Wet Weather Team Project Meeting Materials WWT Stakeholders

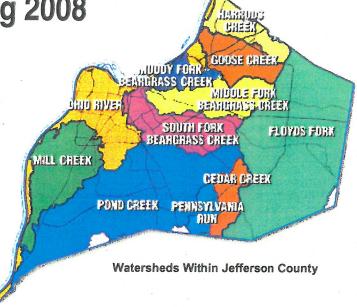
01.05.0209.07

WWT Stakeholders Meeting # 9 5/22/2007

Summer 2007-Spring 2008



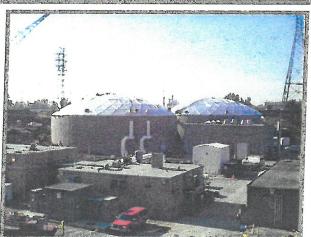












Draft Agenda

Louisville and Jefferson County Metropolitan Sewer District (MSD) Wet Weather Team Meeting #9

Tuesday, May 22, 2007, 4:00-8:30 PM (including optional tour at 4-5 PM)
Floyds Fork Wastewater Treatment Plant
1100 Blue Heron Road, Louisville

Meeting Objectives:

- Review and discuss comments provided by community members at the Project WIN public meetings in April and May 2007.
- Review and suggest refinements to the overall approach to incorporating the Wet Weather Team's community values into decision-making.
- Discuss potential relative weights for the Wet Weather Team's values.
- Identify next steps and expectations for the next meeting of the Wet Weather Team.

4:00 PM Optional Tour of Floyds Fork Wastewater Treatment Plant (60 minutes)

5:00 PM Break and Additional Participants Arrive (15 minutes)

5:15 PM Introductions, Review Agenda and Ground Rules (10 minutes)

• Review meeting objectives and ground rules.

5:25 PM Wet Weather Project Updates (15 minutes)

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

5:40 PM Debrief from Project WIN Public Meetings (30 minutes)

- Review comments provided by community members at the Project WIN public meetings in April and May 2007.
- Provide feedback on the format, structure, and content of the public meetings.

6:10 PM Dinner Break (20 minutes)

Dinner will be provided for Wet Weather Team members.

6:30 PM Framework for Incorporating Values into Decision-Making (60 minutes)

- Review feedback received (e.g., via e-mail) on performance measures and the programmatic values evaluation approach since the last Wet Weather Team meeting.
- Review and discuss the approach to evaluating the customer satisfaction value.
- Review and discuss the overall approach to incorporating the Wet Weather Team's community values into decision-making.

5/22/07 Wet Weather Team Meeting Agenda, Continued

7:30 PM Values Weighting Discussion (40 minutes)

- Review the approach to using weights for the Wet Weather Team's values.
- Discuss potential relative weights for the values.

8:10 PM Opportunity for Observer Comments (10 minutes)

8:20 PM Wrap Up and Next Steps (10 minutes)

• Review plans and expectations for the June 21, 2007 Wet Weather Team meeting.

8:30 PM Adjourn

Final Meeting Summary Wet Weather Team Meeting #9 Tuesday, May 22, 2007 Floyds Fork Wastewater Treatment Plant, Louisville

The Wet Weather Team (WWT), chartered by the Louisville and Jefferson County Metropolitan Sewer District (MSD), met on May 22, 2007 at Floyds Fork Wastewater Treatment Plant in Louisville. The objectives of the meeting were to:

- Review and suggest refinements to the overall approach to incorporating the Wet Weather Team's community values into decision-making;
- Discuss potential relative weights for the Wet Weather Team's values; and
- Review and discuss comments provided by community members at the Project WIN public meetings in April and May 2007.

Wet Weather Project Updates

Brian Bingham of MSD provided several updates regarding MSD's wet weather activities, as follows.

- Construction Projects: MSD is about to begin construction on two projects:
 - o Constructing an inflatable dam in the sewer system near the Taylor Boulevard area; and
 - Doing sewer separation for combined sewer overflow (CSO) 206, which is the last CSO in any of the Olmsted Parks.
- <u>Big 4 SSOs</u>: MSD is beginning to design some of the projects related to the Big 4 sanitary sewer overflows (SSOs), including the Hikes Point interceptor.
- Rate Increase: It is anticipated that MSD's budget and audit committee will recommend the adoption of a rate increase to the full MSD Board at their next meeting on May 29, 2007. Because the proposed rate increase is greater than 7 percent, it will also require the approval of the Louisville Metro Council. The purpose of this proposed rate increase is to fund current projects, including projects related to the Big 4 SSOs. The Wet Weather Team will be responsible for addressing a long-term financing plan to fund future Wet Weather Program projects.

Rob Greenwood of Ross & Associates described the updates made to the WWT "Solution Ideas" document (included with the pre-meeting materials) since the last Wet Weather Team meeting. Ideas suggested by Wet Weather Team members during and since the April 19 meeting are now listed under a "What's New" section at the beginning of the document, as well as under the appropriate section later in the document. The "What's New" section will be updated for each Wet Weather Team meeting. The document now also includes a third section called, "Ideas Partly or Completely Outside the Scope of MSD's Wet Weather Consent Decree." This section includes municipal government actions that are only partly within MSD's control and MSD actions that are not related to sewer overflow issues.

Mr. Greenwood also noted that, at the next meeting, the facilitation team will provide two additional tracking lists: a list of Wet Weather Team data and monitoring requests; and a list of Wet Weather Team public education and outreach ideas. The lists will be updated for each Wet Weather Team meeting.

Wet Weather Team members made a number of observations and comments, including the following.

- One Wet Weather Team member asked if the 30 percent discount for people 65 years and older in
 the proposed rate increase would be given to whomever owns the property. Mr. Bingham
 responded that he believed that the discount would go to whomever pays the MSD bill, which
 could be the owner or the renter of the property. The details of how this discount program would
 be administered remain to be worked out.
- One Wet Weather Team member pointed out that there are some neighborhoods where newspaper circulation is not very thorough, so there may be many people who did not receive the newspaper insert regarding the Project WIN public meetings.

Framework for Incorporating Values into Decision-Making

Gary Swanson of CH2M HILL reviewed the changes made to the performance measure matrices for the asset protection, eco-friendly solutions, environmental enhancement, public health enhancement, and regulatory performances values since the last Wet Weather Team meeting. These changes, which resulted from comments from Wet Weather Team members, are listed below.

Asset Protection

 Added discussion in "Rationale" section addressing the option to consider purchase of impacted properties if the life-cycle cost to protect them is greater than the life-cycle cost to purchase them (including lost tax and user fee revenues).

Eco-Friendly Solutions

- Formatted to match environmental enhancement value.
- Added LEED criteria for buildings.
- Added "Rationale" and "Measurement" sections to explain reasoning behind scoring.
 - o Clarified that recreation included aquatic and riparian activities.
 - Clarified that source control includes a wide range of activities including behavior change.
- Balanced both positive and negative scoring options.
- Added "fatal flaw" designation for unacceptable negative impacts.

Environmental Enhancement

- Added peak flow as an aspect.
- Clarified that habitat means both aquatic and terrestrial.
- Added "Rationale" and "Measurement" to explain scoring.
 - o Differentiated predicted changes from monitored impacts.
 - Linked downstream impacts to other river uses and to pollutant loadings on the Gulf of Mexico.
- Balanced positive and negative scoring options.
- Added "fatal flaw" designation for unacceptable negative impacts.

Public Health Enhancement

 Modified performance measure for disinfection systems to recognize the value in operating well below rated capacity.

Regulatory Performance

• Changed the name from "regulatory compliance" to "regulatory performance" to recognize that compliance is required, but approaches to compliance allow for flexibility.

• Modified performance measure for treatment plants to recognize the value in operating well below rated capacity.

Wet Weather Team members expressed a high degree of comfort with the matrices in their current form. Some participants noted that, on the environmental enhancement matrix, projects (for example, taking a plant offline) that reduce flow will always receive a negative score under "stream flow impacts." Participants pointed out that in some cases it is not necessarily bad to reduce flow – for example, if the project returns flow to its pre-industrial state. One Wet Weather Team member noted that looking at base flow may be more desirable than looking at loss of flow. As a result of this discussion, the technical team will add to the rationale for the matrix the notion that under certain conditions, low or intermittent flow might not be as problematic as the scoring might imply.

Rob Greenwood of Ross & Associates asked Wet Weather Team members to send any additional comments on the matrices by May 31, 2007, after which the matrices will be considered final.

Mr. Swanson then went over the proposed approach for dealing with the customer satisfaction value. Based on input given at the April Wet Weather Team meeting, customer satisfaction will be changed to a programmatic value, which will be used to review potential impacts resulting from the entire suite of projects. All of the project-specific aspects of customer satisfaction will be distributed to other values (e.g., non-obtrusive construction techniques will be moved to eco-friendly solutions). Participants were comfortable with these changes.

Finally, Mr. Swanson walked through a flowchart showing a proposed approach for incorporating the Wet Weather Team's values into decision-making. In general, Wet Weather Team members expressed a high degree of comfort with the flow chart. Wet Weather Team members made several comments and observations, as follows.

- One Wet Weather Team member asked why the environmental justice value was singled out to inform the development of potential alternatives, while all of the other values come into play later in the flowchart. Another Wet Weather Team member noted that environmental justice is a process geared to ensure neighborhoods have an early opportunity to influence project design consistent with local needs and concerns. The technical team indicated comfort with ensuring that neighborhood meetings would include receiving input across the full range of values, and intends to alter the label in the flowchart consistent with this thinking.
- One Wet Weather Team member suggested screening for customer satisfaction, environmental and regulatory outcomes, and program costs versus affordability limits earlier in the flowchart to identify project alternatives that are "likely losers." Conversely, another member cautioned about excluding alternatives based on a predetermination of cost limitations. The example given was the new Ohio River bridge project, where one alternative (the most attractive one) was eliminated from consideration by the bridge planning team based on cost, and never shown to the public during the public outreach process. The technical team agreed that pre-screening for viability was needed, but that technically viable options would not be eliminated strictly on cost if they offered unique benefits not available from lower-cost options.

The technical team will work to address these comments and provide a revised version of the flowchart at the June 21, 2007 meeting.

Values Weighting Discussion

Rob Greenwood of Ross & Associates began the discussion by describing the values weighting

example that was sent to the Wet Weather Team after the April 19, 2007 meeting. This example demonstrates how the Wet Weather Team's decisions on how to weight the values could influence the alternatives selected for the Wet Weather Program. Mr. Greenwood emphasized that weights and preferences are going to matter in the values-based decision-making process, so it is important to see if there are certain preferences that the Wet Weather Team wants to establish.

Mr. Greenwood led participants in an informal, non-binding straw poll exercise based on the "homework assignment" sent to Wet Weather Team members following the April 19 meeting, in which members were asked to place all 11 values under one of the following categories:

- Important Values
- Very Important Values
- Critically Important Values

Mr. Greenwood observed that certain aspects of this straw poll are similar to the results of the initial straw poll taken during the February 13, 2007 meeting. For example, most Wet Weather Team members placed public health enhancement, environmental enhancement, and regulatory performance in the "Critically Important" category. In contrast, environmental justice was given more weight in this poll than it was in the last one. Mr. Greenwood also observed that many participants placed the financial values in the "Very Important" and "Important" categories.

Wet Weather Team members made several observations about this straw poll and about values weighting in general, including the following.

- Several participants didn't put education or environmental justice into any category because of their intrinsic nature.
- Several participants rated regulatory performance as "Important," not because they don't view it as a critical aspect of the project, but because compliance is a requirement.
- One Wet Weather Team member expressed a preference for using only two categories (e.g., "Important" and "Very Important") to weight the values.
- One Wet Weather Team member observed that it will be important to take a set of weightings, run them through the model, see what happens, and then change the weightings and see how the results differ.
- One Wet Weather Team member asked if it would be possible to factor future costs of *not* doing projects into the decision-making process. This referred specifically to the economic impacts of potential growth moratoriums, etc., if the Wet Weather Plan was found to be non-compliant with requirements. Gary Swanson of CH2M responded that this is outside the bounds of the predictive ability of the processes and tools available and would be impossible to quantify with any degree of confidence. The technical team would include this consideration in the programmatic evaluation of economic vitality as it relates to satisfying the regulatory performance issues.

Mr. Greenwood proposed that, based on the Wet Weather Team's view that all of the values are important, the difference between the relative weights for the values should be smaller rather than larger (for example, weights of 6, 8, and 10 are closer together than weights of 1, 5, and 10). Wet Weather Team members expressed a high degree of comfort with this approach.

The technical team will develop a proposed approach for weighting the values, based on the Wet Weather Team's agreement on having smaller rather than larger differences between the weights, and on the major trends from the two straw polls. The technical team will also come up with several "critical alternative" approaches to weighting the values that reflect the perspectives of participants whose votes did not

closely align with the trends. The Wet Weather Team will discuss all of the approaches at the June 21, 2007 meeting.

Update on Project WIN Public Meetings

MSD Executive Director Bud Schardein gave a brief overview of the Project WIN public meetings. Four public meetings have taken place to date, and two more are planned for late May and early June. Turnout has been variable but most meetings have been well-attended, with about 50 people attending the most recent meeting. So far, MSD has received very few negative comments.

One Wet Weather Team member asked if MSD could put the Project WIN public meeting presentation on public television. Mr. Schardein responded that Henry Cubero of the Cubero Group is going to help MSD put the presentation on video, and that MSD will see if it can be shown on public television.

MSD will present a more detailed update on the Project WIN public meetings at the June 21, 2007 Wet Weather Team meeting. Stakeholders will be given the opportunity to provide feedback on the format, structure, and content of the meetings.

Observer Comments

There were no comments from observers at this meeting.

Wrap Up and Next Steps

- Ross & Associates will update the solution ideas list for the June 21 meeting.
- Ross & Associates will put together a list of education ideas and a list of data and monitoring requests made by Wet Weather Team members to hand out at the June 21 meeting.
- The technical team will revise the performance measurement matrices for asset protection, ecofriendly solutions, environmental enhancement, public health enhancement, and regulatory performance based on comments received from Wet Weather Team members.
- The technical team will revise the values-based decision-making process flowchart based on comments received from Wet Weather Team members.
- The technical team will put together a proposed approach for weighting the Wet Weather Team's values, along with several "critical alternative" approaches, for discussion at the June 21 meeting.
- The next WWT meeting will be on Thursday, June 21, 2007, at MSD's main office. Potential meeting topics include:
 - A more detailed overview and discussion of feedback from the Project WIN public meetings in April, May, and June;
 - o Presentation and discussion of high-level control strategies for CSOs; and
 - o Discussion of a proposal for weighting the Wet Weather Team's community values.

Meeting Participants

Wet Weather Team Stakeholders

Susan Barto, Mayor of Lyndon

Stuart Benson, Metro Council, District 20

Charles Cash, City of Louisville, Planning & Design Services Department

Allan Dittmer, University of Louisville
Faye Ellerkamp, City of Windy Hills
Jeff Frank, Vanguard Sales
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
Tina Ward-Pugh, Metro Council, District 9
David Wicks, Jefferson County Public Schools

MSD Personnel

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 Gary Swanson, CH2M HILL Kate Weinberger, Ross & Associates Environmental Consulting

Meeting Observers

Henry Cubero, Cubero Group Clay Kelly, Strand Associates Teri Pifine, MSD Wesley Sydnor, O'Brien & Gere

Meeting Materials

- May 22, 2007 Meeting Agenda
- Summary of the April 19, 2007 Wet Weather Team Meeting
- Updated Draft List of Wet Weather Program "Solution Ideas"
- Presentation from the Project WIN Public Meetings
- "Five Key Messages" Handout from the Project WIN Public Meetings
- Attendee Comment Sheet from the Project WIN Public Meetings
- Performance Measurement Matrices for Asset Protection, Eco-Friendly Solutions, Environmental Enhancement, Public Health Enhancement, and Regulatory Performance
- Values-Based Decision-Making Process Flowchart
- Decision Framework Incorporating Community Values Presentation

Wet Weather Team Solution Ideas Working Draft – May 16, 2007

The following is a list of potential "solution ideas" identified by Wet Weather Team (WWT) members that will be considered in the design of the Wet Weather Program. The list will act as a "punch list" for the technical team as they consider project and program alternatives. These ideas were identified both at WWT meetings and through individual communications with WWT members (e.g., via e-mail). This list will remain "live" throughout the remainder of the WWT effort to capture ideas as they are shared. WWT members are encouraged to send additional ideas to the facilitation team for inclusion in this list.

New ideas will be listed under a "What's New" section at the beginning of the document for easy reference, as well as under the appropriate section later in the document. After the "What's New" list, this document is organized into three sections:

- Section I, "Project Alternatives," is organized into five sub-categories: Stormwater Best Management Practices (Non-Structural), Stormwater Best Management Practices (Structural), CSO and SSO Point Source Controls, General/Other Solutions, and Site-Specific Solutions.
- Section II, "Funding Ideas," is organized into three sub-categories: Cost Allocation Strategies, Financial Incentives, and Funding Sources/Options.
- Section III, "Ideas Partly or Completely Outside the Scope of MSD's Wet Weather Consent Decree," includes municipal government actions that are only partly within MSD's control and MSD actions that are not related to sewer overflow issues.

What's New (April/May 2007)

- 1. (I-A-3) Conduct a baseline survey and follow-up surveys of residents to determine whether education and outreach efforts are effective in changing behavior and perceptions on issues related to the Wet Weather Program.
- 2. (I-A-4) Hold "CSO Action Days" during or right after a hard rain to promote behavior change (e.g., don't use your dishwasher, wait to drain your bathtub, etc.).
- 3. (I-A-5) Develop a pledge for customers that clearly lays out behaviors that will help MSD meet Consent Decree requirements. For an example, see http://www.watershedpledge.org (see also II-B-4).
- 4. (I-B-5) Consider incorporating aspects of the LEED green building standards into MSD design manuals for structural BMPs.
- 5. (I-B-6) Ensure that urban CSO areas have at least a 30 percent tree canopy.
- 6. (I-C-2) Increase enforcement and inspections of downspout and sump pump connections.
- 7. (II-B-4) Reduce fees for families or businesses who sign a pledge that clearly lays out behaviors that will help MSD meet Consent Decree requirements (see also I-A-5).
 - a. In critical CSO neighborhoods, provide free rain barrels to people who sign the pledge.
- 8. (III-A-1) Improve the development review process for new subdivisions. Deny permits for subdivisions or any new homes if the plant in the area is above capacity.
- 9. (III-A-2) Encourage local government agencies (e.g., Jefferson County Public Schools, Metro Parks) to adopt preventative practices to decrease stormwater runoff and wastewater volumes (e.g., low-flow toilets, pervious pavement, additional tree coverage, etc.).
- 10. (III-A-3) Develop a "comprehensive solution" for local environmental improvement and education efforts.

- a. Fund and staff a collaborative planning effort to link the environmental education programs of multiple local agencies (MSD, Louisville Water Company, Metro government departments, Mayor's Office, TARC, etc.) together, develop specific goals and assessment systems, and then hold agencies accountable to those goals.
- 11. (III-B-1) Purchase properties within the floodplain.
 - a. Buy land that is flooded on a regular basis and turn it into parks.
 - b. When building a detention basin, buy properties in the floodplain that are most impacted.
- 12. (III-B-2) Improve implementation and enforcement of the Sediment Control Act.

I. Project Alternatives

A. Stormwater Best Management Practices (Non-Structural)

- 1. Influence behavior of residential and commercial landowners through education.
 - a. Promote water conservation practices: rain gardens, rain barrels, and responsible alternatives for sump pumps and downspout connections.
 - b. Encourage stewardship: removing invasive vegetation from riparian zones, planting wetlands, litter cleanups, etc.
- 2. Regularly distribute billing inserts (like LG&E's) to MSD customers with facts and tips to encourage certain behaviors (e.g., lawn chemical management, pet waste management, landscaping practices).
- 3. Conduct a baseline survey and follow-up surveys of residents to determine whether education and outreach efforts are effective in changing behavior and perceptions on issues related to the Wet Weather Program
- 4. Hold "CSO Action Days" during or right after a hard rain to promote behavior change (e.g., don't use your dishwasher, wait to drain your bathtub, etc.).
- 5. Develop a pledge for customers that clearly lays out behaviors that will help MSD meet Consent Decree requirements. For an example, see http://www.watershedpledge.org (see also II-B-4).

B. Stormwater Best Management Practices (Structural, including "Green" Infrastructure Solutions)

- 1. Use landscaped areas to control stormwater runoff.
- 2. Encourage homeowners to construct rain gardens and use rain barrels.
- 3. Install French drains along roads to accept stormwater runoff (see also detailed suggestions listed for Beechwood Village below).
- 4. Develop specific design parameters or standards for stormwater best management practices and low impact development techniques and include these in an MSD Design Manual. The Design Manual should provide guidance for approaches including, but not limited to, the following:
 - a. Pervious pavement
 - b. Level spreaders
 - c. Riparian buffers
 - d. Vegetated swales
 - e. Wet ponds

- f. Wet ponds with forebays (small basins that settle out incoming sediment before it is delivered to a stormwater BMP)1
- g. Wetlands
- 5. Consider incorporating aspects of the LEED green building standards into MSD design manuals for structural BMPs.
- 6. Ensure that urban CSO areas have at least a 30 percent tree canopy.

C. CSO and SSO Point Source Controls

- 1. Disconnect downspouts and/or sump pumps (e.g., by developing educational initiatives aimed at landowners).
- 2. Increase enforcement and inspections of downspout and sump pump connections.

D. General/Other Solutions

1. Leverage and coordinate the Wet Weather Program efforts with MSD's MS4 stormwater management permitting responsibilities.

E. Site-Specific Solutions (Considered in Addition to the Solutions Listed Above)

Beechwood Village

- 1. Construct a park-like wet detention area in the wooded area of St. Matthews Park.
- 2. Install new sanitary lines and laterals to homes, and pumps for basement facilities when requested by the homeowner.
- 3. Install French drains on either side of roadways to accept stormwater runoff. The drains would be continuous trenches filled with gravel and covered by turf. The drains could also accept discharges from sump pumps and downspouts.
- 4. Install perforated pipe in the French drains so they can discharge more freely when they flood. The piped drain system would need to be a combination of gravity and pump depending on the topography and discharge point(s).
- 5. If a solid pipe system is used, the system could discharge to constructed wetlands designed to treat stormwater. Possible sites for constructed wetlands are the forest north of the Community Park and the detention pond for the bank on Shelbyville Road at the Beechwood Village entrance.
- 6. Restore natural stream banks for the Sinking Fork north of Shelbyville Road where the big pump now sits.

II. Funding Ideas

A. Cost Allocation Strategies

- 1. Equitably assign costs (focus areas for the financial equity value):
 - a. Consider the burden on fixed income and low-income populations
 - b. Rates and fees that are linked to the cost to serve (i.e., the level of impact)

Adapted from Pennsylvania Department of Environmental Protection, Pennsylvania Stormwater Best Management Practices Manual,

http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/StormwaterManagement/BMP%20Manual/14_Gloss arv Final_Draft.pdf

- 2. Charge residences differently depending on the area of impervious surfaces on properties (and therefore the amount of stormwater runoff that would be generated).
- 3. Require lower development fees for areas that already have sewer capacity (e.g., urban areas in need of re-investment).
- 4. Bill based on increased water usage the more you use, the higher the rate.

B. Financial Incentives

- 1. Provide incentives for "preferred" behaviors.
- 2. Offer incentives for developers to use cost-effective, eco-friendly solutions (e.g., low impact development techniques, stormwater best management practices).
- 3. Charge reduced wastewater rates to property owners that use eco-friendly techniques to reduce stormwater runoff.
- 4. Reduce fees for families or businesses who sign a pledge that clearly lays out behaviors that will help MSD meet Consent Decree requirements (see also I-A-5).
 - a. In critical CSO neighborhoods, provide free rain barrels to people who sign the pledge.

C. Funding Sources/Options

- 1. Consider using volunteers to reduce costs.
- 2. Consider solutions that could meet the objectives of multiple agencies (e.g., water quality and flood control improvements) and therefore could potentially receive funding from multiple sources.

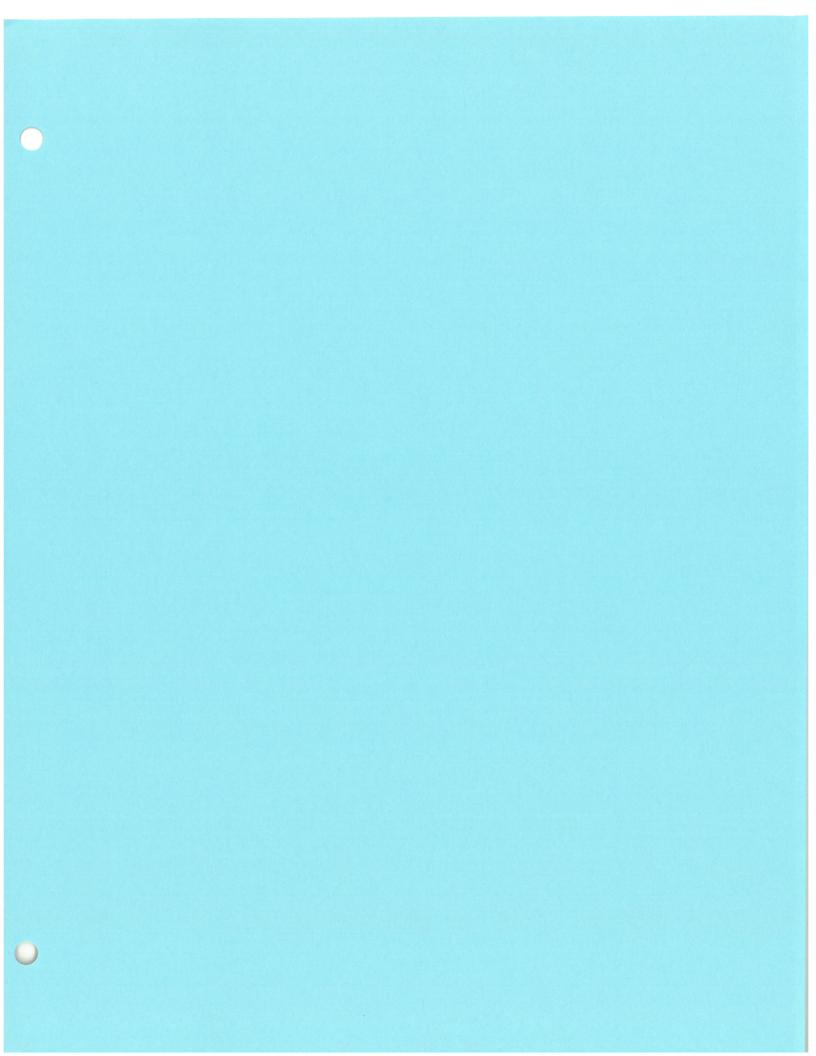
III. Ideas Partly or Completely Outside the Scope of MSD's Wet Weather Consent Decree

A. Municipal Government Actions (Only Partly within MSD's Control)

- 1. Improve the development review process for new subdivisions. Deny permits for subdivisions or any new homes if the plant in the area is above capacity.
- 2. Encourage local government agencies (e.g., Jefferson County Public Schools, Metro Parks) to adopt preventative practices to decrease stormwater runoff and wastewater volumes (e.g., low-flow toilets, pervious pavement, additional tree coverage, etc.).
- 3. Develop a "comprehensive solution" for local environmental improvement and education efforts.
 - a. Fund and staff a collaborative planning effort to link the environmental education programs of multiple local agencies (MSD, Louisville Water Company, Metro government departments, Mayor's Office, TARC, etc.) together, develop specific goals and assessment systems, and then hold agencies accountable to those goals.

B. MSD Actions Not Related to Sewer Overflow Issues

- 1. Purchase properties within the floodplain.
 - a. Buy land that is flooded on a regular basis and turn it into parks.
 - b. When building a detention basin, buy properties in the floodplain that are most impacted.
- 2. Improve implementation and enforcement of the Sediment Control Act.





Public Information Meetings Spring 2007

Jefferson County is fortunate to have an abundance of water. In addition to 40 miles of the Ohio River, we have over 790 miles of tributary streams that enrich our lives in many ways. These waters and the surrounding areas provide habitat for a highly diverse population of fish and other aquatic creatures. These areas also provide us with recreational opportunities like wading, swimming, boating, fishing, and enjoying nature at its best. Unfortunately, our water ways are threatened by pollution from many sources. Most of the surface water in Jefferson County is judged to be "impaired", thereby limiting our recreational opportunities and aquatic habitat.

In August 2005, MSD, on behalf of our community, entered into a Consent Decree with the United States Environmental Protection Agency (EPA) and the Kentucky Environmental and Public Protection Cabinet (EPPC). This Consent Decree resolved allegations by these entities that our community had violated the Federal Clean Water Act. The alleged violations were specifically for stream water quality impairments caused by combined and separate sanitary sewer overflows (CSOs and SSOs), most of which have existed in our community for decades.

The Consent Decree has specific actions that must be taken by specific dates. One of those actions is the development of a Wet Weather Plan to abate the negative public health and stream impacts of CSOs and to eliminate SSOs from our sewer systems. Currently we are in the early stages in the development of this plan. It's the right thing to do for our community as it will improve the quality of life for those that live and recreate in this community for years to come.

The points outlined below are the major elements of the Consent Decree and the process being undertaken to develop the Wet Weather Plan. Feedback from the community on its values and highest priorities in relation to these sewer overflow and stream water quality issues is essential!

- 1. Addressing CSOs and SSOs is a Community-Owned Challenge
 - Compliance with the Consent Decree is not optional
 - Specific requirements are tied to stream water quality and combined/sanitary sewer overflows (CSOs and SSOs)
 - Protection of public health relative to coming in contact with untreated sewage is critical
 - Clean water in our streams and the Ohio River water is essential to recreation and aquatic health enhancements
- 2. Project WIN will be the Largest Single Locally-Funded Public Works Effort in this Community
 - Preliminary projected spending level is approximately \$800 Million over 19 years
 - Capital projects designed and completed to enhance the underground infrastructure will influence the look of our community for generations to come
 - Opportunity to positively and simultaneously improve both stream water quality and sewer service throughout Jefferson County
 - Rate increases will be required to fund this plan



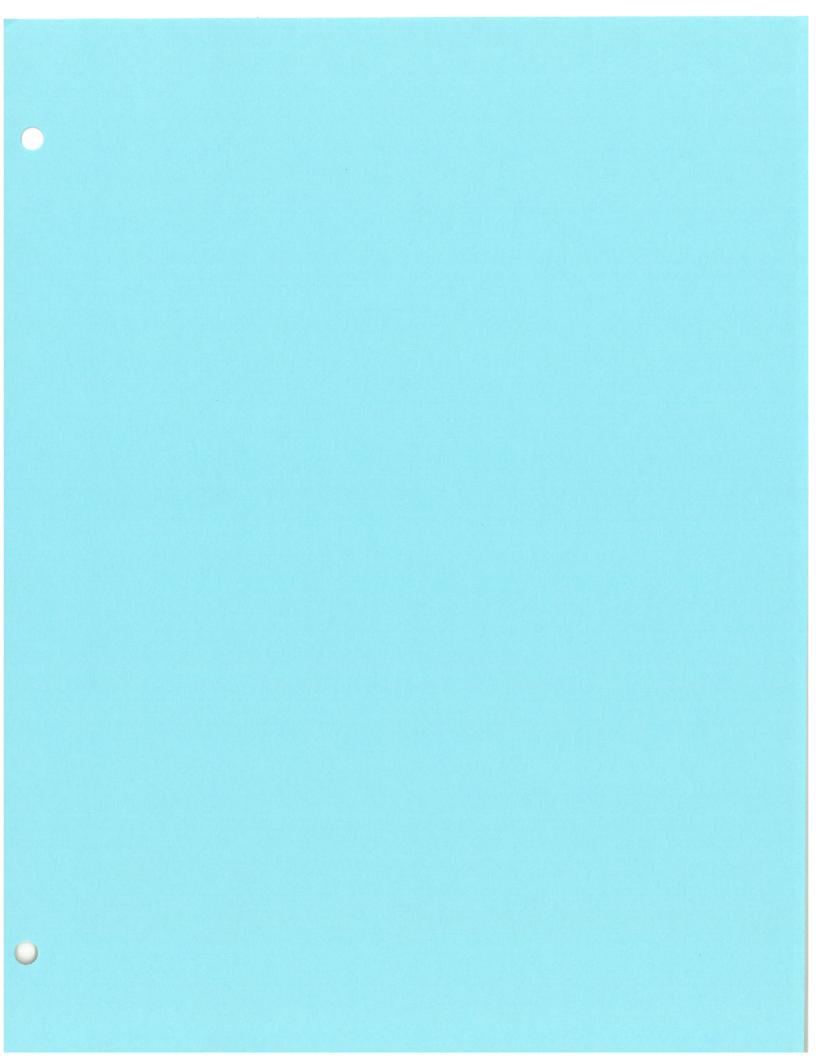
Public Information Meetings Spring 2007

- 3. Our Community is under Specific Requirements with Specific Timeframes for Completion
 - Wet Weather Plan development to be submitted to EPA and EPPC by December 31, 2008
 - Beechwood Village and Southeastern Diversion Structure SSO eliminations to be completed by December 31, 2011
 - Hikes Point and Highgate Springs SSO eliminations to be completed by December 31, 2013
 - CSO abatement to be completed by 2020
 - SSO elimination to be completed by 2024
 - Enhancement of sewer system operation and maintenance programs
 - Enhancement of public education, outreach and notification programs
- 4. The Wet Weather Plan will Engage and be Reflective of the Community's Values and Priorities
 - A Stakeholder Group comprised of representatives from the community has been engaged since late summer 2006. The members of this group have provided input on the community's values and priorities as they pertain to the development and implementation of the Wet Weather Plan and ultimate compliance with the Clean Water Act.
 - Public Participation Process will include public information meetings and public comment meetings/forums as the Wet Weather Plan is developed and finalized
- 5. Overcoming this Challenge Requires Participation by Everyone
 - Community priorities may need to shift to provide higher investments for clean water
 - Behavioral changes such as the disconnection of illegal sump pumps and downspouts from the sewer system must occur
 - Water conservation during and after rain storms such as temporary suspension of dishwasher and washing machine use
 - Proper disposal of grease by putting it in the trash, not down the drain
 - Installation of rain barrels and rain gardens to reduce stormwater runoff
 - Participation in stream clean sweeps and litter control programs to keep our land and streams clean

Want to Stay Informed Between Meetings?

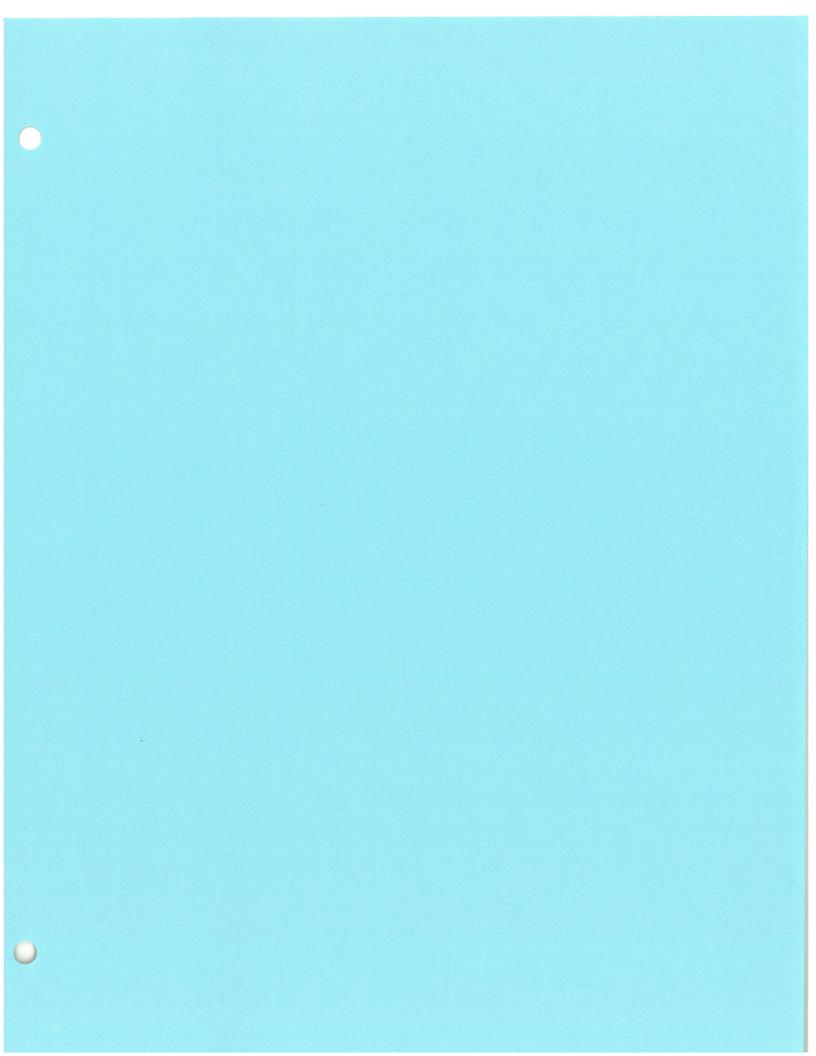
- Visit the Project WIN website for details about the Consent Decree, approved submittals to EPA/EPPC, minutes from the Stakeholders meetings and a list of items of how you can help with our community challenge. You can also sign up to receive emails from the overflow advisory system to warn of coming into contact with water that may be contaminated with sewage and other pollutants. The web address is: http://www.msdlouky.org/projectwin/
- Submit comments and concerns via our online customer service system. The web address is: http://www.msdlouky.org/
- Call our 24-hour customer service line at 587-0603.





PUBLIC MEETING ATTENDEE COMMENTS Spring 2007

Zip Code
Name:
Address (Optional):
Daytime Phone (Optional):
E-mail (Optional):
Comments/Questions
How do you and your family currently use the Ohio River and local area streams? How often
What concerns do you have about the state of our streams and river?
How important to you is clean streams and river water, compared to other priorities in life?
Other comments, concerns, or questions:



Performance Measures and an analysis and a second a second and a second a second and a second and a second and a second and a second an	Asset P	Protec	tion			lmp	act	Rationale	Measureme Method		
		Flood	l Damage	Homes or businesses are subject to severe structural damage	Homes or businesses are subject to minor to moderate structural damage	Flooding limits access to homes or businesses	Flooding limits access to recreational areas	Standing water on property, but access not affected and no damage expected	No standing water	Storm water BMPs can reduce stormwater peaks and reduce extent of flooded areas, while sewer separation may increase localized stormwater peak flows and increase the flooding impacts of storms. Alternatively, purchase of highly impacted properties may be a cheaper way to reduce flood damage and create green space and buffer zones.	Drainage models wi available, or historic observations of floo areas combined with expected relative im sewer system modif on storm water flow
			ent Back- ups	Sewer surcharging within 6 feet of ground surface for more than 20% of manholes	within 6 feet of	Sewer surcharging within 6 feet of ground surface for 5 - 10% of manholes	Sewer surcharging within 6 feet of ground surface for 1 - 5% of manholes	Sewer surcharging within 6 feet of ground surface for 0 - 1% of manholes	No surcharging within 6 feet of ground surface	First floor levels are typically 1 - 2 feet above ground surface, and basement floors are typically 8 - 10 feet below the first floor. A sewer surcharge of 6 feet below ground surface is highly likely to cause back-ups in homes with basement service.	Measurement methods be via hydraulic models quantify the hydraulic g lines compared to grou surface elevations at manholes.
ormai	Event Recurrence	1		Most Severe Impact				Least Impact	No Impact		
Pert	Interval	 		5	4	3	2	1	0		
	6-10 per year	Most Likely	5	25	20	15	10	5	0		
	1-6 per year		4	20	16	12	8	4	0		
lency	1-2 year recurrence interval		3	15	12	9	6	3	0		
Frequency	2-5 year recurrence interval		2	10	8	6	4	2	0		
	>5 year recurrence interval	Least Likely	1	5	4	3	2	1	0		
	Not Possible	Not Possible	0	0	0	0	0	0	0		

Asset Protection

Value:	Eco-Friendly Solutions

						Sc	oring					
Aspect	-5	-4	-3	-2	-1	0	1	2	3	4	5	Score Per Aspe
ion-Renewable Energy Consumption	Primary energy consumption is greater than secondary treatment	Primary energy consumption equal to 75 - 100% of secondary treatment	Primary energy consumption equal to 30 - 75% of secondary treatment	Primary energy consumption equal to 15 - 30% of secondary treatment	Primary energy consumption equal to 0 - 15% of secondary treatment	No energy consumption except for cleaning and maintenance	Cleaning and maintenance not needed, no primary consumption	N/A	N/A	N/A	N/A	
Jse of Natural Systems	Constructed facilities permanently displace 5+ acres wetlands or 50% locally available green space	Constructed facilities permanently displace 3 - 5 acres wetlands or 25 - 50% locally available green space	Constructed facilities permanently displace 1 - 3 acres wetlands or 10 - 15% locally available green space	Constructed facilities permanently displace 0 - 1 acre wetlands or up to 10% locally available green space	temporarily disrupt	Alternative does not use or affect natural systems	Alternative does not use natural systems, but enhances green space or wetland	Natural systems play a minor role in alternative function, up to 1 acre wetland or 10% additional green space created	significant part of alternative function, 1 - 3 acres of wetland	Alternative fully uses natural systems, 3 - 5 acres of wetland created or 25-50% additional green space	Alternative results in multi-use natural system development, 5+ acres of wetland or 50% additional green space	
Recreation and Multiple-Use Facilities	Constructed facilities permanently eliminate recreational opportunity	Constructed facilities significantly impair recreational opportunity	Constructed facilities moderately impair recreational opportunity		Construction temporarily impacts recreational opportunity	No impacts on recreational opportunities	Alternative improves access to existing recreational areas	Alternative has limited positive impact on recreation	Alternative significantly enhances recreational opportunities	Alternative increases recreational opportunities in area	Alternative results in multi-use facility	
Source Control of Subwatershed Pollutant Loads	Pollutant loadings are increased by 50%	Pollutant loadings are increased by 30 - 50%	Pollutant loadings are increased by 10 - 30%	Pollutant loadings are increased by 0 - 10%	Pollutant loadings impacts are inconsistent, but likely higher	Pollutant loadings are unchanged	Pollutant loadings impacts are inconsistent, but likely lower	Source control reduces pollutant loadings by 0 - 10%		Source control reduces pollutant loadings by 30 - 50%	Source control reduces pollutant loadings by more than 50%	
Non-Obtrusive Construction Fechniques	Permanent loss of green space or sensitive area disruption	Main thoroughfare closures, sensitive area temporary disruptions	10 5	Localized dust, noise and local street closures	Minor dust and noise, traffic lane closures	No construction impacts	N/A	N/A	N/A	N/A	N/A	
Consistent Land Jse	Intrusive or nuisance facilities inconsistent with neighborhood or land use.	Facilities inconsistent with neighborhood or land use.	Facility appearance mitigated to reduce impact on neighborhood	Facilities have significant impact on development density	Facility has minor impact on development density	No above ground facilities	Alternative mitigates existing compatibility problem	Alternative removes facility inconsistent with neighborhood	Alternative removes nuisance facility from neighborhood	Alternative enhances property values in neighborhood	Alternative provides enhancements that significantly improve neighborhood	
mpermeable Surfaces	impermeable surfaces	3 - 5 acres of impermeable surfaces are added.		impermeable surfaces	Minor increase in impermeable surfaces added.	No change in impermeable surface	Minor reduction in impermeable surfaces	Up to 1 acre of impermeable surfaces removed	1 - 3 acres of impermeable surfaces removed	3 - 5 acres of impermeable surfaces removed	More than 5 acres of impermeable surfaces removed	
EED Performance	N/A	N/A	N/A	N/A	N/A	LEED not applicable or LEED score <10.	LEED Score 10 - 25	LEED Certified	LEED Silver	LEED Gold	LEED Platinum	
nstructions: . Score each altern . Total the scores f . Maximum score is	or each aspect to g	et the total score f	or this alternative	in this value.			f the alternative or	the value.		Total Score Eco-F (25 points		0

Aspect	Rationale	Measurement Method
Non-Renewable Energy Consumption	Eco-friendly solutions would be expected be low consumers of non-renewable energy. Benchmarking energy consumption against conventional secondary treatment provides penalty points for high energy consuming alternatives.	Evaluation of primary energy consumed per MG of flow treated, compared to the energy consumed at the WCWTP per MG treated
Use of Natural Systems	Natural systems replace concrete and steel construction with wet bottom storage lagoons, constructed bioswales, rain gardens etc. that increase green space of various kinds. Options that reduce wetlands and green space get penalty points.	Acres of wetlands and other types of green space created or eliminated. Also includes subjective evaluation of the "basis" of the alternative - "green" or "grey"
Recreation and Multiple-Use Facilities	Eco-friendly solutions create recreational opportunities for both water-based and riparian recreation. Boating, canoeing, kayaking, fishing, wading, swimming etc. would be direct water-based recreation. Bird watching, hiking, biking, picnicking, camping etc. would be considered related riparian recreation	Subjective evaluation of changes predicted in the aquatic or riparian environment as a result of better water quality, increased base flow or decreased flow peaks, increased tree cover or vegetated riparian areas etc.
Source Control of Subwatershed Pollutant Loads	Controlling pollutant loads at the source through behavior modification, product replacements or stormwater management BMPs that capture pollutants thereby avoiding end of pipe treatment requirements	Modeled land-side pollutant loading reductions as calculated by the BGC Water Quality Tool or by comparison to literature values or pilot program measurements
Non-Obtrusive Construction Techniques	Probable construction impacts on traffic, noise and dust are all measures of the friendliness of an alternative. Construction impacts get penalty points for creating nuisance conditions.	Subjective evaluation of probable construction impacts based on the type of construction envisioned for the alternative.
Consistent Land Use	Alternative configuration can either enhance or detract from the surrounding property. For example, an extremely unfriendly pump station can be noisy, smelly, and ugly. The same pump station can be "disguised" as a residence that fits right in with the neighborhood. If a larger parcel of land is available, a pump station can be hidden from view by landscaping, and a community garden or other green space added to enhance the neighborhood.	At the planning level, projects can be defined to avoid negative impacts on the surrounding properties. Depending on the availability of land, enhancements are possible. This aspect encourages project definition and budgets to enhance, not detract.
Impermeable Surfaces	Adding impermeable surfaces increases total runoff volume, peak runoff flow rates, and the total transport of any pollutant deposited on the surface from any source. Conversely, permeable surfaces can reduce flow volume and peaks, and provide filtering mechanisms for pollutants.	Acres of permeable surfaces created or eliminated.
LEED Performance	LEED standards are applicable to alternatives that include above-ground building structures.	Application of LEED evaluation points.

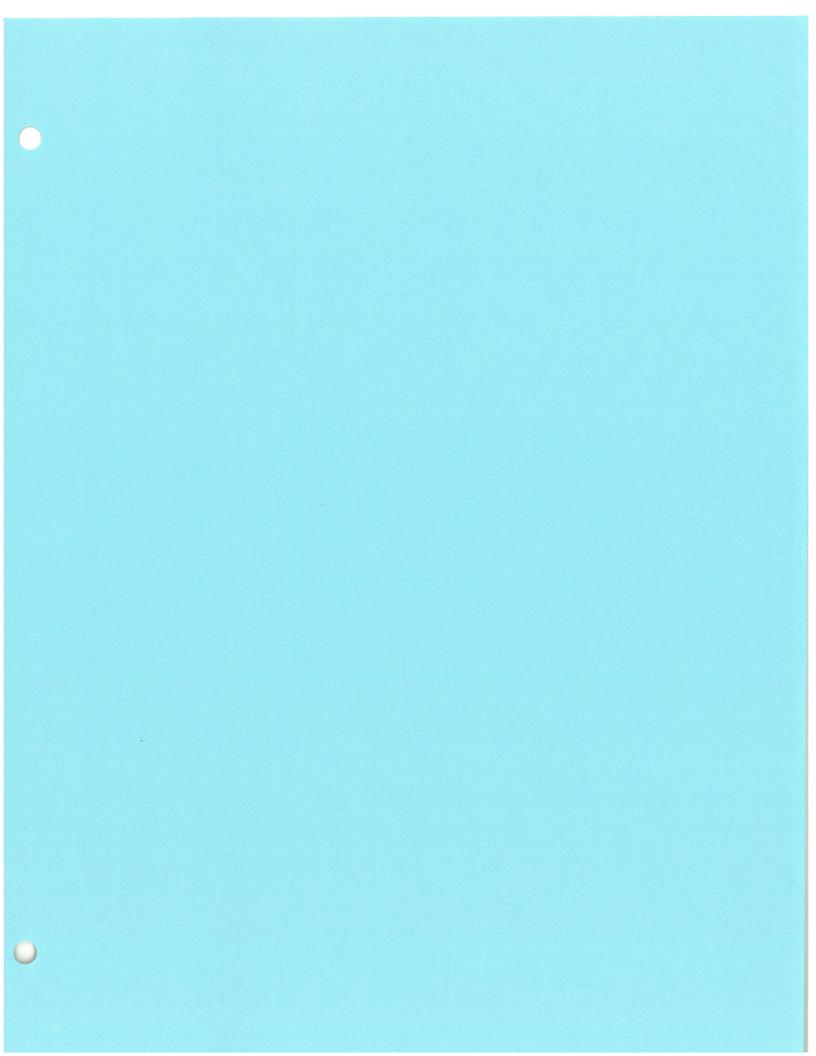
Value: Environm	ental Enhancem	ent			8.80	W 11W - 120,71100		-											
Aspect	-5	-4	-3	-2	-1	0	1	2	3	4	5	Score Per Aspect							
Aquatic and Terrestrial Habitat Protection	Elimination of habitat for rare or endangered species	Elimination of significant amount of common habitat	Elimination of minor amount of common habitat	Significant habitat impairment	Minor impairment to existing habitat	No impact on habitat	Minor enhancement of existing habitat	Significant enhancement of existing habitat	Creation of minor amount of common habitat	Creation of significant amount of common habitat	Creation of critical habitat for rare or endangered species.								
Aesthetics - Solids and Floatables (S&F)		50 - 75% of flow with no S&F removal	25 - 50% of flow with no S&F removal	10 - 25% of flow with no S&F removal	Reduces efficiency of existing S&F control device, 0 - 10% of flow with no S&F removal	No change in S&F removal	0 - 10% of flow treated with screens	10 - 25 % of flow treated with screens	25 - 50% of flow treated with screens	50 - 75% of flow treated with screens	75% + of flow treated with screens								
Aesthetics - Odor and Air Emissions		Create annoying odor source affecting <20 customers often, or >20 customers occasionally	Create annoying odor source affecting <20 customers occasionally	Create detectable odor source affecting > 50 customers often	Create detectable odor source affecting < 50 customers occasionally	No impact on odors	Eliminate detectable odor source affecting < 50 customers occasionally	Eliminate detectable odor source affecting > 50 customers often	Eliminate annoying odor source affecting <20 customers occasionally	customers often, or >20	Eliminate annoying odor source affecting >20 customers often								
Dissolved Oxygen (DO) Impacts			Continuous reduction of in- stream DO f 0 - 2 mg/l, possible reduction of in- stream DO 2 - 4 mg/l during critical conditions	in stream DO 2+ mg/l possible during non- critical conditions, reduction of DO 0 - 2 mg/l during critical conditions	Intermittent reduction of in stream DO 0 - 2 mg/l possible during non-critical conditions	No DO impacts	Intermittent improvement of in-stream DO 0 - 2 mg/l	Intermittent improvement of in- stream DO 2+ mg/l, intermittent critical condition improvements 0 - 2 mg/l	mg/l, intermittent critical	Continuous improvement of in-stream DO 2 + mg/l	Continuous improvement of critical condition in-stream DO 2 mg/l +								
Downstream impacts (Biochemical Oxygen Demand [BOD] and Nutrient Loads)	75%+ increase in annual BOD or nutrient loads	50 - 75% increase in annual BOD or nutrient loads	25 - 50% increase in annual BOD or nutrient loads	10 - 25% increase in annual BOD or nutrient loads	Potential 0 - 10 % increase in annual average BOD or nutrient loads	No impact on BOD or nutrient loads	0 - 10% reduction in annual BOD or nutrient loads	10 - 25% reduction in annual BOD or nutrient loads	25 - 50% reduction in annual BOD or nutrient loads	50 - 75% reduction in annual BOD or nutrient loads	75%+ reduction in annual BOD or nutrient loads								
Stream Flow Impacts (Peak flows)	25% + increase in peak flows	10% - 25% increase in peak flows	Up to 10% increase in peak flows	Frequent increase in flow during critical conditions	Possible increase in average flow, or minor increase in high flow peaks	No impact on peak flows	Minor reduction in flows no significant peak reduction	Minor reduction in peak flows under some conditions	Up to 10% reduction in peak flows	10% - 25% reduction in peak flows	25%+ reduction in peak flows								
Stream Flow Impacts (Dry Weather Flows only)		flow during critical	0-10% permanent decrease in flow during critical conditions	Frequent decrease in flow during critical conditions	Possible decrease in average flow	No impact on stream	Intermittent increase in stream flow - not timed to critical conditions	Intermittent increase in stream flow - often improves critical conditions	0 - 10% permanent increase in stream flow	10 - 25 % permanent increase in stream flow during critical conditions	25%+ permanent increase in stream flow during critical conditions.								
Total the scores for eac Maximum score is 25.	ch aspect to get the tot	al score for this alternativ			mpact of the alternative on	the value.	Measurement Me	thod			mental Enhancement Score = 25)	0							
Aquatic and Terrestrial	Wet weather projects ma	dictive models used to evalua		sures have a limited ability	ow, water quality, tree cover, or to predict biological diversity		Project definition may spe configuration, tree cover quality impacts. Flow mo	ecifically address changes in cha etc. Predictive models will addre dels will predict base flow and pe rosion and water surface area.	ss DO and other water										
	Most CSOs have some fo	orm of solids and floatables of ention, constructed wetlands	control baffles. Improvemen	ts in capture rates can be may provide solids and flo	expected with screening or o atables removal as well. Whi ernative.		Current solids and floatab with control technology. I all alternatives that add sc	les removal efficiency has been mprovements in removal efficien reening or other advanced treatr sed for storm water discharges r	cies will be estimated for ment technologies.										
vesthetics - Odor and in the control of the control					ewers. Odors are generally consities and qualities of odors	haracterized by both the	quality, and geographic signot common, and will not be potential for odor and air of	age handling facilities can be mo oread. For planning purposes th be done except in very rare circu emissions will be estimated based storage time, number of events,	is level of evaluation is umstances. The d on typical applications										
hissolved Oxygen (DO)	For BGC the Water Quality Tool will be used to estimate the impacts of various loading conditions, flows, temperatures, etc. Probable impacts of individual																		
ownstream Impacts Biochemical Oxygen lemand [BOD] and	Downstream impacts refe	er to conditions in the Ohio R 6 of the total nutrient loads re	liver below Jefferson County	. Nutrient loadings in the 0	Ohio (not just Jefferson Coun st in the river long enough to o			estimated based on reductions in acts are primarily long-term and											
			panization of a watershed ca	n erode the streambed, da	amage aquatic and terrestrial		the Water Quality Tool has	mate flow peaking factors from it a hydraulic component to estim											
tream Flow Impacts Dry Weather Flows	Diversion of flows away fr	om a stream due to abando	nment of a treatment plant et	c. can reduce base flows	in a stream. Alternatively, of	ner control measures		Extremely high peak flows as are often caused by urbanization of a watershed can erode the streambed, damage aquatic and terrestrial habitat, make water the Water Quality Tool has a hydrautic component to estimate stream flows during various storm events. Predictive models can estimate flows from individual sources, and the Water Quality Tool has a hydrautic component to estimate stream flows during various Cluersion of flows away from a stream due to abandonment of a treatment plant etc. can reduce base flows in a stream. Alternatively, other control measures											

Value:		c Health ncement	Mea	sure				lmp	act	Rationale	Measurement Method		
			WWTP Peak Flows	deliv WWTI rated p capa disin	ok flow ered to P versus eak hour acity of fection stem	Peak flow exceeds rated capacity by more than 100%	Peak flow exceeds rated capacity by 50 - 100%	Peak flow exceeds rated capacity by 10 - 50%	Peak flow exceeds rated capacity by less than 10%	Peak flow is within rated capacity	Peak flow is less than 80% of rated capacity	WWTP disinfection systems have ability to adjust dose rates to handle small short term peaks without exceeding discharge standards. Significant peaks may result in inadequate disinfection that exceeds discharge permit limits. Peak flows well below system capacity allow performance significantly better than standards require.	Measurement will be from analyzing plant influent flow against pre-determined plan stress-test results and operating criteria.
nance Measures	WWTP Peak Flows	CSOs	CSOs and SSOs	Relea	se point	Discharge where volume is > 0.04% of stream's flow	Discharge to water or ground in high public use or access area	Discharge to water in low public use or access area. Basement back- up	Discharge to ground in low public use or access area, discharge contained and cleaned up.	De minimus quantity		environment under their Enforcement Management System in Chapter X, titled "Setting Priorities for Addressing Discharges from Separate Sanitary Sewers." The assigned consequences follow the intent of the principles and priorities presented in the chapter. SSO Event Mean Concentration for Fecal Coliform	be via hydraulic models to
Performance	Design Event Recurrence	Frequency per	Event Recurrence		—	Most Severe Impact				Least Impact	No Impact		
ъ.	Interval	iocation	Interval	+		5	4	3	2	1	0		
	6-10 per year	>10 per year	< 1 year recurrence interval	Most Likely	5	25	20	15	10	5	0		
	1-6 per year	4-10 per year	1-2 yr recurrence interval		4	20	16	12	8	4	0		
ency	1-2 year recurrence interval	1-4 per year	2-5 yr recurrence interval		3	15	12	9	6	3	0		
Frequency	2-5 year recurrence interval	1-2 year recurrence interval	5-10 yr recurrence interval		2	10	8	6	4	2	0		
	>5 year recurrence interval	>2 year recurrence interval	>10 yr storm return	Least	1	5	4	3	2	1	0		
	Not Possible	Not Possible	Not Possible	Not Possible	0	0	0	0	0	0	0		

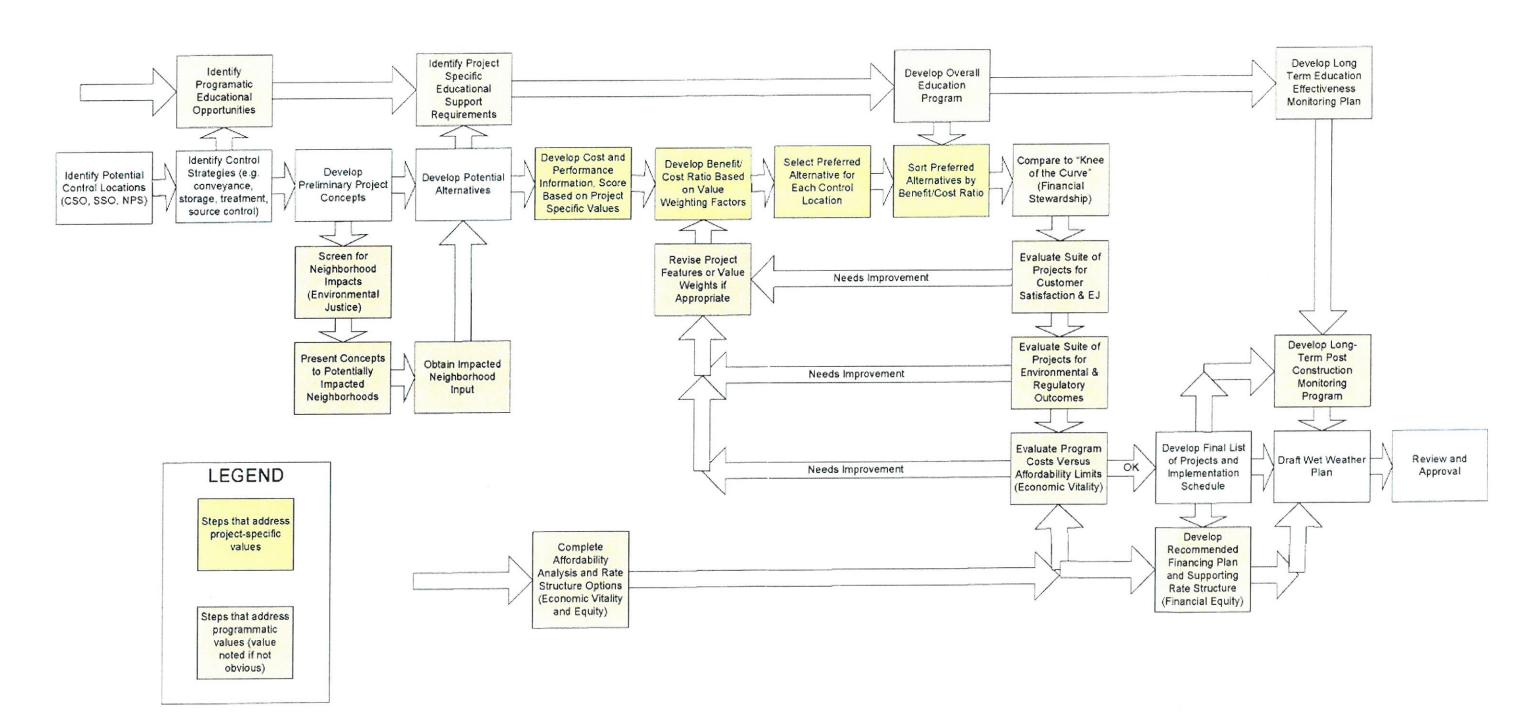
Acronyms
CSO = Combined sewer overflow
FC = Facal coliform
GIS = Geographic information system
SSO = Sanitary sewer overflow
WWTP = Wastewater treatment plant

Value:	Regulatory Mea Performance			asure				lmp	Rationale	Measurement Method									
			WWTP Peak Flows								ak flow vered to P versus peak hour ty of plant	Peak flow exceeds rated capacity by more than 50%	Peak flow exceeds rated capacity by 25 - 50%	Peak flow exceeds rated capacity by 10 - 25%	Peak flow exceeds rated capacity by less than 10%	Peak flow is within rated capacity	Peak flow is less than 80% of rated capacity	WWTPs have ability to handle small short term peaks without exceeding discharge standards, but significant peaks may result in process washout and associated failure of discharge permit limits. Peak flows less than 80% of rated capacity allow plant to perform significantly better than discharge standards require.	Measurement will be from analyzing plant influent flows against pre- determined plant stress-te results and operating criteria.
			Beargrass Creel CSOs	rate receivi	arge flow e % of ng stream llow	Discharge > 5%	Discharge 1 - 5%	Discharge 1 - 0.2%	Discharge 0.1 - 0.2%	Discharge <0.1%	No discharge	CSO Event Mean Concentration for Fecal Coliform in overflows estimated at 250,000/ 100 ml. Dilution factor 0.08% required to not exceed 200 FC/100 ml Water Quality Standard	Measurement method will be via hydraulic model to quantify the CSO. Spreadsheet calculation to determine mix concentration.						
			CSOs in Ohio River	Overflo	ge Annual w Volume AOV)	100 MG+ AAOV	20 - 100 MG AAOV	2 - 20 MG AAOV	1 - 2 MG AAOV	<1.0 MG AAOV	No discharge	100 MG AAOV (10 events) dilution factor in average Ohio River flow is 0.04%. 1.0 MG AAOV (1 event) dilution factor is 0.06%. Cumulative impact of multiple overflow locations may become significant for WQS exceedance.	Measurement methods wil be via hydraulic models to quantify the CSO discharg Spreadsheet calculation to mix concentration.						
nce Measure	WWTP Peak Flows	CSOs	SSOs	Relea	se point	< 1 year recurrence interval	1-2 yr recurrence interval	2-5 yr recurrence interval	5-10 yr recurrence interval	>10 yr storm return	No discharge	Regulations do not distinguish between potential impact of SSOs, therefore frequency and impact are the same for Regulatory Performance value.	Measurement methods will be via hydraulic models to quantify the SSO discharge						
Performance	Event Recurrence Interval	Frequency per	Event Recurrence			Most Severe Impact				Least Impact	No Impact								
Per		location	Interval	1		5	4	3	2	1	0								
	6-10 per year	>10 per year	< 1 year recurrence interval	Most Likely	5	25	20	15	10	5	0								
	1-6 per year	4-10 per year	1-2 yr recurrence interval		4	20	16	12	8	4	0								
ency	1-2 year recurrence interval	1-4 per year	2-5 yr recurrence interval		3	15	12	9	6	3	0								
Frequency	2-5 year recurrence interval	1-2 year recurrence interval	5-10 yr recurrence interval		2	10	8	6	4	2	0								
	>5 year recurrence interval	>2 year recurrence interval	>10 yr storm return	Least Likely	1	5	4	3	2	1	0								
	Not possible	Not possible	Not Possible	Not Possible	0	0	0	0	0	0	0								

Regulatory Performance



Values-Based Decision-Making Process Flowchart Presented at the 5/22/07 Wet Weather Team Meeting



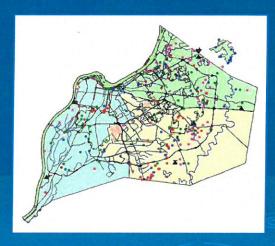


Spring 2007 Public Meetings



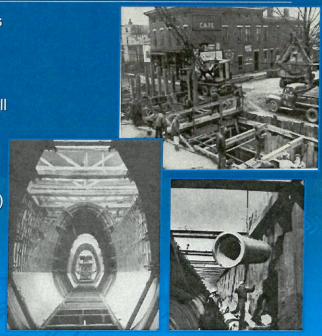
Current MSD Facilities

- 6 Regional Wastewater Treatment Facilities
- 17 Small Wastewater Treatment Plants
- > 304 Pump Stations
- > 3,200 miles of Sewers
- Louisville Green Production Facility
- Ohio River Flood Protection System
 - 16 Flood Pump Stations
 - 29 miles of Floodwall



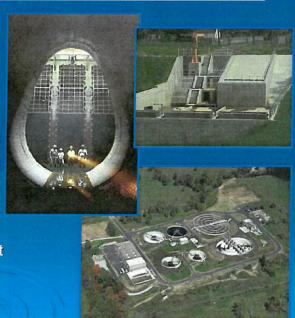
Sewer Service in Louisville Begins Prior to the Civil War

- 1822 Typhoid epidemic hits Louisville
- 1823 Ditch and pond drainage begins
- 1850 First underground sewers constructed (some still in service)
- 1906 Commissioners of Sewerage begin constructing combined sewer system for sanitary sewage and storm drainage (most still in service)
- 1906 1944 Sewer service extended to Watterson
- 1944 Commisioners of Sewerage eliminated



Sewer Service in Louisville After Formation of MSD

- 1946 MSD formed by State legislature
- 1958 Fort Southworth
 Wastewater Treatment plant
 (now Morris Forman) begins
 operation
- 1946 1980s Building boom outside I-264 results in sewer expansion and treatment plant construction by land development companies
- 1980 2000s MSD begins service area expansion, elimination of remote treatment plants



Sewer Service in Louisville Statistics

385 square miles
 (Jefferson County) and parts of Oldham
 County

- > 11 watersheds
- 220,000 customer accounts
- > 693,000 people
- Annual operating budget \$90 million



Jefferson County Streams

Face Typical Urban Watershed Challenges

Sewer System Improvements Targeted at Water Quality Enhancements

- 200+ neglected sewer systems acquired
- > 40,000+ septic tanks eliminated
- > 200+ of small treatment plants (STPs) eliminated
- 100+ small pump stations eliminated
- > \$150+ million CSO and SSO improvements since 1999

Approximately \$1.4 billion in Total infrastructure investments

Jefferson County Streams

Face Typical Urban Watershed Challenges

The Current Situation...

- Challenges are not new or distinct to our community
- Strategies and programs have been in place to improve these conditions
- Stream water quality is improving

United States Environmental Protection Agency (EPA) mandate

- · We need to do more
- We need to do it faster than originally planned

Regulatory Enforcement Louisville's Consent Decree

- > The Process
 - EPA requests information May 2003
 - Kentucky initiates enforcement actions February 2004
 - Consent Decree entered into Federal Court – August 2005
- > The Result
 - Fair Agreement
 - Good for the community and the environment
 - Lots of work for MSD
 - Deadline and Results Oriented

Regulatory Enforcement A Consent Decree

- Civil Penalties
 - \$1,000,000 to State of Kentucky
- Supplemental Environmental Projects
 - \$2,250,000 of non-sewer-related projects or activities within Jefferson County
- Estimated Cost for Compliance
 - \$800,000,000 in sewer related projects and initiatives
 - Rate increases will be needed to fund this effort

Regulatory Enforcement Louisville's Consent Decree

- Short Term Compliance Schedule
 - September 30, 2007 Plan to eliminate 4 largest SSOs
 - December 31, 2008 Plan to abate CSOs and eliminate SSOs
- > Long Term Compliance Schedule
 - December 31, 2020 Combined System
 - December 31, 2024 Separate System

Regulatory Enforcement Louisville's Consent Decree



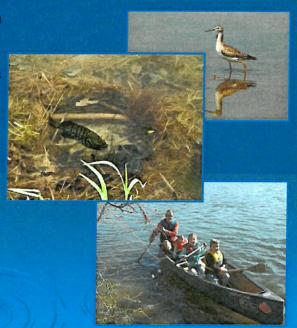
Enhanced program building on the activities previously in place to address sewer overflow issues

Meeting Objectives

- To inform you about significant challenges facing our community relative to clean waterways
 - why do we need it?
 - what will it involve?
 - how are we going to get it done?
- To listen to your ideas and concerns about clean waterways and how it affects you
 - what is important to you relative to clean waterways?
 - what concerns do you have about the condition of our streams and the Ohio River?
 - how important is clean waterways relative to your other priorities and interests?

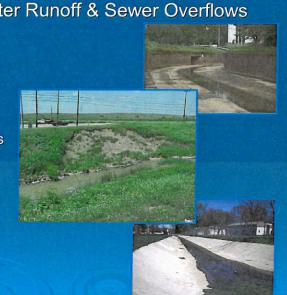
Clean Waterways An Essential Amenity

- Jefferson County blessed with abundance of waterways
 - 40 miles of Ohio River
 - 790 miles of tributary streams and channels
- Waterways provide many recreational amenities
 - Fishing
 - Boating
 - Swimming/wading
- Federal regulations have specific goals for these waterways
 - Fishable
 - Swimmable



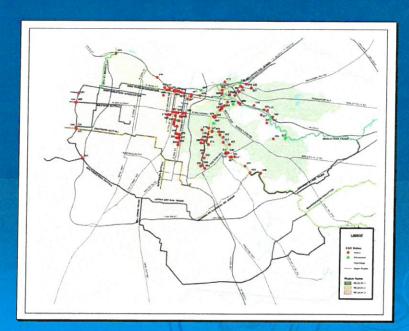
Jefferson County Streams Face Typical Urban Watershed Challenges

- > The Challenges Stormwater Runoff & Sewer Overflows
 - Bacterial contamination
 - · Dissolved oxygen deficits
 - High temperatures
 - · Toxic and non-toxic chemicals
- Stormwater Runoff
 - Lawn and garden care products
 - Grease, oil and metals from cars
 - · Litter and trash
 - Sediment from construction
 - · Pet and wildlife waste
 - Paved stormwater channels
 - Loss of waterway riparian vegetation

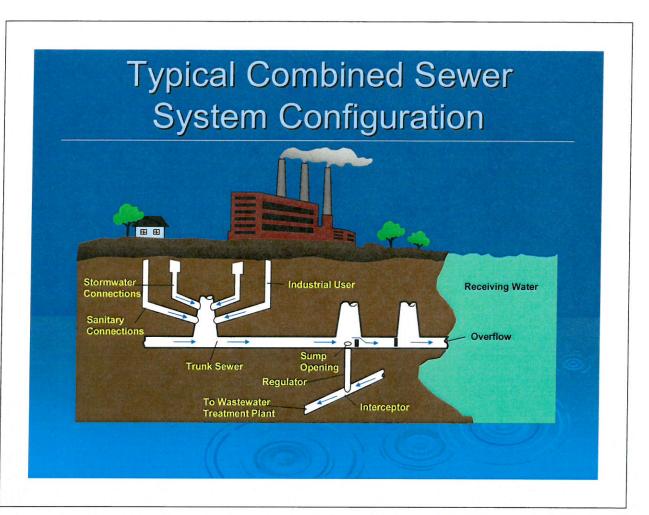




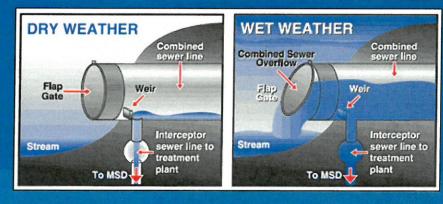
The Combined Sewer System CSO Locations



- 112 Active CSOs
- 10 CSOs Eliminated

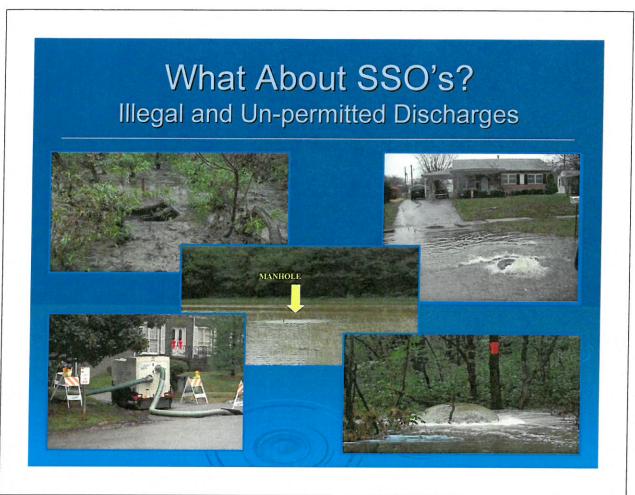






What's a CSO?
A constructed release point on a pipe that carries both stormwater & wastewater

wet weather = legal, permitted dry weather = illegal



Louisville's Consent Decree

Potential Capital Improvements

- Backup generator power
- Pump station modifications
- Treatment plant modifications
- Combined sewer separations
- Sewer overflow storage basins
- Solids and floatable control facilities
- Wet weather treatment facilities
- Real Time Control facilities



Community Involvement Be Reflective of Values & Priorities

Wet Weather Team

- > 25 people from across community
- Assist in developing plan for Public Outreach
- Assist in developing plan for Funding



Community Involvement Be Reflective of Values & Priorities

Public Participation and Outreach

- Informational meetings throughout process
- Public comment forums
- Mailings, newspaper pieces
- Overflow advisory signs along river and streams
- Temporary overflow signs and doorcards
- Project WIN Website

The past year, 2008, was one of the basis of

Signs on creeks and by overflows

What You Can Do To Help!!

- > Learn about Project WIN
- > Provide input into program development
- Support the community-wide program over the next 17 years

Find more information on our website at

www.msdlouky.org/projectwin/



Click on this symbol

Project WIN

What You Can Do To Help!!

Fix private sewer laterals that connect buildings to the main sewer

"leaky laterals"



What You Can Do To Help!!

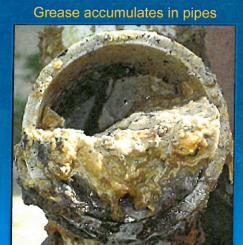
Dispose of grease properly

Do not dump it down the drain!!!!

Put grease in metal container





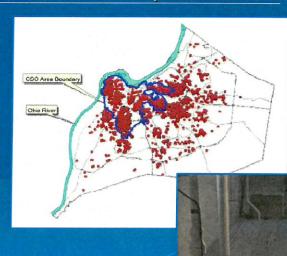


Project WIN

What You Can Do To Help!!

Disconnect sump pumps and downspouts from the sewer system





Plumbing Modification Program 587-0603

What You Can Do To Help!!

- Capture rain to use for watering your gardens and landscaping
 - Rain barrels
 - · Rain gardens
- Plant trees and native vegetation





Project WIN

What You Can Do To Help!!

- Participate in "Clean Sweeps" and litter control programs
- Put trash in designated receptacles
- Dispose of yard wastes properly





What You Can Do To Help!!

Conserve water during and after rain storms

 Only use dishwashers and washing machines if absolutely necessary during these times to put less water in the sewers

Reduce flow to drainage system

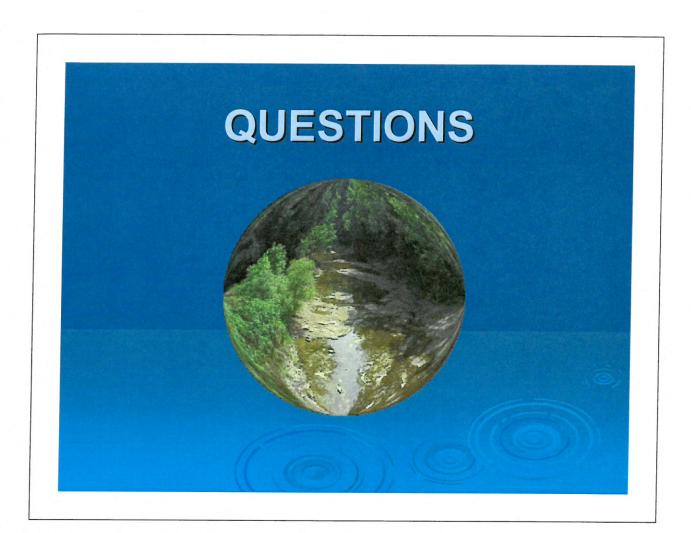
- Wash automobiles on grassy areas instead of the pavement
- Don't water the lawn or garden prior to rain events

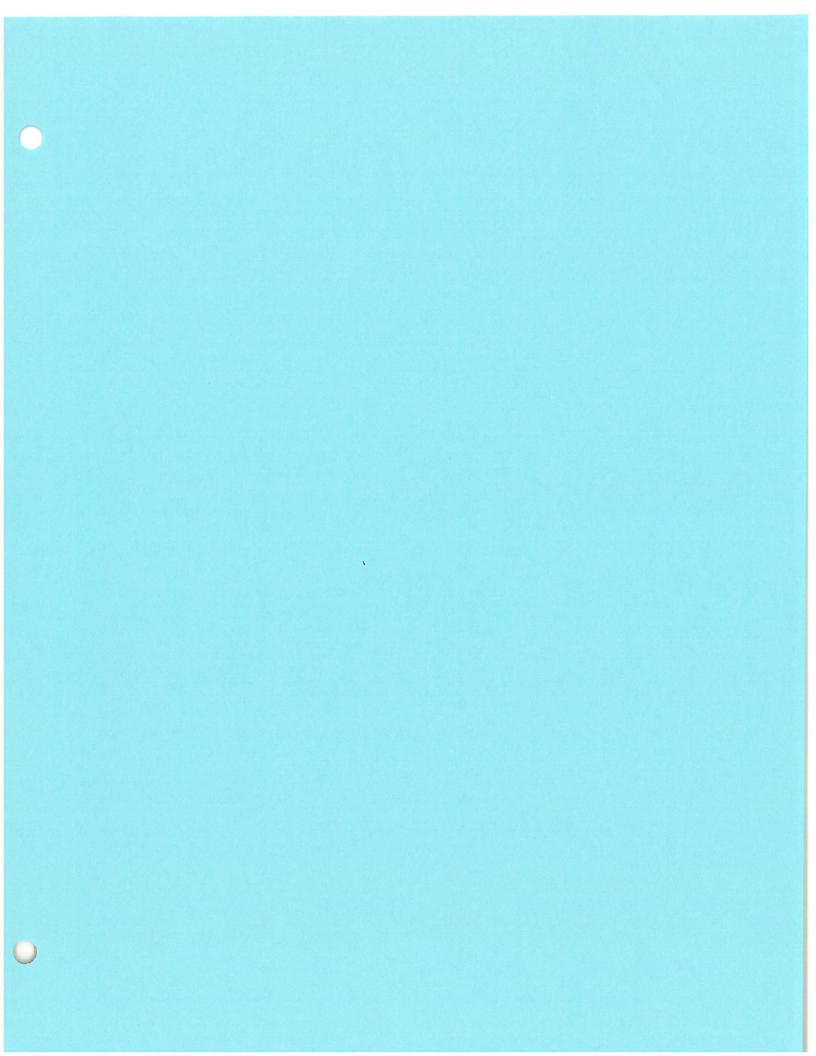
Project WIN

What You Can Do To Help!!

Complete the Survey and leave it with us

	PUBLIC MEETING ATTE		
	Spring 20	007	
			Zip Code
Name:			
Address (Optional):			
Daytime Phone (Option	nal):		
E-mail (Optional):			
Comments/Questions			
How do you and your far	may currently use the Ohio	River and local area st	reams? How often?
What concerns do you hi	ave about the state of our	streams and river?	
How important to you is o	clean streams and over wat	ter, compared to other	priorities in life?
Other comments, concern	ne, or questions		
Other comments, concern	ne, or questions		
Other comments, concern			
Other comments, concern			





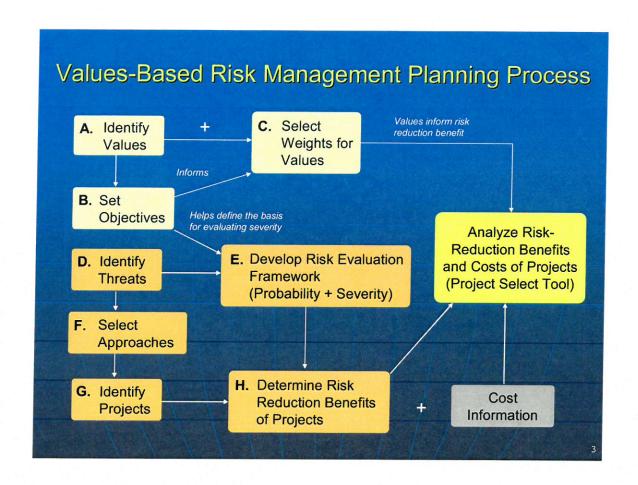
Decision Framework Incorporating Community Values

Wet Weather Team
Stakeholder Group Meeting No. 9
May 22, 2007

Louisville & Jefferson County Metropolitan Sewer District

Presentation Outline

- Review feedback received on projectspecific performance measures, and changes resulting from your comments
- Discuss the revised approach to the Customer Satisfaction value
- Review the overall approach to incorporating both project-specific and programmatic values in decisionmaking



Values and Performance Scales Are Used in Many Ways

- Comparing between alternatives for solving specific problems (cost-effectiveness plus some of the non-financial values)
- Prioritizing projects to identify overall program (all financial and non-financial values)
- Sequencing projects to develop schedule (financial and non-financial values, plus other implementation "readiness" factors)
- Monitoring progress through the life of the program implementation (financial and nonfinancial values, with different performance scales)

Performance Measures for Asset Protection

Value:	Asset Protection				imp	act			Rationale	Measuremen Method	
		Flood	l Damage	Homes or businesses are subject to severe structural damage	Homes or businesses are subject to minor to moderate structural damage	Flooding limits access to homes or businesses	Flooding limits access to recreational great	Standing water on property, but access not affected and no damage expected	No standing water	Storm water BMPs can reduce stormwater peaks and reduce extent of flooded areas, while sewer segar attoo may increase to catabon stormwater peak flows and increase the flooding impacts of storms. Alternatively, purchase of highly impacted properties may be a changer way to reduce flood demaps and create green space and buffer zones.	Drainage models wher available, or historic observations of flood- areas combined with it expected relative impa sewer system modifice on storm water flows
Performance Measures		Basement Back- ups		Sower surcharging within 6 feet of ground surface for more than 20% of manholes	Sewer surcharging within 6 feet of ground surface for 10 - 20% of manholes	Sewer surcharging within 6 feet of ground surface for 5 · 10% of manholes	Sewer surcharging within 6 feet of ground surface for 1 - 5% of manholes	Sewer surcharging within 6 feet of ground surface for 0 - 1% of manholes	No surcharging within 6 feet of ground surface	First foor invets are lypically 1 - 2 less above ground surface, and basement floors are lypically 8 - 10 feet below the first floor. A sever surcharge of 6 leet below ground surface is highly lakely to cause back-ups in homes with basement service.	Measurement methods be via hydrautic model quantify the hydrautic lanes compared to grou- surface elevations at maniholes.
Perf	Event Recurrence	1	-	Most Severe Impact				Least Impact	No Impact		
	Interval	+		5	4	3	2	1	0		
	6-10 per year	Most	5	25	20	15	10	5	0		
	1-6 per year		4	20	16	12	8	4	0	ā	
ency	1-2 year recurrence interval		3	15	12	9	6	3	0		
Frequency	2-5 year recurrence interval		2	10	8	6	4	2	0		
	>5 year recurrence interval	Likely	1	5	4	3	2	1	0		
	Not Possible	Not Possible	0	0	0	0	0	0	0		

Changes Resulting From Stakeholder Input

Added discussion in "Rationale" addressing the option to consider purchase of impacted properties if the life-cycle cost to protect them is greater than the life-cycle cost to purchase (include lost tax and user fee revenues)

Performance Measures for Eco-Friendly Solutions

Aspect					and a sall a second							
	-5	-4	-3	-2	-1	0	1 1	. 2	3	1 4	5	Score Per Asp
Non-Renewable Energy	Primary energy consumption is prested from secondary	Primary energy consumption equal to 75 - 100% of	Primary energy consumption equal to 30 - 75% of secondary	Primary energy consumption equal to 15 - 30% of secondary	Primary energy consumption equal to 15% of secondary	No energy o consumption except for cleaning and	needed, no primary	NA.	NA	NA.	NA.	
Consumption Use of Natural Systems	Constructed facilities permanently displace 3+ acres welfacing or 50% locally available green space	Constructed facilities permanently displace - 5 acres welfands or 25 - 50% locally available green space	Constructed facilities permanently displace 1 - 3 acres wellends or 10 - 15% locally available green space	Constructed facilities permanently displace 0 - 1 acre wetlands or up to 10% locally available green space	temporarily disrupt	Milemetire does not use or affect natural systems	Alternative doesn not use natural systems, but entered green space or wetland	Natural systems play a minor role in alternative function, up to 1 acre wetland or 10% additional green space creased.	Natural systems are sensificant part of atternative function, 1 - 3 acres of wettand created or 10 - 25% additional green space	Alternative fully uses natural systems, 3 - 5 surves of welfand created or 25-50% additional green space	Alternative results in multi-use natural system development, 5+ acres of welfand or 50% additional green space	
Multiple-Use Facilties	Constructed facilities permanently alternate recreational opportund	Constructed facilities, significantly impass tex-reaternal opportunit	Constructed facilities moderately impare recreational opportunity	Constructed facilities have minor impacts on recreational opportunity	Construction temporarily impacts recreational opportunity	No impacts on recreational opportunities	Alternative improves access to existing recreational areas	Alternative has imited positive impact on recreation	Alternative significantly enhances recreational apportunities	Alternative increases recreational opportunities in area	Alternative results in	
Source Control of subwatershed pollutant loads	Political loadings are recreased by 50%	Publish Hedings are remaped by 30 - 50%	Pollutant loadings are increased by 10 - 30%	Pollutant loadings are increased by 0 - 10%	Poliutant loadings impacts are incontratent, but likely higher	Poliulant loadings are uschanged	Poliutant loadings impacts are inconsistent, but likely lower	Source control reduces poliutant loadings by 0 10%	Source control reduces polluters loadings by 10 - 30%	Source control reduces pollutent loadings by 30 - 50%	Source control reduces pollutent loadings by more than 50%	
Non-Obtrusive Construction Techniques	Permanent loss of green space or sensitive area disruption	Main thoroughtere closuree, aeneitive area temporery disruptions	closures	Localized dust, noise and local street Upsures	Minor dust and noise, traffic tane closures	No construction impacts	NA.	NA	NA	NA .	NA.	
Consistent Land Use	Infrustry of numbers facilities inconsistent with meightrathand or land use	Facilities inconsistent with megnocopoid or tend use	Facility appearance integated to reduce impact on neighborhood	Eacities have significant impact on development density	Facility has minor impact on development density	No above ground fecities	Atternative mitigates existing compatitinty problem	Atternative removes facility inconsistent with neighborhood	Alternative removes nulsance facility from neighborhood	Attemative enhances property values in neighborhood	Alternativo provides enhancements that significantly improve neighborhood	
Impermeable Surfaces	5 acres + of impermeable surfaces are added.	3 - 5 acres of impermeable surfaces are added.	1 - 3 acres of impermissible surfaces are added	up to 1 acre of impermeable surfaces are added	Minor increase in impermeable surfaces assed	No change in Impermeable surface	Minor reduction in impermeable surfaces	Up to 1 scre of impermeable surfaces removed	1 - 3 acres of inspermentile surfaces removed	3 - 6 acres of experimeable surfaces remoyed	More than 6 acres of impermeable surfaces removed	
EEDS Performance	NA .	NA.	NA.	NA .	NA .	LEEDS not applicable or LEEDS store <10.	LEEDS Score 10 - 25	LEEDS Centred	LEEDS School	LEEDS GON	LEEDS Platrum	0-08-08
nstructions: Score such alternative for each of the eight superior of the value. Scores can be positive or negative, depending on the impa. Total the scores for each superior get the total score for this alternative in this value. Machtmum score is 25 Shaded are preparant. Tatal flow." Alternatives that score in this area should not be proposed.												
. Total the scores !	for each aspect to g	get the total score	for this alternative	in this value.			of the alternative o	n the value.			riendly Solutions maximum)	0
t. Total the scores to Maximum score	for each aspect to gis 25. Shaded area	get the total score represents "fatal	for this alternative flaw". Alternatives	in this value. that score in this	area should not be	proposed.	Measurement	t Method				0
Total the scores to Maximum score Aspect	for each aspect to gis 25. Shaded area Rationale	get the total score represents "fatal and be expected be low	for this alternative flaw". Alternatives	in this value. that score in this	area should not be	proposed.	Measurement	I Method	P per MG treated			0
Aspect Inergy Insumption	for each aspect to gis 25. Shaded area Rationale	get the total score represents "fatal and be expected be low wides penalty points for concrete and steel corp	for this alternatives flaw*. Alternatives Consumers of non-mineration energy consuming is Bruction with well bottom	In this value. That score in this sells energy, Benchmark distributes.	area should not be	proposed.	Measurement Evaluation of primary an compared to the energy Acres of welfaints and o	t Method	P per MG ireated created or eliminated.			0
t. Total the scores is. Maximum score Aspect Inergy Ionsumption Jise of Natural Systems Autiple-Use	for each aspect to a size. Shaded area Rationale Eco-feeredy solutions we accordary peatment go before green space of various to Eco-feeredy solutions or Eco-feeredy solutions or expensions.	out the total score represents "fatal" out to expected be low wides penalty points for concrete and steel coru inds. Options that redu- pate recreational opports	for this alternative flaw". Alternatives consumers of non-rener right energy consuming a pruction with well bottom or welfands and green so	In this value, that score in this . sole energy, Benchman disrinatives. storage lagoons, construence get penalty points and and repenan recreation	area should not be ung energy consumption acted bioswales, rain gar a. Basing, canoing, kay	a proposed, against conventional dans etc. that increase	Measurement Evaluation of pemary as compared to the energy Acres of wetlands and a Also includes subjective "genen" or "grey" Subjective revaluation of environment as a result.	I Method ergy consumed per MS o consumed at the WCWI	P per MG Ireated s created or eliminated. of the alternative - equatic or riparian pressed base flow or			0
t. Total the scores to Maximum score Aspect Aspect Instruction Isse of Natural Systems Autitopic-Use andition Journal of	for each aspect to is 25. Shaded area Rationale Econlendy solutions are exponency realized by the solutions of the solutions of the solution of the solution of the solution of the solutions of the solution of the solutions of the solution of the solutions of the solution of the solut	get the total score represents "fatal build be expected be low wides penelty points for concrete and steel com ints. Options that reduce pale recreational apport direct water-based recreational apport.	for this atternative flaw". Atternatives consumers of non-terreture consumers of non-terreture consumers consumers of non-terreture consumers co	that score in this state of the score in this score in this score in this score in the score in	area should not be ung energy consumption scled biosweles, rein gar in. Busting, canoing, key imping etc. would be con	a proposed. I against conventional dans etc. that increase aking, fathing, weding, asidened netstand riparian	Measurement Evaluation of primary an computed to the energy Africa of wellands and o Africa of wellands and o Africa includes subjective regions' of "green" of "green" of decire evaluation of any original as result decire eased flow peaks, a decire eased flow peaks, a	t Method lergy consumed per MG viceonsumed at the WCWT ther types of green space evaluation of the "base" Changes predicted in the of better water quality. In	P per MG Ireated or created or eliminated, of the alternative - aquelic or riparian creased base flow or gristed riparian areas carculated by the			0
Total the scores is. Aspect Innerpy Inner Innerpy Inner Innerpy Inner Inn	Factionale Contently solutions as secondary realment pro- part age by terms replaced by the representation of	per the total score represents "fatal wild be expected to the wides penalty points for consiste and see con- cesses and see con- cesses the seed of secre- dition of the search from the search the search from the search the	for this alternative flaw". Afternatives consumers of mon-mone steps of money consuming a section on the we bottom section of the section of section of the section. But we do not behavior monafication, propagatements.	In this value, that score in this, that score in this, that score in this, and the score in this calculation of the formation of the formation of the formation of the formations of an of the formations of the formation of the formati	area should not be uring energy consumption incled thosewers, rein gar in. Busing, canoing, key representation of the con- tion of the con- ti	a proposed, a against conventional Uses etc that increase eaking, failure, wading, sooned related related spanial DMPs that capture	Measurement Covination of principle Covination of principle Covination of principle Covination of principle Covination Africa of weterias and Covination Covinati	I. Method Legy consume per MS. obsessed at the WCMV the formation of the Phase* changes predicted in the obsessed prediction at the formation at th	If per MC (reated or oracle) or oracle) or estimated, of the alternative - equality or riperson present base flow or glated reparts a reason or considered by the return visities of pilots.			0
Total the scores is. Maximum score Aspect Innergy Innergy Insurantion Insurant	For each aspect to js 25. Shaded area is 25. Shaded area Rationale Conferency sublimes we secondary seatment por harter systems progressing premising and warrows or Conferency sublimes are conferency sublimes are conferency sublimes are conferency sublimes are conferency sublimes are conferency sublimes conferency sublimes conferency	part the total score represents. "Tatal wild be expected be tow violencement period for violencement period for peak more than the peak more through a given of peak through	for this alternative flaw". Afternatives were also a consistent of non-remove the area of n	In this value, that score in this : that score in the control in t	area should not be ung energy consumption to ted floorweier, rein gar to ted floorweier to ten angement to the ted floorweier to t	a proposed, against conventional data set that increase sking, fahing, wedny, assend rested rearies bathe that capture amounts of persons of the capture amounts of the	Measurement Createdon of primary or compared to the service of compared to the service of the compared to the service of the compared to the service of the compared to the compared to the control of the compared to the control of t	E. Method berry consumed per MG consumed at the Work consumed at the Work consumed at the Work consumed at the Work charges prediction of the de- ch	IP per MC (reated or oracle) or oracle) or estimated, of the alternative - aquable or ripersen creased base flow or glated repartments are a calculated by the patient values or place posts based on the cooling posts based on the cooling are repaided to the calculated by the patient values or place.			0
Total the scores is . Maximum score . Aspect . A	For each aspect to 1s 23. Shaded as 24. Shad	port the total score represents Tatal with the superior to the concrete and their concrete and their concrete and their con- concrete and their concrete concrete and their concrete concrete and their concrete production of their concrete to the concrete their concrete production of their concrete their concrete concrete their concrete their concrete concrete their co	for this alternative flaw". Afternatives consumers of non-remove consumers consumer	in this value, that some in this value, that some in this and some interest in the source in the sou	area should not be viry energy consumption. In Busing, canoning, law, in Busing, canoning, law, and execution of the con- traction of the canoning of interest of any political of interest of any political.	proposed. I against conventional Uses etc. that increase solving. failing, winding, account related reparter account related reparter and the capture In impacts set periodly by points station can be if a larger parter did did to entine the seconded on the	Measurement Covincion of principy as Active of westernis and active Active of active	E. Method berry consumed per MG consumed at the Work consumed at the Work consumed at the Work consumed at the Work charges prediction of the de- ch	IP per Michaeleg rosated or esimhaled, of the abernative rosated or inparian rosated on inparian rosated bees flow or glidded forman innes calculated by the rather values or polic ports based on the void magnitus in polic void magnitus inpaces void magnitus inpace			6

Changes Resulting From Stakeholder Input

- Changed format to match Environmental Enhancement
- Added LEED criteria for buildings
- Added "Rationale" and "Measurement" to explain the reasoning behind the scoring
 - clarified that recreation included aquatic and riparian activities
 - clarified that source control includes wide range of activities including behavior changes
- Balanced both positive and negative scoring options
- Added "fatal flaw" designation for unacceptable negative impacts

Performance Measures for Environmental Enhancement

	-	- 4		-2	-1	9	1			4		Score Per Aspe
quetic and erestrial Habitat rotection	Ennemation officialization for need or sindangered	Elementor of significant amount of common control	Estration of minor amount of pomman	Significant hebital	Manar organisment to		Minor entendement of exercis	g Significant enhancement of	Creation of minor amount of	Creation of eignificant emount	Creation of critical habital for	
esthetics - Solids	75% r reduction in volume of tipe with no S&F	50 - 75h, of fine with no	25 - 50% of time with mo	10 - 25% of flow with no	Medical efficiency of existing \$47 corpor de-to, 0 - 10% of flow	No impact on habitat	(sebtal)	positions hadered	25 - 50% of flow heated with	of cummon habital	Part of enterparted species.	
nd Floatable a	tephre	S&F removal Create annoying oxor	SM remove	S&F remove	with no SAF removal	No strange in S&F removal	b/French	screens.	0.09904	Wreens	screens	
esthetics - Odor ad Air Emissions	Create enviroying order tource effecting = 20 customers often	source effecting +20 containers often, or +20 containers occasionally	Create smooting ridor sounce affecting rizo customers accessorally	Create detectable odur source affecting > 50 customers often	Create describle usor source affecting < 50 customers occasionally	No impact on odors	Elemente decercaçõe ordor source affecting v 50 customent orcasionally	Cirminare detectable coor electus allecting > 50 cubisment offen	Elmmate acroying odor source affecting 420 continues occasionally	Elevinate arresping oper source affecting <20 qualitation offers or >20 qualitation occurrency	Direlete annoying odor source affecting 120 customers often	
esolved Oxygen	Reduction of misheam DG by 2 mg/s + during critical flow periods	Continuous reduction of a stream DO of 2 mg1 -	Continuous reduction of is alream DO 10 - 2 mgs, presides reduction of in- stream DO 2 - 4 mgs during ortical conditions	intermitians resection of a stream DO2+ rept possible during non-critical contitions, reduction of DO5+2 rept during critical conditions	Intermittent reduction of a pream DO 0 - 2 mg/ possible during non-cross- contitions	N6 DD vrga th	Intermeliant in province of in- streem DOI - 2 right	intermitant improvement of a stream DO 2r mgl. recember condison reproceeds 0 - 2 mg/l	Continuous improvement of in stream DO 8 - 2 mg/l mism Electroscal bonds on ingrinents 2-4 mg/l	Continuous improvement of as stream DQ2 is might	Continuous improvement of onical condition is steam DC 3 mg/s -	
ownstream spacis	75% increase in armue 800 or ruthing loads	50 - 75% increase in arrusi BOD or nutriord loads	25 - 38% increase in annual BOD or nutriens fuests	10 - 25% increase in enhald 8:00 or nutrient scets	efections in arrival average BOD or number (cetts)	No impact on 8:00 or nutrient loads	0 - 10% reducace in annual 800 or ratherd loads	10 - 27% reduction in annual 8:00 or nutraint leasts	25 - 50% reduction in annual 900 or national leads	50 - 75% reduction in annual BCO or nutrient loads	79% - reduction in annual BODs or nument leads	
tream Flow npacte (Peak nows)	25% = increase in peak fices	10% - 25% increase in pear flows	Up to 10% increase in peak Story	Frequent increase in tipe Suring proced conditions	Properties recreated on average flow, or narror increase in high flow peaks.	No impact on peak flows	Minor reduction in flower - no significant peak reduction	Almor reduction in Seas Flores synder some considers.	Up to 10% reduction in page.	59% - 25% resultion in peak Books	25% - reduction in great flows	
	25% r decrease in flow during critical concilions.	10% - 25% decreme in For during critical conditions	0-10% permanent decrease in flow during critical curditions	Frequent decrease in Now.		No employed on schoolin byte.	maximatere increase in stream. Now - not timed to critical conditions	intermitant increase in stream flow - often improves onticel conditions	0 - 10% permanent increase in stream flow-buring orbical conditions	10 - 25 % pormanent increase in alream flow during critical conditions	21% - permanent increase in stitum flor during critical conditions	
netions. An address of each of the seven aspects of the value. Scores can be positive or negative, depending on the impact of the alternative on the value of each of the alternative on the value. An address of the address of the value. An address of the address of the value.						2. Total the scores for e		Total Score Environmental Enhancement (Maximum Score #25) 0				
							3. Maximum score is	s 25. Shaded area repres	ents "fatal flaw".			
ternatives that so							Measurement Mel		ente "fatal flaw".			0
	ore in this area should	I not be proposed. may affect both aquab aracteristics etc. Fred	ative models used to	evaluate wet weather	control measures have	a limited ability to	Measurement Mel Project definition may spe configuration, tree cover o water quality impacts. Fix		in charvel shape and address DO and other a flow and peak flow rakes			
Spect spect until and restrict Habitat ptection	Rationale Well weather projects in channel shape and chaped children and chape and chaped children are channel shape and chaped children are channel shape and chaped children are children and channel shape and chaped children are children are children and children are children	In not be proposed. In a proposed. In a proposed in a pr	lotive models used to impacts etc., so surror latables control baffler ster relandon, constru-	eyatuate wet weather gate metrics must be u in truproversents in ca tied wetlands, and other	control moasures have sed to estimate future plure rates can be expert or control systems may	a limited ability to positive and negative ected with screening or provide solds and	Measurement Met Project delinition may spe configuration, to econe or water quality impacts. Fit to altim estimates of chan Current solds and floatan aleas with control lectrinols estimated for all amentation to solonologies. Where true	thod satically address changes size. Pradictive models will ow models will predict bas	in channel shape and address DO and other is five and peak flow rates purpose area. Over estimated for all oval efficiencies will be ther advanced treatment meater discharges.			
special conditions that so special conditions are set of the set o	Rationale Wet weather projects of hannel shape and of herder to long call always and of house to long call always and of herder to long call always and herder to long call always and herder to long call and herder to long call always and herder to long call and herder to long call always and herder to long call always and herder to long call and herder to long ca	If not be proposed. This proposed is a control to the aguate of the control to t	looke models used to impacts etc., so surroy latables control traffier stor relandon, construi- in solds and floatables is storage systems, pur- latify of the older. Det- latify of the older. Det-	evaluate wet weather gate metrics must be u in. Improvements in ca- ic disprovements in ca- cemoval efficiency is in removal efficiency is in me stations, force man	control measures have sed to estimate future pair relates can be exp or control systems may not likely, penetry point s. and long fail sewers	a limited ability to positive and negative acted with screening or provide solds and s will be assessed if this . Odors are generally	Project definition may spe- configuration, free cover or water quality impacts. Fils to allow estimates of chan water quality impacts. Fils to allow estimates of chan hades with control sectional nakes with control sectional estimated for all antermative techniques. Where trees removable will be estimated Outer emissions from seen quality, and specially and peakly, and specially and creaming on the common circumstances. The poter	solically address changes solically address changes size. Prediction models were modes will predict bas sizes a solication and well- time removal efficiency has size in the solication and size and solication and size and solication and make the solication of sizes of the solication sizes of the solication sizes and models of sizes and sizes and sizes and sizes and sizes and sizes and sizes and sizes and sizes si	in channel shape and address DO and other address DO and other as the war please. Bow and peak Bow rates been addressed and a common and addressed for all your afficientiates will be their advanced for bothers of their advanced for others advanced their advanced by their advanced point of their advanced or internally, so the modeled for internally, so their advanced point of their advanced points and their adva			۰
spect.	Rationale Well wealther projects of channels shape and on the channels shape and on the channels shape and projects of channels shape and channels	If not be proposed, who will be proposed, and activities of the Ped of common activities and to of common activities and the internally and three or of common activities and of common activities and of common activities and where a dependent or where a dependent or	softee models used to impacts etc., so surroy matches control trafficient stor retendon, constructor in solids and floatables is storage systems, pur subject to the coor. Deter in handling facilities in sense, pur in a spring of the coor. Deter in handling facilities in sense, pur in sense, and in a spring of the coor. Deter in a spring of the coor. Determine in sense, pur in a spring of the coor. Determine in a spring of the coor. Determine	evatuate well weather gate medics must be un- suppose the second of the second of the common of the second of the removal of the second of the second of the the second of the second of	control measures have seed to estimate future plane tables can be exper octrol systems may not likely, penalty poen w, and long flat sewers we two common descri-	a limited ability to positive and negative acted with screening or provide notes and s will be assessed if this will be assessed if this . Opers are generally places of deflerent	Measurement Mol Papert devidence may se- configuration, he configuration, he con- configuration, he con- configuration, he con- configuration, he con- trailer assistance and to color Laboration and the color Laboration an	chod solicatly address charges inc. Pleadore modes will inc. Pleadore modes will inc. Pleadore modes will inc. Pleadore modes will predict best will be the predic	in interval stoke and softers. OU and other size and their size and paid for rakes for an addition area team extensive for all their size and softers are seen extensive for an additional size team extensive for additional will be three deviaced to extensive for a material size for a material size for size of all their size of their size			٠
spections of the second of the	Rationale Well wealther properties Well wealther properties Colonned shape of predict properties Colonned shape of predict phosphale Mass CSOs have some Mass CSOs have some Mass CSOs have some Colons and a remain Colons and are emain Colons and are emain	If not be proposed, may affect buth acquait are considered sele. Peel sty changes, show the selection of a form oil and selection selections. Soon is east, white reduction is at notice. The proposed selection is considered to the end of looking is not selection in the inventey and the oil and the considered or deel to considered or deel to considered out to the first of the oil and the oil	kolvier models used to impacts etc., so surrow impacts etc., so surrow impacts etc., so surrow adalates connict baffilier and in electromic to the state of retardors constitution in solids and floatsblies a	avatuate well weather pale metrics must be un interest to the second control of interest and other removal of ficiency is a mp stations, force main control of main and and annual of second of second seco	control measures have seed to estimate future puter rates can be export or control systems may not likely, penalty pone w, and long flat sewers w, and long flat sewers we two common descrip- tered lasts, wherein flow the description in the Otto in the Otto is the Otto	a limited ability to positive and negative actied with screening or provide soles and with the assessed of this . Odors are generally store of different costolia, we've leng at project soles or	Measurement Mel Project desiration may see configuration. New configuration in the configuration of the configurat	chod local yadres charges in Pladcine modes will in a ration and in place in and model produce in and model produce in and model produce in place in and model produce in and model produce in flows. In my and in a in the place in t	or crawnel shape and address DO and other library and peel flow and peel flow rates before a comment of the com			0
spections that so spections are all specific and restrict Habitat decision. Sthetics - Solida F Toatsilius Thoatsilius - Odor Auf Emissions solved Oxygen solved solved Oxygen solved solved Oxygen solved so	Rationale Well wealther properties Well wealther properties Colonned shape of predict properties Colonned shape of predict phosphale Mass CSOs have some Mass CSOs have some Mass CSOs have some Colons and a remain Colons and are emain Colons and are emain	If not be proposed. The proposed of the propo	soften models used to impacts etc., so surrou in solicit end floatesterou	evaluate wet weather pale emerica must be under the emerica must be under the emerican section of the emerican removal efficiency is in my stations, force main extitative and annoying a children EOD load, region the emerican courts, Nuther the emerican courts, Nuther and annoying a annoying as an emerican courts of an emerican courts of an emerican courts of an emerican court of	control measures have seed to estimate future paint rates can be expand paint rates can be expand point rates can be expand not larely, penalty point expanding paint point expanding expanding paint rates expanding paint rates paint rates p	a limited ability to positive and negative accided with sciencing or price explain and with the ability of will be abbested of this will be abbested of this . Observa we generally policies of deferrent consolid, motion learns are projected withereon. On mod livery to the ability of the ability of the ability of the ability of the ability of the ability of age aquabit and	Measurement Mel Project definition may see configuration, the cover of the configuration to see cover the able and estimate of the table estimates the table estimates the table	thod social and social	on cleaning shape and address CO and other address			0

Changes Resulting From Stakeholder Input

- Added peak flow as an aspect
- Clarified that habitat meant both aquatic and terrestrial
- Added "Rationale" and "Measurement" to explain scoring
 - differentiated predicted changes from monitored impacts
 - linked downstream impacts to other river uses and to pollutant loadings on Gulf of Mexico
- Balanced positive and negative scores
- Added "fatal flaw" designation

Public Health Enhancement Performance Measures

Value:		Public Health Measure Enhancement Measure						lmp	act		Rationale	Measuremen Method			
			WWTP Peak Flows	wwi reted cap distr	ak flow yered to P versus peak hour acity of afection whem	Peak flow exceeds rated capacity by more than 190%	Peak flow exceeds rated capacity by 50 - 100%	Peak flow exceeds rated capacity by 10 - 50%	Peak flow exceeds rated capacity by less than 19%	Peak flow is within rated capacity	than 80% of rates	short term peaks without exceeding discharge standards. Significant peaks may be suit in madequate distriction that exceeds discharge permit tents. Peak Sow's well below system capscarp allow performance significantly better than standards.	against pre-determined p		
Performance Measures	WWIP Peak Rows	d\$0+	Üs CSOs and SSOs		• CBOs and BSOs		se point	Discharge where volume is > 0.04% of stream's flow	Discharge to water or ground in high public use or access area	Discharge to water in low public use or access area. Basement back- up	Discharge to ground in low public use or access area, discharge contained and cleaned up.	De minimus quantity	No discharge	consequences follow the intent of the principles and priorities presented in the chapter. SSO Event Mean Concentration for Fecal Coliform estimated at the	ria hydraulic models to
Horm	Design Event Recurrence	Frequency per location	Event Recurrence	1	-	Most Severe Impact				Least Impact	No impact				
a a	interval	location	Interval	٧	/	5	4	3	2	1	0				
	6-10 per year	>10 per year	< 5 year recurrence interval	Most	5	25	20	15	10	5	0				
	1-6 per year	4-10 per year	1-2 yr recurrence interval		4	20	16	12	8	4	0				
ency	1-2 year recurrence interval	1-4 per year	2-5 yr recurrence interval		3	15	12	9	6	3	0				
Frequency	2-5 year recurrence interval	1-2 year recurrence interval	5-10 yr recurrence interval		2	10	8	6	4	2	0				
	>5 year recurrence interval	>2 year recurrence interval	>10 yr storm return	Least Likely	1	5	4	3	2	1	0				
	Net Possible	Not Possible	Not Possible	Not	0	0	0	0	0	0	0				

11

Changes Resulting From Stakeholder Input

 Modified performance measure for disinfection systems to recognize the value in operating well below rated capacity – doing better than standards is a good thing

12

Performance Measures for Regulatory Performance

		gulatory formance Mea			sure Impact							Rationale	Measureme Method
			WWIP Peak Plows	www.rated	ik flow rered to P wersus reak hour ty of plant	Peak flow exceeds rated capacity by more than 50%	Peak flow exceeds rated capacity by 25 - 50%	Peak flow exceeds rated capacity by 10 - 25%	Peak flow exceeds rated capacity by less than 16%	Peak flow is within rated capacity	Peak flow is less than 80% of rated capacity	WVTPs have ability to handle shad short term peaks without eac easing discharge standards, but syndrom peaks may result in process weshout and esociated labure of ascharge remit tents. Peak flow less than 50% of state capacity allow plant to perform syndromly better than oscharge star stands require.	Measurement will be analyzing plant influer against pre-determine stress-lest results and operating criteris.
			Beargrass Croek CSOs	rate % o	arge flow f receiving on flow	Discharge > 5%	Discharge 1 - 5%	Discharge 1 - 0.2%	Discharge 0.1 - 0.2%	Discharge 40.1%	No discharge	CSO Event Mean Concentration for Fecal Costom in overflows estimated at 250 0001 f00 mt. Distance factor 9.05% required to not exceed 200 FC100 mt Water Custom Standard	Measurement methor via hydrautic model to quarally the CSO. Spreads heet calculat determine mix concer
			CSDs in Ohio River	Overflo	e Annual w Volume AOV)	100 MG+ AAOV	20 - 100 MG AAOV	2 - 28 MG AAOV	1-2 NG AAOV	<16 MG AAOV	No discharge	100 MG AACV (10 events) dilution factor in average Chio River flow is 0.04%, 1.0 MG AACV (1 events) dilution factor is 0.05%, Curvulginive impact of multiple overflow locations may become significant for WGS exceedance.	Measurement methods be via hydraulic model quantity the CSO discr Spreadsheet calculation mix concentration.
Performance Measure	WWTP Peak Flows	680e	850e	Release point		< 1 year recurrence interval	1-2 yr recurrence interval	2-5 yr recurrence interval	5-10 yr recurrence Interval	>10 yr slorin return	No discharge	Regulations do not distinguish believes picental import of \$50s, therefore trequency and import are the same for Regulatory Compliance value.	Measurement methods be via hydraulic modes quartify the SSO disch
ormar	Event Recurrence	Frequency per al location	Event Recurrence	1	-	Most Severe Impact				Least Impact	No Impact		
Per	interval		Interval	+		5	4	3	2	1	0		
	6-10 per year	>10 per year	< 1 year recurrence interval	Most Ukely	5	26	20	16	10	5	0		
	1-6 per year	4-10 per year	1-2 yr recurrence interval		4	20	16	12	8	4	0		
Frequency	1-2 year recurrence interval	1-4 per year	2-5 yr recurrence interval		3	15	12	9	6	3	0		
Fredu	2-5 year recurrence interval	1-2 year recurrence interval	S-10 yr recurrence interval		2	10	8	6	4	2	0		
	>5 year recurrence interval	>2 year recurrence interval	>10 yr storm return	Least	1	5	4	3	2	1	0		
	Not possible	No1 possible	Not Possible	Not os sible	0	0	0	0	0	0	0		

13

Changes Resulting From Stakeholder Input

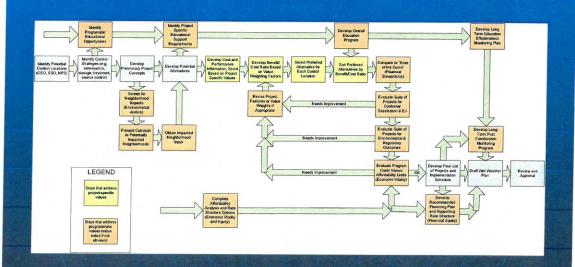
- Changed the name from "Regulatory Compliance" to "Regulatory Performance"
 - recognized that compliance is required, but approaches to compliance allow flexibility
- Modified performance measure for treatment plants to recognize the value in operating well below rated capacity – doing better than standards is a good thing

Customer Satisfaction

- Distributed all project-specific aspects to other values (nonobtrusive construction to Eco-Friendly Solutions, etc.)
- Changed to Programmatic Value, to be used to review potential impacts resulting from the entire suite of projects

15

Value-Driven Decision Flowchart



16

Programmatic Evaluation of Environmental Justice

- Included as integral to the process
- Consult with neighborhoods early in the development of alternatives
 - obtain input on locations and impact mitigation required
 - do earlier than usual, before alternatives are fully defined
 - demonstrate consideration of neighborhood concerns and ideas in final alternative development
- After initial suite of projects has been identified, review for "unfair burden" distribution
- If the first step is done right, the second step is not expected to present issues

17

Programmatic Evaluation of Education Value

- Included as integral to the process
- Includes county-wide behavior change initiatives, targeted neighborhood behavior change, and project-specific education support
- Effectiveness monitored throughout the implementation
 - demonstration of program effectiveness may allow cost reductions in later stages
 - program effectiveness will result in more bang for the buck from conventional solutions
- Different than public involvement requirement of the Consent Decree

Programmatic Evaluation of Environmental Enhancement

- Model water quality improvements resulting from recommended suite of projects
 - pathogens
 - · DC
 - other impairments if identified
- Develop water quality benefit/cost curves for different parameters, and different suites of projects above and below the overall benefit/cost knee of the curve
- Essential to understanding of overall water quality impacts
- Becomes benchmark expectation for long-term monitoring program

19

Programmatic Evaluation of Regulatory Performance

- Develop benefit/cost curves for common regulatory benchmarks
 - CSO volume captured
 - Overflows per average year
 - BOD/TSS load reduction
- Curves are developed for suite of projects above and below the overall benefit/cost knee of the curve
- Regulators expect to see this information, and will require it as part of the review and approval process

Programmatic Evaluation of Customer Satisfaction

- Evaluate suite of projects for items such as
 - neighborhood disruption (multiple times)
 - potential for service interruption
 - opportunities to mitigate construction impacts
- Coordinate with other agencies to minimize multiple disruptions

21

Programmatic Evaluation of Financial Stewardship, Economic Vitality, and Financial Equity

- Financial Stewardship = cost effectiveness, and knee of the curve evaluation of the point of diminishing returns
- Economic Vitality = affordability of rates, the value of clean water, impacts of moratoriums etc.
- Financial Equity = pay proportionally to your contribution, or to your ability to pay
- These values cannot be separated, e.g.
 - point of diminishing returns might not be adequate to avoid sewer moratoriums
 - Financial equity may be compromised to support economic vitality (subsidize low income and/or industrial/commercial)

Discussion Summary Wrap-up