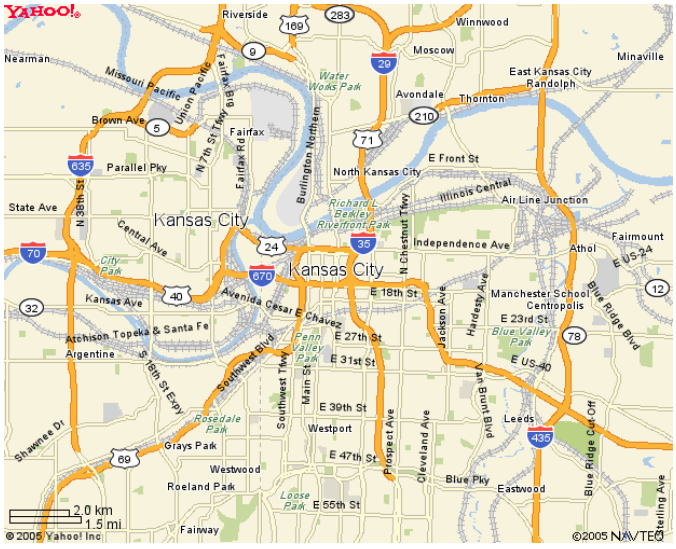
Description: Sewer line cleaning throughout the sewer system on demand and as assigned by Water Services. Typically, the cleaning work is for sewers that are large diameter, heavily silted, severely blocked, or poorly accessible.

Benefit: Removal of grit and debris from sewers that may wash out as a stream discharge during storm; improved flow capacity of existing sewers; augment Water Services cleaning services for difficult or emergency work orders.

Project Manager: Matt Thomas
Planner: Water Services Department
Designer: Water Services Department
Contractor: ACE Pipe Cleaning, Inc.

Construction Start: January 1, 2008
Construction End: May 1, 2009
Operational Date: N/A

Project Cost: $500,000
Project Status: Active



Kansas City Overflow Control Program

Council District(s): ***All***
Watershed: ***All***

City-Wide Sewer Repair Contract 2008

Contract No.: ***909***
Project No.: ***81000347***

Scope: Sewer repairs throughout the city.

Location: City-wide

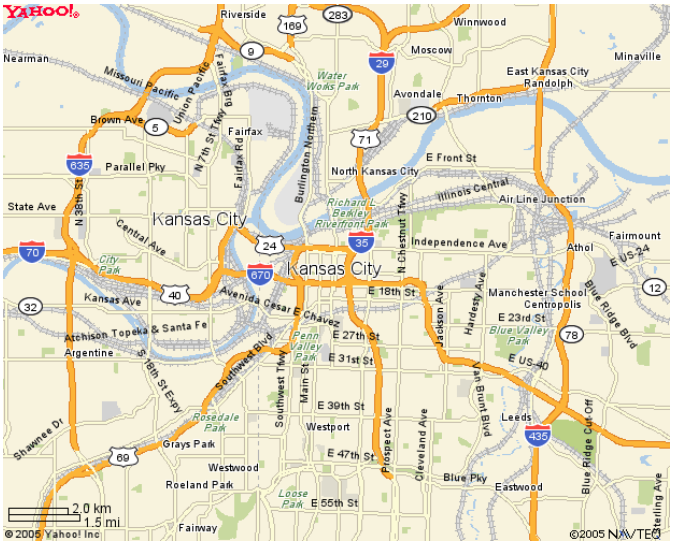
Description: Ongoing program by Water Services Department to repair sewers throughout the City. The project consists of repair of private sewer line failures within public rights-of-way or easements, and the repair and replacement of small sections (5 to 25 feet) of existing 8-inch, 10-inch, 12-inch, 15-inch, 18-inch, and 21-inch diameter public sewer mains.

Benefit: Repair of sewer throughout the city and increased system capacity and efficiency.

Project Manager: Karine Papikian
Planner: Water Services Department
Designer: Water Services Department
Contractor: ACE Pipe Cleaning, Inc.

Construction Start: January 2007
Construction End: June 2008

Project Cost: $500,000
Project Status: Complete



Kansas City Overflow Control Program

Council District(s): ***1&2***
Watershed: ***City-Wide***

Sewer Line Root Control 2008

Contract 965

Scope: Chemical Root Control Treatment of Sanitary Sewers

Location: North of the River, Sewer Atlas N-61, N-65, N-118

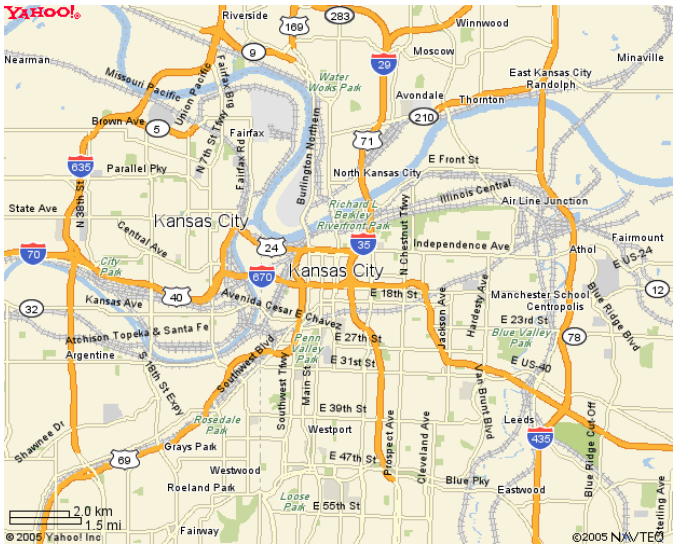
Description: Chemical treatment of sewer lines at various locations, inside of the public right-of-way, and inside of the public sewer easements. The pipe sizes that are being treated are 8, 10, 12 and 15-inch diameter public sewer mains with all other appurtenant items throughout the Kansas City, Missouri area.

Benefit: Foaming chemical treatment injection of sewer lines to eliminate large root masses in lines and restore flow capacity to pipes.

Project Manager: Matt Thomas/Line Maintenance Division
Planner: Water Services Department
Designer: Water Services Department
Contractor: ACE Pipe Cleaning, Inc.

Construction Start: March 20, 2008
Construction End: September 9, 2008
Operational Date: N/A

Project Cost: $195,700
Project Status: Complete



Kansas City Overflow Control Program

Council District(s): ***6***
Watershed: ***Little Blue River***

Ruskin Heights Sewer Rehabilitation

Contract No.: ***810***
Project No.: ***81000181***

Scope: Rehabilitation of existing sewers and manholes.

Location: The project is bounded by Spring Valley Road, Blue Ridge Blvd, Longview Road, and 110th Street.

Description: The previous I/I Study in the Ruskin Heights Subdivision drainage basin recommended rehabilitation of existing sewers and manholes to reduce inflow/infiltration sources and eliminate basement backups. The project consists of rehabilitation of over 100 manholes and 50,000 lf of 8-inch to 15-inch pipe by pipe bursting, open cut, or cured-in-place lining.

Benefit: Significant inflow and infiltration reduction, increased pipe capacity, and reduction of basement backups.

Project Manager: Matt Thomas
Planner: Water Services Department
Designer: Water Services Department
Contractor: Ace Pipe Cleaning

Construction Start: September 22,, 2007
Construction End: June 2, 2008
Operational Date:

Project Cost: $4,581,000
Project Status: Complete

Kansas City Overflow Control Program

Council District(s):5
Watershed: Middle Blue River

Middle Blue River Green Solutions Pilot Project

Contract No.:0770
Project No.:81001

Scope: Complete basic planning for the pilot project and obtain physical data necessary for preliminary and final designs to proceed in a timely fashion.

Location: The project area is approximately 100 acres and extends from 73rd Street to 77th Terrace and from Holmes Road to Paseo Boulevard. The initial field investigation will extend to an additional 86 acre control area adjacent to the pilot area that extends south to 79th Street and east to Paseo Boulevard.

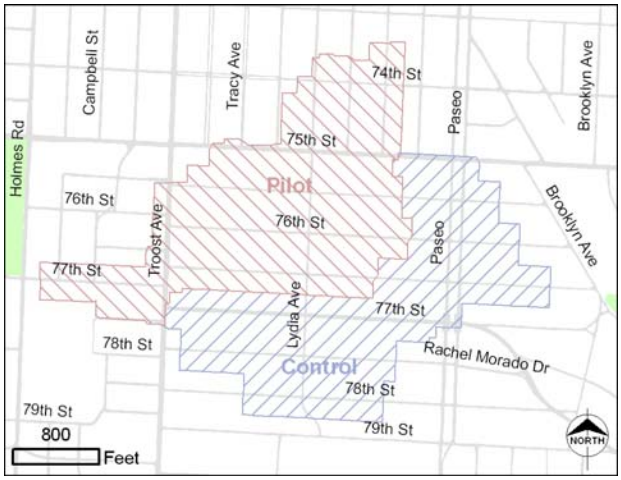
Description: The Water Services Department is undertaking a pilot project to measure and evaluate the performance of green solutions. Green Solutions will be used to capture stormwater to reduce combined sewer overflows within a portion of the Middle Blue River Basin.

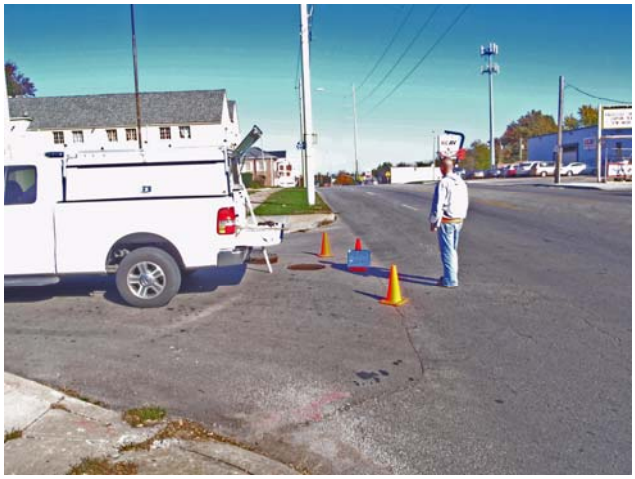
Benefit: To reduce levels of infiltration and inflow and peak wet weather flows within a portion of the Middle Blue River Basin in an effort to ultimately reduce the volume of wet weather overflow from the drainage basin.

Project Manager: Francis Reddy
Planner: OCP
Designer: Burns & McDonnell
Contractor: N/A

Preliminary Design Start: September 2008
Preliminary Design End: March 2009
Operational Date: Winter 2011

Project Cost: $618,000 (Preliminary Design)
Project Status: Concept Design Phase





Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Raytown Drainage***

59th & Norfleet

Contract No.: ***XXX***
Project No.: ***89003668***

Scope: Construct a new sanitary sewer line consisting of 1,994 feet of 8-inch sewer pipe and 7 manholes.

Location: Project is generally bounded by 58th Street Terrace, Norfleet Road, 59th Street Terrace and Marion Road, in Jackson County, Kansas City, Missouri.

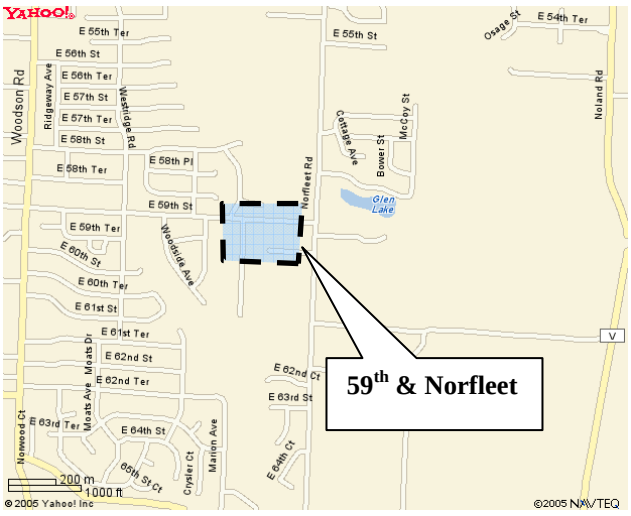
Description: The new gravity sanitary sewer collection system will serve an existing residential area with 20 homes in Sewer Districts 13045 and 13046.

Benefit: Provides public sanitary sewer service, elimination of septic tank usage, and reduction of potential public health risks.

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: Dennis Johnson Construction

Design Start: April 23, 2001
Design End: November 22, 2007
Operational Date: Approximately December 1, 2008

Project Cost: $404,016
Project Status: Construction is complete.



Kansas City Overflow Control Program

*Council District(s): **2***
*Watershed: **Shoal Creek***

NE 88th & N Forest

*Contract No.: **XXX***
*Project No.: **89003409***

Scope: Design and construction of new sanitary sewer line consisting of 2,238 feet of 8-inch sanitary pipe and 10 manholes.

Location: Project is generally bounded by Highway 152, N Forest Avenue, NE 88th Street, N Charlotte Street.

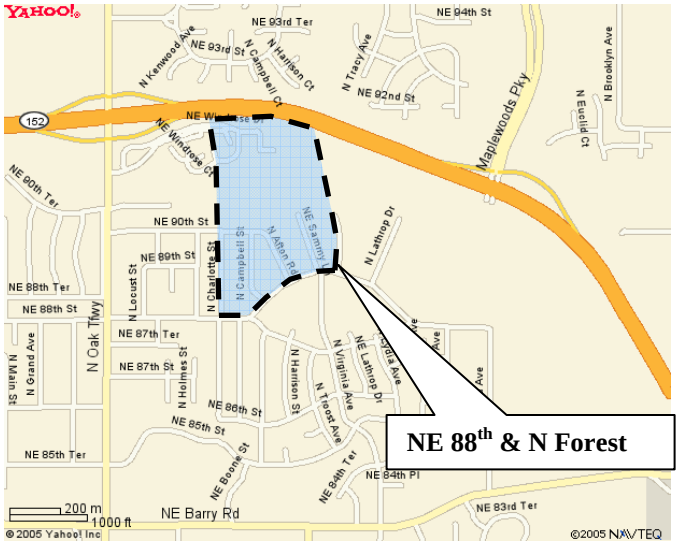
Description: This project upgrades the areas septic sewer to sanitary sewers. The new sewers will flow to the north, tie into an existing City sewer line running along the south fork of Shoal Creek, and receive treatment at the Birmingham Wastewater Treatment Facility. This project will serve 18 properties and is to be constructed under one contract along with Project 89003400 - NE 88th and N Lathrop.

Benefit: Provides public sanitary sewer service, elimination of septic tank usage, and reduction of potential public health risks.

Project Manager: Robert Davis
Planner: Water Services Department/CIMO
Designer: McDonald & Wagner Inc.
Contractor: Team Excavating

Design Start: March 31, 2005
Design End: September 29, 2006
Operational Date: July 2008

Project Cost: $50,530 (Design) and $322,102 (Construction)
Project Status: Substantially Complete



Kansas City Overflow Control Program

Council District(s): ***6***
Watershed: ***Spring Valley***

135th Street & Cherry St

Contract No.: ***123***
Project No.: ***89003727***

Scope: Construct a new sanitary sewer line consisting of approximately 854 feet of 8-inch sewer pipe and 5 manholes.

Location: Project is generally bounded by 134th Street, Missouri Pacific Railroad, Martin Industrial Area, and Oak Street in Jackson County Kansas City, Missouri.

Description: The new gravity sanitary sewer collection system will serve an existing residential area with 11 homes in Sewer District 6028.

Benefit: Provides public sanitary sewer service and reduction of potential public health risks.

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: Pyramid Constructioin

Design Start: November 20, 2001
Design End: January 25, 2006
Operational Date: December 24, 2008

Project Cost: $249,860
Project Status: Construction Complete

Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Raytown Drainage***

48th Street & Logan Avenue

Contract No.: ***952***
Project No.: ***89003611***

Scope: Construct a new sanitary sewer line consisting of approximately 600 lineal feet of 8-inch sewer pipe and 3 manholes.

Location: Project is generally bounded by Logan Avenue, the southern line of Lot 22 of Sni-A-Bar Addition subdivision, and northern line of Lot 10 in Jackson County, Missouri.

Description: The new gravity sanitary sewer collection system will serve an existing residential area with 4 homes in Sewer District 13051.

Benefit: Provides public sanitary sewer service and reduction of potential public health risks.

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: Rose_Lan Contractors

Design Start: April 23, 2001
Design End: January 2, 2006
Operational Date: May 2008

Project Cost: $86,289.41
Project Status: Project Complete

Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Raytown Drainage***

48th Street & Emery Avenue

Contract No.: ***953***
Project No.: ***89003613***

Scope: Construct a new sanitary sewer line consisting of approximately 575 feet of 8-inch sewer pipe and 2 manholes.

Location: Project is generally bounded by Crane Avenue, Hocker Road, the southern line of Lot 23 of Sni-A-Bar Addition subdivision on the south, and the northern line of Lot 11, in Kansas City, Missouri within Jackson County.

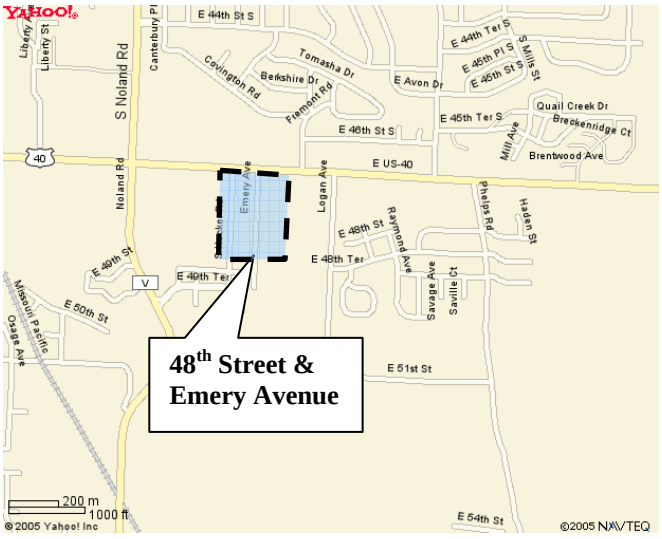
Description: The new gravity sanitary sewer collection system will serve an existing residential area with 10 homes in Sewer District 13052.

Benefit: Provides public sanitary sewer service and reduction of potential public health risks.

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: Blue Nile Engineering

Design Start: April 23, 2001
Design End: January 2, 2006
Operational Date: November 2008

Project Cost: $89,791
Project Status: Substantial Completion. Contractor completing punch list items.



Kansas City Overflow Control Program

Council Districts: ***All***
Watershed: ***All***

Asset Management Program

Contract No.: 958
Project No.: ***81000356***

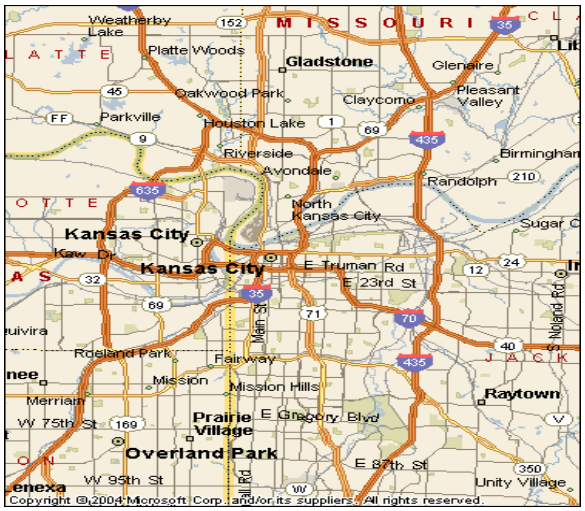
Scope: Preparation of an Asset Management Program in three steps. Step one being the effort required through a Work Plan. Second would be the efforts required in developing a State of Assets Report for Water Services Department's facilities and systems management. Third would be the implementation of the plan.

Location: Citywide - all wastewater facility and system assets, in and above ground.

Description: Water Services overall goal for an Asset Management Plan is to develop sound strategies to maintain business sustainability. Purpose of the Asset Management Program is to provide information, identify gaps, and highlight opportunities to develop this sustainable business through improved life-cycle management and decision-making in the areas of traditional assets, people resources, and business culture.

Benefit: Managed asset repair, replacement, and capital improvements with a pre-planned revenue stream to cover those costs while maintaining customers with a high quality level of service and implementing the latest regulatory updates and requirements.

Program Manager:	Ed Klein
Planner:	Water Services Department
Selection:	NTP issued to Consultant on October 19, 2007
Consultant:	Camp, Dresser & McKee, Inc.
Program Start:	October 19, 2007 (Work Plan), Anticipate May 2009 for State of Assets Report
Program End:	October 2008 (Work Plan Only), Anticipate December 2009 (State of Assets Report)
Operational Date:	N/A
Project Cost:	$392,100.00 (Work Plan), Estimate $500,000 (State of Assets Report & Organization Structure)
Project Status:	Kick Off meeting November 2007 (Work Plan), May 2009 for State of Assets Report and Organization Structure



Kansas City Overflow Control Program

Council District(s): ***2***
Watershed: ***North Kansas City***

Santa Fe Pump Station Improvements

Contract No.: ***884***
Project No.: ***81000298***

Scope/Description: Construction of two grit collecting manholes including associated street repair; as well as improvements to the wastewater pumping station facility for a complete, usable, and reliable facility. Improvements for pump station grit removal process, screening process, and other ancillary facility improvements.

Location: 1200 Woodswether Road, Kansas City Missouri.

Benefit: Reduced maintenance and operational costs; reliable pumping of wastewater; reduce grit and sand flowing to the pump station

Project Manager: Bon Marie Gardner
Planner: Water Services Department
Designer: Carollo Engineers PC
Contractor: Pyramid Excavation & Construction

Construction Start: November 2008
Construction End: October 2009-projected
Operational Date: N/A

Project Cost: $ 4,545,070
Project Status: Construction Phase

Kansas City Overflow Control Program