

# Wet Weather Team Project

# Meeting Materials

## Summer 2006–Spring 2007

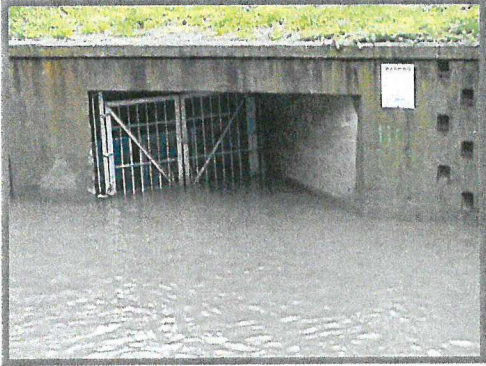
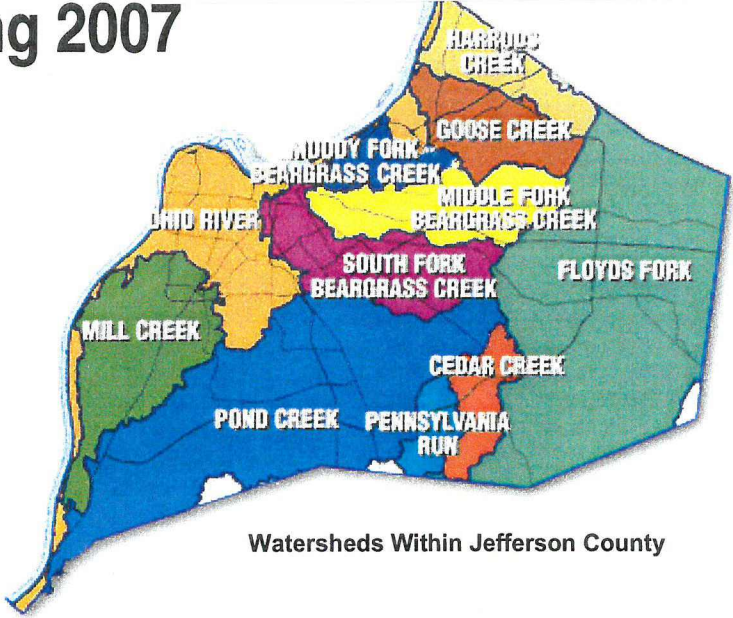
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WWT Stakeholders Meeting # 4 12/5/2006



**MSD**

Louisville and Jefferson County  
Metropolitan Sewer District



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**Final Agenda**  
**Louisville and Jefferson County Metropolitan Sewer District (MSD)**  
**Wet Weather Team Meeting #4**

*Tuesday, December 5, 2006, 4:30-9:00 PM*  
*MSD Central Maintenance Facility, Training Room*  
*A Commerce Center, 3401 Cane Run Road, Louisville*

**Meeting Objectives:**

- Review a refined list of the community values that Wet Weather Team members identified during the September 12 meeting.
- Present and discuss information on the current or “baseline” conditions for each of the non-financial community values. (Note: The financial values will be discussed in detail at the January 18, 2007 Wet Weather Team meeting.)
- Brainstorm objectives for each of the non-financial community values.
- Refine the set of community values based on input from Wet Weather Team members, and review how the values and objectives will be carried forward in the Wet Weather Team process.
- Review initial plans for public involvement during the Wet Weather Team process.
- Identify next steps and expectations for the next meeting of the Wet Weather Team.

**4:30 PM      Introductions and Agenda Review (10 minutes)**

- Review meeting objectives and ground rules.

**4:40 PM      Wet Weather Project Updates (15 minutes)**

- Updates on MSD wet weather activities and follow-up items from the last Wet Weather Team meeting.

**4:55 PM      Community Values Review (30 minutes)**

- Review a reorganized list of the community values that Wet Weather Team members identified during the September 12 meeting, and the suggested changes that were made to the value categories and components since that meeting.
- Review how the values will be used in the Wet Weather Team process, including plans to discuss values related to financial considerations at the January meeting.

**5:25 PM      Discussion of Baseline Conditions and Objectives for Non-Financial Values – Part I (25 minutes)**

- Review the purpose of identifying objectives and how the objectives will be used in the Wet Weather Team process. (5 minutes)
- For each non-financial value (20 minutes each):
  - Presentation and Q&A on the current or baseline conditions of the value (e.g., water quality conditions for the “environmental enhancement” value).
  - Explain the relationship between the baseline conditions for the value and wet-weather wastewater and stormwater management issues.
  - Discuss possible objectives for the value.

**12/5/06 Wet Weather Team Meeting Agenda, Continued**

- 5:50 PM Break to Get Dinner (15 minutes)**  
*Dinner will be provided for Wet Weather Team members.*
- 6:05 PM Working Dinner and Discussion of Baseline Conditions and Objectives for Non-Financial Values – Part II (2 hours)**
- Continued discussion of baseline conditions and objectives for non-financial values.
- 8:05 PM Revisit Community Values (15 minutes)**
- Review the set of non-financial community values in light of the discussion about baseline conditions and objectives, and make refinements to the values as needed.
- 8:20 PM Update on Public Involvement Plans (15 minutes)**
- Review of MSD's initial plans for public involvement during the Wet Weather Team process. (Public involvement activities will also be discussed at future meetings.)
- 8:35 PM Opportunity for Observer Comments (15 minutes)**
- 8:50 PM Wrap Up and Next Steps (10 minutes)**
- Review plans and expectations for the January 18, 2007 Wet Weather Team meeting.
- 9:00 PM Adjourn**



**Final Meeting Summary**  
**Wet Weather Team Meeting #4**  
**Tuesday, December 5, 2006**  
**MSD Central Maintenance Facility, Louisville**

The Wet Weather Team (WWT), chartered by the Louisville and Jefferson County Metropolitan Sewer District (MSD), met on December 5, 2006 at MSD's Central Maintenance Facility. The objectives of the meeting were to:

- Review and make additional adjustments to a refined list of the community values that WWT stakeholders identified during the September 12 WWT meeting;
- Learn about the current or "baseline" conditions for each of the non-financial values;
- Discuss objectives or potential focus areas for each of the non-financial values; and
- Identify next steps and expectations for the next meeting of the Wet Weather Team.

Rob Greenwood of Ross & Associates reviewed the agenda, objectives, and ground rules for the meeting, and noted that the MSD Board had recently invited three additional stakeholders to join the Wet Weather Team, so that it would better represent the Louisville and Jefferson County community. Due to time constraints, the facilitation team decided that the update on public involvement plans would be discussed at the next WWT meeting on January 18, 2007, rather than at this meeting.

### **Wet Weather Project Updates**

Brian Bingham, MSD Regulatory Management Services Director, provided several updates about MSD's wet weather management activities, as follows.

- Website: Mr. Bingham showed participants the new "Project WIN" (Waterway Improvements Now) section of MSD's website, [www.msdlouky.org/projectwin](http://www.msdlouky.org/projectwin). The Project WIN website provides background information on MSD's Consent Decree and MSD's efforts to develop an integrated Wet Weather Program to control problems with combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and stormwater runoff. It also features a color-coded system for alerting the public when there is a risk of wet-weather sewer overflows in the community.
- Consent Decree Activities: In September, MSD submitted several Consent Decree deliverables requested by the U.S. Environmental Protection Agency (EPA). MSD continues to have regular (typically bi-weekly) conference calls with EPA Region 4 and the Kentucky Division of Water about the Consent Decree. MSD is also implementing actions in the Interim Long Term Control Plan for CSOs and the Nine Minimum Controls in EPA's CSO Policy (e.g., control of solids and floatable materials).
- Facilitation Support Contract: The MSD Board approved a contract for Ross & Associates to provide facilitation support to the Wet Weather Team. MSD plans to share information about that contract with WWT members once the contract has been finalized.

WWT members requested that the public document repository on MSD's Project WIN website include the materials from Wet Weather Team meetings. MSD said it would add those materials to the website.

### **Community Values Review**

As an introduction to the community values discussion, Jennifer Tice of Ross & Associates reviewed the role of community values in the values-based risk management planning process the WWT is using to

inform MSD's development of an integrated Wet Weather Program. Values serve as the anchoring point for the process—they define the vision for what the Wet Weather Program will be designed to protect or enhance. The WWT will further refine the values by identifying objectives—goals or focus areas—for the values (e.g., reduction of pathogens in streams is a potential objective related to the public health enhancement value). These objectives will, in turn, inform how the technical team will evaluate the risk-reduction benefits of project alternatives.

Rob Greenwood of Ross & Associates gave an overview of how MSD, the technical team, and the facilitation team for the WWT Project had refined the list of community values since the September 12 WWT meeting. The handout, "Suggested Refinements to Wet Weather Team Community Values," includes an overarching statement about desired outcomes of the WWT process as well as ten values, separated into non-financial and financial values. All of the WWT ideas from the September 12 meeting were incorporated into the refined values document, along with additions from WWT members who were not at the meeting, and suggested additions from MSD and the technical and facilitation teams. In some cases, the value categories were combined and/or renamed in the refined values document.

WWT stakeholders reviewed the values document, and were generally supportive of the suggested refinements. Changes that WWT members suggested to the values document included the following:

- Use bullet points in the overarching statement to specifically call out the cross-cutting outcomes desired from the Wet Weather Program (e.g., stewardship, long-term perspective, etc.). Incorporate transparency and open communications into the list of desired outcomes.
- Potentially rename the Customer Service value either "Customer Satisfaction" or "Community Enhancement." Other aspects of this value (and/or the Eco-Friendly Solutions value) could include: (a) facilities that are accessible and user friendly, and (b) solutions that address multiple issues/problems for the community.
- Make education a separate value (as well as a strategy), drawing on the education-related bullet points from the "Environmental Justice/Equity" value category.

## **Baseline Conditions Presentation and Discussion of Performance Objectives**

As an introduction, Rob Greenwood noted that the purpose of the baseline conditions presentation was to provide concrete information to WWT stakeholders on the current conditions of the non-financial values as they pertain to sewer overflows and stormwater-management issues. (Baseline conditions for financial values will be discussed at the next WWT meeting.) This information is intended to ground the WWT's discussion of performance objectives or focus areas for the values. A few caveats were noted: There are several data gaps, and MSD is also in the process of reviewing and verifying much of the data. In several cases, MSD had not tracked or managed to these data previously.

Derek Guthrie, Angela Akridge, and Brian Bingham of MSD, along with Gary Swanson of CH2M HILL, gave a series of presentations about baseline conditions for each of the non-financial values. Each presentation was followed by a short, facilitated discussion to solicit WWT ideas about what aspects of the community value to focus on for setting performance objectives. The objectives will serve as practical definitions of the values, since they inform how the risk-reduction benefits of project alternatives will be determined in the cost-benefit analyses that will inform the design of MSD's Wet Weather Program. Highlights of these presentation/discussion sessions are summarized below.

### ***General Clarifications***

- Although this process is about the Consent Decree, there is a distinction between Consent Decree compliance and enhancing community values—these are not always exactly the same. For

example, projects considered as part of MSD's Wet Weather Program could provide multiple benefits for the community beyond those that are explicitly required by the Consent Decree.

- One goal of the Wet Weather Team process is for MSD to come into compliance with the Clean Water Act in a way that makes the best use of the community's resources. To do that, it is important for the WWT to consider wet-weather issues as a whole, not simply CSOs and SSOs.
- Many of the values will move in the same direction in the analysis of project benefits; however, there will also be tradeoffs and competing values. For example, the Financial Stewardship value focuses on cost effectiveness, which projects may affect in a different way than the other values.

### ***1. Asset Protection***

- Summary of Baseline Conditions: The most frequent asset protection issue is basement backups, and most backups are not MSD-related. Structural collapses and cave-ins have had only minor cost impacts on assets. Although the flood protection system for the Ohio River works well in general, there are still drainage issues throughout Jefferson County. The storm of September 2006 was an extreme event, outside the range of reasonable design considerations.
- Requests for Additional Data: A few WWT members asked for more specific information on the percentage of backups that are the result of MSD's activities as opposed to private property issues. Another potential metric mentioned was the number of backups that occur in dry weather vs. wet weather conditions.
- Potential Focus Areas for Objectives: Reduce the number of basement backups that occur and/or the dollar value of property damage resulting from sewer backups.

### ***2. Customer Service***

- Summary of Baseline Conditions: According to calls received by MSD, the top concerns of customers are protection from property damage (e.g., from flooding or backups), service continuity, and avoidance of construction or operational impacts. MSD also tracks its response time for backup investigations; the majority of backup calls are responded to in four hours or less.
- Requests for Additional Data: WWT members had suggestions for other ways of collecting and evaluating data on customer service, including hits on MSD's website, requests for information, and customer satisfaction surveys.
- Potential Focus Areas for Objectives: Based on the baseline conditions data, three dimensions of customer service are potentially relevant to evaluate: (1) the degree of disruption from construction, (2) the extent of impacts to property, and (3) the response time for addressing customer concerns. Other parameters relating to "quality of life" may also be relevant.

### ***3. Eco-Friendly Solutions***

- Summary of Baseline Conditions: A variety of non-obtrusive construction techniques are available and being used by MSD. MSD has authority over sewer and drainage design, but not where development is allowed to occur. In development reviews, MSD routinely typically (but not always) requires stormwater retention to limit peak flows of stormwater. Small-scale, preventative practices (e.g., permeable pavement, green roofs, etc.) can also reduce peak flows and capture pollutants.
- Requests for Additional Data: A few participants requested quantitative information on the benefits and/or effectiveness of the eco-friendly solutions included in the presentation (e.g., the



amount of water collected or diverted from the sewer system using bioretention, rain gardens, etc.). A participant also observed that no quantitative data were presented as baseline conditions for this value (e.g., on the extent to which “eco-friendly” techniques are used in the community).

- Potential Focus Areas for Objectives: Characteristics of eco-friendly solutions include: (1) projects that provide multiple-use benefits, (2) methods of source control that mimic and/or use natural systems, (3) use of non-obtrusive construction techniques.
- Other Comments: WWT members started to discuss the issue of regulatory requirements for control of stormwater runoff. Considerations mentioned include the consistency of the requirements, the extent of enforcement by MSD, and whether certain areas should be higher priority for stormwater controls because of their potential for impacts on water quality.

#### ***4. Environmental Enhancement***

- Summary of Baseline Conditions: Aquatic habitat has been lost due to historical drainage control practices. Since EPA considers all recreational use areas for Jefferson County waters to be “sensitive,” it may be useful for MSD’s prioritization of sensitive waters to go beyond the strict regulatory definition. Depletion of dissolved oxygen (DO) is a primary water quality problem in Jefferson County waters. While wet weather loadings of biochemical oxygen demand (BOD) appear to be a relatively minor contributor to this problem, control of both non-point and point sources of nutrients (nitrogen and phosphorus) will be needed to mitigate impacts. Finally, MSD has made improvements in reducing odors from wastewater treatment plants and in controlling solids and floatable materials in waterways, but work remains to be done.
- Requests for Additional Data: Several WWT members commented that it was difficult to read many of the charts in the presentation, so requested larger, readable versions of the charts. Additional environmental performance metrics suggested by WWT members included biological indexes of aquatic health (fish counts, macro-invertebrate sampling, etc.), nutrient sampling, downstream pollutant load, and tree cover or other measures of habitat restoration efforts.
- Potential Focus Areas for Objectives: Based on this discussion, dimensions of the environmental enhancement value to focus on include: aquatic habitat restoration, improving dissolved oxygen levels in streams, aesthetics (e.g., reducing odors, trash, etc.), defining and improving “sensitive” areas for human contact, and reducing downstream impacts on biological oxygen demand.

#### ***5. Environmental Justice/Equity***

- Summary of Baseline Conditions: Environmental justice concerns can arise when there is a disproportionate siting of facilities in minority or low-income communities, a disproportionate relocation of residents from those communities, and/or unequal levels of service provided to minority and low-income neighborhoods (e.g., fewer improvement projects, more property damage from backups, etc.). In general, the rates of problems and the distribution of service improvement projects appear to be uniform across Jefferson County. MSD facilities are sited based on drainage patterns, and most new construction and property acquisitions have occurred in outlying areas. Property damage claims are more frequent in the core city (Beargrass Creek watershed), probably because that is the area served by the combined sewer system.
- Requests for Additional Data: WWT members asked whether MSD has a checklist it uses for evaluating potential environmental justice impacts of projects. MSD responded that there is a place in the review process to look at the issue, but the WWT stakeholder process could probably help MSD to better document that review process.

- Potential Focus Areas for Objectives: With environmental justice and equity, it is important to pay attention to the balance in the distribution of (1) capital investments, (2) facility construction and siting, and (3) service provision to different segments of the community.
- Other Comments: One WWT member noted that equity and environmental justice are different, but related issues. A few participants also commented that MSD has done a lot to reduce odors from the Morris Forman Wastewater Treatment Plant, although there is more that could be done to reduce odors in the area around Rubbertown and the Morris Forman plant. One potential solution to sewer overflow issues mentioned in the discussion was developing/constructing new down-gradient wastewater treatment facilities (e.g., for the Salt River).

## **6. Public Health Enhancement**

- Summary of Baseline Conditions: The main public health concern for MSD activities is water-borne pathogens. The standards for contact recreation are often not met during and immediately following wet weather events, even in streams that do not receive significant sewer overflows. The risk-based standards are imprecise, and there is considerable variability in how other states and EPA have developed water quality standards. National data show that there has been a low level of recreational contact illness from freshwater. Public notification is integral to the current risk management strategy for preventing illnesses.
- Requests for Additional Data: A WWT member suggested looking at how fecal coliform levels change with flow volumes, and reviewing where water quality sampling is currently done in relation to recreational areas. Participants were also reminded of the ground rule that allows participants to request that MSD invite other experts to speak at meetings about relevant topics.
- Potential Focus Areas for Objectives: A key focus area for the public health value is on water-borne bacteria (pathogens).
- Other Comments: WWT members mentioned that it is difficult to collect good data showing the links between exposure to environmental contaminants and human illnesses. Some participants said that there is an obligation to reduce public health risks, even if there are few documented illnesses from contact with recreational waters, while others noted that it may be harder to convince people about the value of resource investments because there is a low health risk.

## **7. Regulatory Compliance**

- Summary of Baseline Conditions: MSD's wastewater treatment plants have a 90 percent compliance record excluding interference from construction. Some small "package" treatment plants have performance issues at high flow volumes, and some have peak flows above their capacity. Existing CSO controls do not meet regulatory expectations for volume, frequency, or the water quality of receiving waters. MSD's Capacity, Management, Operations, and Maintenance (CMOM) Program and other efforts are addressing some of the root causes of SSOs. MSD has met all Consent Decree reporting schedules and milestone deadlines to date.
- Potential Focus Areas for Objectives: Dimensions of compliance include wastewater treatment plant permit discharge and reporting violations, the frequency and volume of CSOs, the number and volume of avoidable SSOs, and attaining water quality standards through CSO controls.
- Other Comments: Several participants commented that the pie chart showing the relative contributions of CSOs, runoff, and wastewater treatment plant discharges to Ohio River fecal

coliform levels could be misleading (e.g., SSOs may be included as “runoff”). In addition, the pie chart generated a variety of observations regarding the degree of impact that MSD’s investments in CSO and SSO controls can be anticipated to have on water quality in the Ohio River. This led some participants to note that the fact that CSOs and SSOs only represent a portion of the water quality issues in the Ohio River could present a challenge for generating broad-based community support for MSD investments in CSO/SSO controls, although this was balanced by observations regarding MSD’s need to comply with Clean Water Act requirements.

## Observer Comments

There were no observer comments at this meeting.

## Wrap Up and Next Steps

Rob Greenwood concluded the meeting by observing that WWT members appeared to be generally comfortable with the community values, and that participants had touched on many of the complicated issues that will be the focus of future discussions. He also noted that future meetings would be designed to provide information in more manageable chunks, and to allow more time for discussion.

- The facilitation team will conduct one-on-one phone calls with each WWT stakeholder to check in about the WWT process and to follow up on the values discussion before the next WWT meeting.
- MSD will add WWT meeting materials to its “Project WIN” website, [www.msdlouky.org/projectwin](http://www.msdlouky.org/projectwin).
- The technical team will develop more precise definitions of the values based on the WWT’s discussions, and will start drafting a potential framework for evaluating projects based on the values.
- The next WWT meeting will be on Thursday, January 18, 2007, from 4:30 to 9:00 PM. Meeting topics will likely include:
  - Review the objectives identified by WWT members for the *non-financial* values;
  - Presentation on baseline conditions for the *financial* values;
  - Discussion of objectives for the financial values;
  - Preview examples of how project alternatives will be evaluated based on the values; and
  - Review plans for public involvement during the Wet Weather Team process.

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## Meeting Participants

### *Wet Weather Team Stakeholders*

Steve Barger, Labor  
Stuart Benson, Metro Council, District 20  
Allan Dittmer, University of Louisville  
Jeff Frank, Vanguard Sales  
Arnita Gadson, West Jefferson County Community Task Force  
Tom Herman, Zeon Chemicals  
Rick Johnstone, Deputy Mayor, Mayor’s Office  
Bob Marrett, CMB Development Company

Kurt Mason, Jefferson County Soil and Water Conservation District  
Judy Nielsen, Louisville Metro Health Department  
Lisa Santos, Irish Hill Neighborhood Association  
Bruce Scott, Kentucky Waterways Alliance  
David Tollerud, University of Louisville, School of Public Health and Information Sciences  
Tina Ward-Pugh, Metro Council, District 9  
David Wicks, Jefferson County Public Schools

*MSD Personnel*

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

*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**

Henry Cubero, The Cubero Group  
David Hackworth, CH2M HILL  
Tim Kraus, O'Brien & Gere  
Teri Pifine, MSD

**Meeting Materials**

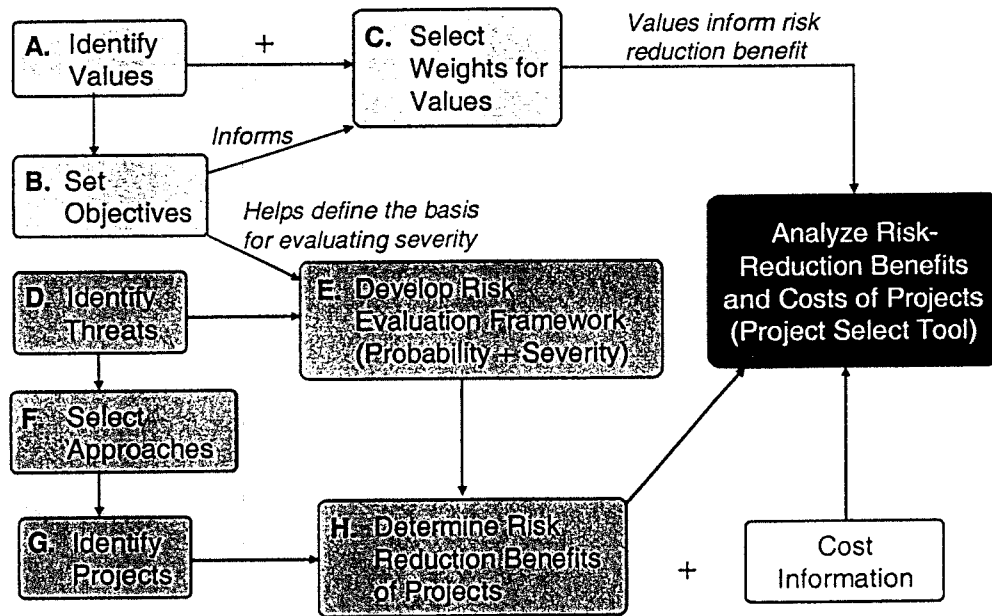
- Agenda
- Wet Weather Team Membership and Contact Information (December 2006 version)
- Process Overview and Schedule of Upcoming Discussion Topics handout
- Draft summary of the 9/12/06 Wet Weather Team meeting (WWT Meeting #3)
- Suggested Refinements to WWT Community Values handout
- Non-Financial Values and Baseline Conditions presentation
- Public Participation presentation (this was not discussed during the meeting)



**Wet Weather Team**  
**Process Overview and Schedule of Upcoming Discussion Topics**  
**Draft of 12/1/06**

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## Values-Based Risk Management Planning Process



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### Wet Weather Team Meeting Discussion Topics, December 2006 – June 2007

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#### Meeting 4: Tuesday, December 5, 2006

- Review refined community values (based on 9/12/06 Wet Weather Team [WWT] discussion)
- For each *non-financial value*:
  - Identify potential threats related to MSD's Consent Decree and overall responsibilities
  - Provide information about current baseline conditions and describe data gaps
  - Discuss high-level objectives for the value
- Update on plans for public involvement during the WWT process

#### Meeting 5: Thursday, January 18, 2007

- Review and discuss proposed objectives for the *non-financial* community values
- For each *financial value*:
  - Identify potential threats related to MSD's Consent Decree and overall responsibilities
  - Provide information about current baseline conditions and describe data gaps
  - Discuss high-level objectives for the value

**Meeting 6: Tuesday, February 13, 2007**

- Review and discuss proposed objectives for the *financial* community values
- Brainstorm and discuss the basis for evaluating threats to each community value:
  - Probability scales
  - Severity scales
- Brainstorm possible comparative weights for community values

**Meeting 7: Thursday, March 15, 2007**

- Present and discuss proposed weights for community values
- Present and discuss initial draft of probability and severity scales for values
- Brainstorm threats to community values
- Review & refine plans for the first public informational meeting about MSD's Consent Decree activities and the Wet Weather Team process (the meeting is tentatively scheduled for 4/2/07)

**Meeting 8: Thursday, April 19, 2007**

- Present and discuss revised draft of probability and severity scales for values
- Present and discuss fleshed out and specific threats to community values
- Exercise to plot a limited number of threats on the community values risk matrices (showing probability and severity)
- Check-in on comments and feedback from the public informational meeting on 4/2/07

**Meeting 9: Thursday, May 17, 2007 (at Floyds Fork Wastewater Treatment Plant)**

- Optional tour of the Floyds Fork Wastewater Treatment Plant
- Present and discuss MSD rate and financing options
- Update on specific threat characterizations

**Meeting 10: Thursday, June 21, 2007**

- Present and discuss specific threat characterizations
- Discuss general risk reduction strategies
- Preview:
  - Process to identify projects and alternatives based on threats
  - Upcoming use of Project Select tool

**Other Proposed Meeting Dates for 2007**

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Meeting Number	Proposed Date	Tentative Location
11	Thursday, August 2, 2007	MSD Central Maintenance Facility
12	Thursday, September 20, 2007	MSD Central Maintenance Facility
13	Thursday, October 18, 2007	MSD Central Maintenance Facility
14	Thursday, December 6, 2007	MSD Central Maintenance Facility

*The meetings will likely run from 4:30 PM to 9:00 PM, including dinner for participants.*





## **Suggested Refinements to Wet Weather Team Community Values (Discussion Draft for the December 5, 2006 Wet Weather Team Meeting)**

### **Overarching Statement about the Outcomes of the Wet Weather Team Process**

The Wet Weather Team (WWT) is assisting the Louisville and Jefferson County Metropolitan Sewer District (MSD) with the development of an integrated Wet Weather Program to address the community's problems with combined sewer overflows, sanitary sewer overflows, and stormwater runoff. The Program will aim to incorporate a long-term perspective, reflect a commitment to environmental and economic stewardship, and enhance the quality and sustainability of life in the Louisville / Jefferson County community. The Program will also reflect a commitment to using management practices that avoid creating future problems and will explore the role of a comprehensive set of legal regulations. The Wet Weather Team process to inform the design of this Program will require participants to tackle difficult decisions, take responsibility for those decisions, and be open to change.

To achieve these cross-cutting outcomes in the design of the Wet Weather Program, the Wet Weather Team will explicitly consider the impacts of potential alternatives on a set of community values. The draft values WWT stakeholders identified in a brainstorming exercise at the September 12, 2006 WWT meeting are listed below, along with input from Wet Weather Team stakeholders who were not present at the meeting and refinements suggested by MSD, the Technical Team, and/or the Facilitation Team. These suggested refinements will be discussed at the December 5, 2006 WWT meeting. The values are divided into two categories—financial and non-financial—and are ordered alphabetically.

### **I. Non-Financial Values**

#### **A. Asset Protection**

- Protect/improve property
- Improve drainage

*Suggested Additions from the Technical Team:*

- Reduce basement back-ups
- Protect historic and archaeological resources [from EPA Long Term Control Plan guidance]
- Protect floodplains [from EPA Long Term Control Plan guidance]

#### **B. Customer Service [new value category suggested by MSD]**

*Additions from WWT Stakeholders Not Present at the 9/12/06 Meeting:*

- Don't interfere with quality of life

*Suggested Additions from the Technical Team:*

- Traffic and site access [from EPA Long Term Control Plan guidance]
- Utilities relocation [from EPA Long Term Control Plan guidance]
- Reliability of service [from EPA Long Term Control Plan guidance]
- Noise and vibration [from EPA Long Term Control Plan guidance]

#### **C. Eco-Friendly Solutions [value title shortened from "Eco-Friendly, Site-Specific Solutions"]**

- Incorporates climate change considerations
- Working with nature/what is in place

- Solutions are environmentally friendly (real pond, wetland)
- Natural landscape with many trees
- Sustainability: development, how to manage development
- Proper infrastructure leads development

*Suggested Additions from the Technical Team:*

- Preference for natural, low energy, low maintenance solutions

**D. Environmental Enhancement** *[merged with the "Recreational Opportunities" value by Technical and Facilitation Teams]*

- Improve threatened waterways – beneficial side effects
- Improve Beargrass Creek water quality/quantity
- Protect/improve environment
- Improve recreational opportunities: fish, boat, wade

*Additions from WWT Stakeholders Not Present at the 9/12/06 Meeting:*

- Reduce downstream water-quality impacts on other communities/areas (e.g., Gulf of Mexico)
- Reduce/improve odors and air emissions

*Suggested Additions from the Technical Team:*

- Protect/improve aquatic habitat for diverse species
- Aesthetics – control of odors and floatables
- Protect wetlands *[from EPA Long Term Control Plan guidance]*
- Protect threatened and endangered species *[from EPA Long Term Control Plan guidance]*
- Create multiple-use facilities to enhance public benefit *[from EPA Long Term Control Plan guidance]*

**E. Environmental Justice/Equity** *[new value title suggested by MSD based on "Equity" and "Education and Outreach" values; cost considerations are covered under "Financial Equity" below]*

- Equitable distribution of resources/benefits
- Equitable quality of life improvement (help challenged areas) – environmental justice
- Equitable responsibility for problem solving
- Educated populace – learning can change behavior
- Let public know about sump pump program
- Empowering people
- Self improvement (start in own backyard, responsibility)
- Funding public service announcements *[observer comment]*

*Suggested Additions from the Technical Team:*

- Equitable service and equitable siting of facilities (don't locate all facilities in minority or low-income neighborhoods)
- Minimize household relocations
- Consider existing or planned land use of construction sites *[from EPA Long Term Control Plan guidance]*

**F. Public Health Enhancement**

- Protect/improve health
- Safety of neighbors

*Suggested Additions from the Technical Team:*

- Minimize potential for encountering hazardous materials at construction sites *[from EPA Long Term Control Plan guidance]*

**G. Regulatory Compliance**

- Compliance – Clean Water Act

*Additions from WWT Stakeholders Not Present at the 9/12/06 Meeting:*

- Compliance – Clean Air Act

*Suggested Additions from the Technical Team:*

- Compliance – Consent Decree (specifics)

**II. Financial Values**

**A. Economic Vitality** *[new value title suggested by Technical Team based on “Quality Development/Infrastructure” value]*

- Revitalize urban core
- Affordability – housing
- Adequacy for development – supports smart growth

*Additions from WWT Stakeholders Not Present at the 9/12/06 Meeting:*

- Affordability of rates and fees
- Fiscal transparency – communicate costs and the impacts on rates
- Maintain competitive industrial rates – keep costs down
- Make sure that any rate and fee increases are predictable and transparent
- Avoid excessive charges and connection fees for new development (don’t push more development outside Jefferson County)

**B. Financial Equity**

- Equitable assignment of costs
- Natural state of cause and effect: ownership of impacts, assigns costs
- Impact-weighted cost structure
- Consider the burden on fixed income and low-income populations *[suggested change from the Technical Team based on “Elderly/low income burden/engagement” and “Age may not be the best indicator for ‘equitable’”]*

*Additions from WWT Stakeholders Not Present at the 9/12/06 Meeting:*

- All neighborhoods have the same value

**C. Financial Stewardship** *[new value title suggested by Technical and Facilitation Teams – changed from “Fiscal Prudence”]*

- Financial common sense
- Maximize use of rate \$ [“biggest bang for the buck”]
- Cost effective in-stream results – don’t spend money without discernable benefits
- Consider cost – achieve through volunteers
- Incentives for “preferred” behaviors
- Market incentives *[observer comment]*
- Take advantage of corporate sponsorship *[observer comment]*

*Additions from WWT Stakeholders Not Present at the 9/12/06 Meeting:*

- Reasonableness: be cost conscious; be reasonable regarding how and when people use streams
- Consider the cost-benefit ratio: make certain that benefits are worth the money invested

*Suggested Additions from the Technical Team:*

- Operability [from EPA Long Term Control Plan guidance]
- Constructability [from EPA Long Term Control Plan guidance]
- Institutional constraints [from EPA Long Term Control Plan guidance]
- Adaptability to phased implementation [from EPA Long Term Control Plan guidance]



# Non-Financial Values and Baseline Conditions

Wet Weather Team  
Stakeholder Group Meeting No. 4  
December 5, 2006

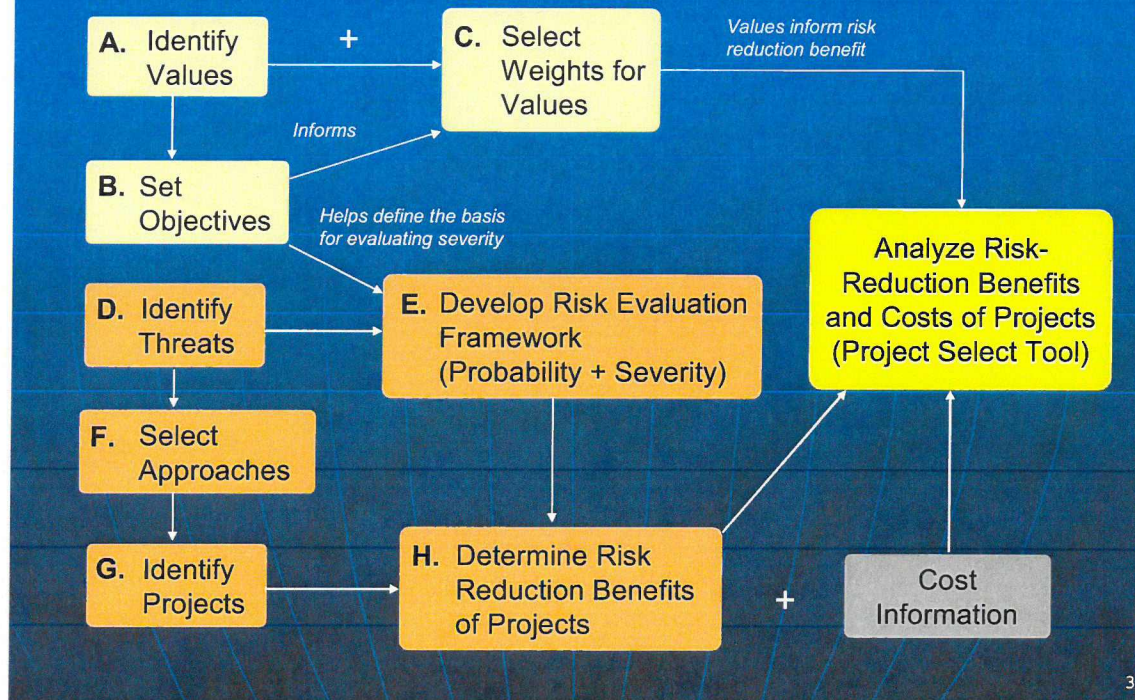


Louisville & Jefferson County  
Metropolitan Sewer District

## Presentation Outline

- Review how values and objectives fit in the Wet Weather Team process
- Review the list of non-financial values
- For each non-financial value:
  - Identify potential threats related to MSD's Consent Decree and overall responsibilities
  - Provide information about current baseline conditions and describe data gaps
  - Develop high-level objectives for each value to facilitate identification of numerical performance scales by the technical team

## Values-Based Risk Management Planning Process



## Non-Financial Values (alphabetical, not prioritized yet)

Value
1 - Asset Protection
2 - Customer Service
3 - Eco-Friendly Solutions
4 - Environmental Enhancement
5 - Environmental Justice/Equity
6 - Public Health Enhancement
7 - Regulatory Compliance

# 1 – Asset Protection



5

## 1 - Asset Protection

Potential threats to assets are related to property damage

- Sewer back-ups into basements or homes
  - property service connection blockage
  - main sewer surcharging
- Drainage limitations causing surface flooding
  - submergence of structures, cars, etc.
  - erosion and foundation damage
- Structural failures of sewers causing cave-ins or foundation undermining

6



# 1 - Asset Protection: Sewer Backups\*

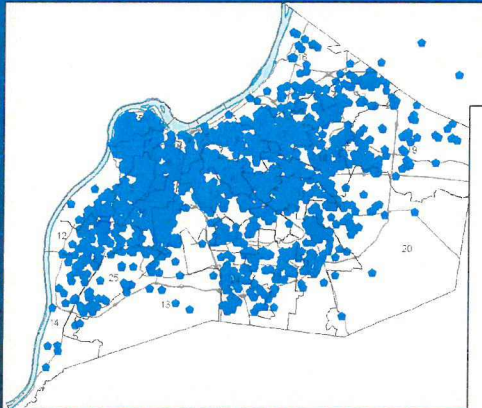
Backups	No. of Claims	\$ Value
2004	305	\$620,265
2005	261	\$1,223,009
Jan - Sept 2006	634	\$363,181
Total	1,200	\$2,206,455

\*Data from Work Order Reports

7

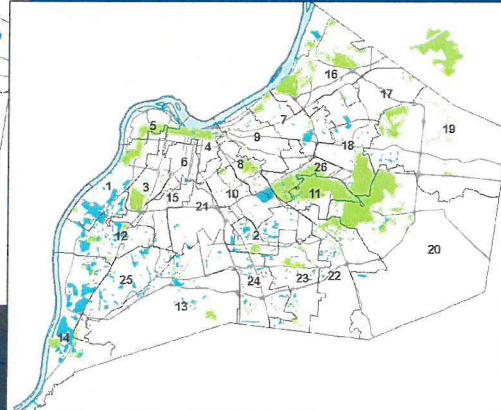
# 1 - Asset Protection: Surface Flooding Damage

Property Damage from  
September 2006 Rain Events



PropertyDamage.jpg

Capital Projects  
Blue-Drainage  
Green-Sanitary Sewer



CapitalProjs.jpg

8

# 1 - Asset Protection: Cave-in & Structural Failure Collapse and Claims

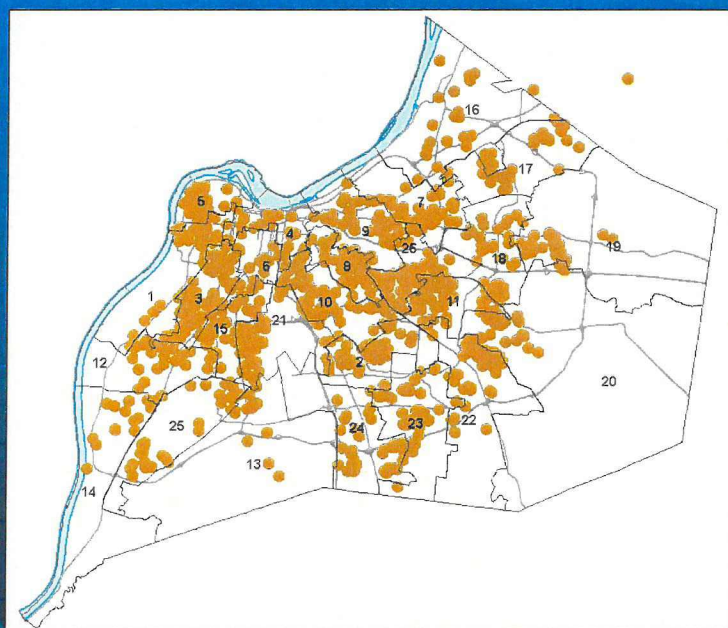
Type Collapses	No. of Dry Weather	No. of Wet Weather
Sewer Mains	11	0
Sewer Manholes	13	1
Sewer Service Lines	22	1

Type Claim	No. of Claims	\$ Value
Cave-ins & collapses	12	\$2,828
All MSD Claims	1,518	\$2,467,027

Period of Jan 2004 – Sept 2006

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# 1 - Asset Protection: All Claims



Claims.jpg

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# 1 – Asset Protection Summary

- Backups represent most frequent asset protection issue
- Most backup problems are not MSD related
- Flood protection system works well for Ohio River flooding
- Drainage issues remain throughout Jefferson County
- Storm of September 2006 was extreme event – outside the range of reasonable design considerations
- Cave ins and structural collapses have had relatively minor cost impacts on assets

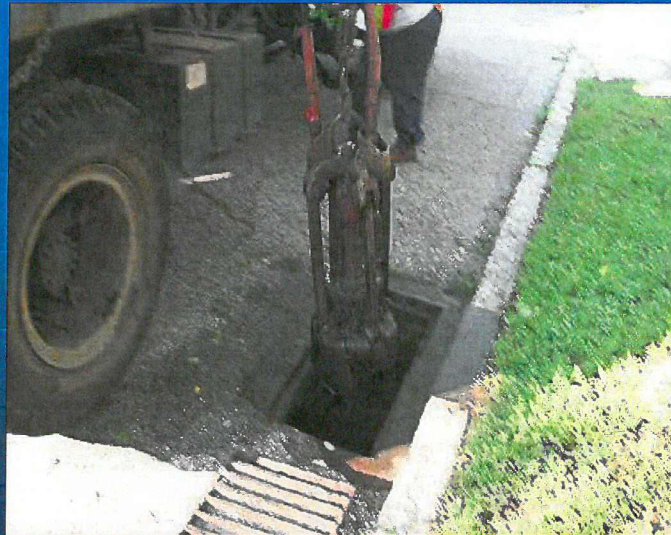
11

# 1 - Asset Protection Performance Objective Development

- Stakeholder Discussion

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## 2 – Customer Service



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## 2 - Customer Service

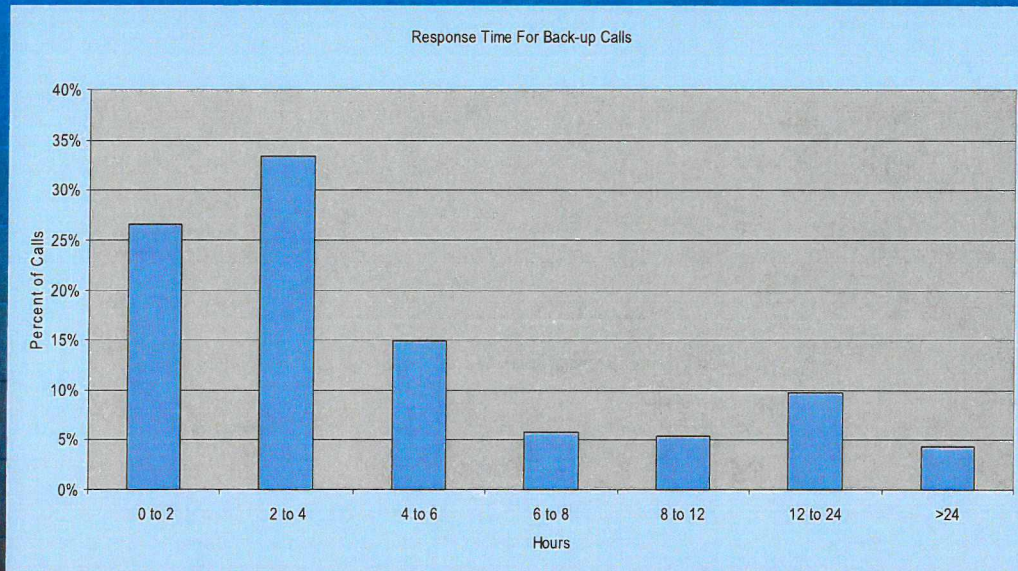
Potential threats to customer satisfaction as indicated by MSD Service Requests (percentage of total)

- Drainage, drain cleaning, flooding (10%)
- Residential backups (8%)
- Property damage (8%) (includes flood of Sept 2006)
- New construction impacts or disruption (3%)
- Clogged or defective catch basins (3%)
- Soil or pavement cave-ins above storm and sewer pipes (3%)

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## 2 – Customer Service

### Response Times for Back-up Investigations (2006)



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## 2 - Customer Service: Customer Complaints/Calls

November 2005 to November 2006

*Metro Drain Cleaning, Flooding	*Sewer & Private Lateral Stoppage	*Property Damage	*New Construction	*Faulty Catch Basins	*Pipe Cave-ins	All Other (e.g. billing)	Total
8,169	6,579	6,258	2,260	2,222	2,104	58,279	85,871

\*Top six service request categories reflecting system operational or structural problems

Conclusion – customer top concerns are service continuity, protection from property damage, and avoidance of construction or operational impacts

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## 2 - Customer Service Performance Objective Development

- Stakeholder Discussion

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## 3 – Eco-Friendly Solutions



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## 3 - Eco-Friendly Solutions

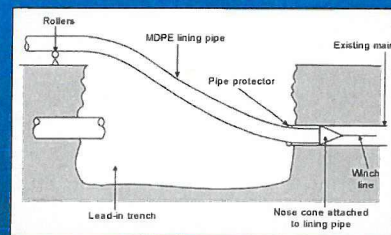
### Potential threats to eco-friendliness

- Construction impacts
  - erosion
  - traffic disruption
- Post-construction impacts
  - erosion and habitat destruction
  - consumption of non-renewable resources
  - reliance on facilities rather than personal responsibility
- Urban sprawl and land-use planning failures
  - zoning changes
  - utility service planning

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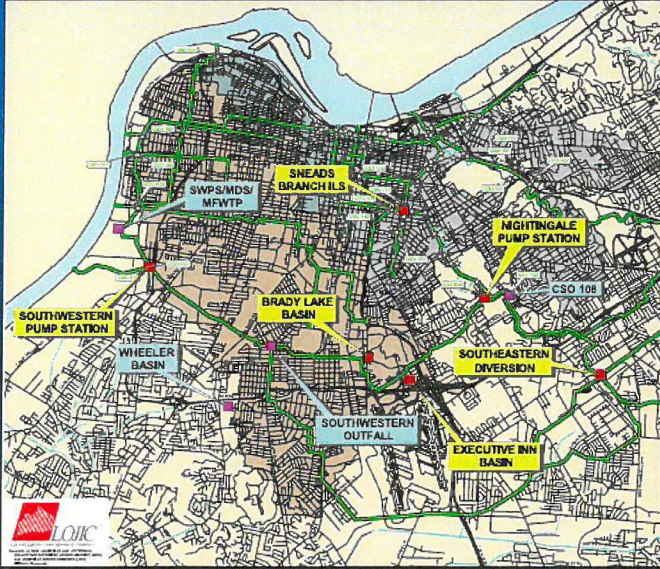
## 3 - Eco-Friendly Solutions: Non-obtrusive and Trenchless Construction

- Available trenchless technologies include:
  - slip-lining
  - cured-in-place lining
  - pipe bursting
  - directional drilling
- MSD has used all these technologies except directional drilling
  - 1, 127 slip-lining projects since 2001



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### 3 - Eco-Friendly Solutions: Wastewater and Stormwater Controlled Retention and Release



- Wastewater storage a key part of CSO control strategies
  - 36 MG of storage at six sites
  - additional 25 MG to be added by Dec. 2008
- Stormwater storage often required as part of development reviews
  - Fairgrounds Basins capture stormwater, route through CSS
  - Stormwater retention basins commonly required to reduce drainage impacts on downstream properties

### 3 - Eco-Friendly Solutions: Natural Solutions Available to Reduce Peak Flows and Capture Pollutants



Foundation Green

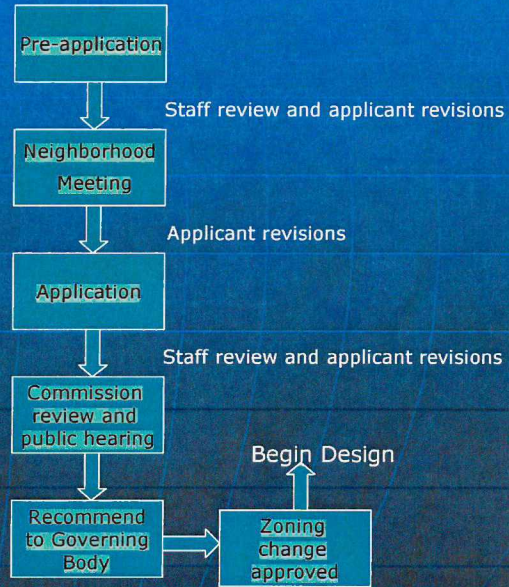
Bioretention

Permeable Pavers



# 3 – Eco-Friendly Solutions Land Use Planning for Smart Growth

- Zoning change application is mechanism to ensure compliance with Comprehensive Plan (Cornerstone 2020)
- "Staff review" includes Planning Commission, MSD, KYTC, TARC, Public Works, and many others



# 3 – Eco-Friendly Solutions Land Use Planning for Smart Growth

- Planning Commission staff review zoning change applications for Comprehensive Plan compliance
- MSD reviews zoning change applications for sewer and drainage capacity, and design issues
  - may also initiate discussions on payment issues
  - MSD cannot reject application, can only comment on utility service requirements

MSD SUB-WM NO.

**PRELIMINARY PLAN CHECKLIST**  
Form Required to R-2-20

Project Name: \_\_\_\_\_  
Date: \_\_\_\_\_

The purpose of this checklist is to expedite and define the review process. This checklist pertains to the minimum requirements outlined in "MSD's Rules". All items shall be marked as "checked" or "not checked". The completion of required items may be done in a separate or supplemental submittal set.

**REQUIRED ITEMS**

MSD Plan Submittal Application	EPSC checklist (if existing waters exist)
Location Map	Building Formulas
Owner(s) Name and Address	Proposed Lotments
Developer(s) Name and Address	Including Utilities, Sewers and Storm Drainage
Project Address	Request for Secondary Street Easement
Plan Date	Soil Type and Final Grade for the Site
Public Works	MSD/WM meeting
Traverse Boundaries	Landscaping Buffer Area*
Adjacent Property Owners	
Topography of Site - Minimum 5% Slope readings	
Geological Cross-Section (showing flow direction, and Proposed Stormwater Flow, to Existing Drainage)	
Drainage Basin Location and stormwater Size Calculations or "CR-412" stormflow	
agreement, surface area and depth of basin.	
50-Year Local Regulatory Floodplain (with 100-year FPMAL and Regulatory Floodplain in	
Balance)	
Complete Utility Sewers including identification of Water Treatment Plant	

**ADDITIONAL INFORMATION/NOTES (IF APPLICABLE)**

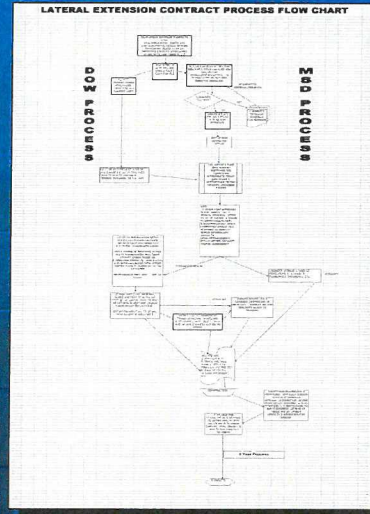
- Subject to MSD Plan Review for the project in accordance with Administrative, Planning, Safety, and No. Markings and portions of an incorporated reference (as noted)
- Subject to MSD Regional Public File (if drainage not required)
- MSD Approval Required (MSD Approval is required for development)
- Drainage Notes
- Survey by LE Subject to Plan
- Survey by Licensed Professional Engineer
- COE Workable Determination Required
- Submittal Construction Methods Required
- Special Notes with map, Permit or Project

\*The Engineer shall be responsible and Submittal the plan and map to the checklist.

1/1/2016 2/2/2016

## 3 - Eco-Friendly Solutions: Land Development Plan Reviews

- MSD reviews for compliance with design standards for sewers and drainage facilities
- DOW delegated authority to MSD for review of non MSD-designed projects
- Includes considerations of storm water retention for drainage impacts on downstream properties
- Payment conditions developed during this process
  - Lateral Extension Fees
  - Connection Fees
  - Reserved Capacity Fees
  - Excess Capacity Charges
  - Recapture Agreements



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## Eco-Friendly Solutions Summary

- Non-obtrusive construction techniques are available and being used by MSD
- Storm water retention to limit peak flows is routinely required
- Small-scale preventive practices can reduce flow peaks and capture pollutants
- MSD has authority over sewer and drainage design, but not where development is allowed to occur

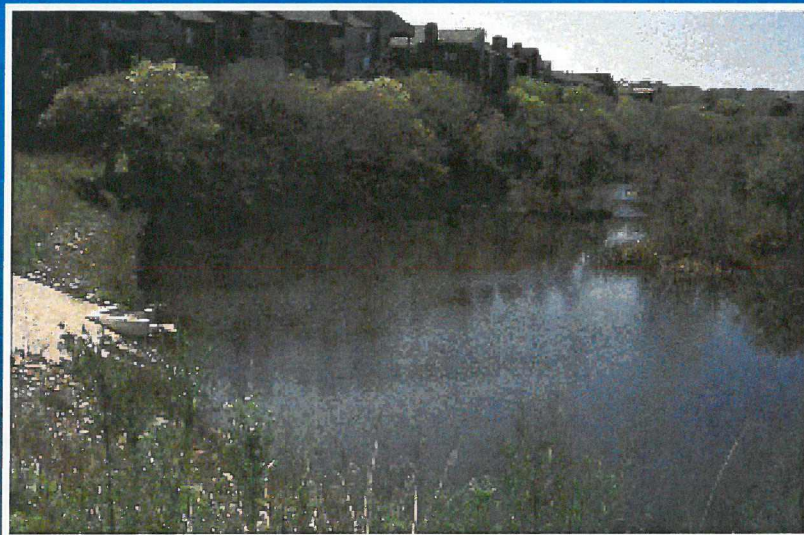
26

## 3 - Eco-Friendly Solutions Performance Objective Development

- Stakeholder Discussion

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## 4 – Environmental Enhancement



28

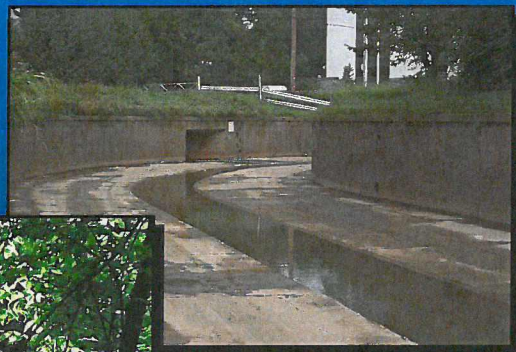
## 4 - Environmental Enhancement:

Potential threats to the environment – aquatic community impacts

- Loss of habitat
  - erosion or sedimentation
  - channel modifications
  - loss of green-space
- Sensitive area impacts
- Water quality degradation
  - Dissolved oxygen (DO) deficit
    - Biochemical Oxygen Demand (BOD) loading
    - Ammonia-nitrogen loading
    - Phosphorus loading & eutrophication
- Aesthetics
  - Solids and floatables
  - Odor
- Pathogens (public health, not environment)

29

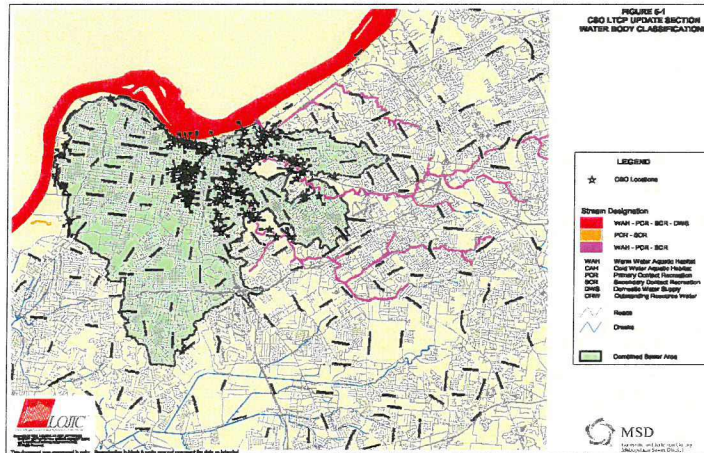
## 4 - Environmental Enhancement: Fish and wildlife habitat has been lost in both streams & wetlands



30

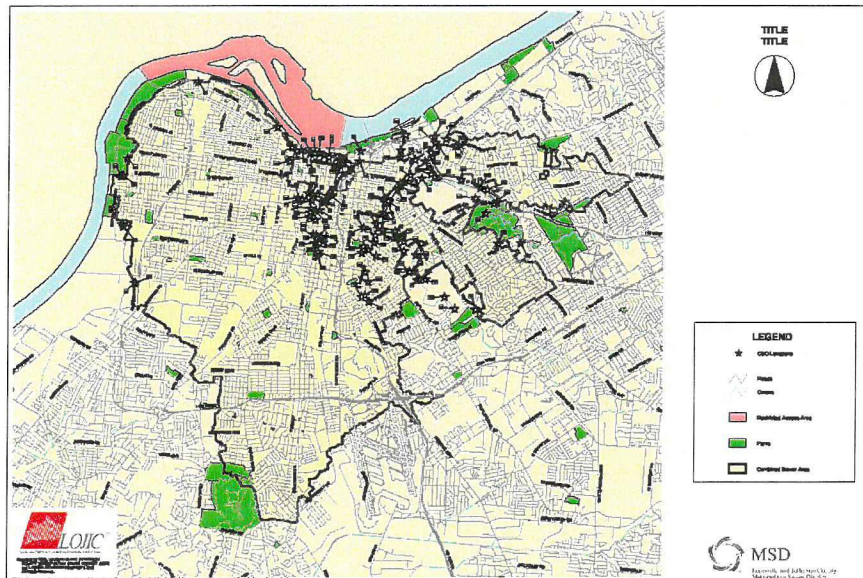
# 4 - Environmental Enhancement: Sensitive Recreational Use Areas

Stream	Use Designation
Ohio River Main Stem	WAH, PCR, SCR and DWS
Paddy's Run and Tributaries	PCR and SCR
South Fork Beargrass Creek and Tributaries	WAH, PCR, SCR
Middle Fork Beargrass Creek and Tributaries	WAH, PCR, SCR
Muddy Fork Beargrass Creek and Tributaries	WAH, PCR, SCR

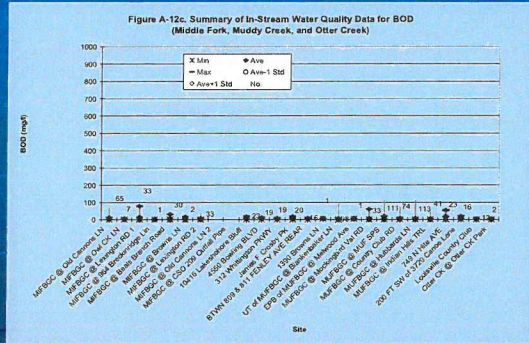


Sensitive areas are those identified by the NPDES authority, in coordination with other State and Federal agencies as appropriate.

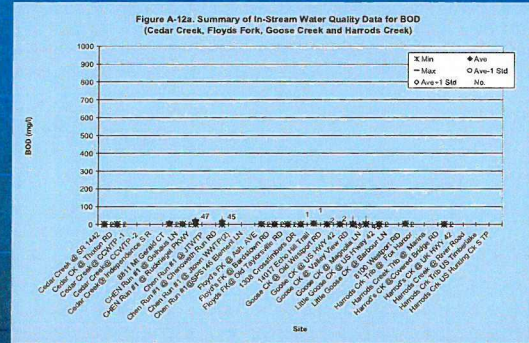
# 4 – Environmental Enhancement High-Contact Areas May Be “More Sensitive”



# 4 - Environmental Enhancement: CSOs and Non-Point Sources Have Minor Effect on Receiving Stream BOD



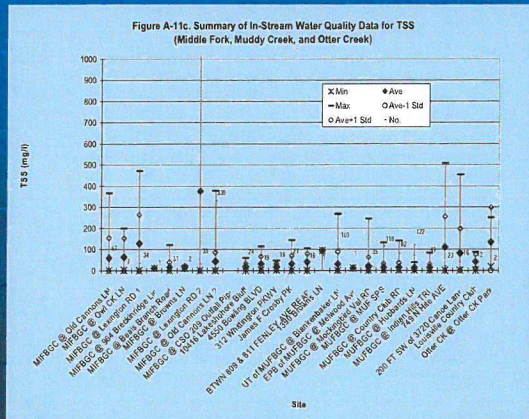
CSO-Impacted Streams



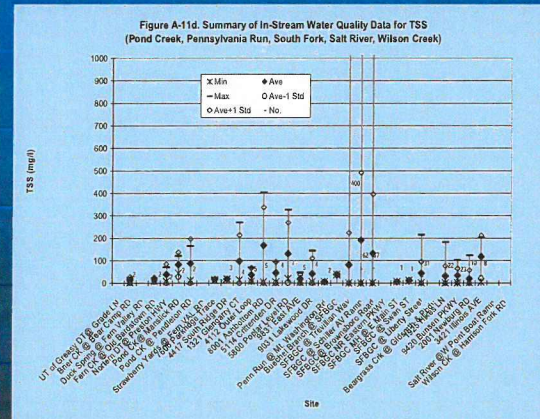
No CSOs in These Streams

Dissolved Oxygen (DO) problems primarily related to nutrients, not BOD

# Environmental Enhancement CSOs and Non-Point Sources have impact on receiving water TSS

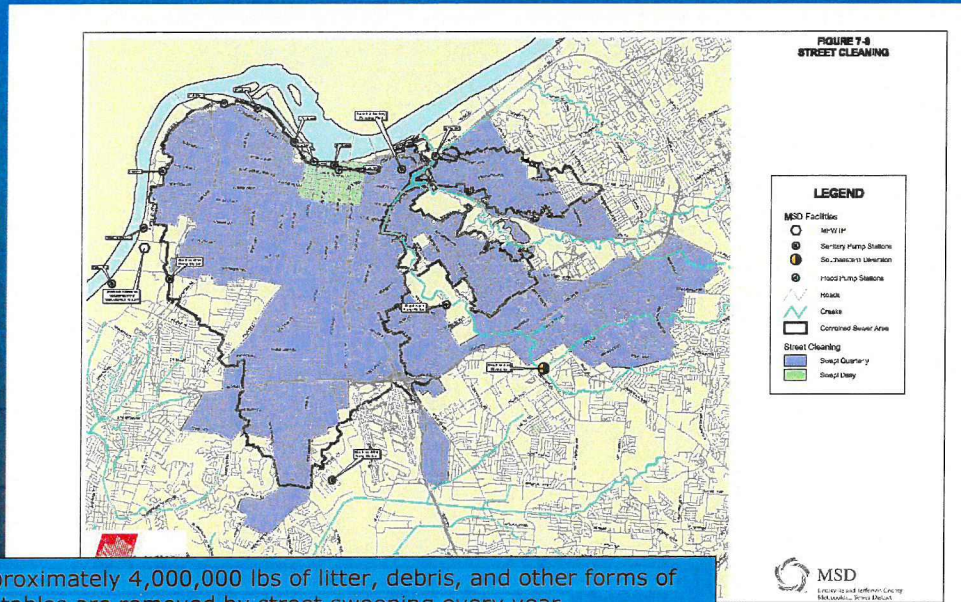


CSO Impacted Streams



No CSOs in These Streams

## 4 - Environmental Enhancement: Solids and floatable materials removed by street sweeping prior to entry into waterways



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## 4 - Environmental Enhancement: Solids and floatable materials in waterways

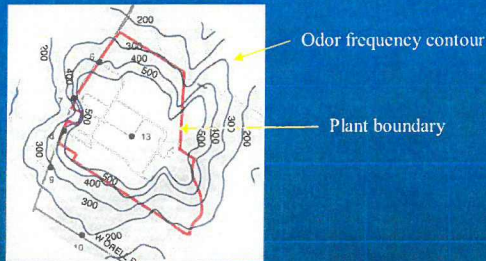
Type and Number of Combined Sewer Solids and  
Floatable Material Flow Separation Devices

Baffle	Screens	None	Cyclone	CDS	Multi
45	35	17	7	2	1



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## 4 - Environmental Enhancement: Odor & Air Emissions Greatly Reduced in Past 10 Years



Odor frequency contours modeled before odor control improvements (contours indicated number of times per year plant odors could be detected)



Odor frequency contours predicted following odor control improvements

- Similar results achieved at MFWTP, HCWTP and JTWTP

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## 4 - Environmental Enhancement Summary

- Loss of habitat has occurred due to past practices of drainage control
- "Sensitive waters" prioritization must go beyond strict regulatory definition
- DO depletion is a problem in Jefferson County waters – control of nutrients (nitrogen and phosphorus) is required from both point and non-point sources to mitigate impacts
- Improvements made on overall aesthetics, but work remains to be done

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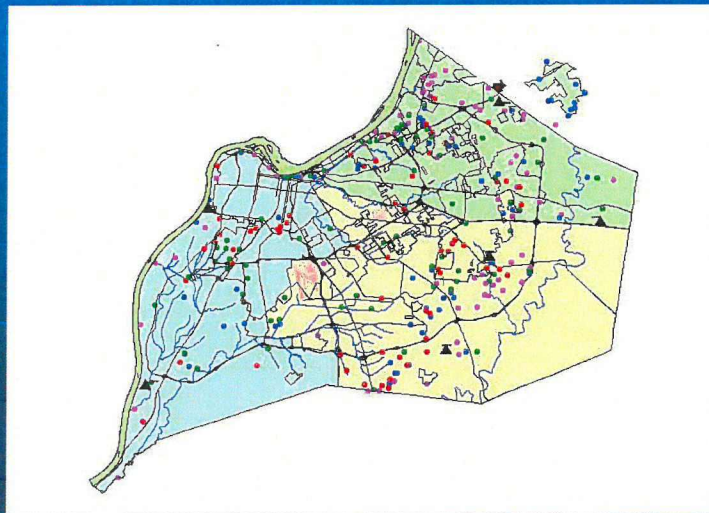


## 4 - Environmental Enhancement Performance Objective Development

- Stakeholder Discussion

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## 5 - Environmental Justice/Equity



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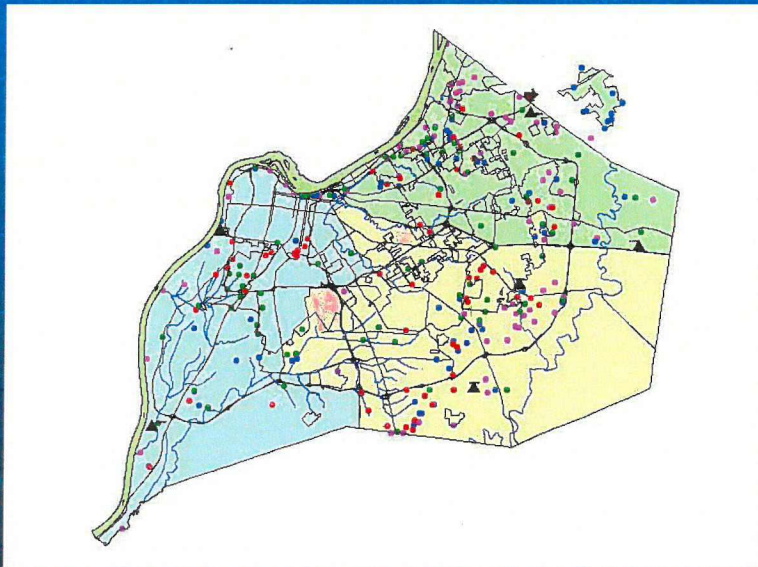
## 5 - Environmental Justice/Equity

### Potential Environmental Justice threats and concerns

- Disproportionate siting of facilities in minority or low-income communities
- Disproportionate relocation of minority and lower income residents to accommodate new projects
- Unequal levels of service provided to minority and low-income neighborhoods
  - higher incidence of property damage
  - lower incidence of improvement projects

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## 5 – Environmental Justice/Equity MSD Facilities Distributed Across Entire County



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## 5 – Environmental Justice/Equity ASP Project Raised E-J Concerns

- Replacing MFWTP biosolids handling system was questioned by JRC
- E-J issues resolved without legal action
- Completed project has reduced truck traffic and odors in West End compared to original biosolids system



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## 5 - Environmental Justice/Equity: Service Requests /1000 Customers

Problem Category	Beargrass Creek	Floyd Fork/ North County	Mill Creek	Pond Creek
Metro drain, cleaning, flooding	63	68	268	224
Information	154	149	397	241
Sewer and private lateral stoppage	129	69	126	132
Sewer Investigation	76	63	169	93
New Construction	29	30	205	95

\*January 2001 to October 2006

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## 5 - Environmental Justice/Equity: Property Damage Locations Per 1000 Customers

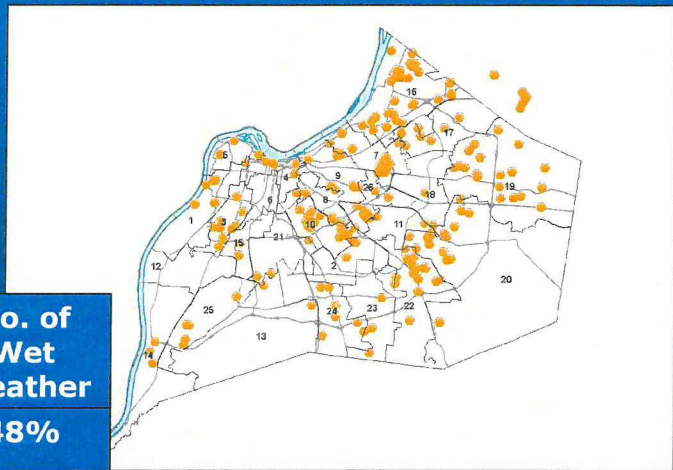
Beargrass Creek	Floyd Fork/ North County	Mill Creek	Pond Creek
25	7	4	8

\*January 2001 to October 2006

Note: Beargrass Creek watershed has all the combined sewers in Jefferson County

45

## 5 - Environmental Justice/Equity: SSO Location Profile

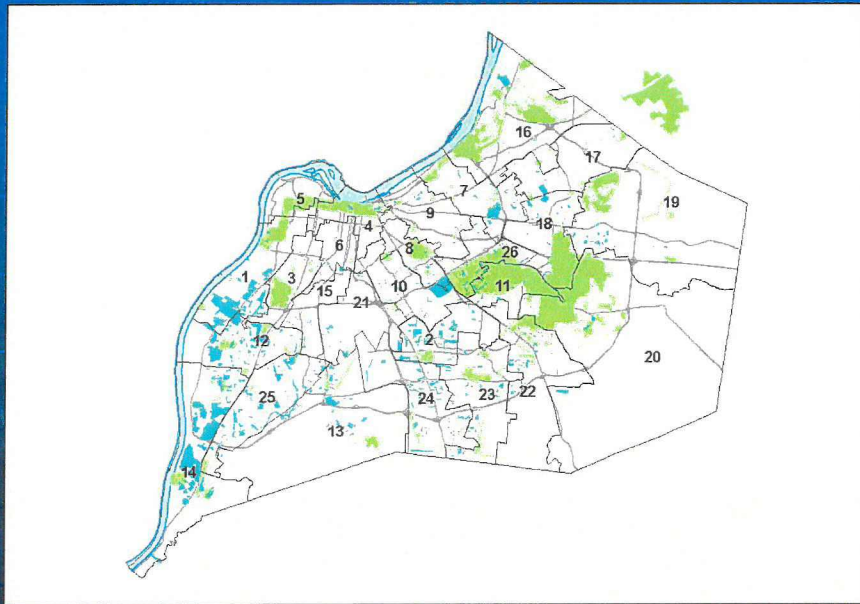


Region	No. of Dry Weather	No. of Wet Weather
East	33%	48%
Central	32%	41%
West	35%	11%

WO History Jan 2001 to Nov 2006

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## 5 - Environmental Justice/Equity: Capital Projects



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## EJ/Equity Summary

- MSD facilities are sited based on drainage patterns
- MFWTP is largest facility, sited at the end of Paddy's Run in 1955
- Most new construction and property acquisitions have occurred in outlying areas
- Property damage claims more frequent in core city due to combined sewers
- Rates of problems and distribution of service improvement projects appears to be uniform across county

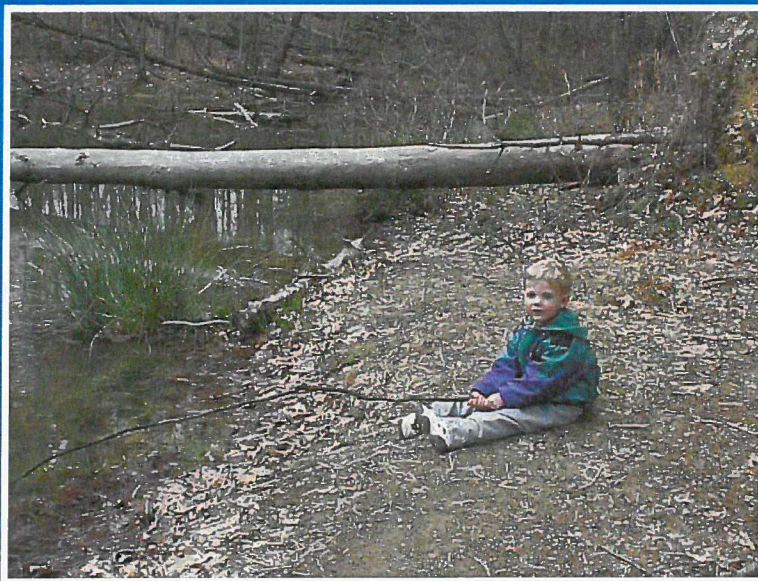
48

## 5 - Environment Justice/Equity Performance Objective Development

- Stakeholder Discussion

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## 6 - Public Health Enhancement



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## 6 - Public Health

### Public Health Status

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>■ Potential Threat           <ul style="list-style-type: none"> <li>• Air pollution               <ul style="list-style-type: none"> <li>■ particulates →</li> <li>■ hazardous air pollutants →</li> <li>■ odor? →</li> </ul> </li> <li>• Land pollution               <ul style="list-style-type: none"> <li>■ biosolids management →</li> <li>■ hazardous materials →</li> </ul> </li> <li>• Water pollution               <ul style="list-style-type: none"> <li>■ pathogens →</li> <li>■ carcinogens →</li> </ul> </li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>■ Current Status           <ul style="list-style-type: none"> <li>• In compliance               <ul style="list-style-type: none"> <li>■ thermal system permits</li> <li>■ "minor source" (0.01%)</li> <li>■ not a health issue</li> </ul> </li> <li>• In compliance               <ul style="list-style-type: none"> <li>■ "Class A - EQ"</li> <li>■ hazmat response</li> </ul> </li> <li>• Mixed compliance               <ul style="list-style-type: none"> <li>■ recreation standards</li> <li>■ monitor only</li> </ul> </li> </ul> </li> </ul> |
|--|---|

Water-borne pathogens the most significant wet weather issue

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## 6 - Public Health

### Water-borne Pathogens Have Multiple Contact Pathways

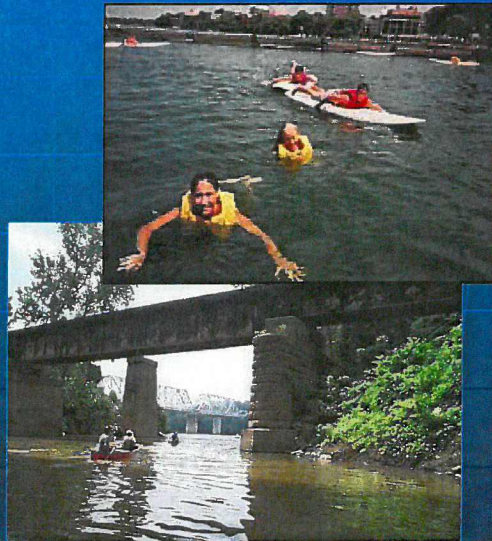
- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>■ Contact Recreation           <ul style="list-style-type: none"> <li>• Primary contact (swimming)</li> <li>• Secondary contact (boating, wading)</li> </ul> </li> <li>■ Incidental contact           <ul style="list-style-type: none"> <li>• surface discharges (SSOs etc.)</li> <li>• back-ups               <ul style="list-style-type: none"> <li>■ service connection blockage</li> <li>■ main sewer surcharge or blockage</li> </ul> </li> </ul> </li> <li>■ Drinking water ingestion</li> </ul> | <ul style="list-style-type: none"> <li>■ Water Quality Standards           <ul style="list-style-type: none"> <li>• 200 FC/100ml avg, 400 max exceeded many rain events</li> <li>• 400 avg (Nov-April) exceeded major rain events</li> </ul> </li> <li>■ No Standards = no data           <ul style="list-style-type: none"> <li>• SORP provides for containment and disinfection</li> <li>• clean-up and disinfection               <ul style="list-style-type: none"> <li>■ majority of back-ups are not MSD caused</li> <li>■ MSD goal 3 hour response, 24 hour correction</li> </ul> </li> </ul> </li> <li>■ WQS protect WTP intakes           <ul style="list-style-type: none"> <li>• 1000 avg usually met</li> <li>• Modern WTP practices provide excellent protection</li> </ul> </li> </ul> |
|--|--|

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## 6 - Public Health

### Development of Water Quality Standards

- 1948-50 USPHS study finds 2000 Total Coliform/100ml detection limit of GI health effect for swimmers
  - 200 Fecal Coliform/100ml geo avg based on "typical" FC/TC ratio and factor of safety of 2
  - 400 FC/100ml max (no factor of safety)
  - 10x multiplier for non-swimming recreation (arbitrary)
- Original FWQA standards assumed "no impact" below 400 FC/100 ml

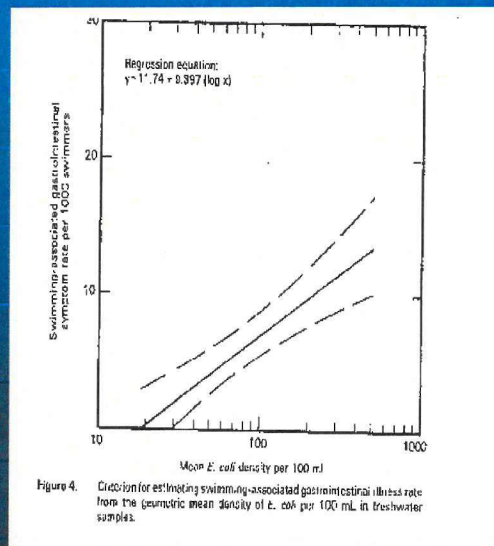


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## 6 - Public Health

### Current Water Quality Standards Are "Risk-Based"

- 1979-82 studies develop dose-response relationships for e coli (but not fecal coliform)
  - standards for FC developed by typical ratio to e coli
  - resulting WQS retain 200/400 FC as acceptable level of risk based on historic acceptability
  - 200 FC/100ml equivalent to 8 GI per 1000 swimmers
  - data highly scattered
  - recent EPA publications suggest "less than 1%" may be acceptable risk for primary contact, and 5x multiplier for secondary contact



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## 6 - Public Health

### Is Anyone Actually Getting Sick?\*

- 10 "outbreaks" of gastroenteritis due to swimming (fresh water or marine, not pools)
- Swimming pools and hot tubs had much higher outbreaks of gastroenteritis (20) along with dermatitis (21) and respiratory distress due to inhaling chlorine fumes (4)
- 8 fatal cases of amebic meningoencephalitis
  - all during very hot weather, low water levels, and high water temps (Florida, Georgia, Oklahoma, Texas)
  - 7 from lakes 1 from a river

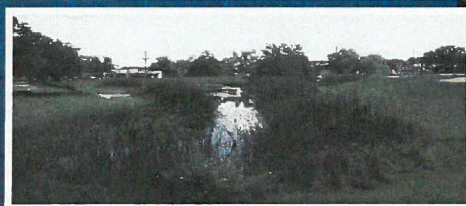
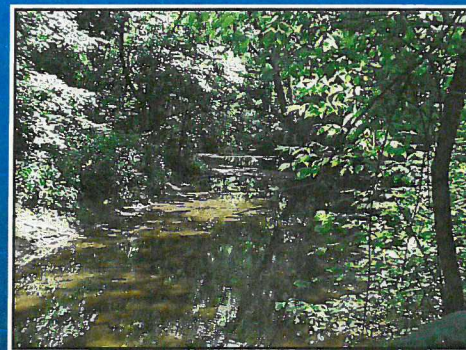
\*CDC national data for 2000-2001

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## 6 - Public Health

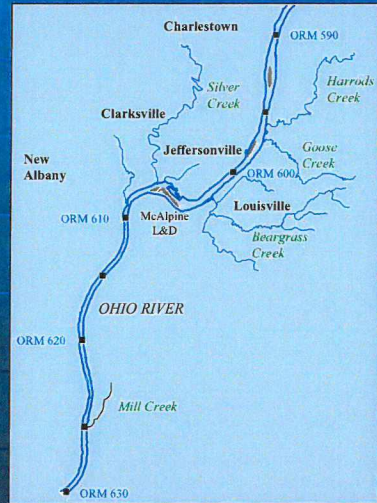
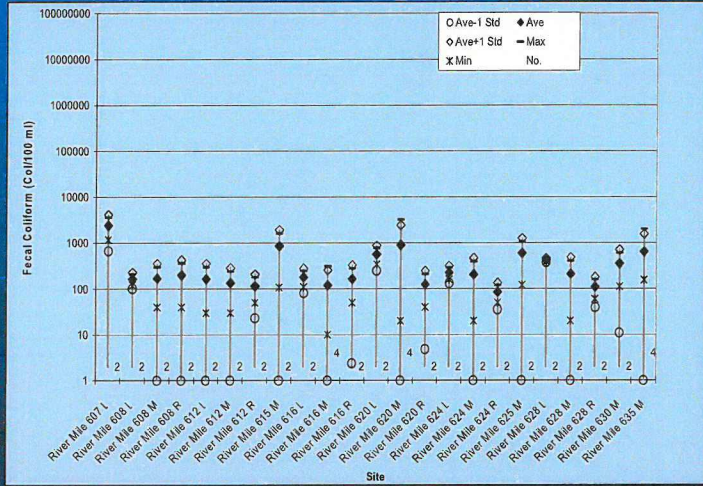
### WQS Highly Variable Among States, EPA Regions

- "Class-based" waters, compared to use-based standards
- Primary and secondary contact standards, seasonal relaxation (KY) or exemptions (IN)
- Total Coliform, Fecal Coliform, or e coli as basis
- Distinguish between human and non-human sources – relax standards if primary sources are non-human
- Designate uses by watershed size
- Contact recreation use removed due to physical, hydrologic, geographic, safety, or public access consideration



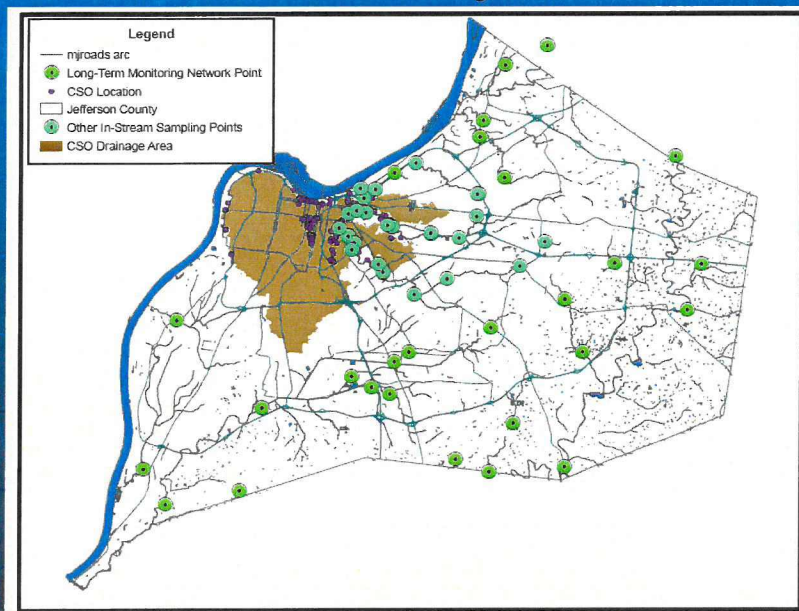
56

# 6 - Public Health Ohio River Monitoring by ORSANCO



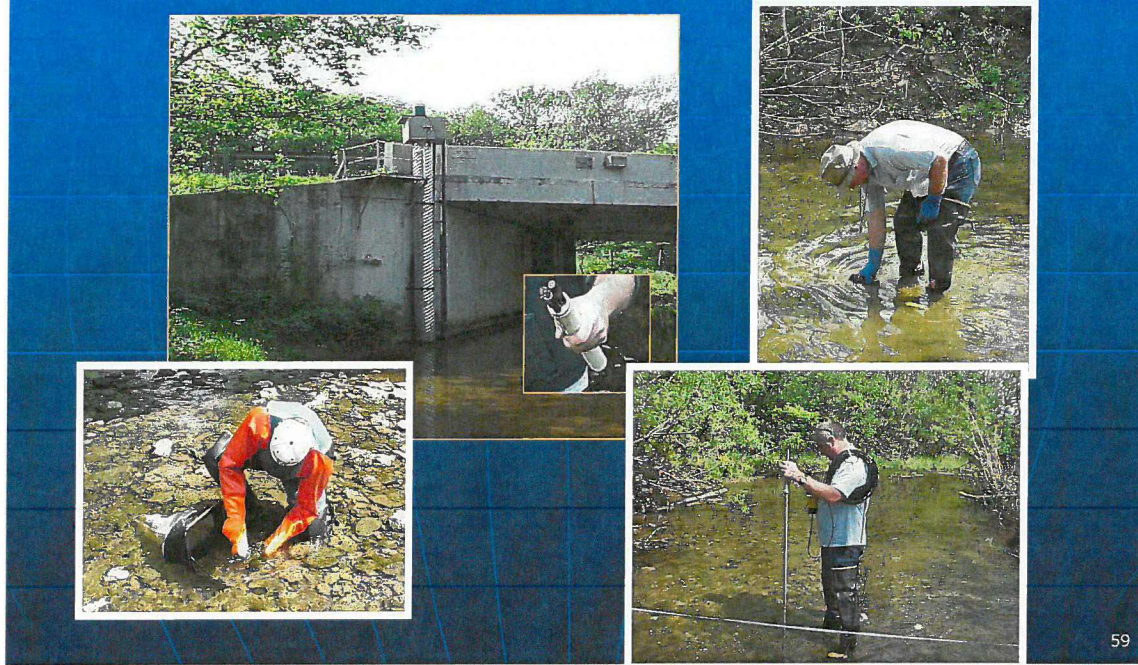
Based on 5 samples per month from May - October

# 6 - Public Health Jefferson County Surface Waters Monitored by MSD



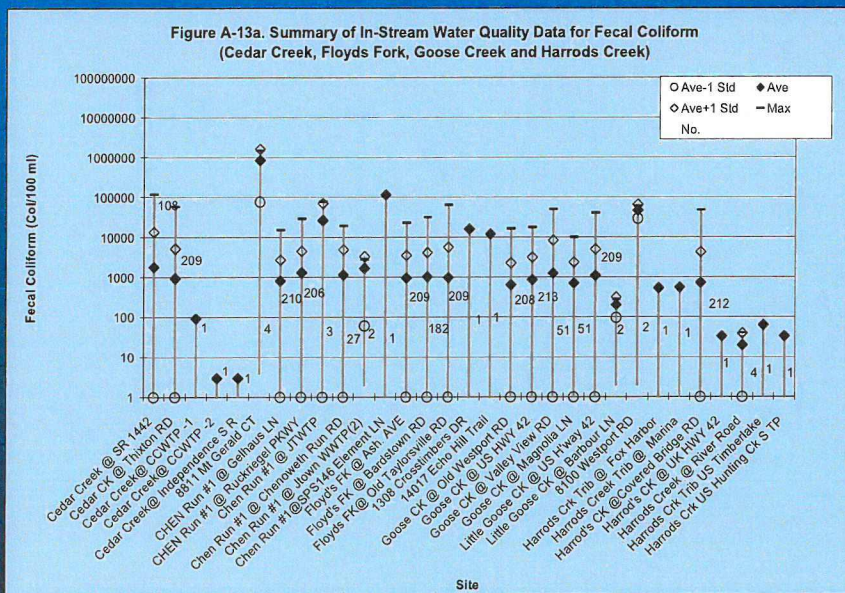
# 6 - Public Health

## Comprehensive MSD Stream Monitoring



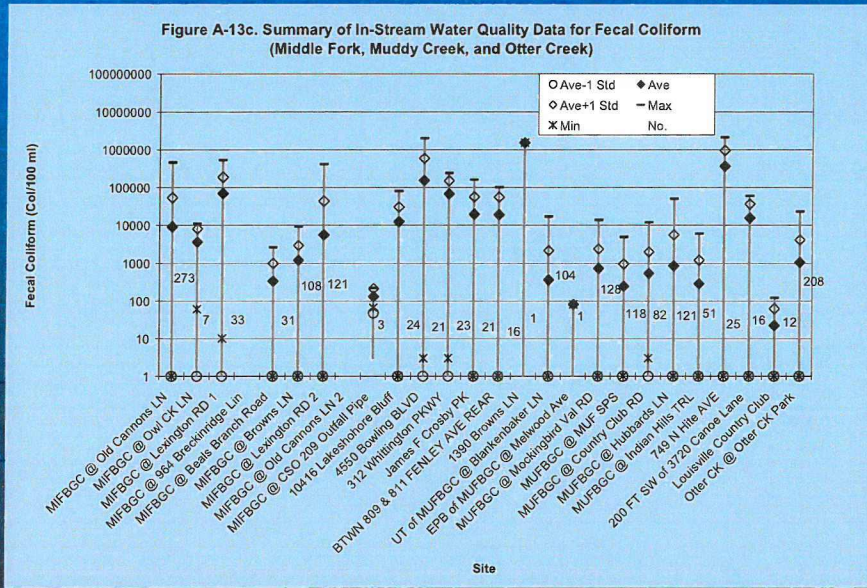
# 6 - Public Health

## Wet Weather Fecal Coliform Data for Streams not affected by CSOs



# 6 - Public Health

## Wet Weather Fecal Coliform Data for Beargrass Creek



# 6 - Public Health

## Public Health Advisories & Warnings

### MSD notification protocol

- wet weather
  - signs
  - web page
  - email notification
- SSOs and surcharges
  - signs
  - door hangers



## 6 - Public Health

### Public Health Enhancement Summary

- Main concern for MSD activities is water-borne pathogens
- Contact recreation standards are often not met during and following wet weather – even in streams that do not receive significant overflows
- Risk-based standards are imprecise, at best
- CDC data shows low-level of recreational contact illnesses in freshwater
- Considerable flexibility shown by other states, EPA regions in developing standards
- Public notification is integral to current “risk management” strategy

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## 6 - Public Health

### Performance Objective Development

- Stakeholder Discussion

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# Regulatory Compliance



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## 7 – Regulatory Compliance

### Potential threats to regulatory compliance

- Treatment plant discharge permit violations
  - effluent discharges above limits
  - plants operating outside permitted capacities
- CSO controls fail to eliminate “avoidable” dry weather discharges or fail to reduce overflow volume and frequency to meet regulatory expectations
- SSO controls fail to eliminate “avoidable” SSOs
- Schedule and reporting requirements of Consent Decree are not met
- Air emissions from stationary engines and biosolids dryers (in compliance with air quality permits)

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## 7 - Regulatory Compliance: KPDES Plant Compliance Record

- Plants comply with all KPDES parameters in month over 87% of time over past 5 years
- Yellow highlights indicate significant construction activities at the plant
- Without construction impacts, compliance record is 90%
- 4 small plants account for 1/3 total violating months

	Months with Effluent Violations				
	2001	2002	2003	2004	2005
<b>Regional Plants</b>					
Cedar Creek	1	1	1	0	1
Floyds Fork	3	0	0	2	0
Hite Creek	2	1	3	3	2
Jeffersontown	5	2	2	2	2
Morris Forman	12	11	5	3	0
West County	0	0	0	4	4
<b>Package Plants</b>					
Bancroft	0	0	0	0	0
Lake Forest	5	2	2	0	12
Berrytown	2	0	1	0	0
Chenoweth Hills	1	2	0	1	2
Glenview Acres	1	1	0	3	0
Glenview Bluff	0	0	0	0	0
Hunting Creek South	0	0	0	2	3
Ken Carla	0	1	1	0	0
KY Corr Inst for Women	5	1	2	3	5
Lake of the Woods	1	1	1	0	0
McNealey Lake	0	1	0	0	0
North Hunting Creek	1	0	3	2	0
Polo Fields	2	1	0	1	8
Shadow Woods	4	5	5	5	1
Silver Heights	0	1	0	0	1
Starview Estates	0	0	0	0	1
Timberlake	4	2	0	2	1
Watterson Woods	2	2	1	1	2
Yorktown	2	3	1	3	2
<b>Total</b>	<b>53</b>	<b>38</b>	<b>28</b>	<b>37</b>	<b>47</b>

Construction Activity

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## 7 - Regulatory Compliance: Wet Weather Flow Peaks Impact Plant Compliance Record

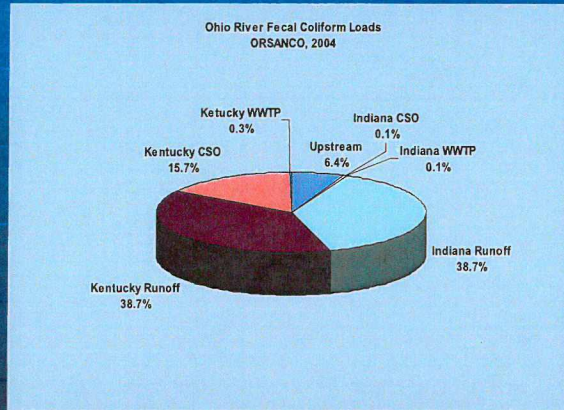
WWTP	ADF Permit (mgd)	Peak Design (mgd)	Peak Daily Flow (mgd)				
			2001	2002	2003	2004	2005
Cedar Creek	7.5	26.0	13.8	13.2	12.4	12.6	13.8
Floyds Fork	3.25	10.4	2.0	2.5	2.5	5.3	2.0
Hite Creek	4.4	16.0	9.2	9.1	9.4	9.0	9.2
Jeffersontown	4	7.5	12.2	15.3	13.8	12.8	12.2
Morris Forman	120	350.0	228.1	228.1	228.1	233.6	227.4
West County	30	96.0	52.1	70.5	60.9	131.3	52.1
Bancroft	0.08	0.18	0.08	0.26	0.09	0.08	0.06
Beckley Station	0.47	1.03	NA	NA	NA	NA	1.08
Berrytown	0.075	0.28	0.38	0.36	0.41	0.41	0.41
Chenoweth Hills	0.2	0.58	0.82	0.67	0.80	0.75	0.84
Glenview Acres	0.012	0.03	0.02	0.03	0.06	0.03	0.03
Glenview Bluff	0.01	0.03	0.01	0.03	0.01	0.02	0.02
Hunting Creek South	0.251	0.63	0.56	0.54	0.55	0.54	0.85
Ken Carla	0.01	0.05	0.01	0.05	0.01	0.02	0.01
KY Corr for Women	0.125	0.42	0.50	0.23	0.24	0.19	0.40
Lake of the Woods	0.044	0.16	0.13	0.17	0.10	0.17	0.23
McNealey Lake	0.205	0.28	0.56	0.55	0.55	0.45	0.36
North Hunting Creek	0.353	0.79	0.65	1.00	0.90	0.80	0.86
Polo Fields	0.125	0.45	0.27	0.54	0.36	0.23	0.31
Shadow Wood	0.085	0.16	NA	NA	NA	NA	0.14
Silver Heights	0.5	0.89	1.69	1.57	1.61	1.36	1.36
Starview	0.1	0.29	0.37	0.33	0.41	0.45	0.63
Timberlake	0.15	0.65	0.21	0.24	0.23	0.60	0.72
Watterson Woods	0.343	0.66	2.11	2.80	1.93	3.49	3.74
Yorktown	0.15	0.43	0.65	0.56	0.49	0.54	0.51

Actual Peak Flow Exceeds Design Peak Capacity

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## 7 - Regulatory Compliance: CSO Control Alone will not Produce Compliance with Current Water Quality Standards

- NMC program compliance
  - public notification
  - solids and floatables removal
- 113 active CSO locations
- Average Annual Overflow Volume (AAOV) = 4 BG
- Annual volume of treated wastewater = 44 BG



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## 7 - Regulatory Compliance: CMOM (Capacity, Management, Operations & Maintenance) Addressing SSOs

•70% of SSOs occur during wet weather

•Inadequate Capacity is the leading cause of all SSOs

•Obstructions are the leading cause of dry weather SSOs.

Sanitary Sewer Overflow Cause	Percent Occurance		
	Dry Weather	Wet Weather	Total
Inadequate Capacity	1.1%	89.8%	63.0%
Equipment Failure	12.3%	1.1%	4.5%
Obstruction (all kinds)	61.7%	2.3%	20.3%
Power Failure	4.9%	4.9%	4.9%
USACE Flood Protection Rules	2.5%	1.5%	1.8%
Collapse, Break or Structural Failure	15.0%	0.2%	4.7%
Contractor or other Utility Damage	2.5%	0.1%	0.8%

Note: data does not include property service connections

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## Regulatory Compliance Summary

- Treatment plant performance shows 90% compliance record (w/o construction interference)
  - some package plants have performance issues at high flow
  - some package plants have peak flows above capacity
- CSO controls currently do not meet regulatory expectations for volume, frequency or receiving water quality
- CMOM and other programs are addressing the root causes of SSOs
- All Consent Decree reporting schedules and milestone deadlines have been met to date

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## 7 - Regulatory Compliance Performance Objective Development

- Stakeholder Discussion

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End



# Public Participation During the Wet Weather Team Process

Wet Weather Team Meeting  
December 5, 2006

## Regulatory Requirements for Public Participation

- EPA requires MSD to have a public participation process that involves the affected public in selecting long-term controls for sewer overflows
  - The Wet Weather Team is one part of this process
  
- Under the Consent Decree, the Wet Weather Team must develop a “program for public information, education, and involvement”
  - This program will be part of the long-term, integrated Wet Weather Program MSD develops based on stakeholder input

## Objectives of Public Informational Meetings

- General update on Consent Decree activities
- Recap issues addressed so far by the Wet Weather Team
- Summarize remaining steps in the Wet Weather Team process
- Act as a forum for receiving public comment

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## Potential Schedule and Content of Public Informational Meetings

- April 2, 2007
  - Overview of Wet Weather Team stakeholder process and work to date
  - Update on water quality monitoring and modeling
- November 26, 2007
  - Overview of risk characterization process
  - Introduction to alternatives being considered
- March 25, 2008
  - Presentation of preliminary recommendations for the Wet Weather Plan
- October 21, 2008
  - Public hearing on the draft Wet Weather Plan

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## Areas of Wet Weather Team Input

- Content and timing of the public informational meetings
- Gaps in public outreach and education during Wet Weather Team process

