

**Final Meeting Summary  
Wet Weather Team Meeting #19  
Thursday, June 19, 2008  
MSD Main Office, Louisville**

The Wet Weather Team (WWT), chartered by the Louisville and Jefferson County Metropolitan Sewer District (MSD), met on June 19, 2008, at MSD's main office. The objectives of the meeting were to:

- Review and discuss the draft text describing the emergent vision for MSD's Integrated Overflow Abatement Plan (IOAP).
- Review and discuss the draft Project WIN Public Information and Outreach Plan.
- Review examples of combined sewer overflow (CSO) project alternatives, sanitary sewer overflow (SSO) project alternatives, and green infrastructure alternatives being evaluated for MSD's IOAP.
- Preview the next steps in the technical team's analysis, including the programmatic financial stewardship evaluation ("knee of the curve" analysis) of the full set of IOAP projects.

**Wet Weather Project Updates and Announcements**

The following Wet Weather Project updates and announcements were noted at the meeting.

- Project WIN Public Meetings: MSD completed the third series of Project WIN public meetings in May 2008. There was low attendance at the meetings, but MSD videotaped one of the meetings and will make it available on Metro TV.
- Ohio River Sweep News Release: MSD distributed a press release about the Ohio River Sweep Event on June 21, 2008. This is an example of the kind of press releases MSD regularly distributes.
- Draft TMDL for Beargrass Creek: Gary Swanson of CH2M Hill noted that the University of Kentucky submitted a draft total maximum daily load (TMDL) proposal for Beargrass Creek to the Kentucky Division of Water in May 2008. The submittal relied on a lot of modeling and analysis completed by MSD. The draft TMDL is expected to go out for public comment within two months.
- Performance Measurement Scoring Adjustments: Based on some comments from WWT stakeholders, the technical team realized that some of the performance measures being used to evaluate project alternatives did not provide a good distribution of results in certain cases. The technical team has adjusted the performance measurement matrices for the regulatory performance and public health enhancement values to adjust for these unexpected results. (The technical team had anticipated potentially needing to fine-tune the performance measurement matrices during the analysis.)
  - The regulatory performance matrix has been revised to examine overflow volume rather than stream dilution.
  - The public health performance matrix has been revised to focus on volume reduction and to consider changes in stream access when overflow locations are moved.
- Stream Restoration Allowance: Gary Swanson of CH2M Hill said that for every overflow abatement site, MSD and the technical team will incorporate an allowance in the project budget for localized stream restoration opportunities. The technical team will identify these localized opportunities for restoration based on the Beargrass Creek Ecological Reach Characterization Study completed by Redwing. This expansion in the scope of overflow abatement projects to incorporate some stream restoration is a direct response to suggestions from WWT stakeholders.

During this session, MSD Executive Director Bud Schardein also noted that he planned to dedicate more of his time in the next five years to public information and outreach activities.

### **Emergent Vision of MSD's Integrated Overflow Abatement Plan Discussion**

Jennifer Tice of Ross & Associates described the draft document summarizing the emergent vision for MSD's Integrated Overflow Abatement Plan, and noted that the draft vision had been developed based on the vision presentation and discussion at the April 2008 WWT meeting, the vision survey distributed to the Wet Weather Team in May, and feedback the facilitation team received from WWT stakeholders. She pointed out some of the key changes and additions made to the draft vision since the survey, including the incorporation of new text describing the WWT's values and performance evaluation framework, a more accurate description of a two-year design storm for SSOs, and additional information on control options in the IOAP. Ms. Tice and Rob Greenwood of the facilitation team also reminded the group that the vision is one of four "building blocks" of consensus for the WWT process, and that the draft vision will continue to evolve through September 2008 as more information about MSD's IOAP becomes known.

Following this introduction, Gary Swanson of CH2M Hill provided additional explanation of the following three areas in the draft vision that WWT stakeholders had asked about.

- **Variance:** Under the Clean Water Act, permittees must achieve compliance with water quality standards or show that overflows do not cause or contribute to water quality standards violations. MSD plans to determine the levels of overflow control in the IOAP based on the values-based benefit-cost analysis, and will submit the IOAP to EPA without a request for a variance. EPA may indicate a need for a variance based on MSD's submittal, in which case a new public process regarding the variance would be initiated.
- **Design Storm:** Mr. Swanson explained that the technical team would determine the level of protection for individual SSOs on a site-by-site basis, according to the values-based benefit-cost analysis, but would use a two-year design storm as the minimum level of protection. (Other Cities have simply adopted a two-year design storm as the protection level for all SSOs.) As an example, if the incremental cost of a greater level of control (e.g., a five-year design storm) for a given project were small relative to the additional benefits gained in values such as regulatory performance, public health enhancement, and environmental enhancement, then that greater level of control might be selected instead of the two-year design storm.
- **Three-to-One Offset:** In the draft vision, MSD is proposing a three-to-one offset of new flows anticipated from development. In cases where new development would exacerbate existing overflow problems, MSD would undertake infiltration and inflow (I&I) reduction efforts to reduce existing flows in the same sewershed as the proposed development at a ratio of three gallons removed for every one gallon added from the development. There will be a fee structure for the offsets, and these fees would apply to all new development or redevelopment projects.

The facilitation team will revise the draft vision to reflect the clarifications made during the meeting, as well as additional information from the education program discussion (described below). WWT members requested that the facilitation team clearly highlight the changes made to the draft vision in future versions of the document.

### **Project WIN Public Information and Outreach Program Presentation**

Angela Akridge of MSD gave a presentation on the public information and outreach (PIO) program planned for Project WIN and the IOAP. The presentation covered the minimum expectations for PIO set by regulatory guidance, current Project WIN outreach activities, the role of PIO in the implementation of

the IOAP, and the specific public education and outreach approaches envisioned for 2009–2024. A key role of the ongoing PIO is to ensure the sustainability of the IOAP, particularly voluntary participation in source-control solutions and continued support for financial investments. Key audiences include the general public, schools and children, and target groups such as property owners, project neighborhoods, builders, and restaurants. For the general public, MSD envisions five key outreach messages:

1. Value clean water.
2. Your investment is paying dividends, and our water is getting cleaner.
3. Protecting public health is critically important.
4. MSD and many community partners are working hard to improve water quality.
5. You can make a difference.

The Project WIN public information and outreach program uses and will continue to use a wide range of communication media. In particular, MSD proposed public information and outreach program for the IOAP includes the following elements:

- Public meetings and events;
- Enhanced web portal;
- Speaker’s bureau;
- Print and electronic media;
- Recognition programs;
- Demonstration projects;
- Tours, demonstrations, and workshops;
- Enhanced school partnerships; and
- Annual monitoring of PIO effectiveness.

In response to this presentation, WWT participants provided feedback on MSD’s past outreach efforts, commented on the plans for the Project WIN public information and outreach program, and offered some additional suggestions for MSD to consider. WWT comments included the following.

- Several WWT members commended MSD on its efforts to get the word out to the public and on its environmental education program. Participants suggested that people are getting the message about Project WIN, even though the turn out at Project WIN public meetings has been light. In addition, some WWT members noted that people trust and are pleased with MSD.
- Some WWT members suggested that MSD may want to consider “stepping up” its outreach and education efforts when there is a crisis. Remind people about the causes of the problem and explain how they can help reduce and prevent future problems.
- Some WWT stakeholders expressed support for the lawn sign idea, noting that it accomplishes two objectives—recognition and advertisement. The stakeholders encouraged MSD to look for other opportunities to recognize accomplishments and advertise Project WIN at the same time.
- WWT members supported the long-term focus on education of children, but also suggested that it would be useful to involve adults in activities such as monitoring, maintenance of green infrastructure projects, and stream/river cleanup events.
- Several WWT participants had suggestions for videos that MSD could develop and show on Metro TV (Channel 25) or distribute through other means. Suggestions included:
  - Showing potential disasters or other problems that could happen (e.g., water issues in Sudan) as a “hook” to get people’s attention.
  - Provide the history of MSD as an agency (e.g., the problems Louisville faced in the past, why MSD was created, etc.) as a hook to encourage people to learn more about what challenges MSD and the community face and what will be coming in the future.
  - Show how MSD’s infrastructure works and how common problems occur (e.g., when sump pumps are always running).

- Some WWT members provided specific suggestions for the evaluation efforts associated with the public information and outreach program, including:
  - Keep track of how the rain barrels distributed to property owners actually work.
  - Include questions in the customer surveys about who watches Metro TV and how people value the community’s water resources.
- A few WWT stakeholders suggested considering an outreach strategy that would use “action days” to encourage people to change their behavior at certain key time (as with ozone action days). This type of strategy could leverage existing communication networks or set up an e-mail list to periodically distribute notices that describe actions people can take to reduce their impacts.
- Additional suggestions for the Project WIN education and outreach plan included:
  - Establish a “block watch” style targeted outreach approach for neighborhoods associated with individual CSO or SSO areas.
  - Find key people in communities (opinion leaders) and convince them to change their behavior (e.g., use a rain barrel and/or rain garden, disconnect downspouts, etc.) and carry the message of Project WIN.
  - Consider reaching out to parents by setting up a tent or kiosk and distributing information at neighborhood sporting events for children.
  - Participate in the two existing school magnet programs for environmental education.
  - Develop a continuing education program for elected officials and other government bodies such as the Planning Commission.
  - Educate the governing boards of other cities in Jefferson County, not just Louisville.
  - Cluster demonstration projects in one spot, so that people can view and compare multiple approaches.
  - Tell people where they can get things to help reduce flows into the sewer system (e.g., rain barrels, plants for rain gardens, etc.) and how they can find contractors.
  - Regularly provide information reminding people about maintenance of rain barrels and other types of green infrastructure.
  - Consider using canoes in the creek cleanup events.
  - Distribute information through small city newsletters, in addition to larger newspapers.
  - “Piggy back” on other meetings in the community.
- A few WWT members commented that all Metro Louisville government agencies should “lead by example.”

During this session, Rob Greenwood of Ross & Associates did an explicit consensus check with the group regarding MSD’s education and outreach plans. All WWT members present individually expressed their comfort with the direction MSD was heading with the draft public information and outreach program.

### **Update on the Analysis of CSO, SSO, and Green Alternatives for the IOAP**

#### *Review of Examples of the Benefit-Cost Analysis of CSO and SSO Project Alternatives*

Gary Swanson of CH2M Hill reviewed the detailed handouts showing examples of the steps in the technical team’s analysis of CSO and SSO project alternatives. These handouts (separate packages for CSO projects and SSO projects) included:

- Summary tables showing the project alternatives the technical team has evaluated to date; [Note: for CSO projects, the table is labeled, “MSD LTCP Initial CSO Projects Table;” for SSO projects, the table is labeled, “Modeled 2-Year Solutions Summary Table.”]
- Project fact sheets providing an overview of each project;
- Maps showing the approximate locations of the projects;
- Cluster comparison tables that summarize the benefit-cost results of all the alternatives considered for a specific CSO or SSO location;
- Performance measure matrices showing how the alternatives (for a specific CSO or SSO location) were scored in the benefit-cost analysis for the project-specific values (i.e., asset protection, environmental enhancement, eco-friendly solutions, public health enhancement, and regulatory performance); and
- Project cost summary sheets and the detailed cost entry sheets that were used to prepare the cost estimates for the project alternatives.

Gary Swanson noted that the technical team is using a standard database for estimating the costs of project alternatives that are used in the benefit-cost analysis; these cost estimates will be refined when actual project budgets are developed. During this session, Mr. Swanson also summarized the types of project alternatives that are scoring well in the benefit-cost analysis (i.e., the current preferred alternatives) for different regions of the combined sewer system. For example, in the west side, where there are large-volume CSOs, many of the preferred alternatives are storage solutions or combinations of storage and remote treatment. In the central business district, there are considerable opportunities for green solutions, since there are a lot of small CSOs as well as a lot of impervious surfaces. Preferred alternatives within Beargrass Creek watersheds also include sewer separation projects, conveyance projects, and potentially remote treatment.

#### *Green Infrastructure Alternatives Presentation*

John Lyons of Strand Associates gave a presentation that reviewed the programmatic green infrastructure components planned for the IOAP and the types of site-specific green infrastructure projects that are being evaluated. Green infrastructure program components being considered include:

- a downspout disconnect program that could reduce over 100 million gallons (MG) of flow annually if 24,000 downspouts were disconnected;
- an incentive program to support vegetated roofs;
- a rain barrel program supplying 1,000 rain barrels to residents per year that could reduce flows by 50 MG/year assuming 10 percent of residential properties participate;
- a program to identify locations for construction of dry well demonstration projects; and
- a program to increase tree canopy by 15 percent to provide 53 MG in stormwater reduction.

While the vast majority of the green infrastructure components in the IOAP are anticipated to be programmatic, the green infrastructure team is also evaluating potential site-specific green infrastructure projects to include in the IOAP. Green infrastructure projects being considered include green alleys (for CSOs 015, 53, and 121), green parking lots (biofiltration, for CSOs 53, 181, and 160), and green streets (for CSOs 121, 191, and 208). John Lyons and Gary Swanson noted that MSD is planning to be conservative with regard to the estimates of the expected benefits of green infrastructure projects included in the consent decree submittal; however, after the initial green infrastructure projects are implemented and their performance and cost effectiveness is evaluated, MSD may shift towards additional green projects for later stages of the IOAP implementation.

### *Next Steps in the Technical Team's Analytic Process*

Gary Swanson reviewed some of the upcoming steps in the technical team's analysis, which will include:

- Completing the benefit-cost analysis of project alternatives for individual CSO and SSO locations (including evaluating project-level green solutions and additional gray solutions);
- Resizing of the "gray" solutions based on the target reductions in stormwater volume identified through the green infrastructure team's analysis; and
- Reevaluating the levels of control for the preferred alternatives (the preferred technology was selected based on the "base case" of four overflows per year for CSOs or a two-year design storm for SSOs).

Gary Swanson gave a preview of the "knee of the curve" analysis that would be presented at the next WWT meeting. The so-called "knee of the curve" graph plots the cumulative cost of all projects (the preferred alternatives for each CSO and SSO problem) on the x-axis and the benefit-cost scores of the projects on the y-axis, with the projects ordered from the highest to lowest scores. EPA's CSO Policy allows communities to determine the appropriate level of investment in overflow control based on the "knee of the curve" analysis and the total system performance, so it is possible that the preferred alternatives for certain CSOs that have very low benefit-cost scores (compared to projects to address other CSOs) will be implemented last, or may never be implemented. All SSOs, however, need to be eliminated according to the Clean Water Act. Mr. Swanson reminded the group that the benefit-cost analysis doesn't determine what is in the IOAP, but rather it provides information to support the WWT's deliberations and, ultimately, the MSD Board's decision-making about the program.

The technical team will be scheduling optional, open-house style meetings in late July or August 2008 when WWT stakeholders may look at the details of additional projects and the project alternatives considered by the technical team. These optional meetings and the detailed handouts provided at this WWT meeting are intended to help WWT stakeholders to assess whether the values-based evaluation framework has been applied consistent with the group's expectations.

### *Wet Weather Team Comments*

WWT members asked a number of clarifying questions in response to the presentations and also provided the following comments.

- Some WWT participants asked about the different formatting used to show benefit-cost results in the CSO and SSO handouts, and requested that the technical team use a consistent format. Participants noted that using a standard format facilitates the WWT's understanding of the information as well as the credibility of the analysis.
- Several WWT members asked for more information about the MSD numbering system for CSOs and SSOs, and suggested that it could be useful to have a map showing the overflow locations and/or a reference guide to help readers interpret the project numbers and identify the locations of projects.
- A few WWT stakeholders commented that, based on an initial review of the detailed CSO and SSO handouts, the values-based evaluation framework is working as expected and intended.
- Some WWT members asked how the project alternatives in the detailed CSO and SSO handouts compared to the ideas the WWT has proposed for the IOAP throughout the WWT process. Gary Swanson of CH2M Hill said that the technical team is in the process of preparing a crosswalk of the WWT idea lists with the project proposals that the technical team is evaluating.
- A few WWT members suggested that \$4 per square foot might not be a sufficient incentive for vegetated roofs, and noted that older roofs may not be able to hold the full load of a vegetated roof.

- A WWT participant asked about the amount of runoff that a mature tree would absorb. The technical team said that it could get that figure.
- Several WWT stakeholders asked about whether the technical team had evaluated projects that had both green and gray elements (such as using water from storage basins for irrigation, incorporating wetlands into areas, etc.). The technical team said that it was evaluating project alternatives that combine gray and green elements, including wetlands treatment. There are some challenges with using water collected in CSO storage basins without first treating it.
- A few WWT members asked about whether there was a target percentage regarding expenditures of green versus gray solutions in MSD's IOAP, and suggested that MSD might be investing too little in green infrastructure solutions. Members of the technical team and MSD responded that Louisville, unlike many other communities, has been incorporating green infrastructure at the front end of the planning process for the CSO long-term control plan. Brian Bingham of MSD also noted that the level of investment in and integration of green infrastructure in MSD's IOAP should become clearer in the next couple of WWT meetings.
- A few WWT participants noted that there are a lot of construction and development efforts planned on Main Street, and that it could be useful for MSD to take advantage of that construction work to construct the CSO solutions at lower cost, if the timing were right.

### **Observer Comments**

An observer asked a question about the circumstances under which EPA would *not* need to request a variance if MSD were not meeting water quality standards.

Responding to the observer comment, Gary Swanson of CH2M Hill noted that EPA's CSO Policy states that if water quality standards are not met, the permittee needs to either (a) demonstrate that the overflows do not cause or contribute to the water quality standards violation or (b) show that the level of overflow control is reasonable given the benefits provided. Thus if MSD could show that the overflows are not causing the water quality standards violation, a variance may not be needed.

### **Wrap Up and Next Steps**

- The facilitation team will revise the emergent vision draft to reflect the WWT's discussions and the additional information about the Project WIN public education and outreach plan.
- The technical team will schedule one or more optional, project-review meetings in late July or August 2008 for WWT members to review and ask questions about the technical team's analysis of project alternatives for the IOAP.
- Potential topics for the WWT's next meeting on July 15, 2008 include:
  - Update on the emergent vision for the IOAP;
  - Discussion of the draft funding plan; and
  - Review and discussion of the "knee of the curve" (financial stewardship) analysis of a preliminary ranked list of projects.

## Meeting Participants

### *Wet Weather Team Stakeholders*

Mike Ballard (alternate for Judy Nielsen), Louisville Metro Health Department  
Charles Cash, Louisville Metro Planning & Design Services Department  
Allan Dittmer, University of Louisville  
Arnita Gadson, West Jefferson County Community Task Force and Kentucky Environmental Quality Commission  
Mike Heitz, Louisville Metro Parks Department  
Tom Herman, Zeon Chemicals  
Rick Johnstone, Deputy Mayor, Louisville Metro Mayor's Office  
Bob Marrett, CMB Development Company  
Kurt Mason, Jefferson County Soil and Water Conservation District  
Lisa Santos, Irish Hill Neighborhood Association  
Bruce Scott, Kentucky Waterways Alliance  
David Tollerud, University of Louisville, School of Public Health and Information Sciences  
Tina Ward-Pugh, Louisville Metro Council, District 9  
David Wicks, Jefferson County Public Schools

### *MSD Personnel*

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

### *Facilitation and Technical Support*

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

## Meeting Observers

Diane Bielo, Sanitation District No. 1 of Northern Kentucky	Jim Hagerty, Gresham Smith & Partners (GS&P)
Jim Bruggers, Louisville Courier-Journal	Jill Hunt, Sanitation District No. 1 of Northern Kentucky
Peggy Casey, Sanitation District No. 1 of Northern Kentucky	Tim Kraus, O'Brien & Gere
Kristen Crumpton, Tetra Tech	John Lyons, Strand Associates
Henry Cubero, The Cubero Group	Paul Maron, Strand Associates
Samantha Davis, Louisville Metro Council, District 9	William Marshall, Tetra Tech
Jeff Eger, Sanitation District No. 1 of Northern Kentucky	Chad McCormick, Stantec
Justin Gray, MSD	Maggie Mulshine, Sanitation District No. 1 of Northern Kentucky
Sue Green, MSD	Amanda Waters, Sanitation District No. 1 of Northern Kentucky
	Gary Wolnitzek, Human Nature

## Meeting Materials

- Agenda for the 6/19/08 WWT Meeting
- Summary of the 5/15/08 WWT Meeting
- WWT Meeting Schedule (updated June 2008)
- Solution Ideas List (updated June 2008)
- Education and Outreach Ideas List (updated June 2008)
- Data Requests and Monitoring Suggestions List (updated June 2008)
- Emergent Vision for MSD's Integrated Overflow Abatement Plan (June 2008 working draft)
- Compilation of Wet Weather Team Feedback on the Emergent Vision
- Project WIN Public Information and Outreach Program Presentation
- MSD News Release about 6/21/08 Ohio River Sweep
- MSD LTCP Initial CSO Projects Table
- CSO LTCP Initial Solutions Handouts for Project #L\_OR\_MF\_015\_M\_13\_B\_A:
  - Project Fact Sheet
  - Map
  - Cluster Comparison Table
  - Benefit-Cost Tool Results (Performance Matrices)
  - Project Cost Summary Sheet and Detailed Cost Entry Sheets
- SSO Initial Solutions Handouts:
  - Middle Fork Network Branch 6 / Floyds Fork Network Branch 1 SSO Characteristics Table
  - Modeled 2-Year Solutions Summary Table
  - MSD SSS Initial Solutions Development Summary Sheet
  - Map of Middle Fork Sewershed
- Handouts for Individual SSO Projects (Projects #S\_MI\_MF\_NB06\_01\_C\_A, #S\_MI\_MF\_NB06\_01\_C\_B, #S\_MI\_MF\_NB06\_01\_C\_C, #S\_MI\_MF\_NB06\_03\_C, and #S\_MI\_MF\_NB06\_09\_C):
  - Project Fact Sheets
  - Project Cost Summary Sheets and Detailed Cost Entry Sheets
  - Cluster Comparison Tables
  - Benefit-Cost Tool Results (Performance Matrices)
- Green Infrastructure Presentation, "From Raindrops to Rivers: A Vision for Integrating Green Solutions into Stormwater Management"