

Wet Weather Team Project

Meeting Materials

Summer 2006–Spring 2007

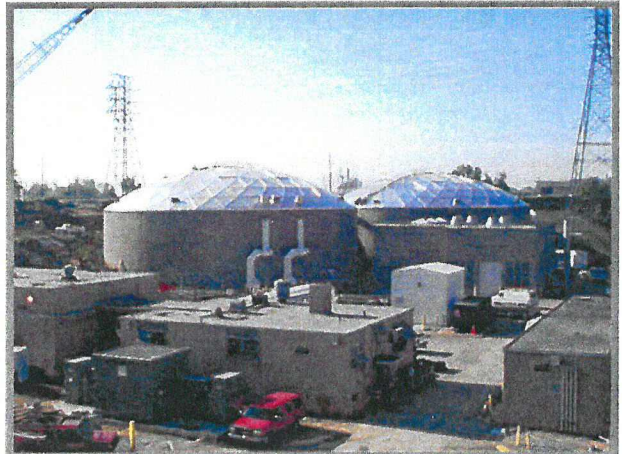
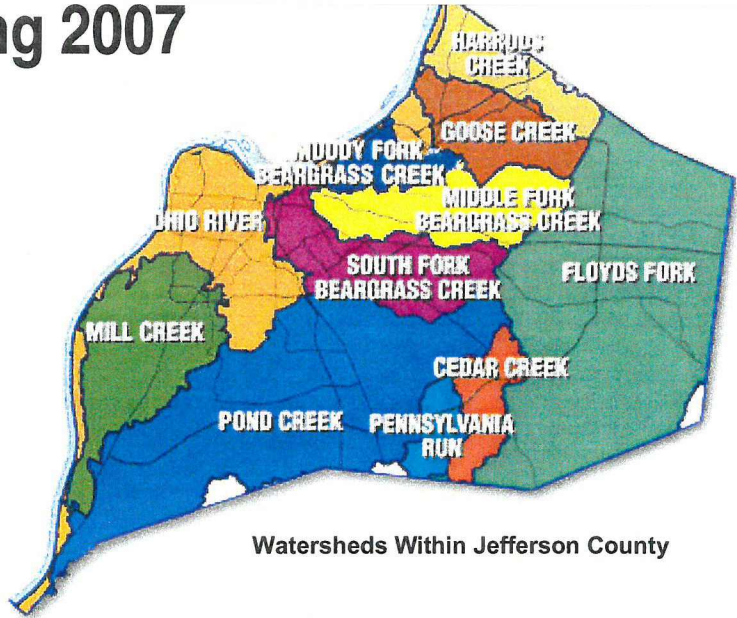
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WWT Stakeholders Meeting # 2 8/15/2006



MSD

Louisville and Jefferson County
Metropolitan Sewer District



Final Agenda
Louisville and Jefferson County Metropolitan Sewer District (MSD)
Wet Weather Team Meeting #2

Tuesday, August 15, 2006, 5:45 – 8:00 PM, with optional facility tour from 4:00 to 5:30 PM

MSD Morris Forman Wastewater Treatment Plant

4522 Algonquin Parkway, Louisville

Tour start location: Administration building conference room

Meeting location: Main equipment building 6th floor conference room

Meeting Objectives:

- Gain firsthand knowledge of MSD's facilities with an optional tour of the Morris Forman Wastewater Treatment Plant.
- Learn about regulatory requirements related to wastewater and stormwater management, MSD's financial structure, and MSD's Real Time Control system for combined sewer overflows.
- Review the proposed flow of meeting discussions in the Wet Weather Team process.
- Identify next steps and expectations for the next meeting of the Wet Weather Team.

4:00–5:30 PM Morris Forman Wastewater Treatment Plant Tour (Optional)

5:45 PM Participants Arrive and Get Dinner

Dinner will be provided for Wet Weather Team members. Please arrive by 5:45 PM, so that we can begin the substance of the meeting promptly at 6:00 PM.

6:00 PM Welcome, Introductions, and Agenda Review (10 minutes)

- Review and approve the final draft Wet Weather Team charter and ground rules.

6:10 PM Regulatory Overview (30 minutes)

Presentation by Gary Swanson, Vice President/Louisville Office Manager, CH2M HILL

- Presentation and Q&A session on regulatory requirements of the Clean Water Act related to combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and stormwater management.

6:40 PM MSD Financial Overview (40 minutes)

Presentation by Marion Gee, MSD Finance Director

- Presentation and Q&A session on MSD's finances and rate structure.

7:20 PM Real Time Control System Presentation (25 minutes)

Presentation by Angela Akridge, P.E., MSD Regulatory Policy Manager

- Presentation and Q&A session on MSD's system for Real Time Control (RTC) of combined sewer overflows.

8/15/06 Wet Weather Team Meeting Agenda, Continued

- 7:45 PM Wet Weather Team Process Overview (5 minutes)**
- Review the overall flow and sequence of Wet Weather Team meeting discussions in the risk management planning process.
 - Preview the community values discussion at the September 12, 2006 WWT meeting.
- 7:50 PM Opportunity for Observer Comments (5 minutes)**
- 7:55 PM Wrap Up and Next Steps (5 minutes)**
- 8:00 PM Adjourn**

**Final Draft Meeting Summary
Wet Weather Team Meeting #2
Tuesday, August 15, 2006
Morris Forman Wastewater Treatment Plant, Louisville**

The Wet Weather Team (WWT), chartered by the Louisville and Jefferson County Metropolitan Sewer District (MSD), met on August 15, 2006 at MSD's Morris Forman Wastewater Treatment Plant. The objectives of the meeting were to:

- Gain firsthand knowledge of MSD's facilities with a tour of the Morris Forman Wastewater Treatment Plant;
- Learn about regulatory requirements related to wastewater and stormwater management, MSD's financial structure, and MSD's Real Time Control system for combined sewer overflows; and
- Identify next steps and expectations for the next meeting of the Wet Weather Team.

Several WWT members participated in a tour of the Morris Forman Wastewater Treatment Plant, which is the largest wastewater treatment plant in MSD's system. Morris Forman handles all the wastewater treatment for the combined sewer system in Jefferson County, and also services the separate sewer system in conjunction with several smaller regional treatment plants. MSD plans to offer additional tours and hold WWT meetings at different MSD facilities throughout the process, enabling participants to become more familiar with MSD's wastewater and stormwater management systems.

Follow Up From the Last Wet Weather Team Meeting

At the start of the meeting, Rob Greenwood of Ross & Associates reviewed the agenda and materials for the meeting, and several updates were provided about the WWT process, as follows.

- Charter and Ground Rules: The Wet Weather Team charter and ground rules are now in final draft form; any additional comments are due by Friday, August 18, 2006. Based on feedback from the July WWT meeting, several additions were made to the charter to note that (a) WWT meetings are designed to be working sessions, (b) separate meetings will be held for public education, and (c) written comments and related news articles will be distributed to WWT members during the process. No changes had been made to the ground rules.
- Website: MSD expects to have a website for the WWT process set up by the September WWT meeting. There will be two parts to the website: (1) a public-access webpage with information and materials related to the Consent Decree and the stakeholder process; and (2) a password-protected webpage for use by WWT members only.
- 311 Metro Call Information: The facilitation team is working with MSD on developing text with basic information about the WWT project and contact information for the Louisville Metro Call system to use to respond to people who call with questions about the project.
- Maps: MSD brought several large maps of its sewer systems and infrastructure investment projects to the meeting, and requested feedback from WWT members about any maps that participants would like to see.

Regulatory Overview – Clean Water Act Compliance Presentation

Gary Swanson of CH2M HILL gave a presentation on Clean Water Act (CWA) compliance. WWT stakeholders will inform MSD's Consent Decree response, which is based on achieving CWA

compliance. Mr. Swanson's presentation covered the objectives of the CWA, current local water quality conditions, and ground rules for compliance related to stormwater, combined sewer overflows (CSOs), and sanitary sewer overflows (SSOs). Summary points from the presentation included the following:

- Protecting beneficial uses forms the basis for water quality standards (WQS).
- The Ohio River and its tributary streams often do not meet current WQS.
- Stormwater runoff is the largest source of water pollution in the Louisville area; control of CSOs and SSOs alone will not ensure compliance with WQS.
- The Federal CSO Policy outlines pathways for compliance regarding CSOs.
- Unlike CSOs, control of SSOs is not tied to WQS compliance.

Participant questions and discussion in response to this presentation focused on how the CWA regulatory framework pertained to the Wet Weather Team's charge and the investments MSD will be making. In particular, Mr. Swanson and MSD clarified that MSD does have some responsibility for stormwater management, and the WWT's charter is *not* limited to the control of CSOs and SSOs, but includes the broader scope of "wet weather management." The WWT is expected to consider other ways of improving water quality, including nonpoint source controls. The group will be looking at options to address regulatory requirements and beneficial uses, but also other water quality considerations related to wet weather. MSD noted that although the Consent Decree outlines specific requirements pertaining to SSOs and CSOs, in general it prefers an integrated approach to wet weather management. A participant added that water quality is a long-term community challenge.

In closing, Rob Greenwood commented on the complexity of the regulatory framework, especially with the interpretive aspects of determining compliance, and noted that starting in September the WWT would be going through a structured, step-wise process to address these challenges.

MSD Financial Overview

Marion Gee, MSD Finance Director, presented on MSD's financial conditions, its rate structure, and future considerations related to financing. Highlights from this presentation included the following:

- MSD's capital budget has been trending downward, and currently averages about \$50 million per year. About \$25 million of operating expenses are allocated to MSD's capital budget each year.
- The major uses of the capital budget planned for fiscal year (FY) 2007–11 are for wastewater treatment and infrastructure, followed by CSO, wet weather, and water-quality work, and then drainage and flood control.
- The increase in MSD's operating budget since 1997 has been slightly below the national average rate of inflation.
- Most of the operating budget is spent on labor; MSD currently employs about 610 full-time equivalent staff.
- MSD's wastewater rates, which are lower than the national average for residential customers, include service and volume charges. All residential properties are charged the same rate for stormwater, regardless of the size of the properties. Discounts are provided to certain customers.
- MSD does not receive funding from Metro government or the State. The majority (73 percent for FY 2006) of MSD's revenues is from wastewater service charges; stormwater service charges make up about 22 percent of MSD's revenues (the remainder is from other operating income).
- MSD has issued \$1.3 billion in tax-exempt bonds to finance its capital program. Principal and interest payments are about \$89 million annually (\$16 million of which is for principal).

- MSD's debt service coverage ratio is required to be at least 110 percent; it is currently at 119 percent. This ratio has been trending down since the bonds were issued in 1997.
- MSD has been exploring a variety of options for amending its rates, changing other fees, and identifying other funding sources. Considerations include how charges compare to MSD's costs, potential impacts to low-income customers, and the effects of rate and fee changes on businesses.

Several participants commented and asked questions about the financial presentation, as follows.

- A participant asked how MSD determines the amount of wastewater that customers generate. MSD replied that the rates are based on the volume of water used, discounted by a certain percentage for different classes of customer (e.g., 15 percent for residential customers).
- A participant asked about the percentage of MSD's overall revenues that are from residential customers. [Note: MSD obtained this information after the meeting. Based on FY 2006 unaudited statements, residential customers comprise 47.9 percent of total MSD services charges (wastewater and drainage revenues) and 45.3 percent of total MSD revenues (wastewater, drainage, and other operating income).]
- In response to a question, Mr. Gee said that when MSD reduced the size of its staff, it did not shift to contractors. Instead, MSD cut back on professional services along with decreasing the number of employees, as a way of cutting costs.
- A few participants commented on a chart showing MSD's rates in comparison to other cities. It was noted that some cities with higher rates are further along in their response to CWA Consent Decrees; however, MSD has also already taken some proactive actions to address CWA issues.

Real Time Control of Combined Sewer Overflows Presentation

Angela Akridge, P.E., MSD Regulatory Policy Manager, gave an overview of MSD's system for Real Time Control (RTC) of CSOs. One of the principles behind RTC is to make better use of the storage capacity within MSD's combined sewer system by monitoring and managing flows of stormwater and wastewater in the system. For example, many of the pipes in the system are much larger than they need to be under most conditions, so additional wastewater can be temporarily stored in those pipes until treatment capacity becomes available. RTC relies on modeling and monitoring of rainfall and water flows; a computer-supported decision-making process; and gates, other dams, and pumps within the system to control flows.

MSD's implementation of the RTC system is occurring in phases. Phase 1, which cost \$13 million, is operational. Although system performance is still being verified, the RTC system is expected to increase the capture rate of flows by about 20 percent, reduce total overflows into the Ohio River and Beargrass Creek by 11–20 percent, and eliminate about 2,400 million gallons of combined sewer overflows per year. MSD has already identified some projects for Phase 2 of RTC implementation, which will be operational by December 2008; however, the remaining part of the program will be identified during the development of the CSO Long Term Control Plan.

Participants asked several clarifying questions about the RTC presentation, including whether the phases for the RTC system reflected the use of existing infrastructure versus the need for new equipment. Ms. Akridge provided examples of the kinds of projects involved with implementation, such as installing gates or dams in existing pipes, doing additional programming, increasing monitoring capacity, and potentially installing small interconnector pipes.

Observer Comments

There were no observer comments at this meeting.

Next Steps

- Comments on the final draft WWT charter, the final draft WWT ground rules, and the draft July 2006 WWT meeting summary are due to Ross & Associates by Friday, August 18, 2006. The documents will be finalized after that date.
- The website for the Wet Weather Team process is anticipated to be launched by the September WWT meeting. Final meeting summaries, agendas, and handouts will be posted on the website.
- The next WWT meeting will be on Tuesday, September 12, 2006 (at MSD's Central Maintenance Facility), from 4:30 to 9:00 PM. Meeting topics will likely include:
 - Detailed overview of the Wet Weather Team process and upcoming meeting topics;
 - Identification and discussion of community values; and
 - Preview of October meeting discussion topics.
- A canoe tour of the Beargrass Creek watershed for WWT members will be held the morning of Saturday, September 23, 2006. More information about the tour will be distributed by e-mail.

Meeting Participants

Wet Weather Team Stakeholders

Steve Barger, Labor
Susan Barto, Mayor of Lyndon
Stuart Benson, Metro Council, District 20
Allan Dittmer, University of Louisville
Laura Douglas, E.ON U.S.
Faye Ellerkamp, City of Windy Hills, City Council
Jeff Frank, Vanguard Sales
Mike Heitz, City of Louisville, Metro Parks
Tom Herman, Zeon Chemicals
Rick Johnstone, Deputy Mayor, Mayor's Office
Kurt Mason, Jefferson County Soil and Water Conservation District
Lisa Santos, Irish Hill Neighborhood Association
Tina Ward-Pugh, Metro Council, District 9
Dawn Warrick (alternate for Charles Cash), City of Louisville, Planning and Design Services Department

MSD Personnel

Angela Akridge, MSD Regulatory Policy Manager
Brian Bingham, MSD Regulatory Management Services Director
Derek Guthrie, MSD Director of Engineering/Operations & Chief Engineer

Facilitation and Technical Support

Rob Greenwood, Ross & Associates Environmental Consulting
Reggie Rowe, CH2M HILL
Gary Swanson, CH2M HILL
Jennifer Tice, Ross & Associates Environmental Consulting

Meeting Observers

Robert Bates, MSD
Marion Gee, MSD
Alex Novak, MSD
David Roth, MSD

Meeting Materials

- Agenda
- Final Draft WWT Charter
- Final Draft WWT Ground Rules
- WWT Membership List (8/11/06 Update)
- Draft Summary of WWT Meeting #1 (July 20, 2006)
- Clean Water Act Compliance Presentation
- MSD Financial Overview Presentation
- Real Time Control of Combined Sewer Overflows Presentation

Louisville and Jefferson County Metropolitan Sewer District
Wet Weather Team Charter
Final Version, 8/15/06

Summary

The Louisville and Jefferson County Metropolitan Sewer District (MSD) has chartered a Wet Weather Team (WWT) to assist with the development of an integrated Wet Weather Program that complies with Clean Water Act requirements and addresses the community's problems with combined sewer overflows and sanitary sewer overflows that occur during wet weather conditions. The Wet Weather Team consists of community representatives, elected officials, and MSD personnel. Stakeholders in the WWT will advise MSD on its investment, policy, and performance choices in the design of the Wet Weather Program, so that these choices can be made wisely and in ways that best meet the needs of the local community.

Background and Problem Statement

Like many municipalities nationwide, a portion of the Louisville sewer system is designed and permitted to collect wet weather runoff along with residential, commercial, and industrial wastewater. During some wet weather events, the volume of wastewater in the system exceeds the capacity of collection pipes and wastewater treatment plants, resulting in releases (discharges) of untreated wastewater diluted with stormwater—called combined sewer overflows (CSOs). Louisville also has had wet weather problems with sanitary sewer overflows (SSOs), which are unintentional discharges of diluted sewage from separate sanitary sewers. SSOs can occur as a result of groundwater or surface water entering the sanitary sewer system through improper connections to the sewer system, or damaged or deteriorated infrastructure. SSOs can also occur as a result of various other sewer operation and maintenance conditions. CSOs and SSOs can cause or contribute to water quality problems in receiving streams and watersheds. CSOs and SSOs can threaten public health and can cause property damage through, for example, basement back-ups.

In 2005, MSD entered into a Consent Decree with the U.S. Environmental Protection Agency and the Kentucky Environmental and Public Protection Cabinet (EPPC) regarding discharges from MSD's sewer system and alleged violations of the Clean Water Act. Under the Consent Decree, MSD must develop a Long Term Control Plan for CSOs and a Sanitary Sewer Discharge Plan for SSOs by December 31, 2008. The Consent Decree requires that MSD engage stakeholders in the development of public participation and funding plans, through a "Wet Weather Team." In addition to these areas, MSD has decided that it would also be valuable to involve stakeholders in discussions about the overall development and implementation of a new Wet Weather Program.

MSD, on behalf of the Louisville and Jefferson County community, will need to invest substantial amounts of money in wet weather controls and management efforts to meet our compliance obligations under the Consent Decree and the Clean Water Act. The Wet Weather Team will guide MSD in making wise investment decisions for a Wet Weather Program that will improve water quality, protect public health, prevent sewer back-ups, comply with applicable regulatory requirements, and address the community's needs for wastewater and stormwater management.

Wet Weather Team Objectives

MSD charters the stakeholder subgroup of the WWT to provide guidance on the development of an integrated Wet Weather Program that will comply with applicable regulatory requirements and will minimize the impacts of wet weather discharges on water quality, aquatic biota, and human health. Through the Consent Decree, the WWT is charged with two primary tasks: (1) preparing a plan for funding MSD's Wet Weather Program and (2) developing a program for public information, education, and involvement.

In addition to these tasks, the WWT will advise MSD on its overall investment, policy, and performance choices in the development and implementation of the Wet Weather Program. These choices may include increasing system storage or conveyance and treatment capacity, modifying the frequency of specific operations or maintenance activities, developing design parameters and standards such as design storms, and additional compliance inspection and enforcement activities.

Strategies to address sewer overflow issues will likely employ a combination of specific technologies and operational practices. For example, to increase the storage and treatment capacity of its systems, MSD could add parallel or relief sewers, increase the size of existing assets and facilities, separate combined sewers, use remote or side-stream treatment, take actions to prevent excess inflow and infiltration, and/or use diversions during certain wet weather events. Different approaches may be appropriate for different parts of MSD's systems, depending on the specific threats to those systems, the likelihood that disruptions could occur, and the type and severity of the impacts disruptions would have on the community's values.

During the WWT stakeholder process, MSD will also be conducting other activities related to planning and implementation of the Clean Water Act and the Consent Decree, including developing discharge abatement plans, asset management activities, water quality monitoring, and related wet weather control efforts. MSD may ask WWT stakeholders for input regarding these activities. In addition, it is possible that shifts in regulatory requirements may occur over the project duration that could affect the framework of the WWT process. If this occurs, MSD will inform the WWT about the regulatory changes and their relevance to the project, and the WWT will discuss appropriate changes to the framework of the WWT process.

Expectations for Wet Weather Team Members and Process

Stakeholders on the Wet Weather Team include individuals recognized as community opinion leaders associated with environmental advocacy, business and industry, elected official, local government, community neighborhood, recreation, public health, environmental justice, and organized labor interests. WWT stakeholders do not formally represent their specific affiliated organization, but rather seek to provide input reflective of the broad interest area in which they lead. In addition to stakeholders, the WWT will include MSD personnel, as specified in the Consent Decree. MSD personnel on the WWT will participate in discussions with WWT stakeholders; however, decisions regarding stakeholder guidance to MSD will be based only on the input from the stakeholder subgroup of the WWT.

WWT members who are not able to attend a particular meeting may send an alternate, provided that the suggested alternate is discussed with MSD and the WWT member can assure that the alternate will be well briefed on past and current WWT discussions and decisions. WWT members are expected to participate for the entire process; however, participants may withdraw at any time without prejudice and may be replaced by MSD with a representative with similar expertise and experience.

WWT meetings will be designed as working sessions, not as public education meetings. Observers are welcome at meetings, but are not participants in WWT deliberations. A segment at the end of each meeting (approximately 15 minutes) will be dedicated to receiving observer comments. Each observer's oral comments must not exceed two minutes in duration, although written comments to the WWT and/or MSD will be welcome throughout the process. Separate public meetings will also be held to educate the public about the WWT process and to solicit comments on plans for MSD's Wet Weather Program.

MSD will use a values-based risk management process, supported by a third-party facilitation team, to obtain input from WWT stakeholders on MSD's investment decisions and priorities regarding wet weather controls and management efforts to achieve compliance and provide a level of service that meets community needs. This structured process will allow WWT stakeholders to systematically consider the importance of potentially competing values and the technical and management options available to address community needs. Prior to submittal of the final plans to EPA and Kentucky EPPC by December 31, 2008, MSD will need to provide final draft plans to the MSD Board for consideration and adoption.

Although the facilitation team will be under contract to MSD, its "clients" will be the individual members of the WWT and the wet weather planning process as a whole. The stakeholder subgroup of the WWT will be a "consensus seeking" body, although progress and ultimate MSD decision-making will not be strictly tied to consensus. The facilitation team will ensure that perspectives of WWT stakeholders—particularly in cases where consensus is lacking—are gathered throughout the plan development process and made available to MSD to ensure a balanced and well-informed final decision process. If the WWT stakeholder subgroup does not reach consensus on a particular item, the range of views will be recorded for consideration by the MSD Board. Differences of opinion reflected in WWT and MSD documents will not be attributed to particular individuals or interests; however, WWT stakeholders can submit attributed comments directly to MSD and/or the MSD Board for their consideration. All written comments received by MSD, consistent with public disclosure requirements, will be made available publicly.

Recognizing that the way in which WWT deliberations are publicly characterized will affect the group's ability to reach consensus, WWT members are encouraged to refrain from characterizing the views of other WWT members or of the full WWT to the press. MSD will consider requests from WWT members for outside experts to speak at meetings, but MSD reserves the right to include additional or alternative speakers to ensure that a full range of perspectives is provided. Any written comments and news articles about the WWT project that appear in the media will be provided to WWT members for their information.

The WWT stakeholder process is the backbone of MSD's efforts to develop an integrated Wet Weather Program for addressing improvements needed to MSD's stormwater, combined sewer, and sanitary sewer systems. All WWT stakeholders are expected to:

- Participate fully and honestly in meetings, act in good faith, and strive for consensus;
- Reach out to constituencies whose interests they reflect and, as appropriate, to other stakeholders to communicate about the project status and gather input and ideas for the project; and
- Participate in the identification, review, and analysis of options.

Expectations for Wet Weather Team members are further defined in the Wet Weather Team ground rules.

Schedule

Under the Consent Decree, MSD faces strict deadlines for producing deliverables and significant penalties for noncompliance. The WWT stakeholder process must, as a result, move forward at a regular, steady pace for it to be successful. WWT meetings will occur approximately every four to six weeks as needed from June 2006 through May 2008.

**Louisville and Jefferson County Metropolitan Sewer District
Wet Weather Team Ground Rules
Final Version, 8/15/06 (updated 5/9/08)**

A. Participants and Participation

1. Wet Weather Team (WWT) members are “participants.” The Wet Weather Team consists of MSD personnel and a subgroup of stakeholders that will provide guidance to MSD. MSD personnel may participate in WWT discussions, but will not be included in decisions regarding stakeholder guidance to MSD. All participants in the stakeholder subgroup have equal representation.
2. The facilitation team is a neutral third party with no stake in the outcome of the discussions. The facilitation team, although under contract to MSD, works for the process and treats all Wet Weather Team participants as equal “clients.”
3. To ensure an effective process, participants agree to make every effort to attend all meetings. If an alternate is needed, the suggested alternate will be recommended to and discussed with MSD in advance to ensure there will be appropriate balance and representation on the Wet Weather Team.
4. Observers are welcome at meetings, but are not participants in the Wet Weather Team’s deliberations. A portion or portions of each meeting (not to exceed 15 minutes each) will be dedicated to receiving observer comments. Each observer’s oral comments must not exceed two minutes, although written comments to the WWT and/or MSD will be welcome throughout the process.
5. MSD will consider requests from participants to invite outside experts to speak at Wet Weather Team meetings on relevant topics; however, MSD reserves the option of providing additional or alternative perspectives at meetings to ensure that the full range of perspectives and factual evidence is provided.
6. Wet Weather Team members are expected to participate through the entire process; however, any participant may withdraw from the process at any time without prejudice. In the event a participant chooses to withdraw, he or she should communicate the reasons for withdrawal and may be replaced by MSD with another representative with similar expertise and experience.

B. Meeting Discussions and Procedures

1. Each participant agrees to honest and direct communications.
2. Participants are encouraged to frame observations in terms of needs and interests, not in terms of positions; opportunities for finding solutions increase dramatically when discussion focuses on needs and interests.
3. Decisions will be made during meetings; if an alternate attends a meeting, he or she must be fully briefed on Wet Weather Team deliberations and able to participate in decision making.
4. The facilitator will manage the discussions, using more or less structure depending on the nature and tenor of the discussions.
5. Participants and/or the facilitator may request a caucus break at any time during the meeting. Individual caucus breaks are not to exceed 15 minutes.

6. A general summary of meeting discussions will be prepared; observations contained in the summary will not be individually attributed. Participants can, however, submit attributed comments directly to MSD and/or the MSD Board for consideration; all written comments will be made available publicly.
7. All meetings will start and finish on time.

C. Desired Outcomes

1. The stakeholder subgroup of the Wet Weather Team is a “consensus seeking” body. The desired outcome is one in which all stakeholder subgroup members support the products and are willing to say so publicly. Full consensus, however, is not necessary to enable the MSD Board to have a balanced and well-informed final decision process.
2. The perspectives of all WWT stakeholders—particularly in cases where consensus is lacking—will be gathered throughout the plan development process and made available to the MSD Board for consideration during their final decision making.
3. To help the process stay on track, agreed-upon, non-mainstream issues may be recorded and dealt with at a later date or referred to other, more appropriate forums.

D. Communications Outside of Wet Weather Team Meetings

1. Individual observations are not for attribution outside the meeting.
2. Participants are encouraged to refer inquiries from the press to the facilitation team or to final meeting summaries or other final Wet Weather Team materials. Individuals who choose to speak with the press agree to limit remarks to personal views and to refrain from characterizing the views of, or attributing comments to, other participants or the full Wet Weather Team.
3. Wet Weather Team participants may share information about the project’s process and activities with peers outside the Team, as long as the communications make clear that the information is not an official product of the Team.
4. Wet Weather Team participants may share draft documents and communicate about the project’s progress with managers and co-workers within their own organizations. Wet Weather Team participants agree to consult with the Team before sharing draft documents outside of the Team or their immediate co-workers and managers.
 - Certain types of draft materials that contain pre-decisional information that is highly sensitive (e.g., potential sites for constructed facilities) will be labeled “draft: working documents not for release.”
 - Documents labeled “not for release” will not be shared during Wet Weather Team stakeholder meetings. Information from “not for release” documents may, however, be generalized or presented at a higher level of detail at WWT meetings if necessary to support WWT deliberations.
 - If Wet Weather Team participants would like to review “not for release” documents individually outside of WWT meetings, MSD will make the documents available for WWT members to review at MSD’s office in MSD’s presence. WWT members will be asked to sign a confidentiality agreement before reviewing “not for release” documents at MSD.

Clean Water Act Compliance

Where are we? Where do we want to go?
How do we get there from here?

Wet Weather Team
Stakeholder Group Meeting
August 15, 2006



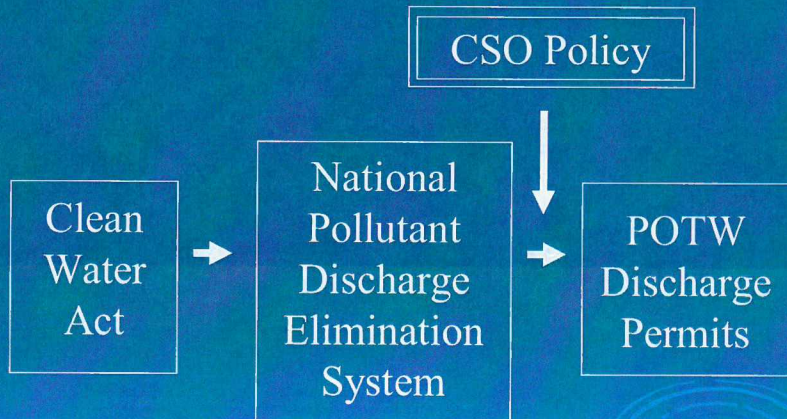
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Objectives

- Identify objectives and goals of the Clean Water Act (CWA)
- Describe current water quality conditions
 - Ohio River
 - Jefferson County streams
- Ground rules for compliance
 - CSO Policy
 - SSO compliance approach

2

Regulatory Framework



3

1972 FWPCA Amendments: PL 92-500, "The Clean Water Act"

Objective: Restore and maintain the chemical, physical, and biological integrity of the nation's waters

National Goals:

- Fishable and swimmable water by mid-1983
- Zero (0) discharge of pollutants by 1985

4

Clean Water Program Development

Legislation after 1972

- 1977 Clean Water Act (CWA)
 - **EPA to study CSO** and sludge impacts
 - EPA to issue effluent limitations for toxic pollutants
- 1987 Water Quality Act
 - **Stormwater permitting requirements**
 - Sludge management program
- 2000 Wet Weather Water Quality Act
 - **“Each permit, order or decree...for a discharge from a municipal combined sewer system...shall conform to the EPA CSO Policy”**
 - Recognized CSO Policy within the law

5

NPDES Regulations Interpret Legislative Intent

- “Zero discharge of pollutants” became protection of beneficial uses from pollution interference
- “Fishable and Swimable” became 2 of the beneficial uses to be protected, where appropriate



Beargrass Creek “Improved Channel”
Fishable & Swimable?

6

Regulations Define Beneficial Uses to be Protected

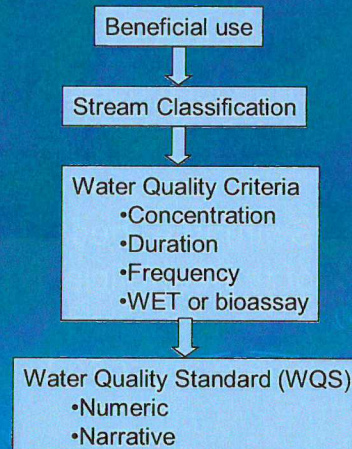
- Recreation
 - Body contact
 - Non-contact
- Aquatic Life
 - Warm water
 - Cold water
- Fish consumption
- Water supply
- Industry
- Other



7

Water Quality Standards Protect Beneficial Uses

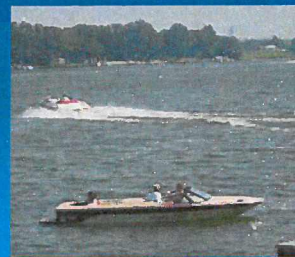
- States identify beneficial uses, stream classifications, and water quality standards within their jurisdiction
- Federal water quality criteria provides guidance for conventional, toxic, and other pollutants
- ORSANCO has interstate responsibility for stream classification and WQ standards for Ohio River



8

Ohio River Beneficial Uses and Primary Pollutants of Concern

- Public Water Supply
 - Fecal Coliform
- Warm Water Aquatic Life
 - pH, Ammonia
 - Dissolved Oxygen
 - Toxics
- Contact Recreation
 - Fecal Coliform
- Fish Consumption
 - Toxics (PCB, Dioxin, Hg)



9

Impairments Exist for Each Beneficial Use

- Public Water Supply
 - 32 miles impaired due to Fecal Coliform
 - 15 miles impaired below Metro Louisville (downstream from Louisville Water Company intakes)
- Warm Water Aquatic Life
 - 16 miles do not support diverse aquatic life
 - Louisville area not impaired
- Contact Recreation
 - 367 miles impaired due to Fecal Coliform
 - Over half of the river miles evaluated are considered impaired
 - Louisville area does not meet standards more than half time
- Fish Consumption
 - Entire river impaired due to Dioxin, some areas also impaired due to PCB & Hg)

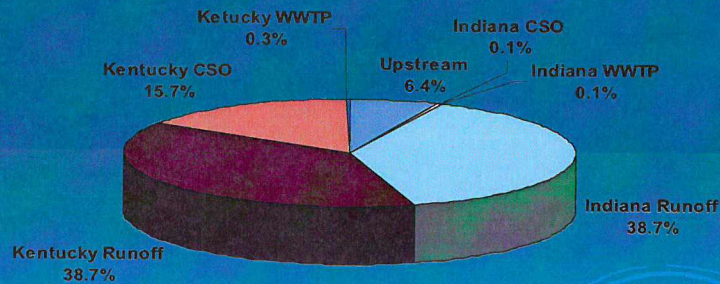


981 total river miles

10

Surface Runoff is Largest Pollutant Source in Louisville Area

Ohio River Fecal Coliform Loads
ORSANCO, 2004

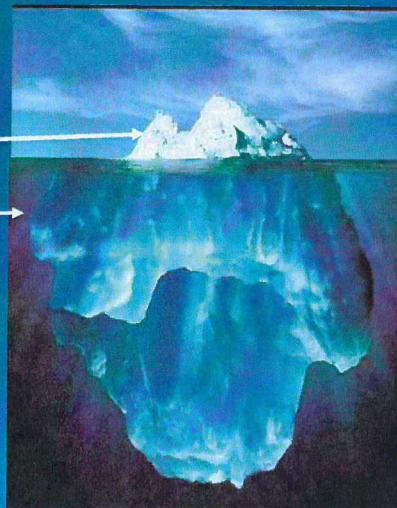


TSS & metals load distribution is similar, per ORSANCO 2003

11

ORSANCO Study Conclusions:

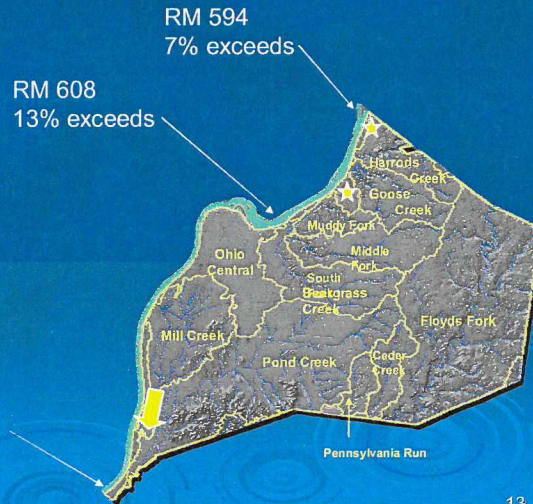
- CSO loads contribute significantly to peak FC levels after storm events (up to 1/2)
- Sanitary sewage portion of CSO loads is relatively minor impact on WQ violations
- Stormwater runoff is primary cause of WQ violations in Louisville area
- Eliminating stormwater discharges virtually eliminates WQ violations regardless of CSO discharges
- Eliminating CSO discharges reduces frequency of WQ violations by <3% (86 vs 77)



12

Water Quality Trends Through Metro Area

Fecal Coliforms
May – July 2006
compared to
contact recreation
WQ standard



Note: similar trends observed below all major Ohio River Cities

13

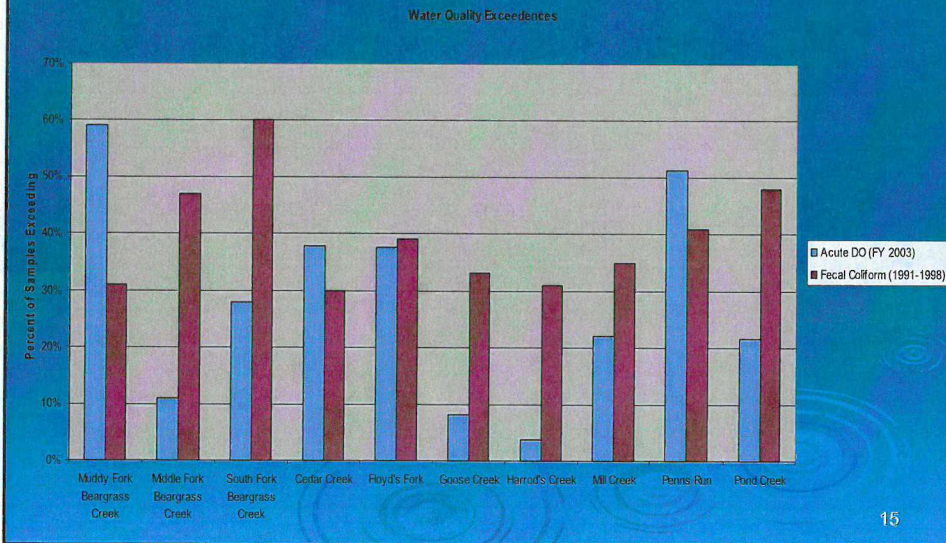
Jefferson County Streams Face Typical Urban Watershed Challenges

- Fecal Coliform exceeds standards 30 – 60% of samples
- Aquatic life impairments
 - DO, pH, ammonia
 - Habitat
 - Temperature
 - Sediment
- Even watersheds with no CSOs show serious impairments



14

Watershed-Specific WQ



Urban Streams Typically Affected by Variety of Pollution Sources

- Construction activities (sediments)
- CSOs (Beargrass Creek)
- SSOs (Pond Creek, Beargrass Creek, Mill Creek, Floyd's Fork)
- Small Sewage Treatment Plants
- Lawn chemicals (N and P, pesticides, herbicides)
- Oil change, car wash etc. to storm drains
- Pet wastes, wildlife wastes (fecal coliform)
- Impervious areas (peak flow erosion)
- Landscaping (tree removal, loss of riparian buffer zone)

MSD Shares Responsibilities for Stormwater (quantity and quality) in Jefferson County

- Flood and drainage control
- Municipal Separate Storm Sewer System (MS4) Permit co-permittees include Metro Louisville Government, KYTC, Anchorage, Shively J-Town, St. Mathews
- Major requirements of MS4 permit
 - Public education and outreach
 - Illicit connection removal
 - Construction site runoff control
 - Post-construction controls
 - Good Housekeeping/Pollution Prevention
 - Monitoring and reporting
- Permit renewal on-going

17

CSO Policy Provides Pathway(s) to Compliance

- Objectives
 - CSOs occur only during wet weather
 - Comply with technology and water quality-based requirements
 - Minimize impacts on water quality, aquatic biota, human health
- Principles
 - Clear levels of control requirements
 - Site-specific flexibility
 - Phased implementation considering financial burden
 - Review and revision of WQ standards, where appropriate
- Requirements
 - Nine Minimum Controls Compliance by January 1997
 - Long Term Control Plan (LTCP) development and implementation

18

Clear Levels of Control

- Recognition that CSO control alone may not result in consistent WQ compliance
- Alternative approaches to CSO control targets
 - Presumption
 - 4 overflows per year or 85% capture
 - “Presumes” this represents appropriate control
 - Demonstration
 - Demonstrate through monitoring and modeling that WQ standards will be met, or
 - Demonstrate that WQ non-compliance is not due to CSO loads (if other loads were gone, compliance is achieved)

19

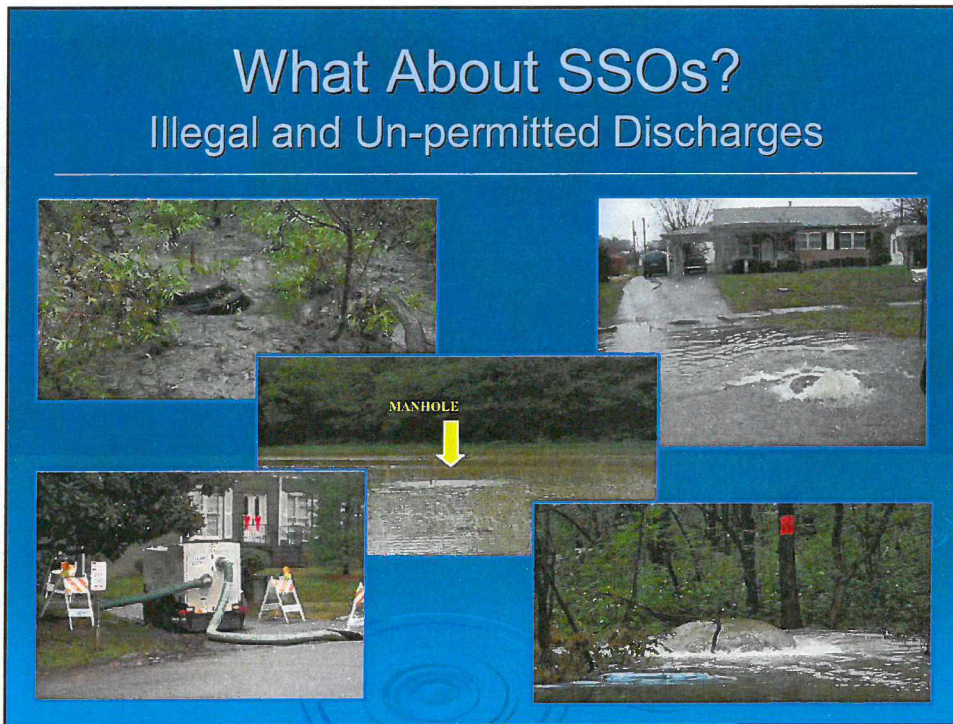
CSO Policy LTCP Required Elements

- Characterize system
- Public participation process
- Sensitive areas protection
- Cost/performance analysis (knee of the curve)
- Evaluate abatement alternatives
- Schedule for CIP implementation
- Update O&M plan to reflect modified system
- Monitor to determine effectiveness



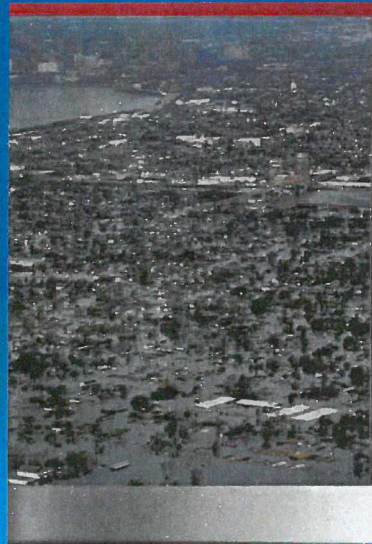
20

What About SSOs? Illegal and Un-permitted Discharges



SSO Control is NOT Tied to WQ Compliance

- SSOs can not be authorized
- Deficiency vs. Failure
 - Deficiency/failure defined by comparison to established design condition
 - Deficiency must be eliminated
 - Failure “excused” but not authorized
- Flood control analogy to design storm



Stakeholder Input Helps Establish Site-Specific Design Conditions

- Water Environment Federation “Managing Peak Wet Weather Flows” (July 2006)
- Risk management approach to problem solving – risk reduction defines “benefits” in cost/benefit evaluation
- Community values establish performance measures
- Your input drives this process

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Summary

- Clean Water Act compliance is basis for Consent Decree response
- Protecting beneficial uses forms basis for water quality standards (WQS)
- Ohio River and tributary streams often do not meet current WQS
- CSO/SSO control alone will not ensure WQS compliance
- CSO Policy outlines compliance pathways
- Establishing desired design conditions is critical to SSO planning targets
- Stakeholder input to Risk Management Approach is critical to ensuring appropriate compliance plan for Metro Louisville

24



MSD

MSD Financial Overview

Wet Weather Team
Stakeholder Group Meeting
August 15, 2006

1



MSD

History of MSD

- Created in 1946 as a political subdivision of the Commonwealth of Kentucky
- Not-for-profit organization
- Board members are appointed by the Metro Mayor

2



WHAT SERVICES DOES MSD PROVIDE?

3



Services that MSD Provides

- A 3,000 mile wastewater collection system and six major wastewater treatment facilities.
- A public stormwater drainage network in most of Jefferson County
- Review of all private development projects planned in Jefferson County
- Operation and maintenance of the Ohio River flood protection system

4



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Services that MSD Provides (con't)

- Digital mapping and geographic information services through the Louisville & Jefferson County Information Consortium (LOJIC), located at MSD
- Reduction of sewer overflows & stream monitoring
- Hazardous materials controls and response

5



MSD

MSD CAPITAL BUDGET

6



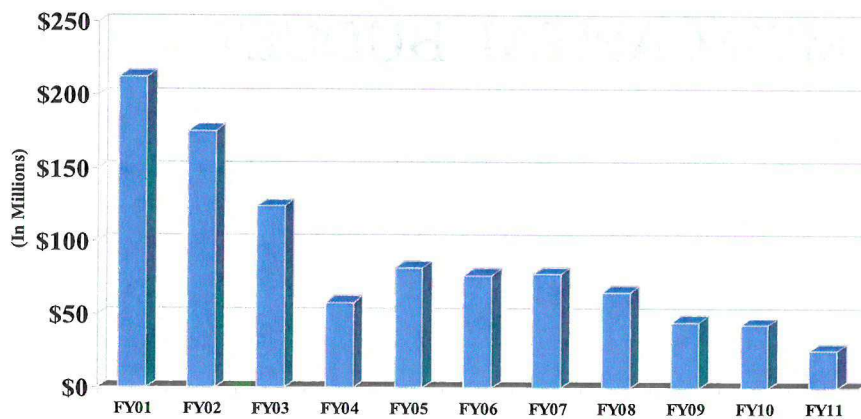
FY 2007 - 2011 Capital Budget: Major Uses of Funds (millions)

Wastewater Treatment/Infrastructure	\$ 115.2
CSO, Wet weather, & Water Quality	\$ 65.2
Drainage/Flood Control	\$ 58.0
LOJIC	\$ 7.4
Misc./General	\$ 4.3
Capital Equipment	\$ 8.4
TOTAL	\$ 258.5



MSD

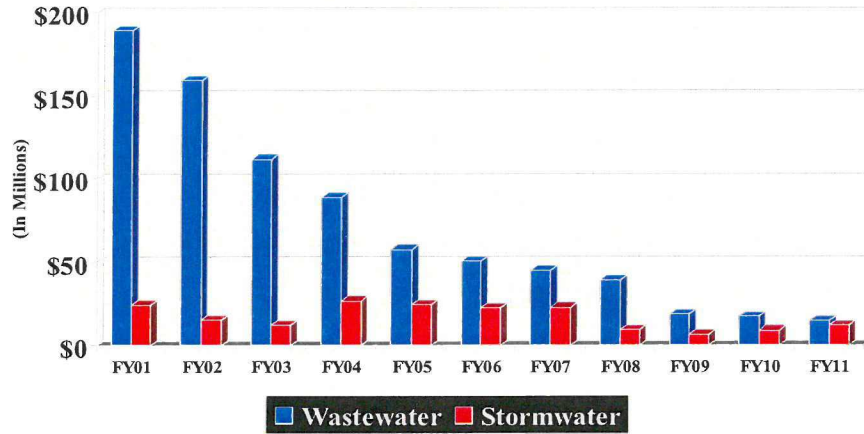
Louisville & Jefferson County Metropolitan Sewer District Capital Budget Trend FY 2001 - FY 2011





MSD

**Louisville & Jefferson County
Metropolitan Sewer District
Wastewater and Stormwater Budget
Trends
FY 2001 - FY 2011**



MSD

MSD OPERATING BUDGET

FY 2007



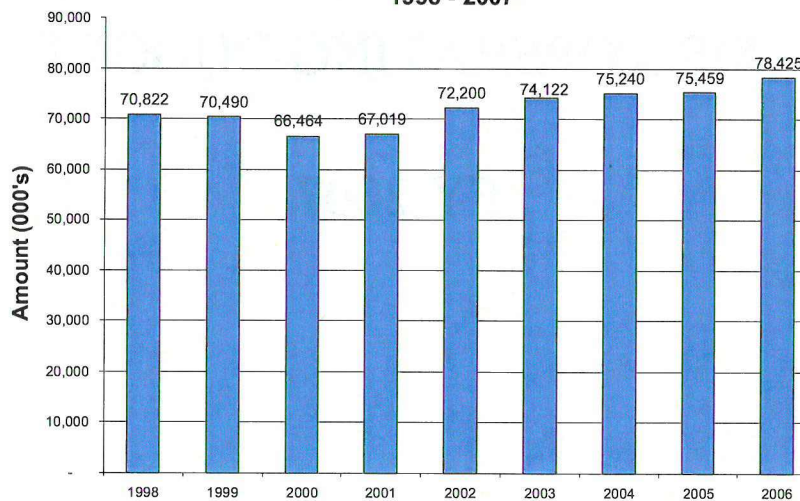
MSD OPERATING BUDGET

Since 1997, the Operating Budget has increased by an average of 3.0% per year while the rate of inflation has increased by 2.7% annually during the same period.

11



Metropolitan Sewer District Operating Budget Requests 1998 - 2007

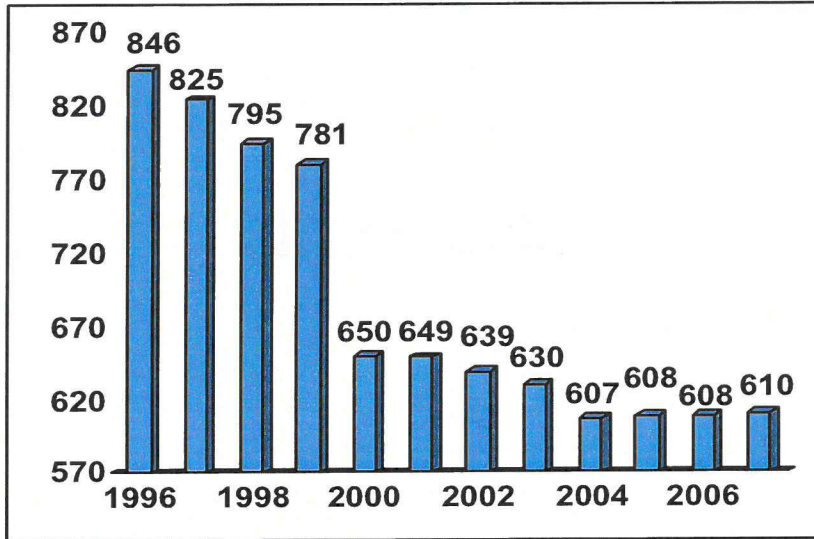


12



MSD

MSD Full-Time Equivalent Staff

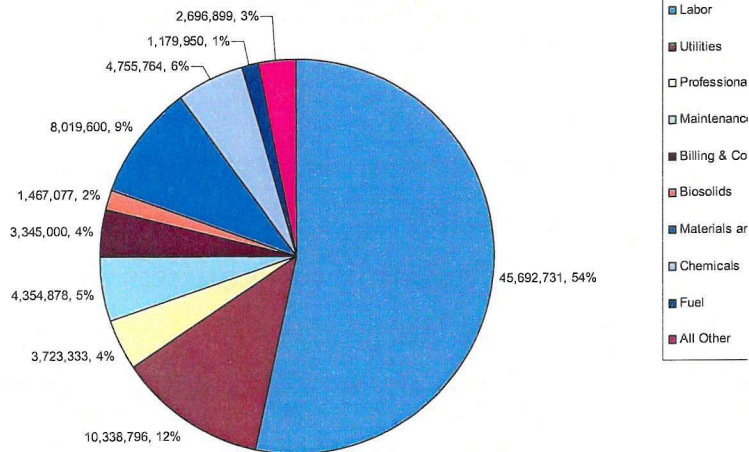


13



MSD

FY 2007 Preliminary Operating Budget



14



MSD

MSD RATES

15



MSD

MSD Rates

- MSD's average monthly residential wastewater bill is \$21.19.
- The average monthly bill consists of :
 - \$7.99 service charge
 - \$13.20 volume charge (\$2.20 x 6,000 gallons)

16



MSD

MSD Rates

- Monthly stormwater billings are \$5.02 per equivalent service unit (ESU).
- An ESU is equal to 2,500 square ft. of impervious surface area. All residential accounts are charged for 1 ESU regardless of the square footage of the property.

17



MSD

MSD Rates

- A discounted (Optional) rate of \$1.49 per thousand gallons is available to customers whose average water usage or sewer discharges exceed 1,000,000 gallons per month.
- Drainage customers that install detention or retention facilities can receive up to an 82% discount.

18



MSD

MSD Rates

- Quality Charges are assessed for wastewater strengths in excess of 250 mg/liter of biochemical oxygen demand (BOD) or 270 mg/liter of suspended solids (SS).
- BOD rate is \$.2494 per pound in excess of 250 mg/liter.
- SS rate is \$.1028 per pound in excess of 270 mg/liter.
- All optional rate customers are assessed a quality charge.

19



MSD

How do our rates compare nationally?

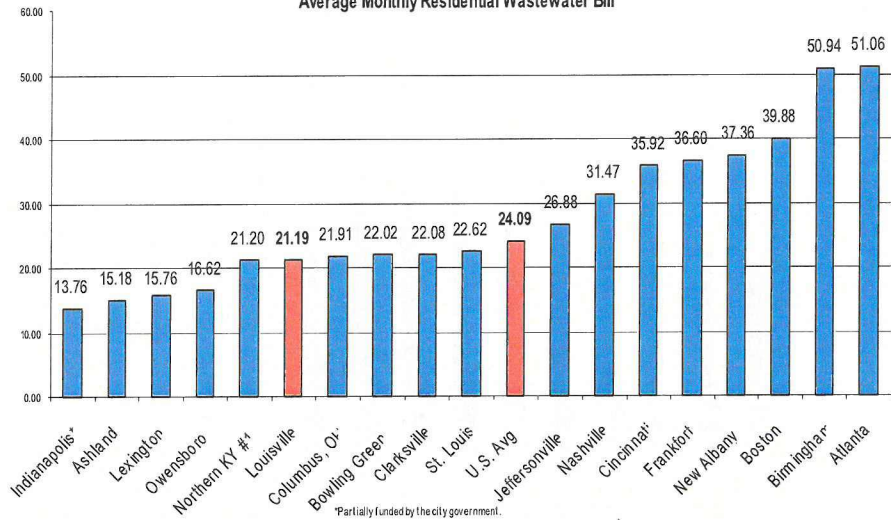
- Average national monthly residential wastewater bill is \$24.09 (source: 2005 National Association of Cleanwater Agencies Survey). This represents an increase of 11.1% from the 2004 average of \$21.69.
- Average EPA Region 4 residential rate in 2005 was \$26.60

20



MSD

Average Monthly Residential Wastewater Bill



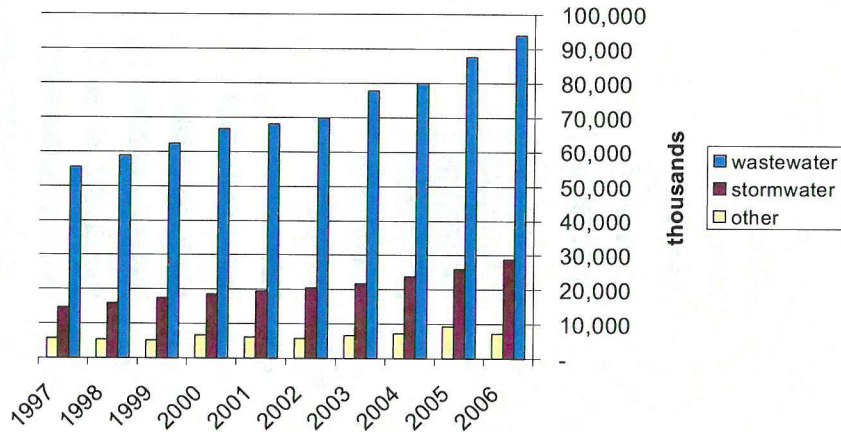
MSD

MSD REVENUES



MSD

MSD Revenues FY's 1997- 2006

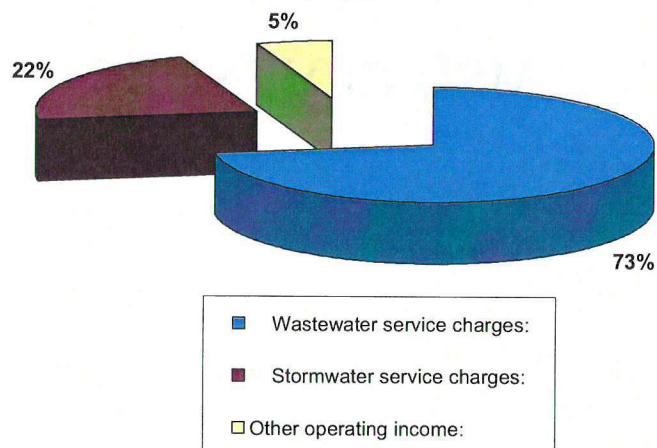


23



MSD

Metropolitan Sewer District Fiscal Year 2006 Revenues

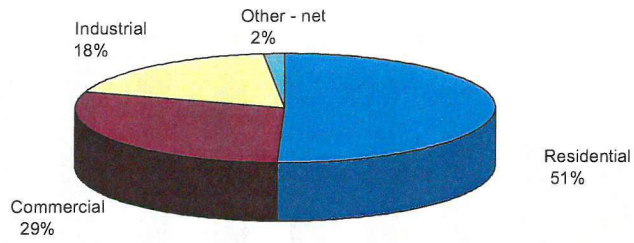


Note – MSD is self-supporting through service charges and other user fees. MSD does not receive financial support from Metro Government or the State.



MSD

Wastewater Service Charges FY 2006

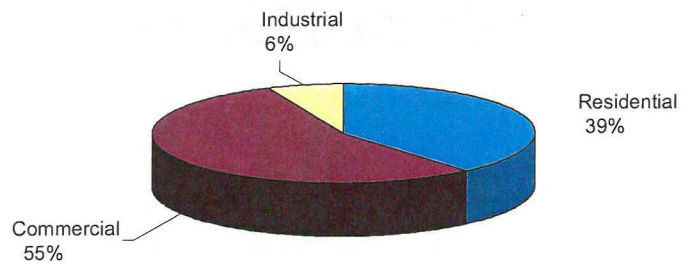


25



MSD

Stormwater Service Charges FY 2006

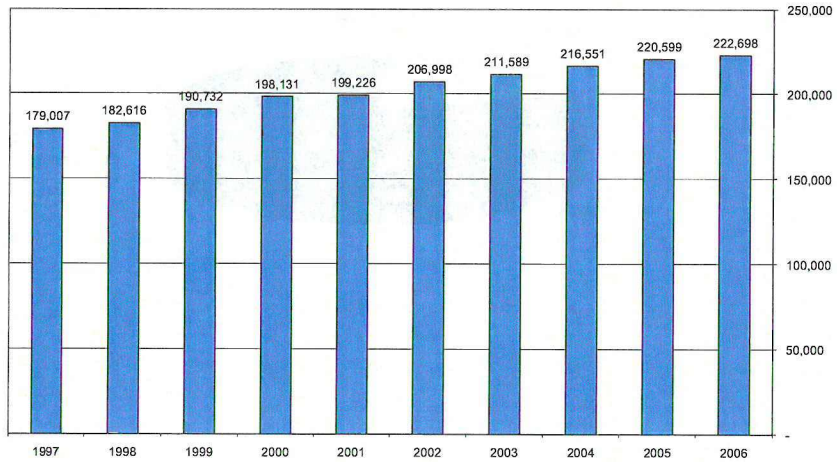


26



MSD

MSD CUSTOMER GROWTH



27



MSD

MSD FINANCIAL CONDITION

28



MSD

Financial Factoids

- Since 1997, MSD has issued \$1.3 billion in tax-exempt bonds to finance its capital program.
- Principal and Interest payments related to these bonds are approximately \$89 million annually.

29



MSD

Financial Factoids

- Per MSD's bond covenants, we must maintain a debt service coverage ratio of 110%.
- Approximately \$25 million of operating expenses are allocated to MSD's capital budget each year.

30



MSD

DEBT SERVICE RATIO FY 2006

Total Revenues	\$140,529
Total Operating Expenses	<u>\$ 60,975</u>
Net Revenues	\$ 79,554
Aggregate Debt Service	\$ 66,591
Debt service ratio	119%

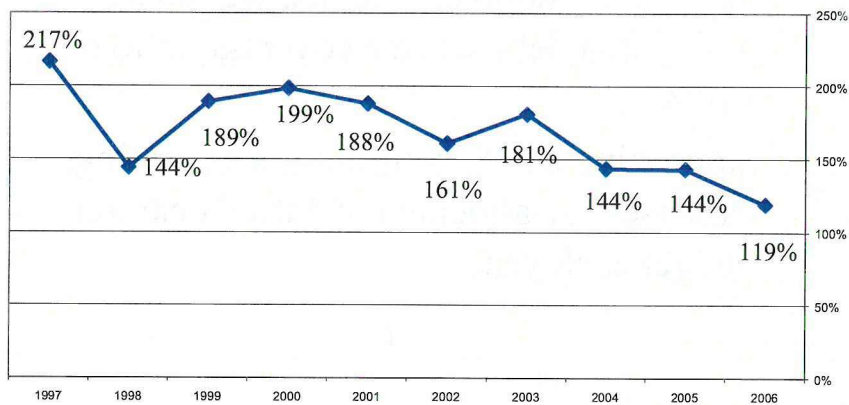
Note: Net Revenues reflected above is not the same as net income!

31



MSD

MSD DEBT SERVICE COVERAGE RATIO



32



MSD

Rate Study Recommendations

- Eliminate Optional (discounted) rates.
- Evaluate a Food-Service Rate.
- Consider a residential rate structure that is based on the average winter water consumption.
- Calculate capacity charges for each wastewater treatment plant.

33



MSD

Rate Study Recommendations

- Review Connection Fees charges more frequently to ensure that they reflect the costs MSD incurs to provide this service.
- Charge for Drainage Plan Review and Drainage Inspection Fees for all properties inside and outside of MSD's service area.
- Update LOJIC Mapping Fees.
- Reinstate fees to clear sewer lines for back-ups that occur on private property.

34



MSD

Future Financing Considerations

- **Kentucky Infrastructure State Revolving Fund**
- **Modify service charges so that the revenue is not dependent on volume based charges. Would need to consider the impact on low income customers.**
- **Recompute drainage charges so that they are based on quantitative and qualitative measures.**

35

**Real Time Control of Combined
Sewer Overflows
MSD's LTCP Cornerstone**

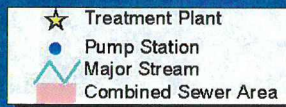
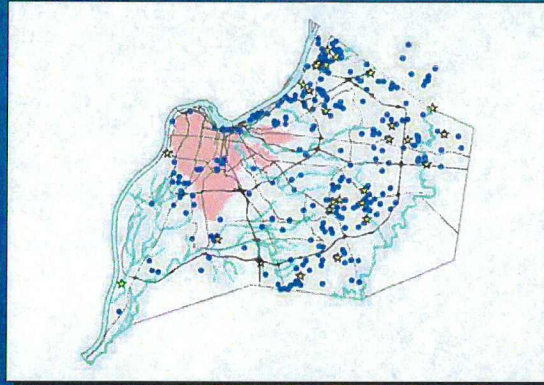
Wet Weather Team
Stakeholder Group Meeting
August 15, 2006

A COMPLEX SYSTEM

“We have so much to take care of!”

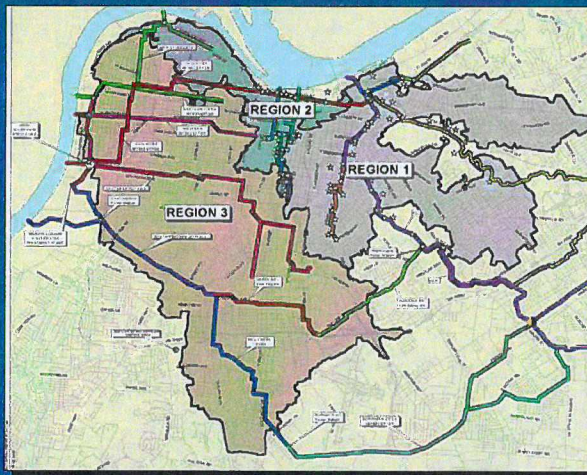
MSD's Infrastructure

- ◆ 25 wastewater treatment plants
 - ◆ 6 regional facilities
 - ◆ 19 small plants
- ◆ 300+ pump stations
- ◆ 3,000 mi of sewer
 - ◆ 2400 mi separate
 - ◆ 600 mi combined
 - ◆ 5 mi force main
- ◆ 790 mi of stream water quality monitoring
- ◆ Ohio River Flood Protection System
 - ◆ 15 Flood pump stations
 - ◆ 29 mi of floodwall



MSD's Combined Sewer System

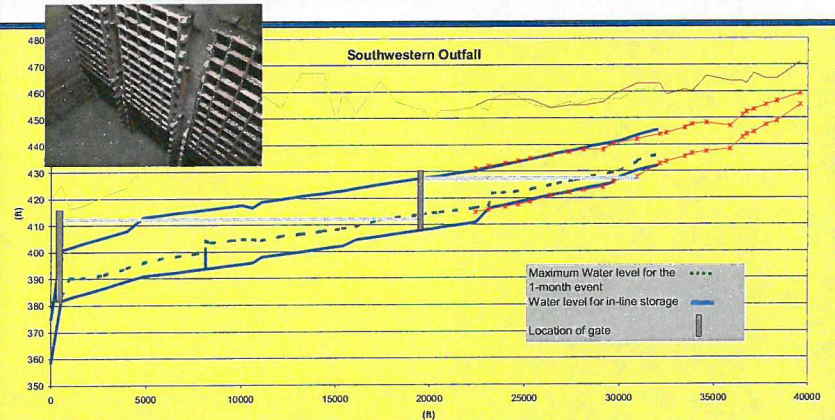
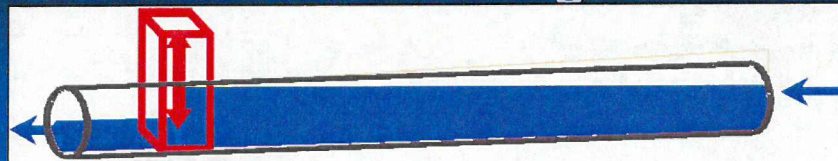
- ◆ Combined sewer area
 - ◆ 24,000 acres
 - ◆ 324,000 people served
- ◆ 114 active CSOs
- ◆ Separate sewer area tributary to CSS
- ◆ 2 receiving streams
- ◆ System inter-connectivity



A PROGRESSIVE VISION

“You’re gonna do what?!?”

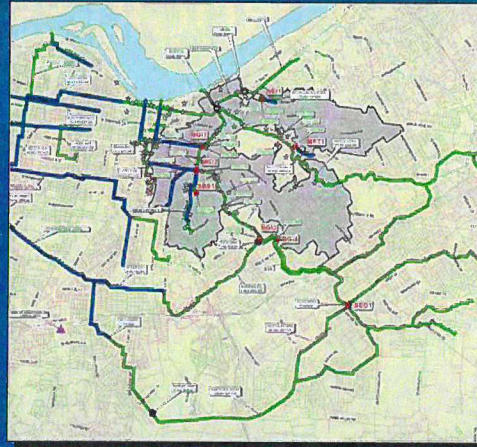
Optimize and actively control in-line storage



System Configuration and Predicted Performance

Beargrass Creek Region

- ◆ 8 RTC Control Points
 - ◆ Eliminates 475 MG/YR of overflow
 - ◆ Increases capture rate from 54% to 74%
- ◆ 5 off-line storage basins
 - ◆ Eliminates 697 MG/YR of overflow
 - ◆ Achieves a 84% capture rate



System Configuration and Predicted Performance

Ohio River Regions

- ◆ 70% of all CSO discharge volume
- ◆ 8 RTC Control points
 - ◆ Eliminates 2400 MG/YR of overflow
 - ◆ Increase capture rate from 41% to 62%

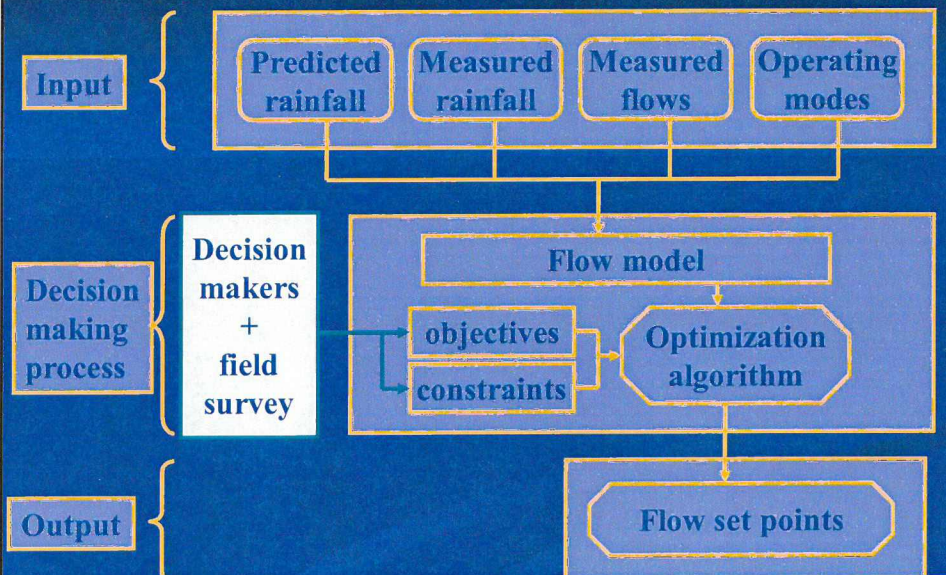


SYSTEM DEVELOPMENT AND IMPLEMENTATION

“Does it have an off button?”

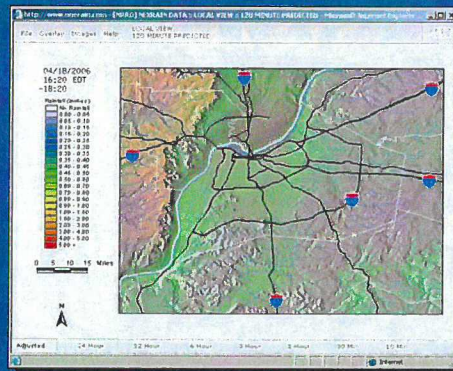
System Development and Implementation

Develop the Tools: Decision Framework



Rainfall Prediction Provides Cutting Edge Optimization Capability

- ◆ Prediction tool uses radar and distributed rain gauge system
- ◆ Acts as feed-forward loop to storage control calculations
- ◆ Allows simulation of the future hydraulic behavior of sewers
- ◆ 2 hour prediction window, refreshed every 10 minutes



Global Optimization RTC Plan

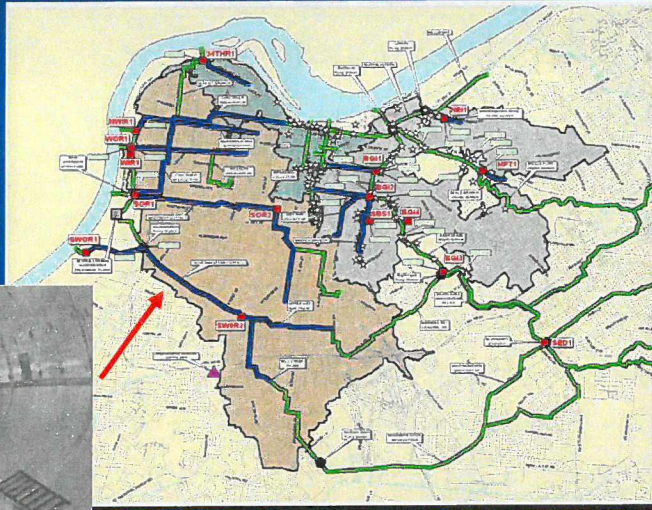
Developing The Methods

- ◆ Optimize existing control facilities
- ◆ Build new control facilities

Understanding the GO RTC Plan

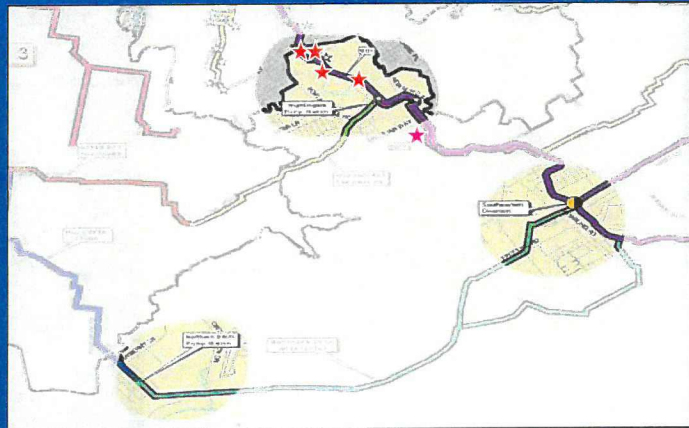
- ◆ 16-20 control points
- ◆ 5 storage basins
- ◆ 4 basic control approaches

Southwestern Outfall



Flow Diversion

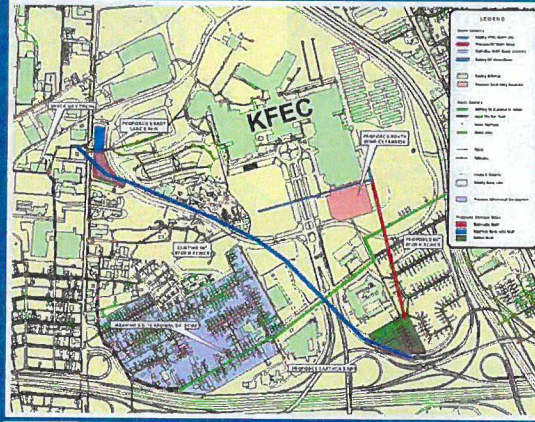
- ◆ Divert excess flow in 2 locations
- ◆ Reduce overflow at 4 critical CSOs



Off-Line Storage



33 MG Storage Capacity

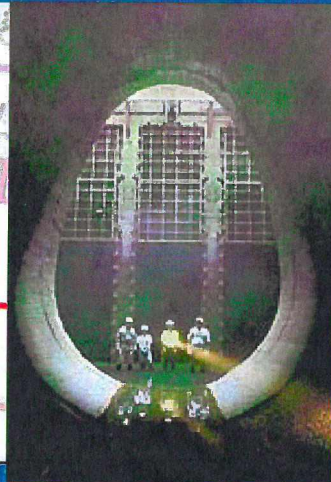


In-Line Storage

Southwestern Pump Station
Sluice Gate Chamber

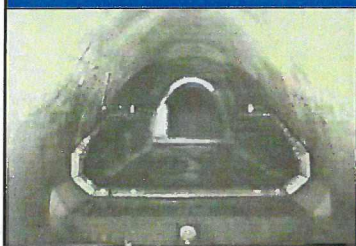


Reduces overflows from 2 CSOs

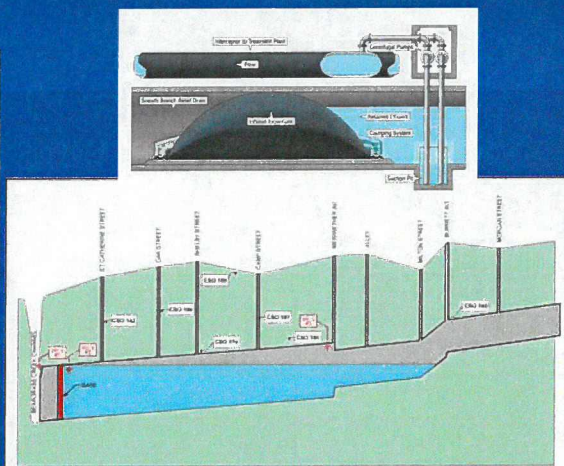


Re-Captured Overflow

Sneads Branch Relief Drain



Drains 11 CSOs
2.5 MG capacity



Model Predicted Performance Overflow Reduction

CSO RTC PHASE 1

Beargrass Creek	5%
Ohio River North	0%
Ohio River West	15-30%
Total Overall	11-20%

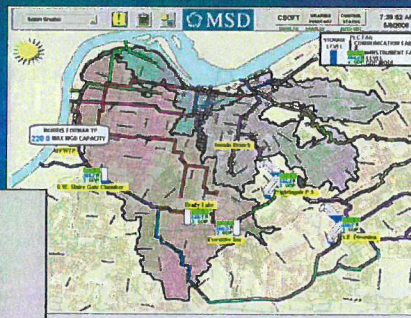
FLIPPING THE SWITCH

“Remind me, where’s that off button – just in case...”

“Are we really going to do this?”

Flipping the Switch

- ◆ Preparing for startup
- ◆ Surviving start-up



OPC DRIVER STATS			
BRIDGE 7:42:51 AM			
BRADY LAKE			
SUCCESSFUL READ	22	SUCCESSFUL READ	26
FAILED READS	0	FAILED READS	0
SUCCESSFUL WRITES	1	SUCCESSFUL WRITES	1
FAILED WRITES	0	FAILED WRITES	0
<input type="button" value="RESET"/>			
SOUTHWESTERN GATE STRUCTURE			
SUCCESSFUL READ	31	SUCCESSFUL READ	2
FAILED READS	0	FAILED READS	0
SUCCESSFUL WRITES	2	SUCCESSFUL WRITES	0
FAILED WRITES	0	FAILED WRITES	0
<input type="button" value="RESET"/>			
EXECUTIVE INN			
SUCCESSFUL READ	29	SUCCESSFUL READ	2
FAILED READS	0	FAILED READS	0
SUCCESSFUL WRITES	2	SUCCESSFUL WRITES	0
FAILED WRITES	0	FAILED WRITES	0
<input type="button" value="RESET"/>			
<input type="button" value="RETURN"/>			

- ◆ Debugging the system
- ◆ Assessing system performance

Assessing System Performance

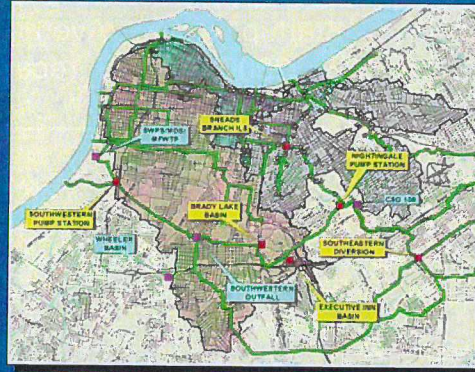
Startup April 2006	Average rain received	Estimated overflow reduction
Test event #1	0.22 in.	7.4 MG
Test event #2	0.46 in.	13.3 MG
Test event #3	0.86 in.	14.8 MG

Moving Forward

“What’s next??”

RTC Phase II Projects

- ◆ Southwestern Outfall 2
 - ◆ Inflatable rubber dam
 - ◆ Allows 18 MG of additional in-line storage in Upper Dry Run Trunk and Mill Creek Trunk
- ◆ MDS/SWPS/MFWTP Integration
 - ◆ Maximize and prioritize inflows to WWTP
- ◆ Wheeler Basin
 - ◆ More efficient and frequent use of existing basin and downstream pipe
- ◆ CSO108
 - ◆ Static regulator to divert flow to the relief interceptor



Costs and Schedules

Phase 1	\$13 million
Phase 2	\$8 million
Proposed Total	\$83 million

Phase 1 Operational	August 2006
Phase 2 Operational	Fall 2008

Remaining program identified during CSO LTCP finalization by December 2008