Kansas City, Missouri
Water Services Department

Overflow Control Program

2005 Annual Report

March 27, 2006

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EXECUTIVE SUMMARY

Kansas City, Missouri Water Services Department has prepared this Overflow Control Program 2005 Annual Report to document progress made and accomplishments during calendar year 2005 on implementation of the Overflow Control Program The report presents information on significant accomplishments made on the Overflow Control Program and includes the Department's efforts on meeting the Nine Minimum Controls.

In July, Water Services Department created a new Division within the Engineering Business Unit to be responsible for the development and implementation of the Overflow Control Program. That Division was named the Overflow Control Division. Terry Leeds, P.E. was named Manager of the new Division. Also, in recognition of the synergies between the efforts of the Stormwater Division, Waterways Division, and Overflow Control Division, the Wet Weather Solutions Program was created to consolidate the existing programs of these three Divisions related to sewer overflows, sewer back-ups, receiving stream water quality, stormwater management, flooding, and major flood control projects. We believe this is the optimal organizational structure to facilitate development of affordable, cost-effective, and highly integrated wet weather controls.

The Overflow Control Program is a long-term and multi-faceted undertaking to develop a system-wide approach to address overflows from the sanitary and combined sewer systems. KC-ONE is a program managed by the Stormwater Division which will result in a comprehensive stormwater management plan and capital improvements program. The Waterways Division is responsible for completion of large-scale multi-purpose projects related to major creeks and rivers in cooperation with the Corps of Engineers. KC-ONE and the Overflow Control Program are coordinating to implement system improvements which primarily focuses on overflows, basement back-ups, sewer capacity/conditions, water quality, surface flooding, and stormwater conveyance capacity.

In August the voters of Kansas City approved a $250 million sewer revenue bond program that will provide funds for capital improvements to the sewer system and will fund development of the Overflow Control Program. Initial sale of bonds is planned for mid-2006.

Originally submitted in May 2004, comments were received in January 2005 from Missouri Department of Natural Resources and comments were received in February 2005 from the US Environmental Protection Agency on Work Plans for the completion of the Long-Term Control Plan for the Combined Sewer System and the Control Plan for the Sanitary Sewer System. The Work Plans were revised to respond to the Agency comments and were resubmitted in September. As of the end of the year, no response had been received on the revised Work Plans.

Public participation related to the Overflow Control Program was integrated with the Wet Weather Solutions public participation efforts during 2005 to provide the citizens of Kansas City with a

comprehensive and consolidated opportunity to participate in the development of solutions for wet weather issues facing the City. Major activities during this year included:

- Stakeholder interviews were conducted with sixteen community leaders to gauge current understanding of water quality issues and overflow events. Interview results were consolidated into a draft report completed in November which was under review at the end of the year.
- Regarding the Wet Weather Solutions Community Panel, the Mayor invited additional citizens to join the Panel to replace some members who were no longer active. Twenty-nine new members joined the twenty existing active members of the Panel, putting the active membership at forty-nine. The Panel met six times during the year. In addition, three subcommittees were established to discuss wet-weather related policies in more detail. The three subcommittees were: Guiding Principles subcommittee to develop a set of principles to guide the Wet Weather Solutions Program work; Public Participation subcommittee to guide stakeholder participation in the panel; and Sewer Back-Up subcommittee to provide input into a Sewer Back-Up Program currently under development.
- A comprehensive Wet Weather Solutions Public Participation Plan was drafted during the year. This document includes a description of the goals and beliefs of the public participation effort as well as the approaches and strategies to be used to carry out the public participation. As part of the Plan, supporting materials include a plan for communication with elected officials, a plan for development and implementation of public participation at the project area level, a citizen action kit to be used for education of the public on wet weather issues, a media communications plan, and a plan for use of newsletters to disseminate information about the Program.
- In addition to the Community Panel, the Overflow Control Program also actively participates with other stakeholder groups with interests in wet weather issues including the Brush Creek Coordinating Committee, Town Fork Creek Coordinating Committee, and Mid-America Regional Council regional water resources coordination workshops.

The Overflow Control Program has on-going consultation and coordination with federal and state agencies. During this year there were 8 meetings with representatives of US Environmental Protection Agency and/or Missouri Department of Natural Resources where key elements of the Overflow Control Program were discussed. In addition, representatives of Kansas City Water Services Department actively participated in the Missouri Department of Natural Resources Clean Water Forum meetings held during the year; participated as a member of the CSO Stakeholder Working Group formed by the Department of Natural Resources to assist in development of a CSO Rule to regulate CSO communities in Missouri; and was an active participant in other Department of Natural Resources efforts such as the Water Quality Coordinating Committee.

Kansas City has inter-jurisdictional agreements with 29 satellite communities to provide services related to collection, transportation, and treatment of wastewater. Services provided are unique for each community, depending on their needs. In recognition that the Overflow Control Program will impact each of those communities in some fashion, Kansas City held a meeting in December 2005 to explain the

Overflow Control Program and set the stage for future discussions. Twenty of the 29 satellite communities were represented at the meeting, which included all of the communities that provide significant flow to Kansas City.

Extensive water quality sampling and analysis were completed in 2005 to support the development of the Long-Term Control Plan. Kansas City supported five separate yet coordinated water quality monitoring programs during this year. Seventeen receiving water (creeks and lakes) locations were monitored during 4 events. Nine combined sewer overflow locations were monitored for at least 4 events and 6 stormwater locations were monitored for at least 3 events. Ten locations along Brush Creek were monitored biweekly by Water Services Department staff beginning in February and continuing through the end of the year resulting in collection and analysis of over 150 samples for fecal coliform, *E. coli*, and total suspended solids as well as field measurement of dissolved oxygen, temperature, pH, and conductivity.

Kansas City has a joint funding agreement with the US Geological Survey through which Kansas City has funded water quality sampling in the Blue River basin, including Brush Creek, since 1998. In 2005, additional work was funded in the Missouri and Kansas Rivers. Two US Geological Survey water quality monitoring efforts conducted this year consisted of sampling Brush Creek and Blue River at 19 locations during 3 non-storm events and 5 locations during 4 storm events; continuous water quality monitoring at 2 locations; continuous stream flow monitoring at 6 locations; bacteria source-typing and bacteria assessments at 5 locations. The US Geological Survey work also included water quality sampling on the Missouri and Kansas Rivers one baseline sampling event and one storm event at 10 cross-sections of the rivers. In addition, bathymetric and velocity vector profile data was collected for assessment of mixing characteristics in the Missouri River.

Temporary flow metering required for development and calibration of hydraulic models of the sewer system was completed in 2005. Flow meters were installed at 170 locations and operated for at least 4 months at each location. Data from this work is still under review at the end of the year, but it appears sufficient data of acceptable quality was obtained to meet the needs of the Overflow Control Program.

Kansas City continued to operate 43 rain gauges as part of its ALERT flood monitoring system. During 2005, the Overflow Control Program conducted an analysis of NEXRAD radar rainfall data to generate continuous 15-minute rainfall data from April 1 through November 15 as 1-km x 1-km pixel data and catchment weighted data for the flow meter catchment areas. This rainfall data will be used to calibrate and verify sewer system models.

Substantial work was conducted during the year related to receiving stream water quality and sewer system flow modeling. The Overflow Control Program water quality modeling effort in 2005 focused on developing an accurate hydrodynamic simulation of the Brush Creek – Blue River system under low-flow and high-flow conditions using the USGS FEQ model. The Water Quality Analysis Simulation Program (WASP) water quality simulation model was configured for the system. Model program code was developed linking the depth, velocity, and flux outputs from FEQ to the WASP model.

A model was created in XP-SWMM for the West Blue River Interceptor Sewer and connectivity was established. This model will be used to allocate the capacity in the Blue River Interceptor among the project areas discharging flow into this major sewer that delivers flow to the Blue River Wastewater Treatment Plant. By the end of the year the hydraulic models for the combined and sanitary sewer system project areas were either complete or at 90 plus percent completion and connectivity checks had begun.

Engineering firms contracted to prepare control plans for individual project areas made substantial progress during 2005. Each engineering firm completed and submitted a work plan describing their approach for completing the project area control plan considering the basin-specific information along with general Program protocols and guidance. Field reconnaissance was substantially completed in all project areas during the year. The engineering firms reviewed and continue to review flow, water quality and rainfall data collected for development of the control plans.

Kansas City continued implementation of the Nine Minimum Controls during throughout the year. Significant accomplishments were made on each of the nine controls. Examples of accomplishments under the Nine Minimum Controls in 2005 are:

- Completed CCTV inspection of over 259,000 feet of sewer city-wide;
- Completed cleaning of over 1,700,000 feet of sewer city-wide;
- Removed over 1,200 cubic yards of debris from sewers city-wide;
- Investigated over 1,800 sewer complaint calls city-wide;
- Conducted smoke testing on over 260,000 feet of sewer to identify inflow and infiltration sources;
- Updated wastewater treatment plant wet weather operating guidelines;
- Routinely inspected diversion structures to prevent dry weather overflows;
- Completed street sweeping on over 15,000 miles, collecting over 20,500 cubic yards of debris;
- Continued operation of the Household Hazardous Waste Collection program to provide residents with a convenient option for disposal of household chemicals; and
- Participated in several community and regional events to provide information to the public concerning what Water Services Department is doing and what citizens can do to protect water quality.

Kansas City Water Services Department achieved substantial accomplishments on development of the Overflow Control Program and implementation of the Nine Minimum Controls, more fully described in the following sections of this Annual Report.

1 INTRODUCTION

1.1 Annual Report Purpose

This Annual Report was prepared by Kansas City's Water Services Department (WSD) to document the City's progress and accomplishments during 2005 related to management of wet weather flow in its sewer system. The report is divided into several sections and provides details for each of the following:

- Overflow Control Division;
- Project Area Plans;
- Professional/Specialized/Technical Services Contractors;
- Separate Sanitary Sewer Operation and Maintenance;
- Nine Minimum Controls; and
- Projects.

1.2 Wet Weather Solutions Program

The Wet Weather Solutions Program consolidated existing programs to address sewer overflows, sewer back-ups, receiving stream water quality, stormwater management, flooding, and major flood control projects. There are three major components for the program: Overflow Control Program (focus on combined and separate sanitary sewer systems)**;** KC-ONE Program (focus on stormwater management); and Waterways Program (focus on flood control on major creeks and rivers).

The Overflow Control Program (OCP) is a long-term and multi-faceted undertaking to develop a system-wide approach to address sanitary sewer overflows within the combined sewer system (CSS) and the sanitary sewer system (SSS). The Overflow Control Program's mission is to "*protect the public health and the environment, and meet regulations at an appropriate cost*." The OCP Team is developing a Long Term Control Plan (LTCP) for the CSS and a Control Plan (CP) for the SSS. The CSS LTCP and the SSS CP together form the Kansas City Overflow Control Plan. The Overflow Control Plan will identify required facilities and improvements to the sewer system including estimated costs, proposed funding strategy, and implementation schedule. The City has invested millions of dollars in capital projects to improve, rehabilitate, and repair sewers and treatment plants. Capital improvement projects for 2005 are described in Section 7 of this report. High priority capital improvement projects will continue to be implemented during development of the Overflow Control Plan.

KC-ONE is an extensive program which will result in a comprehensive stormwater management plan and capital improvements program. Started in 2004, the program is combining master plans already completed or under development for the 35 watersheds that cover the entire city into an overall master plan. The master plan will include an updated Capital Improvements Program that focuses on reducing flooding, improving water quality, and creating multi-purpose projects that protect the City's natural resources. KC-ONE includes development of policies for stormwater management, a funding plan, administration plan defining staffing and other resource needs, FEMA mapping, MS4 permit support,

public participation, and an implementation plan. KC-ONE and OCP are coordinating to implement system improvements which primarily focus on overflows, basement back-ups, sewer capacity/conditions, water quality, surface flooding and stormwater conveyance capacity.

The Waterways Program evolved in 1998 as the Special Projects Division in the Public Works Department. This function was transferred to Water Services Department in 2004 in recognition of the synergy with other components of the WSD. The purpose of the Waterways Program is completion of large scale multi-purpose projects related to creeks and rivers in cooperation with other agencies using non-traditional funding sources. Work performed to date includes primarily waterway development projects on the Blue River, Brush Creek and Turkey Creek in conjunction with the Corps of Engineers and other local agencies.

1.3 Overflow Control Program Schedule

Major OCP components and associated schedule are:

- Initial Activities (6 months - completed)
  - Develop protocols
  - Contracting of Basin Engineers and other professional services
- System Characterization (12 months - in progress)
  - Data collection
  - Data evaluation
  - Model development
- OCP Control Plan Preparation (24 months)
- Funding Plan Development (12 months)
- Obtain Concurrence from Community and Elected Officials (6 months)
  - Review by community
  - Review by elected officials
- Public Involvement Program (continuous throughout)

In 2005, the OCP continued the System Characterization phase of the program shown in Figure 1-1 as well as continuing the Public Involvement Program. During performance of all OCP phases, the City will continue to implement system capital improvements and take advantage of any opportunities for early implementation of improvements identified during control plan preparation.

1.4 Wastewater Revenue Bonds

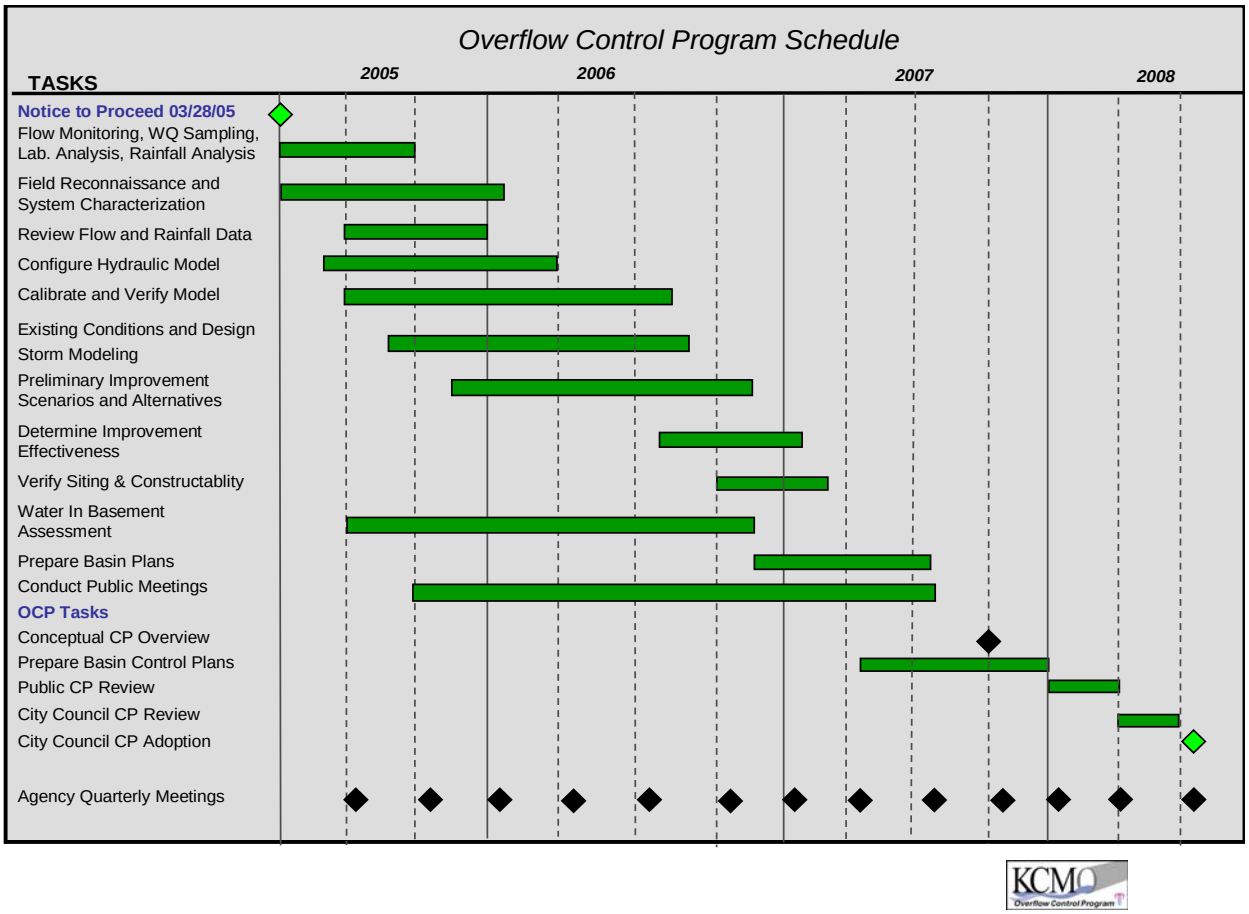
On August 2, 2005, Kansas City voters authorized $250 million of wastewater revenue bonds for the purposes of rehabilitating sewers, complying with state and federal regulations, rehabilitating flow regulating structures, expanding the City's collection system, acquiring necessary property interests, and rehabilitating wastewater treatment plants and pump stations. These purposes support the goals and implementation of the Overflow Control Program. The proposed improvement categories for the $250 million bond program were allocated as shown in Table 1-1.

This financial effort and the continued implementation of OCP is ensuring continued, phased implementation of substantial overflow controls within the community.

Table 1-1
2005 Bond Proposed Allocation

Improvement Category	Amount (million)
Interceptor Sewers & Pump Stations	$24.50
Pump Station Improvements	$23.75
Sewer Rehabilitation	$32.80
CSO & SSO Control Program	$20.00
Wet Weather Projects	$77.20
Sewer Back-Up Program	$20.00
Treatment Plant Improvements	$32.60
Sewer Facility Improvements	$16.75
Bond Expenses	$2.40
Total	**$250**

Figure 1-1



2 OVERFLOW CONTROL DIVISION

WSD authorized the creation of a new division, the Overflow Control Division, to manage the OCP work. On July 25, 2005, Terry Leeds was named the OCP Division Manager. This Division is responsible for overall program management, control plans development/implementation, public involvement, agency coordination, and technical evaluation. This section provides information on the work conducted by the Division in 2005:

- CSO Long Term Control Plan and SSS Control Plan;
- Public Participation Program;
- Program and Agency Coordination;
- Blue River WWTP and Westside WWTP Capacity Evaluations;
- Water Quality Monitoring and Data Analysis;
- Water Quality Modeling;
- Blue River Interceptor System Model;
- Troost Bridge at Brush Creek;
- OCP Cost Impacts on Wastewater Revenue Requirements;
- Diversion Structure 205 Evaluation; and
- Sewer Back-Up Program.

2.1 CSO Long Term Control Plan and SSS Control Plan

Like most U.S. cities, Kansas City's sewer system is subject to overflows and basement back-ups resulting from grease, roots, debris, inflow and infiltration, vandalism, and aging sewer infrastructure. WSD's objectives are to comply with national and state regulations, substantially reduce back-ups and overflows, protect public health and the environment, prolong the useful life of sewer system assets, and provide adequate system capacity for the current and future needs of Kansas City residents and businesses. Pursuant to federal and state permit requirements, Kansas City is developing a plan to control combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs). In developing this plan, Kansas City is characterizing the existing CSS and SSS, characterizing receiving waters, evaluating alternatives, selecting improvements, and exploring funding options. The public will be given meaningful opportunities to participate at key junctures during the process.

In November 2002 and September 2003, Kansas City began development of the CSO Long Term Control Plan Work Plan (LTCPWP) and the SSS Control Plan (CP) Work Plan, respectively. Major work plan development activities included objectives and performance measures development, water quality standards review, existing data assembly and review, data gap identification, regulatory agency coordination, and public participation. Both work plans were completed in the second quarter of 2004. On May 14, 2004, the CSO LTCP and the SSS CP Work Plans were submitted to the Missouri

Department of Natural Resources (MDNR), Missouri Attorney General, and the U.S. Environmental Protection Agency (USEPA).

Both CSO LTCP and the SSS CP Work Plans were revised and resubmitted September 2005 in response to comments from MDNR (letter dated January 21, 2005) and USEPA (letter dated February 10, 2005). These revisions were primarily clarifications and some minor editing. In addition, some changes were made related to passage of time where the collection system is now better understood. A Conceptual Control Plan Overview (CCPO) has been added as a deliverable in the third quarter of 2007 in response to agency comments.

The CCPO is anticipated to be approximately 25 pages in length and will provide a conceptual overview of the anticipated Control Plan. Background will be presented describing the existing system and performance for the combined sewers, sanitary sewers, and wastewater treatment plants as well as recent and ongoing improvements. Discussion of alternatives evaluated for the CSS and the SSS will include criteria and concepts used, determining priority areas, water quality issues, and listing of the range of alternatives considered. The process and results of the public participation program will also be discussed. The CCPO will include projected water quality impacts, estimated cost for alternatives, and the proposed overall schedule. Finally, Control Plan completion steps will be presented along with the public education and participation process in conjunction with the approval process by the City Council.

2.2 Public Participation Program

The OCP Public Participation Program evolved in 2005 to become one component of the Wet Weather Solutions Public Participation Program. The Wet Weather Solutions Program involves programs the Overflow Control Program, KC-ONE Program, and Waterways Program within the Water Services Department. The activities of these programs, all of which respond to the impacts of wet weather, are being coordinated within the Wet Weather Solutions Program to create a consolidated public participation effort. Developing one public participation plan for all three programs will avoid duplication of efforts that involve the public, reduce the cost of communicating with citizens, make the most of interactions with the public, demand less of citizens' time, and increase the likelihood of citizen engagement and meaningful feedback.

2.2.1 Public Participation Stakeholder Groups

An extensive public participation program was initiated during preparation of the Work Plans. The program is designed to educate and involve the public on activities of the OCP, dealing with both the CSS and the SSS. The Public Participation Plan 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 WSD staff. Public meetings were held at locations within the City in 2005 to provide progress updates on the control plans. The following provides a description of active stakeholder groups.

a) **Wet Weather Community Panel** – The Wet Weather Community Panel was appointed by the Mayor to address several public participation goals, including building an informed group of external stakeholders, fostering a constructive interchange among the various interests, and accessing technical assistance and input. Wet Weather Community Panel membership was designed to reflect a balance of interests represented by citizens (from all Council Districts), environmental groups, Mid-America Regional Council, business representatives, and local technical specialists. In 2005, the Wet Weather Community Panel provided information and feedback helpful for the development of the OCP Work Plan, the Wet Weather Solutions Program, and an insight into the community's values. In addition to six regular meetings, a Planning Session and KC-ONE Policy Workshop were attended by several panel members. In late summer and early fall, an effort was initiated to re-engage current members whose attendance had declined and to recruit new members. In November 2005, 122 letters were sent from the Mayor's office inviting new Community Panel volunteers. A total number of 25 people have accepted the Mayor's invitation, bringing the current Community Panel to 49 members.

b) **Brush Creek Coordinating Committee** – The Brush Creek Coordinating Committee meets monthly. This committee is chaired by the Mid-America Regional Council (MARC). It is made up of representatives of City Departments with interests in the Brush Creek Watershed as well as representatives of other government agencies (including agencies in Kansas) working in the corridor and community based groups such as neighborhood associations. The goal of this Committee is to coordinate development projects within the corridor to avoid conflicts and to make effective use of synergies. The OCP Team attends Committee meetings and provides updates on OCP work within the Brush Creek Corridor.

c) **Town Fork Creek Coordinating Committee** – This Committee meets quarterly to discuss projects within the Town Fork Creek basin. It is made up of representatives of governmental agencies at the federal and local level as well as neighborhood associations. The objective is to provide a forum for discussion and coordination of projects within the basin to maximize synergies and to avoid conflicts. OCP Team met with this Committee providing them an update on OCP work within the Town Fork Creek basin.

d) **Mid-America Regional Council (MARC) Round Tables –** Some of Kansas City's 35 watersheds extend into two states, multiple counties and local cities leading to the potential for regional cooperation on wet weather issues. Coordinated by Mid-America Regional Council, several round table meetings were attended by Kansas City, Johnson County Wastewater, Johnson County Stormwater, and Unified Government Board of Public Utilities of Wyandotte County, Kansas as well as other local government agency representatives. Topics of regional interest have been discussed at the meetings to identify opportunities for cooperative work where common goals and interests exist thus establishing a regional approach that involve several area jurisdictions.

2.2.2 Public Participation Plan Tasks

Public participation activities are critical to the development of a successful Wet Weather Solutions Program. This section of the report provides information on work completed or initiated in 2005 that is associated with public participation for the Wet Weather Solutions Program.

a) **Summary Report of Findings from Qualitative and Quantitative Research** – Stakeholder interviews were conducted with sixteen community leaders to gauge current understanding of water quality issues and overflow events. The interviews provided key stakeholder views on issues and challenges, and included suggestions on gaining funding support from the public. Interview results were compiled into a report and completed in November 2005. In addition, information and research was gathered on other CSS/SSS communities throughout the nation. The information provides insight on how other communities have designed their public participation and education processes. This interview process included discussion of education and participation techniques, key messaging and an understanding of whether a public vote for funding or a consent decree was part of the community's process. Quantitative data collection from the public remains in progress. A public opinion survey was created to collect Kansas City residents' views and opinions on OCP-related issues. A draft survey was administered during the September Community Panel meeting, where Panel members took the survey and provided feedback. This feedback was taken into consideration and incorporated into the revised public opinion survey. The survey will be mailed in early 2006 and results compiled in spring of 2006.

b) **Community Panel Subcommittees** – In addition to the regular Community Panel monthly meetings, three subcommittees were established to discuss wet weather-related polices in more detail – Guiding Principles, Public Participation, and Sewer Back-up. Subcommittee attendance is voluntary and consists of current Community Panel members.
    - The Guiding Principles subcommittee began meeting in June 2005. The purpose of the subcommittee is to develop a set of principles to guide the project team's work and development of the Wet Weather Solutions program.
    - The purpose of the Public Participation subcommittee is to expand stakeholder participation on the Panel. This subcommittee was also directly involved with re-engagement efforts for the Community Panel. The intent is not only to broaden input, but create a broader base of support once the City is ready to move forward with actual plans.
    - The Water-in-Basement or Sewer Back-Up Program subcommittee held five meetings starting in late October 2005. The purpose of the subcommittee is to provide input into the Sewer Back-Up Program currently under development by WSD staff.

c) **Smoke Testing** – A public participation plan for the smoke testing portion of the Wet Weather Solutions Program was developed in 2005. This plan was utilized in the Brookside area of Kansas City during the smoke testing process. Prior to smoke testing, door hangers were distributed to each property notifying the residents of the upcoming testing. Following completion of smoke tests, council members were notified of the results, and neighborhood leaders met with WSD and OCP staff to discuss smoke test results. Next, letters were sent to property owners notifying them of their property defects, and public meetings were held to discuss defects in more detail. Additionally, informational flyers explaining downspout disconnection and rain barrels (see Appendix A) were distributed to the public with the letters and at the meetings.

d) **Wet Weather Solutions Public Participation Plan –** A draft of this Plan document was completed in November 2005 and is currently under review. This document identifies the philosophy, expectations and components of the Wet Weather Solutions Public Participation Plan. It includes a description of the goals and beliefs for the Public Participation Plan and the approach and strategies that will be utilized in carrying out the Public Participation Plan. This document includes an appendix containing other public participation documents that support the Wet Weather Solutions Program as listed below.

- **Elected Officials Communications Plan –** The Elected Officials Communications Plan provides information how WSD and City Council communicates by promoting an open two-way communication and being proactive by working closely with City Council.
- **Basin Public Participation Plan –** This document lays out a framework for effective public participation for the project areas. By implementing this plan, the Program Team will have access to information about citizen priorities and preferences that will influence the success of each project area. Public Participation Plans are being developed for each project area. Each basin area will have a Basin Coordinating Committee that will involve members of the Wet Weather Community Panel and key basin stakeholders. The Basin Coordinating Committee will provide a geographically-based view from the stakeholders in the basin area. The Basin Coordinating Committee will have access to information that would otherwise be inaccessible to them such as water quality issues. As the OCP Team and the Basin Coordinating Committee work together, perspectives will be expanded leading to better plans and decision-making for the project areas. Throughout the year, information has been gathered from various sources to gauge area-specific issues in the basins as well as other information. A meeting was held in June with the Basin Engineers to outline the process for preparing Public Participation Plans for each basin. The Basin Planning template was submitted to Program Team along with the Public Participation Plan in November 2005. Currently, the Basin Coordinating

Committee potential member lists are being compiled and are nearing completion. Once the basin lists are approved, invitations will be sent and the basin meetings will begin to be scheduled in April 2006.

- **Citizen Action Kit -** A Citizen Action Kit is being developed to inform residents about what WSD is doing and to educate citizens about what they can do. The idea is to build a partnership between WSD and citizens while working toward a common set of goals. The contents of the kit are currently being developed and will be submitted to WSD and OCP Team for review. The Citizen Action Kit will include *What Can You Do Booklet: Disconnecting Downspouts, House Lateral Maintenance, Plant Trees Wisely, Backwater Valves*; *Water Quality Tips: Streams, Pet Waste, Lawn Care, Sediment, Car Washing*; *Rain Gardens*; and *Rain Barrels*. Also to be included in the Citizen Action Kit are two DVDs titled *Virtual Tour of Sewer System* and *How to Build a Rain Garden.*
- **Media Strategy/Crisis Communication Plan -** A plan was developed which encompasses media strategy as well as crisis communications. Partnerships with meteorologists and key reporters were developed to help educate those most interested in wet weather-related issues, and to build a foundation for future educational efforts. The plan was submitted to the Program Team with the Public Participation Plan in November and is currently under review.
- **Newsletter Plan -** A Newsletter Plan was developed and incorporated in the Public Participation Plan submitted in November 2005. The Plan includes various topics for articles in the *Fountain Pen, Waterlines,* and *Connections* as well as information for the Wet Weather Solutions website.

e) **Channel 2 Programming** – In 2005, a concept plan was submitted to WSD as well as a drafted overview and suggested format for the *WaterWorks* show which is a program being developed for Channel 2. Additionally, meetings were held with local TV meteorologists to introduce the WSD's challenges and objectives and to solicit their participation on the Channel 2 show as guest hosts as well as attempting to gain their station's support. General show topics and content are currently being developed. The Channel 2 Plan was a component of the Public Participation Plan in November and is currently under review.

f) **Website -** Over the year, several meetings have taken place with WSD public relations staff and OCP staff to discuss objectives of the OCP website. Drafts and preliminary layout concepts have been developed for sample pages of the website with development continuing in 2006. The Wet Weather website also has a new address for simpler navigation: www.kcmo.org/wetweather.

2.3 Program Coordination with MDNR and USEPA

WSD coordinates and consults with MDNR and USEPA frequently and routinely on many issues. This coordination includes meetings with the Agencies to discuss issues of common interest and to help assure the efforts of WSD on the Overflow Control Program are consistent with regulatory requirements and Agency expectations. During 2005, the following meetings between WSD and the Agencies focused on discussion of the Overflow Control Program.

- January 21- A meeting was held with USEPA Regional Administrator Gulliford to brief him on the Kansas City Overflow Control Program.

- February 10- A meeting was held at USEPA Region 7 Headquarters in Kansas City, Kansas. The meeting was attended by representatives of USEPA Region 7, USEPA Headquarters, MDNR Headquarters, MDNR Kansas City Regional Office and the Missouri Attorney General. WSD made a comprehensive presentation on the Overflow Program and discussions were held concerning the future direction of the Program. Comments on the Draft CSO and SSO Work Plans were received from the Agencies at this meeting.
- March 10 - WSD hosted new MDNR Executive Director Doyle Childers to brief him on the Overflow Control Program.
- April 18 - Staff Director Ed Galbraith visited WSD and was given an overview of the Overflow Control Program.
- June 21 - A follow-up meeting was held with USEPA Region 7, USEPA Headquarters, MDNR Headquarters, MDNR Kansas City Regional Office and the Missouri Attorney General's Office to update the Agencies on progress since the February 10 meeting.
- July 13 - A technical meeting was held with representatives of USEPA and MDNR to discuss the schedule for completion of the Control Plan.
- August 17 - A meeting was held with MDNR Headquarters to follow-up on the July 13 meeting.
- December 21 - A meeting was held with representatives of USEPA Region 7, MDNR Headquarters, MDNR Kansas City Regional Office and the Missouri Attorney General's Office during which WSD provided an update report on the Overflow Control Program including presentations on water quality sampling and flow metering work conducted during 2005.

In addition to the above meetings specifically addressing the Kansas City Overflow Control Program, Kansas City actively participated in the three Missouri Water Protection Program Clean Water Forum Meetings held on May 25, July 19, and December 19. Kansas City was an active participant in the CSO Stakeholders Working Group convened by MDNR to assist the Agency in development of a new rule to address combined sewer systems in the state.

2.4 Coordination with Other Federal Agencies

There has been on-going consultation with several agencies in preparation of the control plan and general coordination of OCP work. Activities during the past year included:

a) **Corps of Engineers** – The Corps of Engineers has active projects on Brush Creek, Blue River and Turkey Creek. The primary objective of these projects is flood control. OCP staff attends quarterly meetings, as well as project meetings as needed, with the Corps to coordinate planning efforts of the OCP with the projects being implemented by the Corps. The U.S. Army Corps of Engineers has received approval and funding to establish a bi-state planning process for a

feasibility study in the Brush Creek basin. This work is being coordinated by the Waterways Division and the Brush Creek Coordinating Committee.

b) **United States Geological Survey (USGS)** – The cooperative funding arrangement with USGS to conduct water quality sampling was continued in 2005. WSD initiated the agreement with USGS to conduct water quality sampling in Brush Creek and Blue River in 1998 and has continued the effort through 2005. This sampling is done as a cooperative effort between WSD and USGS to support a regional watershed approach to the CSO LTCP. USGS also conducted a Doppler radar survey evaluation of the Missouri River to determine flow and velocity and study mixing of the river. Samples were taken upstream, downstream, and in the discharge plumes of the diversion structures and WWTP outfalls. Information gathered will be used to determine if water quality modeling of the river is necessary. USGS is currently finalizing a water quality interpretative report for the Blue River and Brush Creek basins. WSD has reviewed a draft report and is working with USGS to finalize the report. The final report is expected to be released in mid-2006.

2.5 Coordination with Satellite Communities

WSD conducted an initial meeting in December 2005 for the 29 Inter-Jurisdictional Agreement Communities also known as satellite communities. Twenty of the 29 communities attended this meeting which included all of the communities that provide significant flow to Kansas City. An overview of OCP was presented and what may be expected of each community by the OCP Division. The goal of the meeting was to educate the communities on OCP activities and set the stage for future discussions.

2.6 Blue River and Westside WWTPs Capacity Evaluations

The Blue River and Westside WWTPs serve Kansas City's combined sewer areas as well as portions of the separate sewer areas. In 2005, the OCP Team evaluated both WWTPs to determine their current flow and treatment capacities and their capabilities to treat additional wet weather flows under the OCP. The evaluation included review and evaluation of prior studies, flow and process data, hydraulic and treatment capacity of unit processes, hydraulic profile, and blending potential. Field testing is planned in 2006 to confirm hydraulic capacities to complete the capacity evaluation.

2.7 Water Quality Monitoring and Data Analysis: CSO/Stormwater and Receiving Streams

Extensive water quality monitoring activities were conducted in 2005 to support the development of the CSO LTCP. WSD supported five separate yet coordinated water quality monitoring programs in 2005, including:

1) **OCP Receiving Water Quality Monitoring Program** - Seventeen locations were monitored during 4 events, including the collection of 289 samples, and analysis of up to 27 water quality

parameters on each sample, as well as field measurement of dissolved oxygen, temperature, pH, and conductivity.

2) **OCP CSO and Stormwater Water Quality Monitoring Program** - Nine CSO locations were monitored for at least 4 events, and 6 stormwater locations monitored for 3 events, including the collection of 178 samples (130 CSO, 48 stormwater), analysis of up to 34 water quality parameters on each sample, as well as field measurement of dissolved oxygen, temperature, pH, and conductivity.
3) **WSD Routine Receiving Water Monitoring** - Ten locations were monitored biweekly, beginning on February 2, 2005 and continuing through the end of the year, including the collection of over 150 samples, analysis of fecal coliform, *E. coli*, and total suspended solids on each sample, as well as field measurement of dissolved oxygen, temperature, pH, and conductivity.
4) **USGS Receiving Water Quality Monitoring in the Blue River Basin, including Brush Creek** - Baseline monitoring of 19 sites during 3 non-storm event conditions was conducted as well as storm event monitoring of 5 sites during 4 events, continuous water quality monitoring at 2 sites, continuous streamflow measurements at 6 sites, bacteria source-typing, and biological assessments at 5 sites.
5) **USGS Receiving Water Quality Monitoring in the Missouri River and Kansas River** - Water quality sampling of 1 baseline and 1 storm event was conducted at 10 cross-sections (collection of bathymetric and velocity vector profiles for assessment of mixing characteristics downstream of Blue River WWTP outfall on the Missouri River).

The monitoring activities were conducted in accordance with quality assurance plans and are undergoing data validation reviews. The data is managed within a Microsoft Access database and will be input to the OCP database following completion of data validation. The amount and quality of data collected are anticipated to meet the objectives of the planned monitoring activities, as described in the *Long Term CSO Control Work Plan* (dated May 2004 and revised September 2005) and are being used to assess existing conditions, including spatial and temporal trends, and develop and calibrate water quality models of the receiving streams. Overall, the objectives of the various water quality monitoring programs were met in 2005 and the data and information gathered is expected to sufficiently support the development of the LTCP.

2.8 Water Quality Modeling: Development and Testing of Hydrodynamic and Water Quality Model Configurations

The OCP water quality modeling effort in 2005 focused primarily on developing an accurate hydrodynamic simulation of the Brush Creek – Blue River system under low-flow and high-flow conditions. The USGS FEQ model was selected to serve as the model framework for this effort for a number of reasons, including the flexibility of the code in linking hydrodynamic output to the water quality model. Channel geometry and roughness data for Brush Creek and the Blue River were obtained from HEC-RAS models developed by the US Army Corps of Engineers for use in evaluating flood

conditions. Several adjustments were made to the original HEC-RAS geometry and control structure representation based on review of aerial photographs and photo documentation. These modifications served as the basis for accurately simulating conditions in the system.

Upstream flow and downstream stage boundary conditions were developed for a range of flows for use in the model based on available USGS gauge data in Brush Creek, the Blue River, and the Missouri River. Test simulations were conducted with FEQ to investigate the model's ability to handle low-flow conditions and dynamic changes in flow. Adjustments to cross-section geometry and roughness were necessary in several localized areas to achieve a robust low-flow simulation.

To verify that FEQ produces results that are consistent with the original HEC-RAS models, both models were applied to simulate 2-year and 5-year flood events. For both flood simulations, the water surface profiles compared favorably in Brush Creek and the Blue River with the exception of the "missing" backwater effect in the FEQ model associated with two golf courses bridges maintained by the Blue River Golf Course in Swope Park. The impact of these bridges and other obstructions to flow were addressed by incorporating representation of these bridges in the model.

The Water Quality Analysis Simulation Program (WASP) water quality model was configured for the system. A segmentation scheme was developed and inputs constructed. Locations for flow inputs from diversion structure outfalls and separate stormwater outfalls were also assigned. Model program code was developed linking the depth, velocity, and flux outputs from FEQ to the WASP model. The linkage code was tested under a range of flow conditions.

Furthermore in 2006, the WASP model will be calibrated to observed water quality at both baseflow and storm event conditions, and subsequently applied to assess existing conditions under a range of storm sizes as well as a typical year scenario.

2.9 Blue River Interceptor System Model

The West Blue River Interceptor Sewer (BRIS) conveys flows collected along the west side of the Blue River to the Blue River Wastewater Treatment Plant. This sewer conveys combined sewer flows to the Blue River WWTP from the Middle Blue River, Town Fork Creek, Brush Creek, Lower Blue River, and Gooseneck Creek Project Areas. The BRIS also receives separate sanitary sewer flows via the 87th Street Pumping Station and the Round Grove Pumping Station from Blue River South, Round Grove, Blue River Central and part of Little Blue River Project Areas (Raytown, Little Blue Valley Sewer District, etc.). The Blue River Wastewater Treatment Plant also receives flow from the NEID Pumping Station, which serves both combined and separate sewer areas.

OCP staff prepared a model of the West Blue River Interceptor Sewer. The model will be used to determine the sewer's capacity and to allocate that capacity among the various basins contributing flow to the interceptor upstream of the Blue River Wastewater Treatment Plant. A technical memorandum titled

"*System-Wide Model Work Plan, Technical Memorandum*", was prepared in 2005 detailing the BRIS modeling effort.

During 2004, initial activities on model development included field data collection and review of existing mapping and inventory data. In 2005, field data collected for over 50 manholes were assembled in a database, and missing pieces of information were compiled from City's existing GIS, existing hydraulic models, record drawings, and WSD's maintenance management files. A list of connection points were prepared where the BRIS interfaces with models prepared by the engineering firms for the individual basins. There are 16 connections from diversion structures and 22 connections from sanitary sewers, force mains, and direct CSS areas.

The BRIS model was created in XP-SWMM, populated with the information collected, and run to establish connectivity. Approximately 8.7 miles of pipe are included in the model segment. There are 86 links and 87 nodes with two diversion structures. Constant flow rates were imposed at the inlets and tracked to the downstream end to verify contributions along the pipe route verifying connectivity. The two master diversion structures on the BRIS were implemented in the model based on available information. Revision of these diversion structures will be made following Basin Engineer's field investigation and confined space inspection reports made available in early 2006. Work on establishing a primary hydraulic condition on the sewer is progressing based on available flow metering information. This task is intended to assist the Basin Engineers in calibrating their models.

2.10 Pilot and Demonstration Projects

City will take advantage of projects for early implementation of improvements benefiting the public and City system. Projects will be identified, evaluated, designed and ultimately constructed.

- **Troost Bridge at Brush Creek** - First identified in spring 2005 as a potential pilot project involving a diversion structure, the replacement of the bridge over Brush Creek on Troost Avenue involves coordination of several City departments and design professional consultants. This Waterways Division project may include a design component beneficial to the combined sewer system. Currently, the plans involve constructing a separate storm sewer along portions of Troost Avenue and Volker Boulevard to remove stormwater from the combined sewer. This project is in the early stages of planning and will be completed as the bridge replacement project develops.

2.11 OCP Cost Impacts on Wastewater Revenue Requirements

A financial model was developed for use in evaluating the potential impacts of the OCP on wastewater revenue requirements for various financing and spend-out scenarios. Data utilized to develop the financial model included a description of current customers (residential, commercial, industrial); current schedule of rates and charges; customer usage and revenue data; details on operation and maintenance expenses for the system; audited financial statements for the last 3 years; debt service schedules for all outstanding bonds; capital budget calculation - including routine and major capital requirements; annual or fiscal year budgets for 2005 and 2006; other sources of revenue including interest earnings, penalties,

and other miscellaneous income sources; and financial targets such as operating and non-operating margins and debt service coverage ratios, as well as applicable official documents defining such requirements, such as bond resolutions, board meeting minutes, written policies, etc.

The financial model projects wastewater revenues without the OCP for a period of 30 years. The projected wastewater revenues will serve as the base scenario before revenues required for funding of the OCP are considered. WSD has been working to refine and finalize the assumptions used to develop the base scenario. Once the base scenario has been finalized, the model will be revised to include revenue requirements for funding of the OCP under various funding and spend out scenarios. The revenue requirements will consider both bond financing and pay-as-you-go options.

Information from other communities was collected for benchmarking purposes. Relevant overflow control program cost and fee structure data was collected from communities that have implemented similar programs including Atlanta, Boston, Chicago, Cincinnati, Milwaukee, Nashville, and Portland. Relevant data collected included methods used to pay for programs, new rates implemented and if so what they were, rate payer subsidies used and if so what they were, payment or collection history for rates or fees collected for funding programs, and rate structures for providing service to surrounding communities. Efforts continue to collect additional information to complete this effort.

2.12 Diversion Structure 205 Evaluation

Field investigations have confirmed there is an isolated combined sewer area, served by a single diversion structure, east of the Blue River. The drainage basin for Diversion Structure 205 is approximately 56 acres. The dry weather flow from this combined area is carried by the East Blue River Accessory Interceptor Sewer No. 1 into the NEID Pump Station at the Blue River Wastewater Treatment Plant. This sewer carries flow from a large separate sewer area east of the Blue River, with no combined sewer flow except that from this isolated area.

When developing combined sewer overflow control plans, this situation (a small, isolated combined sewer component in an otherwise separate sanitary sewer area) is often addressed by separating the existing combined pipes. Before that decision can be made, two questions need to be answered:

1) Based on a high level, yet site–specific review, is sewer separation preferable to other technologies, such as storage; and
2) How “separate” does the system need to be (would elimination of highway drainage be adequate to allow conveyance of remaining flow to the plant)?

Recognizing that WSD wishes to eliminate any combined areas east of the Blue River, and considering that the OCP could help establish evaluation procedures for alternatives to be considered by the Basin Engineers, this area will be evaluated for sewer separation concurrent with initial Long Term Control Plan (LTCP) activities. Work was initiated in late 2005..

2.13 Sewer Back-Up Program

Customer service request calls and the corresponding resolution codes have been tracked since 1994. Historical data from the Hansen database maintained by the Wastewater Line Maintenance Division was used for this analysis. Customer service request calls involving sewer back-ups are assigned a resolution code as follows:

1) C04 - Sewer Checked For Stoppage (open);
2) C07 - Sewer Reeled Manhole to Manhole (open);
3) C17 - Sewer Jet Rodded (no stoppages); and
4) C40 - Sanitary/Combined Sewer Surcharge.

The first three resolution codes indicate Line Maintenance inspected and/or cleaned the sewer main and found no problem in the main line. The C40 resolution code indicates possible sewer main capacity problems that may coincide with wet weather. Based on the service call records, tracking for resolution code C40 (Sewer Surcharge) began in 2001.

In addition, continuous rainfall data recorded at Kansas City International Airport from 1994 to 2005 was compiled into a database and large storm events were correlated to the dates of response calls. Plans for 2006 are underway to develop the same correlation with an existing network of 43 rain gauges installed throughout the metropolitan area since 1999.

Other cities' programs such as St. Louis, Cincinnati and Columbus were researched to identify alternatives for developing a program for Kansas City to more aggressively address recurring back-ups. City is currently drafting a program policy for approval based primarily on input and suggestions received from the Community Panel. An allocation of $20 million for the program was included in a bond sale authorized on August 2, 2005 (Section 1.4). The purpose of the program is to provide assistance to residents and property owners of residential properties in Kansas City who experience a sewer back-up due to insufficient hydraulic capacity in the sewers. It does not deal with water in the basements due to stormwater, overland flow, or groundwater that enters the basement in other ways.

The program is expected to include three related but different components. Each component will have criteria that must be met for a property to qualify for the program. The three components are:

1) investigation and clean up;
2) claims assistance for personal property damage; and
3) prevention.

3 PROJECT AREA PLANS

Under the direction of the OCP Division, the Basin Engineers are responsible for preparation of control plans for project areas in the CSS and SSS areas. The Basin Engineers are performing multiple tasks required for development of the strategy and controls for each project area, to be integrated by the OCP Team into a system-wide control plan. The Basin Engineers will evaluate historic water-in-basement reports and will investigate system improvements to respond to any identified system improvement needs. This section provides information on the following:

- Work Plan Preparation;
- Field Reconnaissance;
- Model Development;
- Data Review; and
- Public Participation.

3.1 Work Plan Preparation

Each Basin Engineer prepared a Basin Overflow Control Work Plan that describes their proposed project efforts considering basin-specific information along with general OCP protocols and guidance. Each Work Plan reflects processes and procedures the Basin Engineers found to be of significant value in similar projects, and describes how and when the work will be conducted. These Plans will be used to measure progress and facilitate coordination between Basin Engineers. Work Plans were completed in June 2005.

3.2 Field Reconnaissance

To accurately characterize current sewer system conditions and collect the information necessary for computer modeling, the Basin Engineers began conducting field reconnaissance efforts in the spring of 2005 and will continue into 2006. In general, field reconnaissance for sanitary sewer systems call for surface (above ground) inspections while combined sewer systems require both surface and internal (confined space entry) inspections. These efforts are conducted in accordance with approved safety procedures; applicable federal, state, and local safety laws and regulations; and the OCP procedure document *Field Investigation Protocol, Manhole Inspection and Facilities Survey*.

The Basin Engineer's field reconnaissance reports describe their field inspection activities and present their findings. In general, activities performed during the field reconnaissance include:

- established (verify) basin and metering sub-basin boundaries;

- reviewed Sewer Atlas sheets, record drawings of major sewers 24-inches and larger, and existing diversion structure information;
- reviewed record drawings and pump curves; and verified pumping parameters at each pumping station in the subject basin;
- reviewed existing hydraulic model data from past studies;
- conducted field inspections including GPS survey of manholes which are suspect, or missing data to determine rim and invert elevations, pipe diameters, and pipe lengths;
- conducted field inspections of each diversion structure, metering site, and additional significant hydraulic structures;
- completed a manhole inspection form for each manhole and diversion structure inspected including digital photographs, field sketches, and GPS (horizontal and vertical) information; and
- collected other data necessary for computer modeling purposes.

Five of seven draft reports were submitted in 2005 as listed below:

1) Bucher Willis and Ratliff Corp. (BWR) have submitted their "Birmingham Project Area Draft Field Report." This report has been reviewed by the OCP staff and returned to BWR for revision.
2) Camp Dresser and McKee Inc. (CDM) has submitted their "Draft Field Investigation Summary Report for the Brush / Town Fork Creek Project Area. This report has also been reviewed by the OCP staff and returned to CDM for revision.
3) CH2M Hill Corp. has submitted their "Gooseneck Creek / Lower Blue River Project Area Draft Field Reconnaissance Report. This report is under review by the OCP Team.
4) HDR has submitted an electronic copy of their "Draft Field Work Technical Memorandum for the Middle Blue River and Blue River South Basins." This memorandum is currently under review.
5) HNTB Corp. has submitted their draft "Field Reconnaissance Report Line Creek/Rock Creek Project Area."

Reports on the Missouri River – NEID / Turkey Creek Project Area and the Round Grove Basin were not submitted in 2005. Though not provided with the draft reports, Basin Engineers will provide the collected asset data in the form of an electronic database Data Management System (Section 3.4). The database will be submitted with the finalized reports in 2006.

3.3 Model Development

As part of WSD's initiative to address sewer capacity and overflows throughout the City, mathematical models will be developed to evaluate existing sewer system capacity, existing sewer system response (overflow) for various rain events, and expected conveyance and water quality benefits due to potential improvements. A sewer system model couples base flow, precipitation, catchment area, and conveyance system information with hydrologic and hydraulic calculating procedures to simulate sewer system flow characteristics. It is a tool that supports the engineering analysis necessary to plan cost-effective sewer system improvements. The USEPA advocates the use of modeling and extended simulation for

estimating collection system performance, especially when developing plans for facilities that reduce CSOs and eliminate SSOs. Using WSD's standard modeling platform, XP-SWMM Version 9.5, basin models will be used to describe both current and potential future sewer system performance.

The basin models utilize data from stormwater models developed previously as part of WSD Stormwater Program efforts and data from applicable Wastewater Master Plans. Task efforts involved in configuring the models included collection of data from existing sources such as WSD GIS records, review of the WSD sewer atlas, sewer record books (plan and profile information), and historical diversion structure inspection reports. Field survey and inspection of the sewer systems were performed to fill in data gaps from existing data sources, and to confirm the accuracy of existing data sources. After system characteristic data were collected, the model hydraulic networks were constructed by identifying catchments; establishing nodes and links; identifying load points (locations where flow is introduced into the hydraulic model); and establishing diversion structures and flow splitters, as applicable. Quality assurance/quality control procedures used in the construction of the models typically included checking or pipe dimension changes from larger upstream dimensions to smaller downstream dimensions; profile breaks; negative slopes; unusual changes in pipe slopes; non-matching crown connections; and unusually flat slopes.

By the end of 2005 the hydraulic models for the CSS and SSS basins were either complete or at 90 percent plus completion, and connectivity checks were begun. Model connectivity was demonstrated for the Turkey Creek, Central Industrial District, and Missouri River - Northeast Industrial District, and Middle Blue River CSS basins at the end of 2005.

3.4 Data Management and Review

The Data Management Protocol and associated Data Management System were prepared in 2005 to be followed by all Basin Engineers performing basin planning tasks and technical service firms providing data to be used during the development of the LTCP. The protocol documents the data structures and processes that will be used for managing the large volumes of data collected for the OCP. The protocol will be used to ensure that collected data is conserved and available for future uses. The Data Management System is a GIS-based database designed to contain OCP data.

Basin Engineers are in the process of reviewing flow, and rainfall data provided by specialty contractors (see Section 4). Flow data will be reviewed for validity, and findings reported to OCP staff. Flow data validation will include an evaluation of flow continuity during dry and wet weather conditions based on daily volumes, and a review of flow meter calibration data and scattergraphs.

3.5 Public Participation

To have more specific input regarding basin planning, basin-specific public participation efforts have been developed. The goals of the basin public participation process are to:

- raise awareness, educate/connect with the public;

- change behaviors;
- build credibility, support and momentum;
- receive public input to help shape the basin plan; and
- secure support for investment in a long-term plan.

Public Participation Plans are being developed for each basin. Throughout the year, information has been gathered from various sources to gauge area-specific issues in the basins as well as other information. More information is available in Section 2.2.2 e.

4 PROFESSIONAL/SPECIALIZED/TECHNICAL SERVICES CONTRACTORS

This section covers Professional, Specialized and Technical (PST) contractors independently contracted by WSD and managed by the OCP Division. PST contractors include CSO/stormwater and receiving water sampling, analytical analysis of water samples, flow metering and radar rainfall analysis.

4.1 Water Quality Sampling and Analysis

Professional Services Contracts were awarded in April 2005 to MEC Water Resources for water quality sampling of CSO, separate stormwater, and receiving streams and to STL Laboratories for analytical services. The work conducted under these contracts in 2005 is specifically described in Section 2.7.

4.2 Temporary Flow Metering

The temporary flow metering program for the development of the CSO LTCP and the SSS CP began in the spring of 2005. The goals of the temporary flow metering program were to meter flow at key locations in the CSS and SSS to determine average dry-weather base flows, and to determine collection system responses to a range of wet-weather events.

During March 2005, temporary flow metering contractor, HydromaxUSA, and OCP Team worked with the Basin Engineers to review initial sites for temporary flow meter installations. Basin Engineers reviewed the sites and made recommendations for alternate sites they felt were appropriate considering collection system layout including the location of diversion structures, treatment plants, pump stations, and outfalls; connection points of basin trunk sewers to main interceptors; ease of access; and acceptable hydraulic conditions, i.e. mild slopes, straight pipe runs, and pipe and basin configurations for hydraulic modeling. Wherever possible, Basin Engineers identified primary sites and any alternate sites that would be appropriate based on field inspection.

Temporary Flow Metering – Confined Space Entry

The inspection process and the selection of final flow meter sites ran from March 2005 to June 2005 because of unanticipated field conditions that resulted in difficulties confirming acceptable sites. In several cases, the physical conditions of the collection systems found during inspections necessitated the selection and inspection of alternative flow metering sites, and the

placement of additional flow meters. This additional effort performed by HydromaxUSA to locate suitable flow metering sites resulted in delays in the completion of complete flow metering networks. To increase the reliability of flows recorded at the treatment plants, additional temporary meters were installed at Blue River Wastewater Treatment Plant and the Westside Wastewater Treatment Plant.

Temporary Flow Metering – Flow Sensor

It was originally planned to meter flow for four months simultaneously in all 14 basins. However, because of unanticipated difficulties and subsequent delays the flow meters were installed and made operational on a staggered basis. In addition, selected flow meters were kept in service for longer than four months to compensate for periods of poor operation. At the height of the flow metering effort, 170 flow meters were in place as follows: 4 at treatment plants, 62 in the separate sewer area, and 104 in the combined sewer area.

The sewers that were flow metered ranged from 15 inches in diameter to a 17 feet x 19 feet double box sewer; and a variety of flow metering equipment was used to ensure good results for intermittent, highly variable flow conditions. Flow meters were programmed to collect level and velocity data every 15 minutes. The flow meters were serviced once a week during which data were uploaded and routine maintenance was performed.

Overall, the flow metering results were acceptable; and there were sufficient rain events of a good variety during the flow metering period. It was originally planned to flow meter from March 2005 through June 2005. Although the flow metering program started later than planned, the number and variety of rainfall events during March through June would not have been adequate to meet computer model calibration and verification needs, and it would have been necessary to extend the metering program beyond the originally planned end date even had all of the flow meters been installed at the beginning of March 2005.

As of the end of 2005, OCP staff had visually examined the level, velocity, and resultant flow graphs for each site from its installation date (earliest date May 11, 2005) through the end of August 2005 to assess wet-weather response. Wet-weather response for the remaining period will be assessed in early 2006. Basin Engineers, as part of their review of the flow meter data that were provided to them on a monthly basis, prepared score cards to assess and identify the quality of data being collected in the field. Periodic meetings were held with Basin Engineers and HydromaxUSA to address issues with data being collected.

In late September 2005, flow meters began to be removed from the basins after the Basin Engineers had indicated that there were sufficient data to perform modeling tasks. After flow meters were removed, HydromaxUSA began the process of developing final flow meter data for submittal to WSD. The development of final flow data by HydromaxUSA includes editing to account for offset mounting of meter probes, i.e. if not mounted at pipe bottom center; variable sediment levels; and drift in the level and velocity measurement parameters. As part of the development of final flow data, HydromaxUSA will also prepare scatterplots for all metering sites; calculate rainfall derived infiltration and inflow for SSS metering sites; and calculate CSO overflow rates and volumes. Final deliverables will include a "Project Data Report" and a "Project Analysis Report." The Project Data Report will provide a narrative summary of observed flow conditions; the Project Analysis Report will provide an interpretation of the data collected during the flow metering period including a characterization of average dry weather flow conditions, and up to ten wet weather events, an assessment of hydraulic performance under such conditions. Table 4-1 presents the status as of December 31, 2005 of the flow metering effort, and the progress made by HydromaxUSA in submitting final data sets. By the end of 2005, final data sets were received for five CSS basins and four SSS basins.

Table 4-1
Flow Meter And Final Data Submittal

Basin	Basin Engineer	Basin Type	Number of Meter Sites	Metering Initiation Date	Metering Completion Date	Final Data Submittal by Hydromax
Turkey Creek	Black & Veatch	CSS	11	6/11/2005	10/13/2005	12/23/2005
NEID/MO River	Black & Veatch	CSS	11	6/25/2005	10/24/2005	12/30/2005
Town Fork Creek	Camp, Dresser & McKee	CSS	12	5/11/2005	9/28/2005	12/2/2005
Brush Creek	Camp, Dresser & McKee	CSS	18	5/12/2005	9/28/2005	12/11/2005
Gooseneck Creek	CH2M Hill	CSS	19	6/9/2005	10/17/2005	12/27/2005
Lower Blue River	CH2M Hill	CSS	11	7/2/2005	10/26/2005	Pending
Middle Blue River	HDR	CSS	22	6/24/2005	10/25/2005	Pending
Birmingham	Bucher, Willis & Ratliff	SSS	11	6/26/2005	11/15/2005	Pending
Blue River Central	George Butler Associates	SSS	6	5/13/2005	10/24/2005	12/7/2005
Blue River North	George Butler Associates	SSS	3	5/25/2005	9/28/2005	12/6/2005
Little Blue River	George Butler Associates	SSS	4	6/9/2005	10/11/2005	12/11/2005
Blue River South	HDR	SSS	13	6/15/2005	11/15/2005	Pending
Line Creek/Rock Creek	HNTB	SSS	11	5/20/2005	9/28/2005	12/6/2005
Round Grove	Wade & Associates	SSS	14	5/29/2005	10/24/2005	Pending
Westside WWTP	OCP	WWTP	1	6/3/2005	10/31/2005	Pending
Blue River WWTP	OCP	WWTP	3	6/3/2005	10/31/2005	Pending

4.3 Radar Rainfall Monitoring

Rainfall data for evaluations were obtained from NEXRAD rainfall monitoring and the Kansas City ALERT flood warning system, a network of 43 gauges spaced throughout Kansas City.
The planned program monitoring period was between March and June, but due to the delay in flow meter installation, this period was extended to cover the period flow meters were in the ground (May through

November). By the end of 2005, WSD had received from OneRain continuous 15-minute rainfall data from April 1, 2005 through November 15, 2005 as 1-km by 1-km pixel data, and catchment weighted data for the flow meter catchment areas. The rainfall data will be used by the Basin Engineers to calibrate and verify their sewer system models.

In July 2005, OneRain also submitted a task report titled "*Rainfall Monitoring Information Gathering and Review*" that analyzed WSD's existing gauge network to determine the quality of the information being collected, and made recommendations on changes to the rain gauge network that would improve the network's support of the WSD's continued effort with the Overflow Control Program. The report has been reviewed by OCP staff and OneRain is now revising the document.

5 SSS OPERATION AND MAINTENANCE

Operation and maintenance is critical to proper functioning of the sanitary sewer system. This section provides information on what WSD has done in 2005 to reduce overflows from the SSS. A similar discussion related to CSS operation and maintenance is provided in Section 6, which addresses the Nine Minimum Controls. Key topics included in this section are:

- Operation and Maintenance Activities; and
- SSS Overflows Summary.

5.1 Operation and Maintenance Activities

5.1.1 Wastewater Treatment Division

The Wastewater Treatment Division is responsible for the operation and maintenance of forty sanitary pump stations, eighteen stormwater pump stations, and seven treatment plants located throughout the City. 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 operation and maintenance activities typical for all pump stations and treatment plants.

The Division has developed Wet Weather Operating Guidelines for the Blue River, Westside and Birmingham Wastewater Treatment Plants all of which receive flow from SSS areas. Guideline documents for the Blue River and the Westside were updated with minor revisions in February 2005. Specific information for the operation and maintenance for the Blue River and Westside WWTPs are located in Section 6.4.2 and 6.4.3, respectively. The Guideline for the Birmingham plant was drafted in 2005 and is currently under review by WSD. The purpose for the guidelines is to provide personnel guidance for reducing overflows in the sewer system by proper operating practices, minimizing bypasses at the pump stations and the treatment plant, and maximizing treatment plant capacity.

Operation of existing interceptors and pump stations to control the flow rate to treatments plants is essential to minimizing plant or upstream manhole overflows. Pumping rates maybe increased at one location and decreased at another to balance and maintain maximum plant capacity while preventing upstream overflows. Aeration basins are operated such that flow is consistent and the maximum amount is maintained 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. For example, 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, hazardous

materials and storage tanks are checked of spills; indoor air quality at each facility are checked for unusual odors; and air emissions are checked for increased smoke or dust. Finally, the following are checked for stock/accessiblity/current/posting/completenes and/or functionality: spill kits, eyewash/shower, warning signs, emergency signs/procedures, fire extinguishers, emergency communication device/ placarding, MSDS sheets and first aid kits. Operations Division personnel troubleshoot problems, note findings and make corrections. All unresolved issues as reported as a work order and submitted to the Maintenance Division.

Maintenance of facilities is important for proper operation and improving treatment capacities. Maintenance procedures involve recording work performed, materials purchased and used, and man hours expended to complete the work. Typical facility maintenance inspections involve opening and closing gates, adjusting pumping operations, and cleaning trash racks and bar screens to remove collected debris. Grit and debris are removed from grit chambers, rock boxes, mechanical bar screens, and vortex/aerated grit processes prior to the entering WWTPs thus maximizing and improving plant efficiency. 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. During a rain event, the trash racks and screens are checked and cleaned as needed to maintain consistent and maximum flow through plants. Operation of primary clarifier sweep arms and skimmers are checked, cleaned and repaired as needed. Sludge levels and sludge pumps in clarifiers are checked to ensure that excess solids are not held in the clarifier and excess water is not pumped to the solids storage tank. Sludge collectors and sludge skimmers in clarifiers are checked to prevent solids washing out. Trickling filters operation is monitored by checking the distributor arm is properly rotating. Grit conveyor belts are checked for alignment and tracking and cleaned of excessive grit buildup. The total amount of grit and debris removed from all pumping stations and WWTP in 2005 by the Wastewater Treatment Division is 1,827 tons as compared to 1,170 tons in 2004.

Aerated Grit Removal – Westside WWTP

5.1.2 Wastewater Line Maintenance Division

The Wastewater Line Maintenance Division has primary responsibility for operating and maintaining the collection system. Operation and maintenance of the SSS involves the use of sewer cleaning crews, the Sewer Investigation Section and the Sewer Repair Section. There are thirteen Line Maintenance crews that perform routine maintenance on the system. Routine maintenance includes televising/inspecting, cleaning, and repairing sewer lines and manholes.

The Sewer Investigation Section generally responds to complaints received from the public, and other City departments such as Public Works, Parks, and the Action Center. Inspections involve direct manhole observation and televising sewer segments. Inspections are recorded on a work order to identify overflows, reveal excessive infiltration/inflow, record structural deterioration and determine repair needs. Prior to televising, sewer cleaning crews remove blockages or accumulated debris. In 2005, 1,808 investigations were performed resulting in 259,727 feet of sewer televised. In addition, the Sewer Investigation Section conducted 2,338 inspections of private lines connecting to City sewer requested by private contractors.

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. In 2005, 1,770,125 feet of sewers were cleaned resulting in material removed of 837 cubic yards from sewer mains and manholes. In addition, the City currently has a City-Wide Sewer System Cleaning contract (Section 7.1.8) used on an as-needed basis to assist cleaning in problematic areas. Ace Pipe Cleaning removed approximately 406 cubic yards of material from City sewers a part of that contract. .

The Sewer Repair Section completes necessary system repairs or replacement of sewer lines and manholes. System repairs typically involve open excavations to replace sewer pipe or manholes. Manhole rehabilitation involves minor repairs such as patching a hole or raising manhole adjustment rings. Private contractors are utilized when Line Maintenance Division does not have the technology or manpower to perform work such at cured in-place pipe, sliplining, or pipe bursting. In 2005, 3,668 feet of sewer mains were repaired, 3,488 feet of private lines in the City right-of-way were repaired, 14 manholes were completely replaced, and 149 manholes were rehabilitated.

5.2 SSS Overflows Summary

Recorded by the Wastewater Line Maintenance Division, the total number of dry weather bypasses in the sewer collection system of the SSS area accounted for 57 of the 85 reported bypasses for 2005. Bypasses were caused by grease stoppages, debris stoppages, debris in manholes, vandalism, broken and collapsed main lines, breaks on force mains, and damage by a private contractor. The remaining dry weather overflows were in the CSS discussed in NMC Section 6. All corrective actions have been completed including cleanup and repairs on collapsed lines and damaged structures.

The Wastewater Treatment Division records bypasses associated with the treatment plants and pump stations. The total number of wet and dry weather bypasses for 2005 is 61as a result of power outages,

equipment failure, force main breaks, inflow & infiltration, and ice & sleet. Bypass documentation for 2005 has been reported to the Kansas City Regional Office of MDNR.

6 NINE MINIMUM CONTROLS

In general the Nine Minimum Controls (NMC) can reduce overflows from the CSS and their effects on receiving water quality. They should 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 LTCP. Documentation developed for NMC establishes baseline conditions, evaluates alternatives and demonstrates effectiveness that can be implemented through the LTCP. This section identifies, evaluates and documents ongoing and new control measures, resulting from progress in the NMC and OCP in 2005.

NMC Accomplishments

Table 6-1 describes each NMC and identifies significant control measure accomplishments in 2005 compared to 2004, indicating ongoing and new control measures. Each control measure accomplishment is explained in further detail under the applicable NMC section.

Table 6-1

NMC Accomplishments

Minimum Control	Control Measure Accomplishments	2004	2005
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 POTW for treatment	◇ Updated wet weather operating guidelines	■	■
	◇ Controlled & optimized WWTP grit & flow	■	■
	◇ WWTP capacity study impacts		■
	◇ Inspected BRIS manholes & modeled capacity	■	■
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		■
	◇ 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	■	■
	◇ Summarized sewer back-up impacts		■
	◇ Water quality monitoring	■	■

6.1 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." - EPA, **CSO Guidance for Nine Minimum Controls**

6.1.1 Operation & Maintenance Control Measures

The Wastewater Line Maintenance Division of WSD is responsible for operation and maintenance control measures in the collection system. This Division performs regular inspection, cleaning and repair for both the CSS and the SSS. The Wastewater Treatment Division is responsible for the operation and maintenance of the Blue River and Westside Wastewater Treatment Plants which treats all the flow from the CSS areas.

The operations and maintenance of the CSS involves the use of the:

- Sewer Investigation Section;
- Sewer Cleaning Crews; and
- Sewer Repair Section.

Three Sewer Cleaning Crews are 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 set forth in the CSO Sewer Maintenance Manual. The manual, updated annually, provides guidelines to personnel for the proper operation and maintenance of the CSS. Guidelines include:

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

6.1.2 Wet Weather Operating Guidelines

The Wastewater Treatment Division updated the Wet Weather Operating Guidelines in 2005 for Blue River WWTP and Westside WWTP (Appendix B). The collection system serving these facilities contains both separate sewers and combined sewers. Blue River WWTP is the largest treatment plant in the system and serves the majority of the CSS area. The goals of the plans are to reduce sewer overflows in specific areas within the City critical to the performance of the CSS through operation practices, minimize bypasses at the flow regulating structures and the treatment facility, and maximize treatment in the facility.

6.1.3 Routine Maintenance

Sewer Cleaning Crews and Sewer Repair Section perform routine maintenance of the system. Throughout 2005 Sewer Cleaning Crews bucketed sewer line segments and flow regulating structures. WSD also contracted with Ace Pipe Cleaning Company to provide routine bucketing services. WSD keeps a wastewater maintenance log that tracks the year's maintenance activities. In 2005, the Line Maintenance Division conducted the following:

Applying Manhole Riser Sealant

- 1,808 investigations in response to complaint calls;
- 2,338 inspections of private lines connecting to the City sewer system;
- 149 manhole rehabilitations; and
- 14 new manhole constructions to replace existing manholes.

The Stormwater Line Maintenance Division also performed routine maintenance within the CSS areas as well. In 2005, there were 17,138 storm inlets cleaned and inspected and 2,261 (202 by staff and 2,059 by contractors) storm inlets repaired or replaced.

6.1.4 Non-Routine Maintenance and Emergency Procedures

The Sewer Investigation Section, Sewer Cleaning Crews, and the Sewer Repair Section respond to all bypasses reported to the Department. The WSD website provides an after-hours emergency number for citizens or businesses to call upon discovery of any such occurrence.

6.1.5 Training and Safety Practices

Training for personnel involved in the sewer system operation and maintenance is primarily on-the-job-training, in a classroom or during 15-minutes tailgate sessions. Training is provided by experienced Crew Leaders, Supervisors, and the Maintenance Superintendent of the Line Maintenance Division, WSD's

Safety Officer, and when necessary outside professionals. All personnel involved in the operation and maintenance 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 (3rd party Trainer for qualified operators); and
- General safety procedures for driving, trench, equipment operation, fall protection, fire prevention, ladder safety, and lifting/back.

6.1.6 Summary of Inspections, Maintenance and Cleaning

In 2005, WSD performed inspections and maintenance activities on the collection systems, treatment plants, and flow regulating structures. The summary of activities for 2005 includes:

- Wet weather overflows (WWOs) reporting procedures;
- Inspected flow regulating structures;
- Conducted CCTV inspections; and
- Cleaned CSS interceptor and collection lines.

a) **Wet weather overflows (WWOs) reporting procedures –** Reporting WWOs or bypasses which occur at facilities such as pump stations and WWTPs is the responsibility of Treatment Division.

Flow Regulating Structure - Grating

There were 33 bypass events resulting in approximately 62 days of wet weather bypass at Blue River WWTP. A bypass event starts when a gate is opened and ends when the gate is closed which might last 4 hours or 4 days as a result of one rainfall or a series of 3 rain events. At Turkey Creek Pump Station there were approximately 23 storm events with wet weather bypassing, based upon daily logging and water quality sampling records.

b) **Inspected flow regulating structures -** In 2005, Line Maintenance Division continued to inspect the City's flow regulating structures. The diversion structures are designed to direct flows during dry weather to Blue River WWTP or Westside WWTP. During wet weather they are designed to overflow a portion of the flow to Brush Creek, Blue River, Kansas River, and Missouri River or their other immediate tributaries. The inspection interval varies for each structure due to historical records of performance and sensitivity of nearby surroundings and surface waters. Inspections were conducted to identify overflows, accumulated debris, ability for correct operation of the structure during the next storm, and repair needs. The

inspections were conducted mainly during dry weather for blockages, excessive deposition of solids, excessive infiltration/inflow, and structural deterioration in need of repair. In 2005, WSD developed a Diversion Structure Inventory that allows the inspection crews to readily view detailed information on each diversion structure such as inspection log forms, inventory sheets, schematics, profiles, and sectional views of the structure.

c) **Conducted CCTV inspections –** Line Maintenance Division's work includes internal line CCTV data stored in the Hansen maintenance management system database where it can be retrieved. The Hansen database is maintained and organized by sewer line. In 2005, 259,727 feet of sewer was televised. In addition, a contract with Ace Pipe Cleaning for City-wide television inspection conducted for 133,333 linear feet of sanitary sewer. This digital video inspection will help to evaluate and make repairs necessary to extend the life of the sewer system.

d) **Cleaned CSS interceptor and collection lines -** Throughout the 2005 calendar year, existing interceptors were cleaned resulting in the increase of available conveyance and storage capacities with no additional construction or modifications of existing facilities. WSD currently has a City Wide Sewer System Cleaning Contract to remove and prevent accumulations of debris and sediment that restrict flow on an as-needed basis. Ace Pipe Cleaning cleaned 133,333 feet supplementing Line Maintenance Division crew capabilities which cleaned 1,770,125 feet of sewer in 2005.

6.2 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." - EPA, **CSO Guidance for Nine Minimum Controls**

6.2.1 Alternative Methods to Maximize Collection System Storage

In 2005, WSD continued their work towards reducing combined sewer overflows through the submittal of the Long Term Control Plan Work Plan (LTCPWP). This includes the following listed below.

a) **Source Control Technologies** - Source controls improve the quantity or quality of runoff that enters the collection system. While these measures are usually labor-intensive and increase O&M costs, they do not involve large capital improvement projects. In 2005, the WSD performed activities, which are further discussed in NMC 6, to maximize the existing collection system storage such as:

- Street sweeping;
- Construction site erosion and sediment control;
- Catch basin cleaning; and

- Industrial pretreatment to remove obstructions of flow.

b) **Inflow Reduction** - Infiltration/Inflow (I/I) studies and resulting rehabilitation in tributary upstream separate sewer basins have already completed in 19 drainage basins. A total of eight basin studies were initiated in 2005 including field inspection, flow monitoring, and rainfall analysis. The basin studies are described in more detail in Section 3.

6.2.2 Procedures in Place for Maximizing Collection System Storage

In 2005, the Department has focused its efforts on rehabilitation, modification, and cleaning of critical sewers in the CSS. Sewer rehabilitation and sewer cleaning were performed throughout the year to address critical areas found through smoke testing and inspections. Source control technologies such as street sweeping were also performed.

a) **Sewer Rehabilitation** - During CCTV inspection, the sewer line is cleaned of all debris then televised. Capacity is also increased as clogged lines are cleared of debris during inspection. Potential repairs may include trenchless cured in place pipe (CIPP) 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. Below is a list of the sewer rehabilitation projects in the planning, design, or construction stages in 2005 including inflow & infiltration reduction projects. In addition, individual project data sheets are presented in Section 7, providing a detailed description on each project.

Planning Phase Projects in 2005

- Brookside Sanitary Sewer Improvements Phase 5 (Brookside Interceptor) – Project involves upsizing of approximately 10,500 feet by excavation of storm sewer along Brookside Boulevard from 51st Terrace to Meyer Boulevard which also includes sanitary sewer construction. The alignment study is in progress as part of the preliminary design.

Design Phase Projects in 2005

- Brookside Sanitary Sewer Improvements Phase 3 – Project involves upsizing of approximately 21,500 feet of storm drain which also includes the cleaning and replacement of catch basins.
- Brookside Sanitary Sewer Improvements Phase 4 (Crestwood) - The project involves replacement by excavation of approximately 5,500 feet of sanitary sewer and the upsizing of approximately 4,500 feet of storm drains.
- Ruskin Heights Sewer Rehabilitation - The previous inflow/infiltration study in the Ruskin Heights Subdivision drainage basin recommended rehabilitation of existing sewers and manholes to reduce inflow/infiltration sources and eliminate basement back-ups. This project consists of rehabilitation of over 100 manholes and 50,000 feet of 8-inch to 15-inch pipe by pipe bursting, open excavation, or CIPP lining.

Construction Phase Projects in 2005

- Dora Avenue Sewer Rehabilitation Phase 3 - A total of 8,072 feet of 24-inch to 72-inch sewer was rehabilitated with CIPP lining in this project where structural deterioration and significant inflow and infiltration problems existed.
- Brookside Sanitary Sewer Improvements Phase 2 (Huntington Relief Sewer) - This is a continuation project from 2004, with open excavation construction of approximately 2,600 feet of relief storm drain as well as 2,600 feet of relief sanitary sewer.
- Freight-House District Sewer Rehabilitation - This is a continuation project from 2004, with the rehabilitation of approximately 21,000 feet of 12- to 66-inch sewer in the Freight-House District area of Kansas City. Aged sewers are being rehabilitated by CIPP lining, while also increasing capacity to serve future expansion and development in the area.

Freight-House – Cured in Place Pipe

b) **Smoke Testing** - WSD continued to identify suspect inflow areas in the collection system with smoke testing to identify sewer defects and sources of stormwater entering the system. Smoke testing identifies both public and private inflow sources. Private sources include downspouts, driveway drains, open cleanouts and defective laterals. Public sector inflow sources include manhole and line defects. Smoke testing was conducted in the Brookside area, where 262,000 feet of sanitary sewer was tested. Inflow sources (downspouts, area drains, manholes, etc.) were identified.

Smoke Testing to Check Roof Drain Connection

c) **Repairs** - Line Maintenance crews began further investigation of public sector defects identified during smoke testing to prioritize them for repair. Critical priority defects were repaired in 2005. Public meetings were held with residents to explain the smoke test results. All addresses with identified defects were invited by letter. Information presented included suggested actions residents could take to eliminate or reduce inflow/infiltration contribution from their property.

6.3 NMC 3 – Review and Modification of Pretreatment Requirements

"Under the third minimum control, the municipality should determine whether nondomestic 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 nondomestic source is causing a specific health, water quality, or environmental problem." - EPA, **CSO Guidance for Nine Minimum Controls**

In 2005, the Industrial Waste Control Division continued to regulate nondomestic discharges to the Kansas City, Missouri sewer system, including the CSS areas. The Division is responsible for implementing and enforcing the Federal Pretreatment program and Chapter 60 Article IV of the Kansas City Code of Ordinances. The Division's activities include the Federal Pretreatment Program, a Surcharge Program for high strength (BOD-biological oxygen demand, TSS-total suspended solids, FOG-fats/oil/grease) wastewaters, an Oil & Grease Management Program, an annual review of pretreatment requirements, and implementation of the Interjurisdictional Sewer Service Program. These activities incorporate the following control measures:

- Inventory of nondomestic CSS discharges - Identification of Significant Industrial Users (SIU).
- Assess nondomestic CSO discharges - Implementation of the surcharge program to evaluate the impact of nondomestic wastewater.
- Evaluate feasible modifications - Annual review of pretreatment requirements.

6.3.1 Federal Pretreatment Program

The Industrial Waste Control Division's administration of the Federal Pretreatment Program is subject to regular review by both MDNR and USEPA Region VII. The annual report of KCMO's Pretreatment Program activities is filed with MDNR each March. The report includes the following:

- Companies in significant non-compliance (SNC) – A list of SIUs that were in non-compliance during the first half of 2005 was published as a "Public Notice" in the Kansas City Star on Sunday, October 23, 2005. A "Public Notice" for companies in non-compliance in the second half of 2005 was published on February 5, 2006.
- Interjurisdictional Agreement Status – There are 29 interjurisdictional agreements that regulate flows to the City's collection system.
- Permit Activity – A list of SIUs in 2005 that have dropped their permit status or became newly permitted.
- Annual Enforcement Log – A list of industries for which enforcement actions and monetary penalties were taken in response to non-compliance events that occurred in calendar year 2005.
- Notices of Violations (NOVs) – A list of 35 NOVs issued in 2005 with financial penalties assessed at a total of $27,422.00.

For SIUs, The Industrial Waste Control Division has identified the regulated discharge flow volume, potential pollutants of concern, drainage basins, and the pump station(s) which serves the SIU. Over half of the SIUs in 2005 permitted under the program are located in the CSS area. Each of these businesses

were inspected in 2005 and monitored periodically for conformance with its wastewater discharge permit conditions.

6.3.2 Surcharge Program

The Surcharge Program involves sampling nondomestic wastewaters and applying a surcharge for BOD, TSS or FOG concentrations above that in "normal domestic sewage" as defined in Chapter 60 of the City's Code of Ordinances. Food handling operations such as restaurants are the most affected by this ordinance. The surcharge program is instrumental in making customers aware of the effects of their discharges on the sewer system and causing them to change their operations or housekeeping procedures. In 2005, 230 individual contributors were applied a surcharge.

6.3.3 Oil & Grease Management Program

The Oil & Grease Management Program's objective is to encourage nondomestic sources to limit discharge of oil and grease to the sewer system. The primary nondomestic sources of oil and grease discharges to the sewer system are restaurants, many of which are in the CSS area. The potential for grease stoppages to cause problems in the CSS area has made the Oil & Grease Management Program an essential part of Kansas City's implementation of NMC 3. The Oil & Grease Management Program encompasses outreach, inspections and enforcement.

One segment of the Health Department's Food Handler Training Class (Section 6.7.4) is devoted to best management practices for fats, oils and grease. During inspection of a facility by the Industrial Waste Control Division, a handout (see Appendix A) about these best management practices is provided in a format for easy posting. Facility personnel are informed about Ordinance requirements regarding oil and grease discharges and about the potential for enforcement if these requirements are not met.

In 2005, a total of 926 food service facilities were inspected of which 664 were in the CSS area. The Oil and Grease Manager inspected 42 food facilities, and enforcement actions imposed as required. Enforcement actions included 10 notices of violation for oil and grease, shorter cleaning cycles, replacement of grease traps with grease interceptors, and temporary shut down food facilities until grease trap problems were resolved. The success of this program is evidenced by the fact that in 2005 there were no combined sewer overflows caused by grease from nondomestic sources.

6.3.4 Review of Pretreatment Requirements

Every year the Industrial Waste Control Division reviews the pretreatment program to determine whether changes are warranted. Considerations such as economic and environmental impacts are taken into account when evaluating potential changes. These include an assessment of the nondomestic discharges to the CSS, and the impact of nondomestic discharges on CSOs. There were no changes to the administration of the pretreatment program in 2005.

6.4 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." - EPA, **CSO Guidance for Nine Minimum Controls**

6.4.1 Control Measures Maximizing Flow to WWTP

Control measures, which promote maximizing wet weather flows to the Blue River and Westside WWTP, contribute to reducing the impact of overflows from the CSS. Work continued in 2005 to study operating the WWTPs acceptably at incremental increases in wet weather flows. In addition, sewers and wetwells were maintained at the lowest practicable levels to maximize system storage. 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: and
- Studied WWTP capacity impacts.

6.4.2 Maximizing Flow to Blue River WWTP

a) **Updated Wet Weather Operating Guidelines -** Wet Weather Operating Guidelines were updated with minor changes in February 2005. Guidelines were provided to facility staff to aid in making operational decisions within NPDES permit requirements and in staff training:

- 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; and
- To maximize treatment of wet weather flows by balancing process operations.

Generally three methods of training for new operators and experienced operators were used: on the job; tailgate sessions; and classes. WSD and Treatment Division sponsored training on January 11th and 12th on wet weather operations and Wet Weather Operating Guidelines. Tailgate sessions about 15 minutes in length, are held twice a month and cover topics such as safety, sampling, pump controls and wet weather operations. Responding to real situations with on the job training continued to be the most effective method of training.

Rock Box - Blue River WWTP

b) **Controlled Grit Removal** - Grit entering the WWTP is removed by the Rock Box, Mechanical Bar Screen, Vortex Separator, and Aerated Grit system. Annual quantities of grit removed by the Rock Box, Screen House, and Vortex Separator are shown in Figure 6-1. The Aerated Grit system was operated more frequently in 2005, due to required maintenance on the Vortex Separators, during the months of August and December, resulting in a decrease in the annual Vortex grit removal quantity as shown in Figure 6-1. Maximizing and c

Vortex Grit Removal - Blue River WWTP

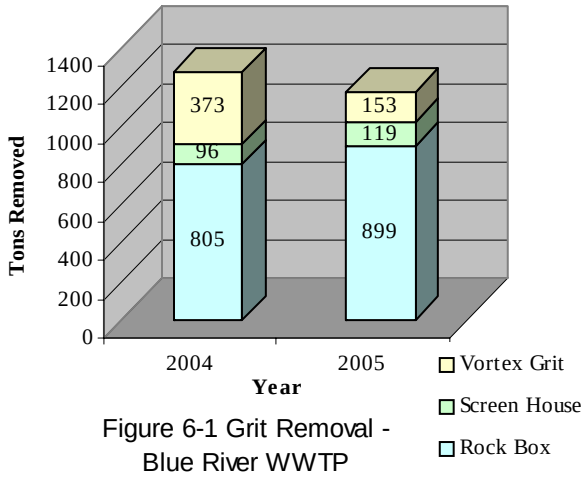


Figure 6-1 Grit Removal - Blue River WWTP

g rit removal during storm events protects equipment, reduces handling of downstream solids and increases treatment storage space occupied by grit.

c) **Optimized Flow Rate** - Flow to Blue River WWTP is from two primary sources, the Blue River Interceptor Sewer and the NEID Interceptor Sewer. The diversion chamber ahead of Blue River Pump Station and the NEID Pump Station regulates flow to the plant, with the goal of avoiding internal WWTP overflows.

d) **Studied WWTP capacity impacts -** In 2005, work was started on a capacity analysis and evaluation of the WWTP. A hydraulic grade line (HGL) profile drawing and HGL model spreadsheet were prepared from the Diversion Chamber to the Missouri River Outfall Structure. The hydraulic profile will be used to prepare the capacity analysis, develop stress testing protocol and to evaluate potential improvements in unit processes, process piping connections and pumping.

6.4.3 Maximizing Flow to Westside WWTP

a) **Updated Wet Weather Operating Guidelines**- Wet Weather Operating Guidelines were also updated in February 2005 and provided guidelines to facility staff in making operational decisions within NPDES permit requirement, for the same purposes and goals as above for Blue River WWTP.

b) **Controlled Grit Removal** - All efforts to control the quantity of grit before it reaches the WWTP will maximize and improve the efficiency of treatment processes. Work continued in 2005 on design of Rock Boxes at Turkey Creek and Santa Fe Pump Stations. In 2005, 52 tons of screenings, trash and debris were removed from outlying pump stations in CSS areas.

Turkey Creek and Santa Fe Pump Stations have mechanical screens and Line Creek Pump Station has a basket.

c) **Optimized Flow Rate -** All flow to the Westside WWTP is delivered by pumping from the sources listed below. During wet weather conditions, there is enough pumping capacity available to overload Westside WWTP.
   - 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. Normal operational methods give Line Creek Pump Station preference during wet weather events to minimize SSO;
   - Downtown Airport Pump Station – SSS flow; and
   - Harlem Pump Station – SSS flow.

d) **Started WWTP Capacity Study -** Work was started in 2005 on a capacity analysis and evaluation of the Westside WWTP. A hydraulic grade line (HGL) profile drawing, an HGL model spreadsheet and a Process Flow Diagram were prepared from the Influent Structure to the Missouri River Outfall Structure. Similar to Blue River WWTP, documentation will be used to prepare the capacity analysis, develop stress testing protocol and evaluate potential improvements in unit processes, process piping connections and pumping.

6.5 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..." - EPA, **CSO Guidance for Nine Minimum Controls**

Primary Clarifier Weir – Westside WWTP

6.5.1 Control Measures

WSD continues to implement measures toward the goal of minimizing dry weather overflows (DWOs). Measures implemented in previous years continue to be implemented. Control measures implemented in previous years that were continued in 2005:

- Inspect to Identify DWOs;
- Correct Primary Causes of DWOs;
- Notification to MDNR when DWO occurs;
- Routine Preventative Cleaning of System; and

- Reported DWOs by Wastewater Treatment Division.

6.5.2 Implementation and Documentation

6.5.2.1 Inspect to Identify DWOs

All flow regulating structures are inspected 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 due to historical records of performance and the sensitivity of the area surrounding the structure.

In 2005, as documented in the MDNR Wastewater Bypass Report Forms, there were 27 DWOs in the CSS area compared to 23 in 2004. Routine inspection by Line Maintenance Division discovered six DWOs. Twenty-one were discovered and reported by citizens. Six DWOs occurred at diversion structures.

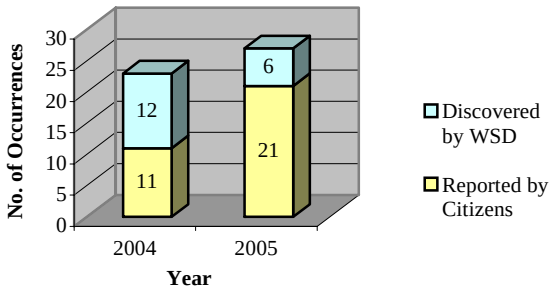


Figure 6-2 DWOs in CSS Areas
Discovered and Reported

6.5.2.2 Correct Primary Causes of DWOs

In 2005, causes for DWOs were similar to previous years, with debris in manholes/ lines, damaged manholes/lines and grease blockages being the three primary causes. Root blockage in sewer lines was also a significant cause for DWOs. In many cases where grease blockage was listed as the primary cause for a DWO, a root blockage in the line was also cleared, indicating that the two causes are related. Two DWOs were caused by vandalism and one was due to a contractor damaging a sewer line.

In all DWO occurences, the primary cause of the DWO is corrected and MDNR is notified of the occurrence within 24 hours. Follow-up written reports are made within 5 days of the original notification. In all occurences, the area around the DWO is inspected for and cleaned of 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 occurance for further investigation. None of the DWOs in 2005 due to grease in the CSS area were from commercial areas. In the case of DWOs caused by vandalism, the standard manhole covers are replaced with bolt-down covers to deter future vandalism.

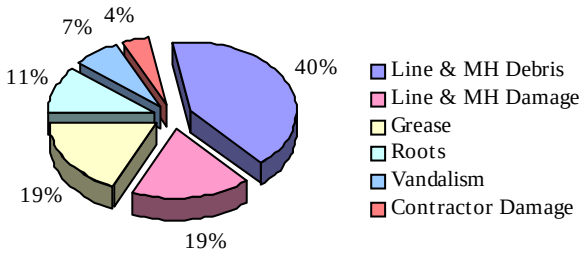


Figure 6-3 DWOs in CSS Areas
Primary Causes

6.5.2.3 Routine Preventative Cleaning of System

WSD entered into two contracts with Ace Pipe Cleaning, Inc. in 2005 for routine cleaning and inspection of City sewers. The 2005 City-Wide Television Inspection of Sanitary Sewers project was primarily centered in the Brookside and Crestwood neighborhoods, in the Brush Creek basin. The project involved the CCTV inspection of approximately 33,000 linear feet of combined sewers to identify areas for rehabilitation work.

The 2005 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 as part of this project were in the CSS. The primary purpose of this contract was to supplement the sewer cleaning efforts of the Line Maintenance Division. One result of the project was the discovery that certain sewer lines in the NEID basin became roughly 30 percent silted in a one-year period, severely reducing their capacity. Routine cleaning of these lines helps to restore their capacity and reduce the likelihood of DWOs. Ace Pipe Cleaning as part of the project removed approximately 406 cubic yards of material from City sewers.

6.5.2.4 Reported DWOs by Wastewater Treatment Division

DWOs or bypasses which occur at facilities, such as pump stations, CSO structures 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. In 2005, there were 3 reported DWOs in the CSS. Two at Turkey Creek Pump Station were caused by equipment failure resulting in dry weather overflow discharging into the Kaw River. One overflow at CSO #9 was also caused by power failure due to equipment fire, resulting in overflow discharging into the Blue River. There were no observed environmental impacts to either receiving waters.

6.6 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 . . ." - EPA, **CSO Guidance for Nine Minimum Controls**

6.6.1 Methods and Considerations to Prevent Extraneous Solids and Floatables from Entering the CSS

The Water Services Department and other City departments employ several methods for preventing extraneous solids and floatables from entering the CSS.

- **Repair and Clean Catch Basins** - WSD is responsible for the proper functioning of catch basins city-wide. The Stormwater Line Maintenance Division performs catch basin cleaning and repairs.
- **Street Sweeping** - The Public Works Department conducts street sweeping on a routine schedule to reduce trash, silt and other debris on the streets and in the sewer system. Ordinarily, all

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. Due to budget shortfalls, the street sweeping program was reduced in 2005.

Table 6-2
2005 Street Sweeping Program Results

Location	Debris Collected (cubic yards)	Distance Swept (miles)
Residential System	19,757	13,114
Downtown System	776	1,949
Total	20,533	15,063

The Downtown Community Improvement District (DCID) is a self-funding organization that was formed in 2003 to aid in promoting the downtown area in Kansas City. Funding is provided through property taxes on buildings within the downtown loop bounded by 6th Street to Truman Road and Jefferson to Charlotte. The DCID provides separate street sweeping within its boundaries on a routine basis to provide a cleaner downtown for its residents, employees and visitors. In 2005, 12,663 40-gallon trash bags were collected (approximately 2,500 cubic yards). Since the DCID boundaries lie entirely within the Turkey Creek and Central Industrial District drainage basins, their efforts have a direct result of removing extraneous silt, floatables and debris from the CSS in those basins.

- **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 the Department of Public Works engineering and construction standards for all public or private work within the City. The Public Works Department has been working in recent years to revise four important design and construction standards that can impact water quality in the CSS. These standards have not yet been officially adopted by ordinance, but they have been posted as proposed standards. During 2005, Public Works personnel have been enforcing them as the preferred standard. It is expected that the revised standards will be officially adopted in 2006. The proposed revised standards are:
  - Section 2100 - Grading and Site Preparation;
  - Section 5100 - Erosion and Sediment Control;
  - Section 5600 - Storm Drainage Systems and Facilities; and
  - Storm Drainage BMP Manual.

6.7 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." - EPA, **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;
- Food Handler Training Classes;
- Industrial Waste Newsletter; and
- Street sweeping (see NMC 6).

6.7.1 Household Hazardous Waste Program

In 2005, The Household Hazardous Waste (HHW) Program continued to accept, manage and recycle or safely dispose of excess or unwanted household chemicals from residents in communities in 32 Jackson County cities as well as residents in unincorporated areas of Jackson and Clay Counties. The program provides residents an alternative to disposal of used oil and other chemicals in storm drains or other inappropriate places. In addition, the program accepts hazardous materials from city-operated facilities. Throughout the year the program served approximately 8,000 households and took in approximately 1,100,000 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 (SWMD) in cooperation with Kansas City and the City of Lee's Summit. The regional program sponsors HHW Mobile Collection Events, and was recognized by the USEPA for excellent implementation of an Environmental Management System.

a) **Household Hazardous Waste Facility**

A permanent HHW Facility is located at the Environmental Campus in Kansas City, Missouri, and is one of two regional facilities located in the greater metropolitan area. It offers service by appointment only, and at no charge to residents of Kansas City and the MARC Solid Waste Management District HHW participating communities. The facility accepts HHW products such as household cleaners, lawn and garden products, automotive fluids, and paints/paint related products to avoid the affects of improper disposal on the environment.

b) **Swap Shop**

The Swap Shop, also located at the Environmental Campus, offers reusable products from those that have been brought to the HHW Facility or mobile collection events. In 2005, it was open Tuesdays through Saturdays from 9 am to 4 pm to anyone including residents, not-for-profit organizations, contractors, etc. All items are free except for paint, which sells in 5-gallon buckets for $10. Items such as household paint, automotive paint, oil, antifreeze, spray paint, fertilizers, and miscellaneous craft items are available on a first-come, first-served basis.

c) **Household Hazardous Waste Mobile Collection Events**

In addition to the two permanent HHW Facilities, residents of participating communities can drop off HHW products at any of the HHW Mobile Collection Events hosted throughout the year. Residents had an opportunity to attend any of the events listed in Table 6-3. HHW Mobile Collection Events are funded by the City of Kansas City, Missouri, and the MARC Solid Waste Management District. Events are staffed by a crew of trained city personnel, and usually take place at a school, church or public parking lot.

Table 6-3
2005 Household Hazardous Waste Mobile Collection Events

Date	Host Community	Type of Waste Collected
April 2	Independence	HHW
April 16	Blue Springs	HHW
April 16	Platte City	ABOP
May 14	Kearney	ABOP
June 11	Richmond	ABOP
June 25	Excelsior Springs	HHW
August 6	Harrisonville	HHW
August 20	Belton	ABOP
September 17	Raymore	ABOP
September 17	Greenwood	ABOP
October 1	Parkville	HHW
October 15	Grain Valley	HHW
October 29	Sugar Creek	ABOP

[1] Household Hazardous Waste (HHW) - These events accepted automotive fluids, batteries, fuels, household cleaners, lawn & garden products, pesticides, paints and related products.
[2] Antifreeze, Batteries, Oil & Paint (ABOP) - These events accepted only antifreeze, batteries, oil & paint (no aerosols).

6.7.2 Keep Kansas City Beautiful Campaign

Keep Kansas City Beautiful involves citizens, neighborhoods, businesses, organizations and schools in 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 an education, with programs including:

- Earth Fest 2005;
- Great American Cleanup;
- Storm Drain Stenciling Program;
- Kansas City Environmental Education Network; and
- Week of Water.

a) **EarthFest 2005**

WSD took part in the 35th anniversary of Earth Day with the first-ever regional Kansas City EarthFest on April 23rd. The celebration included the annual "EarthWalk" to raise money for local environmental education, information tables set up by area organizations, live entertainment and hands-on activities for children and adults. Activities included a demonstration of water quality testing, which was sponsored by many City Departments, including WSD. A Spring Park cleanup, open to all volunteers was held directly following EarthFest.

b) **Great American Cleanup**

In 2005, over 6800 volunteers worked approximately 30,000 hours to keep Kansas City beautiful. Volunteers held 96 cleanup, beautification and education events, collected more than 2235 tons of litter, cleaned 388 illegal dumping sites, collected more than 7,000 tires for recycling, planted 2600 flowers and 666 trees, recycled 45,300 pounds of aluminum, and cleaned 139 miles of streets, 66 acres of parks and 21 rivers. With events such as these, Kansas City has generally decreased litter in the last four years. The progress is mapped using a litter index ranging from 1-4 with 1 indicating no litter. In 2005, Kansas City scored an average litter index of 1.59, with scoring performed by volunteers.

c) **Storm Drain Stenciling Program**

WSD and the Office of Environmental Management continued to sponsor storm drain stenciling in an effort to protect the City's creeks and rivers. In 2005, volunteers stenciled approximately 1000 storm drains with the words "Dump No Waste - Drains to Stream" and a fish

logo to enlighten and educate citizens. The work of the volunteers informs local residents to not dispose household chemicals and other wastes into storm drains which discharge directly into creeks, rivers and lakes.

d) **Kansas City Environmental Education Network**

The Kansas City Environmental Education Network is a program of the MARC which focuses its efforts on environmental education in the Kansas City area. They plan environmentally-themed events, publish a newsletter and provide resources to area schools and youth organizations to include environmental topics in lesson plans and activities. WSD was involved in planning events in 2005 and produced a CD that was handed out to participants at the Environmental Education Forum.

e) **Week of Water**

The annual Missouri River Watershed Festival was held at Kaw Point in Kansas City, Kansas on Friday, October 7th. WSD associates from Blue River WWTP, Fleet Maintenance, Water Supply, Stormwater Utility and the Marketing and Public Relations Division participated in this regional event. More than 40 booths were filled with interactive and hands-on exhibits and open to nearly 1,000 middle school students and teachers during the day. The Festival was open to the general public in the evening where individuals enjoyed the same exhibits designed to focus on watershed information, non-point source pollution prevention and stormwater quality. On Saturday, October 8th volunteer crews set out to clean up debris as part of the Missouri River Relief.

6.7.3 10,000 Rain Gardens

10,000 Rain Gardens, started in the fall of 2005 is a metropolitan plan to improve water quality by reducing stormwater runoff and pollutants. A rain garden is a shallow basin filled with native plants that captures runoff and filters it. Rain gardens provide an opportunity to reduce water pollution and stream degradation by establishing this low impact development technique as a standard Best Management Practices for city departments, property owners, businesses, and developers. The goal is to actively engage homeowners, churches, businesses, non-profit groups, and schools voluntarily to reduce wet weather problems. Funding over the next three years for the initiative will be provided under the KC-ONE Stormwater Management Program.

6.7.4 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 in the area of 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 includes a section on "Best Management Practices for Fats, Oils &

Grease" and is taught by the Oil and Grease Management Program Coordinator from WSD. The purpose of the section is to teach participants the proper disposal of fats, oils & grease and the negative impacts when they are not disposed of properly, thereby aiding the department's pollution prevention efforts. In 2005, the frequency of class offerings was increased from every 2 months to approximately every 2 weeks to reach more participants.

6.7.5 Industrial Waste Newsletter

The Industrial Waste Control Division distributes an "Industrial Waste Newsletter" (see Appendix A) periodically via e-mail to permittees. In 2005, 67 significant industrial users who carry a wastewater discharge permit in Kansas City, Missouri 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. Topics in 2005 included:

- Hazardous Waste Cleanup;
- Decrease in Toxic Chemical Release;
- Checkups to Spot Illegal Discharges; and
- Intermediate Sampling to Prevent Violations.

6.8 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." - EPA, **CSO Guidance for Nine Minimum Controls**

WSD control measures for public notification involve CSO notification and an extensive public education program to reduce the exposure of the general public to potential public health risks.

6.8.1 CSO Notification

WSD recognizes the need to notify the public of CSOs. Signs have been installed along waterways receiving combined sewer overflows warning bystanders to avoid contact with the water during rain events. The telephone number on the sign directs 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. The Line Maintenance Division inspects the signs monthly.

6.8.2 Public Education Program

In 2005, WSD continued its multi-faceted public education program including meetings with neighborhoods, cable television, pamphlets, brochures, and internet websites all being used. The goal of the program is to raise awareness, educate and connect with the public on issues concerning CSOs and other wet weather issues.

a) **Public Involvement**

Periodic meetings were held in 2005 to inform the public early in the planning process about the scope and goals of various improvement projects and programs within the CSS. The meetings provide an opportunity to solicit views and concerns regarding various services provided by WSD in the past and throughout the year as shown in Table 6-4. The meetings place importance on involving the public during development, evaluation, and selection of the control strategies.

Table 6-4
KCMO Water Services Department 2005 Public Meetings

Date	Meeting Focus/Title	Meeting Topics
3/10/05	Wet Weather Solutions Community Panel Meeting No. 8	Update on Panel progress of Wet Weather Program, share with Panel their recommendations that are being implemented, and get feedback on overall program, particularly public participation program.
4/26/05	Wet Weather Solutions Community Panel Meeting No. 9	Open discussion, define role of Community Panel, and develop future panel process.
5/31/05	Brookside Area Improvements - Crestwood Neighborhood	Public information meeting presenting preliminary design, phasing plans and anticipated schedules for recommended improvements.
6/21/05	Wet Weather Solutions Community Panel Meeting No. 10	Come to a consensus about how panel will operate, who will participate, topics to discuss and products to produce
6/21/05	Terrace Lake Gardens Neighborhood Association	Public informational meeting about the sewer program and future development.
7/29/05	KC-ONE Policy Workshop	Interactive discussion of KC-ONE stakeholder results, Peer City review, & prioritization planning for the future.
8/11/05	Brookside Neighborhood Leadership	Smoke testing informational meeting for neighborhood leaders of Brookside area.
9/13/05	Wet Weather Solutions Community Panel Meeting No. 11	Receive updates on technical project & subcommittees, provide input into proposed stormwater policies, introduce proposed Community Panel deliverables, request additional input on subcommittee work & technical projects.
10/4/05	Brookside Neighborhood Smoke Test Results - NW Quadrant	Public information meeting discussing results of smoke tests and provide information on disconnecting private I&I sources such as downspouts.
10/6/05	Brookside Neighborhood Smoke Test Results - NE Quadrant	Public information meeting discussing results of smoke tests and provide information on disconnecting private I&I sources such as downspouts.
10/11/05	Wet Weather Solutions Community Panel Meeting No. 12	Receive feedback, discuss Panelists' responses to the public opinion survey, receive update on progress to expand Community Panel, receive update on the work plan of the Water in Basement program subcommittee, discuss public participation activities in the Brush Creek Basin, and receive updates from City on technical projects and related activities.
10/11/05	Brookside Neighborhood Smoke Test Results - SW Quadrant	Public information meeting discussing results of smoke tests and provide information on disconnecting private I&I sources such as downspouts.
10/13/05	Brookside Neighborhood Smoke Test Results - SE Quadrant	Public information meeting discussing results of smoke tests and provide information on disconnecting private I&I sources such as downspouts.
10/16/05	South Plaza Neighborhood Association Meeting	Talk with residents about results of smoke testing.
10/17/05	Rockhill Ridge Homes Association Annual Meeting	Talk with residents about results of smoke testing and "big picture" sewer & stormwater issues.
11/08/05	Wet Weather Solutions Community Panel Meeting No. 13	Discuss Guiding Principles, receive update from Water in Basement program subcommittee and provide feedback as requested, and receive information from Wet Weather Solutions Project Team.

b) **Door Hangers and I/I Brochures**

Notices such as door hangers and brochures provide the public with information necessary for awareness and proper implementation of beneficial procedures. In 2005, door hangers entitled "Sewer Back-ups & Overflows / What you can do" (see Appendix A for all door hangers and brochures) were distributed to homeowners in areas where smoke testing was performed. Door hangers and brochures such as this provide the public with detailed information on how excess water enters the sewer system, what they can do to reduce the amount of excess water and the steps the City is taking to make improvements.

c) **Broadcast Media**

In 2005, the City worked towards finalizing a virtual tour of wet weather effects on the sewer system for educational use at public meetings and for broadcast on Channel 2 (the City government access channel). In addition, WSD continued working on Channel 2 programming for the Wet Weather Solutions Program with topics including wastewater, stormwater, and the OCP. A representative from WSD appeared on the Channel 2 program "Talk of the Town" (aired July 15-29, 2005) to raise public awareness on flooding issues in the area. A representative from the OCP Team appeared on "Talk of the Town" (aired August 26 to September 29, 2005) to educate the public on the program.

d) **Public WebPages**

The WSD Wet Weather Solutions Program has a webpage linked from the homepage of the City of Kansas City, Missouri's website. The webpage is designed to highlight the planning process, problems, and projects in both the Overflow Control Program (OCP) and the KC-ONE Stormwater Management Plan and has been updated throughout the year to keep the public aware of the latest program developments. A similar website dedicated solely to the Brookside Watershed Improvement Program was established to provide Brookside residents with current information about the upcoming storm drainage and sanitary sewer improvements.

6.9 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" - EPA, **CSO Guidance for Nine Minimum Controls**

6.9.1 Characterizing the CSS

Characterization of the CSS continued during 2005 as a part of the development of a long-term control plan involved control measures which:

a) **Inspected CSS interceptor and collection lines** - Approximately 1,430 manholes were visually inspected above grade, for location, manhole and sewer condition, sewer characteristics and depth. Digital photographs were taken at ground level and looking down the manhole. Temporary flow metering sites were visually inspected for suitable conditions for flow meter installation. Over 800 flow meter sites were physically entered and inspected for confined space entry safety, manhole and sewer condition and sewer characteristics. Digital photographs were taken at ground level, looking down the manhole and inside the sewer.

b) **Identified and mapped CSO structures and outfalls** - An updated map showing all known flow regulating devices, outfall structures, receiving waters, designated use and wetland areas was prepared in conjunction with submittal of the Blue River WWTP NPDES permit application.

c) **Compiled CSS interceptor information into database** - Inspection and photograph information were compiled into a database based on Field Investigation Protocol issued in April 2005. Temporary flow metering inspection data was gathered and compiled into a database for transfer to CSS basin modeling.

6.9.2 Monitoring CSS Overflows and Impacts

Monitoring overflows in the CSS and identifying their impacts involved the following programs and control measures active in 2005:

- Sewer Back-Up Program;
- OCP CSO/Stormwater water quality monitoring; and
- Receiving water quality monitoring.

a) **Sewer Back-Up Program** - Work started in 2005 on a Sewer Back-Up Program, formerly called Water-in-Basement (WIB) program, to identify patterns and reduce repeat sewer back-ups. See Section 2.13 for further details on the program.

b) **OCP CSO/Stormwater water quality monitoring** - To document existing water quality 9 CSO locations were sampled and monitored for 4 storm events, and 6 stormwater locations for 3 storm events. A total of 178 samples were collected and analyzed for up to 34 water quality parameters and field tested for dissolved oxygen, temperature, pH and conductivity.

Water Quality Monitoring – Brush Creek

c) **Receiving water quality monitoring** - Four programs were active during 2005 to document existing receiving water quality in:

- Brush Creek - OCP and USGS;
- Blue River - OCP and USGS;
- Missouri River - USGS; and
- Kansas River - USGS.

WSD monitored 10 locations biweekly along Brush Creek. Through October, 149 samples were collected and analyzed for fecal coliform, total suspended solids, DO, temperature, pH and conductivity.

OCP monitored 17 locations during 4 storm events along Brush Creek and the Blue River. 289 samples were collected and analyzed for up to 27 water quality parameters and field tested for DO, temperature, pH and conductivity

USGS monitored 19 locations along Brush Creek and the Blue River under the following conditions:

- Baseline monitoring at 19 locations during 3 non-storm events;
- Storm event monitoring at 5 locations during 4 storm events;
- Continuous water quality monitoring at 2 locations;
- Continuous streamflow measurements at 6 locations; and
- Bacteria source-typing and biological assessments at 5 locations.

USGS monitored water quality at 10 cross-sections in the Missouri River and the Kansas River. Samples were taken for one baseline event and one storm event. Measurements were taken for bathymetric (water depth) and velocity profiles to study mixing characteristics in the rivers.

7 PROJECTS

This section provides information about capital improvement projects initiated, extended through, or completed in 2005 that relate to the Wet Weather Solutions Program and the OCP. The capital projects generally fall into one of the following categories:

- Collection System Projects;
- In-Fill Sewer Projects; or
- 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; and
- Project Photograph – if available.

7.1 Collection System Projects

7.1.1 Brookside Area Smoke Testing
7.1.2 Brookside Sanitary Sewer Improvements – Phase 2 (Huntington Relief Sewer)
7.1.3 Brookside Sanitary Sewer Improvements – Phase 3
7.1.4 Brookside Sanitary Sewer Improvements – Phase 4 (Crestwood)
7.1.5 Brookside Sanitary Sewer Improvements – Phase 5
7.1.6 CID Stormwater Phase 1 East Branch
7.1.7 City-Wide Sewer Repair Contract – 2005
7.1.8 City-Wide Sewer System Cleaning – 2005
7.1.9 City-Wide Television Inspection of Sanitary Sewers – 2005
7.1.10 City-Wide Television Inspection of Sanitary Sewers – 2006
7.1.11 Dora Avenue Sewer Rehabilitation – Phase III
7.1.12 Downtown Arena City Utilities Relocation
7.1.13 Emergency Sanitary Sewer Repair at West 62nd Street & Brookside
7.1.14 Freight House District Sewer Rehabilitation

7.2 In-Fill Sewer (Septic Tank Elimination Program)

7.2.1 39th & Blue Ridge Cut-Off
7.2.2 48th Street & Emery Avenue
7.2.3 48th Street & Logan Avenue
7.2.4 48th Terrace & Logan Avenue
7.2.5 55th & Bennington - Phase 1
7.2.6 55th & Bennington Sanitary Sewer - Phase 2
7.2.7 59th Street & Norfleet Road
7.2.8 66th St & Manchester Ave
7.2.9 82nd St & James A Reed Rd
7.2.10 83rd Street & Oldham Road
7.2.11 97th Street & Eastern Avenue
7.2.12 135th Street & Cherry Street
7.2.13 E 49th Street & Farley Ave
7.2.14 Leeds Rd & Hunter Ave
7.2.15 NE 32nd Street & N Garfield Avenue
7.2.16 NE 37th & N Olive St
7.2.17 NE 38th & N Flora
7.2.18 NE 38th & N Lydia
7.2.19 NE 38th Street & N Brighton Avenue
7.2.20 NE 39th & N Prather
7.2.21 NE 48th & N Bristol
7.2.22 NE 52nd Street & Randolph Road
7.2.23 NE 55th Street & N Bennington Avenue

7.2.24 NE 61st & N Wheeling
7.2.25 NE 68th Terrace & N Belmont
7.2.26 NE 80th & N Antioch Road
7.2.27 NE 88th & N Forest
7.2.28 NE 88th & N Lathrop
7.2.29 NE 92nd & View Crest Drive Phase 2
7.2.30 US-40 Highway & Marsh Avenue

7.3 Facilities Projects

7.3.1 Blue River WWTP Electrical Improvements
7.3.2 KCI Industrial Park Pump Station and Forcemain
7.3.3 Kansas City Power & Light District City Utilities Relocation
7.3.4 Rocky Branch WWTP Expansion
7.3.5 Turkey Creek Pump Station Modifications
7.3.6 Wastewater Telemetry System Phase I

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

Brookside Area Smoke Testing

Contract No.: ***867***
Project No.: ***81000286***

Scope: Smoke testing to identify infiltration/inflow sources.

Location: The project is located in approximately 1,850 acres of the Brookside area bounded by 50th Street to the North, 75th Street to the South, Rockhill Road to the East, and State Line Road to the West.

Description: Smoke testing of approximately 262,000 linear feet of pipe. Crews used standardized field forms and attached digitized photos of all observed I/I defects to each smoke test record. A report including procedures and findings for each property and line segment was also included.

Benefit: Identification of private inflow stormwater to the sanitary sewers as well as any direct stormwater inflow sources in the public sewer.

Project Manager: Dave Silverstein/Terry Leeds
Planner: Overflow Control Program
Designer: Overflow Control Program
Contractor: Wade & Associates, Inc.

Project Start: January 27, 2005
Project End: April 7, 2005
Operational Date: N/A

Project Cost: $144,382
Project Status: Complete

Kansas City Overflow Control Program

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

Brookside Sanitary Sewer Improvements - Phase 2 (Huntington Relief Sewer)

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

Scope: Construction of new storm drainage and sanitary sewer pipes to increase system capacity.

Location: The project area is bounded by 61st Terrace to the North, Huntington Road to the South, Brookside Boulevard to the East and Pennsylvania Avenue to the West.

Description: The second phase of improvements designed to reduce flooding and sewer back-ups through installation of new storm drainage and sanitary sewer pipe. The current systems are located in yards and under houses. The project consists of installation of 2,800 feet of relief storm drain and 2,600 feet of relief sanitary sewer in the street away from basements to reduce the chance for sewage back-ups. Both the existing and new pipes will be used, expanding the carrying capacity of the systems.

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

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

Construction Start: December 2004
Construction End: May 2006
Operational Date: May 2006 (Estimated)

Project Cost: $2,900,000 (Construction)
Project Status: Under Construction

Kansas City Overflow Control Program

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

Brookside Sanitary Sewer Improvements - Phase 3

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- generally 57th Street to 65th Street; Ward Parkway to Wornall

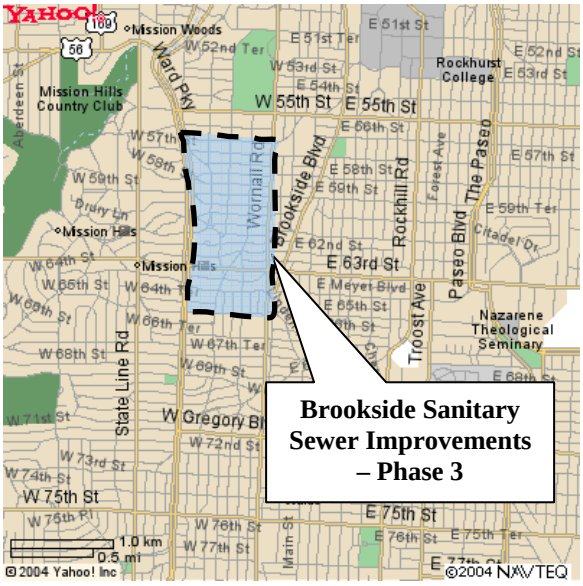
Description: The third phase of improvements designed to reduce flooding and sewer back-ups through replacement of catch basins in streets to carry stormwater runoff, upsizing approximately 21,500 feet of existing storm drainage, and upsizing approximately 2,900 feet of sanitary sewer pipe system primarily 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: N/A

Design Start: April 2004
Design End: May 2006
Operational Date: May 2008 (Estimated)

Project Cost: $8,000,000 (Design and Estimated Construction)
Project Status: Under Design



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- 54th Street to 56th Street; Brookside Boulevard to Holmes Road

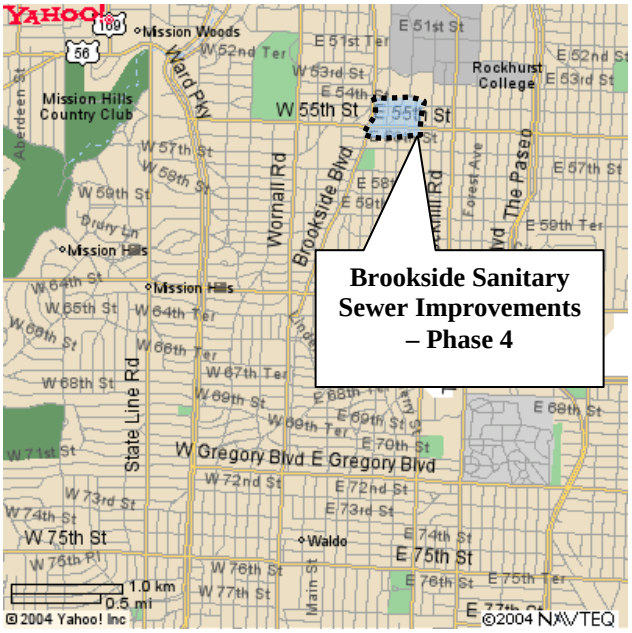
Description: The fourth phase of improvements designed to reduce flooding and sewer back-ups through replacement of catch basins in streets to carry stormwater runoff, repair of approximately 5,500 feet of the sanitary sewer systems and possible upsizing of approximately 4,500 feet of storm drainage. 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: N/A (Lowest bidder-not official: CG Construction Co.)

Construction Start: December 20, 2005 (Bid Date)
Construction End: November 2007
Operational Date: November 2007 (Estimated)

Project Cost: $5,850,000 (Construction)
Project Status: Construction Bid Process



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, and an alignment routing study for 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

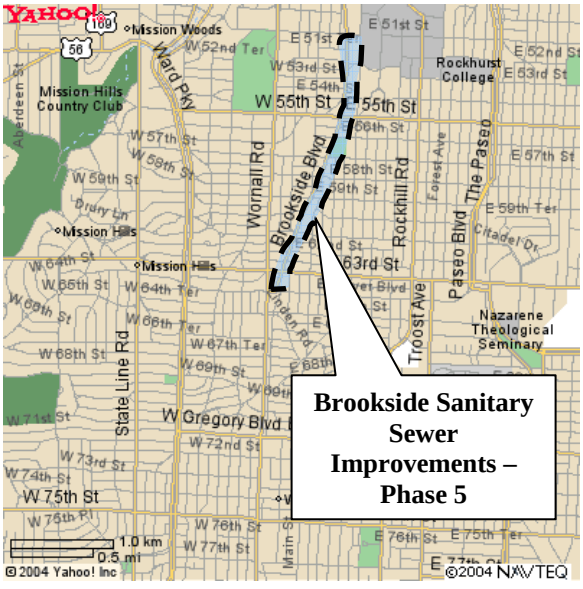
Description: The fifth phase of improvements primarily consists of the design and construction of a new larger relief sewer parallel to the existing storm drainage interceptor pipe. The design also includes upsizing approximately 10,500 feet of the existing sanitary sewer pipe to increase carrying capacity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

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

Design Start: June 2005
Design End: March 2007
Operational Date: May 2012 (Estimated)

Project Cost: $21,000,000 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

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

CID Stormwater Phase 1 East Branch

Contract No.: ***057***
Project No.: ***81000204***

Scope: Construction of new storm sewers to increase system capacity and reduce flooding.

Location: The site of the work is the public right-of-way of Woodswether Road between Santa Fe Street and Madison Avenue, Madison/Bellview Avenue between Woodswether Road and 8th Street, and 8th Street.

Description: This area of the Central Industrial District was subject to frequent flooding due to lack of system capacity. The project consists of installation of 2,000 feet of new storm sewers ranging in size from 24-inches to 66-inches, curb inlets, manholes, and other work.

Benefit: Increased capacity in the combined sewer, flooding reduction.

Project Manager: Terry Godard
Planner: Taliaferro & Browne, Inc.
Designer: Taliaferro & Browne, Inc.
Contractor: J. E. Dunn/Wilson Plumbing

Construction Start: December 2003
Construction End: May 2005
Operational Date: May 2005

Project Cost: $2,200,000
Project Status: Construction Complete

Kansas City Overflow Control Program

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

City-Wide Sewer Repair Contract - 2005

Contract No.: ***849***
Project No.: ***8100223***

Scope: Sewer repairs throughout the city.

Location: City-wide

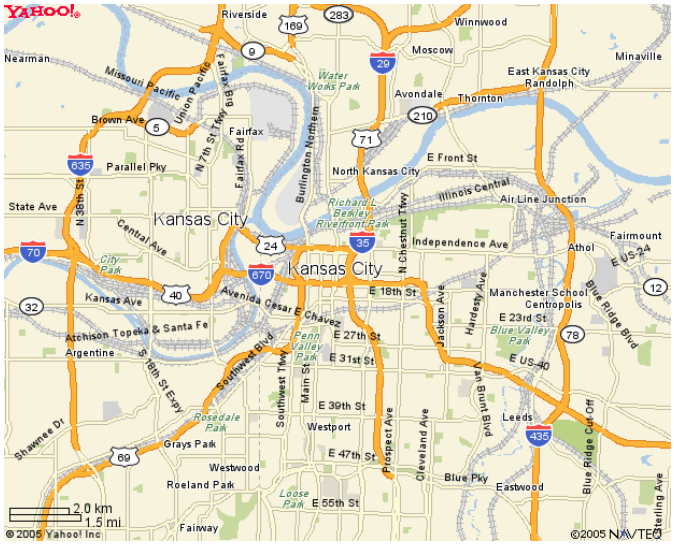
Description: Ongoing program by Water Services Department to repair the sewers throughout the City. The project consists of the repair of private sewer line failures within public rights-of-way or easements, and the repair and replacement of small sections (5 feet to 25 feet) of existing 8-inch, 10-inch,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

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

Project Manager: Karine Papikian
Planner: Water Services Department
Designer: Water Services Department
Contractor: Wilson Plumbing

Construction Start: October 26, 2004
Construction End: December 27, 2005
Operational Date: December 27, 2005

Project Cost: $614,350
Project Status: Complete



Kansas City Overflow Control Program

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

City-Wide Sewer System Cleaning - 2005

Contract No.: ***896***
Project No.: ***8100???***

Scope: Cleaning of Sanitary Sewers

Location: City-Wide

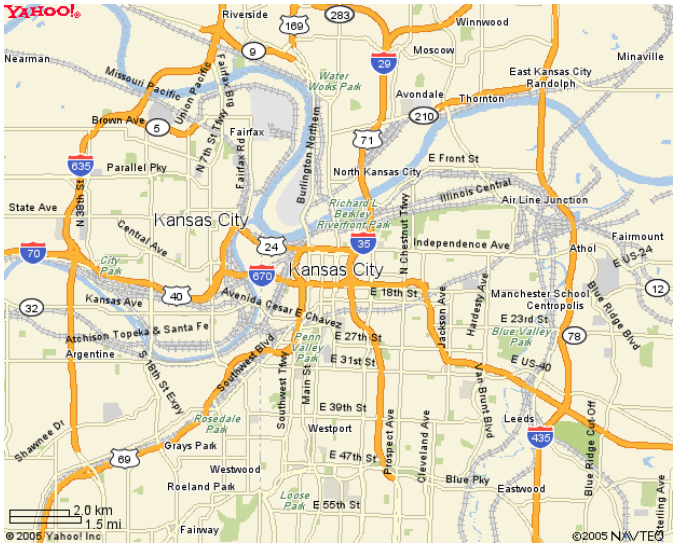
Description: Sewer line cleaning throughout the sewer system on demand, as assigned by Water Services. Typically, the cleaning work is for sewers that are larger diameter, heavily silted, severely blocked, or poorly accessible.

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, 2005
Construction End: December 31, 2005
Operational Date: N/A

Project Cost: $200,000
Project Status: Complete



Kansas City Overflow Control Program

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

City-Wide Television Inspection of Sanitary Sewers - 2005

Contract No.: ***846***
Project No.: ***8100218***

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

Location: The project is located primarily in the Brookside and Crestwood Neighborhoods

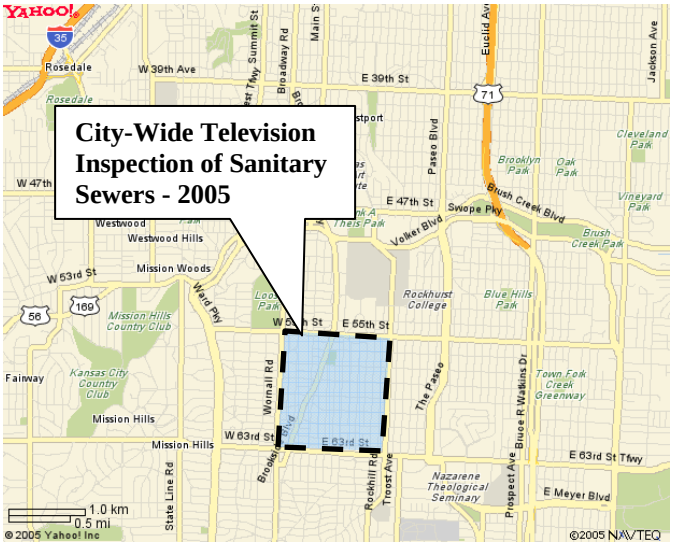
Description: Related to the Brookside Sewer Project, the project involves digital video recording the inspection of approximately 33,333 linear feet of various diameters of sanitary sewer.

Benefit: Recommendations for future rehabilitation.

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

Project Start: October 8, 2004
Project End: October 8, 2005
Operational Date: N/A

Project Cost: $50,000
Project Status: Complete



Kansas City Overflow Control Program

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

City-Wide Television Inspection of Sanitary Sewers - 2006

Contract No.: ***896***
Project No.: ***61000018***

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.

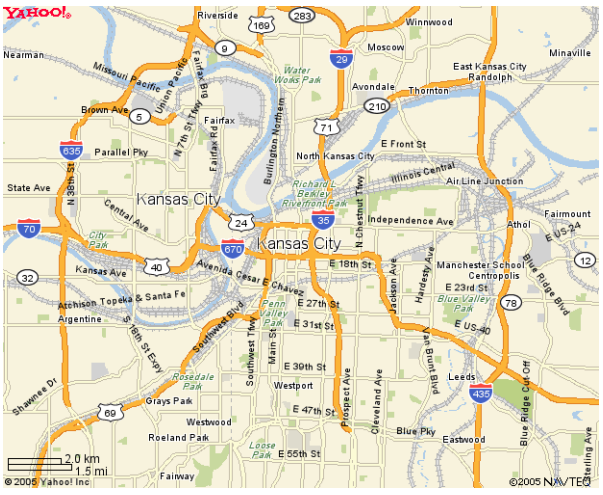
Description: The project involves digital video recording the inspection of approximately 133,333 linear feet of various diameters of sanitary sewer in portions of the City's sewer system citywide.

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

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

Project Start: July 5, 2005
Project End: July 1, 2006
Operational Date: N/A

Project Cost: $200,000
Project Status: Active



Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***NEID***

Dora Avenue Sewer Rehabilitation – Phase III

Contract No.: ***811***
Project No.: ***81000182***

Scope: The project consists of cured-in-place sewer lining and manhole rehabilitation work.

Location: The project area is bounded by Front Street to the North, Lexington Avenue to the South, Olive Street to the East and I-35 Highway to the West.

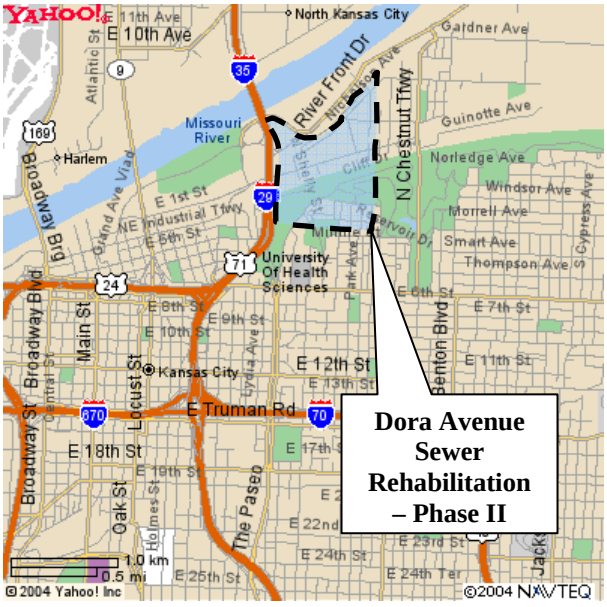
Description: The existing combined sewer system overflows during wet weather due to inflow and infiltration and storm water runoff. Rapid or significant rain events often result in flooding and sewer backups. Approximately 8,072 feet of 24-inch to 72-inch of combined sewers including all manholes underwent rehabilitation using a structural cured-in-place pipe lining to recover pipe capacity.

Benefit: Increase structural integrity of the sewer system and increase pipe capacity.

Project Manager: Matt Thomas
Planner: Water Services Department
Designer: Water Services Department
Contractor: Insituform Technologies USA Inc.

Construction Start: January 20, 2005
Construction End: November 30, 2005
Operational Date: November 30, 2005

Project Cost: $2,374,211 (Design and Construction)
Project Status: Construction Complete



Kansas City Overflow Control Program

Council District(s): ***2***
Watershed: ***CID***

Downtown Arena City Utilities Relocation

Contract No.: ***###***
Project No.: ***89000505***

Scope: Relocation of Storm and Sanitary Sewer Lines.

Location: 13th Street to Truman Road/Grand Boulevard to Oak Street.

Description: Relocation of all existing combined, storm and sanitary sewers on the site of the Downtown Sprint Arena project site, covering 4 city blocks. The sewer line relocation work was divided into 3 phases. Phase 1 and Phase 2 included utility modification and cutoff. Phase 3 includes new sewer construction, including 1,400 feet of concrete storm sewer (42-inch to 54-inch), and 1,250 feet of cured-in-place sewer in existing sewers (15-inch to 36-inch).

Benefit: Separation of existing combined sewers eliminates the contribution of combined flow from this site. In addition, the replacement of existing aging sanitary sewers reduces infiltration and inflow from this site.

Project Manager: Richard Parmeter

Planner: Water Services Department

Designer: Black & Veatch

Contractor: Pyramid Construction Brandy Electric Kissick Construction for Phase 1, 2 and 3, respectively

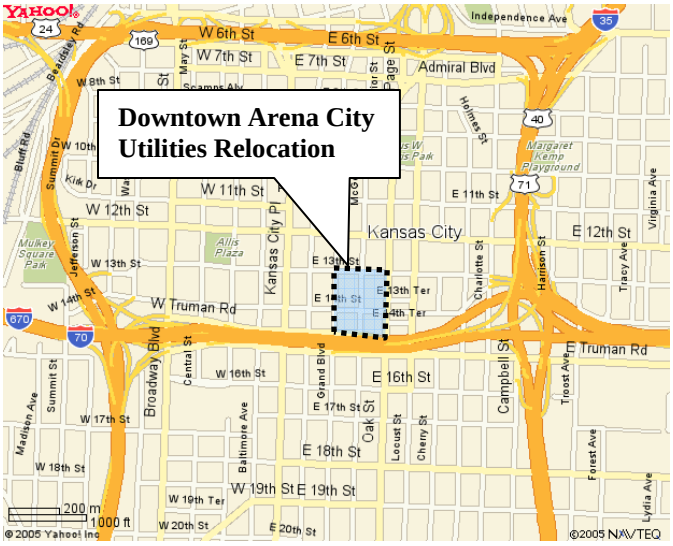
Construction Start: April 18, April 25, and June 23, 2005 (Phase 1, 2 and 3, respectively)

Construction End: July 12, June 22, and June 23, 2006 (Phase 1, 2 and 3, respectively)

Operational Date: June 23, 2006

Project Cost: $5,661,043 (5.3 % for Phase 1 and 2; 94.7% for Phase 3)

Project Status: Under Construction



Kansas City Overflow Control Program

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

Emergency Sanitary Sewer Repair at West 62nd Street & Brookside

Contract No.: ***877***
Project No.: ***81000287***

Scope: Emergency repair and replacement of existing 8-inch sanitary main.

Location: South side (back lots) of 62nd Street & Brookside Boulevard

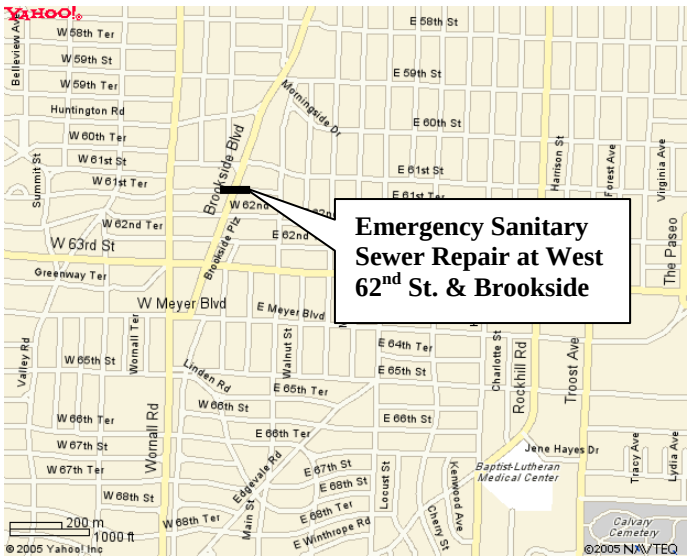
Description: Installation of approximately 418 feet of cured-in-place 8-inch sanitary sewer pipe, five point repairs to replace up to 10 feet of pipe for each repair, seven service line relocations with clean outs, and replacement of 160 feet of 8-inch sewer main.

Benefit: Reduction of basement backups for residential and commercial consumers served by the 8-inch sanitary sewer main.

Project Manager: Karine Papikian
Planner: Water Services Department
Designer: Water Services Department
Contractor: Insituform Technologies USA, Inc.

Construction Start: January 14, 2005
Construction End: April 20, 2005
Operational Date: April 20, 2005

Project Cost: $150,000 (Construction)
Project Status: Construction Complete



Kansas City Overflow Control Program

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

Freight House District Sewer Rehabilitation

Contract No.: ***831***
Project No.: ***8100202***

Scope: The project consists of cured-in-place sewer lining and manhole rehabilitation work.

Location: The Freight House District is located in southern downtown Kansas City. The project area is bounded by 16th Street to the North, 22nd Street to the South, Baltimore Avenue to the East and Broadway Boulevard to the West.

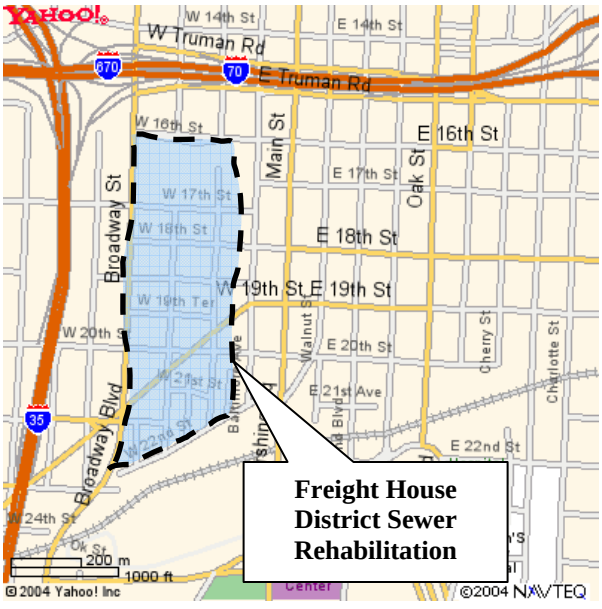
Description: The existing 100-year old combined sewer system overflows during wet weather due to inflow and infiltration and stormwater runoff. Rapid or significant rain events often result in flooding and sewer backups. Approximately 21,000 feet of 12-inch to 66-inch sewer lines underwent rehabilitation using a structural cured-in-place pipe lining to recover pipe capacity.

Benefit: Increased pipe capacity and reduction of street flooding.

Project Manager: Matt Thomas
Planner: Water Services Department
Designer: Water Services Department
Contractor: Insituform Technologies USA Inc.

Construction Start: May 24, 2004
Construction End: May 3, 2005
Operational Date: May 3, 2005

Project Cost: $2,527,283
Project Status: Construction Complete



Kansas City Overflow Control Program

Council District(s): ***3***
Watershed: ***Round Grove Creek***

39th & Blue Ridge Cut-Off

Contract No.: ***XXX***
Project No.: ***89003370***

Scope: Design and construction of approximately 8,200 linear feet of 8-inch sanitary sewers and 50 manholes.

Location: The project is bounded by US Hwy 40 to the north, 39th Street to the north, Denton Road to the east, and Blue Ridge Cutoff to the west.

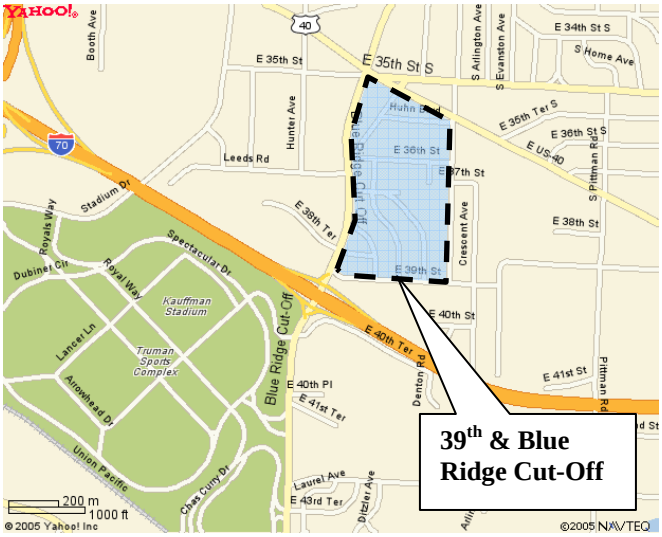
Description: Construct sanitary sewers for neighborhood on septic systems in Sewer Districts 10060 and 10064. The new sewers will flow to the south, tie into a joint district sewer running to the east along 39th Street, connect to the Round Grove Interceptor new 39th Street and Denton Road, and receive treatment at the Blue River Wastewater Treatment Facility. This work also includes upgrading approximately 1,550 linear feet of 6-inch waterline.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Delich, Roth & Goodwillie, P.A.
Contractor: N/A

Design Start:	December 1, 2004	**Construction Start:**	November 2006
Design End:	August 14, 2006	**Construction End:**	May 2007
		Operational Date:	May 2007 (Estimated)

Project Cost: $1,060,839 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Little Blue River***

48th Street & Emery Avenue

Contract No.: ***XXX***
Project No.: ***89003613***

Scope: To construct a new sanitary sewer line consisting of approximately 600 linear feet of 8-inch sewer pipe and 2 manholes.

Location: The project is bounded by Crane Avenue on the east, Hocker Road on the west, the southern line of Lot 23 of Sni-A-Bar Addition subdivision on the south, and 40 Highway on the north, in Kansas City, Missouri within Jackson County.

Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of 48th Street and Emery Avenue, designated as Sewer District #13052.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

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

Project Cost: $76,000 (Design and Estimated Construction)
Project Status: Design complete

Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Little Blue River***

48th Street & Logan Avenue

Contract No.: ***XXX***
Project No.: ***89003611***

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

Location: The project is bounded by Crane Avenue on the east, Emery Road on the west, the southern line of Lots 38 and 39 of Sni-A-Bar Addition subdivision on the south, and 40 Highway on the north, Missouri within Jackson County.

Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of 48th Street and Logan Avenue, designated as Sewer District #13051.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

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

Project Cost: $65,875 (Design and Estimated Construction)
Project Status: Design complete

Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Little Blue River***

48th Terrace & Logan Avenue

Contract No.: ***XXX***
Project No.: ***89003605***

Scope: Construct a new sanitary sewer line consisting of approximately 750 linear feet of 8-inch sewer pipe and 4 manholes.

Location: The project is bounded by Crane Avenue on the east, Emery Road on the west, the southern line of Lots 38 and 39 of Sni-A-Bar Addition subdivision on the south, and 40 Highway on the north.

Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of 48th Terrace and Logan Avenue, designated as Sewer District #13050.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

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

Project Cost: $105,000 (Design and Estimated Construction)
Project Status: Design complete

Kansas City Overflow Control Program

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

55th & Bennington – Phase 1

Contract No.: ***XXX***
Project No.: ***89003562/ 81000292***

Scope: Design and construction of approximately 2,900 linear feet of 10-inch sanitary sewers.

Location: The project is generally bounded by Blue Parkway to the north, 55th Terrace to the south, Cambridge Road to the east, and Bennington Avenue to the west.

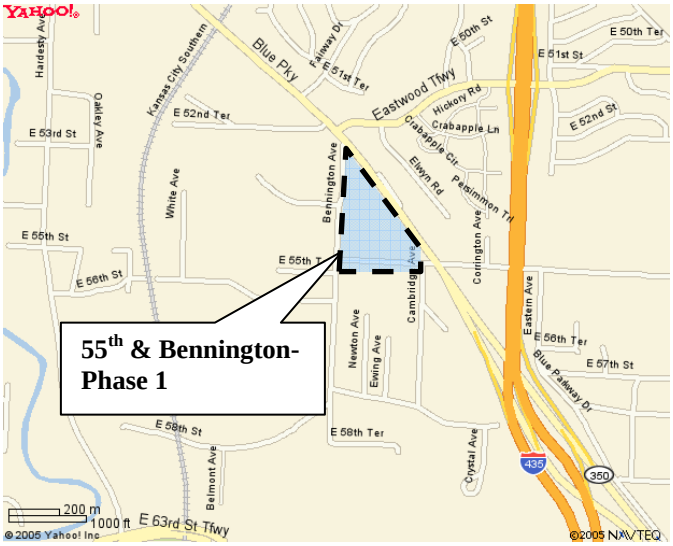
Description: Upgrading neighborhoods from septic system to sanitary sewer collection system. This project has three components consisting of an extension sewer connecting downstream to a new collection system and a tightline replacement sewer serving approximately 25 properties.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Larkin Group
Contractor: N/A

Design Start:	December 1, 2004	**Construction Start:**	June 25, 2006
Design End:	August 20, 2006	**Construction End:**	February 20, 2007
		Operational Date:	February 20, 2007 (Estimated)

Project Cost: $1,008,484 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

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

55th & Bennington Sanitary Sewer – Phase 2

Contract No.: ***XXX***
Project No.: ***89003790***

Scope: Design and construction of approximately 4,400 feet of 8-inch sanitary sewer pipe.

Location: The project is bounded by 55th Street on the north, 58th Street on the south, Cambridge Avenue on the east, and Newton Avenue on the west.

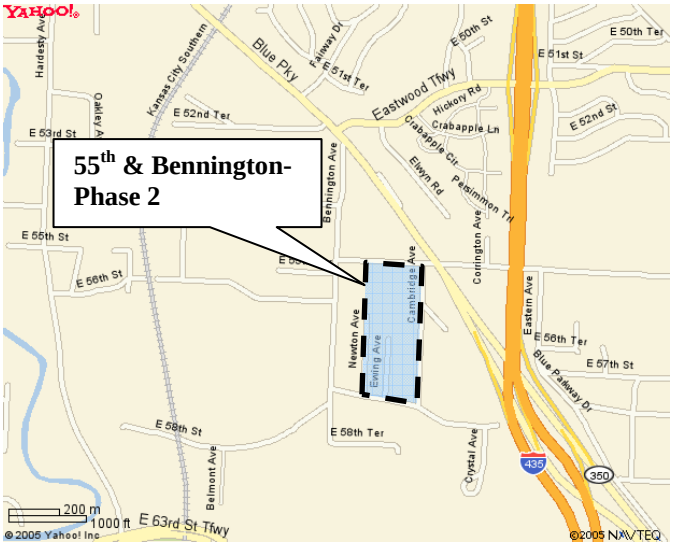
Description: This sanitary sewer extension will serve approximately 50 properties that are currently on private septic systems. The proposed alignment will follow the existing drainage channel to the south and east as it crosses Sewer Districts 11041 & 11042 to serve Sewer District 719 in the future.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: Taliaferro & Browne, Inc.
Contractor: N/A

Design Start:	August 2005	**Construction Start:**	September 2006
Design End:	May 2006	**Construction End:**	December 2006
		Operational Date:	December 2006 (Estimated)

Project Cost: $643,790 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Little Blue River***

59th Street & Norfleet Road

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

Scope: To construct a new sanitary sewer line consisting of approximately 2,010 linear feet of 8-inch sewer pipe and 7 manholes.

Location: The project is bounded by Norfleet Road on the east, Marion Road on the west, 59th Street Terrace on the south, and 58th Street Terrace on the north, in Jackson County, Kansas City, Missouri.

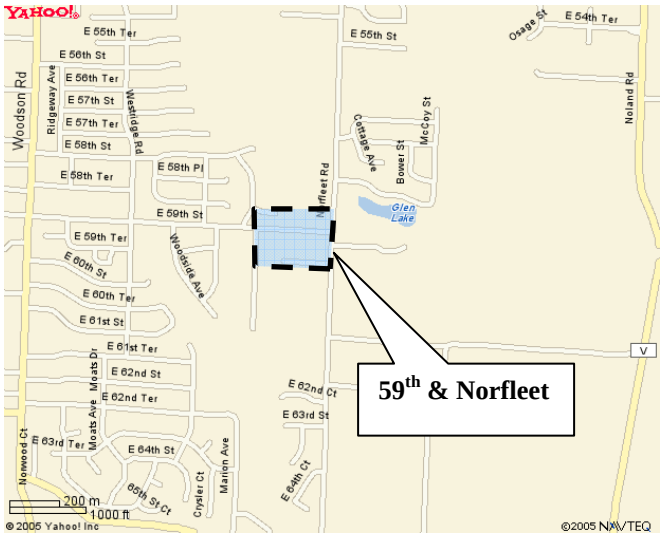
Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of 59th & Norfleet Road, designated as Sewer Districts #13045 and #13046.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

Design Start: April 23, 2001
Design End: November 22, 2005
Operational Date: October 2006

Project Cost: $220,550 (Design and Estimated Construction)
Project Status: Design complete



Kansas City Overflow Control Program

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

66th St & Manchester Ave

Contract No.: ***XXX***
Project No.: ***89003451***

Scope: Design and construction of approximately 9,850 feet of sanitary sewers.

Location: This project is generally bounded by 64th Street to the north, 67th Street to the south, James A. Reed Road to the east, and Interstate 435 to the west.

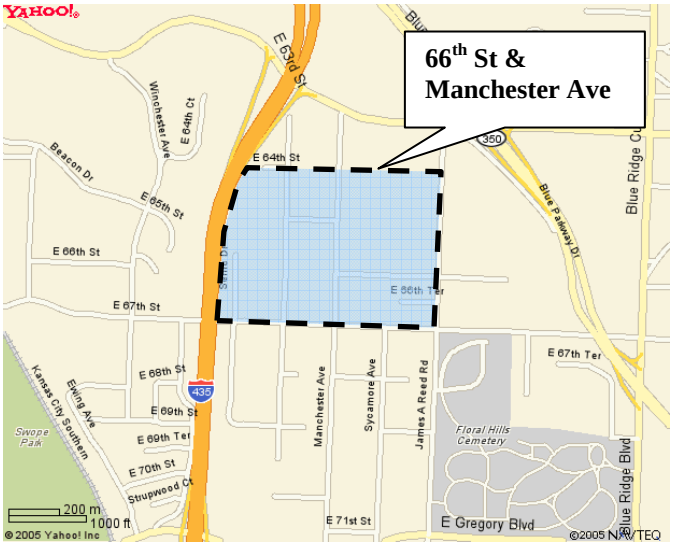
Description: Design and construct sanitary sewer extension for 89 parcels of land, with approximately 240 residents. The properties are served by private septic systems. This project will allow the owners to tie into public sewers.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: HNTB Architects Engineers Planners
Contractor: N/A

Design Start:	April 2, 2005	**Construction Start:**	June 6, 2006
Design End:	October 6, 2005	**Construction End:**	October 16, 2006
		Operational Date:	October 16, 2006 (Estimated)

Project Cost: $1,307,977 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

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

82nd St & James A Reed Rd

Contract No.: ***XXX***
Project No.: ***89003450***

Scope: Design and construction of approximately 5,158 feet of sanitary pipe and 29 manholes.

Location: This project is generally bounded by 80th Street to the north, 83rd Street to the south, James A Reed Road to the east, and Manchester Avenue to the west.

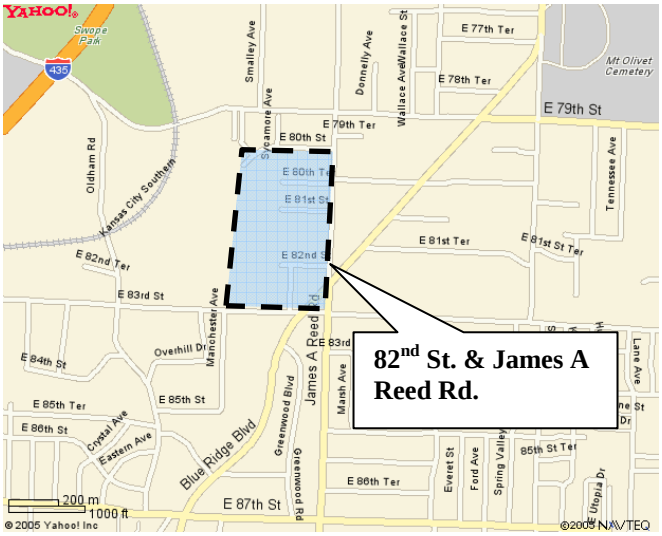
Description: This project will construct sanitary sewers to connect residences to City sewer. This project is being designed and will be bid and constructed together with Project 3505 – 83rd and Oldham Road.

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

Project Manager: Mark Wolff
Planner: Water Services Department/CIMO
Designer: ET Archer Corporation
Contractor: N/A

Design Start:	November 1999	**Construction Start:**	August 2006
Design End:	August 2005	**Construction End:**	October 2006
		Operational Date:	October 2006 (Estimated)

Project Cost: $353,600 (Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

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

83rd Street & Oldham Road

Contract No.: ***XXX***
Project No.: ***89003505***

Scope: Design and construction of approximately 1,156 feet of sanitary sewer pipe and 8 manholes.

Location: This project is generally bounded by 82nd Street on the north, 83rd Street on the south, Overhill Road on the east, and Oldham Road on the west.

Description: This project will construct collection systems and joint district sewers for this area. This project is designed with and will be bid and constructed with Project 3450 – 82nd & James A Reed.

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

Project Manager: Mark Wolff
Planner: Water Services Department/CIMO
Designer: ET Archer Corporation
Contractor: N/A

Design Start:	November 1999	**Construction Start:**	August 2006
Design End:	August 2005	**Construction End:**	January 2007
		Operational Date:	January 2007 (Estimated)

Project Cost: $25,500 (Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***6***
Watershed: ***Fairwood-Robandee***

97th Street & Eastern Avenue

Contract No.: ***XXX***
Project No.: ***89003723***

Scope: Construction of approximately 14,000 linear feet of 8-inch and 10-inch sanitary sewers.

Location: The project is bounded by Bannister Road on the north, 100th Street on the south, Overhill Road on the east, and Blue Ridge Boulevard on the west.

Description: This project consists of construction of three new gravity sanitary sewer collection systems and one joint district sewer system to serve approximately 100 residences in an existing residential area within Bannister Acres.

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

Project Manager: Mark Wolff
Planner: Water Services Department/CIMO
Designer: George Butler & Associates
Contractor: Wilson Plumbing

Construction Start: November 14, 2005
Construction End: April 2006
Operational Date: April 2006 (Estimated)

Project Cost: $1,536,000 (Construction)
Project Status: Under Construction

Kansas City Overflow Control Program

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

135th Street & Cherry Street

Contract No.: ***XXX***
Project No.: ***89003727***

Scope: To construct a new sanitary sewer line consisting of approximately 1,480 linear feet of 8-inch sewer pipe and 5 manholes.

Location: The project is bounded by Missouri Pacific Railroad on the east, Oak Street on the west, Martin Industrial Area on the south, and 134th Street on the north, in Kansas City, Missouri within Jackson County.

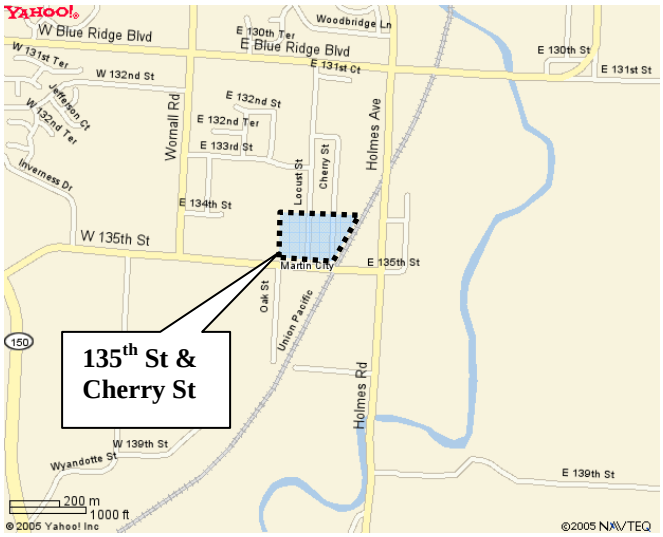
Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of 135th Street and Cherry Street, designated as Sewer District #6028.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

Design Start: November 20, 2001
Design End: January 25, 2006
Operational Date: October 2006

Project Cost: $162,500 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

Council District(s): ***5***
Watershed: ***Round Grove Creek***

E 49th Street & Farley Ave

Contract No.: ***XXX***
Project No.: ***89003778***

Scope: Construct a new sanitary sewer line consisting of approximately 2,600 linear feet of 8-inch sewer pipe and 12 manholes.

Location: The project is bounded by Blue Ridge Cut-Off on the east, Farley Avenue on the west, Raytown Road on the north, and 49th Street on the south in Kansas City, Missouri within Jackson County.

Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in Sewer District #10043.

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

Project Manager: Mark Wolff
Planner: Water Services Department/CIMO
Designer: Larkin Group
Contractor: N/A

Design Start:	February 2005	**Construction Start:**	May 2006
Design End:	April 2006	**Construction End:**	September 2006
		Operational Date:	September 2006 (Estimated)

Project Cost: $429,000 (Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***3***
Watershed: ***Round Grove Creek***

Leeds Rd & Hunter Ave

Contract No.: ***XXX***
Project No.: ***89003372***

Scope: Design and construction of new sanitary sewers.

Location: Leeds Road & Hunter Avenue

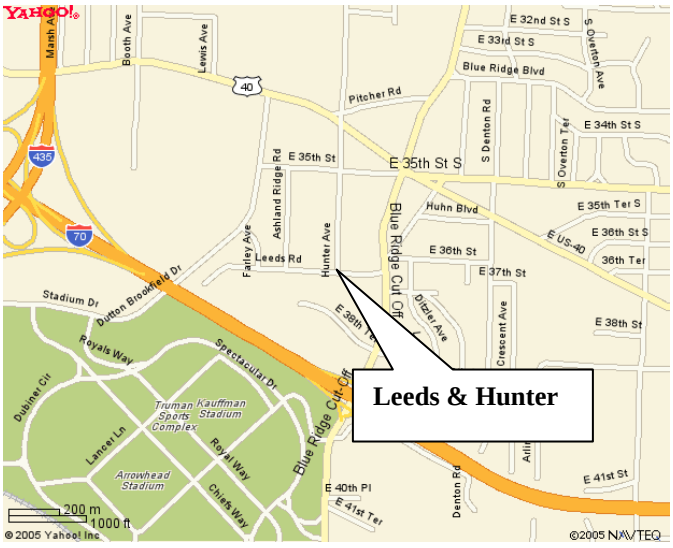
Description: Design and construction of 2,900 feet of gravity sanitary sewer extension. This sewer will serve 37 parcels of land and benefit approximately 30 households.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: Dubois Consulting
Contractor: N/A

Design Start:	October 4, 2004	**Construction Start:**	July 16, 2006
Design End:	June 14, 2006	**Construction End:**	October 27, 2006
		Operational Date:	October 27, 2006 (Estimated)

Project Cost: $268,564 (Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Rock Creek***

NE 32nd Street & N Garfield Avenue

Contract No.: ***XXX***
Project No.: ***89003767***

Scope: Design and construction of approximately 2,000 feet of sanitary sewers.

Location: This project is generally bounded by NE 34th Terrace to the north, NE 32nd Street to the south, N Garfield Avenue to the east, and NE Prather Avenue to the west.

Description: This project serves approximately 7 acres and will update an existing neighborhood from a septic system to sanitary sewers. The new sewer will flow south to an existing city sewer.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: SK Design Group Inc.
Contractor: N/A

Design Start:	April 18, 2005	**Construction Start:**	July 11, 2006
Design End:	March 31, 2006	**Construction End:**	November 26, 2006
		Operational Date:	November 26, 2006 (Estimated)

Project Cost: $280,000 (Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Rock Creek***

NE 37th St & N Olive St

Contract No.: ***XXX***
Project No.: ***89003592***

Scope: Construction of new sanitary sewer consisting of 3,864 linear feet of 8-inch sewer pipe and 26 manholes.

Location: The project is generally bound by NE 37th Street to the north, NE Rock Creek Road to the south, N Olive Street to the east, and NE Prather Road to the west.

Description: Updating an existing neighborhood from a septic system to new sanitary sewers. This project is combined with Stormwater Division's Project No. 3772.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Olsson Associates, Inc.
Contractor: Site Rite Construction

Construction Start: May 16, 2005
Construction End: December 13, 2005
Operational Date: December 13, 2005

Project Cost: $572,509 (Design and Construction)
Project Status: Construction Complete

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Rock Creek***

NE 38th & N Flora

Contract No.: ***XXX***
Project No.: ***89003532***

Scope: Construction of new sanitary sewer line extension consisting of approximately 1,600 linear feet and 10 manholes.

Location: The project is generally bound by NE 38th Street to the north, N Flora Avenue to the south, N Wayne Avenue to the east, and N Lydia Avenue to the west.

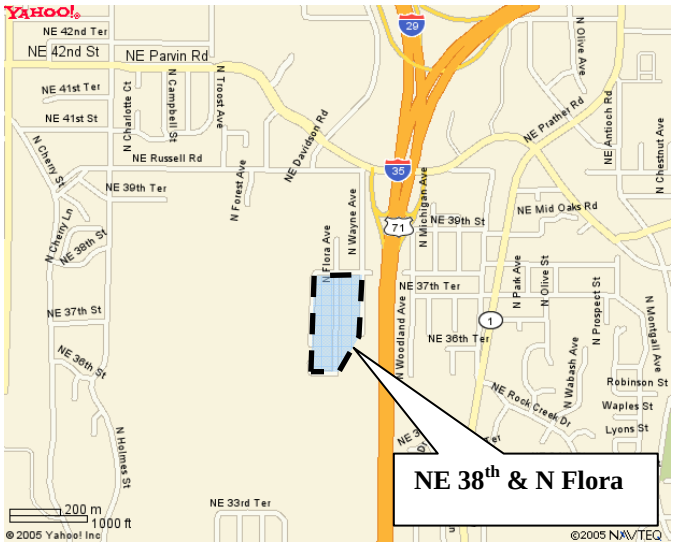
Description: The septic sewer is being upgraded to the sanitary sewer system. This project will serve Sewer Districts 16003 and 16004. It is being completed in coordination with sanitary sewer project number 3531, located at NE 38th and N Lydia.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Water Services Department/CIMO
Contractor: Site Rite Construction

Construction Start: September 6, 2005
Construction End: December 22, 2005
Operational Date: December 22, 2005

Project Cost: $200,453 (Design and Construction)
Project Status: Construction Complete



Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Rock Creek***

NE 38th & N Lydia

Contract No.: ***XXX***
Project No.: ***89003531***

Scope: Construction of new sanitary line extension consisting of approximately 680 linear feet of 8-inch pipe and 6 manholes.

Location: NE 38th Street & N Lydia Avenue

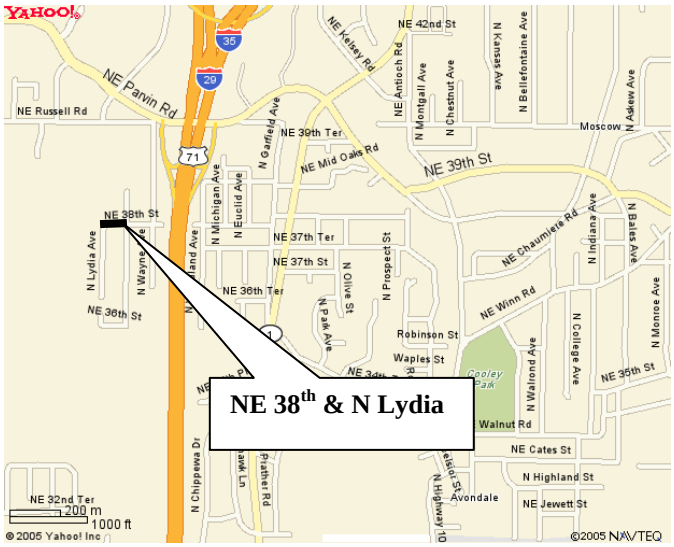
Description: This neighborhood on septic system is being upgraded to the sanitary sewer system. This project will serve Sewer Districts 16003 and 16004. This project ties into the sewer extension located at NE 38th and Flora.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Water Services Department/CIMO
Contractor: Site Rite Construction

Construction Start: September 6, 2005
Construction End: December 22, 2005
Operational Date: December 22, 2005

Project Cost: $108,794 (Design and Construction)
Project Status: Construction Complete



Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Rock Creek***

NE 38th Street & N Brighton Avenue

Contract No.: ***XXX***
Project No.: ***89003728***

Scope: Design services for construction of approximately 5,500 linear feet of sanitary sewers and 22 manholes.

Location: The project is generally bounded by NE Parvin Road to the north, NE 37th Street to the south, N Denver Avenue to the east, and N Lister Avenue to the west.

Description: Upgrading neighborhood on septic system to sanitary sewers in Sewer District 18002 to serve approximately 53 parcels. The new sewers will flow to the south, tie into an existing City sewer line running down NE 37th Street, and receive treatment at the Birmingham Wastewater Treatment Plant.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Consoer Townsend Envirodyne
Contractor: N/A

Design Start:	January 14, 2005	**Construction Start:**	October 15, 2006
Design End:	June 29, 2006	**Construction End:**	February 13, 2007
		Operational Date:	February 13, 2007 (Estimated)

Project Cost: $1,154,944 (Design and Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Rock Creek***

NE 39th & N Prather

Contract No.: ***XXX***
Project No.: ***89003566***

Scope: Design and construction of approximately 510 feet of sanitary sewers.

Location: This project is generally bounded by NE Russell Road to the north, NE 38th Street to the south, N Prather Road to the east, and N Garfield to the west.

Description: This project serves approximately 2 acres and will update an existing neighborhood from a septic system to sanitary sewers. The new sewer will flow northeast to an existing city sewer and will require a highway crossing.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: SK Design Group Inc.
Contractor: N/A

Design Start:	April 18, 2005	**Construction Start:**	July 12, 2006
Design End:	March 31, 2006	**Construction End:**	November 23, 2006
		Operational Date:	November 23, 2006 (Estimated)

Project Cost: $107,000 (Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Randolph Creek***

NE 48th & N Bristol

Contract No.: ***XXX***
Project No.: ***89003530***

Scope: To construct a new sanitary sewer line consisting of approximately 1,435 linear feet of 8-inch sewer pipe and 6 manholes.

Location: The project is bounded by N Winchester Avenue on the east, N Bennington Avenue of the west, NE 48th Street on the south, and NE 49th Street on the north, in Clay County, Kansas City, Missouri.

Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of NE 48th Street and N Bristol Avenue, designated as Sewer District #21002.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

Design Start: April 10, 2002
Design End: April 4, 2006
Operational Date: February 2007

Project Cost: $137,500 (Design and Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Randolph Creek***

NE 52nd Street & Randolph Road

Contract No.: ***XXX***
Project No.: ***89003730***

Scope: To construct a new sanitary sewer line consisting of approximately 645 linear feet of 8-inch sewer pipe and 6 manholes.

Location: The project is bounded by NE Randolph Road on the east, N Bristol Avenue on the west, NE 52nd Street on the south, and NE 53rd Street on the north in Kansas City, Missouri within Clay County.

Description: To construct a new gravity sanitary sewer collection system to serve an existing residential area in the vicinity of NE 52nd Street and NE Randolph Road, designated as Sewer District #20019.

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

Project Manager: Julie Jenson
Planner: Water Services Department
Designer: Water Services Department
Contractor: N/A

Design Start: July 24, 2002
Design End: May 25, 2006
Operational Date: February 2007

Project Cost: $77,050 (Design and Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Mill Creek***

NE 55th Street & N Bennington Avenue

Contract No.: ***XXX***
Project No.: ***89003768***

Scope: Design and construction of approximately 5,350 feet of sanitary sewers.

Location: This project is generally bounded by NE 56th Street to the north, and NE 51st Street to the south, N Cambridge Avenue to the east, and N Bennington Avenue to the west.

Description: This project serves approximately 66 acres and will update an existing neighborhood from a septic system to sanitary sewers. The new sewer will flow north to an existing city sewer.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: SK Design Group Inc.
Contractor: N/A

Design Start:	April 18, 2005	**Construction Start:**	July 18, 2006
Design End:	March 31, 2006	**Construction End:**	November 29, 2006
		Operational Date:	November 29, 2006 (Estimated)

Project Cost: $400,000 (Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Mill Creek***

NE 61st & N Wheeling

Contract No.: ***XXX***
Project No.: ***89003406***

Scope: Design and construction of new sanitary sewer line consisting of approximately 6,600 feet of 8-inch pipe.

Location: 6100 N Wheeling Avenue

Description: Design and construction of five new gravity sanitary sewer collection systems and two joint district sewer system to serve 67 parcels of land (63 property owners) in an existing neighborhood. The properties are currently on private septic systems.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: George Butler & Associates
Contractor: N/A

Design Start:	December 1, 2004	**Construction Start:**	July 11, 2006
Design End:	July 1, 2005	**Construction End:**	October 22, 2006
		Operational Date:	October 22, 2006 (Estimated)

Project Cost: $906,341 (Design and Estimated Construction)
Project Status: In Right-of-Way Condemnation Process

Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***Lower Shoal Creek***

NE 68th Terrace & N Belmont

Contract No.: ***XXX***
Project No.: ***89003453***

Scope: Design and construction of approximately 4,150 linear feet of 8-inch sanitary sewers.

Location: The project is in the vicinity of NE 68th Terrace and N Belmont.

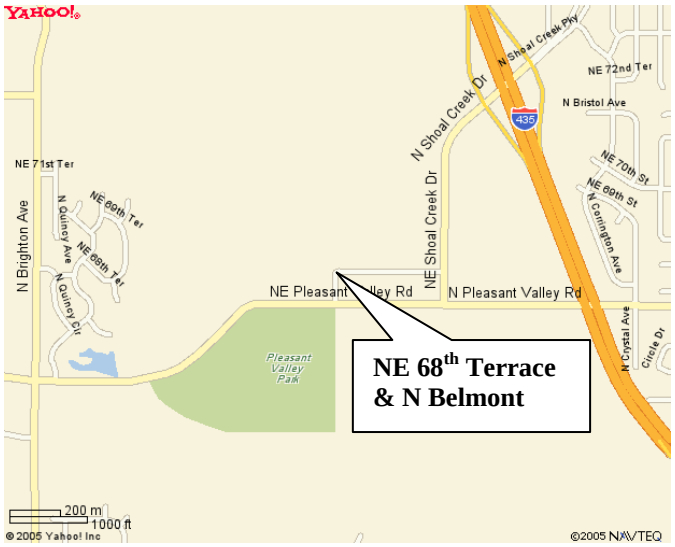
Description: Design and construction of a new gravity sanitary sewer collection system to serve an existing residential area in Sewer Districts #22086-22088 to serve 30 properties which are currently on private septic systems. The area is already developed and will require the restoration of the adjacent yards and land involved.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: HDR Engineering
Contractor: N/A

Design Start:	December 1, 2004	**Construction Start:**	December 5, 2006
Design End:	July 31, 2005	**Construction End:**	March 21, 2007
		Operational Date:	March 21, 2007 (Estimated)

Project Cost: $498,801 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

Council District(s): ***1***
Watershed: ***West Fork Shoal Creek***

NE 80th & N Antioch Road

Contract No.: ***XXX***
Project No.: ***89003449***

Scope: Construction of approximately 3,200 linear feet of 8-inch sanitary sewer pipe.

Location: The project is bounded by NE 83rd Street on the north, NE 80th Street on the north, N Spruce Avenue on the east, and N Indiana Avenue on the west.

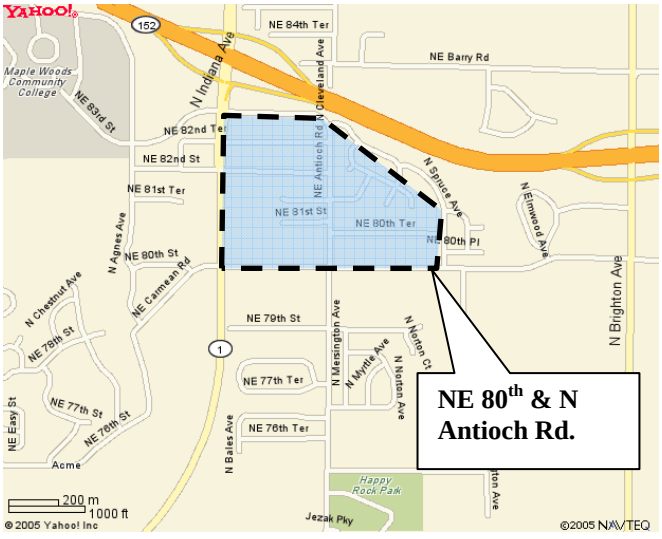
Description: This project includes construction of sanitary sewer to provide collection service to two existing subdivisions south of Highway 152 and east of Highway 1. This project will benefit approximately 50 property owners by providing public gravity sewers for existing residences.

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

Project Manager: Mark Wolff
Planner: Water Services Department/CIMO
Designer: Lutjen Engineering
Contractor: Site Rite Construction

Construction Start: September 06, 2005
Construction End: February 2006
Operational Date: February 2006

Project Cost: $616,073 (Construction)
Project Status: Under Construction



Kansas City Overflow Control Program

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

NE 88th & N Forest

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

Scope: Design and construction of new sanitary sewer line consisting of approximately 2,300 linear feet of 8-inch sanitary pipe and 10 manholes.

Location: The project is bounded by Hwy 152 to the north, NE 88th Street. to the south, N Lathrop to the east, and N Forest Avenue to the west.

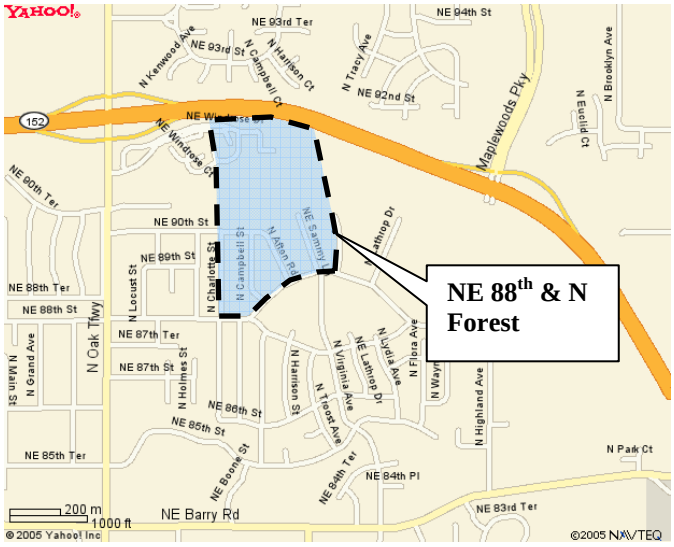
Description: This area will be upgraded from septic sewer to sanitary sewers. The new sewers will flow to the north, tie into an existing City sewer line running along the south fork of Shoal Creek, and receive treatment at the Birmingham Wastewater Treatment Facility. This project will serve 19 properties and is to be constructed under one contract along with Project 3400 NE 88th and N Lathrop Avenue.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: McDonald & Wagner
Contractor: N/A

Design Start:	March 31, 2005	**Construction Start:**	November 19, 2006
Design End:	August 14, 2006	**Construction End:**	February 18, 2007
		Operational Date:	February 18, 2007 (Estimated)

Project Cost: $459,363 (Design and Estimated Construction)
Project Status: Under Design



Kansas City Overflow Control Program

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

NE 88th & N Lathrop

Contract No.: ***XXX***
Project No.: ***89003400***

Scope: Design and construction of new sanitary sewers line consisting of approximately 2,100 linear feet of 8-inch sewer pipe and 8 manholes.

Location: The project is bounded by Hwy 152 to the north, NE 88th Street to the south, N Highland Avenue to the east, and N Forest Avenue to the west.

Description: A neighborhood will be upgraded from septic sewers to sanitary sewers in Sewer District 22092. 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 to be constructed under one contract along with Project 3409 NE 88th and N Forest Avenue.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Larkin Group
Contractor: N/A

Design Start:	March 31, 2005	**Construction Start:**	December 17, 2006
Design End:	September 6, 2005	**Construction End:**	March 18, 2007
		Operational Date:	March 18, 2007 (Estimated)

Project Cost: $556,781 (Design and Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***4***
Watershed: ***Southeast Fork Shoal Creek***

NE 92nd & View Crest Drive Phase 2

Contract No.: ***XXX***
Project No.: ***89003403***

Scope: Construction of approximately 436 linear feet of 21-inch pipe, 2,100 linear feet of 8-inch pipe, and 8 manholes.

Location: The project is generally bound by MO Highway 152 to the north, NE 88th Street to the south, N Main Street to the east, and US Highway 169 to the west.

Description: Construction of a new gravity sanitary sewer collection system to serve an existing residential area in Sewer Districts #22067-22071 to serve 8 properties which are currently on private septic systems. The area is already developed and will require the restoration of the adjacent yards and land involved.

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

Project Manager: Alonzo Burton
Planner: Water Services Department/CIMO
Designer: Water Services Department/CIMO
Contractor: Weidenmann & Godfrey, Inc.

Construction Start: November 2004
Construction End: December 2005
Operational Date: December 2005

Project Cost: $348,500 (Construction)
Project Status: Construction Complete

Kansas City Overflow Control Program

Council District(s): ***3***
Watershed: ***Round Grove Creek***

US-40 Highway & Marsh Avenue

Contract No.: ***XXX***
Project No.: ***89003646/ 81000309***

Scope: Design and construction of approximately 4,690 linear feet of 8-inch sanitary sewers.

Location: The project is generally bounded by 30th Street to the north, US Highway 40 to the south, Booth Avenue to the east, and I-435 to the west.

Description: This project will update an existing neighborhood from a septic system to sanitary sewers. The existing sewer will be extended to serve Sewer Districts 10038 and 10041 and will receive treatment at the Blue River Wastewater Treatment Facility.

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

Project Manager: Andy McCaskill
Planner: Water Services Department/CIMO
Designer: Delich, Roth & Goodwillie, P.A.
Contractor: N/A

Design Start:	April 27, 2005	**Construction Start:**	December 24, 2006
Design End:	November 13, 2006	**Construction End:**	April 24, 2007
		Operational Date:	April 24, 2007 (Estimated)

Project Cost: $1,034,230 (Design and Estimated Construction)
Project Status: Under Design

Kansas City Overflow Control Program

Council District(s): ***X***
Watershed: ***Blue River***

Blue River WWTP Electrical Improvements

Contract No.: ***789, 809***
Project No.: ***8100146***

Scope: Electrical equipment replacement at the Blue River WWTP

Location: 7300 Hawthorne Road, Kansas City, MO

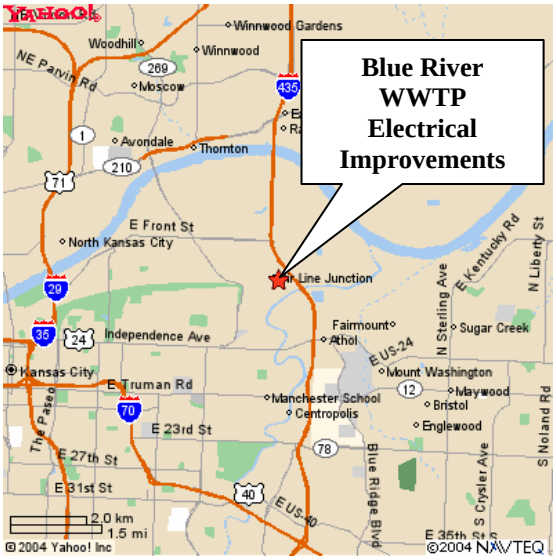
Description: Replacement of electrical equipment in the main power pen at the Blue River primary wastewater treatment plant, including installation of new motor control centers for selected equipment.

Benefit: Improved reliability of electrical equipment, including pumps, thus reducing incidences of bypass flows due to electrical failure.

Project Manager: Morris Ross
Planner: Water Services Department
Designer: Black & Veatch
Contractor: Capitol Electric Construction Co., Inc.

Construction Start: March 1, 2004
Construction End: August 18, 2005
Operational Date: August 18, 2005

Project Cost: $884,670
Project Status: Construction Complete



Kansas City Overflow Control Program

Council District(s): ***2***
Watershed: ***Northwestern***

KCI Industrial Park Pump Station and Forcemain

Contract No.: ***628***
Project No.: ***0099145***

Scope: Replacement of existing treatment plant.

Location: 10555 North Amity Road, Kansas City, MO

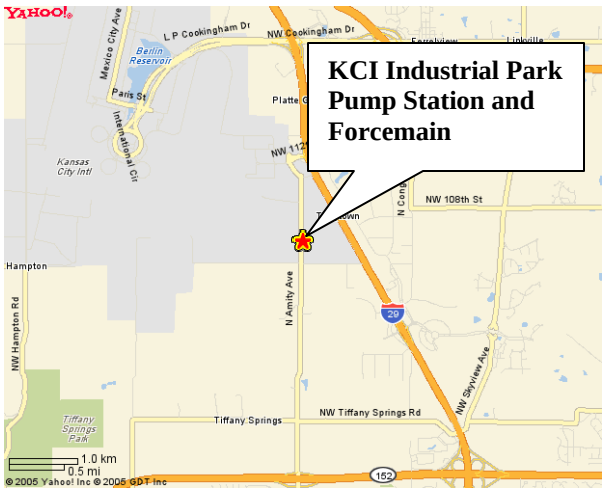
Description: The existing small mechanical treatment plant was constructed in the 1970's and required extensive repairs and upgrades. Studies indicated that replacement of the facility with a new pump station and forcemain connected to the Todd Creek WWTP would be more cost effective than upgrading the plant. The new pump station consists of duplex submersible pumps, valve vault with pre-engineered fiberglass building, approximately 6,750 linear feet of 6 inch diameter forcemain, and site improvements. The old treatment plant has been removed from service and decommissioned. Old basins have been converted to store excess flows after wet weather events.

Benefit: Reduced maintenance and operational costs. Treatment of wastewater in a modern treatment plant.

Project Manager: Richard Parmeter
Planner: Water Services Department
Designer: Archer Engineering
Contractor: Commercial Mechanical Incorporated

Construction Start: June 14, 2004
Construction End: December 31, 2004 (Pump station operational)
Operational Date: March 1, 2005 (Final Completion)

Project Cost: $522,238
Project Status: Construction Complete



Kansas City Overflow Control Program

Council District(s): ***2***
Watershed: ***CID***

Kansas City Power & Light District
City Utilities Relocation

Contract No.: ***###***
Project No.: ***89000-###***

Scope: Relocation of storm and sanitary sewer lines.

Location: The project site includes seven city blocks at the south end of the downtown district. The street boundaries are 12th Street to the north, Truman Road to the south, Grand Avenue to the east, Baltimore Avenue to the west.

Description: The utility replacement/relocation contracts for this project include replacement of all the existing combined sewers on the 30+ acre site with approximately 7,000 feet of separate sanitary sewers and 7,000 feet of storm sewers.

Benefit: Separation of the existing 100% combined sewers eliminates the contribution of combined flow from this site. In addition, the replacement of existing aging sanitary sewers reduces infiltration and inflow from this site.

Project Manager: Clint Robinson

Planner: Water Services Department

Designer: Black & Veatch

Contractor: Five (5) separate construction contracts (Beemer, Beemer, Kissick, Kissick, and Pyramid)

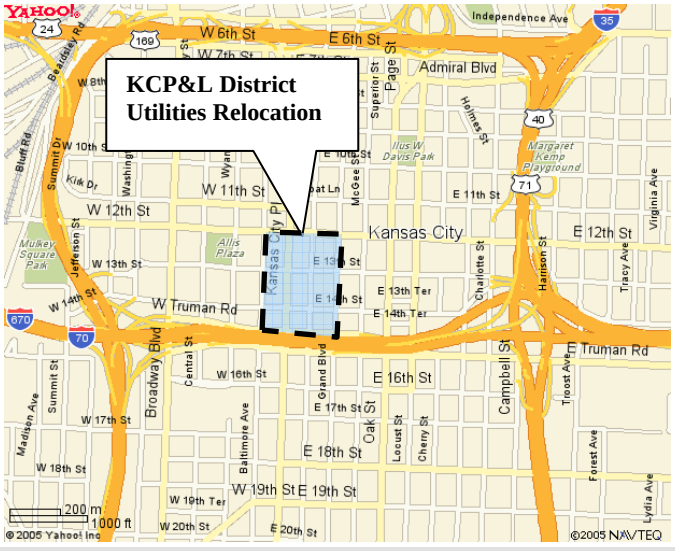
Construction Start: July 2005

Construction End: July 2006

Operational Date: July 2006

Project Cost: $18,000,000 for the 5 site utility contracts (including water, storm and sanitary).

Project Status: Under Construction, 60% complete as of 12/31/05



Kansas City Overflow Control Program

Council District(s): ***2***
Watershed: ***Northern***

Rocky Branch WWTP Expansion

Contract No.: ***812***
Project No.: ***8100203***

Scope: Expansion of the Rocky Branch Wastewater Treatment Plant from a capacity of 750,000 gpd to 2,000,000 gpd.

Location: Rocky Branch WWTP, 500 Northeast 132nd Street, Kansas City, MO

Description: The existing wastewater treatment plant was constructed in the 1970's to serve a relatively rural area of Kansas City. Extensive commercial and residential growth within the service area has occurred and flows to the plant have reached the maximum capacity of 750,000 gpd. In order to provide capacity for future growth, the existing plant is being replaced with new facilities. These facilities include an influent pump station, a headworks building with screening and grit removal, two aeration basins, an aeration basin blower building, two secondary clarifiers and an effluent flume. The existing lagoons will be modified for peak flow storage and the existing treatment basin will be converted to an aerobic digester/sludge storage basin.

Benefit: The capacity of the facility will be increased to 2,000,000 gpd to accommodate the needs of future growth within the plant's service area and effluent discharges will meet current MDNR Standards.

Project Manager: Richard Parmeter

Planner: Water Services Department

Designer: E.T. Archer Corporation

Contractor: Hill-Huffman Engineering and Construction, LLC

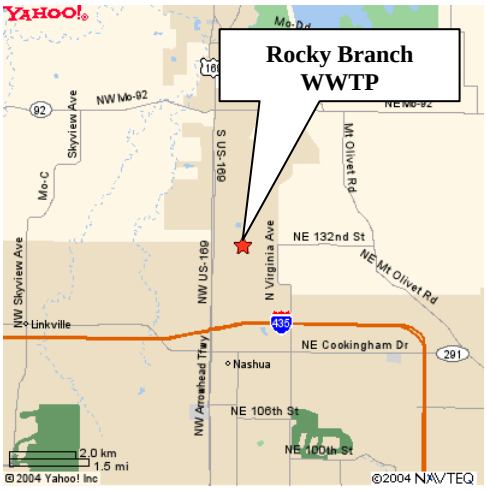
Construction Start: April 20, 2004

Construction End: December 21, 2005

Operational Date: August 30, 2005 - (Liquid Treatment Train)

Project Cost: $10,305,00 (Design and Construction)

Project Status: Solids treatment train is under construction.



Kansas City Overflow Control Program

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

Turkey Creek Pump Station Modifications

Contract No.: ***833***
Project No.: ***8100173***

Scope: Design modifications for the Turkey Creek Pump Station.

Location: 2301 State Line Rd, Kansas City, MO

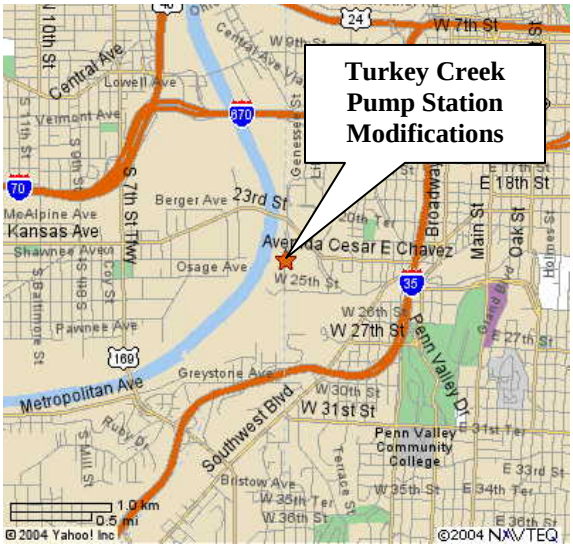
Description: The existing pump station is subject to extensive grit accumulation that interferes with operation of aging screening and pumping equipment. In addition, increased pump capacity is needed with upgraded control and electrical equipment for proper operation. The proposed improvements to the pump station include rock box and debris removal improvements, barscreen and rake improvements, wetwell and piping modifications and upgrades, replacement of pumping units, electrical system upgrades, instrumentation and control system integration and miscellaneous mechanical upgrades.

Benefit: Improved removal of coarse grit and debris. Upgraded pumping and control systems. Improved control of combined sewer overflows in Kemper Arena area.

Project Manager: Bon Marie Gardner
Planner: Water Services Department
Designer: Camp Dresser & McKee
Contractor: N/A

Design Start: May 2004 (study and preliminary design)
Design End: October 2005 (final design)
Operational Date: May 2008 (Estimated)

Project Cost: $119,300 (Study); $896,700(Design); $10,700,000(Estimated Construction)
Project Status: Design complete; Construction funding slated for May 2007



Kansas City Overflow Control Program

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

Wastewater Telemetry System Phase I

Contract No.: ***551, 691***
Project No.: ***81000028***

Scope: Wastewater Facilities Telemetry Systems

Location: Blue River WWTP, West Side WWTP, Pump Stations City Wide

Description: Upgrading telemetry systems or Supervisory Control and Data Acquisition (SCADA) to provide an integrated computerized system for gathering and analyzing real time data from remotely located equipment such as switches, alarms, pumps and other devices that monitors and controls the equipment.

Benefit: SCADA monitors and controls remote equipment from a central location.

Project Manager: Chris Herrera
Planner: Water Services Department
Designer: Shafer Kline & Warren
Contractor: Kansas City Electrical Construction Company

Design Start: February 14, 2000
Design End: February 1, 2005

Construction Start: October 20, 1999
Construction End: August 23, 2005
Operational Date: August 23, 2005

Project Cost: $1,736,166 (Design and Construction)
Project Status: Construction Complete

Kansas City Overflow Control Program

Appendix A

Public Education Documents

A-23 KCMO Connections October 2005 (WSD Continues Smoke Testing Neighborhoods p1, Students Learn While They Enjoy the Missouri River Watershed Festival p3) – Newsletter

A-24 KCMO Connections November/December 2005 (Department Kicks-off Rain Garden Campaign with Mayor, Jackson, Johnson Counties p1) – Newsletter

A-25 Keep Kansas City Beautiful – Flyer

A-26 Bridging the Gap: Kansas City Community Recycling Centers Annual Report 2004-2005

A-27 The Kansas City EarthFest – Webpage

A-28 Brookside Smoke Tests Reveal Several Improper Sewer Connections – *The Wednesday* (date not available)

A-29 Northland Chamber Considers Bond Issue – *Dispatch Tribune*, June 15, 2005

A-30 Actually, This Water's Often Cleaner Than In Venice – *The Kansas City Star*, July 11, 2005

A-31 Residents Encouraged To Combat Flooding Themselves – *The Wednesday*, July 13, 2005

A-32 What's At Stake For KC In Tuesday Bond Election – *The Kansas City Star*, July 28, 2005

A-33 Bonds Will Benefit Northland – *The Kansas City Star*, August 7, 2005

A-34 EPA Checks Out Sewer Problems In Brookside – *TheKansasCityChannel.com*, August 26, 2005

A-35 Dry Basements In The Future For Brookside Area – *The Kansas City Star*, August 31, 2005

A-36 EPA Investigates Brookside – *The Wednesday*, September 7, 2005

A-37 A Flood-Control Wakeup Call – *The Kansas City Star*, September 15, 2005

A-38 Whether Kicking It Up Or Picking It Up, The River Is The Place To Be – *The Kansas City Star*, October 5, 2005

A-39 Kansas City, Missouri Water Services Department Conducts Smoke Testing Of Sewer System – WSD Press Release, September 7, 2005

A-40 Kansas City Missouri Water Services Department Conducts Smoke Testing Of Sewer System – WSD Press Release, September 19, 2005

A-41 KCMO Water Services To Meet With Homeowners Regarding Improper Sewer Connections – WSD Press Release, October 4, 2005

A-42 KCMO Water Services To Meet With Homeowners Regarding Improper Sewer Connections – WSD Press Release, October 10, 2005

Why use rain barrels?

They irrigate your lawn and garden

During the summer months it is estimated that nearly 40 percent of household water is used for lawn and garden maintenance. A rain barrel collects water and stores it for those times that you need it most — during the dry summer months. Using rain barrels potentially helps homeowners lower water bills, while also improving the vitality of plants, flowers, trees, and lawns.

Rain is naturally soft and devoid of minerals, chlorine, fluoride, and other harmful chemicals. The chemicals and hard water from many of our municipal water systems can add to chemical imbalances in soil and damage sensitive plants. Water collected from the roofs of houses picks up very little contamination, and is very healthy for plant life.

Conserve water with rain barrels

What is a rain barrel?

A rain barrel is a container that collects and stores rainwater from downspouts and rooftops for future use watering lawns and gardens. Generally a rain barrel is made using a 55-gallon drum, a vinyl garden hose, PVC couplings, a screen grate to remove debris and keep insects out, and other materials found at most hardware stores.

Rain barrels can be constructed in a number of ways, but they all serve the same purpose — to collect rainwater and decrease the amount of stormwater runoff that leaves your property. Using rain barrels is one way to decrease your household's impact on local waterways and to become a good steward of the local watershed.

For more information, visit www.marc.org/water

Use native plants to increase water infiltration and decrease time consuming maintenance

A wonderful way to complement your rain barrel and increase your property's ability to absorb runoff is through a rain garden. Rain gardens can be a fun and easy way to learn about beautiful native plants and also help to improve water quality and reduce flooding. Rain gardens typically absorb 30 percent more water than the same size area of lawn, they are drought resistant, and are less prone to destructive insects and diseases. Rain gardens create a preferred habitat for birds, butterflies and dragonflies. These specialty gardens are versatile — they can be any size or shape, but to maximize their benefit, they should be built in an existing low spot or near the drainage area of a rain barrel. Please refer to the "How to Build Your Own Rain Garden" brochure for more information at www.marc.org/water.

www.marc.org/water

Mid-America Regional Council

MARC

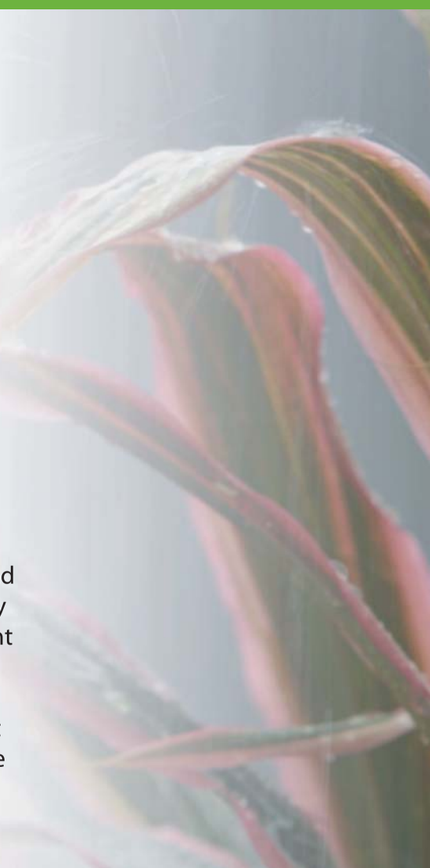
Why use rain barrels?

They redirect water from your roof to your lawn or garden

The average rainfall of one inch within a 24-hour period can produce more than 700 gallons of water that runs off the roof of a typical house. Much of this water runs from gutters onto surfaces that do not allow water to soak into the ground. These are called ***impervious surfaces*** and include concrete, asphalt, and compacted soil. Even commonly used sod has a very low infiltration rate and can be a major cause of increased runoff.

As it flows, runoff collects and transports soil, pet waste, salt, pesticides, fertilizer, oil and grease, litter and other pollutants. This water drains directly into nearby creeks, streams and rivers, without receiving treatment at sewage plants.

Polluted stormwater contaminates local waterways. It can harm plants, fish and wildlife, while degrading the quality of water.



Build your own Rain Barrel

Tools

- 7/8" spade drill bit
- Electric jigsaw
- Electric drill
- Utility knife
- Marker

Cutting the top hole

Supplies

1 - 55-gallon plastic barrel
2 - ¾" plastic faucets
1 - ¾" female coupling
1 - Skimmer basket like those found in garden ponds and pools
1 - Roll of teflon tape
1 - All purpose caulk or plumbing sealant
1 - 5-ft. section of garden hose
4 - Hose couplers
1 - 12" x 12" piece of fiberglass window screen

Hose and Coupler

Skimmer Basket

55-Gallon Barrel

Top hole

- Use basket to trace template on barrel
- Pre-drill small hole using 1" spade bit
- Make sure to drill inside the line
- Use a jigsaw to cut out hole using the inside line as a guide

Trace a hole for the basket

Basket

- Cut fiberglass window screen to fit basket
- Affix screen to lip of basket using caulk/plumbing sealant
- Allow several hours to dry and place in top hole

Cover basket with screen

Lower drain

- Mark holes at least two inches from bottom of barrel
- Use 1" drill bit to drill hole
- Screw plastic faucet into hole
- Use utility knife, as needed, to increase hole size
- Remove faucet, wrap threads in tape, caulk threads, replace faucet
- Caulk area where faucet and barrel meet to ensure no leakage

Lower Drain

Upper drain

- Mark holes at least two inches from top of barrel
- Use 1" drill bit to drill hole
- Screw plastic faucet into hole
- Use utility knife as needed to alter hole
- Wrap ¾" coupling threads in Teflon tape and caulk and screw onto faucet inside the barrel

Upper Drain/Overflow Valve

Hoses

- Cut 2' section of hose
- Push each end of hose into a hose coupler and tighten screws
- Screw 3' section onto top outflow faucet and 2" section to bottom faucet

Final Steps

- Build a base to elevate the rain barrel
- Adjust downspout to flow into rain barrel
- Always keep overflow valve open

Finished rain barrel at work

Tips for using your rain barrel

- Cover the top basket with screen, and make sure that all other openings are secured to ***prevent mosquitoes and other disease-carrying insects from entering the barrel***
- Elevate your rain barrel with cinder blocks, railroad ties or decorative stones to increase pressure and flow
- Make sure your barrel is clean and free of chemicals before using
- Disconnect the barrel from downspout during winter months to avoid the formation of damaging ice
- Paint or decorate your rain barrel to make it a distinct part of your yard or garden
- During severe storms it may be necessary to open both valves to prevent overflow.

Finding a 55-barrel

For help locating a 55-gallon barrel for constructing a rain barrel, e-mail **rainbarrels@marc.org**, call MARC Water Resources at 816/474-4240, or visit **www.marc.org/water.**

Prefabricated rain barrels can be found at some local lawn and garden stores, and on the Internet.

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For more information, please visit www.marc.org/water, e-mail **rainbarrels@marc.org,** or call 816/474-4240.

Why disconnect your downspout?

Downspouts that connect directly to sewer pipes increase the risk of sewer overflow and flooding. Disconnecting your downspout from a sewer intake pipe (standpipe), then redirecting the flow of water to a grassy area or garden is a simple process that makes a big difference to the environment.

Supplies

- Hacksaw
- Cordless drill
- Tape measure
- Pliers
- Sheet metal screws
- Downspout elbow
- Downspout extension
- Standpipe cap

There are different types, lengths and sizes, of standpipe caps, so be sure to take measurements before shopping. Capping the standpipe prevents water from going in while keeping pests (such as rodents) from entering/exiting the pipe.

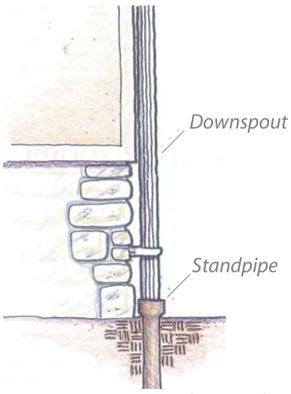
Instructions

1. Cut the existing downspout approximately 9 inches above the sewer standpipe with a hacksaw.

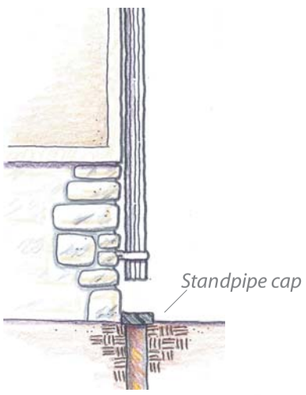
2. Cap the sewer standpipe.

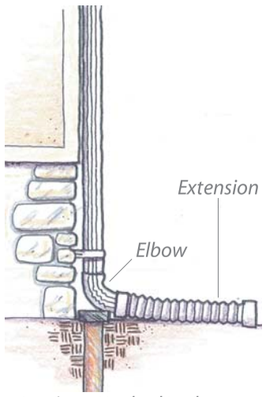
3. Attach elbow by crimping the downspout with pliers to ensure a good fit. Connect elbow to downspout using sheet metal screws. It may be necessary to pre drill holes.

4. Attach the elbow INTO the extension and secure with sheet metal screws. Water should drain at least five feet away from the house, so direct the extension accordingly. A splash block may help direct water further away from the house.



Downspout connected to standpipe.





Elbow and extension attached to downspout.

www.marc.org/water

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Rain, roofs and runoff

Did you know that each downspout on a house can drain approximately 12 gallons of water per minute during a one-inch rainfall? If managed properly, the water that flows off rooftops can help keep lawns and gardens green while lowering utility bills during spring and summer months. However, most downspouts send rainwater down driveways, sidewalks, and underground pipes that lead to storm drains or sanitary sewer lines. This **"stormwater runoff"** picks up pollutants from motor oil, lawn chemicals, and pet waste along the way, before entering lakes and streams — **untreated.**

The large amount of untreated water entering the storm sewer system — and eventually our streams and lakes — has lasting health, safety, environmental and economic impacts on communities. Fortunately, there are many things that property owners can do to put rainwater to good use while reducing the amount of stormwater runoff that ends up in local waterways.

For more information, visit www.marc.org/water

The problem with pavement

During the construction of homes, roads and office buildings vegetation is often removed and replaced by large paved areas. These surfaces keep rain from infiltrating the soil and recharging groundwater supplies. The infiltration process helps clean water and feed the underground springs that supply drinking water. Paved surfaces also increase the speed and amount of water that rushes into streams, causing stream bank erosion and harming wildlife habitats. Direct the flow of water from downspouts away from paved surfaces whenever possible.

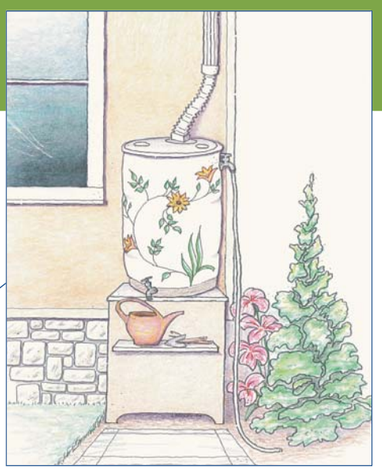
Combined sewer overflows

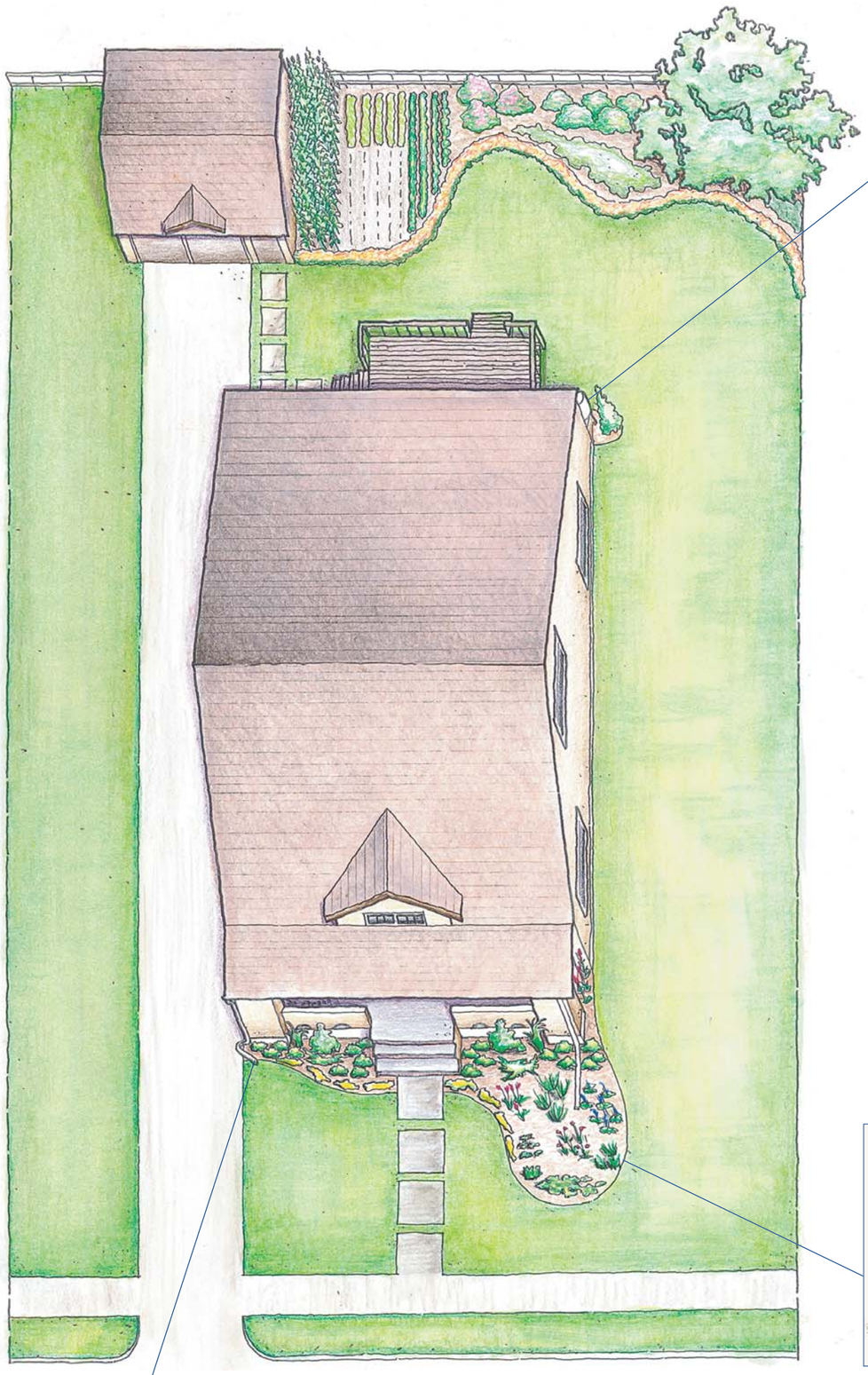
Combined sewers are older systems that carry both stormwater and wastewater to treatment plants. When rainstorms fill combined sewers beyond capacity, the result is a Combined Sewer Overflow — a discharge of untreated wastewater and stormwater into local waterways. Combined sewers are costly to replace and still used in older areas of the region. Residents are encouraged to disconect downspouts from sewer pipes or redirect downspouts to grassy areas or gardens to reduce the rain that enters sewers.

Disconnect or Redirect Your Downspout

Get the most out of rain

Ideas for creating a rain-friendly yard





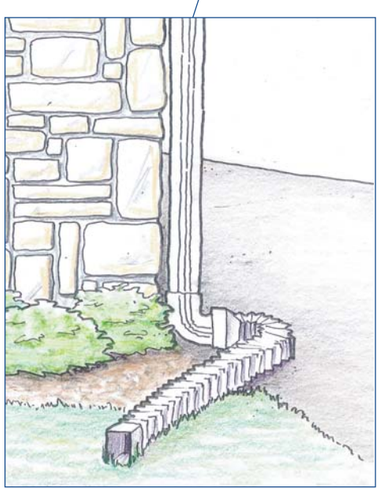
Save water with rain barrels

A rain barrel is a container that collects and stores rainwater from downspouts and rooftops for future use watering lawns and gardens. Generally a rain barrel is made using a 55-gallon drum, a vinyl garden hose, PVC couplings, a screen grate to remove debris and keep insects out, and other materials found at neighborhood hardware stores.

Rain barrels can be constructed in a number of ways, but they all serve the same purpose — to collect rainwater and decrease the amount of stormwater runoff that leaves your property.

During the summer months it is estimated that nearly 40 percent of household water is used for lawn and garden maintenance. A rain barrel collects water and stores it for those times that you need it most — during the dry summer months. Using rain barrels potentially helps homeowners lower water bills, while also improving the vitality of plants, flowers, trees, and lawns.

For more information about rain barrels, please visit **www.marc.org/rainbarrels.htm**



Redirect downspouts

Take full advantage of the rain that comes off your roof by making sure that your downspouts deposit rainwater where it can be put to good use. Redirect downspouts to gardens, grassy areas, rain barrels — places where water can infiltrate the ground and roots of plants, decreasing the amount of water that goes down stormdrains.

Rain is naturally soft and devoid of minerals, chlorine, fluoride, and other harmful chemicals. The chemicals and hard water from many of our municipal water systems can add to chemical imbalances in soil and damage sensitive plants. Rainwater from the roofs of houses picks up very little contamination, and is very healthy for plant life.

Use extension gutters or splash blocks to help direct the flow of water if your downspout isn't long enough. If directing stormwater to a yard, try to discharge the water at least five feet from foundations to prevent pondage and potenial leakage into the house.

Build a rain garden

A great way to compliment your rain barrel and increase your property's ability to absorb runoff is through a rain garden. Rain gardens can be a fun and easy way to learn about beautiful native plants as well as help to improve water quality and reduce flooding.

Rain gardens typically absorb much more water that the same size area of lawn, are drought resistant, winter hardy and less prone to destructive insects and diseases. Rain gardens create a preferred habitat for birds, butterflies and dragonflies. These specialty gardens are versatile; they can be any size or shape imaginable, but to maximize their benefit you should build them in an existing low spot or near the drainage area of your rain barrel or downspout.

For more information on rain gardens visit **www.marc.org/water/raingardens.pdf**

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For more information please visit www.marc.org/water, or call 816/474-4240.

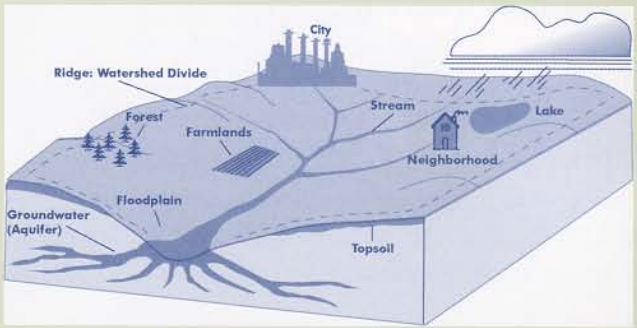
What is a Watershed?

A watershed is an area of land that drains to a common point, such as a nearby creek, stream, river or lake. Every small watershed drains to a larger watershed that eventually flows to the ocean.

Watersheds support a wide variety of plants and wildlife and provide many outdoor recreation opportunities. By protecting the health of our watersheds we can preserve and enhance the quality of life for Kansas City area residents.

What is Stormwater Runoff?
Stormwater is water from rain or melting snow. It flows from rooftops, over paved streets, sidewalks and parking lots, across bare soil, and through lawns and storm drains. As it flows, runoff collects and transports soil, pet waste, salt, pesticides, fertilizer, oil and grease, litter and other pollutants. This water drains directly into nearby creeks, streams and rivers, without receiving treatment at sewage plants.

Polluted stormwater contaminates streams, rivers and lakes. It can kill or damage plants, fish and wildlife, while degrading the quality of our water.



A typical watershed system

For more information,
visit www.marc.org/water
or call 816/474-4240

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Use Lawn Chemicals Wisely

Spring Watershed Tip

The improper use of lawn chemicals threatens the quality of our water

Good Neighbors Care About Clean Water

The Facts About Lawn Chemicals

Lawn chemicals are the fertilizers, herbicides and insecticides used in lawn and garden care. When lawn chemicals are applied improperly, they can run off into streams, harming fish and other animals, and contaminating our drinking water.

Overapplication of any lawn chemical can result in runoff that carries toxic levels of chemicals or excessive nutrients into lakes, streams and groundwater.

Fertilizers usually contain nitrogen, phosphorous and potassium (potash). Nitrogen is an important lawn nutrient, but it can contaminate groundwater with nitrates. Phosphorous can promote excess weed growth in lakes and ponds and contaminate groundwater, while the chloride that is often combined with potassium in potash is also harmful.

Some lawn chemicals threaten native flowers and grasses by harming beneficial insects that safely control weeds and unwanted insects.

Photo courtesy of USDA NRCS

What's the Problem?

When using lawn chemicals, become familiar with a product's toxicity and potential environmental impact. The following are some of the health risks that lawn chemicals pose to humans, pets, wildlife and aquatic organisms.

When lawn chemicals run off into lakes and streams, insects and fish are harmed or killed, causing disruption to the entire food chain.

The use of lawn chemicals accounts for the majority of wildlife poisonings reported to the Environmental Protection Agency.

Lawn chemicals can be absorbed through the skin, swallowed or inhaled. During application, lawn chemicals can drift and settle on ponds, laundry, toys, pools and furniture.

Even pets are at risk — studies show that the rates of lymphoma in pets of pesticide users are significantly higher than occurences in the pets of non-chemical users.

Several types of cancer, immuno-response deficiencies, neurological diseases, and birth defects have been associated with exposure to lawn chemicals. By releasing chemical toxins into the environment, air and water quality suffer, ultimately causing health problems.

What Can You Do?

Fortunately, there are some things that you can do to lessen the effect lawn chemicals have on water quality:

- Read labels on lawn chemicals carefully and always apply products sparingly.
- Try using compost or organic lawn chemical alternatives. Composting creates an organic, slow-release fertilizer and soil-enhancing material.

- Landscape with native plants, grasses and flower species whenever possible. A natural lawn reduces or eliminates the need for lawn chemicals.
- Use caution on slopes and lawn edges so fertilizer will not wash into nearby storm sewers or waterways.
- Allow proper drying time for liquid chemicals, and never use lawn chemicals before a heavy rainfall is expected.
- Test the soil for nutrient deficiencies before using lawn chemicals.
- Contact your county extension service for more information on lawn chemical use. Extension phone numbers can be found at www.marc.org/water.

Industrial waste newsletter

The Kansas City Metropolitan Area March 2005

Volume 10 Issue 1

Inside this Issue:

SAME VIOLATION, DIFFERENT PENALTIES

Milwaukee Coca-Cola bottler, Hondo Incorporated received a $121,137 fine for failing to develop and submit a Risk Management Plan (RMP) for the chemical storage of 10,000 pound of anhydrous ammonia. However, Empire Energy of Nevada only received a $3,000 fine for failing to develop and submit a RMP for the storage of isopentane.

Risk Management Plans are developed to create emergency response plans for catastrophic accidents. EPA's enforcement for failure to develop RMPs as required by the Clean Air Act results in a fine. The amount of the fine varies widely. So, how do companies cited with the same violation receive different fine amounts? And why?

The difference in the fine amount is due to population. Empire Energy is located in a sparsely populated area and therefore, a low risk to the public. Hondo is located in an urban area and has a greater potential to harm the public. Additionally, EPA may factor in what chemical is being stored by the facility.

From: Environmental Compliance Alert Newsletter January 10, 2005, Edition

TRACKING ENVIRONMENTAL TRENDS:

HAZARDOUS WASTE CLEAN-UP

From: Environmental Compliance Alert Newsletter January 10, 2005

At this time, EPA enforcement action is required for Superfund money. Companies that remediate hazardous waste sites without EPA enforcement will not receive any federal reimbursement.

The recent 7-2 Supreme Court ruling, reversed the appeals court ruling that allowed Availl Services Incorporated to sue Cooper Industries for the expense of a hazardous waste clean up. Both companies contributed to the waste site. Availl did the remediation under pressure from the Texas Environmental Agency and then expected to receive Superfund money. Besides the fact that both companies created the site, they must voluntarily pay for clean-up.

NEW CLEAN UP LAWS IN NEW JERSEY

From: Environmental Compliance Alert Newsletter February 25, 2005 Edition

In the state of New Jersey a new law was passed that relieves companies from expensive natural resource damage costs when developing Brownfield sites. The law requires the New Jersey Department of Environmental Protection to go after the creators of the cleanup site. Money collected can then be used for the remediation project. Therefore, a reduction in remediation costs is passed on to the companies tasked with the cleanup.

DECISION MAKING: TEST YOUR JUDGEMENT

From: Environmental Compliance Alert Newsletter January 10, 2005 Edition

The following scenario mocks a recent legal conflict. Read the scenario. Using your best judgment, try and conclude the outcome.

Does an Air permit protect you from a Law Suit?

Clifford Uplander, company lawyer, stopped by to talk to Buck Flanagan, Environmental Manager. "Seems we're being sued by one of our neighbors, Buck. They are claiming that our emissions have damaged their property," Uplander said. "Are we in full compliance with our Clean Air Act permits?"

"Yes, Cliff," Buck said. "So that's why you wanted my memo on our environmental compliance. As I pointed out, we're well under our permit limits. Why are we being sued?"

"This fellow says his new fence is rusting, and his car's paint is fading. He says it's our fault, that we're trespassing on his property," Uplander said.

"Trespassing? How?" Buck asked.

"He's claiming that the wind carries our emissions over his property and then they land on his fence. Can our emissions cause steel to rust?" Uplander asked.

"Technically, they could. But that's hardly trespassing, and besides, we've got federal and state permits authorizing our operation and limiting our emissions." Buck replied.

"Excellent," Uplander said. "I'm sure we can get this case dismissed then."

What do you think? Please turn to page 4 for the court's ruling.

AIRCRAFT WATER FOUND TO BE CONTAMINATED AGAIN

In August and September 2004, EPA's testing revealed total coliform and *E. coli* contamination in water used in passenger aircraft. Samples were randomly taken from 158 galley water taps and lavatory faucets. From those samples, 20 aircraft tested positive for total coliform bacteria and 2 aircraft samples tested positive for *E. coli*. Based on these results, EPA and 12 major U.S. airlines agreed to implement new water testing and disinfection standards.

A second set of tests found that out of 169 aircraft tested, 20 tested positive for total coliform. E. coli was not found in the second set of tests. Because there was no reduction in total coliform, EPA is aggressively working on rulemaking to regulate water on public aircraft.

From: Environmental Compliance Advisor February 21, 2005, Issue 633. More information is available on www.blr.com/keyword, type in em633airlinewater.

KCMO
WATER SERVICES
DEPARTMENT

The Kansas City Metropolitan Area **Industrial Waste Newsletter** is a periodic publication of the two "Kansas Cities." Letters and articles from its readers are encouraged. We reserve the right to edit or reject submissions. Articles, suggestions, comments and requests to be included on the mailing list may be submitted to Kamalah Minor, 1001 Harrison St., Kansas City, MO 64106 (816-784-1008) or Scott Craig, Water Pollution Control, 50 Market Street, Kansas City, KS 66118 (913-371-4240). If you have an event you would like displayed on the calendar, call Kamalah Minor.

The Kansas City Metropolitan Area

1001 Harrison Street

Kansas City, Missouri 64106

Phone: 816-784-1008

Fax: 816-784-1015

Email: kamalah_minor@kcmo.org

THE COURT'S RULING

Buck's company lost the case and had to pay the neighbor for the damage to his fence and car. The U.S. District Court ruled that air emissions is trespassing if the emissions fall out of the sky onto someone else's property. This law defines trespassing as "… physical entry upon the land by some thing." One line of defense is for the company to prove that their emissions do not reach neighboring property. Or that the emissions do not cause damage to the degree that is claimed by the neighbor.

From: Environmental Compliance Alert Newsletter January 10, 2005 Edition

Mark you calendars for the **Semi-Annual Seminar**

Date: July 20, 2005 *(tentative date)*

Location: 1001 Harrison Street, KCMO

More information to be announced.

The Kansas City Metropolitan Area

June 2005

Volume 10, Issue 2

Industrial Waste Newsletter

EPA Conducts Blanket Sweep Inspections

Inside this issue:

The Environmental Protection Agency (EPA) is applying a new approach to their inspection process. By reviewing Toxic Release Inventory (TRI) reports, potential releases are established in a given geographic area. Combining this information with health and other environmental factors, EPA establishes which areas should be targeted. When EPA targets a specific area, all industrial facilities in that boundary will be reviewed.

Nearly 170 facilities in the greater Rochester, NY, area are the first targets of EPA's blanket enforcement initiative, and the first victim is Happy Ice LLC, of Fairport, NY.

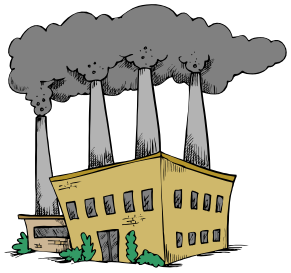
The ice-making and cold storage operation was just fined $34,600 for violating EPA's Risk Management Plan (RMP) rules requiring facilities to prevent any accidental release of hazardous materials.

Happy Ice needs an RMP because it uses ammonia refrigeration systems, EPA cited the company for not operating its system safely and failing to make repairs to stop ammonia leaks.

Critically, Happy Ice operates in a residential community, which have shown high levels of lead in children's blood. The RMP rules are designed to enhance operational safety to protect communities from accidental releases of hazardous materials like ammonia.

EPA is checking on compliance with a wide variety of EPA environmental rules, including: emission releases, asbestos abatement, hazardous waste management, pesticide usage, leak detection, spill control and other chemical issues.

Exerts from Environmental Compliance Alert—March 28, 2005



EPA Issues Fine for Not Fully Implementing Spill Plan

According to Environmental Compliance Alert (March 28, 2005), Kauai Electric Company in Port Allen, HI was fined $900 by the Environmental Protection Agency (EPA). The power company violated spill prevention rules by failing to:

- Provide adequate containment around portable storage tanks
- Keep all bypass valves closed, and
- Maintain appropriate containment equipment to match its spill containment plan.

When KCMO inspectors conduct inspections under the Pretreatment Program, spill plans are reviewed. Often facilities that have not been inspection routinely have many opportunities for improvement. The most common are:

- Floor drains near chemical/waste storage
- No containment for chemical storage
- Incompatible chemicals stored together, and
- List of contacts in case of spill does not include Water Services Department.

If you are concerned about your spill plan's conformance with KCMO regulations call 784-1006.

Parts Cleaning Evaluation

Exerts from TAP into DNR Vol. 10 No. 1, Spring 2005

How you clean parts can have a big impact on the environment, your employees, and your company's bottom line? Many of the most effective solvents parts cleaners are also the "nastiest." These cleaners are usually hazardous air pollutants, cause ground level ozone, and are listed hazardous wastes. Many times, they have ingredients that may cause cancer. Some of the cleaners are highly flammable (low flash point).

To keep costs down and minimize harmful effects of cleaners, evaluate your company's cleaning needs by answer the following questions.

1. What are the parts that need to be cleaned (size, shape, material, surface type)?
2. What are the contaminates to be removed (oils, waxes, dirt, salts)?
3. Why are the parts being cleaned (Is it really necessary)?
4. Who is applying the contaminates to the parts (Internally—minimize amount or switch to one that is easier to clean. Supplier—work with them to find alternatives or use fewer contaminates.)?
5. What are the cleaning requirements (what degree of "clean" do the parts need to be)?

After defining your cleaning needs, determine your options for parts cleaning. The chart below shows a comparison between different types of cleaners.

Look at the total cost of your cleaning solution. Make sure labor, disposal, and energy costs are included. Try to find the most cost-effective, safe, and environmentally sound product that will do the job. If your have to use solvents, use the least hazardous that will do the mob. Weigh the toxicity of the product vs. the flashpoint. Consider using non-petroleum solvents (such as soy-based solvents). Continue to strive to provide the best process.

Additional internet resources that might be helpful: RTI's Solvent Alternative Guide (SAGE), http://clean.rti.org/index.cfm and Integrated Solvent Substitution Data System, http://es.epa.gov/issds/.

Cleaner	Cleaner Make-up	Types	Waste Removal	Issues
Aqueous Cleaner- Alkaline	Water and alkaline cleaners	1.Immersion 2.Pressure spray 3.Ultrasonic	Salts, organic soils, oxides, metal chips, grease	1.Water heated in immersion 2.New waste streams - verify requirements
Aqueous Cleaner - Acidic	Water and acidic cleaners	1.Immersion 2.Pressure spray 3.Ultrasonic	Scale, rust, and oxides from metals	1.Attacks most metals 2.Water heated in immersion 3.New waste streams - verify requirements
Semi-aqueous Cleaner	Water and solvents	1.Immersion 2.Ultrasonic	Cutting soils, coolants, greases and waxes	1.Can be effectively recycled 2.Usually non-ozone depleting 3.New waste streams
Blasting - Carbon Dioxide (CO_2)	CO_2	1.CO_2 pellet 2.CO_2 snow	Strip paints, removed grease and oil	1.Little waste generated 2.Usually most expensive option
Blasting - Media	Glass beads, sand, steel, plastic, sodium bicarbonate or wheat starch	1.Type of media - gravity or pressure feed	Strip paints, remove surface corrosion, clean oils and contaminants	1.Waste may be hazardous because of contaminants
Solvent cleaning	100% solvents	1.Cold cleaning 2.Vapor degreaser	Remove grease and oils	1.Environmental, health and safety issues. 2.Waste is usually hazardous

38 EPA regs up for 'relaxation, review'

Environmental Compliance Alert, April 15, 2005

There is hope for regulatory relief from some environmental regulations, such as easing:

- Spill control rules for certifying prevention and response plans
- Pretreatment requirements, and
- Rules for calculating potential-to-emit predictions.

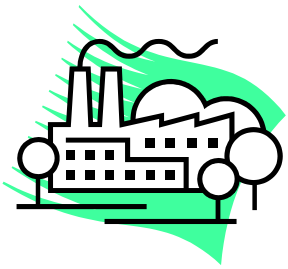
These and 35 other EPA regulations will be reviewed as part of an Office of Management and Budget (OMB) effort to relax rules that are wasting resources at many facilities.

OMB reviewed the rules as part of a White House effort to help cut regulatory costs. These rules were selected from a list of 189 rules identified by several manufacturing groups as too costly, time-consuming or unnecessary.

OMB whittled down the list to 76 regulations. EPA has the most rules on the relief list. Nine OSHA rules are on the list as well. Some of the other changes EPA will consider include:

- Delisting hazardous wastes that are being recycled
- Expanding treatment options for copper and brass fabricators to use thermal treatment
- Reducing the number of Toxic Release Inventory (TRI) reports
- Raising TRI reporting thresholds
- Consolidating all leak detection rules into only one program at any plant
- Limiting and consolidating the number of Title V operating permit requirements, and
- Reducing the number of inspections of hazardous waste storage areas.

Info: The complete OMB list is at www.whitehouse.gov/omb/inforeg/reports/manufacturing-initiative.pdf



Missouri Facilities Report Major Decrease in Toxic Chemical Releases

Electronic Information Release: Volume 33 151 Gene Nickel, Missouri Department of Natural Resources, Jefferson City, MO, May 13, 2005 [1-800-361-4827]

The U.S. Environmental Protection Agency (EPA) has released the national Toxics Release Inventory (TRI) data for 2003. Nearly 600 facilities in Missouri reported an overall 9.7 percent reduction of toxic chemicals releases -- the largest decrease in several years, according to the Missouri Department of Natural Resources.

Manufacturing industries reduced their releases by nearly 20 percent, the greatest single year decrease since 1989.

A look at four of these industries details the environmental effect, according to the Missouri Department of Natural Resources. The inventory found a large decrease in land releases by the Doe Run smelters in Herculaneum and Glover, a large decrease in water releases by Tyson Foods near Sedalia, and a relatively large decrease in air releases by the Ford Motor Company in Claycomo, MO.

Five hundred and seventy-six Missouri facilities reported releasing 102.2 million pounds of toxic chemicals to the environment. This includes on-site releases of 27.6 million pounds to the air, 64 million pounds to the land and 2.6 million pounds to the water. This was a decrease of 10.9 million pounds or 9.7 percent less than released in 2002.

A total of 7.7 million pounds was sent off-site for disposal in landfills or surface impoundments. Metals or metal compounds discharged to sewage treatment plants totaled 144,658 pounds. Because metals cannot be destroyed at wastewater treatment plants, these discharges are considered releases to the environment. Other chemicals sent to sewer plants are considered treated and destroyed.

The TRI is a national EPA database that monitors and tracks the environmental releases of approximately 650 toxic chemicals nationwide. TRI releases are reported to EPA annually by two main industry groups: the manufacturing companies, called the "original industries" because they have reported to the TRI since the inception of the program in 1986, and "new industries," that just started reporting in 1998.

In Missouri, the volume of total releases is almost evenly split between the two groups. In 2003 the original industry group, 520 manufacturing facilities, reported 45.3 percent of the total chemicals released. The 56 facilities in the new industry group reported releasing 54.6 percent of the 102.2 million pound total.

Although 56 new industry facilities reported to the TRI in 2003, 18 electric utilities scattered across the state and four metal mines located in southeast Missouri, in Reynolds and Iron counties, account for more than 99 percent of the toxic releases reported by this group. All of the total 9.7 percent decrease is attributable to the original industries. That group reduced their toxic chemical releases by 19.7 percent between 2002 and 2003. The new industry group reported a 0.6 percent increase during the same time. These totals are for both on- and off-site releases.

This 19.7 percent decrease is the single largest decrease by the original industry group since 1989, almost the beginning of the TRI program. Also, this large decrease was essentially due entirely to decreases in their on-site releases.

A more complete summary and analysis of the TRI data specific to Missouri can be found in the Department of Natural Resources' Annual TRI Report. The latest report, which is for the 2002 reporting year, is available either by calling 1-800-361-4827 or by accessing it on the Internet at: http://www.dnr.mo.gov/oac/mo02tri.pdf.

KCMO
WATER SERVICES
DEPARTMENT

Industrial Waste Control Division
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Fax: 816-784-1015
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Upcoming
Industrial Waste Seminar

Subject: **Stormwater**
When: **Wednesday**
July 20, 2005
Where: **TBA**

More Checkups to Spot Illegal Discharges

Environmental Compliance Alert, April 29, 2005

The annoying itch that comes with Spring isn't hay fever but stormwater control rules that regulate even the smallest of operations.

This year's no different as states and local governments sharpen their rule-writing pencils.

Kentucky facilities are feeling it in the form of new stormwater discharge fees that can cost a small company $6,000 a year.

In Clarksville, for example, these fees go to fund municipal efforts to enforce the federal stormwater rules. The money's also used to identify companies that have failed to obtain a stormwater permit or register to use one of the general stormwater permits that EPA developed.

The fees are partially offset by a stormwater credit system that will create incentives for facilities to develop and implement runoff control programs.

Meanwhile, other states are warning stormwater discharges that compliance deadlines are phased in this year. New Jersey, for example, has staggered compliance deadlines of April1, May 1, and June 1 this year for its towns and cities.

Businesses can expect to feel the pressure to proved they've got a stormwater plan in action once their local area is covered by the rules.

Info: See www.state.nj.us/dep/dwq

As for KCMO Water Services Department, we received our stormwater permit for the separated storm sewer area last September. We are working diligently on preparing a plan to control negative effects of stormwater throughout the city. More information will be given as it becomes available.

The Kansas city Metropolitan Area Industrial Waste Newsletter is a periodic publication of the two "Kansas Cities." Letters and articles from its readers are encouraged. We reserve the right to edit or reject submissions. Articles, suggestions, comments and requests to be included on the mailing list may be submitted to Denise Burkett, 1001 Harrison Street, Kansas City, MO 64106 (denise_burkett@kcmo.org or 816-784-1006) or Scott Craig, Water Pollution Control 50 Market Street, Kansas City, KS 66118 (scraig@wycokck.org or 913-371-4240). If you have an event you would like displayed on the calendar, call Denise Burkett.

October 2005
Volume 10, Issue 3

The Kansas City Metropolitan Area

Industrial Waste Newsletter

Inside this issue:

Gas Prices Drop

MDNR Bulletin October 7, 2005

While still 56 percent higher than this time last year, Missouri retail gasoline prices have receded from September's record highs, due in part to decreased consumer demand, according to a survey conducted by the Missouri Department of Natural Resources' (MDNR) Energy Center.

The return of additional gulf coast production and a decline in consumer demand were both cited as contributors to the drop in price in gasoline prices. Consumer demand, dampened by the high gas prices, fell 2.6 percent compared to the same time last year. Lower domestic supplies and production levels combined to push diesel prices up.

The MDNR's bimonthly energy bulletins are available online from the department's Web page at www.dnr.mo.gov/energy/transportation/fb.htm.

Preventing Reporting Violations

KCMO recently completed the semiannual determinations for the first half of 2005. There have been an increased number of reporting violations that put our Permittees in Significant Noncompliance (SNC). Remember, any report that is greater than 30 days late will place a Permittee in SNC. Those in SNC will be published in the newspaper.

Below are some tips in complying with the reporting requirements in a wastewater discharge permit:

1. Take samples early in your reporting period (specified in Part C, Section 2 of your permit), so the analyses will return before your periodic self-monitoring report is due.
2. Look at your analyses as soon as you get them and compare the results with the limits in your permit. Also, make sure all parameters required for monitoring have analyses.
3. Report any violations within 24 hours of detection (required by Part B, Section 8b of your permit). When the analyses received date is uncertain, the laboratory report date is used. This notification should include:
   a. the parameter in question,
   b. the concentration of the parameter,
   c. the maximum daily allowable concentration, and
4. Submit a follow-up report on any violations within 30 days of discovering the violation. This report is specified in Part B, Section 8b of your permit and must include the following:
   a. the results of the repeated sampling,
   b. the cause of the exceedance,
   c. the measures to be taken by Permittee to prevent similar future occurrences, and
   d. the report certification listed in Part B, Section 11b of this permit.
5. KCMO designs its wastewater discharge permits such that there is about 30 days between the end of the reporting period and the report due date (see Part C, Section 2 or your permit for the actual dates). The postmark date is used as the date of submittal. If you have an internal mailroom, send the report a couple of weeks in advance. Using registered mail can provide a receipt should the report get lost. Another option is to drop the report off at our office (1001 Harrison Street). All reports are date stamped and logged into a database upon arrival.
6. Be sure to report your compliance status accurately on you periodic self-monitoring report.
7. For those with a Compliance Schedule report on each milestone whether completed or not. Refer to Part D of your permit for Compliance Schedule reporting. Generally the following applies:
   a. Permittee shall submit a progress report to the Director no later than 14 days following:
      i. each date in the compliance schedule.
      ii. the final date of compliance.
   b. The progress reports shall state:
      i. whether or not Permittee complied with the increment of progress.
      ii. the reason for any delay.
      iii. if appropriate, the steps being taken by Permittee to return to the established schedule.
8. Remember to sign your reports and include the certification statement.

The Environmental Protection Agency is hard lined on reporting accurately and in a timely manner. When you have done everything else within the parameters of your wastewater discharge permit, it seems a shame to get caught on a reporting violation. Hopefully these tips will help keep your company in full compliance.

Cancer Linked to Coating Process on Pots and Pans

Exerts from Environmental Compliance Alert August 15, 2005

A huge, $40-billion product liability case now facing the DuPont Company renews concerns about testing chemicals before they're mass produced.

A class-action lawsuit was filed in July against the company seeking damages for possible health effects of exposure to Teflon and the chemicals used to make it.

The lawsuit charges that DuPont failed to warn millions of consumers that Teflon-coated pots and pans emit toxic vapors when superheated.

This legal action follows a recent announcement that an EPA draft report recommends treating chemical used to make Teflon, perfluoroctanoic acid (PFOA), as a " likely carcinogen."

The company's in hot water because of questions of whether it knew about health effect problems associated with exposure to PFOA before it mass produced its Teflon products.

Earlier lawsuits have produced a 1981 DuPont study that linked PFOA exposure to birth defects.

Replace everybody's pots and pans

In addition to the cash payments, the new lawsuit wants DuPont to:

- replace consumers' cookware
- create a fund for medical monitoring of consumers using Teflon products
- create a fund for a independent study of PFOA health effects, and
- put warning labels on all cookware that warns about suspected hazards of Teflon vapors.

EPA Urges Caution When Re-entering Hurricane-Damaged Homes and Buildings

Exerts from http://www.eponline.com

EPA and other federal, state and local officials are urging individuals to use caution when returning to hurricane-damaged homes and buildings. On Sept. 4, EPA issued an advisory to the public that provides general guidance to help address potential hazards in structures damaged by hurricane Katrina.

EPA urges the public to be on the alert for leaking containers and reactive household chemicals, like caustic drain cleaners and chlorine bleach, and take the following necessary precautions to prevent injury or further damage:

- Keep children and pets away from leaking or spilled chemicals.
- Do not combine chemicals from leaking or damaged containers as this may produce dangerous or violent reactions.
- Do not dump chemicals down drains, storm sewers or toilets.
- Do not attempt to burn household chemicals.
- Clearly mark and set aside unbroken containers until they can be properly disposed.

Leave damaged or unlabeled chemical containers undisturbed whenever possible.

Individuals should exercise caution when disturbing building materials to prevent physical injury or other health effects. Building materials may contain hazardous materials such as asbestos that when carried by the air can be breathed in and cause adverse health effects. If it is suspected that asbestos containing materials may be present, they should not be disturbed. Asbestos containing materials include the following:

- boiler/pipe insulation
- fireproofing
- floor tiles
- asbestos roofing
- transite boards used in laboratory tabletops and in acoustics in auditoriums, music rooms and phone booths

Federal, state and local personnel are being deployed to the hurricane-affected areas to establish debris-management programs, including household hazardous waste collection and disposal programs. These efforts may take days or weeks to come to all communities. In the meantime, EPA urges the public to exercise caution and report concerns to local environmental, health and waste disposal authorities.

For more information, the public can go to http://www.fema.gov/regions/iii/env/debris.shtm. Government officials can get information on managing hurricane debris at http://www.epa.gov/epaoswer/non-hw/muncpl/disaster/disaster.txt.

Changes in the Industrial Waste Control Division

Many changes have occurred in the Industrial Waste Control Division since June. In the Administration section we have hired one engineer and lost another (Natalie Stennis). In the Field Operations section, we have hired 3 Engineering Technicians and lost 2 (Mark Oliver and John Goodwin).

Administration

Nikki Dennis is the new Pretreatment Coordinator for the Industrial Waste Control Division in Kansas City Missouri. She has a Civil Engineering degree from the University of Missouri, Kansas City and has worked with the city for approximately 19 months. Transferring from City Development in the plat review section, Ms. Dennis has been with Industrial Waste Control for approximately 2 months now.

She has excellent customer service skills, detailed oriented and eager to assist the Significant Industrial Users with their compliance issues. Ms. Dennis says, "I look forward to meeting each Significant Industrial User in the days to come."

Field Operations

Theresa Harper is joining us from the Public Works Department. Jinia Coleman is joining us from meter reading in the Water Services Department. Both will be in the inspections section of Field Operations, so our Significant Industrial Users will be seeing a lot of them.

Raymond Johnson is newly rehired in the Industrial Waste Control Division, after a decade in other ventures. Mr. Johnson will be working in the collections section of Field Operations.

All three have a strong background with the city, have great customer service skills, and are willing to serve the industrial users in Kansas City.

Please welcome Ms. Harper, Ms. Coleman and Mr. Johnson to our staff.

New Phone Numbers

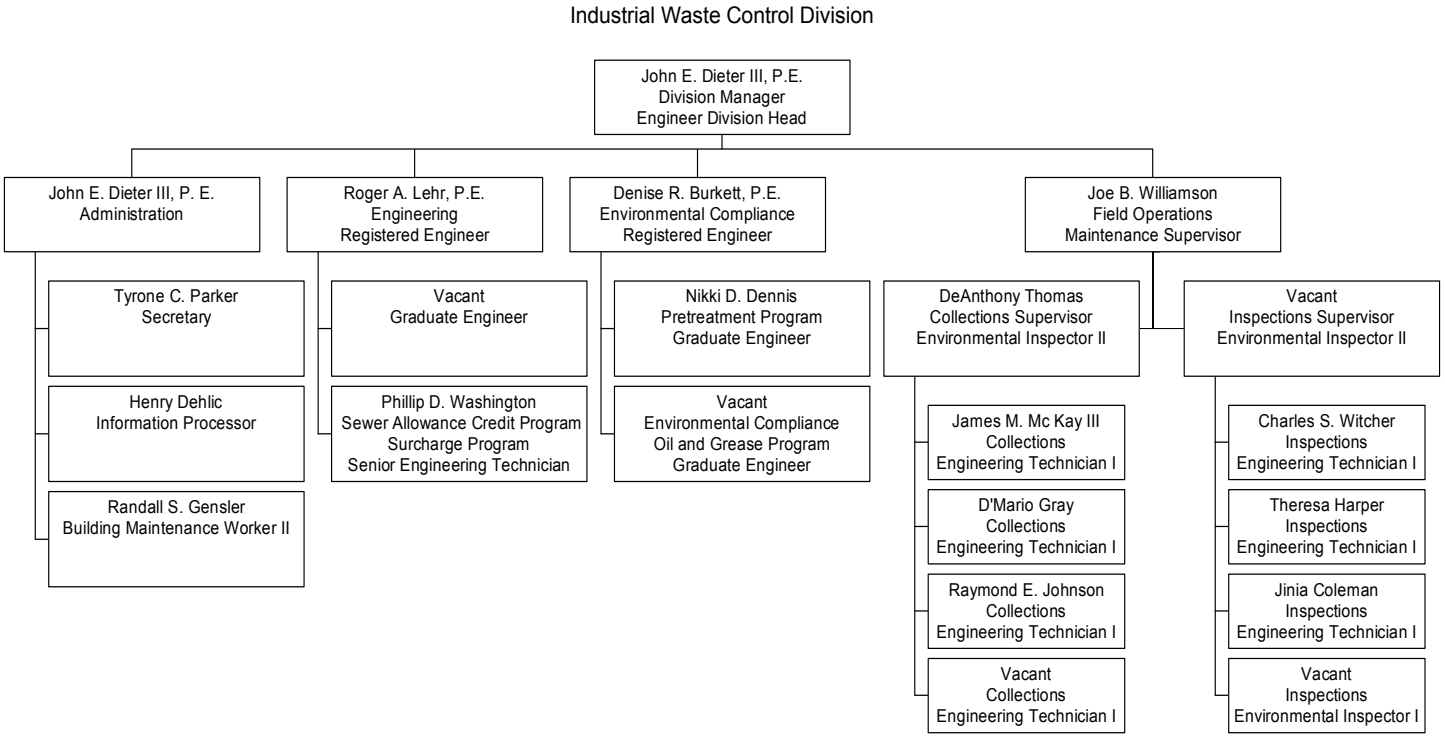
We have also changed our phone numbers as listed below.

Administration

Main Number	(816) 513-0600
Fax Number	(816) 513-0615
John Dieter	(816) 513-0604
Tyrone Parker	(816) 513-0603
Henry Dehlic	(816) 513-0602
Roger Lehr	(816) 513-0610
Phil Washington	(816) 513-0607
Denise Burkett	(816) 513-0606
Nikki Dennis	(816) 513-0609

Field Operations

General Number	(816) 513-0616
Fax Number	(816) 513-0620
Joe Williamson	(816) 513-0617



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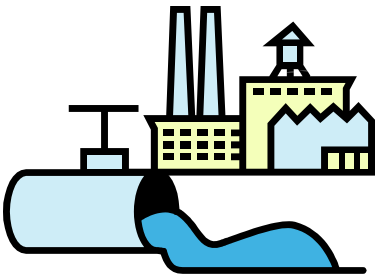

Upcoming
Industrial Waste Seminar

Subject: Pretreatment Math and Chemistry—The Basics

When: Wednesday

January 18, 2006

Where: 1001 Harrison St

Intermediate Sampling to Prevent Violations

Exerts from http://www.waterandwastewater.com/

Lab21, out of the UK has announced an extended range of applications for its OVA 5000 analysis system. Importantly, the ASV (anodic stripping voltametry) technique can identify the oxidation state of certain metals. The unit process system now offers improved performance for Arsenic 5 and 3, and Chrome 6. The systems will also routinely monitor metals such as Zinc, Cadmium, Lead and Copper.

The system provides on-line continuous batch monitoring. Throughput is up to 288 samples in 24 hours, with fully flexible programming allowing samples to be taken at specified times, or when triggered by an external event. Typical detection limits are better than 10 micrograms per liter (10ppb) for most metals; accuracy and reproducibility compare well to AAS or ICP laboratory analyzers. The unit is unaffected by Sodium, Calcium, Chlorine or Magnesium in the sample, metals that are often present in industrial samples.

Uses in Pretreatment

Although this unit cannot be used to collect samples for permitting requirements and is not endorsed by the department, it is the type of device that can assist companies who have difficulty with compliance. By utilizing intermediate monitoring, a Permittee can detect wastewater that does not meet permit requirements prior to discharge. These wastewaters can be rerouted for further pretreatment, thereby preventing violations of the wastewater discharge permit.

There are many devices available on the market. If you are having trouble meeting your permit limits talk to your Pretreatment Coordinator before implementing any changes.

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The Kansas City Metropolitan Area

December 2005

Volume 10, Issue 4

Industrial Waste Newsletter

EPA to raise penalties to account for inflation Exerts from Environmental

Environmental fines will be inflated to remove any unfair economic advantage gained by failing to invest in compliance.

EPA has decided to continue using a penalty software program, known as BEN, to set penalty amounts.

Fines start at $32,500 per day per violation, and they can be adjusted to level the playing field between illegal operations and those that have made the required compliance investments.

After studying how the BEN program has set penalties since 1996, EPA says it's still the best way to assess penalties for violations like delaying an equipment upgrade or failing to conduct leak detection.

Fines are constantly increasing

The cost of what constitutes an unfair advantage will be more accurate now. EPA has adjusted its program to account for inflation on a month-to-month basis.

Info: To see how BEN calculates a penalty, download it from www.epa.gov/compliance/civil/econmodels/index.html

Resolve to Be Ready In 2006 - Homeland Security Urges Americans to Make Emergency Preparedness Their New Year's Resolution

Excerpt from: www.dhs.gov/dhspublic/display?content=5908

WASHINGTON, D.C. — On December 31, 2005 nearly half of all adults in this country will make at least one New Year's resolution. Today, as part of its successful Ready campaign, the U.S. Department of Homeland Security encouraged Americans to make a resolution that is both important and easy to keep, preparing for emergencies.

"As 2006 approaches, we continue to look for innovative ways to empower families and businesses to prepare for emergencies," said Homeland Security Secretary Michael Chertoff. "In this time when Americans are making resolutions to better their lives, the message of preparedness is truly fitting. Making an emergency plan for their home or business is just one of the simple steps individuals can take to help ensure that they are as prepared as possible if an emergency occurs."

In a recent national survey conducted by The Ad Council, 80 percent of Americans agreed that taking some simple steps to prepare could help protect themselves and their families in the event of an emergency. However, only 58 percent had made an emergency supply kit, developed a family emergency plan or learned more about potential threats, the three steps recommended by the Ready campaign. A survey of small businesses found more than 90 percent recognized the importance of business emergency preparedness. But, less than 40 percent said their company had an emergency plan in place.

By visiting www.ready.gov, individuals and businesses can learn how to prepare their families and workplaces for emergencies including natural disasters and potential terrorist attacks. Materials, including family communication plan templates and sample business continuity plans, are available on the website providing Americans with the resources needed to make New Year's resolutions that will bring piece of mind.

The U.S. Department of Homeland Security promotes individual emergency preparedness through the Ready campaign and Citizen Corps. Ready is a national public service advertising campaign produced by the Advertising Council in partnership with Homeland Security. The Ready campaign is designed to educate and empower Americans to prepare for and respond to emergencies, including natural disasters and potential terrorist attacks. Individuals interested in more information about family and business preparedness can visit www.ready.gov or call 1-800-BE-READY to receive a "Get Ready Now" brochure. Citizen Corps, Homeland Security's grassroots effort, localizes preparedness messages and provides opportunities for citizens to get emergency response training; participate in community exercises; and volunteer to support local first responders. To learn more and to get involved, contact your nearest Citizen Corps Council by visiting www.CitizenCorps.gov.

Inside this issue:

20 Ways to Cut Water Usage in Plating Shops

Excerpts from http://www.finishing.com/Library/20ways.html

1. DOUBLE DIPPING

Dip the work twice in the same rinse tank. Much more effective than leaving the work in the tank! Easy to do on a hand line, and almost as easy with a programmed hoist.

2. DRAGIN/DRAGOUT

Maybe you already have a reclaim or "save" tank, which should be the first stop the work makes after plating. It should also be the last stop the work makes before plating! In this way the reclaim tank will stabilize itself at about 50% of the concentration of the plating bath. Thus, instead of carrying water into the plating tank with each load, you carry back a 50% solution. This cuts waste load in half and saves valuable chemicals. Also solves the problem of room-temperature baths that keep "growing". Again, this principle is easily implemented on manual and programmed hoist lines. On continuous or full-automatic lines, a small pump will serve to "common" the rinse after plating with the one before.

3. TOP SPRAYS

Most rack platers know what a top spray is, but few have taken the time to work out the numbers! If you handle ten loads per hour, and you spray for ten seconds each time a load is lifted, then water is running for only 100 seconds out of each 3600 seconds. In effect you can install a powerful 36 GPM spraying system while consuming an average of only 1 GPM. Mount a top spray on a rinse tank, and you have a very effective two-stage rinsing system that consumes very little water. Automated lines can be programmed to spray during lift only; manual lines can be equipped with foot-operated valves or limit switches and timers.

4. RESTORE BARREL HOLES

The next time you look at your barrels, look inside. It is the nature of polypropylene to peen over when subjected to the tumbling action of the work. You will probably see that the holes are virtually closed off! It is not unthinkable to restore the holes to their original size with a hand-held electric drill--lots of shops do it. It's probably less than a day's work. Not only will you greatly reduce dragout and the consequent need for high flow rates in your rinses, but plating speed will improve and you'll have far fewer headaches from barrels "floating".

5. EXTEND DRAIN TIME

A rather obvious solution, of course: more drain time means less dragout means less fresh water means lower flow rates. But extending your drain times does not necessarily mean that your productivity will suffer! If your system incorporates two operators or two programmed hoists, then one probably finishes the cycle before the other. Drain time on the faster half of the line can be extended without any loss of production. Even on single-hoist lines, there are invariably pauses while waiting-out an immersion time, etc. Usually, these pauses can be translated into increased drain time.

6. AIR AGITATION

Air agitation not only keeps the rinse tank stirred, it scrubs the clinging solution off of the work.

7. COOLING TOWERS

If you are using "once-through" water to cool a rectifier or as part of a refrigeration system or whatever, you are wasting a lot of money. Cooling towers are cheap! They will reduce your water usage in this application by 80-90%.

8. COUNTERFLOW

In a multiple-rinse situation, introduce fresh water to the last rinse only; let the overflow from this last rinse be the supply source for the earlier rinse. Studies and practical experience have proven that this slightly-contaminated overflow from the last rinse is just as effective as clean water. By counterflowing a two-stage rinse, flow rates can be cut in half.

9. BREAK AIR LOCKS

Sometimes counterflow rinsing doesn't work too well because the water flows the wrong way (from the dirty rinse to the clean rinse) when a rack or barrel is immersed in the dirty rinse and raises the level in that tank. One problem might be that you don't have enough elevation difference between the two overflow dams. More likely, the dirty rinse isn't draining right because of an airlock. Fix it for pennies!

10. INSTALL AIR LIFTS

Suppose you would like to employ counterflow rinsing but have no elevation difference between the overflow dams. Or suppose you would like to reuse the overflow from plating rinses in earlier, less critical rinses. A simple air-lift can be fabricated from plastic pipe, and will handle this chore without pumps, level controls, or other expensive complications.

11. TIMED WATER ADDITIONS

It's easy, and relatively inexpensive, to rig up a timer and solenoid valve to deliver a fixed quantity of water to the rinse tank with each load. The timer can be triggered by a limit switch, or from the hoist programming. A user reported a water savings of more than 50%, and a payback time of 3 months!

12. CONDUCTIVITY CONTROLS

A conductivity controller is adjusted to feed additional rinse water only if contaminants exceed an acceptable level. This is an answer ideally suited to job shops where the amount and type of work processed varies from day to day. No water is wasted regardless of changes in the workload.

Continued on Page 3

Continued from Page 2

13. MASTER SOLENOID PLUS FLOW RESTRICTORS

Simple but reliable flow restrictors are available for less than $10 apiece. Unless you have a conductivity control setup, you simply must have flow restrictors. The payback time is measured in days! Also, if you install a solenoid valve in the main, and an on/off switch near the operator station, this can save water during intermittent no plating. A few hundred dollars will more than cover the cost, and you pocket the savings for every minute the switch is off. Additionally, you save the labor and headaches associated with constant fiddling with the rinse tank fill valves; simply turn the master switch on or turn it off, and the flow restrictors take over from there.

14. FIBERGLAS HANGER ARMS

Deteriorating plastisol coatings on barrel hanger arms are a continuing source of nuisance dragout, wasting chemicals and necessitating high flow rates in the rinse tanks. Most manufacturers now offer Fiberglas hanger arms, and others offer titanium or steel-reinforced polypropylene. Replace those old cast iron arms, and reduce your rinse rates. Also reduce corrosion, stray currents, and high maintenance cost.

15. REPAIR RACK COATINGS

Your racks may drag out a lot more solution than the work! Bubbles and pockets in the coating can hold several ounces of solution, and you may hopelessly contaminate a plating bath by operating in this fashion. The more deteriorated the coatings, the more time wasted removing "trees" too.

16. RACK PARTS DIAGONALLY

Studies have shown that, for small parts, only 15% of the dragout is associated with wetting of the surface; 85% is in the form of a bead or band of water along the bottom edge of the part. By racking the parts so that the lowest point is a corner rather than an edge, drastic reductions in dragout result. Small flat plates (1" x 2") dragged out only one sixth as much solution when racked diagonally.

17. BARREL DOORS UP

Barrel doors typically are thicker than side panels, have fewer holes, and may even consist of two separate sheets stacked together thus impeding drainage. Dragout reductions (and consequent rinse rate reductions) of 15-20% can be expected when doors face upward during draining.

18. COMMON RINSES FOR CLEANING AND PICKLING

You should use separate rinses after cleaning and after pickling if you can. However, if you have only one rinse after cleaning and one rinse after pickling, you may be better off designating one as the first rinse after both processes and the other as the final rinse after both processes. Substantially lower flow rates may be possible with this arrangement than with the original.

19. TANKS IN PROPER ORDER

Never drag the work over a final rinse enroute to dipping it in a preliminary rinse! If your tanks are so positioned that a "clean" rinse is between a process tank and a "dirty" rinse, move the tanks.

20. FULL DEPTH SPRAY

Very viscous solutions (etches, chrome baths, zincates) may be more effectively removed with high pressure sprays than by immersion. Rather than using all fresh water, install a recirculating pump. Install an overflow dam near the bottom of the tank, and introduce fresh water through a flow restrictor.

The World of the Polar Bear

excerpts from www.worldwildlife.org/polarbears/index.cfm and /index.cfm

The polar bear is the largest terrestrial carnivore. Adult males can measure more than nine feet in length and weigh between 770 and 1,430 pounds. The bear's body and neck are elongated, and the head is narrow and long with small, rounded ears.

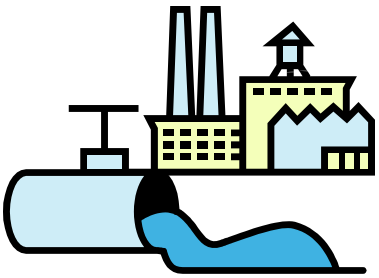
The polar bear is the king of the great white north. It might come as a surprise then that this majestic species faces an uncertain future: Climate change is causing the disappearance of sea ice from which polar bears hunt their prey. Research … found that with less time on the ice to hunt for food and store it leaves polar bears hungry and hinders reproduction. If current climate trends continue unabated, polar bears could become extinct by the end of this century.

The polar bear's coat, covering it completely except for the nose and foot pads, is superbly adapted to Arctic environments. Along with a thick layer of body fat, the water-repellent coat insulates the bear from cold air and water. It also serves as camouflage; in fact, polar bears can sometimes pass as snow drifts. The fur is 95 percent efficient in converting ultra-violet sun rays into usable heat. Its transparent hairs have a hollow inner core which scatters ultra-violet light by some unknown mechanism, converting it into heat when it reaches the bear's black skin. Surprisingly, the fur has no white pigment; it is the reflection of the sun that causes the fur to appear white.

KCMO
WATER SERVICES
DEPARTMENT

Industrial Waste Control Division
1001 Harrison Street
Kansas City, Missouri 64106

Phone: 816-513-0600
Fax: 816-513-0615



Upcoming
Industrial Waste Seminar

Subject: Pretreatment Math and Chemistry—The Basics

When: Wednesday

January 18, 2006

Where: 1001 Harrison St

Floor Drain Trouble

Exerts from Environmental Compliance Alert September 28, 2005

Crane and Company, Incorporated in Dalton, MA is a paper mill operator. The company failed to contain a wastewater spill that reached the Housatonic River because a floor drain was unsealed. Crane did report the spill as required within 24 hours and agreed to inspect its pipes and make repairs as necessary. The Massachusetts Department of Environmental Protections levied a $5,750 penalty for the release.

Missouri Department of Natural Resources Announces First Kansas City Area School to Go Solar

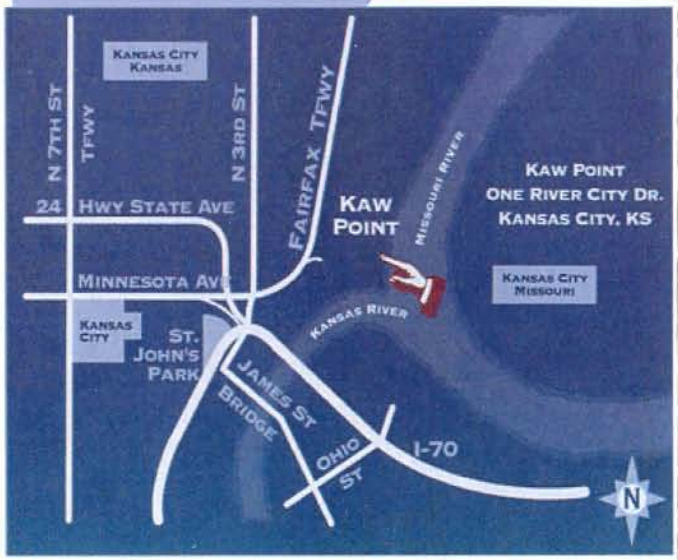
Excerpt from: www.marc.org/environment/E-newsletter/enews.htm

The Missouri Department of Natural Resources announced today that Smith-Hale Middle School will be the first Kansas City-area school to join the department's Missouri Schools Going Solar program. As a participant in the program, Smith-Hale will receive a 1-kilowatt photovoltaic solar array on school grounds. The arrays are expected to generate a small amount of electricity and a large amount of student and community enthusiasm about energy alternatives.

The program also provides schools with curricular materials and training to help teachers incorporate lessons about energy resources, including energy efficiency and renewable energy, into classroom courses and activities. Additional information on the program is available online at or by contacting the department's Energy Center at 1-800-361-4827.

The Kansas city Metropolitan Area Industrial Waste Newsletter is a periodic publication of the two "Kansas Cities." Letters and articles from its readers are encouraged. We reserve the right to edit or reject submissions. Articles, suggestions, comments and requests to be included on the mailing list may be submitted to Paul Wacker, 1001 Harrison Street, Kansas City, MO 64106 (paul_wacker@kcmo.org or 816-513-0608) or Scott Craig, Water Pollution Control 50 Market Street, Kansas City, KS 66118 (scraig@wycokck.org or 913-371-4240). If you have an event you would like displayed on the calendar, call Paul Wacker.

KAW POINT
Kansas City, KS



www.littleblueriverwc.org

Tear off at dotted line and bring to the festival!

FREE

ADMISSION

MO River Watershed Festival
October 7, 2005
Kaw Point

# of people in group _____

Zipcode of residence _____

Remember to bring lawn chairs or blankets for enjoying the live entertainment!

Missouri River Facts:

- The MO River is about 2,565 miles long and drains approximately one-sixth of North America.
- The headwaters for the MO River are located in Three Forks, Montana, within the Rocky Mountains.
- The common nickname for the MO River is "Big Muddy" due to its high silt and sediment content.
- Approximately 67% of the MO River has been either channelized for navigation (≈650 miles) or impounded by dams (≈903 miles).

Week of Water

Sponsored by:
The KC Metropolitan Area Week of Water Committee.

Week of Water

Hosted by:

Little Blue River Watershed Coalition
6103 Noland Road
Kansas City, MO 64133
816-356-4040
turttle5@aol.com
www.littleblueriverwc.org

Missouri River Watershed Festival

October 7, 2005

4:00 PM—8:00 PM
Kaw Point
Kansas City, KS

www.littleblueriverwc.org

What is the Missouri River Watershed Festival?

It's a celebration of the MO River Watershed— all the rivers and streams that drain into the MO River... that's all of them in the metro area!

There will be all kinds of fun— including boat rides, water games, prizes, food, and live entertainment*!

The festival also features 'Build a Rain Barrel' demonstrations and a Rain Barrel raffle—for your chance to win your very own Rain Barrel!

GAMES

BOAT RIDES

LIVE ENTERTAINMENT

PRIZES

FOOD

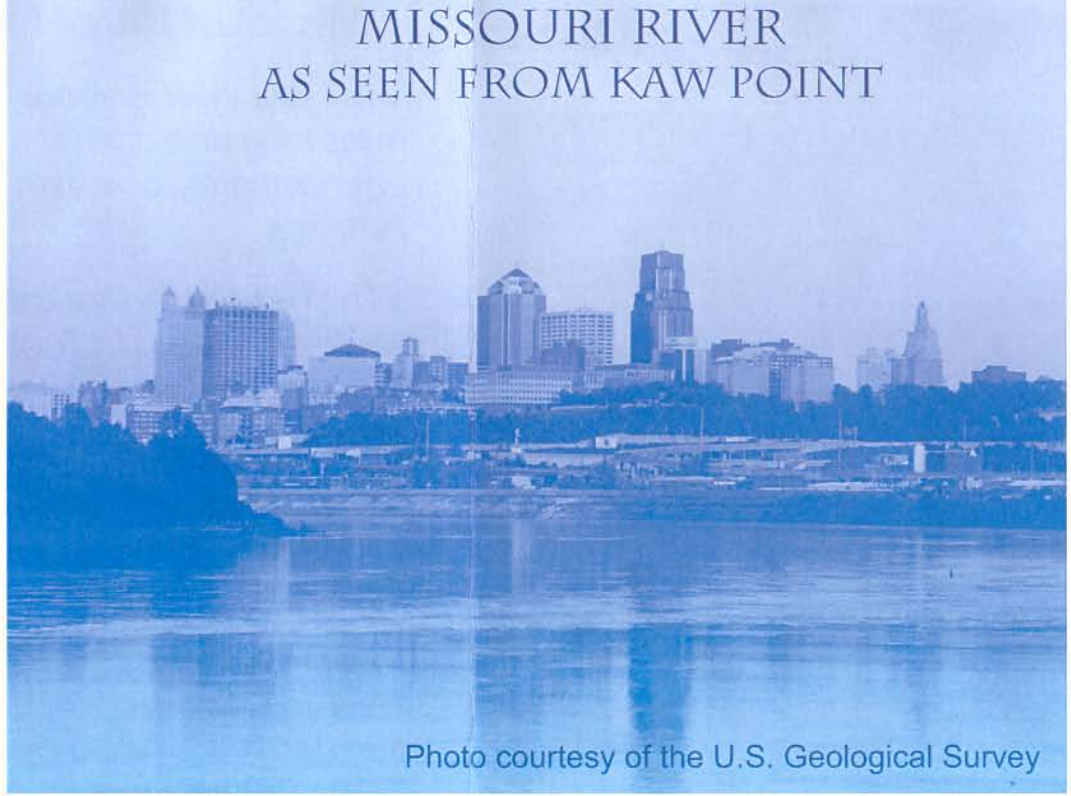


Photo courtesy of the U.S. Geological Survey

FRIDAY
October 7, 2005
4:00 PM—8:00 PM
Kaw Point, KS

At the confluence of MO and KS Rivers!

*Bring lawn chairs or blankets for enjoying the live entertainment.

What is YOUR Community doing about stormwater?

Join us for a "Lunch and Learn" work session to determine how to best implement APWA 5600 and the BMP Manual.

Communities throughout Jackson County are struggling with the best way to utilize and implement the APWA 5600 and BMP manual for stormwater quality. The tools were adopted last fall by the Kansas City Metro Chapter of the American Public Works Association to guide the region toward a more environmentally sound stormwater management system. Only strong collaboration among local governments and professional organizations will ensure local governments throughout the region utilize similar standards and approaches adapted to meet local needs. This work session will focus on how WE can work together to achieve the goals of the new standards.

AGENDA

- Overview and purpose of the session
- Where are we in the process of adoption?
- Overview of the APWA 5600 and BMP Manual
- Issues during the development of standards
- Adoption options
- Administrative issues

This will be an interactive session, so bring your experiences and opinions to the table!

Join Us!

WHEN: Thursday, July 28th, 11:00—3:30 p.m.

WHERE: Sermon Center, South Meeting Room

On the corner of Noland & Truman Roads in Independence, MO (816) 425-7370

~LUNCH WILL BE PROVIDED!~

RSVP by July 25th to Jennifer Berry at jberry@jacksongov.org

Sponsored by Jackson County Public Works • 816-881-4530

Rain Harvesting

How to Construct a Rain Barrel

Tools needed:

Safety glasses
measuring tape
pliers
utility knife
circular saw
miter saw or hack saw (optional)
drill with screw head attachments
7/8” and 2-3/8” hole saw drill attachments
permanent marker
second pair of hands with a good grip
2 clamps (optional)
vice grips (optional)

Materials and estimated costs

		Total
55 gal barrel	***Free to WSD Associates***	
GE Silicone II	$2.97	
2 garden hose washers (fits 5/8” – 10/pkg)	$1.47	
½ “PVC female adaptor fitting (electrical supply area)	$0.29	
½” plastic spigot	$1.98	
2” PVC pipe	$5.49	
2 – 90^{o} PVC fittings - 2@$0.58	$1.16	
3/4” or 1” metal screws	$0.90	
1 downspout adaptor	$3.48	
1 flex elbow	$2.19	**$19.93**
or		
1 flex downspout	$8.87	**$26.61**
Plus Sales Tax		

Instructions

Prior to construction:
Unscrew one cap (may be already off) from top of 55 gal barrel, this is where adaptor for flex elbow or flex downspout will be placed – next to building. Make a vertical mark on one side of the top through the horizontal crease with a permanent marker; this assures better sealing during reassembly in case there is any irregularity in the cut to be made.

1. Using 2-3/8” hole saw drill attachment on drill, drill ~ 2-1/2” from the top of barrel.

2. Using 7/8” hole saw drill attachment on drill, drill ~ 2” from the bottom.

3. Using a circular saw make a circular cut ~1.5” down from the top (at the crease) around the full circumference. Lay top away from work area.

4. Rinse out any syrup remaining in the (PepsiCo) barrel and remove “plastic cookies”. Allow to dry or dry with cloth.

5. Lay barrel on side. Place rubber gasket on ½” plastic spigot and silicone sealant its threads through drilled 7/8” hole. Have someone hold spigot in place; crawl into barrel and add additional sealant around hole. Place a rubber gasket over threads next to interior wall of the barrel. Thread ½ “PVC female adaptor fitting onto the spigot. Using pliers tighten so that spigot is tight on barrel.

6. Set barrel in upright position. Using a miter saw, circular saw or hacksaw make a 5” cut through 2” PVC pipe; trim rough edges. Push the cut 2” PVC pipe into the 2” hole near top of barrel - ~1” inside, ~4” outside the barrel – this is for possible overflow. Seal around 2”PVC both inside and outside with silicone sealant. Allow to dry per manufacturers directions.

7. Place barrel in permanent placement area using cinder blocks or other means to set above the ground - the round opening on top at the closest point to the building to harvest rainwater. Set lid on barrel, aligning vertical mark. Set downspout adaptor onto top opening, using drill, drill two (2) pilot holes through downspout adaptor and top opening. Using a phillips screw head attachment on the drill, screw in two (2) metal screws (can use drywall screws or 3”hose clamp) into the pilot holes. Seal downspout adaptor to barrel with silicone sealant.

8. Attach flex elbow or flex downspout into downspout adaptor. Using drill with phillips screw head attachment, screw in metal screws on two opposing sides.

9. Open flex elbow or flex downspout to. Mark rigid downspout where connection will be made. Using a hacksaw make cut through rigid downspout and using drill with phillips screw head attachment, screw in metal screws on two opposing sides.

The sawed barrel top can either just sit atop of barrel[1] or can be sealed with silicone sealant.

10. Place 90^{o} PVC fitting in a turned down position onto cut PVC pipe after silicone sealant has cured. Using a tape measure, measure the distance the top elbow flare to lower elbow flared end which will sit on ground and make cut using a miter saw or hacksaw equal to the measurement taken on 2” PVC pipe, clean off rough edges with utility knife. Attach PVC pipe to both top and bottom PVC elbows. Remaining PVC pipe can be attached to lower elbow and directed to area determined for overflow.

[1] Allows easy removal of barrel for periodic cleaning

Planting guide:

Partial Shade Garden

1. Virginia Wild Rye
2. Blue Lobelia
3. Rose Turtlehead
4. Copper Iris
5. Celandine Poppy
6. Cardinal Flower
7. Sweet Coneflower
8. River Oats
9. Wild Ageratum
10. Tussock Sedge

Partial shade wildflowers do best in areas where they will receive between four and six hours of sun per day. Placing your garden in an area that gets its sun during the morning hours and shade in the afternoon is most beneficial.

Full Sun Garden

1. Lanceleaf Coreopsis
2. Little Bluestem
3. Prairie Blazing Star
4. Marsh Milkweed
5. Soft Rush
6. Blue Sage
7. Blue Flag
8. Sideoats Grama
9. New England Aster
10. Wild Quinine
11. Black-Eyed Susan

Full sun wildflowers do best when they can receive six or more hours of sun per day. Full sun wildflowers prefer morning or afternoon sun.

MARC Mid-America Regional Council

Good Neighbors Care About Clean Water

Supported in part by:
Environmental Protection Agency
Missouri Department of Natural Resources
Kansas Department of Health and Environment

For more information visit www.marc.org/water

Brochure developed by:
PBA Patti Banks Associates
GROW native! A program of the Missouri Department of Conservation

How to build your own Rain Garden

FACT:

Rain Gardens can absorb 30% more water than the same size area of lawn.

Why should I make a Rain Garden?

Catching water in a rain garden allows it to slowly filter into the ground. This means less rainwater is lost into our storm sewers which also means there is less flooding and erosion in our streams. What a beautiful way to improve the quality of water in our lakes and streams! Keeping water on site and letting it "perc" into the soil also means more water is available to recharge the water table underground.

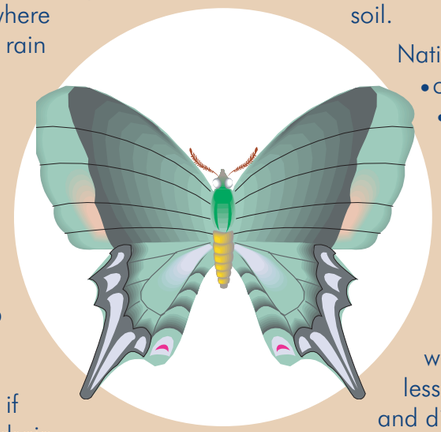
Where should I place a Rain Garden?

It is important to locate your rain garden where it will collect the most amount of rainfall runoff possible. Placing your rain garden downhill from paved surfaces where water would naturally flow will maximize its ability to collect runoff.

Rain Gardens are versatile; they can be any size or shape imaginable. It is most practical to locate your rain garden on level to moderate slopes. The most logical location for your rain garden is in an existing low spot in your yard. However, do not place your garden in an area where water currently ponds. Standing water shows you where the soil is slow to absorb water. The rain garden's function is to aid in water infiltration.

Be sure to place your rain garden at least 10 feet from buildings to keep water from seeping into and damaging the foundation.

Collecting rainfall from your rooftop is easy, too! Just place your garden where downspouts will drain into it, directing water with a shallow swale if necessary. You may also choose to drain your downspouts to your rain garden through a buried 4" plastic downspout extender like ones you can find at most home improvement stores.



What should I plant in a Rain Garden?

Native plants are a natural for this landscape application because they tolerate short periods of standing water, are drought tolerant, and their deep roots make it easy for water to move down into the soil.

Native plants are also great at:

- conserving soil and water,
- serving as non-polluting landscapes because they don't need fertilizers, pesticides, or herbicides,
- supporting a diversity of wildlife by improving their habitat,
- reducing long-term maintenance after plantings are established,
- lasting longer because they are winter hardy,drought tolerant,and are less prone to destructive insects and diseases.

When choosing which natives are best for your rain garden, consider height, wildlife attraction, flowering and sun/shade tolerance. Consult the included planting guides for sun and partial shade plant recommendations that attract birds and butterflies.

How to:

It's simple! Just follow these three easy steps:

1. Start by digging a 4-8" depression with gradually sloping sides as large in circumference as you like. (A good rule of thumb is to size your garden at 30 percent of the area of the roof from which it will be collecting water.) A 4-8" depth will allow water to be captured, but will dry between rain events.

   If you prefer to hold water in your garden in drier times, dig a portion a little deeper, say 18" in depth. Test your soil's ability to hold water by filling the hole with water. If it drains out, you may want to install a plastic liner where you want ponding and install the plants around the liner.

2. Plant natives recommended in the plans below.

3. Add untreated, shredded hardwood mulch to a depth of 3" on all of the bare soil around the plants to prevent erosion while your natives are establishing.

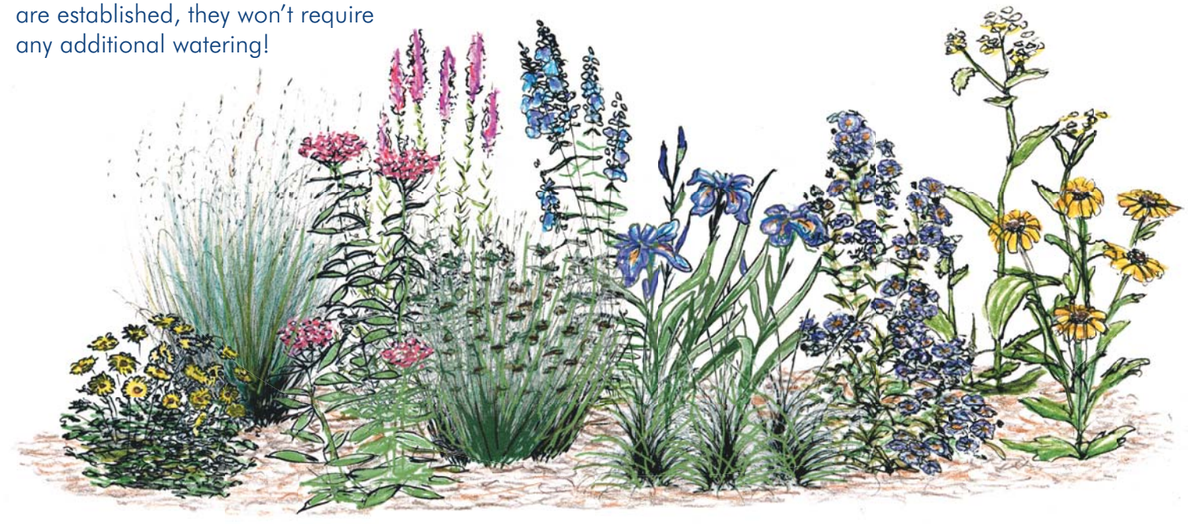
TIP:

While your natives are establishing their roots, you'll need to water them about every other day. This should be done for the first two to three weeks, or until the plants show that they are growing and doing well. When your natives are established, they won't require any additional watering!

Check out the back cover for a key to the plants in these two gardens!

TIP:

Remember not to fertilize your natives. Fertilizer causes them to grow too tall and fall over. It also stimulates weed growth and creates competition for your natives.



KCMO WATER SERVICES DEPARTMENT

News & Information from Your Water Department

Water Lines

one boring improvement after another

March/April 2005

From the Director

Franklyn W. Pogge
Director

The City of Kansas City, Missouri Water Services Department is currently working to resequence meter reading routes.

When resequencing is complete, each route will be more equilivent, resulting in a reduction of estimated bills. This resequencing will have little or no impact for 90% of our consumers. All accounts should be resequenced by the March/April billing cycle.

You may notice that your next bill has slightly more or fewer days of service than normal and the amount due may be higher or lower than normal during the March/April billing cycle. All accounts should have more typical reads in the May/June billing cycle.

The new billing system that was implemented in April 2004 allowed all accounts to be resequenced.

The old billing system did not allow any resequencing of accounts. Once an account had been entered into the old billing system, its meter route read sequence was part of the account number, and therefore, could not be changed. In addition, meters had to be read in the correct route sequence.

Your Kansas City, Missouri Water Services Department Reading and Service

see 'Director' p. 2

New mains and hydrants for Eastwood Hills

The Eastwood Hills neighborhood is being readied to have more than 5,000 feet of 2-inch water mains replaced with 6-inch and 8-inch mains, above. The project is scheduled for completion in Fall of 2005. Fourteen new fire hydrants will also be installed.

The Eastwood Hills Small Main replacement Project began on Monday, Jan.17. The neighborhood adjacent to East Hills School will have more than 5,000 feet of 2-inch water main upgraded to 6 and 8-inch main. The project will also install 14 new fire hydrants.

This $800,000 project is part of the 1996 $150 million voter approved bond package which allocated $30 million for small main replacements.

The project is scheduled for completion in Fall 2005 and will bring the total miles of small mains replaced to more than 50 throughout the city.

Small main replacement projects are numerous and in varying stages of design, being bid and construction.

Santa Fe Hills, Munsell Acres and Marlboro Heights are just a few of the small main replacement projects already completed.

Currently, Breen Hills is under design.

Bannister Acres has been designed and bid and is waiting for funding. There are 12 additional projects designed and waiting to be constructed.

Don't let what you put on your lawn end up in your water

Lawn chemicals are the fertilizers, herbicides and insecticides used in lawn and garden care. When lawn chemicals are applied improperly, they can run off into streams, harming fish and other animals, and contaminating our drinking water.

Overapplication of any lawn chemical can result in runoff that carries toxic levels of chemicals or excessive nutrients into lakes, streams and groundwater.

Fertilizers usually contain nitrogen, phosphorous and potassium (potash). Nitrogen is an important lawn nutrient, but it can contaminate groundwater with nitrates. Phosphorous can promote excess weed growth in lakes and ponds and contaminate groundwater, while the chloride that is often combined with potassium in potash is also harmful.

Some lawn chemicals threaten native flowers and grasses by harming beneficial insects that safely control weeds and unwanted insects.

When using lawn chemicals, become familiar with a product's toxicity and potential environmental impact. The following are some of the health risks that lawn chemicals pose to humans, pets, wildlife and aquatic organisms.

The use of lawn chemicals accounts for the majority of wildlife poisonings reported to the Environmental Protection Agency.

Lawn chemicals can be absorbed through the skin, swallowed or inhaled. During application, lawn chemicals can drift and settle on ponds, laundry, toys, pools and furniture.

Fortunately, there are some things that you can do to lessen the effect lawn chemicals have on water quality.

- Read labels on lawn chemicals carefully and always apply products sparingly.
- Try using compost or organic lawn chemical alternatives. Composting creates an organic, slow-release fertilizer and soil-enhancing material.
- Landscape with native plants, grasses and flower species whenever possible. A natural lawn reduces or eliminates the need for lawn chemicals.
- Use caution on slopes and lawn edges so fertilizer will not wash into nearby catch basins and/or waterways.
- Allow proper drying time for liquid chemicals, and never use lawn chemicals before a heavy rainfall is expected.
- Test soil for nutrient deficiencies before using lawn chemicals.
- Contact your county extension service for more information on lawn chemical use. Extension phone numbers can be found at www.marc.org/water.

Catch basin hotline to report clogged, broken inlets goes live

The City of Kansas City, Missouri Water Services Department launched a new catch basin hotline on Jan. 27. The new number is 816-513-0500.

Residents are encouraged to call the catch basin hotline to report the following:

- catch basins in need of repair
- clogged catch basins/catch basins that need cleaning
- street flooding due to an apparent clogged catch basin
- illegal dumping into catch basins
- leaves/debris in catch basins
- questions regarding the replacement/repair of a catch basin

"The new catch basin hotline/call center will assist us in better assessing the repair and cleaning needs of catch basins, as well as making it easier for citizens to make requests or inquiries regarding catch basins in need of attention," said Department Director Frank Pogge.

"This new hotline, along with the approximately 2,000 catch basins that are scheduled to be replaced in five phases with funds from the voter approved GO Bonds, will increase our efforts to make the catch basins and stormwater system function as designed," added Pogge.

Residents can also email questions or concerns to water@kcmo.org.

'Director' from p. 1

Division, Information Technology Division and Consumer Services Division have been working to resequence the routes making it more efficient for our staff and to help reduce estimated reads.

This resequencing will also assist the Department as it proceeds with the implementation of Automatic Meter Reading during the next year.

Water accounts that experience a significant change will receive a separate letter notifying them of their new billing cycle.

If you have any questions, please visit our website at www.kcmo.org/water or call 816-513-0123, then enter 61.

The Kansas City, Missouri Water Services Department maintains and operates water processing and distribution systems; stormwater management and control systems; and wastewater collection and processing systems for residential and business customers in Kansas City, Missouri. The department also sells water to 33 wholesale customers in the metro area. Operation is funded entirely by fees charged to customers based on their use of products and services, not by taxes.

Produced by the Marketing & Public Relations Division - March 2005

KCMO WATER SERVICES DEPARTMENT

News & Information from Your Water Department

Water Lines

one boring improvement after another

May/June 2005

From the Director

Franklyn W. Pogge
Director

Your Kansas City Water Services Department through its Overflow Control Program (OCP) has initiated projects to improve the sanitary sewer system (SSS) and combined sewer system (CSS) wet weather operations. The OCP is a long-term program to improve the sewer system operation. The work to be performed under the Overflow Control Program is a comprehensive city-wide characterization and evaluation of the sanitary sewer and combined sewer systems.

Combined sewers are designed to convey both sanitary sewage and stormwater. During dry weather, sanitary flows only are conveyed to wastewater treatment facilities. During wet weather, stormwater runoff enters the combined sanitary sewer (CSS), and is also conveyed to wastewater treatment facilities. During wet weather events, when the amount of stormwater runoff entering the CSS exceeds design capacity, the excess flows are diverted from the CSS to local receiving waters through diversion structures. This discharge, which is comprised of stormwater and sanitary wastewater, is a combined sewer overflow (CSO).

The implementation of the OCP will:

- minimize sewer overflows

See 'Director' - p. 2

Flow meter installed on Town Fork Creek

An additional flow meter has been installed on Town Fork Creek near 51st Street as part of Kansas City, Missouri Water Services Department's ongoing water quality study with the United States Geological Survey (USGS).

As part of Kansas City, Missouri Water Services Department's ongoing water quality study with the United States Geological Survey (USGS), an additional flow meter has been installed on Town Fork Creek near 51st Street.

The gauge was installed on Monday, March 21. The gauge will be operational during the first week of April.

The USGS currently operates five gauges within the city limits, one on the Missouri River, two on the Blue River and two on Brush Creek. The additional gauge located on Town Fork Creek will provide data on flow in this tributary to Brush Creek.

The City partnered with the USGS in 1998 to collect and analyze water quality data in streams to determine combined sewer and non-point source contributions to urban stream quality.

Water Services' Director Frank Pogge stated the further analysis of water quality issues is imperative to determine contaminant sources and impact to human health and the environment and will allow identification of appropriate wastewater and stormwater systems improvements.

GO Bond Catch Basin Groundbreaking held

On Friday, April 1 at 10 am, the official groundbreaking ceremony marking the beginning of the GO Bond-funded Catch Basin Replacement Program was held at the corner of Anderson and Indiana in Northeast. From left to right, Water Services' Director Frank Pogge, Mayor Kay Barnes, Councilman Dr. Charles Eddy, and Assistant City Manager Greg Baker spoke.

The $11.2 million PIAC approved funding for the Catch Basin Replacement Project will begin with five contracts, Phases A through E, that were bid in 2004 with work scheduled for completion in late 2005.

'Director' - from p. 2

Recently, the Water Services Department installed one of approximately 100 flow meters at Holmes & Rockhill Road. The flow meters will be installed in manholes and diversion structures throughout the City. The meters will continuously measure and record the rates of flows so the data can be used in the analyses of future sewer improvment projects.

- identify and address sewer system deficiencies
- ensure adequate wastewater collection system capacity.

One component of the sewer system characterization is measurement of the amount of water flowing through the SSS and CSS at locations chosen by the Water Services Department, and engineers working on the project. This information will be used to calibrate and verify a computer model of the sewer system that can then be used to evaluate the operation of the sewers. The computer model will also be used to compare the operational and water quality benefits that could be gained from potential improvement projects.

Recently, the Water Services Department installed one of approximately 100 flow meters that will be installed in manholes and diversion structures throughout the City. The meter will continuously measure and record the rate of flow through the manhole. These flow meters are planned to remain in place for approximately four months, and will not affect the existing operation of the sewer systems.

Data will be collected from the flow meter by field crews accessing the manhole approximately once a week. The collected data will be downloaded to a computer, stored and used with the sewer system computer models to perform analyses of potential improvement projects.

The completion of the installation of the flow meters throughout Kansas City represents another public sign of the implementation of the OCP. The goals of the OCP are to protect human health and the environment and comply with EPA and Missouri Department of Natural Resources regulations by improving water quality in the urban streams of Kansas City.

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Produced by the Marketing & Public Relations Division - May 2005

The Kansas City, Missouri Water Services Department maintains and operates water collection processing and distribution systems, stormwater management and control systems and waste water collection and processing systems for residential and business customers in Kansas City, Missouri. The department also sells water to 33 wholesale customers in the metro area. Operation is funded entirely by fees charged to customers based on their use of products and services, not by taxes.

KCMO WATER SERVICES DEPARTMENT

News & Information from Your Water Department

Water Lines

one boring improvement after another

July/August 2005

From the Director

Franklyn W. Pogge
Director

As summer weather turns warmer, water use increases. We at your Kansas City, Missouri Water Services Department are dedicated to providing outstanding quality water whenever you need it - whether it is for cooking, lawn watering, swimming and recreation, or fire protection.

That is why we are cooperating with WaterOne, the Kansas City, Kansas Board of Public Utilities and the Army Corps of Engineers to study degredation of the Missouri River Channel.

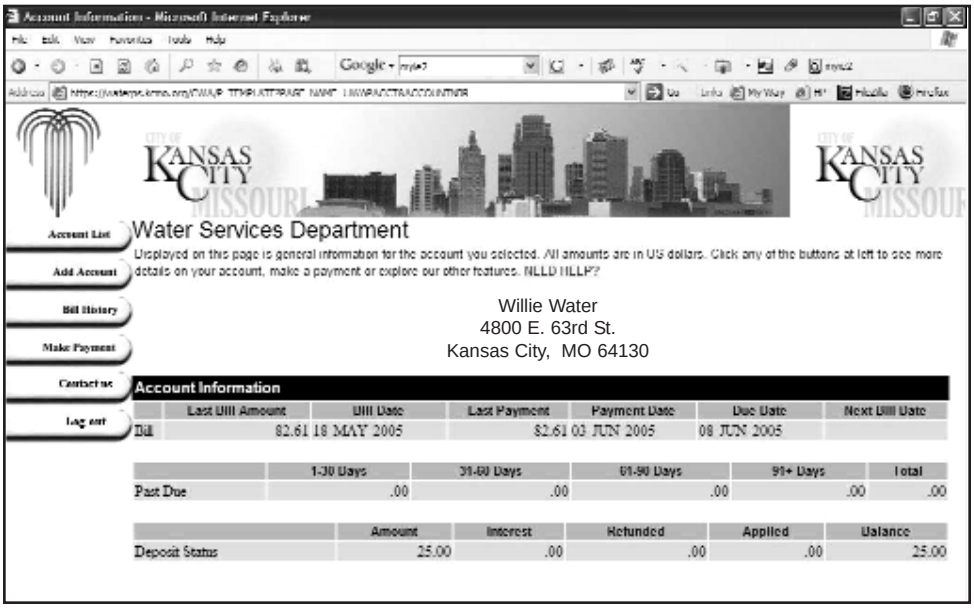
The erosion of the bottom of the channel has many impacts on river users, including habitat for endangered species.

This erosion has also increased our costs to produce water by requiring more electricity to pump water from the river to the treatment plant. It has also required the Department to install additional pumps and make modifications to the water intake building and has increased costs to treat drinking water for taste and odor control.

This joint effort to study the degredation and possible remedies will have many positive impacts metro-wide, including lowering winter water releases, leaving more water in upstream reservoirs, more water during the navigation season and protecting wildlife habitat.

We are dedicated to this effort and will keep our customers updated as we work to improve this situation.

Online water bill payments go live



Customers can now logon to pay their water bills online. After registering, customers can check their account balances, make payments or view payment history. Credit cards accepted include MasterCard, Visa, Discover, American Express and bank debit cards that can function as credit cards.

Customers can now logon to pay their water bills online.

"KCMO Water Services customers can logon to www.kcmo.org/waterbill to pay their bills anytime, any where," said Frank Pogge, director, Kansas City, Missouri Water Services.

Customers will have to register to check their account balances, make payments or view payment history. To register, customers need only the last name on their accounts and the first 16 digits of their account numbers which appear on the top of their bills. Credit cards accepted include MasterCard, Visa, Discover, American Express and bank debit cards that can function as credit cards.

Customers will continue to receive their bills in the mail and can choose if and when to pay online, in person, through ACH or by mail.

Water Services implemented a new billing system in April 2004 that has given the department the capability and capacity to offer online payments and account access to customers.

"We are very excited to offer an additional option of online payments to our customers," Pogge added. "We have received numerous requests for online account access and payments in the last few years, but the old billing system lacked the ability to offer this service."

If you are paying on a past due bill and your water is turned off or could be turned off within the next few business days, after making your payment, you must call (816) 513-0123 to get your water restored or report an online payment to keep it from being turned off.

The Facts About Stream Corridors

Streams are among the most important natural resources in the Kansas City region. Streams, and the natural corridors along them, provide a number of important environmental services that make our region a quality place to live. Whether you have a stream running through your backyard, along side your business, local school, or park, protecting them with stream buffers is a good idea.

A stream buffer is a protected zone within a stream corridor. This zone includes the stream bank, a vegetated area, and much of the floodplain. Within the buffer it is important to maintain native vegetation, avoid activities that disturb habitats, and prevent harmful dumping.

Streams, and the natural corridors along them, provide a number of important environmental services that make our region a quality place to live. A stream buffer is a protected zone within a stream corridor.

Stream corridors provide vital networks for wildlife and help filter out pollutants. Streams surrounded by a healthy mix of vegetation, including grasses, shrubs and trees, buffer the effects of surrounding land uses which might otherwise harm water quality.

What's the problem?

Many property owners may not realize what they do on their land impacts neighborhoods, stream habitats and water quality downstream. The condition of land that surrounds streams directly affects property values, the health of the stream and the well-being and safety of citizens.

Every stream has two components: the water flowing through it and the land beneath and around it. Good stream corridor stewardship maintains the health of both components to enhance the strength, shape and quality of a stream over time.

Landscaping and dumping are two areas where land owners can have the biggest impact on streams and stream corridors. Landscaping with non-native plants and mowing to the edges of streams eliminates natural plants and bushes, damaging root systems that hold soil in place. This damage results in destabilized stream banks, degraded water quality and loss of natural habitats.

Trash and litter on stream banks is unsightly, unsanitary and unsafe for humans and wildlife. Even organic material such as yard waste, foodstuffs and leaves is unnacceptable to dump along stream banks or into streams. When these materials get into the stream cycle, they decompose and eliminate critical, life-giving oxygen from the water. As a result, streams become unsightly and emit foul odors.

What Can You Do?

Residents have an opportunity to help improve the quality of stream corridors whether they live along stream corridors or not. These are some simple steps that you can take to help improve the quality of streams corridors in the Kansas City region:

Don't mow up to the edge of a stream. Avoid mowing within 10 to 25 feet from the edge of a stream. This will create a buffer zone that will help minimize erosion and naturally filter stormwater runoff.

Plant native plants, grasses, trees & bushes. One of the easiest and most inexpensive methods of protecting stream banks is to plant native plants. These are trees, shrubs, grasses and herbaceous plants that are climatized to our area.

Keep litter out of streams. Adopt a stream or form a stream team to become a steward for a designated stretch of stream or streams in the region. Stream teams also plant trees and monitor water quality in streams.

Produced by the Marketing & Public Relations Division - July 2005

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KCMO WATER SERVICES DEPARTMENT

News & Information from Your Water Department

Water Lines

one boring improvement after another

September/October 2005

From the Director

Franklyn W. Pogge
Director

Just a few short weeks ago, two questions were put before the citizens of Kansas City. They both concerned revenue bonds - for water and for sewers. Voters approved the measures by a three to one margin.

We at your Water Services Department will continue to wisely use funds such as these making sure to weigh the cost for each project against the benefit.

Much of these revenue bonds will be used to replace aging infrastructure. Major improvements to the river intakes and treatment plant will benefit all of our customers.

Some improvement projects are required to stay in compliance with federal and state regulations.

A portion of these bonds will be used to fund the Small Main Replacement Program. This will provide better service to many of our existing customers. Replacing old 2-inch water mains will provide increased fire protection, water pressure and supply to areas of the City currently served by substandard water main sizes.

Your Water Services Department is also looking at extending transmission mains to meet increased demand in the future.

Thank you to all of the voters of Kansas City who supported us in our efforts to be the finest water supply, wastewater and stormwater management utility.

Action taken by Water Services inspector keeps drivers safe

Upon close inspection of the bridge at Northeast 96th Street, Kansas City, Missouri Water Services Department Inspector Stephen Collins determined that very serious concerns with the integrity of the bridge existed. Even though Water Services Department had completed work on our project close by, structural conditions of the bridge led to the Public Works Department deciding to not reopen the bridge.

Work on the East Fork Shoal Creek Interceptor, Phase IV has come to a halt - at least for the present.

The Water Services Department's contractor has constructed and completed the sewer crossing at Northeast 96th Street.

Prior to reopening Northeast 96th Street, the contractor and Water Services Inspector Stephen Collins were concerned with the integrity of the bridge just to the west of the crossing.

After taking a closer look at the bridge, the team was not comfortable reopening Northeast 96th Street due to the deteriorated condition of the bridge.

The Public Works Department was contacted. They inspected it and permanently closed the Northeast 96th Street bridge.

"This is an excellent example of Kansas City Water Services inspector's actions, the contractor's actions and the actions of the project manager working together with one common goal - specifically, the safety of those we serve," stated Jim Mellem, assistant director, Kansas City, Missouri Water Services Engineering Division.

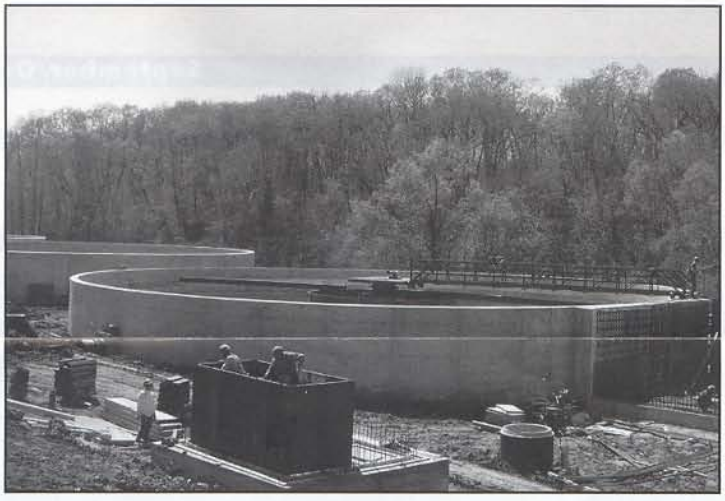
Due to this bridge closure and the replacement of another bridge further east on Northeast 96th Street, the sole access to the Benson Place neighborhood is by way of North Reinking Road.

Water Services had planned to close this road in order to continue construction of the interceptor. Since this is no longer possible, project work has stopped until new alignment and easements are completed.

Rocky Branch ready to rock'n roll

Start-up is set for the newly expanded Rocky Branch Wastewater Treatment Plant. It will have the capacity to treat two million gallons per day.

The new plant consists of an inlet pump station, a headworks building, two aeration basins, two final clarifiers and an outfall structure along with all the necessary electrical components and control systems.



The above photo taken earlier this summer shows the progress that had been made at the Expansion of the Rocky Branch Wastewater Treatment Plant.

The process tank of the old mechanical plant will be converted into a digester. The new two MGD (million gallons per day) wastewater treatment plant was constructed just north of the existing mechanical plant.

The project was split into two phases: the liquid phase and the solids phase. The liquid phase is set to begin operation. The solids phase will be completed after the start-up of the liquid phase.

The lowest bid for the project was $9,555,000.

The old plant could treat three quarters of a million gallons per day and was undersized based on current inflows.

How to disconnect a downspout

Do your downspouts empty onto your yard or go underground? If they run underground, they may connect to the sanitary sewer system.

If you disconnect your downspouts you keep excess water out of the sanitary sewer system.

You can make a difference.

During a heavy storm, each downspout on your home can deliver 12 gallons of rainwater per minute to the sanitary sewer system. This can contribute to basement back-ups and sewer overflows.

Tools and supplies needed for the job:

- hacksaw
- tape measure
- cordless drill
- screw driver
- pliers
- downspout elbow - size to match existing downspout
- 4-foot downspout extension, size to match existing downspout
- 4 sheet metal screws
- standpipe cap
- splash block

STEP 1:

Measure approximately 9" from where the downspout enters the sewer connection.

STEP 2:

Cut the downspout with the hacksaw.

STEP 3:

Cap the sewer standpipe. This prevents water from going in. In most cases, you should be able to use a simple rubber cap secured by a hose clamp. You can also use a wing nut test plug if available cap sizes do not fit.

STEP 4:

Insert downspout INTO the elbow. If you put the elbow into the downspout, it will leak. You may need to crimp the end of the downspout with a pair of pliers to get a good fit. Secure with two sheet metal screws, one on each side. Drill a hole through the downspout and extension as a pilot hole for each screw.

STEP 5:

Attach downspout pipe extension to carry water away from the house and foundation. Be sure to insert the elbow into the extension to prevent leaks. Secure with two sheet metal screws, one on each side. Drill a hole through the extension and elbow as a pilot hole for each screw. Place a splash block at the end of the downspout extension.

For more information, visit www.kcmo.org/water.

WSD saves resources and reduces pollution

Ozone levels in Kansas City have already exceeded federal standards on 13 days this year. This makes it especially important for individuals and organizations throughout the area to avoid ozone generating activities on Ozone Alert Days.

Your Kansas City Water Services Department is mindful that cleaner water and cleaner air both make for a healthier environment.

On four Ozone days in August the Water Services Department used alternative fuel vehicles to travel some 32,000 miles for department business.

Some other ways your Water Department helped reduce ozone generating activities:

* 294 vehicle trips postponed or avoided
* 654 vehicle refuelings avoided or postponed
* 690 hours of vehicle idling avoided
* 41 building thermostats set warmer to reduce HVAC demand

Individually, these may seem like small steps. When steps such as those above are implemented Department-wide, the results create a very positive impact on our environment.

Produced by the Marketing & Public Relations Division - September 2005

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KCMO WATER SERVICES DEPARTMENT

News & Information from Your Water Department

Water Lines

one boring improvement after another

November/December 2005

From the Director

Franklyn W. Pogge
Director

Durning the month of October, the Department met with homeowners in the Brookside area regarding smoke testing results that revealed improper connections or broken laterals to the sanitary sewer system.

Earlier this year, the KCMO Water Services Department conducted smoke testing in the western Brookside area to find improper connections or broken laterals to the sanitary sewer system. Non toxic, non staining smoke bombs were blown into the sanitary sewers throughout a three-square mile area.

The tests revealed 2,100 private sector defects. The majority of problems were downspouts that were connected to the sanitary sewer system.

All homeowners in the smoke test area with improper connections or other sanitary sewer system defects have been notified by mail. Requests will be made to the homeowners for them to help themselves by eliminating the improper connections where feasible. It is the homeowner's responsibility to maintain their service laterals which run from their house to the sewer in the street or easement while the City maintains the public part of the sewer system.

The smoke testing is part of the implementation of the Overflow Control Program (OCP). The goals of the OCP are to protect human health and the environ-

see 'Director' - p. 2

Department celebrates saving 1 billion gallons of oil

Through the use of Biodiesel and compressed natural gas (CNG) in city vehicles, the City of Kansas City, MO displaces 620,000 gallons of conventional gasoline and diesel fuel annually. Water Services has more than 120 CNG vehicles and uses biodiesel in all of its diesel equipment.

Sam Swearngin, fleet manager and co-chair of the Kansas City Regional Clean Cities Coalition, talked to reporters about the Clean Cities coalitions displacment of more than a billion gallons of oil.

The Kansas City, Missouri Water Services Department and the Kansas City Regional Clean Cities Coalition joined 88 Clean Cities coalitions across the country on Oct. 14 to celebrate displacing more than a billion gallons of oil.

This is significant because the U.S. now imports approximately two-thirds of the petroleum it uses.

Clean Cities, part of the U.S. Department of Energy's Energy Efficiency and Renewable Energy Office, builds strong, self-sustaining partnerships with industry, stakeholders, fleets, fuel suppliers, and business partners with the goal of decreasing petroleum use. The nation's 88 Clean Cities coalitions focus on alternative fuels and alternative fuel vehicles, hybrid electric vehicles, fuel blends, heavy-truck idle reduction applications, and general fuel economy improvements to help reduce the nation's need for imported oil.

Through those efforts, the Clean Cities initiative has reached the milestone of displacing 1 billion gasoline gallon equivalents of petroleum, enough gas to fuel 2 million cars for a year. By using less oil, the Clean Cities coalitions have improved the nation's energy, economic, and environmental security.

Clean Cities coalitions held events nationwide to commemorate the "billionth gallon saved."

The Kansas City, Missouri Water Services

see 'Clean Cities' - p. 2

Don't let the expense & inconvenience of frozen pipes give you a "chill"

Each winter, many homeowners face the expense and inconvenience of frozen water pipes. By taking a few simple precautions, you can cross that off your list of worries. The Kansas City, Missouri Water Services Department offers the following tips to prevent water lines from freezing and what to do in case they do freeze.

Disconnect & drain outdoor hoses

Detaching the hose allows water to drain from the pipe. Otherwise, a single hard, overnight freeze can burst either the faucet or the pipe to which it is connected.

Insulate pipes or faucets in unheated areas

If you have pipelines in an unheated garage or cold crawl space under the house, wrap the water pipes before temperatures decline. Hardware or building supply stores will have good pipe wrapping materials available.

Seal off access doors, air vents & cracks

Repair broken basement windows. Winter winds whistling through overlooked openings can quickly freeze exposed water pipes. But don't plug air vents your furnace or water heater needs for good combustion.

Find and test the master shutoff valve

It may be near the water heater or the washing machine. More likely it's where the water line comes in from the street. If a pipe bursts anywhere in the house - kitchen, bath, basement, crawl space - this valve turns it off. So, find it now and paint it a bright color or hang a tag on it. Be sure everyone in the family knows where it is and what it does.

Leave a pencil-lead-thin stream of water flowing

A small flow of water running from a bathroom or kitchen faucet during the worst of the cold spell can help prevent faucets or water service lines from freezing. You can also leave your cabinet doors open to allow the heat of the house to help keep your pipes from freezing. When away from home for several days, leave the water trickling and leave the heating system inside your home on to keep the pipes warm.

What if you wake up one day to find the pipes are frozen despite your precautions?

During an extended cold spell, it could happen despite precautions.

Do you have the plumber's telephone number handy? Write it down before you need it in an emergency.

If you think you know where the freeze-up occurred and want to try thawing it yourself, do NOT under any circumstances use a torch with an open flame! The house could catch fire. Also, overheating a single spot can burst the pipe. Heating a soldered joint could allow it to leak or come completely apart.

The easiest tool is a hair dryer with a low heat setting. Wave the warm air back and forth along the spot, not on one spot. If you don't have a hair dryer, you can wrap the pipes with towels and pour hot water over them. It's messy, but it works.

Be careful because the pipe may already be broken. It's not leaking because the water is frozen, but when you thaw it, water could come gushing out. Be ready to run for the master shutoff valve if necessary.

The main thing is to take precautions before your pipes freeze.

What if my pipes break?

If your pipes do break and water is leaking in your home, emergency water cut-off is available from the City of Kansas City, Missouri. A representative form the City will come to your house and shut the water off free of charge.* Call 816.513-0209 to reach an attendant 24-hours-a-day.

*There is a nominal fee for reconnection.

'Director' from p. 1

ment and comply with EPA and Missouri Department of Natural Resources (MDNR) regulations by improving water quality in the urban streams of Kansas City and reducing basement backups.

The Brookside Watershed Improvement involves a public investment of more than $30 million. The program is designed to reduce flooding and sewage backups through construction projects and citizen actions. The program will not eliminate all flooding and sewage backups, but it should reduce the severity and damage caused by rain events.

'Clean Cities' from p. 1

Department, one of the area's fleet leaders in use of alternative fuels, will pump a ceremonial 1 billionth gallon of Biodiesel fuel into a Department vehicle on October 14, 2005.

"By passing the billionth gallon milestone," Kansas City Regional Clean Cities Co-Chair, Sam Swearngin, stated, "Clean Cities coalitions across the nation have shown they are making a difference on a local level and a national level. While our thirst for oil puts our economic and energy security at risk, Clean Cities coalitions across the country are demonstrating options that work."

Through the use of Biodiesel and CNG in city vehicles, the City of Kansas City, MO displaces 620,000 gallons of conventional gasoline and diesel fuel annually.

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KCMO
WATER SERVICES DEPARTMENT

Industrial Waste Control
1001 Harrison St.
Kansas City, Missouri 64106
(816) 784-1005

Say goodbye to grease and oil without saying hello to sewer overflows

Industrial Waste Control
1001 Harrison St.
Kansas City, Missouri 64106
(816) 784-1005

KCMO
WATER SERVICES DEPARTMENT

Oils and Grease aren't just bad for your arteries and your waistline; they're bad for sewers, too.

Improperly managed oil and grease from restaurants has become a significant problem for wastewater collection and treatment systems. Fats, oils and greases (FOG) coat, congeal and accumulate in pipes, pumps and equipment, leading to the costly and environmentally damaging flows of waste grease into drain lines, sewer lines, lift stations, and Publicly Owned Treatment Works (POTWs). Improper disposal can clog sewer lines resulting in overflows out of sewer systems. Approximately 25% of the reported sewer system overflows in Kansas City are caused by FOG blockage of the sewers.

Where does the oil and grease come from?

Most of us know grease as the byproduct of cooking.
Grease is found in such things as:

- Meat fats
- Lard
- Cooking oil
- Shortening
- Butter and margarine
- Food scraps
- Baking goods
- Sauces
- Dairy products
- Nuts
- Soups, gravies, chili
- Condiments
- Pastas
- Poultry

Why is grease a problem?

- Fats are among the more stable of the organic compounds and are not easily decomposed by bacteria.
- Fats coat, congeal and accumulate on pipes, pumps, and equipment and sometimes obstruct sewer lines.

Improperly disposed grease waste overflowing from a sewer

How to properly dispose of grease and oil

Residual fats, oils and grease (FOG) are byproducts that food service establishments must constantly manage. Typically, FOG enter a facility's plumbing system from dish washing, floor cleaning and equipment sanitation. Sanitary sewer systems are neither designed nor equipped to handle the FOG that accumulates on the interior of the municipal sewer collection system pipes. The best way to manage FOG is to keep the material out of the plumbing systems. The following are suggestions for proper FOG management:

Spill prevention

- Empty containers before they are full to avoid spills.
- Use a cover when transporting grease trap contents to rendering barrel or grease dumpster.
- Provide employees with the proper tools (ladles, adequate containers, etc.) to transport materials without spilling.

Dry clean-up

- Use rubber scrapers or paper towels to remove fats, oils and grease from cookware, utensils, chafing dishes, and serving ware.
- Use food grade paper to soak oil and grease under fryer baskets.
- Use paper towels to wipe down work areas. Cloth towels will accumulate grease that will eventually end up in your drains from towel washing/rinsing.

Maintenance

- Contract with a management company to professionally clean large hood filters.
- Collect fryer oil in an oil rendering tank for disposal or transport it to a bulk oil rendering tank instead of discharging it into a grease interceptor or waste drain.

Grease Traps

- A grease trap captures grease waste and holds it until a rendering company can properly dispose them.
- Grease traps must be cleaned on a continual basis if they are to be effective.
- Backups, odors and drainage problems are signs that the grease trap is not functioning as it should.

KCMO
WATER SERVICES
DEPARTMENT

The Water Services Department needs your HELP!

Sewer lines in your area are experiencing a build-up of fats, oils and grease.

You are encouraged to reduce the amount of fats, oils and grease going down the drain.

Please place all cooking fats, oils and grease in a sealed container and put it in the garbage.

This will help keep things flowing!

It takes all of us working together to help protect and preserve our environment.

Thank you for your understanding and assistance.

If you have any questions, please contact the:

Oil & Grease Management Program
(816) 784-1001.

(over)

8780-200 (Rev 3/04)

KCMO
WATER SERVICES
DEPARTMENT

Substances that can cause or lead to a blockage or obstruction of a sewer pipe are PROHIBITED! Fats, oils and grease are known to cause sewer blockages.

You can help prevent costly and unsanitary sewer overflows by following a few simple steps:

* Scrape grease and pour cooking oils into a sealable container and place it in the garbage. **Do not pour grease, fats and oils down the drain!**

* Put leftover foods, scraps and fat trimmings in the garbage for pick-up -- **not in the garbage disposal.** Do not use the sewer to dispose of food scraps.

* Dry wipe all pots and dishes. Use a paper towel or napkin to remove greasy leftovers from pots and dishes prior to washing in the sink or dish-washer.

If you have questions, please contact the Oil & Grease Management Program at (816) 784-1001 or visit www.kcmo.org/water.

Thank you for your assistance.

GREASE TRAPS AND INTERCEPTORS

GREASE IN SEWERS

FOG

Fats, oils and grease

ROGER A LEHR, P.E.
KCMO WATER SERVICES DEPARTMENT
INDUSTRIAL WASTE CONTROL DIVISION
FALL TECHNICAL CONFERENCE 2005

A BIG PROBLEM FOR SEWERS THAT CAUSES MANY OVERFLOWS IS FOG IN SEWERS

What is fog?

Fog is fats, oils and grease

Fog can build up in sewers by adhering to the pipe and eventually causing a collection system blockage.

.

FOG IS A MAJOR CAUSE FOR CONCERN IN SANITARY SEWER OVERFLOWS

EXCESSIVE GREASE CAN CAUSE BLOCKAGES THAT CAUSE OVERFLOWS THAT LOOK LIKE THIS

WHERE DOES FOG COME FROM?

Primarily from establishments involved in food preparation such as:

- **Restaurants**
- **Cafeterias**
- **Grocery stores with either delis, bakeries, or butcher shops**
- **Other grease sources**

Sources of Oil & Grease

- **Meat fats**
- **Lard**
- **Cooking Oil**
- **Shortening**
- **Butter and margarine**
- **Food scraps**
- **Baking goods**
- **Sauces**
- **Dairy products**
- **Nuts**
- **Soups, gravies, chili**
- **Condiments**
- **Pastas**
- **Poultry**

WHAT IS THE BEST WAY TO REDUCE FOG IN THE COLLECTION SYSTEM?

DEVELOP AN OIL AND GREASE PROGRAM WITHIN YOUR UTILITY

AN OIL AND GREASE PROGRAM

- Inspects food establishments to be sure grease traps or interceptors are installed, properly connected, maintained in good working order, and cleaned at the appropriate interval.
- Works with food establishments to assure that best management practices (bmp's) are followed.
- Reviews plans for construction or remodeling of food establishments.
- Looks at blockages caused by grease to see if a particular establishment is the cause.

THE BEST WAY TO REDUCE FOG IS FOR FOOD ESTABLISHMENTS TO USE GREASE TRAPS OR INTERCEPTORS

What is a grease trap or interceptor?

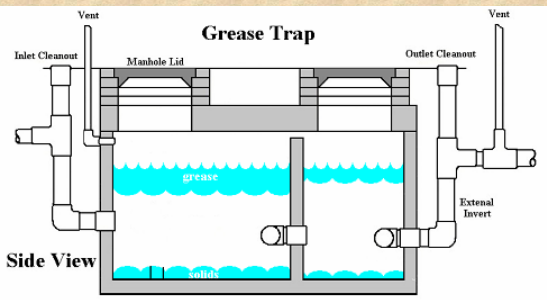
A grease trap or interceptor is installed in the discharge line from any grease source to capture the grease before it enters the collection system.

GREASE TRAP VERSUS GREASE INTERCEPTOR

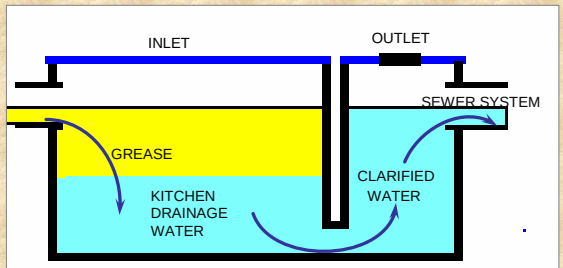
Grease traps are smaller and typically located in the kitchen.
Typical sizes are 40lb to 100lb

Grease interceptors are typically located outside the building and have the entire kitchen waste draining to them.

OVERVIEW OF GREASE INTERCEPTOR OPERATING PRINCIPLES



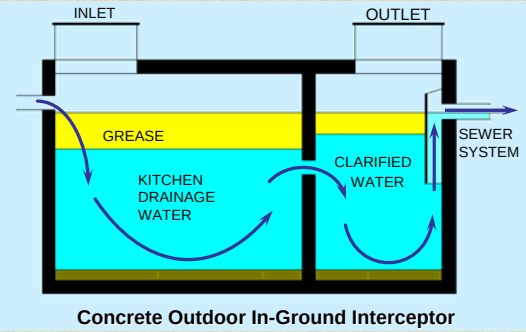
Grease Trap



"Under-the-Counter" Steel / Iron Model

*Metropolitan Sewerage District of Buncombe County, North Carolina

Grease Interceptor



Concrete Outdoor In-Ground Interceptor

*Metropolitan Sewerage District of Buncombe County, North Carolina

GREASE TRAPS

Typically only have items such as sinks draining to them.

GREASE INTERCEPTORS

Typically have draining to them items such as:

2 & 3-comp. sinks, prep sinks, dishwashers, floor drains, trench drains, floor sinks, garbage disposers, wok stoves,& tilt kettles.

A VERY INEFFICIENT GREASE TRAP

SIZE DOES MATTER

Under-counter grease traps have limited capacity.

Grease interceptors have a much larger capacity.

Oversized interceptors may be problematic (stagnation, odor problems and/or corrosive conditions).

MAINTENANCE REQUIREMENTS

Grease traps and interceptors must be cleaned regularly in order for them to work properly.

The cleaning schedule depends on the site.

Cleaning schedules can be very short such as weekly or less or much longer depending on the size of the grease trap or interceptor and the volume of grease from the establishment.

KCMO THROUGH THE OIL AND GREASE PROGRAM WORKS WITH FOOD ESTABLISHMENTS TO ASSURE THAT A REGULAR CLEANING SCHEDULE IS MAINTAINED.

EDUCATING RESTAURANTS ON BEST MANAGEMENT PRACTICES OF FOG.

Dry wipe pots and pans prior to washing.

Dispose of food waste by recycling to solid waste and not down the drain.

Recycle waste cooking oil.

Clean traps and interceptors regularly.

The KCMO Water Services Department Oil and Grease Management Program has developed a poster that is given to food establishments to help them better understand how to manage fog.

The KCMO Water Services Department Oil and Grease Management Program has also developed a door hanger that is placed on residences in areas where grease blockages have occurred to help educate people on how to handle grease in their houses.

WHEN BLOCKAGES CAUSED BY GREASE DO OCCUR WHAT SHOULD BE DONE?

Each blockage should be investigated to see if it can be determined which food establishment caused the blockage.

If many food establishments drain to where the blockage occurred, then work with all to make sure grease traps or interceptors are installed and maintained properly.

If in a residential area only, educate residents about problems with grease being introduced into the sewers.

HOW CAN WE ASSURE THAT NEW OR REMODELED FOOD ESTABLISHMENTS MEET THE REQUIREMENTS OF THE OIL AND GREASE PROGRAM?

Work with the local codes department to review all plans submitted for construction.

WHAT TO LOOK FOR WHEN REVIEWING PLANS

Grease trap or interceptor properly sized.

The required waste lines are connected to the grease trap or interceptor.

A point for sampling the waste from the facility is installed.

In KCMO, we use a standard four-foot diameter manhole with all building waste flowing through it.

KANSAS CITY SURCHARGE PROGRAM

Surcharge is determined based on the quality of the wastewater discharged by testing for BOD, SS and O&G.

Potentially very expensive for major dischargers in excess of normal sewage concentrations.

HIGH SEWER BILLS HELP TO MAKE COMPLIANCE A TOP PRIORITY.

CONCLUSIONS

The sewer collection system must be protected from the introduction of excess FOG.

A good Oil and Grease program is needed to assure that food establishments are not discharging excessive Oil and Grease.

QUESTIONS

??????

KCMO
WATER SERVICES DEPARTMENT

Keeping employees connected with departmental issues

connections

January 2005

Inside This Issue

Catch basin hotline number begins

The WSD launched a new catch basin hotline, 513-0500 on January 27.

Customer service representatives will be available between 8 am and 5 pm, Monday to Friday.

Residents are encouraged to call the catch basin hotline to report the following:

- catch basins in need of repair
- clogged catch basins/catch basins that need cleaning
- street flooding due to an apparent clogged catch basin
- illegal dumping into catch basins
- leaves/debris in catch basins
- questions regarding the replacement/repair of a catch basin

"The new catch basin hotline/call center will assist us in better assessing the repair and cleaning needs of catch basins, as well as making it easier for citizens to make requests or inquiries regarding catch basins in need of attention," said Director Frank Pogge.

This new hot line, along with the approximately 2,000 catch basins that are scheduled to be replaced in phases A through E with funds from the voter approved GO Bonds, will increase our efforts to make the catch basins and stormwater system function as designed, added Pogge.

Environmental award goes to WSD

Denise Burkett, center, received an award from the Third Annual Environmental Achievement Awards on Tuesday, January 11. Denise, along with associates from Parks and Recreation and the Aviation Departments, worked to develop Ozne Action Plans to minimize ozone generation on Ozone Alert Days. Aslo pictured are David Buie and Sabrina Largen.

On Tuesday, January 11, the Third Annual Environmental Achievement Awards were presented at City Hall.

Four groups of City employees recognized were: the City Planning and Development Department for Brownfields Redevelopment, IT, Parks and Recreation and Health departments for Green Purchasing of flat panel monitors, the Finance department for Green Purchasing of office supplies and Water Services, Parks and Recreation and Aviation departments for Ozone Reduction Efforts.

The City's ozone reduction efforts were sparked by the Ozone Action Policy issued by the City Manager.

Nineteen City departments developed Ozone Action Plans specifying actions that would be taken to minimize ozone generation on Ozone Alert Days and throughout the ozone season.

On Sept. 2, the only Ozone Alert Day of the 2004 season, 12 departments reported taking 1,355 actions to reduce generation of ozone.

Of those 1,355 actions taken to

see 'environment' p. 2

KCMO
WATER SERVICES
DEPARTMENT

Keeping employees connected with departmental issues

connections

May 2005

Inside This Issue

From the Director

Frank Pogge
Director

I want to let you know that the Department is proceeding with the procurement and implementation of an Automatic Meter Reading (AMR) system. AMR will allow us to improve customer service, increase efficiency, reduce unaccounted-for water and help us meet our Competitive Business Plan goals.

Just as other local utilities like KCP&L, MGE and BPU have implemented AMR systems, the AMR program will help us to better address the increasing number of customer calls regarding meter reading, high bills, estimated bills and turn on/offs.

The AMR project also involves a reduction in the number of authorized positions in meter reading and other areas. The department intends to reduce these positions through transfers, retraining and normal attrition.

If you would like more information on AMR, please contact Joe Alongi, Manager, Reading & Service at 513-0223 or Rob Thiemann, Project Manager at 513-0349.

Thank you for your cooperation as we proceed with this important project. Additional information will be provided following the selection of an AMR proposal.

Sewer flow meters installed as part of OCP

Nearly 100 sewer flow meters are being installed throughout the city in manholes and sewers to measure the amount of water flowing through the Sanitary Sewer System and Combined Sanitary Sewer. This information will be used to calibrate and verify a computer model of the sewer system that can then be used to evaluate the operation of the sewers.

On Wednesday, April 20 the Kansas City, Missouri Water Services Department installed one of approximately 100 flow meters that will be installed in manholes and sewer diversion structures throughout the City. This flow meter, located at Rockhill Road and Holmes, will continuously measure and record the rate of flow through the manhole in which it is installed. These flow meters are planned to remain in place for approximately four months, and will not affect the existing operation of the sewer systems.

James Mellem, Assistant Director, Water Services Department, said the installation of flow meters throughout Kansas City represents another public sign of the implementation of the Overflow Control Program (OCP). The goals of the OCP are to protect human health and the environment and comply with EPA and Missouri Department of Natural Resources (MDNR) regulations by improving water quality in the urban streams of Kansas City.

One component of the sewer system characterization is measurement of the amount of water flowing through the Sanitary Sewer System (SSS) and Combined

see 'sewer' p. 2

Ali's Retirement

Ali Almai, Manager, Stormwater Engineering was honored at a celebration in his honor on May 28th. Director Frank Pogge and other Department representatives recognized Ali for his 25 years of service.

Council proposes water, sewer bond election ordinances

The City Council recently proposed two revenue bond authorizations totaling $500 million for water and sewer system improvements.

The bonds are proposed for the August 2 election.

Voter approval of the bonds will authorize the Water Services Department to improve and expand its water and sewer systems. The bonds, if passed, will allow the department to issue revenue bonds over the next 10 to 15 years for improvements, modernization and expansion of the water and sewer systems, including:

- water transmission and distribution mains
- small and undersized main replacement
- water treatment plant upgrades
- water pump station improvements
- water main extensions and relocations
- Missouri River intake building improvements
- wastewater treatment plant improvements
- sewer line upgrades and improvements
- wastewater pump station improvements

Kansas City is one of the largest cities in America geographically and has more than 2,700 miles of water main and 2,500 miles of sewer lines, including 1,000 miles of combined sewers. More than 50 percent of water lines still in service are 50 to 100 years old and many miles of sewer are more than 100 years.

The residents of Kansas City passed a water bond authorization in the amount of $150 million in 1996 and a $125 million sewer bond authorization in 1998.

"The bonds are vital to the department," said Director Frank Pogge. "The bond monies will enable the Department to fund capital improvement projects at water and sewer facilities throughout the city, improve and repair the existing water and sewer infrastructure, and fund projects and programs such as the Overflow Control Program as mandated by Missouri Department of Natural Resources and EPA."

The Council Legislative Session will vote on the proposed bonds on May 19 for the measure to be placed on the Aug. 2 ballot.

'sewer' from p. 1

Sanitary Sewer (CSS) at locations chosen by the Water Services Department and engineers working on the OCP. This information will be used to calibrate and verify a computer model of the sewer system that can then be used to evaluate the operation of the sewers. The computer model will also be used to compare the operational and water quality benefits that could be gained from potential improvement projects.

Data will be collected from the flow meter by field crews accessing the manhole approximately once a week. The collected data will be downloaded into the computer, stored and used with the sewer system computer models to perform analysis of potential improvement projects.

The implementation of the OCP will:

- minimize sewer overflows
- identify and address sewer system deficiencies
- ensure adequate wastewater collection system capacity.

The Kansas City Water Services Department through its OCP has initiated projects to improve the SSS and CSS wet weather operations. The OCP is a long-term program to improve the sewer system operation. The work to be performed under the OCP is a comprehensive city-wide characterization and evaluation of the sanitary sewer and combined sewer systems.

Combined sewers are designed to convey both sanitary sewage and stormwater. During dry weather, sanitary flows only are conveyed to wastewater treatment facilities. During wet weather, stormwater runoff enters the combined sanitary sewer (CSS), and is also conveyed to the wastewater treatment facilities. During wet weather events, when the amount of stormwater runoff entering the CSS exceeds design capacity, the excess flows are diverted from the CSS to local receiving waters through diversion structures. This discharge, which is comprised of stormwater and sanitary wastewater, is a combined sewer overflow (CSO).

KCMO WATER SERVICES DEPARTMENT

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July 2005

Inside This Issue

ACE marks 10-year milestone at annual awards banquet

ACE
Associates Creating Excellence

Associates Creating Excellence, or ACE, marked its 10-year anniversary at the Annual ACE Awards Banquet held at the Arrowhead Club on Tuesday, June 14.

Director Frank Pogge welcomed invited guests in person and on video. In his opening remarks, he made it clear to all in attendance that he whole heartedly endorses ACE - the orgnization, its committees and activities.

LaVetta Hunley from the

see ACE p. 2

WSD and Corps meet on low river levels

Director Frank Pogge along with officials from WaterOne, the Kansas City, Kansas Board of Public Utilities and the City of Riverside met with representatives from the US Army Corps of Engineers to discuss the impact of erosion of the Missouri River Channel at WSD's Water Supply Intake Building and Water Treatment Plant.

Recently, Director Frank Pogge, along with officials from WaterOne, the Kansas City, Kansas Board of Public Utilities and the City of Riverside, met with representatives from the US Army Corps of Engineers to discuss the impact of erosion of the Missouri River Channel.

The channel degredation has many impacts on river users, including habitat for endangered species.

This erosion has also increased Department costs to produce water by requiring more electricity to pump water from the river to the treatment plant. It has also required the Department to install additional pumps and make modifications to the water intake building and has increased costs to treat drinking water for taste and odor control.

Colonel Michael Rossi, US Army Corps of Engineers Kansas City District Commander; Brigadere General William Grisoli, US Army Corps of Engineers Northwestern Division Commander, along with representatives from Senator Kit Bond's office and Congressman Sam Graves' office also attended.

This joint effort to study the degredation and possible remedies will have many positive impacts metro-wide, including lowering winter water releases, leaving more water in upstream reservoirs, more water during the navigation season and protecting wildlife habitat.

"We are dedicated to this effort and will keep our customers updated as we work to improve this situation, " Pogge said.

Household Hazardous Waste Recognized by EPA

Bill Lewry went to Washington, D.C. to accept an award from the EPA, recognizing the Household Hazardous Waste division of WSD for its work over the last two years in implementing an Environmental Management System.

Pictured above are Bill Lewry (center) accepting the certificate on behalf of the HHW division, with Faith Leavitt from the Global Environmental Technology Foundation, left, and Jim Horne, EPA National Program Administrator, right.

Bill Lewry of the Household Hazardous Waste (HHW) division of WSD went to Washington, D.C. to accept an award on behalf on the Division from the Environmental Protection Agency (EPA). HHW was recognized for its work during the last two years implementing an Environmental Management System.

As part of this EPA sponsored initiative, the City and HHW had to re-evaluate all aspects of its operation and undertake upgrading and installing procedures and processes, where required, to the levels of the International Organization of Standardization (ISO) 14000. The ISO sets international standards that represent an international consensus on the state of the art constituting an important source of technological know-how. The ISO 14000 pertains specifically to environmental quality and practices.

The program passed its final audit in the first quarter of 2005, with only three minor issues, which were all quickly corrected. This is a significant step for the division and the organization as a whole. This program and its benefits may be expanded to other areas of the City in the future.

As far as the ISO was concerned, it applied only to the environment. It became apparant that it would be a good idea to take these basic principles and apply them not just as an environmental management system, but as a total management system.

As a result of implementation, our associates now have an additional communication option. The City, and in particular this division, can obtain some regulatory relief. It has saved a lot of money by making associates examine how they do our jobs and keep records. This division has seen its costs, on a per pound of material handled, reduce substantially over the years due in part to management systems outlined under ISO and implemented by the Water Department associates. The key team members include Rob Fort, Lara Isch and Matt McKinley.

Under direction of the City Manager, HHW became part of WSD last year.

WSD GED graduate proves she is "ABE"L

WSD's Kimberly Brown received her GED at the graduation ceremony held at the GEM Theatre on Thursday, June 16. Kimberly was selected to address her GED Graduating Class of 2005. Also, she spoke to her WSD GED class.

The Organizational Development Division offers the classes which are open to all WSD associates wanting to earn their GED.

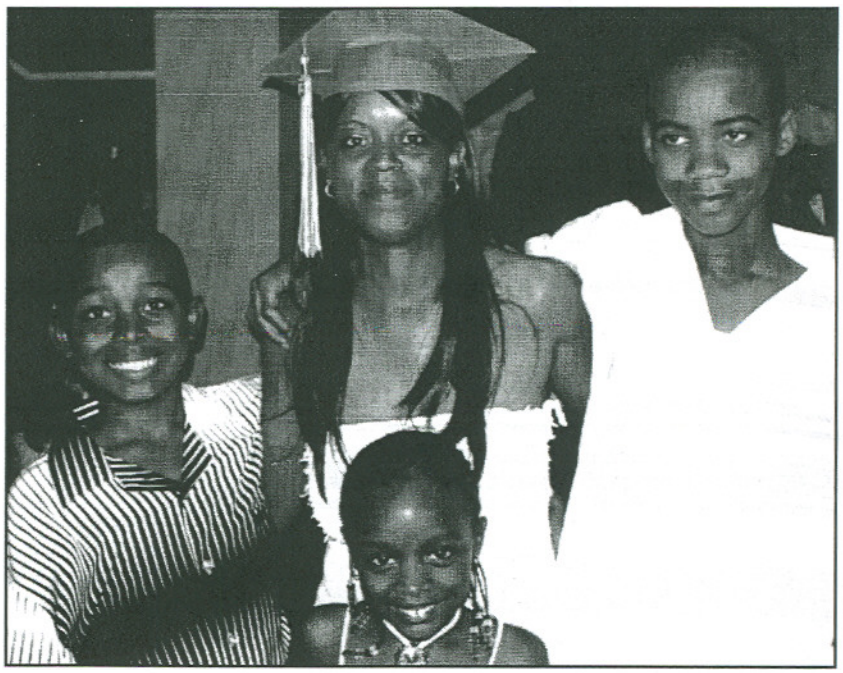
Classes are held Tuesdays and Thursdays from 4:30 to 7 pm at WSD Headquarters in the Todd Creek Conference Room.

Classes are conducted in partnership with Kansas City School District Adult Basic Education (ABE).

The GED courses here at WSD have the capability to assist associates having various adult education needs with programs such as Freshstart. Designed by ABE, Freshstart is specifically for those who are just a few credits short of earning their high school diploma.

Five additional WSD associates have completed their requirements and are preparing to take their final GED testing.

If you have questions or would like to learn more, email gedwsd@kcmo.org or call Wafaa Alkoor at 513-0441.



WSD GED candidate Kimberly Brown from the Pipeline Division received her GED at the graduation ceremony held Thursday, June 16. She was selected to address to her fellow GED recipients. Kimberly is pictured above at the ceremony with her sons and daughter who came to cheer for her.

KCMO WATER SERVICES DEPARTMENT

Keeping employees connected with departmental issues

connections

October 2005

Inside This Issue

WSD continues smoke testing neighborhoods

During the month of October, the Department met with homeowners in the Brookside area regarding smoke testing results that revealed improper connections or broken laterals to the sanitary sewer system.

Earlier this year, the KCMO Water Services Department conducted smoke testing in the western Brookside area to find improper connections or broken laterals to the sanitary sewer system. Nontoxic, nonstaining smoke bombs were blown into the sanitary sewers throughout a three-square mile area.

The tests revealed 2,100 private sector defects. The majority of problems were downspouts that were connected to the sanitary sewer system.

All homeowners in the smoke test area with improper connections or other sanitary sewer system defects have been notified by mail. Requests will be made to the homeowners for them to help

see 'smoke' p. 2

WSD sends City of Fountains bottled water to Katrina survivors

Just days after Hurricane Katrina hit the Gulf Coast of the United States, WSD donated a truckload of our City of Fountains Premium Bottled Water to the storm victims. In the photo above Fox 4 interviews Marketing and Public Relations Manager Roger Ainsworth. WSD donated the bottled water and Heart to Heart International arranged for shipping the load to the Gulf.

Water Services Director Frank Pogge decided to send a truckload of City of Fountains Premium Bottled Water to the storm victims on the Gulf Coast.

No time was wasted. Within days of the hurricane, WSD had made arrangements for a truckload of City of Fountains bottled water to be sent to storm survivors.

The Marketing and Public Relations Division worked with our delivery service to donate their services. The truckload of water was delivered to Heart to Heart, International in the parking lot at Bob Sight Ford.

"Hearing of the devastation to the infrastructure down South, we realize the people need assistance from all of us to meet their most basic needs. If we are able to get a supply of potable water to some of the people hit by Katrina, we are happy to be able to help," stated Frank Pogge, WSD director.

Assistant Director Mable Ramey-Moore added, "A truckload of water may sound like a lot. It's more than 31,000 bottles, but we know the needs of those most affected by the storm are great. We hope this makes a difference."

Another 864 cases of bottled water have been sent to storm victims. This brings the total of water donated by the Kansas City, Missouri Water Services Department to 51,840 bottles.

Willie Water makes splash at 80th American Royal Parade

Willie Water gets psyched up to meet the crowd at the American Royal Parade.

Willie must have brought his fan club. He was one of the most popular celebrities on hand at the American Royal parade.

He made his way through the entire parade route making new friends and waving to all his fans. Charles Henderson from Fleet Maintenance got the honor to be Willie this year.

The CNG Show truck was also a hit with the big crowd that turned out to have fun at the 80th Annual American Royal Parade.

Combined Charities Campaign is flexible

The theme for the 2005 Combined Charities Campaign is "Give a hand to the Heartland." The goal set for this year's campaign is $450,000.

Instead of a single kick-off event, this year each department will present a video from the United Way with messages from the Mayor, the City Manager and union presidents. Since the kick-off will be held at different times around the City, the timeline for the Campaign will be flexible. Each department will have three weeks from their kick-off until their pledge cards are due. After their training, coordinators will be responsible for scheduling their department kick-off.

The Publicity Committee is responsible for the kick-off video, articles and posters. The Committee is made up of Jesse Frazier, Kiea McCray, Shalonda Bolden and Germane Friends. The Training Committee is responsible for planning and arranging the training meeting for the coordinators and includes Abby Pennell, Lisa Brown, Ed Shoup and Roger Ainsworth. The Awards Committee consists of LaRi Liberty, Pat Taylor, Linda Kneib and Chair Clara Black.

connections

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is a monthly publication by and for the Water Services Department by the Marketing and Public Relations Division. Submit story ideas to Editor, 513-0242 or email: Kirk_Welsh@kcmo.org

'smoke' from p. 1 themselves by eliminating the improper connections where feasible. It is the homeowner's responsibility to maintain their service laterals which run from their house to the sewer in the street or easement while the City maintains the public part of the sewer system.

The smoke testing is part of the implementation of the Overflow Control Program (OCP). The goals of the OCP are to protect human health and the environment and comply with EPA and Missouri Department of Natural Resources' regulations by improving water quality in the urban streams of Kansas City and reducing basement backups.

The Brookside Watershed Improvement involves a public investment of more than $30 million. The program is designed to reduce flooding and sewage backups through construction projects and citizen actions. The program will not eliminate all flooding and sewage backups, but it should reduce the severity and damage caused by rain events.

Students learn while they enjoy the Missouri River Watershed Festival

On Friday, Oct. 7, WSD associates from Blue River Wastewater Treatment Plant, Fleet Maintenance, Water Supply, Stormwater and the Marketing and Public Relations Division participated in the Missouri River Watershed Festival.

The Festival is designed to provide education and outreach about the fundamentals of watersheds, nonpoint source pollution, environmental stewardship and community involvement.

This year the event was held at Kaw Point in Kansas City, Kansas. A truly regional event, the Festival is organized by a committee that includes the Environmental Protection Agency (EPA), Blue River Watershed Association, Missouri Departments of Conservation and Natural Resources, Kansas City, Missouri Water Services Department, Little Blue River Watershed Coalition, U.S. Geological Survey and various other city, state, federal and county governments.

During the day the Festival was open to nearly 1,000 middle school students and teachers. Then, in the evening it opened to everyone.

There were approximately 40 booths filled with exhibits for festival goers to enjoy and at the same time learn about streams and watersheds.

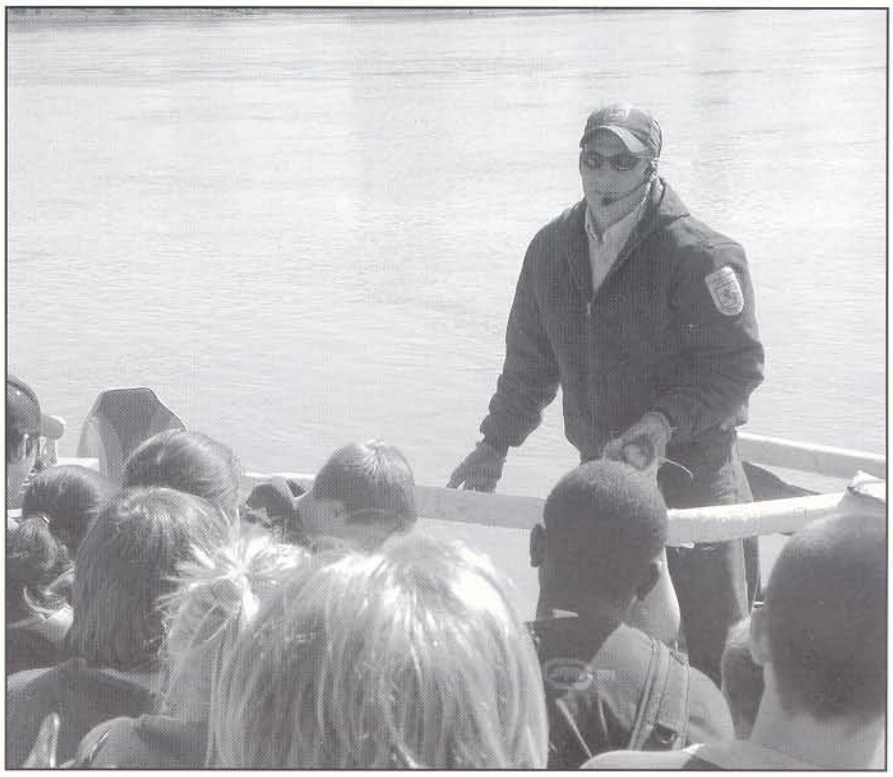
More than 1,000 students had fun at the interactive exhibits and learned about water. Prior to the Festival students could submit their entry in the art contest. Four top prizes were awarded. The First Place Winner's original design will be painted on the levee wall.

Granville Lacy and Zerlon Weatherspoon from Water Supply and their band, E.Music.com, played at the evening event.

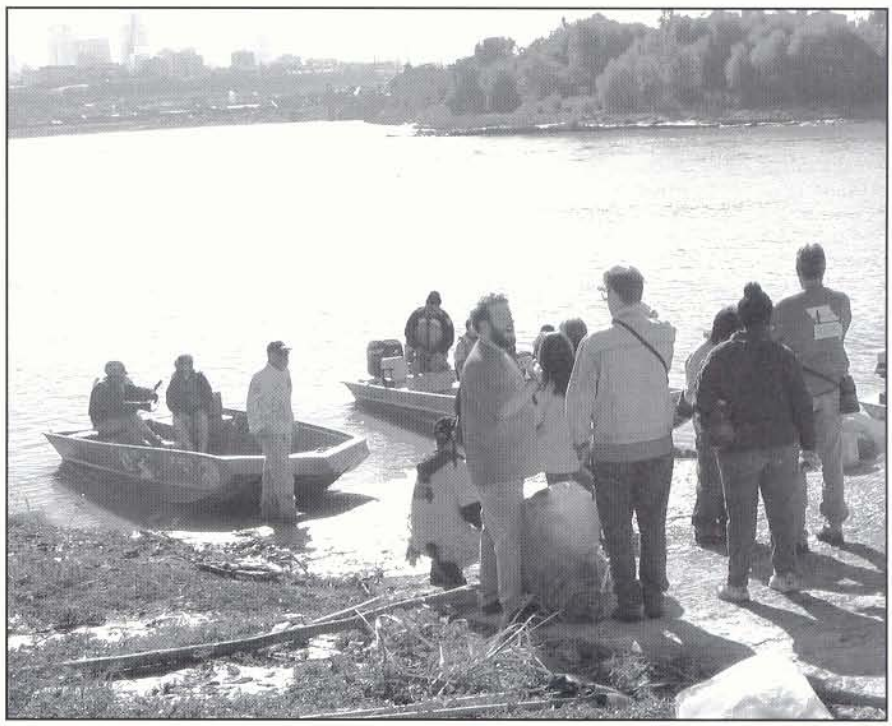
Kansas City Parks and Recreation Department donated the use of their Show Wagon.

WSD associates who lent their talents to the Festival included James Walton, Roger Ainsworth, Jing Tao, Colleen Newman-Rigg, Sam Swearngin, Kirk Welsh, Mike Chancey, Tim Walters, Shaun O'Kelly, Greg Hill and Sharon Barnes as the Goddess of Water.

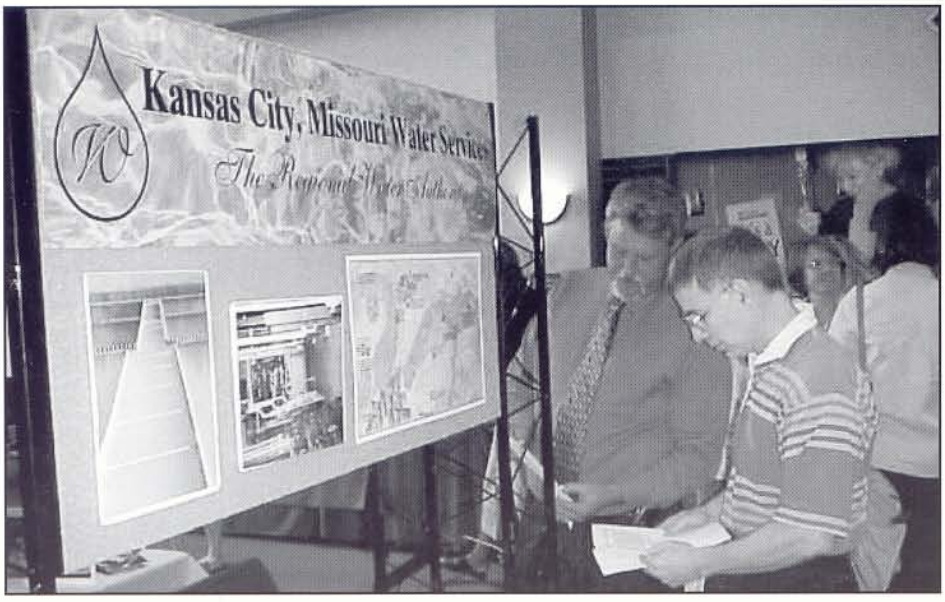
The Festival celebrates the anniversary of the Clean water Act and is a highlight of the Week of Water.



Students who attended the Missouri River Watershed Festival at Kaw Point got an upclose look at what kinds of fish live in the Kaw and Missouri Rivers. A representative from U.S. Fish and Wildlife Service, pictured above, showed them the various fish and the importance of the river and protecting fish habitat. On the following day, as part of Missouri River Relief, pictured below, crews set out to clean up all kinds of debris from the riverbanks.



Resource fair is a learning experience



Recently, the Marketing and Public Relations Division sponsored a booth at the North Kansas City School District Curriculum and Resource Fair.

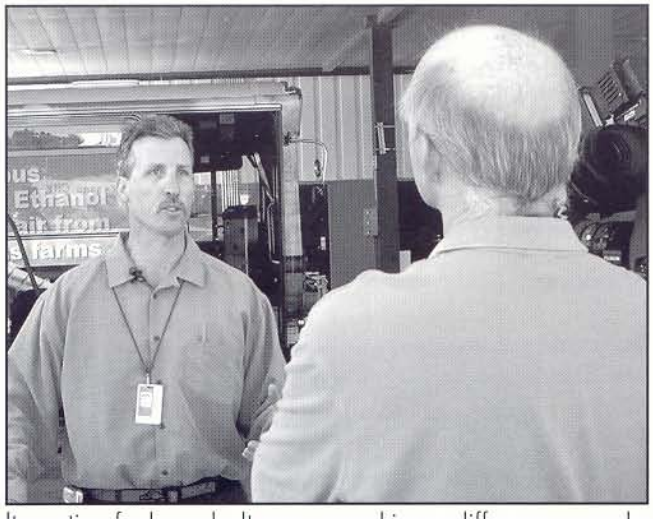
Marketing Manager Roger Ainsworth and Kirk Welsh met educators to discuss resources such as classroom speakers.

The Curriculum and Resource Fair was held at the Pleasant Valley Baptist Church in the Northland and is well attended by teachers in the district.

Pictured at left, Roger Ainsworth explains steps in the water treatment process to one educator.

Fleet maintenance helps save a billion gallons

The Kansas City Regional Clean Cities Coalition joined Clean Cities Coalitions across the country on Friday, Oct. 14, to celebrate displacing more than a billion gallons of oil. This is significant because the U.S. now imports approximately two-thirds of the petroleum it uses. At $68 per barrel, we are now spending approximately $300 billion per year for imported petroleum; about $200 billion of this is for the transportation sector alone. That is, we are spending more than $3.5 billion each week to fuel the economies of other countries when we could be fueling ours by investing in domestic fuels like ethanol, biodiesel or natural gas.



Clean Cities, part of the U.S. Department of Energy's Energy Efficiency and Renewable Energy Office, builds strong, self-sustaining partnerships with industry, stakeholders, fleets, fuel suppliers, and business partners with the goal of decreasing petroleum use. The nation's 88 Clean Cities Coalitions focus on alternative fuels and alternative fuel vehicles, hybrid electric vehicles, fuel blends, heavy-truck idle reduction applications, and general fuel economy improvements to help reduce the nation's need for imported oil.

Through those efforts, the Clean Cities initiative has reached the milestone of displacing one billion gasoline gallon equivalents of petroleum, enough gas to fuel two million cars for a year. By using less oil, the Clean Cities Coalitions have improved the nation's energy, economic and environmental security.

Clean Cities Coalitions held events nationwide to commemorate the "billionth gallon saved." In Kansas City, the Kansas City, Missouri Water Services Department, one of the area's fleet leaders in use of alternative fuels, pumped a ceremonial one billionth gallon of Biodiesel fuel into a Department vehicle. This occurred at the Water Services fueling site at 1901 Brooklyn Avenue on Friday, October 14. The Coalition also had several of its other alternative fuel vehicles on site for viewing and photographing including compressed natural gas (CNG) sedans and a customized CNG pickup truck.

"By passing the billionth gallon milestone," Kansas City Regional Clean Cities Co-Chair Sam Swearngin stated, "Clean Cities Coalitions across the country have shown they are making a difference on a local level and a national level. While our thirst for oil puts our economic and energy security at risk, Clean Cities Coalitions across the country are demonstrating options that work."

Through the use of Biodiesel and CNG in city vehicles, the City of Kansas City, Missouri displaces 620,000 gallons of conventional gasoline and diesel fuel annually.

KCMO WATER SERVICES DEPARTMENT

Keeping employees connected with departmental issues

connections

November/December 2005

Inside This Issue

AMR selection continues

As described in the May 2005 issue of this newsletter, WSD is in the process of procuring an Automatic Meter Reading (AMR) system. AMR will allow us to improve customer service, increase efficiency, reduce unaccounted-for water and help us meet our Competitive Business Plan goals.

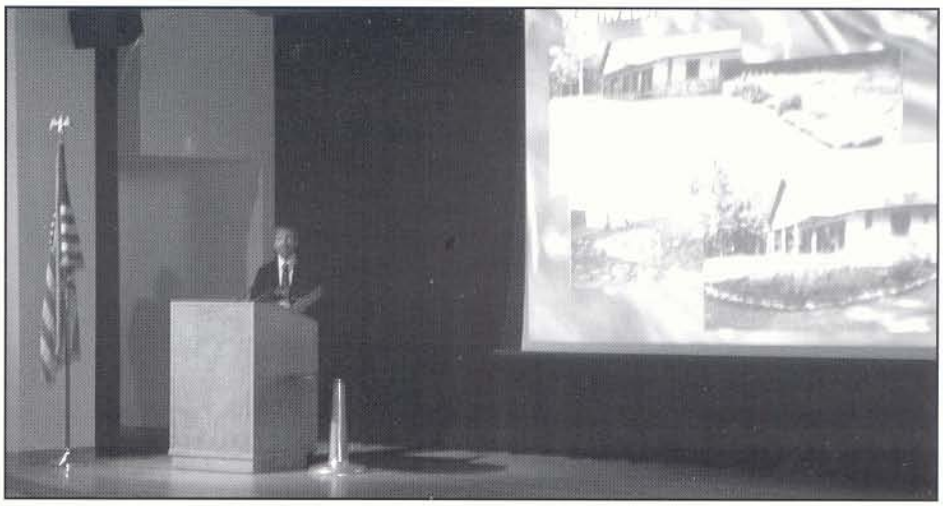
AMR proposals for several types of AMR systems were received in August. After a comprehensive review and evaluation of the proposals, a short-list was selected to make presentations to WSD's Selection Committee and answer their questions.

AMR will improve customer service by eliminating estimated reads, reducing costs, replacing inaccurate meters reducing unaccounted-for water and will help address the increasing number of customer calls regarding meter reading, high bills, estimated bills and turn on/offs.

Additional information will be provided once a final selection is made.

If you would like more information on AMR, please contact either of the following: Joe Alongi, Reading & Service at 513-0223 or Rob Thiemann, Engineering at 513-0349.

Department kicks-off rain garden campaign with Mayor, Jackson, Johnson counties



On Tuesday, Nov. 8, at the Anita Gorman Discovery Center, Mayor Kay Barnes, Johnson County Chairwoman Annabeth Surbaugh and Jackson County Executive Kathryn Shields announced a new initiative designed to engage citizens to help reduce flooding from stormwater runoff and improve stormwater quality.

Above, Rusty Schmitt, a landscape ecologist from Minnesota, talks about installing rain gardens in various landscapes and applications.

On Tuesday, Nov. 8, Mayor Kay Barnes, Johnson County Chairwoman Annabeth Surbaugh and Jackson County Executive Kathryn Shields announced a new initiative designed to engage citizens in helping reduce flooding from stormwater runoff.

The "10,000 Rain Gardens" project also will help protect rivers and streams from pollution carried by stormwater and will beautify the metro area.

The Department asked the Mayor to join in this effort to promote and build rain gardens and other stormwater best management practices (BMPs) to reduce stormwater runoff and improve water quality.

Rusty Schmitt, a landscape ecologist from Minnesota, discussed rain gardens and other stormwater BMPs that can be installed by homeowners, businesses and schools to reduce runoff and improve water quality. He said that homeowners can install rain gardens inexpensively on their own or hire landscape architects to design and install them.

The Department is working on developing a plan to implement rain gardens and stormwater BMPs at city owned facilities, as well as encouraging citizens to install rain gardens on their own properties.

Director Frank Pogge said, "We recognize that citizens play a vital role in protecting water quality and reducing stormwater runoff and the '10,000 Rain Gardens'

see 'rain garden' p. 2

Combined Charities Campaign kicks-off

Mable Ramey-Moore, assistant director, Finance and Administration, addressed the Department KCCCC Division Coordinators at their kick-off meeting on Thursday, Nov. 3.

This year's department goal is $79,411. Last year the department contributed $97,943 which exceeded the department goal by more than $17,000. This was more than 20 percent of all the money donated by city departments.

Director Frank Pogge would like to thank everyone for their generous contributions. The Department is known for its support of this campaign and its commitment to the community.

The theme for the 2005 Combined Charities Campaign is "Give a hand to the Heartland." The city-wide goal set for this year's campaign is $450,000.

Instead of a single kick-off event, this year each campaign coordinator will present a video from the United Way and distribute pledge forms.

WSD division coordinators are:

Consumer Services	Pat Wells and Mary Williams
Contracts Administration	Leona Derse
Director's Office	Doris Green
Engineering	Carrie Edward, Shelia Givens, Susan Pilcher & Glenda Johnson
Household Hazardous Waste	Lara Isch
Industrial Waste	John Dieter
Lab	Demetra Weston
Marketing & PR and IT	Karen Coursey
Meter Reading	Rosalind Davis
Finance Administration	Carla Hardin
Human Resources	Marcy Woods
Pipeline	John Schinkel
Reading & Service	James Williams, Judy Dunagan & Annette Hollinger
Stores	Richard Watts
Stormwater Maintenance	Mike Husereaux
Wastewater Maintenance	David Jackson
Water Supply	John Reddy
Wastewater Treatment	Bob Williamson

If you have not turned in your form, please contact Karen Coursey at 513-0190. Please contact your division coordinator if you have questions.

connections

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is a monthly publication by and for the Water Services Department by the Marketing and Public Relations Division. Submit story ideas to Editor, 513-0242 or email: Kirk_Welsh@kcmo.org

WSD associates have a 'Spooktacular' time

At the 63rd Street offices, associates celebrated Halloween with a costume contest and fundraiser for the Bridge Home for Children.

Winners for the cutest, ugliest, silliest and best overall were given. The winners were Elisha Booker-Rodgers, cutest; Aaron Eaton, silliest; Norm Stewart, ugliest; and Aaron Eaton, overall winner. Pictured above are Pam Connor, Gwen Wilson, Sharon Barnes, Norm Stewart, Doris Green, Elisha Booker-Rodgers, Aaron Eaton, Brenda Knight, Lisa Rodriguez and Deon Walker.

Department adopts Bridge Home for Children for the holidays

This year the Department is adopting the Bridge Home for Children, a Kansas City based non-profit organization dedicated to serving boys and girls ages 8-18 who are victims of abuse or neglect.

The Bridge, which operates two state licensed facilities, one for boys and one for girls, provides life skills, self esteem, educational support and a loving environment to these youngsters. They accept referrals from the Missouri Division of Family Services and the private sector.

In October, after receiving wish lists from each child, the Holiday Committee discovered that five of the girls didn't have coats. The Committee purchased coats for them and delivered them in late October.

The Halloween Costume contest and hot dog lunch was a fundraiser to help raise money for the home.

The Holiday Committee will deliver gifts to the children on Dec. 15.

If you would like to donate to the fundraiser or purchase an item from one of the wish lists, please contact one of the Holiday Committee members. They are: Norm Stewart, Deon Walker, Cecilia Clark, Karen Coursey, LaTonya Shanklin, Brenda Knight, Barbara Shipley, Carla Hardin and Doris Green.

'rain garden' from p.1

campaign will involve citizens in a regional effort to engage in this important infrastructure need."

Over the next few years, the Department will be working with community leaders to develop additional green solutions and encourage citizens and schools to build rain gardens.

For additional information on rain gardens visit www.rainkc.com.

Students tour Blue River Wastewater Treatment Plant

On Friday, Oct. 28, students from Wendall-Phillips Elementary School toured the Blue River Wastewater Treatment Plant. Kurt Bordewick discussed how wastewater is treated and how the methane generated from the treatment process is converted into electricity that is used at the plant.

Thanks to: John Lopez, Chief Plant Operator, who also served as a tour guide, David Whiles and Michalle Polk from the Store Room distributed protective equipment to the students. Craig Daily, Facilities Maintenance Supervisor, demonstrated the operation of the Rock Box System, and Mary Corsiglia, Plant Superintendent, and Allen Abbott, AAII, prepared handouts for the students. Shaun O'Kelly, Plant Engineer, and Steve Zuhlke, Asst. Plant Manager, also assisted with the tours.

Department Earns AMWA Management Award

The Association of Metropolitan Water Agencies (AMWA) honored 21 public drinking water systems in October with its top utility management awards including the KCMO Water Services Department which earned the Platinum Award for Sustained Competitiveness.

Fourteen systems received Platinum Awards for Sustained Competitiveness Achievement, recognizing their long-term excellence in utility management.

"The Platinum Award winners are continuously applying best management practices to meet the public's requirements for safe water and low-cost service," David Rager of the Cincinnati Water Works noted. "This can include cross training for smaller, more flexible work forces, establishing capital improvement reserve funds to stabilize rates, or introducing technologically advanced automation and information systems," he added.

"Both the Gold and Platinum Award winners are a credit to their communities and raise the bar for water industry management," Rager said.

The Kansas City Water Services Department's 10-year competitive business plan includes performance targets and action items to upgrade infrastructure and facilities, improve service levels and minimize annual operating costs. The plan aims to reduce response and repair time to main breaks while increasing the performance of more preventative maintenance and doubling the amount of capital projects the Engineering Services Division manages.

Other winners of the AMWA 2005 Platinum Awards for Sustained Competitiveness Achievement are:

- Albuquerque/Bernalillo County Water Utility Authority (N.M.)
- Broward County Water and Wastewater Services (Fla.)
- Butler County Department of Environmental Services (Ohio)
- Greater Cincinnati Water Works (Ohio)
- East Bay Municipal Utility District (Calif.)
- City of Fort Wayne City Utilities (Ind.)
- City of Henderson Department of Utility Services (Nev.)
- Miami-Dade Water and Sewer Department (Fla.)
- Nashville Metro Water Services (Tenn.)
- City of Norfolk Department of Utilities (Va.)
- Orange County Utilities Water Division (Fla.)
- Portland Water District (Maine)
- Tampa Water Department (Fla.)

AMWA is the organization for the nation's largest publicly owned drinking water utilities. Its members provide safe and clean drinking water to more than 120 million Americans.

Perceptions
of litter in America

- **48% of Americans** admit to littering in the past 10 years.

- **30% of surveyed youth** ages 8-14 said they don't care about litter.
- **Half a million or more cigarette butts** are littered each **day** in Kansas City, Missouri alone!

Keep Kansas City Beautiful is working to **change behavior and attitudes** about litter by developing programs to prevent waste and neighborhood deterioration by encouraging community beautification.

Visit us on the web at
www.keepkansascitybeautiful.org

Keep Kansas City Beautiful

Keep Kansas City Beautiful

is committed to increasing neighborhood involvement, changing behavior and attitudes about litter and creating partnerships with all sectors of the community.

Keep Kansas City Beautiful is a non-profit organization in conjunction with Bridging The Gap.

Keep Kansas City Beautiful
Sustainable Communities
Environmental Excellence
Bridging The Gap

AFFILIATE
KEEP AMERICA BEAUTIFUL INC

City of Kansas City, Missouri

Kansas City Power & Light™

Union Bank

Keep Kansas City Beautiful
435 Westport Road, P.O. Box 10220
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kkcb@bridgingthegap.org
www.keepkansascitybeautiful.org

Printed on recycled paper.

Keep Kansas City Beautiful

Our mission

is to involve citizens, businesses and government in creating a cleaner and more beautiful Kansas City

Keep Kansas City Beautiful

About Keep Kansas City Beautiful

Founding partners:

Kansas City Power & Light, **Bridging The Gap** and the **City of Kansas City, Missouri**, started **Keep Kansas City Beautiful**, which became a non-profit **Keep America Beautiful** affiliate in May 2000.

Keep Kansas City Beautiful is governed by a diverse Board of Directors that includes representatives from business, government and the community.

Keep Kansas City Beautiful Focus

Public Awareness

- Raise **community awareness** of the benefits in improved quality of life and increased economic development opportunities.

Education

- Develop and implement **curricula** for students grades K-12.
- Coordinate educational and community involvement programs for **youth**.
- Provide **educational speakers** for community groups.

Litter Abatement

- Reduce and prevent litter by developing **litter-free events**.
- Involve the community in reducing and preventing litter through the **Adopt-A-Spot** program.
- Host the annual **Great American Cleanup**.
- Using the **Litter Index** tool, **measure** Kansas City area litter.

Visit us on the web at **www.keepkansascitybeautiful.org**

Are you interested in creating a cleaner and more beautiful Kansas City?

Please contact us to learn more about:

- ☐ Great American Cleanup
- ☐ Litter-Free Events
- ☐ Litter Index
- ☐ School Curriculum
- ☐ LEAP (Leadership in Environmental Action Projects)
- ☐ Adopt-A-Spot
- ☐ Serving on a committee
- ☐ Support through funding
- ☐ Sponsoring an event or program

Name _____

Address _____

_____

Phone _____

Email _____

Please mail or fax this form to:

Keep Kansas City Beautiful
P.O. Box 10220
Kansas City, Missouri 64171
Fax - 816-561-1091
Or e-mail us at kkcb@bridgingthegap.org

Thank you for your commitment to a beautiful Kansas City!

Kansas City Community Recycling Centers Annual Report 2004 - 2005

WWW.BRIDGINGTHEGAP.ORG

Bridging The Gap opened a temporary week-end drop-off recycling center in Kansas City, Missouri, at 48th and Troost nearly 14 years ago. This first collection site was an effort to educate citizens about recycling and to initiate the practice of recycling prior to a city-wide curbside recycling program, which at the time seemed imminent. In fact, it would be 13 years before Kansas City initiated a curbside recycling program. In the meantime, Bridging The Gap has developed Community Recycling Centers and environmental education programs that stretch across the city and span the metropolitan area.

Bridging The Gap

In 2004-05, Bridging The Gap (BTG) operated four Community Recycling Centers on behalf of the city of Kansas City, Missouri, forming partnerships with many local businesses, providing three centers with full-time staff and involving thousands of citizens in the enhancement of their own community by volunteering. Far from the first temporary drop-off centers, which convened on Saturday morning and dispersed on Sunday afternoon, these centers are ongoing community connections for environmental education, as well as collection centers for recycling or reuse of more than 20 different household and business materials, which effectively complement Kansas City's curbside program.

KC Recycles, the city-wide curbside recycling program, passed its first anniversary in 2004 and has been successful in engaging Kansas Citians in recycling a core group of recyclable materials. With this new recycling option have come successes and challenges. More paper, plastic and cardboard head to reclamation centers straight from neighborhood curbs, resulting in a 40 percent reduction in those materials at the Community Recycling Centers. Glass recycling, which is not available in the curbside program, has increased at the centers as has citizens' interest in recycling materials not accepted at curbside. Due to this increased interest, the Community Recycling Centers developed additional educational activities and programs. Computers, athletic shoes and bulky block Styrofoam™ have joined the growing list of materials collected at the centers for recycling and reuse.

Why did more than 150,000 cars pull into Bridging The Gap's Community Recycling Centers in 2004-05? The variety of materials collected at the centers has increased. The centers offer valuable workshops. And the centers are operated by informed, helpful staff members and volunteers.

Bridging The Gap received the UMKC Excellence in Community Engagement - Center for the City Award for 2004.

Volunteer Accomplishments

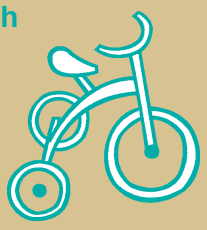
"You recycling volunteers are making it possible for our city to operate a recycling drop-off center." Thus began the first newsletter for Bridging The Gap's first recycling centers. Nearly 14 years later, volunteers are still BTG's most essential collaborators. Bridging The Gap's mission statement indicates that making connections is what the organization is all about. Volunteers and staff are often the most apparent human connection that recyclers have with ideas that might seem far-removed, like "material redistribution" and "solid waste management." From taking a box of office paper out of a recycler's car to answering the question, "Is this cardboard or paperboard?" to handing out informational brochures, volunteers manifest community-based involvement in practical hands-on tasks.

Volunteers represent the diversity of Kansas City. Elementary and high school students volunteer. So do professionals holding advanced degrees. Juvenile offenders fulfilling community service hours volunteer. So do judges and teachers.

Bridging The Gap volunteers vary in ethnicity, occupation and their interest in recycling. What they have in common is an interest in their community and a willingness to give their time to work with others to make the best of their recycling efforts. They have learned and are willing to teach fellow recyclers about tasks as simple but essential as taking the time to remove the lids from plastic bottles before tossing them in the bin. Volunteers often assist recyclers in finding answers, conveying, for example, information about the destination of recycled materials. Many volunteers, like the three who received the Lynne Laughlin Award this past year, expand their connections to the community by becoming speakers, staffing the weekly phone bank, making reminder calls, working with other Bridging The Gap programs like **Keep Kansas City Beautiful (KKCB)** and **Kansas City WildLands** and helping with special events like **The Kansas City EarthFest**. Bridging The Gap coordinates a community educators program in which volunteers are trained to speak about environmental topics to schools, clubs, organizations and neighborhood associations.

Volunteers served more than 2,000 shifts (that's more than 7,500 hours) at Community Recycling Centers in 2004-05.

At the Bannister Community Recycling Center, from May through September 2004, outstanding volunteer service by several young people was rewarded with refurbished bikes from Bikes and Trikes for Tykes.



Total number of volunteer hours dedicated to the Community Recycling Centers in 2004-05: 7527

Number of volunteers working to support the Community Recycling Centers in 2004-05: 2094

The value of the time for volunteers hours in 2004-05: $132,098

Volunteer Recognition

At the Bannister Community Recycling Center, from May through September 2004, outstanding volunteer service by several young people was rewarded with refurbished bikes from Bikes and Trikes for Tykes.

In memory of former Recycling Center Manager Lynne Laughlin, each year Bridging The Gap honors outstanding volunteers who work to better their community by volunteering.

The 2004 Lynne Laughlin Award recipients were **Martha Graham** and **Holly Hulfield**.


Martha Graham

Martha began volunteering for Bridging The Gap more than ten years ago at the first Community Recycling Center. As a longtime Bridging The Gap community educator, Martha expanded her role this year by becoming a **KC Recycles** speaker and Recycling Ambassador. Martha also leads numerous environmental activities at the school where she teaches.


Holly Hulfeld

Holly Hulfeld has excelled as a participant in Bridging The Gap's **Leadership in Environmental Action Projects (LEAP)** program, in which teachers volunteer to lead students in carrying out projects related to reducing, reusing and recycling at school. Holly has led student teams to significantly increase recycling at two different schools. She has coordinated with her Girl Scout troop and LEAP team's youth to volunteer at the Metro North Community Recycling Center.


Suzanne Rebecchi

Suzanne Rebecchi, who began volunteering at the 9th and Van Brunt Community Recycling Center, received Honorable Mention for the Lynne Laughlin Award this past year. She has been an active member of Bridging The Gap's Community Educators since 2002. Suzanne expanded her community education role this year by becoming a **KC Recycles** speaker and a Recycling Ambassador for her neighborhood.

Partnerships

From the opening of that first center at 48th and Troost, Bridging The Gap, acting on behalf of the city, has reached out to community partners to support environmental education and solid waste recycling. Some of these community partnerships have been sustained for years. Many essential partnerships stem from on-site interactions of staff, volunteers and recyclers at the centers.

- From the beginning, **Deffenbaugh Industries** has been a valuable and supportive partner. Moving empty roll-off bins into place and hauling filled bins to the materials reclamation facility, Deffenbaugh supplies a vital element to the daily operation of the centers. Deffenbaugh transports the same materials as are collected at curbside, as well as glass.
- **ACH Foam Technologies** accepts clean block Styrofoam™ from three centers. The Styrofoam™ is used to form new Styrofoam™ blocks.
- **Big Brothers Big Sisters of Greater Kansas City** has blue bins at three centers and accepts reusable clothing, linens, toys and small household items for redistribution. A phone bank operated by Big Brothers Big Sisters refers citizens to the Community Recycling Centers.
- **Bikes and Trikes for Tykes** collects used bicycles and tricycles at three centers. When possible, bikes are refurbished and distributed to families; otherwise the bikes are recycled in the scrap metal bin.

- Egg cartons and paper grocery sacks are collected at the centers and are picked up by **Harvesters, Inc.**, for reuse in their food redistribution program.
- Household batteries are collected at the centers and taken weekly to Kansas City's **Household Hazardous Waste Facility** at the Environmental Campus on Deramus.
- **K-Mart** has hosted the Bannister Community Recycling Center in the parking lot of their store at Bannister Road and Hillcrest for more than ten years.
- **Mallin Brothers Recycling** has collection bins at three centers for the reclamation of scrap metal, aluminum foil and #4 plastic newspaper sleeves (bags). A variety of metals, from jar lids and nails to furnace pipes and fence posts are accepted.

continued

Partnerships, continued

- **Metro North Mall** has hosted a Community Recycling Center in the parking lot north of the mall at Highway 169 and Barry Road for more than 12 years.
- Three centers accept used cell phones, pagers and inkjet and toner printer cartridges which are collected by **Office Products Recycling Association (OPRA)** for refurbishing or recycling.
- **Remains**, a St. Louis company, accepts used athletic shoes collected at three centers, for reuse, if possible, and for transporting to the **Nike Reuse-A-Shoe** program for shredding to create playground and athletic surfaces. Kansas City, Missouri staff gather and store the shoes. **Mid-America Regional Council (MARC)** promoted the shoe collection for America Recycles Day.
- Cell phone recycling was promoted at three centers in May 2004 through a partnership with **Sprint**. Recyclers of cell phones at the centers during that month received a long-distance calling card and a chance to win a cell phone, which was donated by Sprint.
- Bridging The Gap applied for, and was awarded, a grant from **Dell, Inc**. for a one-day computer collection. On June 5, 2004, the sponsored collection was held at three Community Recycling Centers. Beginning in September 2004, computer recycling was expanded into an ongoing program at the Community Recycling Centers through a partnership with **Missouri Department of Natural Resources**. Computers, printers, monitors and peripherals are accepted at three centers and processed by **Surplus Exchange**. Some computers are refurbished and distributed for reuse; others are properly recycled.
- The **University of Missouri at Kansas City (UMKC)** has hosted a Community Recycling Center in a vacant parking lot at 48th and Forest for more than three years.

Various other individuals and small businesses collaborate with staff at the Community Recycling Centers to reuse or recycle egg cartons, honey jars, canning jars, packing materials, kitty litter containers and many other materials. According to availability and as weather permits, some centers have "free-cycle" areas for used books and other usable materials. Recyclers are welcome to browse and take from the area whether or not they leave anything.

General Information for 2004 -2005, by Location

	Bridging The Gap Volunteers	Community Service Workers	Cars	Total Weight of Materials Collected by Deffenbaugh Industries **	Pounds per Car
Bannister	850	0	35,828	1,398,460	39.03
Deramus	2	27	7,539	822,050	109.04
Metro North	554	212	67,973	2,754,160	40.52
UMKC	479	0	39,298	1,657,400	42.18
Other *	209				
Total	**2,094**	**239**	**150,638**	**6,632,070**	**44.03**

* Includes phone bank, reminder call, and special event volunteers.

** Includes only paper, plastic, glass and cans.

Community Recycling Center Hours

Metro North, UMKC, and Bannister:
Wednesday - Friday 11:00 AM to 5:30 PM
Saturday 8:00 AM to 4:00 PM

Deramus:
Tuesday - Saturday 8:00 AM to 4:00 PM
(Staffed by Bridging The Gap Saturday only)

Materials Collected

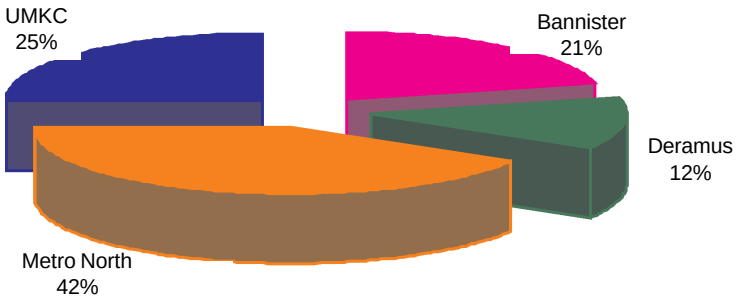
All four Community Recycling Centers collect a wide range of materials, which include those picked up in Kansas City's curbside recycling program: newspaper, magazines, mixed office paper, paperboard, corrugated cardboard, phone books, #1 and #2 plastic bottles and jars and aluminum and bi-metal (tin) cans.

With the advent of curbside recycling, an increasing number of recyclers visit the centers, even as the frequency of their visits has fallen.

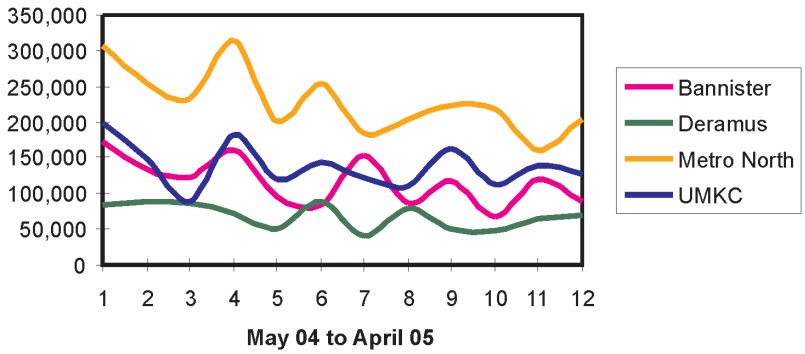
Bridging The Gap, at three of the Community Recycling Centers, partners with more than ten different businesses and organizations to manage the collection of the following materials in addition to the curbside-recyclable materials:

- Aluminum foil
- Athletic shoes
- Bicycles and tricycles
- Cell phones and pagers
- Clothing, linens and small household items
- Computers and peripherals
- Egg cartons
- Glass food containers
- Honey and canning jars
- Household batteries
- Inkjet and toner cartridges
- Plastic newspaper sleeves
- Scrap metal of any metal or alloy
- Styrofoam™ blocks
- Packing peanuts and bubble wrap

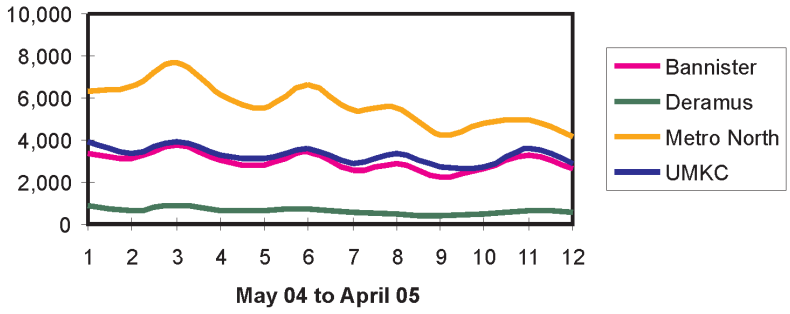
Recycled Materials Stream FY 2004-2005



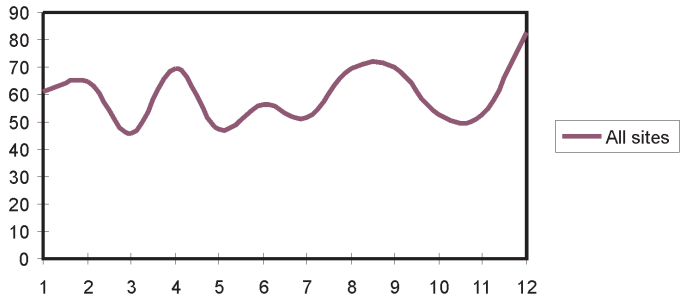
Pounds of Recycled Materials by Month



Number of Cars Visiting Recycling Centers by Month



Pounds of Recycled Materials per Car



Challenges

Again anticipating an imminent city-wide curbside recycling program in the next year, Bridging The Gap, in 1996, identified a need to transform the drop-off centers into **permanent environmental centers** dedicated to connecting and educating the local community. Although curbside success again took more time, the transformation of the centers continued. In 2004-05, the Community Recycling Centers continue to face challenges directly related to the ongoing transformation of the centers.

A survey of center recyclers indicated **the number one way they knew about the centers was driving by**. Each center is off the beaten path and can be difficult to locate. Recycling would increase with larger directional signs in more locations.

In light of the success of curbside recycling in 2004, **communicating to recyclers the necessity of volunteers** is a challenge. Bridging The Gap sent letters to all current volunteers expressing appreciation for their involvement and explaining the continuing and crucial role of volunteers at the centers. The need for volunteers is increasing as new recyclers turn up and veteran recyclers make fewer trips to the centers.

As the Community Recycling Centers collect new materials like computers and block Styrofoam™, more staff time and attention, as well as **storage capacity**, are required for **materials management**. Recycling computers requires the Recycling Center Manager to inspect the equipment being recycled, to collect fees using only credit or debit cards and to package the equipment for transfer. Styrofoam™ blocks are presented by recyclers to staff for inspection and collection. The blocks must be pristinely clean to be acceptable for processing. On-site storage of Styrofoam™ consumes an increasingly large volume of bin capacity.

Because the **Community Recycling Centers are not permanent**, several challenges were faced and dealt with this past year. The centers continue with a mobile style of operation. Pavement cannot be removed. Permeable pavement cannot be demonstrated. Running water is not available. Gardens cannot be installed. Permanent, attractive fencing is not an option. The mobile arrangements at the centers are no match for durable and fixed structures for educational and demonstration purposes.

The centers must be prepared to vacate their locations on short notice. This past year, the Metro North Community Recycling Center was forced to move from a large and visible site to a smaller site in a far corner of the parking lot. **Moving cars through the smaller site** presents several challenges, including a bottle-neck of cars waiting to enter the site at busy times. Increased staff attention and time are diverted to safety and traffic control at the site. The number of recyclers at the center would increase with a more visible and larger location.

Weights and Materials Recovered 2004-05

	Newsppr	Cardbrd	Office Ppr	Magazine	Paperbrd	Glass	Plastic	Alum	Tin	Total
Bannister	373,240	180,400	75,632	113,468	177,900	358,420	60,340	20,675	38,385	**1,398,460**
Deramus	186,420	148,980	49,416	74,104	90,500	215,980	29,370	9,541	17,739	**822,050**
Metro North	784,380	332,720	144,776	217,164	369,900	670,580	122,600	39,204	72,836	**2,754,160**
UMKC	271,440	165,600	91,864	137,796	147,880	767,140	38,000	13,181	24,499	**1,657,400**
Total Pounds	**1,615,480**	**827,700**	**361,688**	**542,532**	**786,180**	**2,012,120**	**250,310**	**82,601**	**153,459**	**6,632,070**
Total Tons	**808**	**414**	**181**	**271**	**393**	**1,006**	**125**	**41**	**77**	**3,316**

Total number of cars at all Community Recycling Centers: 150,638

Total weight of materials hauled by Deffenbaugh Industries: 6,632,070

Education and Promotion

Environmental education opportunities occur at the centers all of the time. On-site training of recyclers is performed by trained staff and volunteers using outdoor signs, demonstrations, examples and informational brochures. Most essential is the frank on-site exchange of ideas between staff, volunteers and recyclers about how to be more environmentally responsible.

In 2004, Bridging The Gap staff developed and distributed a brochure titled "Kansas City Community Recycling Center Guide." It is a comprehensive and informative list of recyclable items. This guide is excellent for beginning recyclers and is a helpful reminder for veterans.

Volunteers distributed bookmarks with a summary of recycling information and Community Recycling Center locations. These bookmarks were also distributed at apartment complexes and at community events. Handing out the brochures and bookmarks yields many opportunities to educate recyclers about services provided at the centers and about **KC Recycles**.

The Community Recycling Centers provided referrals to city services including the household hazardous waste center, leaf and brush drop-off centers, tire collection and bulky-item pickup, and other programs, including Surplus Exchange and Habitat for Humanity's ReStore. Bridging The Gap cooperated with the Kansas City Health Department by collecting health surveys at the centers.

The Community Recycling Centers produced several recycling events, clinics and educational experiences this past year, including projects in support of Kansas City's curbside recycling program. Through ongoing partnerships with several businesses, schools and churches, Bridging The Gap provided advice, support, promotion and collection sites for local drives to collect used **athletic shoes**. A **socks and underwear** drive sponsored by Redemptorist Church to distribute to people in need was promoted and items collected at three centers in September 2004.

At the annual **Plant and Seed Exchange**, held in May 2004, recyclers, volunteers and neighbors of three Community Recycling Centers brought seeds, seed packets, plants, seedlings, plant pots, compost and potting soil with them to the centers. Browsing through the proffered seeds and plants, recyclers took what they needed home with them.

The UMKC Community Recycling Center continued to host the **Keep Kansas City Beautiful** (KKCB) lending shed. Citizens involved in neighborhood clean-up and beautification efforts were able to borrow tools, gloves and equipment.

At an **art show** held in May 2004 at the UMKC Community Recycling Center eight local artists reused materials to create sculptures, jewelry, paintings and clothing.

Bannister Community Recycling Center partnered with the **Children's Museum of Kansas City** to collect materials for art activities: Styrofoam™ meat trays, plastic coffee cans with lids and occasional odd items that caught the eye of staff and volunteers.

In June and July of 2004, the Bannister Community Recycling Center hosted several **workshops, seminars and projects** involving recyclers and others in environmentally-responsible activities. One workshop taught cooking and medicinal use of herbs; another suggested ways to produce natural, homemade cleaning supplies; and an arts and crafts project reused recyclable materials. In October 2004, the Bannister Community Recycling Center held a seminar on candle-making reusing materials collected specifically for the project at the center. During the year, the Bannister

continued

Education and Promotion, continued

Community Recycling Center also collected plant containers that were then reused by **Suburban Lawn and Garden.**

In November 2004, a **Green Home Improvement Fair** was held at the Bannister Community Recycling Center and was promoted at all centers. Twelve vendors of environmentally-friendly products and home efficiency specialists brought products for demonstration and display. Interested recyclers were advised on issues like green home improvement, home buying, construction, renovation, home care and native landscaping.

Bridging The Gap's information line, 816-561-1090, a recycling resource, is listed on 124 websites, including the **Environmental Protection Agency (EPA)**, as well as on the customer guide in the **Southwestern Bell White Pages**. In support of the information line, Bridging The Gap hosts an up-to-date, comprehensive and reliable local recycling database. The information line receives more than 300 calls per month.

Bridging The Gap brochures are prominently displayed in several metro Kansas City churches, coffee houses, universities, schools, at **Mid-America Regional Council (MARC)**, and at the **Kansas City Public Library** and the **Mid-Continent Public Library**. Bridging The Gap's staff reached out to area apartment building managers, distributing information about the centers, providing articles and brochures about recycling and explaining the cost-benefits of having apartment dwellers recycle. The locations of the Community Recycling Centers and the materials collected there are listed at many apartment complexes.

Future Plans

After anticipating curbside recycling for nearly 14 years, Bridging The Gap celebrates the historic achievement and growing success of this city-wide program. Looking forward, Bridging The Gap seeks to maintain its relationship with the City of Kansas City, Missouri; to continue to build more partnerships with businesses and organizations; and to involve volunteers in the interpersonal activities that nurture healthy communities and educate citizens about environmental responsibility.

Bridging The Gap
435 Westport Rd., #23
Kansas City, Missouri 64111
www.BridgingTheGap.org
816-561-1087

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August 2005

Kansas City EarthFest

2006 info coming soon!

Saturday, April 23rd, 2005
10 a.m. to 2 p.m.
The Theatre in The Park
Shawnee Mission Park
7710 Renner Road

EarthFest and EarthWalk are rain-or-shine events! In the event of inclement weather, EarthFest will be moved under shelter.

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Celebrate family, fun and our planet with the first-ever regional Kansas City EarthFest! EarthFest features live entertainment, games, crafts and activities for kids of all ages (and adults, too!). All of Kansas City is invited!

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1 of 2

SEWER SYSTEMS

Brookside smoke tests reveal several improper sewer connections

Water Services works with public to correct storm water connections that cause flooding, sewage backup

By Kelley Weiss

kweiss@dispatchtribune.com

Brookside residents are learning about the thousands of improper sewage line connections throughout their neighborhoods and what they can do to fix them.

Department of Water Services representatives recently met with Brookside neighborhood association leaders and 4th District council members to share smoke test results that brought to light improper sewer line connections that can cause flooding.

Jerry Hoffman, the overflow control program coordinator for Water Services, said a smoke test done in January and February found 2,100 private-sector properties and 900 public-sector properties with improper sewage connections.

Water services dropped smoke bombs into the sewer system and used fans to blow the smoke through a three-square-mile area of Brookside. Wherever the smoke leaked out meant that water was entering the sanitary sewer line.

The majority of problems were from the 1,200 individual downspouts improperly connected and funneling

TEST/Page 14 >>

SOUTH KANSAS CITY

Convenience store victim of repeated crimes

7-Eleven at Wornall robbed four times in past two months

By Kelley Weiss

kweiss@dispatchtribune.com

The 7-Eleven at 8901 Wornall Road has been robbed four times in the past two months, said officer Chester Lucas, a crime analyst

FAITH

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Safety and cited as rea Red Bridge

By Kelley Weiss

Construction f Bridge road and scheduled to star support from resi

The improven the roadway fror River Road to fou left-turn lane ar four-lane, 1,110-f existing Red Bric

Some resident a board membe Association, said not necessary.

"This is basical alternate (Interst dential neighbor

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2 of 2

TEST: *Property owners need to make repairs*

Continued from Page 1

storm water directly into sewer lines, he said. This causes storm water to overload the sanitary sewer lines, creating pressure, buildup and sewage overflow into houses. Hoffman said property owners were responsible for making repairs to lines on their land, and the city would take care of public land.

In the next two to three weeks, Water Services, with the help of neighborhood associations, will distribute letters to each home with improper connections, explaining the stress those connections put on the sewer system and how homeowners can correct the problem. In most cases, people can fix the problem themselves by disconnecting and rerouting downspouts away from the sanitary line, usually for about $35 and 45 minutes of work.

"These are things residents can do for a nominal cost," he said.

After residents receive the letters, Hoffman said, city officials will meet with residents to answer questions. Susan Borge, aide to Councilman Jim Glover, attended the meeting and said neighborhood representatives had been responsive to and interested in the smoke tests results.

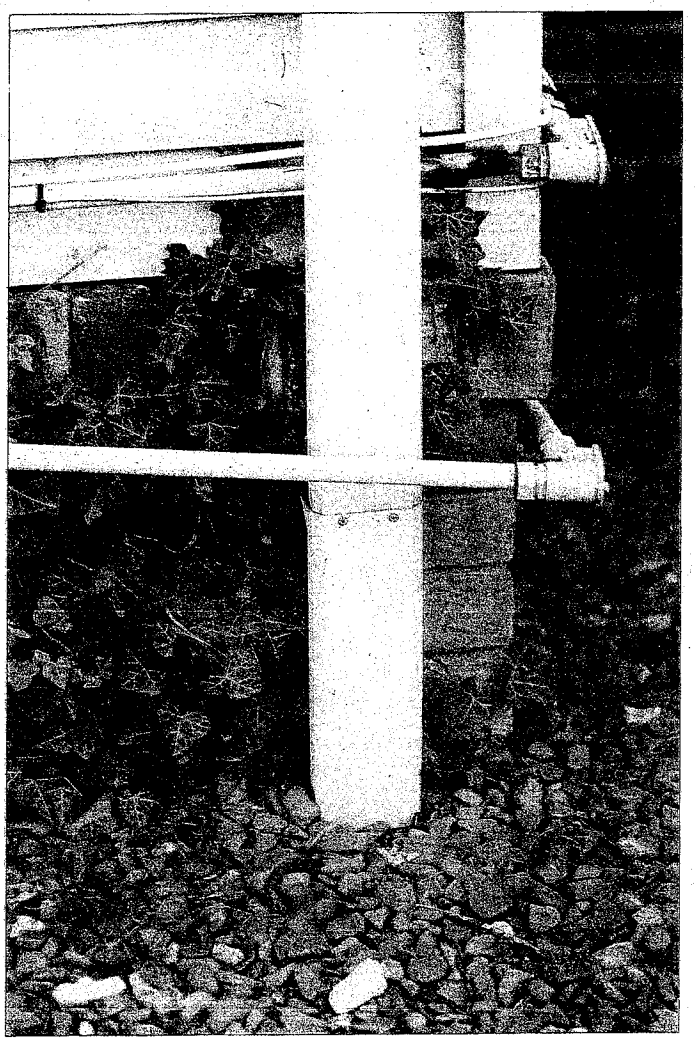
Doug Jackson, president of the Armour Fields neighborhood association, said he was impressed with the organization and initiative of the city to inform the public of the problems and offer solutions.

"It's great because the city came to us proactively to work through a problem," he said.

Jackson said he thought residents in Armour Fields would correct the problems in phases, and the information would most likely be distributed at a block captain level.

"We're pretty active," he said. "We're going to have to repeat and emphasize that the change will need to happen one way or another."

A driveway drain at his own home is suspected of connecting into the sanitary line, he said. He said the city shared options for people such as himself with more involved problems that an average homeowner handyman couldn't fix. One of those options was the use of rain barrels. He said he would spend about $500 to install three rain barrels around his yard, which would divert much of the water flowing to the drain.



KELLEY WEISS/The Wednesday

A Brookside home's downspout goes into the ground. A Kansas City Department of Water Services' test found that 2,400 home downspouts in Brookside connected to the sanitary sewer line below ground, which caused flooding and sewage backup.

DO IT YOURSELF

How to disconnect a downspout from a sewer line:

Step 1: Measure about 9 inches from where the downspout enters the sewer connection.

Step 2: Cut the downspout with a hacksaw.

Step 3: Cap the sewer standpipe. This prevents water from going in. A rubber cap secured by a hose clamp works in most cases.

Step 4: Insert the downspout into an elbow. (If the elbow is put into the downspout, it will leak.) Crimping the end of the downspout with pliers might be needed to get a good fit.

Step 5: Attach a downspout extension to carry water away from the house and foundation. Use a hacksaw to cut the extension to desired length. Insert the elbow into the extension to prevent leaks and secure the elbow and extension connection with metal screws.

These repairs are estimated to cost about $35 and take about 45 minutes to complete.

Source: Kansas City Department of Water Services

WATER AND SEWER IMPROVEMENTS

Northland Chamber considers bond issue

By Gene Hanson

ghanson@dispatchtribune.com

The Northland Regional Chamber of Commerce's planning-and-development committee has recommended the chamber's board endorse a sewer and water bond issue to be placed before Kansas City voters Tuesday, Aug. 2.

The bond issue is valued at $500 million.

Frank Pogge, water-services department director, told the committee Thursday, June 9, that the city had all but exhausted similar bonds issued in 1996.

"We have about $10 million in bonds left to sell," Pogge said. "Then we will be out of bonding capacity for water and sewers."

Pogge said the city had not seen an increase in water or sewer rates in the past 10 years.

But earlier he warned that area rates could increase, from 2 to 5 percent, if voters approved the Aug. 2 package and the bonds were issued at a rate of $50 million a year.

Pogge said bonds would be issued the next seven to 10 years, and one of his department's goals would be to reduce the number of water- and sewer-line breaks in the area.

At the meeting, the committee also endorsed a list of capital-improvement projects from the city council's Public Improvement Advisory Committee.

One project that has a funding shortfall involves work on roadways leading to the new police station at Shoal Creek and Pleasant Valley Road.

"Pleasant Valley Road needs to be addressed," said committee member Pete Hall. "You have a real problem if you have a new police station and dangerous roads leading to it."

The committee's recommendations will be presented to the chamber's board of directors for consideration.

Local/Region

Posted on Mon, Jul. 11, 2005

Actually, this water's often cleaner than in Venice

By MATT CAMPBELL The Kansas City Star

Any discussion of Brush Creek inevitably comes around to sanitation.

Kansas City's 1920s-era combined stormwater and sanitary-sewer system in the Brush Creek watershed means that periods of heavy rain will send human waste into the creek.

When that happens, it creates a potential health hazard. The city responds by shutting off the aerator fountains and the large cascade in Theis Park that also uses creek water. Officials also cancel events on the creek, such as the dragon boat race last month.

It is a serious, if only occasional, problem. Former Park Director Terry Dopson argues the media made too much of it just as the city prepared to celebrate the opening of the flood-protection project in 1995. This created a lasting impression that has contributed to public reluctance to come to the creek, he said.

"People who had been using the creek for years decided, 'My, this is terrible. This is Flush Creek,' " Dopson said.

Actually, between rains the water in Brush Creek is cleaner than the perpetually contaminated canals of Venice, which has no sewage treatment facilities.

Kansas City is studying the problem of its combined sewers under pressure from the federal government to clean up water quality. It's a complicated situation covering 56 square miles, from the Missouri River to 87th Street and the state line to the Blue River.

A report on how the city should deal with the problem is not expected until 2007. In the meantime, other cities are spending billions of dollars to comply with federal mandates to correct the environmental effects of combined sewers.

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The Wednesday - July 13, 2005

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BROOKSIDE WATERSHED PROJECT

Residents encouraged to combat flooding themselves

Brookside residents can disconnect private water, sewer lines to help alleviate basement floods

By Kelley Weiss

kweiss@dispatchtribune.com

John Carey rerouted one of his downspouts that went into the ground because it was causing flooding in a corner of his basement. Since the repair, he said, he hasn't had any water in the basement.

Carey of Brookside said he needed to correct his downspouts, not just for his house but his neighbors' too.

"We all control our own domains," he said. "We've always been responsible, and that's what you do as a good neighbor."

As the city works on its multimillion-dollar Brookside Watershed Project to alleviate flooding and sewage backup problems, residents can get faster results by making their own home repairs, said Jerry Hoffman from the Kansas City Department of Water Services.

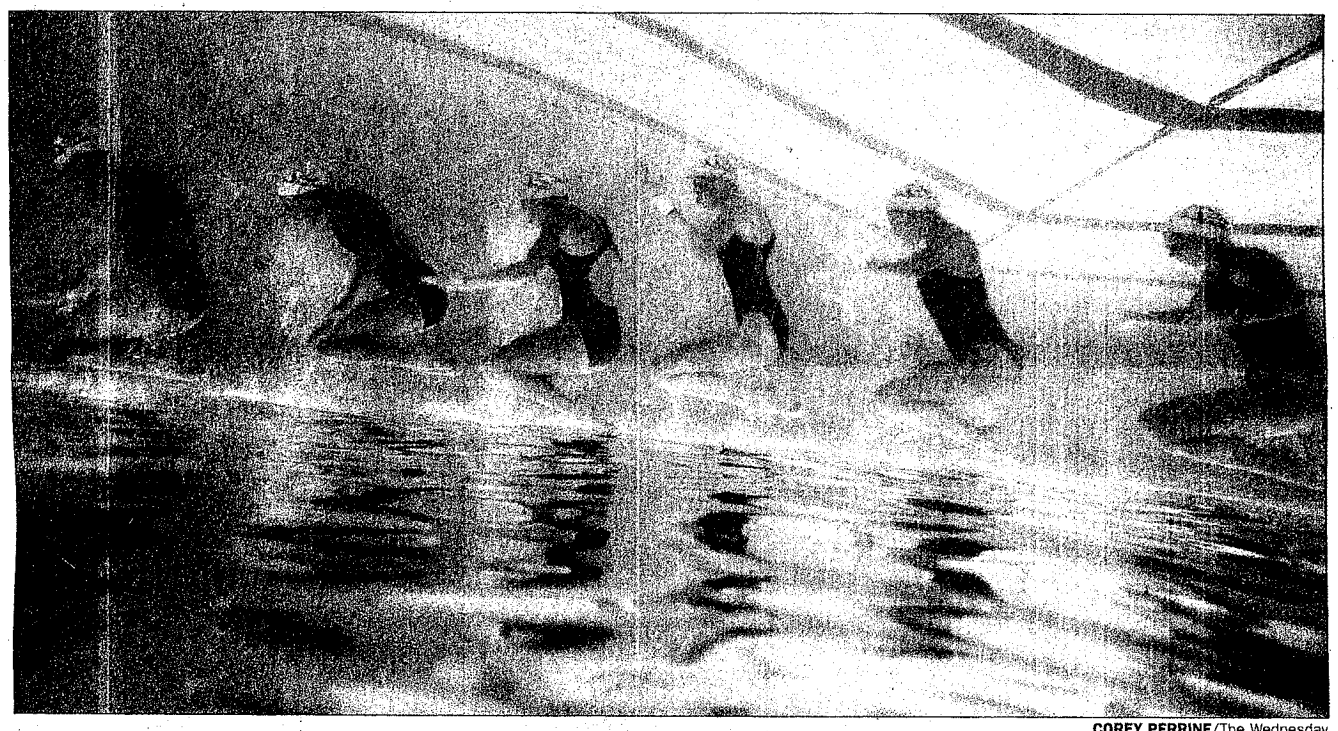
"Anything they do now will result in an immediate improvement," he said.

With the right tools and equipment, Brookside homeowners can disconnect downspouts linked to sewer lines. This will reduce basement flooding and sewage backup for the resident and neighbors.

Hoffman said the repairs were not hard to do. A homeowner could spend $35 and about 45 minutes to fix the downspouts, he said. If the homeowner

FLOOD/Page 10 >>

SYNCHRONIZED SWIM TEAM



COREY PERRINE/The Wednesday

The Kansas City Sea Sprites, above, practice in formation on July 6 at the Red Bridge YMCA in South Kansas City. Marilyn Deister, founder and coach since 1951, is the longest consecutive coach in synchronized swimming. Katie Adams, below left, of Lee's Summit and Heidi Fogle of Overland Park, Kan., both 16, display a star formation during practice to prepare for the U.S. Open in San Diego. "My expectations are for us to not get last place," Fogle said. "I think we just want to see if we can make it to the finals."

CRIME PREVENTION

Perils of parks

Officers hired to combat noise, littering, illegal activity

By Bridget Heos

bheos@dispatchtribune.com

During the daytime in Arbor Villa Park, tennis players volley the ball over the net, toddlers wade in the pool, and parents unpack picnics for their little ones.

Likewise, in Tower Park, children climb on the playground equipment, grown-ups exercise on the trail, and families gather for barbecues.

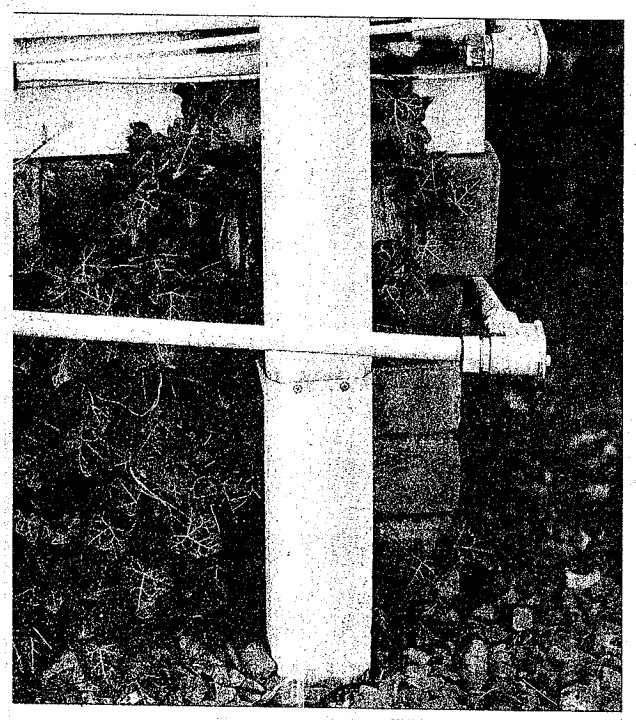
But as night falls — and sometimes in the earlier evening hours — noise, littering and illegal activity make the parks a nuisance for nearby residents.

"In my opinion,

Two neighborhood associations are taking action to take

2 of 3

FLOOD: *Homeowners can make repairs to drains, help prevent flooding*



KELLEY WEISS/The Wednesday

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<< Continued from Page 1

is not comfortable making the repairs, Hoffman recommended consulting a plumber or contractor.

Because the Brookside area is an older neighborhood, many of the water and sewer lines are interconnected, said Colleen Newman, public information officer for water services. This causes storm water to overload the sanitary-sewer lines and cause pressure, buildup and overflow into houses, she said.

About 60 to 70 percent of Brookside homes have downspouts pouring water into the sanitary-sewer line, Newman said.

If the gutters on a home run straight into the ground without an exit to the street or other area of the yard and are not connected to the storm-sewer pipe, then the gutters are probably connected to the sanitary-sewer line, Newman said.

A smoke test done in January and February of this year showed 2,400 Brookside downspouts had storm drains improperly connected to sewer lines, said Hoffman, the overflow control program coordinator for water services.

The water department dropped smoke bombs into the sewer system and used fans to blow the smoke through a three-square-mile area of Brookside. Wherever smoke leaked out, water was entering the sewer line.

Hoffman said driveway drains and yard or area drains also flooded sewer lines, and storm water should not enter the sanitary sewer from any source.

He said homeowners were not aware that their downspouts or driveway drains connected to the sewer lines and that they were responsible for making repairs to the water and sewer lines on their property.

In late July and early August, water services officials will meet with Brookside neighborhood associations and residents to share the findings of the smoke test.

"We need to do a better job of educating the public," Hoffman said.

Councilman Jim Rowland of the 4th District said he would work with water services to inform the public about preventing flooding. He said people did not understand how storm water flowing into the sewer line caused sewage backup.

"It's like a whole neighborhood flushing the toilet repeatedly time after time," Rowland said.

PHASE TWO OF BROOKSIDE WATERSHED PROJECT

WHAT: Huntington Relief Sewers construction

WHERE: Between Brookside Boulevard and Pennsylvania Avenue on Huntington Road to 61st Street

OBJECTIVE: Reduce sewage backup and street flooding

IMPROVEMENTS: The city will install new sanitary-sewer and storm-drainage pipes. The new pipe systems will be installed in the street away from basements to reduce the chance for sewage backups. Both of the existing pipes and new pipes will be used, expanding the carrying capacity of the systems.

COMPLETION: Spring 2006

Source: Kansas City Department of Water Services Web site

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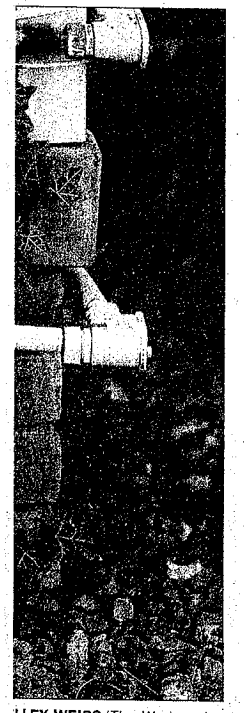

LLEY WEISS/The Wednesday
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COMPLETION: Spring 2006

Source: Kansas City Department of Water Services Web site

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- Repairs cost about $35 and take about 45 minutes to complete.

Source: Kansas City Department of Water Services

News

Posted on Thu, Jul. 28, 2005

water and sewer plan on ballot

What's at stake for KC in Tuesday bond election

By LYNN HORSLEY The Kansas City Star

When Kansas City voters go to the polls Tuesday, up to $500 million in bonds for water and sewer improvements will be on the line.

Here are answers to commonly asked questions related to the ballot, which asks voters to authorize the bonds. The answers were provided by water and finance officials:

Q: What is the city asking for and how will the money be used?

A: Kansas City officials want to spend up to $250 million on water projects and $250 million on sewer projects in the next seven to 10 years. Voters authorized $150 million for water in 1996 and $125 million for sewers in 1997, but those bond authorizations are almost exhausted. Officials say they need the additional money to replace aging water and sewer lines and to make other improvements. The money will go a long way toward rebuilding the water system. It won't be nearly enough to complete the sewer system, which is more complicated, but it will be a start.

Q: What's the impact on taxpayers?

A: The Water Services Department is funded not by taxpayers but by rates charged to 162,000 residential and commercial customers. The city has not said how much rates will increase with these bond issuances. Rates will almost certainly go up over the next 10 years because of inflation and bond debt. The total cost of paying off the bonds will be substantially more than $500 million, depending on interest rates. A bond advisory panel will advise the city on when to issue the bonds to try to minimize the impact on rates.

Q: How do Kansas City rates compare now with those of the suburbs and other big cities?

A: Since the bond votes in the mid-1990s, average monthly water rates in Kansas City have risen from $16.78 to $19.92, and average monthly sewer rates have risen from $9.73 to $16.96. Kansas City's average rates are lower than those in most neighboring suburbs.

Q: Where will the money go?

A: Plans include expanding the transmission main system; replacing 60 miles of small mains for better water pressure and fire protection; upgrading water and wastewater treatment plants and pump stations; improving sewers to reduce overflows and basement backups; and bringing sewers to nearly 5,000 homes still on septic

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systems. About 1 percent of the money, or $5 million, goes to bond finance costs.

Q: What did the last water and sewer bond authorizations accomplish?

A: The list of projects includes replacing 60 miles of small mains, building a regional main from the East Bottoms to Lee's Summit, numerous pump station replacements and improvements, transmission mains throughout the Northland, and upgrades to the water treatment plant.

Q: Will this bond authorization solve the problem of sewage in the creeks and take care of modifying combined sewers that overflow when storm water and wastewater fill the same pipes?

A: No. Only about $40 million will be used to deal with the city's worst basement backup problems. The city is devising plans, which should be available in a few years, for more extensive and costly upgrades to correct overflows and sewage in creeks. Those projects will be very expensive and will take years to complete.

Q: Hasn't Kansas City issued a lot of debt lately, and won't this adversely affect the city's credit rating?

A: The water and sewer utilities have their own credit ratings that are separate and distinct from the city's credit rating, and they don't affect the city's debt limit. The Water Services Department acts like a business and is supported by customer charges and grants rather than by city taxes. The bonds will be paid by customer charges and are bound by their own rate covenants.

It is true that the city has issued hundreds of millions of dollars in bonds recently for the new downtown arena, entertainment district and Bartle Hall, but these are separate from the water and sewer debt. The downtown project bonds have their own identified sources of pledged revenue, and general revenues can be allocated to meet any debt service deficiency. The nation's leading credit rating agencies have noted that Kansas City's debt burden is above average, but they say they think it is still manageable.

Q: Who is contributing to this special election campaign?

A: Organizations that stand to make money on the construction work, plus civic groups. The biggest contributors as of July 25 were the Heavy Constructors, $135,000; the Greater Kansas City Chamber of Commerce and the construction and consulting firm MWH, $25,000 each; Burns & McDonnell, and Black & Veatch, $15,000 each; the Builders Association and the Civic Council, $10,000 each.

Q: Who is opposing this?

A: The Jackson County Taxpayers Association, the Hispanic Organization for Justice and Equality, the Neighborhood Action Group, and individual critics of the Water Department and its customer service.

First glance

■ *Question 1 in Tuesday's special election seeks voter authorization to issue up to $250 million in water bonds.*

■ *Question 2 seeks voter authorization to issue up to $250 million in sewer bonds.*

■ *These are the only Kansas City questions on the ballot.*

■ *Polls are open from 6 a.m. to 7 p.m.*

News

Posted on Sun, Aug. 07, 2005

Bonds will benefit Northland

Many of the homes are still operating on septic tanks

By MIKE RICE
The Kansas City Star

"This is really needed and should accomplish things that have been long promised and slow coming."

Northland neighborhood leader Jay Stock

Kansas City voters' approval last week of a $500 million bond issue was a breakthrough for residents who have endured years of broken water mains and sewer backups.

And it could prove to be a watershed event for the Northland.

The water and sewer bonds, which will likely result in higher water bills, will pay for new lines in the city's undeveloped areas — most of which are north of the Missouri River.

The bonds also will pay for the installation of sewer lines in some areas of the Northland that have been part of Kansas City since 1950 but have scores of homes still operating on septic tanks. Leaders pointed out that 45 percent of the bond money is earmarked for the Northland.

Residents south of the river will not be shortchanged, however. If the bond issue delivers as promised, they will see miles of aging water mains replaced and fewer sewer backups, particularly in areas around Brookside, Ward Parkway, midtown and the Blue River.

But the significance of the water and sewer improvements slated for the Northland go beyond quality-of-life issues, leaders say. The improvements will open up vacant areas of the Northland to economic development. And they will help bridge the long-standing division between residents on the two sides of the river by extending the city sewer system.

"These are basic services, the things people want to see happen," said Kansas City Councilman John Fairfield, whose 2nd District includes part of the Northland.

In an election that drew only 7 percent of the city's registered voters, the two ballot measures, which will

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authorize the sale of up to $250 million in water bonds and $250 million in sewer bonds, received approval from 74 percent of those voters.

Northland voters contributed to the victory. In Clay County, the water and sewer bond measures passed with 66 percent and 65 percent of the vote, respectively. And in Platte County, they passed with 72 percent and 71 percent of the vote.

The ballot measures received endorsements from the Northland Regional Chamber of Commerce and the newly formed Platte County Citizens Coalition.

"I'm very pleased that the bond issues passed citywide and fared so well in the Northland," said Kelley Martin, a Kansas City Plan Commission member who also is a board member of the Platte County Citizens Coalition. "This showed that Northland voters get behind worthwhile issues."

The citywide replacement of 60 miles of 2-inch water mains with larger mains for better fire protection and water pressure will be tackled first, city officials say. That work will benefit residents in older neighborhoods, many of them south of the river.

The city also plans to quickly replace thousands of septic systems with new sewers, many of which are in an area between the river and Vivion Road that Kansas City annexed in 1950.

"This is really needed and should accomplish things that have been long promised and slow coming," said Northland neighborhood leader Jay Stock.

The lack of sewer systems in the Northland has been a longtime grievance that Northlanders have had with City Hall. Northland leaders believe that supporters of the bond issues who live in the fast-growing suburban areas empathized with residents in those areas without sewers.

Passage of the bond issues pleases Evelyn Oliver, president of the Sunset Hill Neighborhood Association near Parvin Road and Interstate 35. The homes in that neighborhood operate on septic tanks, she said.

But beyond the work replacing old lines and septic systems, which could take several years, the bonds also will pay for new water and sewer lines. When those lines are built, Northland leaders predict, there will be more growth for an area that has seen the highest amount of residential construction in the metropolitan area in recent years.

"The passage of these bond issues mean new rooftops," said Pete Fullerton, executive director of the Platte County Economic Development Council.

Fullerton pointed to data showing that 91 percent of building permits in Kansas City, North, between 1996 and April 2005 were issued in areas that were a half mile or less from new water and sewer lines.

One undeveloped area that appears likely to get those new lines is north of Missouri 152 between Kansas City International Airport and Platte Purchase Drive.

"The growth of Platte County has been impressive," Martin said. "But it has actually been stymied by a lack of development in that area."

Projects include

- *Improving the water transmission main system.*

- *Replacing 60 miles of small mains, some the size of garden hoses, for better water pressure and fire protection.*

- *Upgrading water and wastewater treatment plants and pump stations.*

- *Modifying Missouri River intakes as the water levels are threatened by upstream drought.*

- *Improving sewers to reduce overflows and basement backups. Areas affected include Brookside, Line Creek, Ward Parkway-Brush Creek, midtown and the Blue River Watershed.*

- *Bringing sewers to nearly 5,000 homes still on septic systems.*

To reach Mike Rice, call (816) 234-5903 or send e-mail to mrice@kcstar.com .

EPA Checks Out Sewer Problems In Brookside

Residents Complain About Sewage Water After Floods

POSTED: 4:18 pm CDT
August 25, 2005
UPDATED: 5:25 pm CDT
August 25, 2005

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Video: EPA Checks Out Sewer Problems In Brookside

KANSAS CITY, Mo. - - Water problems have prompted federal inspectors to go door-to-door in a Kansas City neighborhood.

EPA investigators are looking into whether flooding last summer made people sick in Brookside, KMBC's Bev Chapman reported Thursday.

Chapman reported that some Brookside residents are complaining about filthy water after the flood damage.

"It's definitely sewer water -- you can smell the sewage in it. It's not coming from the walls or cracks in the walls, but straight up and out of the sewage pipes," said Shane Reber, with Brookside Party Warehouse, which was flooded in August 2004 and again last weekend.

"In addition to sewer backup, there's also a rat problem directly related to the sewers in Brookside," said business owner Janet Liepsner.

This week, inspectors are talking to residents who had water in their homes and basements last year. The EPA is checking on flood damage, mold and health problems. An EPA spokesman called it a preliminary investigation of health effects from the flooding.

Chapman reported that the information could be referred to the Department of Justice or the Attorney General's Office for possible legal action.

No lawsuits are currently pending, but some Brooksiders said they would welcome it.

"The sewers in Brookside are old. You'd think the money they take in they could afford to fix them," Liepsner said.

A spokeswoman for the city's law department said it has spent $5 million so far trying to fix aging pipes and infrastructure, and the city plans to spend another $30 million on the sewers.

So far, EPA investigators have not found any health problems connected to the flooding and none have been reported to local health officials, a city spokeswoman said.

- **E-Mail:** Contact Bev Chapman

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News

Posted on Wed, Aug. 31, 2005

HOME IMPROVEMENT

Dry basements in the future for Brookside area

Sewer project creates problems but will solve others

By TONI CARDARELLA
Special to the Star

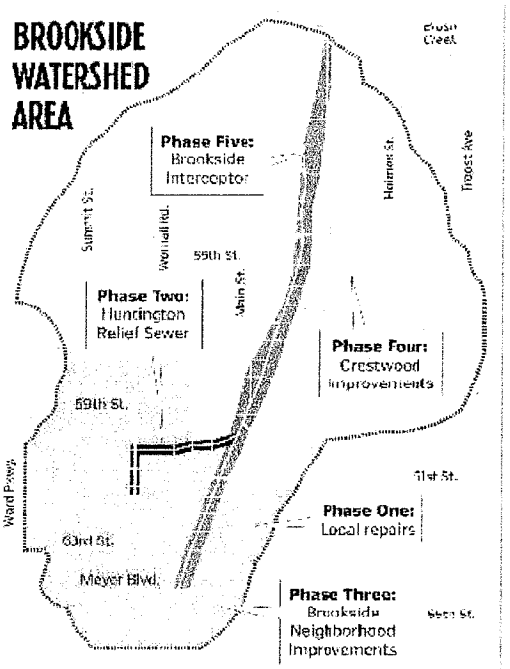
The city Water Department's huge sewer project in the Brookside area is creating quite a construction mess, but many residents are ecstatic about the possibility of dry basements.

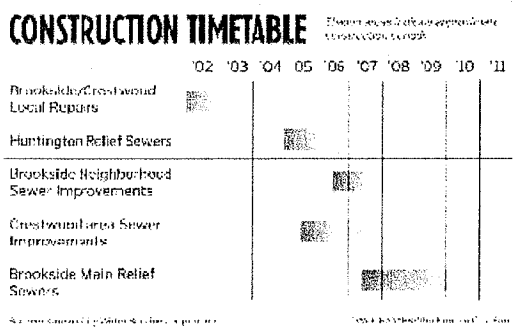
The department is working on Huntington Relief Sewers, the second phase of the $30 million Brookside Watershed Improvement Program. Workers are installing new sanitary sewer and storm drainage pipes in the street, increasing the capacity of the storm sewers and re-routing sanitary sewage flow through the construction of new sanitary and storm sewers at 61st Terrace and Pennsylvania Street to Huntington Street down to Brookside Boulevard.

City Councilman Jim Rowland, who started the push to fund the Brookside improvements six years ago after a public outcry about sewers backing up and basements flooding, thinks constituents are happy that the project is moving forward.

"It's as timely as it can be," Rowland said. "It's a large setting, in an urban setting, an already-built setting. But I think overall people are optimistic and understand that it's in the early stages and that it's going to continue to be rolled out over a period of time."

Tamara Weber, who lives at 62nd and Summit streets, said she felt as she wasn't properly





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informed about the construction schedule. She said she and her husband, John, had lived in their Brookside house for three years and hadn't had any basement water or backup.

"The biggest problem is just taking our baby out in the stroller," she said of the construction mess. "It seems they could have given a little notice. ... It seems like it's been going on for a long time. And I don't know when it's going to be finished."

The Huntington Relief Sewers part of the project — at a construction cost of about $2.9 million — is expected to be completed next spring. Work on Phase 4, the Crestwood Neighborhood Improvements, is expected to begin after the first of the year.

"Each phase will help," said Jerry Hoffman, the Water Department's overflow control program coordinator. "What the Huntington phase is doing is providing more capacity for not just Huntington and the area around Huntington, but getting the water down to Brookside Boulevard more quickly. Same for Crestwood, it'll get water out of that area, and get it to Brookside (Boulevard)."

The Water Department has held several public meetings and is kicking off an education campaign aimed at informing residents about the project, particularly the results of a recent "smoke study," he said. The department has begun presenting its case to leaders of the approximately 18 neighborhood associations affected.

Fritz Hirter, vice president of 49/63 Neighborhood Coalition and secretary of Rockhill Ridge neighborhood association, praised the Water Department for its informative approach with the smoke study.

"I'm giving the Water Department and therefore the city credit," said Hirter, 57, who works for the U.S. Environmental Protection Agency. "They're going about this in a relatively low-key fashion, not going in like gangbusters. They've done methodic testing."

The Water Department's "smoke testing" checked the system at every house in a three-square-mile area — from 51st to 75th streets, from State Line to Rockhill — and found an estimated 3,000 "compromises" or flaws. About 1,200 downspouts and 70 outdoor drains were found to be connected to the public system.

"They're doing a tremendous job of getting their ducks in a row," Hirter said. "They're not going into the neighborhoods half-cocked on this."

The city's presentations to the neighborhood groups include an overhead view with a street-by-street overlay showing which houses have what "compromises," Hirter said. In turn, neighborhood leaders will present the information to their members.

The "compromises" are not illegal, although they don't meet current code, and the Water Department will ask residents for voluntary action.

"It's an awareness thing," Hirter said. "They're doing this very noncity-like, nonpolitical. The idea is that once you know you have a fault in your line, you know it's not going to be a good thing."

Richard Wetzel, who has lived in two Brookside houses in eight years, currently at 60th and Summit streets, said he had not experienced any water problems but was thrilled with the project.

"I've been a proponent every time the bond issues have come up for basic services improvement because I know that a lot of these sewers, and the curbs and sidewalks, a lot of the sewers haven't been changed since

they were built, in the early '20s," he said. "I'm an advocate of all of that."

So while construction poses an inconvenience, Wetzel said, he looks to the project's greater good and understands the work will mean fewer sewer backups.

Phase 5 is the Brookside Interceptor Sewer, with an estimated cost of $19 million to $21 million. The routing study is almost complete, Hoffman said, and design should begin within three months. Construction is tentatively scheduled for summer 2007 and, depending on funding, should be completed by the end of 2012.

The Interceptor is the main sewer that will be constructed along or parallel to Brookside Boulevard from Brush Creek to Meyer Boulevard, along Oak from Brush Creek to 51st Terrace. The existing storm drainage interceptor pipe will remain, and a new pipe will be added parallel to the existing system.

"It's a really big project," Hoffman said. "It's going to take the longest to complete."

It's the size of the sewer, the excavation and the construction itself that will be time-consuming and costly, he said. The sewer will be at least 10 feet tall, but it won't be the biggest in the city. Hoffman said the one over Turkey Creek is 17 feet tall and 30 feet wide. The Interceptor will be a little smaller but not a lot, he said.

"The problem is that the sewers don't have enough capacity to carry the amount of water that's getting to them," Hoffman said. "There's much more impervious surface than in 1920 when that line was built, more development." The project will provide additional capacity, and the pipe will be able to carry more water. But it won't be the end-all, he said.

"There will always be a storm that's bigger than you can plan for," Hoffman said. "Will this eliminate all problems? No. There will still be occasions that the new pipe cannot handle. But we believe it will be substantial improvement over what's there now. And it will significantly reduce the problems that neighborhoods have."

Rowland said the project overall has accumulated $20 million and probably needs $10 million more, "unless it grows, which it probably will." The project will continue to accumulate money each year out of the capital budget, he said, and might get funding from the recently approved half-billion-dollar public works bond issue.

An estimated $150,000 was spent on the smoke testing, which found that 70 percent of the homes checked had private connections to the public system.

"We're just launching an education system, over the next couple months, to explain to people these connections to the system are actually having a negative impact," he said.

These connections were probably made inadvertently by residents who lived there from the 1930s to the '60s as a way to take water away from their houses. The Water Department said disconnecting downspouts isn't difficult and would cost about $100 for four downspouts.

Hoffman said the approach to the residents is: "We think we have all of this added pressure being put on a system that's already burdened. Hey, this isn't a good thing, and it's having a negative impact on maybe your house and certainly on your neighbor's house."

Rowland said the Brookside Watershed Improvement program is seen as a pilot program.

"This is giving the Water Department and the policy-makers a sneak look at how difficult, and how complex it is going to be to solve these combined sewers," he said.

HEALTH

EPA investigates Brookside

Representatives interview residents about sewage backup, possible health effects

By Kelley Weiss 09/07/05

kweiss@dispatchtribune.com

Two Environmental Protection Agency investigators were knocking on doors of Brookside residences recently, asking questions about possible health effects from sewage backup.

Dale Armstrong, a spokesman with the EPA's Region 7 office in Kansas City, Kan., said the investigators from the EPA enforcement investigation center in Denver and a Missouri Department of Natural Resources representative were gathering information from residents with a history of sewage backup — asking them what had happened in the past and whether they had had any health effects.

"The big question mark is, is this really a health concern ... or just a terrible inconvenience?"

Dale Armstrong, *Environmental Protection Agency Region 7 spokesman*

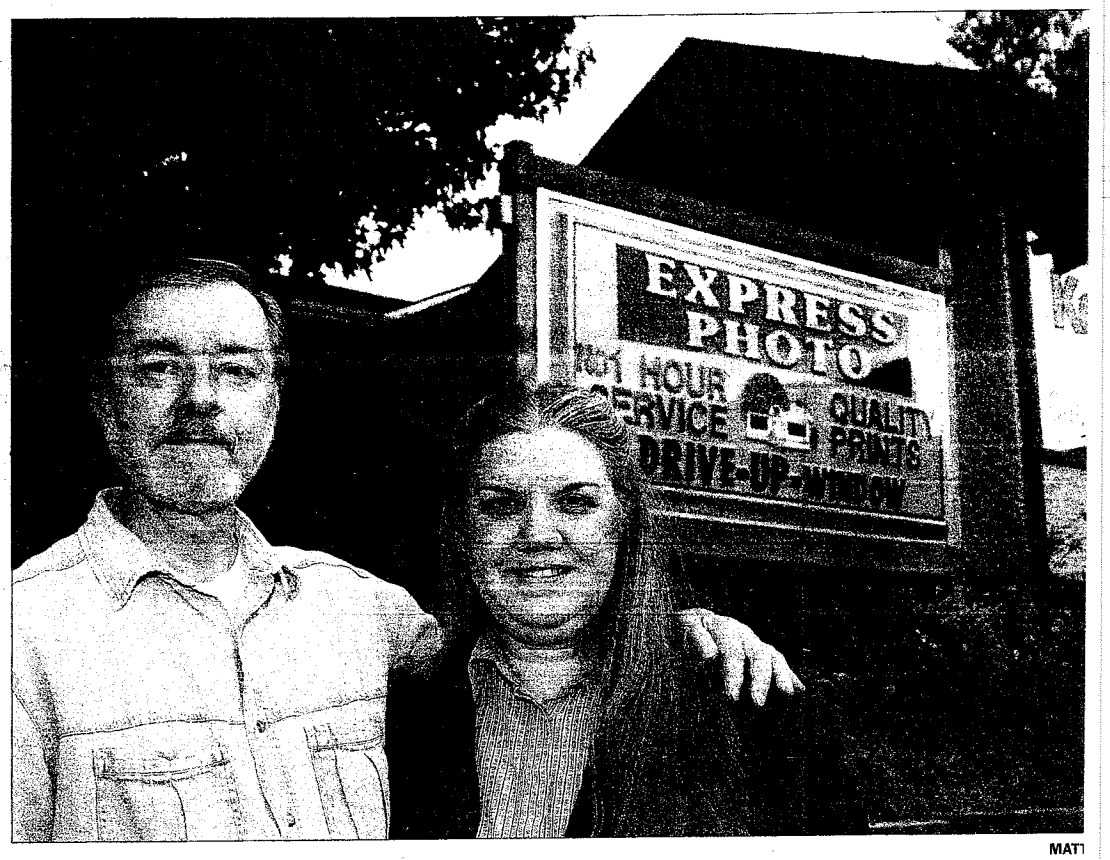
"The big question mark is, is this really a health concern ... or just a terrible inconvenience?" Armstrong said.

Tony Petruska, an environmental protection specialist and engineer with the EPA Region 7 office, said the city and EPA were working together to find the best solution to control overflows throughout the city. No lawsuit has been filed against the city for violations of the Clean Water Act, he said.

"Our job is protecting human health and the environment," he said. "Basement backups need to be eliminated."

EPA/Page 11 >>

BROOKSIDE BUSINESS



MATT

Steve and Cherie Newell, owners of Express Photo, have seen an increase in film use because digital shooters are going back methods, they say. Steve Newell said he had the city's only working commercial optical printer and color darkroom.

Optical printer last of a k

Photographer, co-owner of Brookside's Express Photo, prints photos 'old-fas

By David Knopf

dknopf@dispatchtribune.com

Myra Taylor, an 80-something-year-old singer known for her pranks, finally met her match in Steve Newell.

Newell, a blues photographer and co-owner of Brookside's Express Photo, was just about to photograph Taylor at Knucklehead's, a Kansas City blues club, when she halted her performance and told him to pick a better angle — "I don't have any teeth on this side," Newell recalled her saying.

"That's the way I do stuff, the old-fashioned way. I use my 40 years of experience, my color eye, to determine the image I'll print."

Steve Newell, *co-owner of Express Photo*

"That's the worst thing that can happen to a photographer, calling a halt to the action while you're taking a picture," he said.

Later, at the first Liberty Spring Blues Burner, Newell got his revenge.

When Taylor came on stage, Newell pranked the prankster, false teeth at her feet.

After a long silence, t of Kansas City blues a she'd been had, Newell

"She's even told peo that I'm the first pers back in 60 years," he s

Newell started phot cians in the 1960s whi the Navy in San Fran way, he's met everyor Dead guitarist Jerry Ga blues and jazz perfo

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Inside

EPA: *Federal agency notified Water Services days in advance*

<< Continued from Page 1

Petruska said the investigators had interviewed 15 to 20 residents in Brookside and around the midtown area Aug. 23 to 24. The investigators will report the data to health reviewers, he said, but he did not know when the results would be shared.

"It's all speculation right now," he said.

Bert Malone, manager of environmental health services for the Kansas City Health Department, said the most common health effects residents could experience from sewage backup were gastrointestinal diseases. He said the city had not confirmed any reports of gastrointestinal diseases from sewage backups in Brookside or the rest of the city. He said people with substantial exposure to sewage could become ill, with symptoms of upset stomach, nausea, vomiting and diarrhea. The most common route of contracting the disease is hand to mouth, he said. To avoid contracting diseases from sewage, Malone recommended wearing gloves and using bleach when removing it and keeping family members and pets away from it. He also stressed limiting exposure to the sewage and letting it drain naturally if possible.

Councilman Jim Rowland said he had not heard any constituent complaints or reports of health problems from sewage backups.

"My assumption is that there won't be any correlation or connection," he said.

Jim Mellem, assistant director for Water Services, said the water department was not expecting the EPA investigators in Kansas City.

"We were kind of surprised that they were doing this," he said. "(We were) notified a couple days in advance and were provided very limited information."

Because this is an ongoing investigation, investigators were not able to comment on the case, Armstrong said.

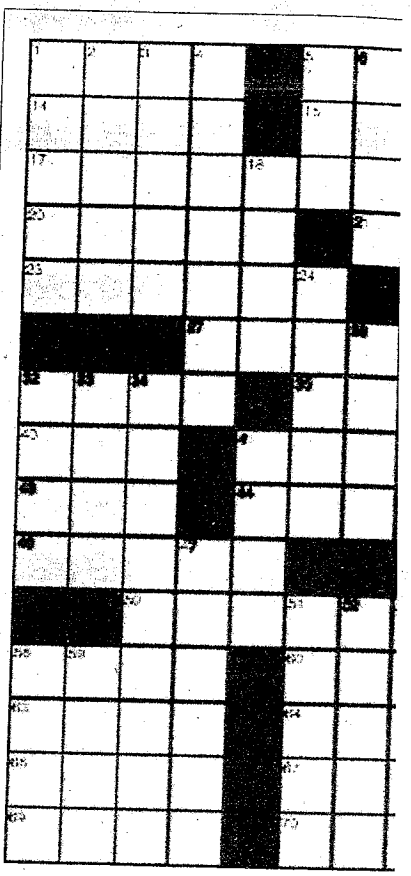
Water Services has been meeting with the Missouri Department of Natural Resources and the EPA for several years to discuss possible solutions to the combined sewer problems, Mellem said. In May 2004, the Department of Natural Resources and the EPA substantially approved the Water Service's work plan for addressing the overflow problems.

"One issue is the schedule. ... They would like it done faster, and our concern is that we have to collect a lot of data to develop solutions," he said.

Other cities with combined sewer problems had improvement costs in excess of $1 billion, he said.

"We want to make sure we're fiscally responsible," he said.

The city will continue its work with the more than $30 million Brookside Watershed Improvement Program, which will alleviate flooding and sewage backup, he said. It will be done in five phases and should be completed by 2012, depending on funding.



Across

1. "The Physician" by ___ Gordon.
5. First letter of the Greek alphabet.
10. Muslim call to prayer.
14. "One True Thing" by ___ Quindlen.
15. Polynesian wrap-around skirt.
16. ___ Roberts, author of "Key of Light."
17. F. Scott ___, U.S. novelist and short-story writer.
19. Stuff into.
20. Sensations preceding migraines.
21. "Song of ___" by Dan Simmons.
22. Marine fish related to cod.
23. Feels a sharp, stinging pain.
25. Suggestion or proposal.
27. "Win a ___ with Tad Hamilton!" by Cristina Fox.
29. "A Midsummer Night's ___" by William Shakespeare.

News

Posted on Thu, Sep. 15, 2005

Hurricane's effects stretch far beyond Gulf CoastA Star Watchdog report

A flood-control wakeup call

Will recovery take money from projects here?

By DAVE HELLING
The Kansas City Star

Hurricane Katrina forced water over and through levees protecting New Orleans, drowning an American city.

Now, levee and flood-control projects in dozens of other cities — including Kansas City — could suffer after the same deadly storm.

Federal and local officials fear that political pressure to spend billions of dollars in Louisiana to repair levees could mean long delays for similar projects, including a $100 million overhaul of the levee and floodwall system along the Kansas and Missouri rivers in Kansas City.

Sen. Kit Bond — at the center of the fight over federal flood-control money — said Katrina's "splashback" may prompt other senators to try to transfer billions of dollars into Louisiana projects at the expense of other proposals.

"I expect to have half a dozen Republican senators all over my case," said Bond, a Missouri Republican who is chairman of the Environment and Public Works Transportation Infrastructure subcommittee. "Our point is going to be what should've been done in New Orleans (levee improvements) must be done in Kansas City, St. Louis, and other places."

Local officials are equally worried about losing future flood-control money.

"I'm very concerned about it," said Karin Jacoby, Kansas City's director of waterways. The New Orleans catastrophe "will extend construction work on some of these projects for years," she said.

Jacoby said she planned a trip to Washington to discuss such concerns with federal officials.

"We should spend $6 billion this year (nationwide) for this work," she said.

Instead, congressional staffers and Bond are working on a bill that would provide between $4.7 billion and $5.3 billion for the U.S. Army Corps of Engineers in fiscal year 2006. Less than half of that amount would be available for construction.

And, Bond said, his work on a flood-control bill for future years — a measure called the Water Resources

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Development Act — may be lost in Katrina's wake. He said that would be a "disaster."

Instead, Bond wants money for New Orleans levee repairs to be added to federal spending on other flood-control projects across the nation. Bond does not dispute the need for additional money for New Orleans, where 355 miles of levees were designed to withstand a Category 3 storm, the middle level in a system that measures hurricane intensity. Katrina was a Category 5 that slowed to a Category 4 when it came ashore.

"We hope one of the messages of the Katrina disaster is a wakeup call about how very important these corps projects are," Bond said.

However, not everyone thinks a possible slowdown of flood-control work outside of New Orleans is a bad idea.

"These projects aren't potential pork; they're pork reality," said Ron Utt of the Washington-based Heritage Foundation.

Utt, who studies federal public works spending for the foundation, said he did not know the details of Kansas City area projects. But he said he expected a "careful, close consideration" of flood-control proposals after Katrina.

"There is plenty of precedent of using natural disasters to spend money every place," Utt said.

Noting the estimated costs to taxpayers to rebuild the Gulf Coast region — promised federal spending has already reached $60 billion — Utt said that "some cold, hard decisions need to be made."

Other groups with a special interest in flood-control policy agree.

"It's not always the answer to events like New Orleans to pour more cement or build it higher," said Chad Smith of American Rivers, an advocacy group that studies floodplain management. "These issues are always very pressing, but they involve a heck of a lot of money."

Smith urged planners to use Katrina to carefully consider projects along the entire Missouri-Mississippi River basin.

"We're not for sitting on our hands," he said. "But we should use this to think smartly about the rivers and floodplains, or we could make a bad situation worse."

Kansas City area flood-control work already in the pipeline will continue despite Katrina, local officials said. The Corps of Engineers' 2005 budget includes $5 million for work along the Blue River, a project in Kansas City that Jacoby said is seven years behind schedule.

But they are worried that future projects could be deferred for years if the government pours additional money into Louisiana.

The corps, for example, is nearing the end of a five-year, $3 million dollar study of Kansas City flood-control efforts along the Missouri and the Kansas rivers. The Seven Levee system stretches from the Argentine district on the west, through Fairfax and the West and the East bottoms, to the confluence of the Blue and the Missouri rivers on the east.

Those levees and floodwalls protect an estimated $12 billion in property and businesses in the Kansas City area floodplain.

The levee system worked as designed during the flood of 1993, when water came to within inches of the tops of the floodwalls. But that flood also caused some structural damage to the system, prompting both Kansas City and Kansas City, Kan., officials to ask for a corps review of the reliability of the levees.

The cities also asked the corps to determine whether increasing flood protection along the Seven Levees is "technically viable, economically feasible, and environmentally acceptable," according to a corps document.

That study, which was started in 2001, was to have been finished early this year. Instead, the corps said it planned to release a first-phase draft report in early 2006.

The report would then become the basis for a possible request for federal help to build the project. Those familiar with early discussions predict the price tag could be $100 million, with the federal government providing half of that.

"We're on the verge of recommending very prudent, cost-effective upgrades for the next flood event," said John Grothaus with the corps' Kansas City office.

Grothaus said that cutbacks at the corps had not caused any delays in the Seven Levees study, but that paying for actual construction was another matter.

Kansas City officials such as Jacoby insisted that completing the Seven Levees study was "extremely important. ...We don't know when the next flood is going to happen."

But Jacoby, like others familiar with flood-control work, is prepared to be patient. For example, Bond and other officials dedicated a new $80 million levee near Riverside just this spring.

The project was first approved in 1944.

Bond's office said "funding snags and planning" caused the delay.

*Go to **KansasCity.com** for other stories by Dave Helling on Hurricane Katrina's effect on Kansas City.*

Where are KC's levees?

■ *Argentine, Armourdale, Fairfax, West Bottoms, North Kansas City, East Bottoms and Birmingham. Map, **A-8.***

■ *President Bush addresses the nation about Hurricane Katrina*

at 8 tonight.

■ *Go to*

KansasCity

***.com** for more on Katrina.*

To reach Dave Helling, call (816) 234-4656 or send e-mail to dhelling@kcstar.com.

Local/Region

Posted on Wed, Oct. 05, 2005

Whether kicking it up or picking it up, the river is the place to be

By SU BACON
Special to The Star

Boxes, barrels and boat rides await participants at the 4th Annual Missouri River Watershed Fe Friday.

The boxes will be used to build a city. The barrels will be used to collect rain. And the boat rides site educational tours.

But that's not all: There also will be birds of prey, a balladeer, a band and other attractions at th celebration of the federal Clean Water Act. The festival is free and open to the public from 4 to and Clark Historic Park at Kaw Point in Kansas City, Kan.

Earlier in the day, more than 1,000 students from junior high and middle schools in Wyandotte, Jackson and Johnson counties will learn about water quality issues as they attend outdoor dem and presentations and participate in activities.

Students will find out, for example, how rain barrels catch and conserve water.

"Rain water can be collected and used to water a garden or replenish a fish pond," said Sharon quality education specialist/coordinator with the Water Services Department of Kansas City.

As part of their education, students will use cardboard boxes, recycled plastic bottles, empty filn other materials to construct a miniature city. "Box City" will be built on six large tarps painted to Missouri River and surrounding terrain.

"We want students to learn about infrastructure, flood plains and how building decisions affect s community," said Kimberlee Foster, watershed coordinator for the Brush Creek Mid-Shed Proje Platte Land Trust in Kansas City, North.

Families and community members will continue construction of "Box City" when the festival ope public. Participants also can learn how to build a rain barrel and register for a raffle to win a rain

"Through fun and interactive exhibits, the Kansas City community will be encouraged to unders protect their streams and watersheds," Foster said.

The festival is sponsored by the Week of Water Committee, a group of more than 25 federal, st city organizations interested in water education and in the Missouri River Watershed, all the rive that drain into the Missouri River. The committee was established in 2002 in honor of the the 3(of the Clean Water Act.

Previous festivals have been held in Kansas City and in Parkville. This site for this year's festiv Point, where the Kansas and Missouri Rivers meet.

After the festival ends, work begins the next day for the clean-up crew. From 9 a.m. to 3 p.m. o volunteers will clear debris from the banks of the river in the Kaw Point Clean-Up.

The Watershed Festival

4 to 8 p.m. Friday

Lewis and Clark Historic Park at Kaw Point in Kansas City, Kan.

Free to the public.

Take the Fairfax exit from

Interstate 70; down the ramp

to the first drive on the right. Follow the balloons to parking.

For information, call

(816) 356-4040.

Or visit the Web site,

www.littleblueriverwc.org .

Kaw Point Clean-Up

9 a.m. to 3 p.m. Saturday.

Pre-register on-line at

www.riverrelief.org .

email this

For immediate release

Kansas City, Missouri Water Services Department Conducts Smoke Testing of Sewer System

Wednesday, September 07, 2005 - The Kansas City, Missouri Water Services Department through the Wet Weather Solutions Program, has an ongoing effort to make improvements to the sanitary sewer system. As part of that program, the City has entered into a contract with Wade & Associates to conduct smoke testing of a portion of the sewer system. This smoke testing will help identify defects in the sewer system and improper connections to the sewer system.

The smoke testing is scheduled to begin on September 8 and will continue for approximately six weeks. This work cannot be done during rainfall or when the ground is saturated. The duration of the process may be extended depending on weather.

Generally speaking, the area where this work will be conducted is east of I-435 and west of Crysler, south of US-40 and north of 57th Street.

A common cause of sewer overflows is too much stormwater in the sanitary sewer pipe. The sanitary sewer system is designed to carry wastewater (water that comes from drains inside buildings) and not stormwater (rainwater and snow melt). During heavy rainfall or snowmelt, stormwater can overload the sanitary sewer system and cause it to backup or overflow.

Smoke testing identifies locations where stormwater is entering the sanitary sewer. During smoke testing, field crews blow smoke into the sanitary sewer system and monitor where smoke escapes the system. If smoke permeates up through a yard, it indicates breaks in the sewer line. If smoke rises out of the gutter on a building, it indicates that the downspouts are connected to the sanitary sewer.

The smoke that is used is non-toxic, harmless, odorless and creates no fire hazard. Residents in the area of the smoke testing will receive a door hanger on their door that notifies them that the testing will occur and explains the process.

The Kansas City, Missouri Water Services Department maintains and operates drinking water treatment and distribution systems, stormwater management and control systems and wastewater collection and treatment systems for residential and business customers in the Kansas City region. Operation is funded entirely by fees charged to customers based on their use of products and services, not by taxes.

# # #

For immediate release

Kansas City, Missouri Water Services Department Conducts Smoke Testing of Sewer System

Monday, September 19, 2005 - The Kansas City, Missouri Water Services Department through the Wet Weather Solutions Program, has an ongoing effort to make improvements to the sanitary sewer system. As part of that program, the City has entered into a contract with CH2M Hill to conduct smoke testing of a portion of the sewer system. This smoke testing will help identify defects in the sewer system and improper connections to the sewer system.

The smoke testing is scheduled to begin on September 20 and will continue for approximately six weeks. This work cannot be done during rainfall or when the ground is saturated. The duration of the process may be extended depending on weather.

The area where this work will be conducted is west of I-435 and east of Prospect, south of Cliff Drive/Gladstone Boulevard and north of 46th Street.

A common cause of sewer overflows is too much stormwater in the sanitary sewer pipe. The sanitary sewer system is designed to carry wastewater (water that comes from drains inside buildings) and not stormwater (rainwater and snow melt). During heavy rainfall or snowmelt, stormwater can overload the sanitary sewer system and cause it to backup or overflow.

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# # #

For Immediate Release: *Tuesday, October 04, 2005*

For additional information, contact: *Colleen Newman-Rigg*
Kansas Cit, Missouri y Water Services
816-513-0232
email:Colleen_Newman@kcmo.org

MEDIA ADVISORY

KCMO Water Services to meet with homeowners regarding improper sewer connections

Meetings scheduled for Tuesday, Oct. 4 and Thursday, Oct. 6

Who: The Kansas City, Missouri Water Services Department will meet with homeowners in the Brookside area regarding smoke testing results that revealed improper connections or broken laterals to the sanitary sewer system

When: Tuesday, Oct. 4 the department will meet with residents of the Sunset Hills, Ward Estates, Westwood and Sunset Hill West neighborhoods at the Central United Methodist Church, 5144 Oak, from 6 to 8 pm

Thursday, Oct. 6th the department will meet with residents of the Countryside, Crestwood, Rockhill Crest, Rockhill Ridge and South Plaza neighborhoods at the Second Presbyterian Church, 318 E. 55th St. from 6 to 8 pm.

What: Earlier this year, the KCMO Water Services Department conducted smoke testing in the western Brookside area to find improper connections or broken laterals to the sanitary sewer system. Non toxic, non staining smoke bombs were blown into the sanitary sewers throughout a three-square mile area. The tests revealed 2,100 private sector defects. The majority of problems were downspouts that were connected to the sanitary sewer system. All homeowners with improper connections or other sanitary sewer system defects have been notified by mail. Requests will be made to the homeowners for them to help themselves by eliminating the improper connections where feasible. It is the homeowner's responsibility to maintain their service laterals which run from their house to the sewer in the street or easement while the City maintains the public part of the sewer system.

The smoke testing is part of the implementation of the Overflow Control Program (OCP). The goals of the OCP are to protect human health and the environment and comply with EPA and Missouri Department of Natural Resources (MDNR) regulations by improving water quality in the urban streams of Kansas City and reducing basement backups.

The Brookside Watershed Improvement involves a public investment of more than $30 million. The program is designed to reduce flooding and sewage backups through construction projects and citizen actions. The program will not eliminate all flooding and sewage backups, but it should reduce the severity and damage caused by rain events. .

Where: Tuesday, Oct. 4 - Central United Methodist Church, 5144 Oak from 6 to 8 pm
Thursday, Oct. 6th - Second Presbyterian Church, 318 E. 55th St. from 6 – 8 pm.

The Kansas City, Mo., Water Services Department maintains and operates water collection, processing and distribution systems, stormwater management and control systems and waste water collection and processing systems for residential and business customers in Kansas City and for wholesale customers in the Kansas City region. Operation is funded entirely by fees charged to customers based on their use of products and services, not by taxes.

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For Immediate Release: *Monday, October 10, 2005*

For additional information, contact: *Colleen Newman-Rigg*
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MEDIA ADVISORY

KCMO Water Services to meet with homeowners regarding improper sewer connections

Meetings scheduled for Tuesday, Oct. 11 and Thursday, Oct. 13

Who: The Kansas City, Missouri Water Services Department will meet with homeowners in the Brookside area regarding smoke testing results that revealed improper connections or broken laterals to the sanitary sewer system

When: Tuesday, Oct. 11 the department will meet with residents of the Armour Hills, Astor Place, Brookside Park, Morningside, Troost Plateau, Western 49-63 and Wornall Homestead neighborhoods at the Country Club Congressional Church, 205 W 65th St., from 6 to 8 pm

Thursday, Oct. 13th the department will meet with residents of the Armour Fields, Country Club, Greenway Fields, Rockwell/Romanelli and Ward Parkway neighborhoods at the Broadway United Methodist Church, 406 W 74th Terrace, from 6 to 8 pm.

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# # #

Appendix B

Wet Weather Operating Guidelines

Blue River
Wastewater Treatment Facility

Wet Weather
Operating Guidelines

February 2005

Table of Contents

Section 1 – Introduction

1.1 - Background

This manual contains the Wet Weather Operating Plan for Kansas City, Missouri's Blue River Wastewater Treatment Facility. This is the largest treatment facility serving the majority of the City. The collection system serving the facility contains both sanitary sewers and combined sewers.

1.2 – Goals and Purpose of the Plan

The goals of the Plan are to:

1. Reduce sewer overflows in select areas in the City through operation practices of Blue River Wastewater Treatment Plant.
2. Minimize bypasses at the constructed diversion structures and the treatment facility.
3. Maximize treatment of wastewater in the facility.

The purpose of the Plan is to provide guidelines to facility staff in making operation decisions to meet the goals of the Plan and the requirements of Blue River's NPDES permit.

During a wet weather event, numerous operational decisions must be made to effectively manage storage of the combined storm water and wastewater in the collection system and optimize treatment at the Blue River Wastewater Treatment Plant. Storage is controlled through adjustment of the gates at the Diversion Structure and the NEID Pump Station. Flow rates are determined by the capacity of the plant, the flow entering the NEID Pump Station, and the flow entering the Diversion Structure.

No manual can describe the decision making process for every possible wet weather scenario that will be encountered and include every permutation of process units being out of service for repairs. This manual can, however, serve as a useful reference, which both new and experienced operators can utilize during wet weather events. The manual can be useful in preparing for a coming wet weather event, a source for controlling specific processes during the storm, and a checklist to avoid missing critical steps in monitoring and controlling processes during wet weather. However, operational decisions and steps will vary from these Guidelines from time-to-time as conditions warrant. This is to be considered a living document to be revised as experience dictates.

1.3 – Using This Manual

This manual is designed to allow use as a quick reference during wet weather events. It is broken down into sections, which cover major unit processes at the Blue River Wastewater Treatment Facility or major control points in the plant. Each section includes the following information:

- List of unit processes and equipment covered in this section
- Steps to take before a wet weather event and who is responsible for these steps.

- Steps to take during a wet weather event and who is responsible for these steps.
- Steps to take after a wet weather event and who is responsible for these steps.
- Discussion of why recommended control steps are performed.
- Identification of specific circumstances that trigger the recommended changes.
- Identification of things that can go wrong with the process.

Safety of the plant personnel is of primary concern. Consideration must be given to protection of personnel during electrical storms, high winds, and icy conditions. Necessary precautions are to be taken when these conditions are present.

As discussed, this manual is a living document. Users of the manual are encouraged to identify new steps, procedures, and recommendations to add to the descriptions contained herein. Modifications, which improve upon the manual's procedures, are also encouraged. If you have a suggestion for modifications or additions to the manual, mark them on copies of the affected pages and submit them to your supervisor, so they can be considered for insertion in the manual. With continued input from all users of the manual, it will become an even more useful and effective tool.

1.4 - Description of the Blue River Wastewater Treatment Facility

The maximum flow through the plant is limited by the secondary facility. The primary facility has been determined to hydraulically handle a peak wet weather flow of 225 MGD. The secondary facility was determined to have a peak hydraulic wet weather flow capacity of approximately 104 MGD firm, 138 MGD with all 4 filter trains in operation. The rated capacity of the Blue River Pump Station is 201 MGD firm, 234 MGD with all seven pumps in operation. The rated capacity of the NEID Pump Station is 48 MGD firm, 72 MGD with all three pump running. The total of both Blue River Pumping and NEID Pump station is 249 MGD firm, 306 MGD with all pumps in operation. Blue River Effluent pump station has a rated capacity of 144 MGD firm, 180 MGD with all five pumps in operation. Clearly, the flow must be controlled through the treatment facility with the excess discharged to Blue River.

Diversion Chamber

Following a wet weather event the flow exceeds the capacity of the treatment facility. To prevent the preliminary treatment units from flooding, Gate Valves #1 and #2 in the Influent Diversion Structure are adjusted allowing capacity to enter the plant and to hold the wastewater in the 96" influent line to an elevation of 726' which is the elevation of the first overflow point in the collection area. Prior to this elevation being reached Gate Valve #3 in the Influent Diversion Structure is adjusted to the point that capacity enters the plant through gates #1 and #2, wastewater is held in the line, and the excess flow is diverted to Blue River.

Rock Box

Following the Diversion Chamber the flow entering the plant goes through the Rock Box. Normally the Rock Box is cleaned once a week. The day before a forecasted rain event the rock box is cleaned. The day the rain event occurs the rock box is to be cleaned again and daily thereafter until the day after the rain event. This is not to be done during electrical storms.

Screen House

The wastewater then flows through a parshall flume before entering the screening building. Three of the four mechanical bar screens are placed in constant operation. The screens are checked twice per shift to verify operation and the dumpsters are emptied as necessary.

Blue River – NEID Pumping

The flow then enters Blue River Pump Station to be elevated to the Grit Removal System. The NEID pumpage enters the flow stream on the discharge side of the pumps in the Blue River Pump Station. During high flows the NEID Sewer overflows from a manhole in the intersection of Corrington Avenue and Front Street. To avoid this situation the pumping rate is increased at NEID Pumping and decreased at Blue River Pumping, balanced to maintain plant capacity.

Grit Removal System

The four solids vortex separators have a maximum flow through of 30 million gallons per day each, totaling 120 MGD. During an emergency the old grit channels are available for use. During normal operation the two grit classifiers cycle every three hours. During a rain event the grit classifiers are adjusted to a storm cycle. The length of each cycle is extended. They are returned to normal operation following the wet weather event.

Distribution Chamber / Primary Clarifiers

The grit system effluent flows through the Distribution Chamber enroute to the Primary Clarifiers. The primary effluent flows back through the Distribution Chamber and then to the Primary Junction Box.

Primary Junction Box

The Primary Junction box was designed and constructed with the options of discharging primary clarifier effluent to the river or to Secondary Treatment Pumping or both. The Primary Junction Box contains functional automated sluice gates to control the direction and amount of flow. Discharge to the river from this point is not currently an option.

Secondary Pumping

During normal operation the primary effluent is pumped to the trickling filter towers and flows by gravity through the secondary clarifiers to be discharged in the Missouri River. Under normal conditions two pumps can pump to each trickling filter with a third pump available for recirculating. During wet weather flows the recirculation pump is turned off. The Secondary Pumping System piping has been configured to allow a portion of the primary effluent to bypass the trickling filters and be blended with the secondary effluent. This functional option of blending primary and secondary effluent is not currently utilized.

Trickling Filters

During times of low flows the trickling filter effluent is recirculated through the filter. As flows increase the recycling pumps are turned off. They are put back in service when the flows return to low dry weather flows.

Effluent Pumping

During high river levels the river gate is closed and the Effluent Pump Station pumps the effluent to the river. The Effluent Pump Station is to be activated at a river level of 29 feet. When the river recedes the river gate is opened and the pumps are taken out of service and the Secondary effluent again flows by gravity to the Missouri River.

Operations Staffing

Blue River Wastewater Treatment Plant is staffed by from 5 to 9 operators. There is always a Chief Plant Operator (CPO) and a Senior Plant Operator (SPO) on duty. The remainder are Plant Operator I's or II's. The CPO is responsible for all duty assignments with the SPO as his second in command. The POI's and II's are assigned dutys based on plant processes. Normal assignments are Incinerator, Liquids, Solids, Route, Rover, and Special Assignment. When a situation arises such as Wet Weather, Contractor requests, or tank cleaning there is overlap in assignments when assistance is needed. When a demanding Wet Weather event occurs during a minimally staffed shift the only rigid assignment is the Incinerator Operator and everyone else is dispatched as necessary. Each event tends to have different requirements. For instance the Solids Operator may cover for the Liquids Operator while the CPO and the Liquid Operator go out to respond to alarms in the Northland and the SPO and Rover are responding to alarms in the South. For this reason the CPO is indicated as "Supervisory" and the SPO, POI and POII are indicated as "Implementation" in the following tables.

Section 2 – Control Room

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor the weather.
CPO	SPO - PO II - PO I	Monitor levels in NEID and Diversion Structure. Draw the levels down as far as possible prior to a rain event.
CPO	SPO - PO II - PO I	Monitor flows from NEID and Blue River Parshall Flume.
CPO	SPO - PO II - PO I	Check operation and status of Gate 1. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Gate 2. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Gate 3. Log settings.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Adjust Gate 1 closed incrementally to control flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 2 closed incrementally to control flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 3 open incrementally beginning when maximum flow to Secondary is reached and elevation of influent in the Diversion Chamber reaches 725.5.
CPO	SPO - PO II - PO I	Collect sample of discharge to the river. Record Sample # and pH in the Logbook.
CPO	SPO - PO II - PO I	Monitor flows from NEID and BR Pumping to make sure the maximum amount is being treated and the plant is not being flooded. Monitor bypass, collect sample, and log Sample # and pH in the Logbook.

After Wet Weather Event		
CPO	SPO - PO II - PO I	Adjust Gate 1 open incrementally to release more flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 2 open incrementally to release more flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 3 closed incrementally to begin reducing the flow bypassed until bypassing ends.
CPO	SPO - PO II - PO I	Monitor levels and adjust settings on all gates as necessary to maintain maximum flow to the plant and keep elevation below 726.
Why do we do this? The flow into the plant is controlled at this point. Balance the flow to the plant with flow from NEID. Sewer overflows in populated areas are prevented with proper control at this point.		
What triggers the change? Increasing flows in the sewer system trigger the closing of Gates 1 & 2 and opening of Gate 3. Decreasing flows in the sewer system reverse this process.		
What can go wrong? Failure of electric gate valve operators. Erroneous readings in control room of liquid level and gate status thus must be verified at the site. Other process units may be out of service thus reducing the flow that can be accepted by the plant. The appropriate flow must be determined and controlled at this point and at Blue River Pumping.		

Section 3 – Diversion Chamber

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check operation and status of Gate 1. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Gate 2. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Gate 3. Log settings.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Adjust Gate 1 closed incrementally to control flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 2 closed incrementally to control flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 3 open incrementally beginning when maximum flow to Secondary is reached and elevation of influent in the Diversion Chamber reaches 725.5.
CPO	SPO - PO II - PO I	Monitor levels and adjust settings on all gates as necessary to maintain maximum flow to the plant and keep elevation below 726.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Adjust Gate 1 open incrementally to release more flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 2 open incrementally to release more flow into plant.
CPO	SPO - PO II - PO I	Adjust Gate 3 closed incrementally to begin reducing the flow bypassed until bypassing ends.

CPO	SPO - PO II - PO I	Monitor levels and adjust settings on all gates as necessary to maintain maximum flow to the plant and keep elevation below 726.
Why do we do this? The flow into the plant is controlled at this point. Balance the flow to the plant with flow from NEID. Sewer overflows in populated areas are prevented with proper control at this point.		
What triggers the change? Increasing flows in the sewer system trigger the closing of Gates 1 & 2 and opening of Gate 3. Decreasing flows in the sewer system reverse this process.		
What can go wrong? Failure of electric gate valve operators. Erroneous readings in control room of liquid level and gate status thus must be verified at the site. Other process units may be out of service thus reducing the flow that can be accepted by the plant. The appropriate flow must be determined and controlled at this point and at Blue River Pumping.		

Section 4 – Rock Box

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
Maintenance Superintendent	F/M	Clean the Rock box.
During Wet Weather Event		
Maintenance Superintendent	F/M	Clean the Rock Box daily if it is long rain event.

After Wet Weather Event		
Maintenance Superintendent	F/M	Clean the Rock Box.
Why do we do this? To reduce the amount of rocks, grit, and other large debris from entering the plant.		
What triggers the change? Increasing flows in the sewer system will scour heavy material into the plant.		
What can go wrong? If the Rock Box is not cleaned regularly the heavy material will be allowed to enter the screen house and damage or bind the mechanical bar screens. Full dumpsters. Mechanical failure of clamshell or hoist. Lightning Strike – This procedure is not to be performed during an electrical storm.		

Section 5 – Screen House

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Clean debris from trash racks. Empty trash dumpsters.
CPO	SPO - PO II - PO I	Remove equipment, tools, and debris from lower level.
CPO	SPO - PO II - PO I	Check operation and status of mechanical bar screens.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Periodically check on accumulation of debris on trash racks. Clean if necessary.

CPO	SPO - PO II - PO I	Periodically check on operation of mechanical bar screens in operation. Empty trash dumpsters if necessary.
CPO	SPO - PO II - PO I	Periodically check lower level to make sure it hasn't flooded.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Clean debris from trash racks.
CPO	SPO - PO II - PO I	Empty trash dumpsters.
CPO	SPO - PO II - PO I	Clean lower level if flooded.
Why do we do this? Maintain consistent and maximum amount of flow through the plant.		
What triggers the change? Increase of amount of debris in the flow stream.		
What can go wrong? Failure of mechanical screens. Accumulation of grit or debris in channel. Flooding of lower level and parshall flume due to accumulation of debris, too much flow coming through the Diversion Chamber, or failure of pumps in Blue River Pumping.		

Section 6 – Northeast Industrial District Pump Station (NEID)

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check operation and status of Gate 1. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Gate 2. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Gate 3. Log settings.

CPO	SPO - PO II - PO I	Check operation and status of Pump 2. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Pump 3. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Pump 4. Log settings.
CPO	SPO - PO II - PO I	Clean trash racks and bar screens.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Open appropriate gates to allow maximum flow to be pumped to the primaries but prevent flooding of the screen house basement.
CPO	SPO - PO II - PO I	Turn on appropriate pumps to allow maximum flow to be pumped to the primaries. Maximum flow with 2 pumps running is 48 MGD; with 3 pumps the maximum is 72 MGD.
CPO	SPO - PO II - PO I	Monitor levels and adjust settings on all gates and pumps as necessary to maintain maximum flow to the plant.
CPO	SPO - PO II - PO I	Clean trash racks and bar screens regularly.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Adjust gates to normal settings as influent levels return to normal.
CPO	SPO - PO II - PO I	Return pumps to normal operation as influent levels return to normal.
Why do we do this? Prevent overflows in the Northeast Industrial district by maximizing flow from this area and bypassing from the Diversion chamber. Balance the flow to the plant with flow from Diversion Chamber. Sewer overflows in populated areas are reduced with proper control at this point and the Diversion chamber.		
What triggers the change? Increasing flows in the sewer system trigger the closing of Gates 1, 2, and 3. Decreasing flows in the sewer system reverse this process.		

What can go wrong? Failure of electric gate valve operators. Failure of grinders. Failure of pumps. Accumulation of too much debris on the screens.

Section 7 – Blue River Pumping

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check operation and status of Pump 2, 4, 6, and 8. Log settings.
CPO	SPO - PO II - PO I	Check operation and status of Pump 3, 5, and 7. Log settings.
CPO	SPO - PO II - PO I	Check wet well levels.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Turn on appropriate pumps to allow maximum flow to Secondary.
CPO	SPO - PO II - PO I	Monitor levels and adjust settings on all gates and pumps as necessary to maintain maximum flow to the plant.
CPO	SPO - PO II - PO I	Check combined flows of NEID and Blue River Pumping regularly to ensure maximum flow is going to the plant and proper levels are maintained in NEID area.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Adjust gates to normal settings as influent levels return to normal.
CPO	SPO - PO II - PO I	Return pumps to normal operation as influent levels return to normal.

Why do we do this? Reduce overflows in the Northeast Industrial District by maximizing flow from NEID and bypassing from the Diversion Chamber. Balance the flow to the plant with flow from NEID Pumping.
What triggers the change? Increasing flows in the sewer system trigger the process of turning pumps on or off. Decreasing flows in the sewer system reverse this process.
What can go wrong? Failure of valve operators. Failure of pumps. Other process units may be out of service thus reducing the flow that can be accepted by the plant. The appropriate flow must be determined and controlled at this point and at the Diversion Chamber.

Section 8 – Grit Removal System

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check operation and status of equipment in grit removal train in channel 2. Check controls for alarms and equipment OOS.
CPO	SPO - PO II - PO I	Check operation and status of equipment in grit removal train in channel 7. Check controls for alarms and equipment OOS.
CPO	SPO - PO II - PO I	Check conveyor belt. Adjust as necessary.
CPO	SPO - PO II - PO I	Check grit system process water supply.
CPO	SPO - PO II - PO I	Check which of the old grit basins is available to be put into service if necessary.

During Wet Weather Event		
CPO	SPO - PO II - PO I	Extend cycle time to 30 minutes for storm event. Monitor the system.
CPO	SPO - PO II - PO I	Adjust grit discharge as necessary.
CPO	SPO - PO II - PO I	Adjust conveyor belt as necessary.
CPO	SPO - PO II - PO I	Clean rollers as necessary.
CPO	SPO - PO II - PO I	Activate old grit basins as necessary and if available.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Return system to normal operation.
CPO	SPO - PO II - PO I	Clean grit classifying area.

<u>Why do we do this?</u>
To remove the additional grit that is flushed into the plant by high flows. This protects the equipment from harsh conditions imposed by grit, reduces the solids that must be handled further on in the treatment process, and saves the space occupied by grit.

<u>What triggers the change?</u>
Increasing flows in the sewer system trigger the changing of the grit removal cycle times.

Decreasing flows in the sewer system reverse this process.

<u>What can go wrong?</u>
Failure of the automatic controls.

Failure of pumps.

Failure of the screw augers.

The conveyor belt running out of alignment.

Section 9 – Distribution Box / Primary Clarifiers

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO – PO II – PO I	Check and monitor level of East Holding Tank.
CPO	SPO - PO II - PO I	Check sludge levels in each clarifier in service. Adjust timers for sludge pumps as necessary. Strive to maintain sludge blanket levels at or below one foot in depth.
CPO	SPO - PO II - PO I	Check operation of sweep arms.
CPO	SPO - PO II - PO I	Check levels in scum pits and pump if necessary.
During Wet Weather Event – Avoid catwalks during high winds and electrical storms.		
CPO	SPO - PO II - PO I	Check sludge levels in each clarifier in service. Adjust timers for sludge pumps as necessary to maintain sludge blanket at approximately one foot in depth.
CPO	SPO - PO II - PO I	Check for operation of sweep arms.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Check sludge levels in each clarifier in service. Adjust timers for sludge pumps as necessary to maintain sludge blankets at approximately one foot in depth.
CPO	SPO - PO II - PO I	Check for operation of sweep arms.
Why do we do this? Solids concentrations well peak with the first flush and decline as event progresses. The intent is to ensure that excessive solids are not held in the clarifier or excessive water is not pumped to the solids storage tank.		

What triggers the change? Varying concentration of solids in the wastewater.
What can go wrong? Failure of the automatic controls. High level of East Holding Tank may limit sludge pumping. Failure of sludge pumps. Failure of the sweep arms.

Section 10 – Primary Junction Box

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor level in the Primary Junction box.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor level in the Primary Junction Box.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor level in the Primary Junction box.
Why do we do this? This site provides critical data in the hydraulic grade line. At elevation 725 the primary clarifiers overflow flooding the treatment plant grounds.		
What triggers the change? More wastewater is being pumped from NEID and Blue River Pumping than Secondary Pumping can handle. There is a problem at Secondary Pumping.		

What can go wrong? Failure of the automatic controls allowing too many pumps to come on at NEID Pumping. Failure of the automatic controls allowing too many pumps to come on at Blue River Pumping. Failure of pumps or controls at Secondary Pumping.

Section 11 – Secondary Pumping

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check operation and status of pumps.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Turn off recycling pump if the system is set to recycle.
CPO	SPO - PO II - PO I	Turn on appropriate pumps to allow maximum flow to be pumped to the trickling filters.
CPO	SPO - PO II - PO I	Monitor pumps for proper operation.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Return pumps to normal operation as influent levels return to normal.
Why do we do this? Provide treatment to the maximum volume of wastewater. Prevent overflows on the treatment plant grounds.		

What triggers the change? Increasing flows in the sewer system trigger the process of turning pumps on or off. Decreasing flows in the sewer system reverse this process.
What can go wrong? Failure of valve operators. Failure of pumps. Failure of the automated level control system operating the pumps.

Section 12 – Trickling Filter

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor operation of trickling filters. Check rotation of the distributor arms, center column flow and final basin for solids and color.
During Wet Weather Event – Avoid top of trickling filter tower during electrical storm and extremely high winds.		
CPO	SPO - PO II - PO I	Monitor operation of trickling filters. Check rotation of the distributor arms.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor operation of trickling filters. Check rotation of the distributor arms.
Why do we do this? To ensure arms are rotating properly.		
What triggers the change? The higher flows cause the arms to rotate faster.		

What can go wrong?
The electric drives can fail.

The arms can run out of level.

The orifices may need to be cleaned.

Washing zoogleal film.

Section 13 – Effluent Pump Station

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check functionality and status of pumps and gate.
CPO	SPO - PO II - PO I	Monitor river level.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor the river level.
CPO	SPO – PO II – PO I	Monitor level of drainage ditch during high river levels.
CPO	SPO - PO II - PO I	When river reaches 29 foot level close the gate and turn on the effluent pumps.
CPO	SPO - PO II - PO I	Monitor pumps for proper operation.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor river level.
CPO	SPO - PO II - PO I	Return pumps to normal operation as river level recedes.

Why do we do this? Prevent flooding o the Secondary Treatment plant grounds.
What triggers the change? Rising river level.
What can go wrong? Failure of river gate. Failure of pumps.

Westside
Wastewater Treatment Facility

Wet Weather
Operating Guidelines

Table of Contents

Section 1 – Introduction

1.1 - Background

This manual contains the Wet Weather Operating Plan for Kansas City, Missouri's Westside Wastewater Treatment Facility. This treatment facility treats wastewater collected from the drainage area approximately bounded by Prospect Ave to the east, 31st Street to the south, the state line to the west, and the Missouri River to the north. The collection system serving the facility contains both sanitary sewers and combined sewers. The facility experiences hydraulic loading in excess of the design flow of 22.5 Million Gallons per Day (MGD) due to the age of the collection system and portions of the older system being combined sewers. During wet weather events, when storm water flows enter the combined sewer system, overflows can occur at the pump stations feeding the treatment plant. These pump stations are Turkey Creek and Santa Fe. There are efforts underway addressing the portion of the system containing combined sewers. There are continual efforts to repair, replace, or rehabilitate the aged portions of the sanitary sewers.

1.2 – Goals and Purpose of the Plan

The goals of the Plan are to:

1. Prevent or minimize sewer overflows in select areas in the City.
2. Minimize bypass at the constructed diversion structures and the treatment facility.
3. Maximize treatment of wastewater in the facility.

The purpose of the Plan is to provide guidelines to facility staff in making operation decisions to meet the goals of the Plan and the requirements of the NPDES discharge permit.

During a wet weather event, numerous operational decisions must be made to effectively manage storage of the combined storm water and wastewater in the collection system and optimize treatment at the Westside Wastewater Treatment Plant. Storage is controlled through adjustment of the gates at Turkey Creek Pump Station and Santa Fe Pump Station. Flow rates are determined by the capacity of the plant and the flow entering the Pump Stations.

No manual can describe the decision making process for every possible wet weather scenario that will be encountered and include every permutation of process units being out of service for repairs. This manual can, however, serve as a useful reference that both new and experienced operators can utilize during wet weather events. The manual can be useful in preparing for a coming wet weather event, a source for controlling specific processes during the storm, and a checklist to avoid missing critical steps in monitoring and controlling processes during wet weather. However, operational decisions and steps will vary from

these Guidelines from time-to-time as conditions warrant. This is to be considered a living document to be revised as experience dictates.

1.3 – Using This Manual

This manual is designed to allow use as a quick reference during wet weather events. It is broken down into sections that cover major unit processes at the Westside Wastewater Treatment Facility or major control points in the plant, and the pump stations. Each section includes the following information:

- List of unit processes and equipment covered in this section
- Steps to take before a wet weather event and who is responsible for these steps.
- Steps to take during a wet weather event and who is responsible for these steps.
- Steps to take after a wet weather event and who is responsible for these steps.
- Discussion of why recommended control steps are performed.
- Identification of specific circumstances that trigger the recommended changes.
- Identification of things that can go wrong with the process.

As discussed, this manual is a living document. Users of the manual are encouraged to identify new steps, procedures, and recommendations to add to the descriptions contained herein. Modifications that improve upon the manual's procedures are also encouraged. If you have a suggestion for modifications or additions to the manual, mark them on copies of the affected pages and submit them to your supervisor, so they can be considered for insertion in the manual. With continued input from all users of the manual, it will become an even more useful and effective tool.

1.4 - Description of the Westside Wastewater Treatment Facility

The permitted design flow for the Westside Wastewater Treatment Plant is 22.5 MGD. All of the flow reaching the plant is pumped by Turkey Creek, Santa Fe, or and Line Creek Pump Stations. These pump stations serve as the headworks of the treatment plant. The firm pumping capacity of Turkey Creek Pump Station is 58 MGD, of Santa Fe Pump station is 22 MGD, and of Line Creek is 24 MGD. It should be noted that the flow at Line Creek Pump station is split; 8 MGD is directed to the Blue River Wastewater Treatment Plant and the balance goes to Westside Wastewater Treatment Plant. Additional minor flows are pumped to the plant from the Harlem and Downtown Airport Pump Stations. The flow must be controlled through the treatment facility. Westside has the capability to discharge primary effluent after primary settling and the capability to discharge prior to primary settling. These flow variations are made possible by existing

valves and piping. By adjusting these valves treatment can be maximized and flow blending achieved. Discussion is provided on blending but is not practiced, as flow blending has not been approved by the Missouri Department of Natural Resources.

Headworks – Pump Stations

Turkey Creek Pump Station

Following a wet weather event, the flow exceeds the capacity of the pump station. The sewer system is inundated with combined flow and exits the storm water gates discharging to the Kansas River. When this condition begins the channel gate to the bar screen is closed to 10% open. At this level one pump is required to pump to Westside Treatment Plant at a rate of 11.4 MGD.

Santa Fe Pump Station

Following a wet weather event, the flow exceeds the capacity of the pump station. The sewer system is inundated with combined flow and enters the storm water pumping station via the floodgate, which is normally open. The river gate is normally open allowing the excess flow to discharge to Missouri River. When the river level reaches 22.0 on the Hannibal Bridge Guage (HBG) the river gate is closed. When the river level reaches 25.5 on the HBG Santa Fe Storm Pumps are put on line. When the storm water wet well reaches 6.5 feet the storm water pumps are activated discharging to the Missouri River. During these conditions one pump is required to pump to Westside Treatment Plant at a rate of 4.5 MGD.

Line Creek Pump Station

Line Creek Pump Station splits its flow and pumps to Blue River Wastewater Treatment Plant via the Hillside Levee Sewer and to Westside Wastewater Treatment Plant. The flow to Hillside Levee Sewer is held to a maximum of 8 MGD. Flows through Line Creek Pump Station in excess of 8 MGD are directed to Westside Treatment Plant. The flow directed to Westside Wastewater Treatment Plant is normally around 4 MGD but can exceed 8 MGD during a wet weather event.

Westside Treatment Plant

Plant Control Valve

The Plant Control Valve can be opened to allow the wastewater to flow directly to the plant effluent discharge channel. The valve can be opened completely allowing all of the flow to bypass the plant or partially opened to balance the amount of flow bypassed and the quantity of flow receiving full treatment. This is only done when one of the treatment trains, including the primary basin, is out of service for repair. The untreated flow combines with the final clarifier effluent of the treatment train in service.

When the HBG reaches 43.5 the Effluent Gate Valve is closed at the Levee Wall and the Westside WWTP is taken off line, and the 36" bypass valve is opened.

Grit chamber

The pump station force mains merge into a common header at the front of the plant discharging to the aerated grit chamber. There are no operational controls in the Grit Chamber for a wet weather event.

Primary Clarifiers

The flow enters the primary clarifiers by gravity. The primary effluent flows through bar screens enroute to the aeration basins. The bar screens must be cleaned regularly to avoid backing up the high flows in the primary clarifiers. The Primary Effluent Channel can be valved directly to the effluent channel if one of the secondary treatment trains is out of service for repairs or when influent flows are in excess of 22.5 MGD. The secondary treatment train can provide adequate treatment to 22.5 MGD without significant loss of solids.

Aeration Basins

Mechanical aerators provide mixing and aeration in the aeration basins. The level of the mixed liquor in each aeration basin is controlled by a butterfly valve. The butterfly valves must be opened all of the way to prevent the mixed liquor from being held in the basin, raising the basin level, and causing the mechanical aerators to trip out.

Final Clarifiers

When flow through the plant exceeds 22.5 MGD the return sludge pumps are turned off to prevent solids washout.

Effluent Pumping

When the river level reaches 37.0 on the HBG the river gate is closed and the Effluent Pump Station pumps the effluent to the river. When the river recedes the river gate is opened and the pumps are taken out of service.

Section 2 – Turkey Creek Pump Station

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Monitor the weather.
SPO	PO II	Monitor levels in the pump station. Draw the levels down as far as possible prior to a rain event.
SPO	PO II	Check operation and status of Gate 1. Log settings.
During Wet Weather Event		
SPO	PO II	Adjust Gate 1 closed incrementally to 10% to control flow into plant.
SPO	PO II	Make sure only one pump is in operation.
SPO	PO II	Collect sample of discharge to the river. One sample is collected after the first flush. BOD, SS, and pH are tested.
SPO	PO II	Monitor flows from Turkey Creek, Santa Fe, and Line Creek Pump Stations to make sure the maximum amount is being treated and the plant is not being flooded.
After Wet Weather Event		
SPO	PO II	Adjust Gate 1 open incrementally to release more flow into plant.
SPO	PO II	Monitor levels and adjust settings on all gates as necessary to maintain maximum flow to the plant.

Why do we do this? The flow into the plant is controlled at this point in conjunction with Santa Fe and Line Creek Pump Stations. Balance the flow to the plant.
What triggers the change? Increasing flows in the sewer system trigger the closing of Gate 1. Decreasing flows in the sewer system reverse this process.
What can go wrong? Pump failure, loss of power, and inundation of the channels with grit.

Section 3 – Santa Fe Pump Station

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Monitor the weather.
SPO	PO II	Monitor levels in the pump station. Draw the levels down as far as possible prior to a rain event.
SPO	PO II	Check operation and status of Gate 1. Log settings.
During Wet Weather Event		
SPO	PO II	Make sure only one pump is in operation.
SPO	PO II	Collect sample of discharge to the river. One sample is collected after the first flush. BOD, SS, and pH are tested.

SPO	PO II	Monitor flows from Turkey Creek, Santa Fe, and Line Creek Pump Stations to make sure the maximum amount is being treated and the plant is not being flooded.
SPO	PO II	Close the River Gate when the river level reaches 22 on the HBG.
SPO	PO II	Activate the Storm Water Pumps when the river level reaches 25.5 on the HBG.
After Wet Weather Event		
SPO	PO II	Adjust Gate 1 open incrementally to release more flow into plant.
SPO	PO II	Monitor levels and adjust settings on all gates as necessary to maintain maximum flow to the plant.
SPO	PO II	Return river gates and Storm Pumps to normal settings when the river drops below 20.0 on the HBG.
Why do we do this? The flow into the plant is controlled at this point in conjunction with Turkey Creek and Line Creek Pump Stations. Balance the flow to the plant.		
What triggers the change? Increasing flows in the sewer system trigger the closing of Gate 1. Decreasing flows in the sewer system reverse this process.		
What can go wrong? Pump failure, loss of power, and inundation of the channels with grit.		

Section 4 – Line Creek Pump Station

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Monitor the weather.
SPO	PO II	Monitor levels in the pump station. Draw the levels down as far as possible prior to a rain event.
During Wet Weather Event		
SPO	PO II	Monitor operation of the pump station.
After Wet Weather Event		
SPO	PO II	Monitor operation of the pump station.
<u>Why do we do this?</u> The flow into the plant is monitored at this point in and controlled at the Santa Fe and Turkey Creek Pump Stations. Balance the flow to the plant.		
<u>What triggers the change?</u> There is no change implemented at Line Creek Pump Station, only flow monitoring. Decreasing flows in the sewer system reverse this process.		
<u>What can go wrong?</u> Pump failure and loss of power.		

Section 5 – Westside Wastewater Treatment Plant – Grit Chamber

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Clean the Grit Chamber and monitor the air.
During Wet Weather Event		
SPO	PO II	Monitor the air.
After Wet Weather Event		
SPO	PO II	Clean the Grit Chamber and monitor the air.
<u>Why do we do this?</u> To reduce the amount of rocks, grit, and other large debris from entering the plant.		
<u>What triggers the change?</u> Increasing flows in the sewer system will scour heavy material into the plant.		
<u>What can go wrong?</u> If the Grit Chamber is not cleaned regularly the heavy material will be allowed to enter the treatment plant.		

Section 6 – Primary Clarifier

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO I	Clean debris from bar screens. Empty trash dumpsters.
SPO	PO II	Check operation and status of sludge collectors and skimmers.
During Wet Weather Event		
SPO	PO I	Periodically check on accumulation of debris on bar screens. Clean if necessary.
SPO	PO I	Periodically check operation of sludge collectors and skimmers.
After Wet Weather Event		
SPO	PO I	Clean debris from bar screens.
SPO	PO I	Empty trash dumpsters.
<u>Why do we do this?</u> Maintain consistent and maximum amount of flow through the plant.		
<u>What triggers the change?</u> Increased amount of debris in the flow stream due to increased flow and scouring of the sewers.		
<u>What can go wrong?</u> Blinding of bar screens. Tripping of clarifier drives.		

Section 7 – Aeration Basins

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO I	Check setting of butterfly valve.
SPO	PO II	Check operation and status of mechanical mixers.
During Wet Weather Event		
SPO	PO I	Open butterfly valves all the way to prevent level in aeration basin from raising and tripping out mechanical aerators.
SPO	PO I	If flows exceed 30 MGD turn mechanical aerators off in order to prevent washout of solids.
After Wet Weather Event		
SPO	PO I	Close butterfly valves to normal settings.
SPO	PO I	Turn mechanical aerators back on when flow falls below 30 MGD.
Why do we do this? Maintain consistent and maximum amount of flow through the plant. Retain solids in the plant and minimize solids washout.		
What triggers the change? Increased flow.		
What can go wrong? Increased level in aeration basin will trip mechanical aerators.		

Section 8 – Final Clarifier

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Check operation and status of sludge collectors and skimmers.
During Wet Weather Event		
SPO	PO I	Periodically check operation of sludge collectors and skimmers.
SPO	PO I	Turn off sludge return to reduce flow stream thus reducing solids washout.
After Wet Weather Event		
SPO	PO I	Check operation of sludge collectors and skimmers.
SPO	PO I	Reset sludge return to normal operation.
<u>Why do we do this?</u> Reduce turbulence thus solids washout in final clarifier.		
<u>What triggers the change?</u> Increased flow.		
<u>What can go wrong?</u> Tripping of clarifier drives.		

Section 9 – Effluent Pump Station

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
CPO	SPO - PO II - PO I	Check functionality and status of pumps and gate.
CPO	SPO - PO II - PO I	Monitor river level.
During Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor the river level.
CPO	SPO - PO II - PO I	When river reaches 37.0 on the HBG close the gate and turn on the effluent pumps.
CPO	SPO - PO II - PO I	Monitor pumps for proper operation.
After Wet Weather Event		
CPO	SPO - PO II - PO I	Monitor river level.
CPO	SPO - PO II - PO I	Return pumps to normal operation as river level recedes.
<u>Why do we do this?</u> Prevent flooding of the treatment plant.		
<u>What triggers the change?</u> Rising river level.		
<u>What can go wrong?</u> Failure of river gate. Failure of pumps.		

Draft

Birmingham
Wastewater Treatment Facility

Wet Weather
Operating Guidelines

Table of Contents

Section 1 – Introduction

1.1 - Background

This manual contains the Wet Weather Operating Plan for Kansas City, Missouri's Birmingham Wastewater Treatment Facility. This treatment facility treats wastewater collected from eastern half of Kansas City north of the Missouri River including the Shoal Creek, Mill Creek, and Randolph drainage basins and a portion of Liberty. The collection system serving the facility contains sanitary sewers. The facility experiences hydraulic loading in excess of the design flow of 20 Million Gallons per Day (MGD) due Inflow and Infiltration during wet weather events. During wet weather events, when storm water flows enter the sewer system, overflows can occur at Birmingham Pump Station feeding the treatment plant. Birmingham Pump Station serves as the headworks for the treatment plant as all flow that enters the treatment plant goes through the pump station. There are continual efforts to repair, replace, or rehabilitate the aged portions of the sanitary sewers.

1.2 – Goals and Purpose of the Plan

The goals of the Plan are to:

1. Prevent sewer overflows in select areas in the City.
2. Minimize bypass at the constructed diversion structures and the treatment facility.
3. Maximize treatment of wastewater in the facility.

The purpose of the Plan is to provide guidelines to facility staff in making operation decisions to meet the goals of the Plan and the requirements of the NPDES discharge permit.

During a wet weather event, numerous operational decisions must be made to effectively manage storage of the wastewater in the collection system and optimize treatment at the Birmingham Wastewater Treatment Plant. Storage is controlled through adjustment of the gates and pumps at Birmingham Pump Station. Flow rates are determined by the capacity of the plant and the flow entering the Pump Station.

No manual can describe the decision making process for every possible wet weather scenario that will be encountered and include every permutation of process units being out of service for repairs. This manual can, however, serve as a useful reference that both new and experienced operators can utilize during wet weather events. The manual can be useful in preparing for a coming wet weather event, a source for controlling specific processes during the storm, and a checklist to avoid missing critical steps in monitoring and controlling processes during wet weather. This is to be considered a living document to be revised as experience dictates.

1.3 – Using This Manual

This manual is designed to allow use as a quick reference during wet weather events. It is broken down into sections that cover major unit processes at the Birmingham Wastewater Treatment Facility or major control points in the plant, and the pump station. Each section includes the following information:

- List of unit processes and equipment covered in this section
- Steps to take before a wet weather event and who is responsible for these steps.
- Steps to take during a wet weather event and who is responsible for these steps.
- Steps to take after a wet weather event and who is responsible for these steps.
- Discussion of why recommended control steps are performed.
- Identification of specific circumstances that trigger the recommended changes.
- Identification of things that can go wrong with the process.

As discussed, this manual is a living document. Users of the manual are encouraged to identify new steps, procedures, and recommendations to add to the descriptions contained herein. Modifications that improve upon the manual's procedures are also encouraged. If you have a suggestion for modifications or additions to the manual, mark them on copies of the affected pages and submit them to your supervisor, so they can be considered for insertion in the manual. With continued input from all users of the manual, it will become an even more useful and effective tool.

1.4 - Description of the Birmingham Wastewater Treatment Facility

The permitted design flow for the Birmingham Wastewater Treatment Plant is 20 MGD. All of the flow reaching the plant is pumped by Birmingham Pump Station. This pump station serves as the headworks of the treatment plant. The firm pumping capacity of Birmingham Pump Station is 107 MGD. It should be noted that the Buckeye Pump station has the functionality to pump to Birmingham but has not done so in a number of years. Buckeye pumps exclusively to Blue River Treatment Plant. There is no plan to pump to Birmingham from Buckeye in the future. If this option is pursued this document will be updated accordingly. As the firm capacity of the pump station is 107 MGD and the design capacity of the treatment plant is 20 MGD the flow must be controlled through the treatment facility. It should further be noted that flow blending is not possible at this treatment facility.

Headworks – Pump Station

Birmingham Pump Station

Following a wet weather event, the flow exceeds the capacity of the pump station. The sewer system is inundated with combined flow and exits the pump station's forebay and floods the area.

Birmingham Treatment Plant

Grit chamber

The pump station force main discharges to the aerated grit chamber. There are no operational controls in the Grit Chamber for a wet weather event.

Primary Clarifiers

The flow enters the primary clarifiers by gravity.

Aeration Basins

Mechanical aerators provide mixing and aeration in the aeration basins. The level of the mixed liquor in each aeration basin is controlled by a butterfly valve. The butterfly valves must be opened all of the way to prevent the mixed liquor from being held in the basin, raising the basin level, and causing the mechanical aerators to trip out.

Final Clarifiers

When flow through the plant exceeds 20 MGD the return sludge pumps are turned off to prevent solids washout. The final effluent flows by gravity to the Missouri River.

Section 2 – Birmingham Pump Station

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Monitor the weather.
SPO	PO II	Monitor levels in the pump station. Draw the levels down as far as possible prior to a rain event.
SPO	PO II	Clean Trash Screens and put mechanical bar screens in continuous mode.
During Wet Weather Event		
SPO	PO II	Make sure mechanical bar screens are functioning.
SPO	PO II	Make sure pumping rate does exceed 20 MGD.
After Wet Weather Event		
SPO	PO II	Clean trash screen
SPO	PO II	Maintain flow at 20 MGD until level in forebay is drawn down and the Shoal Creek Interceptor is flowing free.
<u>Why do we do this?</u> The flow into the plant is controlled at this point. Balance the flow to the plant.		
<u>What triggers the change?</u> Increasing flows in the sewer system. Decreasing flows in the sewer system reverse this process.		
<u>What can go wrong?</u> Pump failure, screen failure, loss of power, and inundation of the channels with grit.		

Section 3 – Birmingham Wastewater Treatment Plant – Grit Chamber

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Clean the Grit Chamber and monitor the air.
During Wet Weather Event		
SPO	PO II	Monitor the air.
After Wet Weather Event		
SPO	PO II	Clean the Grit Chamber and monitor the air.
Why do we do this? To reduce the amount of rocks, grit, and other large debris from entering the plant.		
What triggers the change? Increasing flows in the sewer system will scour heavy material into the plant.		
What can go wrong? If the Grit Chamber is not cleaned regularly the heavy material will be allowed to enter the treatment plant.		

Section 4 – Primary Clarifier

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Check operation and status of sludge collectors and skimmers.
During Wet Weather Event		
SPO	PO II	Periodically check operation of sludge collectors and skimmers.
After Wet Weather Event		
SPO	PO II	Check operation and status of sludge collectors and skimmers.
<u>Why do we do this?</u> Maintain consistent and maximum amount of flow through the plant.		
<u>What triggers the change?</u> Increased amount of debris in the flow stream due to increased flow and scouring of the sewers.		
<u>What can go wrong?</u> Tripping of clarifier drives.		

Section 5 – Aeration Basins

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Check setting of butterfly valve.
SPO	PO II	Check operation and status of mechanical mixers.
During Wet Weather Event		
SPO	PO II	Open butterfly valves all the way to prevent level in aeration basin from raising and tripping out mechanical aerators.
SPO	PO II	If flows exceed 20 MGD turn mechanical aerators off in order to prevent washout of solids.
After Wet Weather Event		
SPO	PO II	Adjust butterfly valves to normal settings.
SPO	PO II	Turn mechanical aerators back on when flow falls below 20 MGD.
<u>Why do we do this?</u> Maintain consistent and maximum amount of flow through the plant. Retain solids in the plant and minimize solids washout.		
<u>What triggers the change?</u> Increased flow.		
<u>What can go wrong?</u> Increased level in aeration basin will trip mechanical aerators.		

Section 6 – Final Clarifier

WHO DOES IT?		WHAT DO WE DO?
SUPERVISORY	IMPLEMENTATION	
Before Wet Weather Event		
SPO	PO II	Check operation and status of sludge collectors and skimmers.
During Wet Weather Event		
SPO	PO I	Periodically check operation of sludge collectors and skimmers.
SPO	PO I	Turn off sludge return to reduce flow stream thus reducing solids washout.
After Wet Weather Event		
SPO	PO I	Check operation of sludge collectors and skimmers.
SPO	PO I	Reset sludge return to normal operation.
<u>Why do we do this?</u> Reduce turbulence thus solids washout in final clarifier.		
<u>What triggers the change?</u> Increased flow.		
<u>What can go wrong?</u> Tripping of clarifier drives.		