

Wet Weather Team Project Meeting Materials

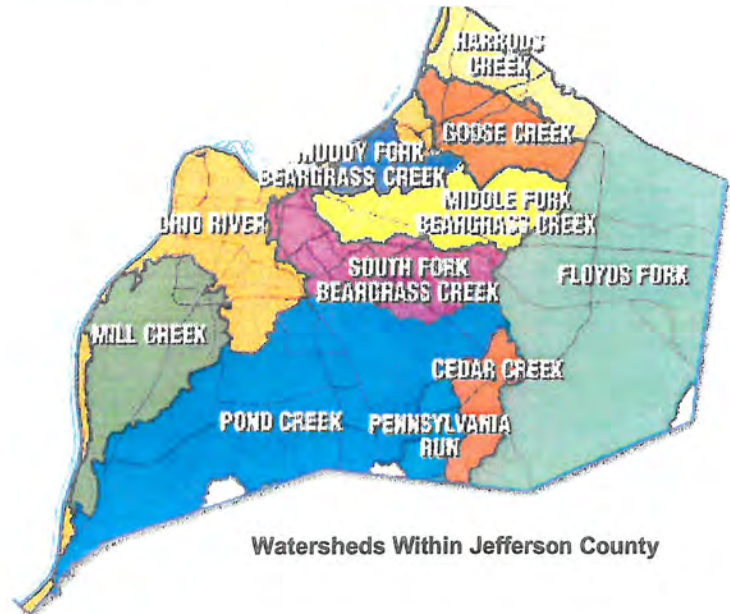
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WWT Stakeholders Meeting # 29 12/4/2012

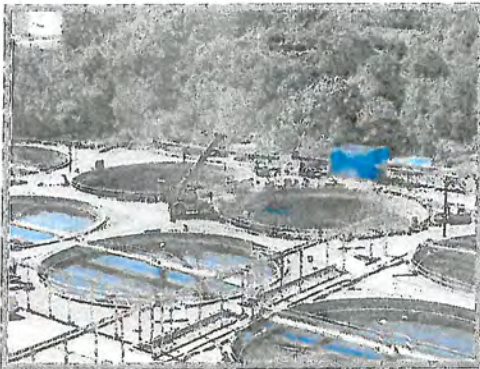


MSD

Louisville and Jefferson County
Metropolitan Sewer District



Watersheds Within Jefferson County



Agenda



WWT Stakeholder Group Agenda December 4, 2012 5:30 p.m. – 7:30 p.m.

- 5:30 – 5:50 Dinner, Welcome, Introductions, Meeting Objective, Agenda Review and Stakeholder Meeting “Ground Rules”, – Angela Akridge, MSD Project WIN Program Manager
- 5:50 – 6:10 IOAP Implementation Progress Report – Angela Akridge, Project WIN Program Manager
- 6:10 – 6:30 Proposed IOAP 2012 Modifications Overview – Angela Akridge; Justin Gray, MSD Sr. Technical Services Engineer; Gary Swanson, CH2MHill
- 6:30 – 7:00 Statement of Support Discussion – Gary Swanson
- 7:00 – 7:10 Next Steps
- Proposed Next Meeting: Wednesday January 30, 2013, 5:30-7:30
Objective: finalize “Statement of Support for Modification”
 - Feedback either tonight or via email to Angela Akridge by December 21, 2012
 1. questions/comments/concerns you have with submission of “Statement of Support for Modification” as you understand it today;
 2. additional information needed for review to determine if you concur with the “Statement of Support for Modification”; or
 3. confirmation of your concurrence with the “Statement of Support for Modification”
- 7:10 – 7:20 Observer Comments
- 7:20 – 7:30 Wrap-up and Adjourn

Meeting Summary
Wet Weather Team Stakeholder Group Meeting
Tuesday, December 4, 2012
MSD Main Office, Louisville

The Wet Weather Team (WWT) Stakeholder Group, chartered by the Louisville and Jefferson County Metropolitan Sewer District (MSD), met on December 4, 2012, at MSD's main office. The objective of the meeting was to prepare for the development of a "2012 IOAP Modification Statement of Support for the February 2013 public review and MSD Board Submittal from the WWT Stakeholder Group.

Integrated Overflow Abatement Plan (IOAP) Progress Report

MSD Project WIN Program Manager Angela Akridge gave a presentation on IOAP Progress to date. Overall, the program is about 25% complete, having spent approximately \$200 million of the \$850 million program spending projection. Most notably the "Big 4" sanitary sewer overflow (SSO) locations, which comprised approximately 70% of the SSO volume, have been eliminated. Refer to the presentation slides for specific implementation details.

Proposed IOAP 2012 Modification Overview Presentation

Ms. Akridge gave an overview of the Proposed IOAP 2012 Modification. Items of note in the modified project suite include:

- The modified project suite cost remains at \$850 million as originally projected;
- 7 projects became larger and 7 projects became smaller, and some were eliminated; and
- The modified program eliminates more overflow volume than the previous plan.

A red-lined markup of the three volumes comprising the IOAP is being prepared to clearly demonstrate the exact text that is being removed, replaced or added to incorporate the additional work performed since the 2009 IOAP approval.

A summary of the changes to IOAP Volume 1 are as follows:

- Executive Summary – will be updated with proposed project modification statistics.
- Chapter 1 – Introduction. No substantive changes.
- Chapter 2 – Integrated Overflow Abatement Plan Approach. Added text documenting changes to the MSD Wastewater/Stormwater Discharge Regulations allowing MSD to address illicit private property stormwater connections to the sanitary sewer system.
- Chapter 3 – Public Participation and Agency Interaction. Added a section to describe the change to the WWT Stakeholder Group's role during IOAP implementation and the public input and project review meeting process added since 2009.
- Chapter 4 – Integrated Overflow Abatement Program. Updated the CSO Long Term Control Plan and the SSO Sanitary Sewer Discharge Plan project tables, updated the water quality treatment center eliminations (WQTC) table and updated the source control and illicit connections section.
- Chapter 5 – Regulatory Compliance. No substantive changes
- Chapter 6 – Integrated Overflow Abatement Plan Implementation. Staffing and operations costs will be refined to reflect reorganizations and respective responsibility transfers. The post construction compliance monitoring program was updated to reflect "EPA CSO Post Construction Compliance Monitoring Guidance" released since 2009.

A summary of the changes to IOAP Volume 2 are as follows:

- Executive Summary – Existing summary of Volume 2 will be replaced with updated summary from Volume 1 to ensure that the reader understands the inter-relationship between the combined sewer plan

Meeting Summary
Wet Weather Team Stakeholder Group Meeting
Tuesday, December 4, 2012
MSD Main Office, Louisville

and the sanitary sewer plan and overall regulatory compliance strategy achieved by the integration of the two.

- Chapter 1 – Introduction. No substantive changes.
- Chapter 2 – System Characterization. No substantive changes.
- Chapter 3 – Development and Evaluation of Alternatives for CSO Control. No substantive changes.
- Chapter 4 – Selection of Final CSO Long-Term Control Plan. Tables hatched over to preserve information and direct reader to new tables in Chapter 5.
- Chapter 5 – Long Term Control Plan 2012 Modification. New Section added to detail the CSO Project Modifications and update Green Infrastructure Demonstration Program and project specifics.

A summary of the changes to IOAP Volume 3 are as follows:

- Executive Summary – Existing summary of Volume 3 will be replaced with updated summary from Volume 1 to ensure that the reader understands the inter-relationship between the combined sewer plan and the sanitary sewer plan and overall regulatory compliance strategy achieved by the integration of the two. Chapter 1 – Introduction. No substantive changes.
- Chapter 2 – System Characterization. No substantive changes.
- Chapter 3 – Development and Evaluation of Alternatives for SSO Elimination. No substantive changes.
- Chapter 4 – Selection of Final Sanitary Sewer Discharge Plan. Tables hatched over to preserve information and direct reader to new tables in Chapter 5.
- Chapter 5 – Sanitary Sewer Discharge Plan 2012 Modification. New Section added to detail the SSO Project Modifications and update Inflow and Infiltration Reduction Program and project specifics.

Comments on the IOAP 2012 Modification

- One WWT participant asked if MSD anticipated another similar modification in the future.
 - MSD noted that flow monitoring and model calibration efforts will continue through the implementation period. As such, MSD cannot rule out the need for smaller project adjustments through 2024; however, major modifications such as this one in 2012 are not anticipated.

Discussion of the IOAP 2012 Modification Completion Schedule

During this session, the WWT Stakeholder Group members were briefed on the intended schedule for final submission of the modified plan for regulatory review.

- A draft version of the IOAP 2012 Modification will be sent to EPA and KDEP for unofficial review on 12/7/12. MSD anticipates receiving comments on this draft plan by January 4, 2013.
- The next round of public meetings to discuss the 2012 Modifications is planned for mid-January, 2013.
- The next WWT Stakeholder Group meeting is scheduled for Wednesday, January 30, 2013. The goal of this meeting is to finalize the Statement of Support for the 2012 Modifications.
- MSD plans to distribute draft copies of the IOAP 2012 Modification to the Louisville Free Public Library sites and begin the Public Notice period on or about February 15, 2013.
- MSD will conduct a formal hearing on the IOAP 2012 Modification on or about March 1, 2013.
- The public comment period will close on March 15, 2013, or 30 days after the comment period starts.
- MSD will request formal approval to submit the plan from the MSD Board in April 2013.
- MSD will submit the IOAP 2012 Modification to EPA, KDEP and Department of Justice in May 2013.

Meeting Summary
Wet Weather Team Stakeholder Group Meeting
Tuesday, December 4, 2012
MSD Main Office, Louisville

Discussion of the WWT Stakeholder Group IOAP Modification Support Memo

During this session, the Gary Swanson presented suggested updates on the above-mentioned memo to the WWT Stakeholder Group members. The purpose of the suggested changes was to initiate discussion on the memo's purpose and significance it had during the 2009 initial approval process. An updated version supporting the IOAP 2012 Modification will likely have similar significance as we move through the formal regulatory approval process.

Wrap Up and Next Steps

- MSD will develop a meeting summary, which will be mailed along with meeting materials to WWT Stakeholder Group members who were unable to attend.
- The technical team will contact WWT members who were unable to attend the December 4 meeting to ensure they received meeting materials and answer any questions they might have.
- The WWT Stakeholder Group members were asked to review the materials presented by MSD and email follow-up comments to Angela Akridge by Friday December 21, 2012, as follows:
 1. Send questions, comments and/or concerns related to the 2012 IOAP Modification so MSD can address them before the document is made public in February;
 2. Request additional information for review to determine if needed prior to committing to support a "Statement of Support for Modification" based on your understanding of the IOAP and the 2012 Modifications as you understand them today; or
 3. Confirm concurrence with the "Statement of Support for Modification" as presented December 4.
- The goal of the WWT Stakeholder Group's next meeting on January 30, 2013, is finalization of the Statement of Support for the IOAP 2012 Modification.

Other Discussion

During the open discussion one of the Group members asked about the proposed changes to the Wastewater/Stormwater Discharge Regulations as they related to impacts on new development. It was noted that MSD has been discussing the need for these changes with the Homebuilder's Association and would be discussing a draft of proposed changes with representatives of the development community.

Observer Comments

Teena Halbig asked if the Beechwood Village projects were complete. MSD responded that the construction work was complete and the temporary pumps removed from the area.

Meeting Summary
Wet Weather Team Stakeholder Group Meeting
Tuesday, December 4, 2012
MSD Main Office, Louisville

Meeting Participants

Wet Weather Team Stakeholders (Present)

Stuart Benson, Louisville Metro Council, District 20
Arnita Gadson, Executive Director, Kentucky Environmental Quality Commission
Kurt Mason, District Conservationist, Jefferson County Soil Conservation District
David Tollerud, University of Louisville School of Public Health and Information Sciences
Tom Herman, Zeon Chemicals
Bob Marrett, CMB Development Company
Lisa Santos, Irish Hill Neighborhood Association

Wet Weather Team Stakeholders (Not Present)

Steve Barger, Labor (Retired)
Susan Barto, Mayor of Lyndon
Allan Dittmer, University of Louisville Provost Office
Mike Heitz, Director, Louisville Metro Parks
Rick Johnstone, Deputy Mayor, Louisville Metro Mayor's Office (Retired)
Jim Mims, Louisville Metro Planning & Design Services Department
Tina Ward-Pugh, Louisville Metro Council, District 9
Bruce Scott, Kentucky Waterways Alliance
David Wicks, Kentucky Conservation Committee, Jefferson County Public Schools Center for Environmental Education (retired),

Wet Weather Team MSD Personnel (present)

Angela Akridge, MSD Regulatory Policy Manager
Steve Emly, MSD Director of Engineering and Chief Engineer

Wet Weather Team MSD Personnel (not present)

Brian Bingham, MSD Regulatory Services Director
Greg Heitzman, MSD Interim Executive Director

Technical Support

Gary Swanson, CH2M HILL

Meeting Observers

Clay Kelly, Strand Associates
Teena Halbig, Floyds Fork Environmental Association
Justin Gray, MSD
John Loechle, MSD
Wes Sydnor, MSD

Meeting Materials

- Agenda for the 12/4/12 WWT Stakeholder Group Meeting
- Copy of the Summary Presentation powerpoint slides
- Copy of the 2012 IOAP Projection Modification summary memo to EPA, KDEP and the Department of Justice dated August 17, 2012 (Revised September 30, 2012)
- Proposed WWT Stakeholder Group Statement of Support Memo for the IOAP 2012 Modification



2012 IOAP PROJECT MODIFICATION

FINALIZED ON SEPTEMBER 20, 2012



STEVEN L. BESHEAR
GOVERNOR



LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF ENFORCEMENT
300 FAIR OAKS LANE
FRANKFORT KENTUCKY 40601
www.kentucky.gov

October 4, 2012

CERTIFIED MAIL 70101060000217058806
Return Receipt Requested

Mr. Greg Heitzman
Interim Executive Director
Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville, Kentucky 40203

Re: Partial Approval of MSD's 2012 Integrated Overflow Abatement Plan Project
Modification Request

Dear Mr. Heitzman:

The Kentucky Department for Environmental Protection (KDEP) and the U.S. Environmental Protection Agency (EPA) have reviewed the Metropolitan Sewer District's 2012 Integrated Overflow Abatement Plan (IOAP) Project Modification document dated August 17, 2012, with subsequent revisions dated September 20, 2012 and supplements that were provided in response to KDEP/EPA comments. There are 28 separate project modification requests contained in the IOAP Project Modification document.

Projects 1 through 12 and 18, as set forth below and as more particularly described in the 2012 IOAP Project Modification document, are hereby approved. These project modifications do not significantly alter the requirements of the original IOAP and are therefore deemed a non-material modification to the Amended Consent Decree. As such, these IOAP modifications will be incorporated into the existing approved IOAP, dated September 30, 2009, as amendments and will be enforceable requirements of the Amended Consent Decree in accordance with Paragraphs 25.a.(3) and 25.b.(2) of the Amended Consent Decree.

Project Modification approval list:

(2012 IOAP Projects Modification Table of Contents No. and Project Title)

1. Adams Street Sewer Separation
2. CSO058 Sewer Separation
3. CSO093 Structural Modification & Green Infrastructure Controls
4. CSO140 In-Line Storage & Green Infrastructure Controls
5. CSO160 In-Line Storage & Green Infrastructure
6. Derek R. Guthrie WQTC – Wet Weather Facility

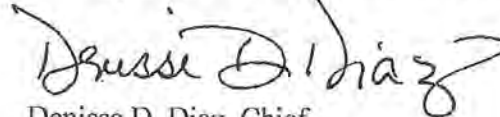
7. I-64 and Grinstead Drive Storage Basin
8. Meadow Stream Pump Station & Force Main Upgrade
9. Paddy's Run Wet Weather Treatment Facility
10. Story Avenue and Main Street Storage Basin
11. Story Avenue and Spring Street Green Infrastructure & Distributed Storage
12. 13th Street and Rowan Street Storage Basin
18. Central Relief Drain CSO, Green Infrastructure & Distributed Storage

Please note that once all of the project modification requests have been reviewed and acted upon, it will be necessary to update the District Court of this and any other non-material modification to the IOAP to ensure the Court's record is up to date. If there are any questions, you may contact Courtney Seitz of KDEP at (502) 564-3410 ext. 4914, or you may contact Mr. Dennis Sayre of EPA at (404) 562-9756.

Sincerely,



Jeff Cummins, Acting Director
Division of Enforcement
KY Department for Environmental Protection



Denisse D. Diaz, Chief
Clean Water Enforcement Branch
Water Protection Division
USEPA, Region 4



*Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org*

August 17, 2012 (Revised September 20, 2012)

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U. S. Department of Justice
Post Office Box 7611
Washington, DC 20044-7611

Jeffrey A. Cummins, Acting Director
Division of Enforcement
Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
U. S. EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: 2012 Integrated Overflow Abatement Plan (IOAP) Modification
DOJ Case No. 90-5-1-1-08254

Attention Director and Chiefs:

As part of the adaptive management approach outlined in the approved 2009 Integrated Overflow Abatement Plan (IOAP), the Louisville and Jefferson County Metropolitan Sewer District (MSD) has been expanding the monitoring network throughout its sewer system. MSD has been utilizing data from this network to recalibrate the hydrologic and hydraulic models used to size overflow abatement projects and refine individual project approaches and sizes based on an improved understanding of the sewer system operation and the relationship of certain overflows to one another.

MSD developed this programmatic justification for a proposed 2012 IOAP Modification, utilizing the same benefit/cost methodology defined by the Wet Weather Team for the 2009 approved plan. This justification demonstrates the proposed modifications achieve a higher overall benefit to the community through earlier overflow reduction, increased use of green infrastructure and acknowledgement of pertinent public input. Individual project modification letters were submitted on August 17, 2012 along with this programmatic justification to provide additional detail for each project requiring significant adjustments. Enclosed with this letter are revisions to several of these letters and associated project fact sheets in response to our telephone discussions on September 5, 2012. Note that most of the letters are for "advance notification", documenting the modifications that will be addressed in the proposed 2012 IOAP Modification. Eleven of the letters address modifications that impact MSD's approved IOAP implementation activities and request approval of the minor modifications in advance of the full IOAP Modification submittal. The revised Table 1, attached, summarizes the proposed project modifications.

Consistent with our previous discussions, the 2012 IOAP Modification is currently under development for submittal in 2013. MSD is developing these modifications based on changes to project size, location,



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technology and schedule that have previously been informally communicated with federal and state regulators and with the public through a series of project review and input meetings. MSD is planning additional public outreach activities to further communicate project changes to the community and gather comment.

Background

One of the basic principles of IOAP implementation approach is the use of adaptive management, refining past decisions through continuous improvement of the physical and hydraulic information available for use as analytical tools. The intent of adaptive management is to “right-size” projects as additional information is collected and analyzed through expanded flow monitoring and improved system operational understanding. MSD’s challenge in implementing the IOAP is adjusting the project sizes and technical approach to successfully achieve overflow reduction and regulatory objectives while maintaining community affordability. Continuous measurement and improved understanding of the large, complex sewer system functionality under various wet weather conditions is enabling the District to achieve these desired outcomes.

Project identification and sizing for the preparation of the approved 2009 IOAP was based on a set of sewer system models developed and calibrated to rain events, flow data and field reconnaissance in 2006 and 2007. This mathematically modeled representation of the physical sewer system was based on sewer maps and construction drawings that date back as far as the early 1900’s, supplemented and verified to some extent by survey data related to critical elements of the system. While surveyors field-verified some of the information from the maps, plans, as-builts and drawings, the size, accessibility and complexity of the system precludes resurveying every pipe and manhole during the planning process.

After building the mathematical models of the combined and separate sewer systems, the hydraulic calculations for both dry and wet weather were calibrated using flow measurements taken from 29 locations in the combined system over the course of 3- 4 months in the spring of 2007. This time period included several significant rain events. The purpose of the initial hydraulic modeling was to provide estimates of flows at various locations in the sewer system to allow identification, evaluation, and prioritization of projects to reduce sewer overflows. However, MSD understood that this initial modeling effort would require increased system monitoring and model refinement to ensure that regulatory compliance and water quality objectives are achieved, as documented in the 2009 IOAP adaptive management approach.

Parallel to the development of the IOAP for the 2009 submittal to the regulatory agencies, MSD began implementation of an aggressive program involving installation of long-term flow monitoring equipment at numerous locations to continue improving the quality of the sewer flow predictions from the models and subsequent overflow abatement project sizing. Over 200 new sewer monitoring sites have been installed since 2009.

Approach

The most recent calibration agreed with the overall hydrologic runoff volume calculations performed in 2007, with total volumes of sewer overflow from the combined system within 10% of the original calibration; however, calibrating to additional sewer flow measurements and making corrections in the physical representation of older parts of the sewer system resulted in a redistribution of the flow in individual pipes. For example, this redistribution caused the I-64 and Grinstead Drive Storage Basin to increase significantly in size, and other basins to shrink.

MSD is proposing various project modifications including approach, size, level of control and schedule (see attached) due to the model calibration, constructability, green infrastructure implementation, projected rate increases and recent public input. The projects were analyzed through the same technology assessment and benefit/cost methods used in the 2009 plan, as defined by the Wet Weather Team.

Environmental Benefits

MSD has evaluated the impacts of the proposed modifications on the overflow reduction timing and overall overflow reduction performance as compared to the 2009 IOAP. Table 1 summarizes the original and proposed modifications to the technologies, levels of control, remaining AAOV, and wet weather capture. Note that as a result of revised benefit-cost analyses, five projects have an improved level of control. One project, the 13th Street and Rowan Street Storage Basin, was split into three separate projects, and the level of control for the projects resulting from this split went down. Figure 1 demonstrates that the 2012 proposed modifications provide a higher level of CSO control than the approved 2009 IOAP, and that overflows are reduced quicker, except for two brief periods where the curves intersect.

Note that Figure 1 shows three different overflow reduction curves. The curve labeled "2008 Submitted IOAP" illustrates the timing of AAOV reductions from the plan submitted in December 2008. The curve labeled "2009 Approved IOAP" illustrates a slightly different curve resulting from minor refinements made to a number of projects through the review, revision, and re-submittal process that occurred during January through September 2009. These minor refinements were documented in the project fact sheets submitted with the 2009 IOAP, but were not consistently reflected in the text. The 2012 IOAP Modification will correct the tables showing the 2009 IOAP and the 2012 IOAP Modification.

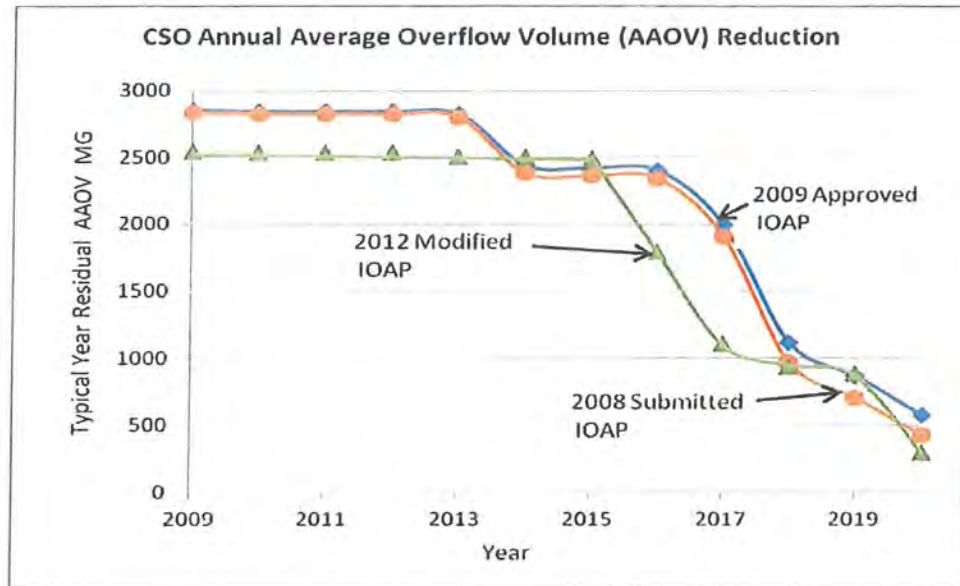


Figure 1 - CSO AAOV Reduction Thru 2020

Figure 2 shows that the overall level of control for SSOs remains essentially the same as in the approved IOAP, but the SSO eliminations occur quicker than originally proposed for SSOs at all levels of control.

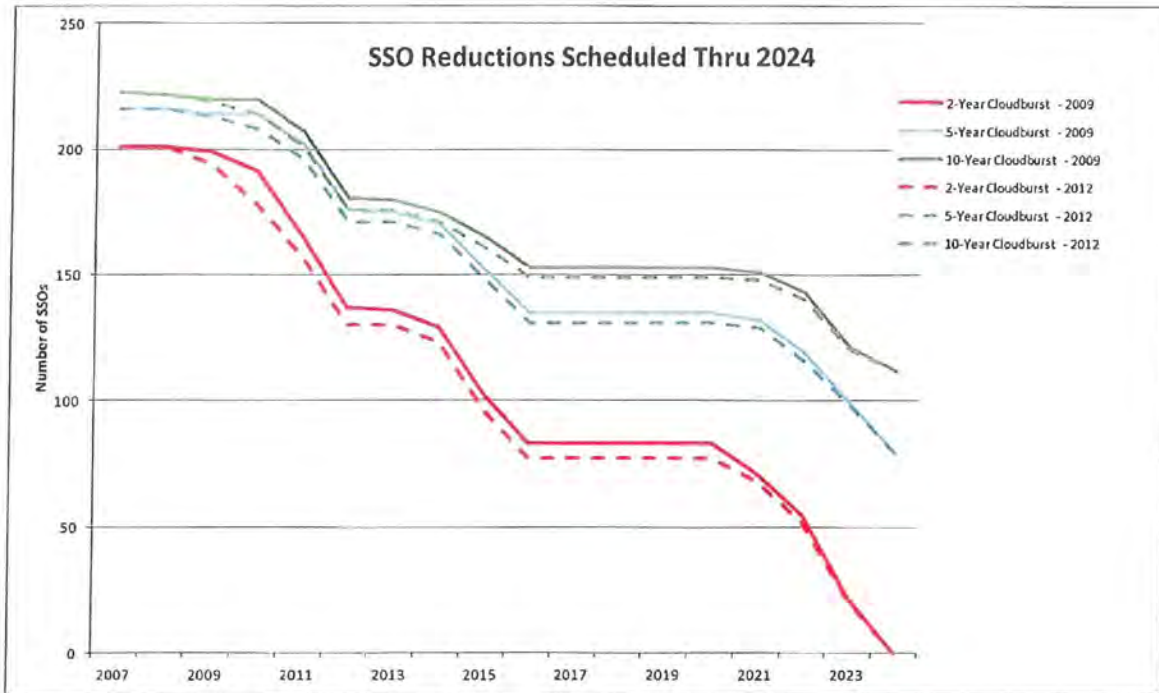


Figure 2 - SSO Reductions Thru 2024

Table 1 and Figures 1 and 2 demonstrate that the proposed changes result in a more effective overflow abatement program with higher community benefit and more expeditious overflow reduction as a program. A revised project schedule is attached.

Path Forward

MSD deems that the recent recalibration has identified most of the major project modifications needed to successfully comply with overflow reduction targets. However, the monitoring system expansion is continuing and the additional data will be used for further model calibration, statistical and behavioral verification. Coupled with overflow statistical analyses, green infrastructure impact assessments and upgrades to modeling technologies, MSD's understanding of system operation and interaction will continue to improve and may result in additional project adjustments as IOAP implementation continues.

Based on feedback received to date, MSD anticipates the proposed project modifications will generally be accepted by all parties with only minor adjustments. In order to proceed with critical, time-sensitive activities, the current project implementation approach and schedule is based on the assumption that the proposed modifications to projects and schedules will be approved. As a result, MSD is moving forward with accelerated schedules in some areas, and deferring activities on other projects that are proposed to be completed later than proposed in the 2009 IOAP.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,


W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy,

Attachments

Table 1
2012 IOAP Project Modifications

| Project Name | Receiving Stream | 2009 Overflows Controlled | 2009 Level of Control | 2009 Size (MG) | 2009 Cost | 2009 Baseline AAOV (MG) | 2009 Residual AAOV (MG) | 2009 AAOV Reduction (MG) | 2012 Overflows Controlled | 2012 LOC | 2012 Revised Size (MG) | 2012 Revised Cost (in 2009 dollars) | 2012 Baseline AAOV (MG) | 2012 Residual AAOV (MG) | 2012 AAOV Reduction (MG) | Change in Residual AAOV (MG) | 2009 Completion Date | Proposed Completion Date | Comments on AAOV Changes | Explanation for Proposed Revisions |
|---|------------------|--------------------------------|-----------------------|-------------------------------|---------------|-------------------------|-------------------------|--------------------------|--------------------------------|------------------|--------------------------------------|-------------------------------------|-------------------------|-------------------------|--------------------------|------------------------------|----------------------|--|--|--|
| Adams Street Storage Basin | Ohio River | CSO172 | 0 | 0.12 | \$983,000 | 1.28 | 0.00 | 1.28 | CSO172 | 0 | Sewer Separation | \$20,000 | 1.11 | 0.00 | 1.11 | 0.00 | 12/31/2012 | 12/31/2012 | | Project modification request to revise this project to a sewer separation has been previously submitted and accepted. Upon inspection of the sewer system, all but two catch basins were found to have been separated already during recent redevelopment. |
| CSO058 Sewer Separation | Ohio River | CSO058 | 0 | - | \$1,361,000 | 116.64 | 0.00 | 116.64 | NA | 8 | Included in 13th&Rowan Basin | NA | 69.55 | 1.88 | 67.67 | 1.88 | 12/31/2014 | 12/21/2020 (with 13th and Rowan Basin) | Residual AAOV increases slightly compared to 2009 due to change in project type. However, first flush will now be stored and treated. | The overflow from this CSO will be addressed in the 13th & Rowan storage basin. Modeling indicates that the overflow is caused by interceptor surcharging. Separation of the small drainage area upstream of the CSO would be ineffective. The listed 2012 AAOV for CSO058 is accounted for here and not in the 13th & Rowan Storage Basin 2012 AAOV. |
| CSO093 Sewer Separation | South Fork | CSO093 | 0 | - | \$952,000 | 1.81 | 0.00 | 1.81 | CSO093 | 0 | Re-Construct Leaping Weir | \$488,000 | 0.00 | 0.00 | 0.00 | 0.00 | 12/31/2015 | 12/31/2015 | | Evaluating the use of green infrastructure and localized storage for this area. First flush stormwater discharge eliminated. The leaping weir will also be modified as part of this project. It is likely that some AAOV currently exists at this location due to the leaping weir. This will be eliminated by the modification. |
| CSO140 Sewer Separation | Middle Fork | CSO140 | 0 | - | \$3,150,000 | 17.00 | 0.00 | 17.00 | CSO140 | 0 | Upsize Low Flow Line | \$574,000 | 0.96 | 0.00 | 0.96 | 0.00 | 12/31/2015 | 12/31/2015 | | Upsizing low flow line will reduce overflows to less than 8 per year. First flush stormwater discharge eliminated. Green infrastructure and localized storage will be used to mitigate future overflows based on monitoring results. |
| CSO160 Sewer Separation | Ohio River | CSO160 | 0 | - | \$237,000 | 0.28 | 0.00 | 0.28 | CSO160 | 0 | Weir Modification and Inline Storage | \$231,000 | 0.09 | 0.00 | 0.09 | 0.00 | 12/31/2015 | 12/31/2015 | | Weir modifications will reduce overflows to less than 8 per year. Evaluating the use of green infrastructure and localized storage for this area. First flush stormwater discharge eliminated. Green infrastructure may be used to enhance or mitigate future overflows based on monitoring results. |
| Derek R. Guthrie WQTC Wet Weather Facility | Ohio River | Wet Weather SSOs | 10-Year, 24-Hour | 100 MGD Wet Weather Treatment | \$102,700,000 | 31.53 | 0.00 | 31.53 | Wet Weather SSOs | 10-Year, 24-Hour | 100 MGD Wet Weather Treatment | \$94,350,000 | 31.53 | 0.00 | 31.53 | 0.00 | 12/31/2011 | 11/27/2012 | | Full high rate treatment capacity not yet available for flows to be seen by 2024 due to extreme wet weather in 2011, but current flows and overflow eliminations can be accommodated with current treatment capacity. |
| I-64 and Grinstead Drive Storage Basin** | Middle Fork | CSO125, CSO126, CSO127, CSO166 | 8 | 2.74 | \$12,950,000 | 63.70 | 12.58 | 51.12 | CSO125, CSO126, CSO127, CSO166 | 4 | 15.33 | \$52,002,000 | 276.05 | 9.86 | 266.19 | -2.72 | 12/31/2014 | 12/31/2020 | | Public comments received requested serious consideration for green infrastructure utilization in the basin drainage area along with intensive public involvement. Due to the size of the drainage area and the increased size and cost of the basin, additional time is needed to evaluate green infrastructure opportunities and right-size this project appropriately. |
| Meadow Stream Pump Station & Force Main Upgrade | NA | Wet Weather SSOs | 2-Year, 3-Hour | 0.5 | \$974,000 | 9.52 | 0.00 | 9.52 | Wet Weather SSOs | 10-Year, 3-Hour | 3.89 MGD PS & New 18" Force Main | \$974,000 | 9.52 | 0.00 | 9.52 | 0.00 | 12/31/2016 | 12/31/2012 | | Project changed from a small storage basin to a pump station upgrade and new force main due to the capacity needs of Crestwood. The City paid the additional costs beyond MSD's overflow control commitment. |
| Paddys Run Wet Weather Treatment Facility | Ohio River | CSO015, CSO191 | 8 | 50 MGD | \$24,940,000 | 526.98 | 313.78 | 213.20 | CSO015, CSO191 | 8 | 50 MGD/ 25 MG Storage | \$34,400,000 | 742.40 | 141.58 | 600.82 | -172.20 | 12/31/2014 | 12/31/2016 | | Optimization of flow through Morris Forman's Main Diversion Structure and MSD's Real Time Control strategy added storage volume requirements. Additional time for construction is being requested due to size increase, moving the site, offline storage and integration of Southwestern Pump Station. |
| Story Avenue and Main Street Storage Basin | Ohio River | CSO020 | 8 | 0.13 | \$1,580,000 | 6.29 | 4.21 | 2.08 | CSO020 | 8 | 5.42 | \$13,950,000 | 143.94 | 8.30 | 135.64 | 4.09 | 12/31/2013 | 12/31/2020 | Residual AAOV increases slightly compared to 2009 due to change in operation assumptions at Starkey. However, LOC 8 is still maintained. | Story and Main & 13th and Rowan basins are linked together functionally. Story & Main grew substantially in size due to more conservative operational assumptions for Starkey PS. MSD proposes to split out and accelerate the schedule of CRD/CSO 22/CSO 23/CSO054 projects using green infrastructure and localized storage. Additional time is requested to right size the Story/Main and 13th/Rowan basins once the impacts of green infrastructure and upstream storage are realized and monitored. |
| Story Avenue and Spring Street Storage Basin | South Fork | CSO130 | 8 | 0.01 | \$1,077,000 | 0.84 | 0.67 | 0.17 | CSO130 | 8 | Green Infrastructure | \$896,000 | 1.96 | 0.40 | 1.56 | -0.27 | 12/31/2016 | 12/31/2016 | | This project modification uses a suite of green infrastructure projects in lieu of the storage basin. No schedule change for overflow reduction is anticipated. |

**Table 1
2012 IOAP Project Modifications**

| Project Name | Receiving Stream | 2009 Overflows Controlled | 2009 Level of Control | 2009 Size (MG) | 2009 Cost | 2009 Baseline AAOV (MG) | 2009 Residual AAOV (MG) | 2009 AAOV Reduction (MG) | 2012 Overflows Controlled | 2012 LOC | 2012 Revised Size (MG) | 2012 Revised Cost (in 2009 dollars) | 2012 Baseline AAOV (MG) | 2012 Residual AAOV (MG) | 2012 AAOV Reduction (MG) | Change in Residual AAOV (MG) | 2009 Completion Date | Proposed Completion Date | Comments on AAOV Changes | Explanation for Proposed Revisions |
|--|------------------|---|--------------------------|----------------|--------------|-------------------------|-------------------------|--------------------------|---|--------------------------|------------------------------|-------------------------------------|-------------------------|-------------------------|--------------------------|------------------------------|----------------------|--------------------------|---|---|
| 13th Street and Rowan Street Storage Basin** | Ohio River | CSO023, CSO050, CSO051, CSO052, CSO053, CSO054, CSO055, CSO056, CSO150, CSO155, and Central Relief Drain CSOs (11 total with an AAOV) | 4 | 14.44 | \$49,680,000 | 171.04 | 32.89 | 138.15 | CSO022, CSO023, CSO050, CSO051, CSO052, CSO053, CSO054, CSO055, CSO056, CSO058, CSO150, CSO155 | 8 | 4.36 | \$29,180,000 | 56.37 | 0.26 | 56.11 | -32.63 | 12/31/2020 | 12/31/2020 | | MSD proposes to split CRD/CSO 22/CSO 23 projects into separate projects. The storage basin and CRD projects are proposed to remain on the same schedule. CSO058 will also be addressed in this project however, the 2012 AAOV is listed separately under CSO058. |
| SOR1 | Ohio River | NA | 8 | NA | NA | NA | NA | NA | CSO016, CSO210 | 8 | 11.4 | \$3,898,500 | 75.76 | 20.05 | 55.71 | N/A | 12/31/2018 | 12/31/2018 | | New stand-alone project. Optimized operating rules between Paddy's Run HRT and Morris Forman's Main Diversion Structure demonstrated that only inline storage was needed at Southern Outfall Relief 1 and Southern Outfall Relief 2. MSD proposes to eliminate the Algonquin storage basin portion of the project and complete the two inline storage basins by the original completion date. Overflow volume reduction attributed to each project is prorated based on inline storage volumes. |
| SOR2 | Ohio River | NA | 8 | NA | NA | NA | NA | NA | CSO211 | 8 | 4.7 | \$3,898,500 | 283.12 | 30.54 | 252.58 | N/A | 12/31/2018 | 12/31/2018 | | New stand-alone project. Optimized operating rules between Paddy's Run HRT and Morris Forman's Main Diversion Structure demonstrated that only inline storage was needed at Southern Outfall Relief 1 and Southern Outfall Relief 2. MSD proposes to eliminate the Algonquin storage basin portion of the project and complete the two inline storage basins by the original completion date. Overflow volume reduction attributed to each project is prorated based on inline storage volumes. |
| Algonquin Parkway Storage Basin/In-line Storage | Ohio River | CSO016, CSO210, CSO211 | 8 | 4.84 | \$17,300,000 | 598.39 | 52.89 | 545.50 | NA | NA | NA | NA | 358.88 | 50.59 | 308.29 | -2.30 | 12/31/2018 | Eliminated | Volumes listed for AAOV are summed from SOR1/SOR2 for comparison purposes only. | Offline storage eliminated. Optimized operating rules between Paddy's Run HRT and Morris Forman's Main Diversion Structure demonstrated that only inline storage was needed at Southern Outfall Relief 1 and Southern Outfall Relief 2. MSD proposes to eliminate the Algonquin storage basin portion of the project. |
| Beargrass Creek Parallel Interceptor | NA | NA | NA | NA | \$12,994,000 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | N/A | 12/31/2017 | Eliminated | | Consolidation of Calvary/Creekside Basin with Logan Street Basin makes the parallel interceptor unnecessary. |
| Calvary Creekside Storage Basin | South Fork | CSO097, CSO106, CSO110, CSO111, CSO137, CSO148, CSO151 | 8 | 3.46 | \$13,720,000 | 125.66 | 13.14 | 112.52 | NA | 8 (Part of Logan Street) | NA | N/A | NA | NA | NA | N/A | 12/31/2017 | Eliminated | | Basin volume now addressed through Logan Street. Project is proposed to be eliminated. |
| Camp Taylor System Improvements | NA | Wet Weather SSOs | 2-Year, 3-Hour | Pipe Upgrades | \$28,279,000 | 1.28 | 0.16 | 1.12 | Wet Weather SSOs | 2-Year, 3-Hour | Pipe Upgrades | \$28,279,000 | 1.28 | 0.16 | 1.12 | 0.00 | Multiple | Multiple (Same as 2009) | | Project approach is similar to 2009, but the project area targeted for inspection and rehabilitation is larger. |
| Caven Ave Pump Station Elimination | NA | Wet Weather SSOs | 2-Year, 3-Hour | 0.21 | \$731,000 | 0.00 | 0.00 | 0.00 | Wet Weather SSOs | 10-Year, 3-Hour | PS Elimination | \$320,000 | 0.00 | 0.00 | 0.00 | 0.00 | 12/31/2016 | 12/31/2016 | | Recent new pipeline constructed to eliminate a nearby package treatment plant makes the elimination of the pump station the most cost effective overflow solution. |
| CRD CSO Green Infrastructure & Localized Storage** | Ohio River | NA | 4 (Part of 13th & Rowan) | NA | NA | NA | NA | NA | Central Relief Drain CSOs (13 total with an AAOV: CSO028, CSO029, CSO034, CSO036, CSO178, CSO181, CSO193, CSO195, CSO196, CSO197, CSO199, CSO200, CSO202) | 8 | Diversion and Inline Storage | \$2,184,000 | 47.38 | 1.26 | 46.12 | 1.26 | NA | 12/31/2018 | This project did not previously exist, so no accurate comparison can be made between the two. | New project. MSD proposes to split CRD/CSO 22/CSO 23 projects into separate projects. The CRD projects are proposed to move forward in the schedule. |
| Clifton Heights Storage Basin | Muddy Fork | CSO132, CSO154, CSO167 | 8 | 6.55 | \$13,870,000 | 152.65 | 17.57 | 135.08 | CSO088, CSO131, CSO132, CSO154, CSO167 | 4 | 4.28 | \$15,331,000 | 74.50 | 11.24 | 63.26 | -6.33 | 12/31/2018 | 12/31/2018 | | Model calibration and revised benefit/cost analysis changed basin size and level of control. |

Table 1
2012 IOAP Project Modifications

| Project Name | Receiving Stream | 2009 Overflows Controlled | 2009 Level of Control | 2009 Size (MG) | 2009 Cost | 2009 Baseline AAOV (MG) | 2009 Residual AAOV (MG) | 2009 AAOV Reduction (MG) | 2012 Overflows Controlled | 2012 LOC | 2012 Revised Size (MG) | 2012 Revised Cost (in 2009 dollars) | 2012 Baseline AAOV (MG) | 2012 Residual AAOV (MG) | 2012 AAOV Reduction (MG) | Change in Residual AAOV (MG) | 2009 Completion Date | Proposed Completion Date | Comments on AAOV Changes | Explanation for Proposed Revisions |
|--|------------------|--|-----------------------|----------------|--------------|-------------------------|-------------------------|--------------------------|--|-----------------|--------------------------|-------------------------------------|-------------------------|-------------------------|--------------------------|------------------------------|----------------------|--------------------------|---|---|
| Eden Care PS Inline Storage | NA | Wet Weather SSOs | 2-Year, 3-Hour | NA | NA | 0.00 | 0.00 | 0.00 | Wet Weather SSOs | NA | NA | \$0 | 0.00 | 0.00 | 0.00 | 0.00 | NA | Eliminated | | Only one overflow had been documented at this location. MSD cleaned the sewers in the vicinity and has not documented an overflow in over 3 years. No further action is deemed necessary. |
| Fairmount Road Pump Station Off-Line Storage | NA | Wet Weather SSOs | N/A (New Project) | NA | NA | 0.00 | 0.00 | 0.00 | Wet Weather SSOs | 10-Year, 3-Hour | 3.4 MG | \$11,285,000 | 0.00 | 0.00 | 0.00 | 0.00 | NA | 12/31/2015 | | Project needed to accommodate flows from eliminated Jeffersontown WQTC and acknowledged capacity at Cedar Creek WQTC. |
| Lea Ann Way System Improvements | NA | Wet Weather SSOs | 2-Year, 3-Hour | Pipe Upgrades | \$827,000 | 0.00 | 0.00 | 0.00 | Wet Weather SSOs | 2-Year, 3-Hour | Additional Pipe Upgrades | \$7,272,000 | 0.00 | 0.00 | 0.00 | 0.00 | 12/31/2015 | 12/31/2015 | | Additional overflows have been occurring in recent years. Therefore, additional sewer inspection and rehabilitation are underway. Contingency plans have been developed and are dependent upon the efficacy of rehabilitation of wet weather flows. |
| Leland Road Relief Sewer | NA | Wet Weather SSOs | 2-Year, 3-Hour | NA | NA | 0.00 | 0.00 | 0.00 | Wet Weather SSOs | NA | NA | \$0 | 0.00 | 0.00 | 0.00 | 0.00 | NA | Eliminated | | Only one overflow had been documented at this location. MSD cleaned the sewers in the vicinity and has not documented an overflow in over 3 years. No further action is deemed necessary. |
| Lexington Road and Payne Street Storage Basin** | South Fork | CSO082, CSO084, CSO118, CSO119, CSO120, CSO121, CSO141, CSO153 | 8 | 7.31 | \$25,200,000 | 174.83 | 22.89 | 151.94 | CSO082, CSO083, CSO084, CSO118, CSO119, CSO120, CSO121, CSO141, CSO153 | 0 | 8.18 | \$28,102,000 | 78.55 | 0.00 | 78.55 | -22.89 | 12/31/2020 | 12/31/2020 | | Model calibration changed basin size. No change in level of control or schedule. |
| Logan Street and Breckinridge Street Storage Basin | South Fork | CSO091, CSO113, CSO117, CSO146, CSO149, CSO152 | 8 | 11.83 | \$30,320,000 | 297.37 | 32.41 | 264.96 | CSO091, CSO097, CSO106, CSO109, CSO110, CSO111, CSO113, CSO117, CSO137, CSO146, CSO148, CSO149, CSO151, CSO152 | 8 | 16.6 | \$52,165,000 | 425.27 | 33.47 | 391.80 | 1.06 | 12/31/2017 | 12/31/2017 | The 2009 Residual AAOV for the overflows mitigated by the the Calvary Basin is 13.14 MG. If that volume is added to the 2009 residual volume for this basin, the total 2009 residual AAOV is 45.35 MG, resulting in a net reduction of 11.88 MG for the sum of all of these CSOs. | A review of project approach and benefit/cost results eliminated the Calvary Creekside basin, consolidating storage to the Logan Street basin location. No changes to schedule are proposed. |
| Nightingale Pump Station Replacement & Storage** | South Fork | CSO018 | NA | 60 MGD/0 MG | \$15,710,000 | 18.69 | 0.00 | 18.69 | CSO018 | 0 | 33 MGD / 2.7 MG | \$16,540,000 | 18.70 | 0.00 | 18.70 | 0.00 | 12/31/2016 | 12/31/2015 | | MSD proposed to move this project up in schedule due to operational advantages that would be realized. |
| Outer Loop Storage Basin Elimination | N/A | Wet Weather SSOs | 2-Year, 3-Hour | 1.42 | \$4,280,000 | 0.00 | 0.00 | 0.00 | Wet Weather SSOs | N/A | N/A | \$0 | 0.00 | 0.00 | 0.00 | 0.00 | 12/31/2024 | Eliminated | | Due to improvements in the Pond Creek hydraulic model calibration, this storage basin is no longer necessary. |
| Southwestern Parkway Storage Basin | Ohio River | CSO104, CSO105, CSO189 | 0 | 5.08 | \$17,620,000 | 197.42 | 0.00 | 197.42 | CSO104, CSO105, CSO189 | 0 | 11.07 | \$33,069,000 | 107.55 | 0.00 | 107.55 | 0.00 | 12/31/2018 | 12/31/2018 | | Model calibration changed basin size. No change in level of control or schedule. |

Notes:

1) 2009 Sewer Separation Projects Show 0 Overflows during the typical year. However, this does not account for the additional first flush runoff that would be directed into the creek during the majority of smaller events if the sewer were separated. Based upon this, a mitigation project that allows some overflow during the typical year likely provides a higher environmental benefit as the first flush will be routed and treated at the WQTC.

2)The method for calculating residual overflow volumes has been modified since 2009. In 2009, residual AAOVs were assigned to each CSO by pro-rating the total residual overflow at a project location to each CSO based upon the baseline condition total overflow volume. The 2012 residual AAOVs use model predicted data based upon conceptual alignments placed in the model and should reflect a more accurate distribution of residual CSO volume.

3) The models were re-calibrated using 2010/2011 data. Portions of the changes in residual AAOVs may be based upon the re-calibration.

4) The Level of Control methodology used to develop the project sizing for each project in 2012 is the exact same Level of Control methodology used in 2009. This methodology was based on significant input from the stakeholder group during the initial developmnt. Therefore, MSD is proposing to continue to respect the outcomes of this methodology in 2012, regardless if the project sizing and resultant level of control increases or decreases. The most notable change demonstrating an increase in level of control is the I-64 and Grinstead Project. Based upon the methodology, the level of control increases from 8 annually to 4 annually, and the project size is increased based upon both re-calibration and the change in Level of Control

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

| Activity Name | Scheduled Finish | 2009 IOAP Completion | 2012 IOAP Modification | 2009 | | | | 2010 | | | | 2011 | | | | 2012 | | | | 2013 | | | | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | | 2024 | | | |
|--|------------------|----------------------|------------------------|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|--|--|--|------|--|--|--|------|--|--|--|
| | | | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | | | | | | | | | | | | |
| MSD IOAP SCHEDULE | 31-Dec-24 | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LONG TERM CONTROL PLAN | 01-Jan-21 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN DEMONSTRATION PROJECTS | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE DEMONSTRATION PROJECTS | 31-Dec-11 A | 31-Dec-11 | 31-Dec-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE DEMONSTRATION PROJECTS | 31-Dec-11 A | 31-Dec-11 | 31-Dec-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE PROGRAM | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GREEN INFRASTRUCTURE PROGRAM | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRAY INFRASTRUCTURE PROJECTS | 01-Jan-21 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 123 DOWNSPOUT DISCONNECTION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 123 DOWNSPOUT DISCONNECTION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-64 AND GRINSTEAD DRIVE STORAGE BASIN | 31-Dec-20 | 21-Dec-14 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-64 AND GRINSTEAD DRIVE STORAGE BASIN | 31-Dec-20 | 21-Dec-14 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 140 INCREASE PIPE CONVEYANCE | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 140 INCREASE PIPE CONVEYANCE | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 206 SEWER SEPARATION | 30-Dec-13 | 31-Dec-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 206 SEWER SEPARATION | 30-Dec-13 | 31-Dec-13 | 30-Dec-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CLIFTON HEIGHTS STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CLIFTON HEIGHTS STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PADDY'S RUN WET WEATHER TREATMENT FACILITY AND OFF LINE STORAGE | 31-Dec-16 | 31-Dec-14 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PADDY'S RUN WET WEATHER TREATMENT FACILITY | 31-Dec-16 | 31-Dec-14 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PORTLAND WHARF STORAGE BASIN | 31-Dec-19 | 31-Dec-19 | 31-Dec-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PORTLAND WHARF STORAGE BASIN | 31-Dec-19 | 31-Dec-19 | 31-Dec-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND MAIN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-13 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND MAIN STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-13 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHWESTERN PARKWAY STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHWESTERN PARKWAY STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 01-Jan-21 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 31-Dec-20 | | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13TH STREET AND ROWAN STREET STORAGE BASIN | 31-Dec-20 | | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE | 01-Jan-21 | | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE | 01-Jan-21 | | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADAMS STREET SEWER SEPARATION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADAMS STREET SEWER SEPARATION | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18TH AND NORTHWESTERN PKY STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18TH AND NORTHWESTERN PKY STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALGONQUIN PARKWAY STORAGE BASIN | 01-Jan-19 | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALGONQUIN PARKWAY STORAGE BASIN | 31-Dec-18 | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE STORAGE (SOR 1) | 31-Dec-18 | | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD ST. | 31-Dec-18 | | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE RETENTION (SOR 2) | 01-Jan-19 | | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SOUTHERN OUTFALL IN-LINE RETENTION AT 13TH AND WILSON AVE. (SOR 2) | 01-Jan-19 | | 31-Dec-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIGHTINGALE PUMP STATION REPLACEMENT AND STORAGE | 31-Dec-15 | 31-Dec-16 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIGHTINGALE PUMP STATION REPLACEMENT AND STORAGE | 31-Dec-15 | 31-Dec-16 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN | 31-Dec-20 | 31-Dec-20 | 31-Dec-20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN | 31-Dec-17 | 31-Dec-17 | 31-Dec-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 108 DAM MODIFICATIONS | 31-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSO 108 DAM MODIFICATIONS | 31-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROLS | 31-Dec-16 | 31-Dec-16 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROLS | 31-Dec-16 | 31-Dec-16 | 31-Dec-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FLOOD PUMP STATION PROJECTS | 31-Dec-14 | 31-Dec-14 | 31-Dec-14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27TH STREET FLOOD PUMP STATION | 30-Jun-13 | 30-Jun-13 | 30-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27TH STREET FLOOD PUMP STATION | 30-Jun-13 | 30-Jun-13 | 30-Jun-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

[illegible]

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

| Activity Name | Scheduled | 2009 IOAP | 2010 IOAP | 2011 IOAP | 2012 IOAP | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|-------------|------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Finish | Completion | Modification | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 | Q1 Q2 Q3 Q4 |
| HITE CREEK AREA | | | | | | | | | | | | | | | | | |
| MEADOW STREAM PS AND FORCE MAIN | 31-Dec-12 | 31-Dec-16 | 31-Dec-16 | | | | | | | | | | | | | | |
| MEADOW STREAM PS AND FORCE MAIN | 31-Dec-12 | 31-Dec-16 | 31-Dec-16 | | | | | | | | | | | | | | |
| KAVANAUGH RD PS IMPROVEMENTS | 31-Dec-24 | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | |
| KAVANAUGH RD PS IMPROVEMENTS | 31-Dec-24 | 31-Dec-24 | 31-Dec-24 | | | | | | | | | | | | | | |
| FLOYDSBURG RD SSES, REHAB AND PUMP STATION UPGRADE | 17-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | |
| FLOYDSBURG RD SSES, REHAB AND PUMP STATION UPGRADE | 17-Dec-10 A | 31-Dec-10 | 31-Dec-10 | | | | | | | | | | | | | | |
| INTERIM SSDP PROJECTS | | | | | | | | | | | | | | | | | |
| ISSDP BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT | 29-Sep-10 A | 27-Apr-11 | 27-Apr-11 | | | | | | | | | | | | | | |
| ISSDP BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT | 29-Sep-10 A | 27-Apr-11 | 27-Apr-11 | | | | | | | | | | | | | | |
| BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT (WEST) | 29-Sep-10 A | 27-Apr-11 | 27-Apr-11 | | | | | | | | | | | | | | |
| BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT (EAST) | 29-Sep-10 A | 27-Apr-11 | 27-Apr-11 | | | | | | | | | | | | | | |
| SINKING FORK RELIEF SEWER | 23-Dec-09 A | 30-Dec-10 | 23-Dec-09 | | | | | | | | | | | | | | |
| ISSDP DEREK R GUTHRIE WATER QUALITY TREATMENT CENTER | 30-Sep-12 | 31-Dec-11 | 31-Oct-12 | | | | | | | | | | | | | | |
| DEREK R GUTHRIE WQTC WET WEATHER TREATMENT FACILITY | 20-May-12 A | 31-Oct-12 | 31-Oct-12 | | | | | | | | | | | | | | |
| WCWTP: WW FLOW EQU & TMT | 30-Sep-12 | 31-Oct-12 | 31-Oct-12 | | | | | | | | | | | | | | |
| DRGWQTC: BLOWER PACKAGE | 03-Mar-11 A | 31-Oct-12 | 31-Oct-12 | | | | | | | | | | | | | | |
| DRGWQTC: WET WEATHER EQUALIZATION BASIN | 31-Jul-12 | 31-Oct-12 | 31-Oct-12 | | | | | | | | | | | | | | |
| ISSDP HIKES LANE INTERCEPTOR /HIGHGATE SPRINGS PS | 27-Nov-12 | 27-Nov-12 | 27-Nov-12 | | | | | | | | | | | | | | |
| HIKES POINT INTERCEPTOR | 30-Nov-11 A | 27-Nov-12 | 27-Nov-12 | | | | | | | | | | | | | | |
| HIKES POINT INTERCEPTOR PHASE 2 | 27-Nov-12 | 27-Nov-12 | 27-Nov-12 | | | | | | | | | | | | | | |
| CARSON & RIBBLE RELIEF | 20-Nov-09 A | 27-Nov-12 | 27-Nov-12 | | | | | | | | | | | | | | |
| HIKES POINT RELIEF EFFORT | 31-Oct-12 | 27-Nov-12 | 27-Nov-12 | | | | | | | | | | | | | | |
| ISSDP NORTHERN DITCH DIVERSION INTERCEPTOR | 16-Feb-11 A | 31-Jul-11 | 31-Jul-11 | | | | | | | | | | | | | | |
| NORTHERN DITCH DIVERSION INTERCEPTOR | 16-Feb-11 A | 31-Jul-11 | 31-Jul-11 | | | | | | | | | | | | | | |
| SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR | 12-May-12 A | 12-May-12 | 12-May-12 | | | | | | | | | | | | | | |
| JEFFERSONTOWN AREA | 31-Dec-22 | 31-Dec-22 | 31-Dec-22 | | | | | | | | | | | | | | |
| JEFFERSONTOWN WQTC ELIMINATION | 01-Jan-16 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |
| JEFFERSONTOWN WQTC ELIMINATION | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |
| JEFFERSONTOWN FORCE MAIN | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |
| GRAND AVENUE PUMP STATION | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |
| UPPER BILTOWN RD INTERCEPTOR | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |
| BILTOWN RD INTERCEPTOR SS | 01-Jan-16 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |
| BILTOWN RD PS, FM & INT | 31-Dec-12 | 31-Dec-12 | 31-Dec-12 | | | | | | | | | | | | | | |
| CHENOWETH HILLS WQTC ELIMINATION & PS IMPROVEMENTS | 31-Dec-15 | 31-Dec-15 | 31-Dec-15 | | | | | | | | | | | | | | |

 Approved 2009 IOAP
 Remaining Work
 Completed Work

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

[illegible]

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

[illegible]



*Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org*

August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Adams Street Storage Basin
Minor Project Modification
IOAP Project No. L_OR_MF_172_S_09B_B_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Adams Street Storage Basin project (IOAP Project No. L_OR_MF_172_S_09B_B_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original Adams Street Storage Basin project included construction of a 0.12 million gallon (MG) underground covered storage basin to control CSO 172 to zero overflows per year typical year level of control, with a completion date of December 31, 2012.

Proposed Project Modification

The project modification involves the separation of two catch basins connected to the combined sewer system and closure of the overflow point for CSO 172 by the same December 31, 2012, completion date. By closing the CSO, this effort will exceed the overflow level of protection agreed upon in the IOAP. The project will be renamed 'River Road Sewer Separation and CSO Closure'.



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These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

As the first step in design for this project, MSD initiated a detailed inspection of the combined sewer system and surface connections that flow toward CSO 172, which serves as the wet weather overflow relief to the Ohio River in this area. Upon completion of this inspection, MSD discovered that only two of the catch basins in the stormwater system were still connected to the combined system.

During a recent rerouting and expansion of River Road, which runs through the project area, all other catch basins were separated from the combined system and routed to existing stormwater lines by Louisville Metro Public Works Department. This separation was not communicated to MSD and, as such, was not reflected in the hydraulic sewer model of this system during IOAP development. An area map that displays the location of the combined sewer overflow and the two catch basins still connected into the combined system can be reviewed in Attachment A.

To confirm the conclusions of the inspection, MSD placed a sewer flow meter just upstream of the overflow weir to monitor the flow and depth in the system during dry and wet weather. Over the course of 6 months and various rain events up to a 1.5 inch rainfall on November 24, 2010, the depth in the sewer did not exceed 5 inches compared to a minimum necessary CSO overflow depth of 11.3 inches and demonstrated no discernible reaction to wet weather (see graph in Attachment B). Note: The depth graph reflects a small adjustment in the sensor location in early November 2010 due to solids dropping out of the flow and fouling the sensor.

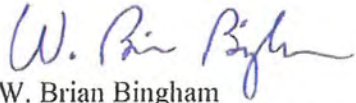
Given this evidence, MSD intends to separate the final two catch basins connected to the combined sewer system and close the overflow point for CSO 172 by the same December 31, 2012, completion date. By closing the CSO, this effort will exceed the overflow level of protection agreed upon in the IOAP. The project will be renamed 'River Road Sewer Separation and CSO Closure'.

For your reference, a copy of the original project fact sheet and map from the IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

If you have questions or need additional information, please contact me or Angela Akridge, Project WIN Program Manager, at (502) 540-6000.

Adams Street Storage Basin
August 17, 2012
Page 3 of 3

Sincerely,



W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

Project Name: Adams Street Sewer Separation

Project Type: Sewer Separation

Rec Stream: Ohio River

Project Description: This project includes the separation of the final two stormwater catch basins from the CSO172 drainage area and closure of the CSO. Televised investigation of the upstream drainage area determined that the system had been mostly separated during the re-configuration of River Road. Project will reduce overflows to zero overflows in a typical year.

Design Assumption:

Capital Cost: \$20,000

Capital Benefit/Cost:

Present Worth Benefit Cost:

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|--------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO172 | ADAMS STREET | 1.13 | 25 | 1.11 | 25 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



*Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org*

August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO 058 Separation Project
Project Elimination
IOAP Project No. L_OR_MF_058_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is providing advanced notification of a proposed minor project modification to eliminate the CSO 058 Separation Project (IOAP Project No. L_OR_MF_058_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. No action is requested at this time.

2009 IOAP Project Description

The original CSO 058 Separation Project included the separation of sanitary and storm sewers, with a scheduled completion date of December 31, 2014.

Proposed Project Modification

The project modification involves the elimination of this project, as other proposed project changes related to the proposed 13th and Rowan Street Basin has made the separation unnecessary. Based on benefit/cost analysis, the level of control will be changed from zero to eight CSO events in a typical year. Note however that the original sewer separation project would have allowed "first flush" urban stormwater runoff to reach the Waters of the US with virtually every rain event. It is likely that capturing first flush stormwater runoff and allowing combined sewage to overflow only eight times in a typical year represents an improvement in capture of contaminant loadings as compared to sewer separation.



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These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013. No action is requested at this time.

Technical Justification

Reviews of project approach and benefit/cost results indicate that the elimination of the CSO 058 Sewer Separation is justified. The consolidation of its storage volume in the 13th Street and Rowan Street Storage Basin (IOAP Project No. L_OR_MF_155_M_09B_B_B_4) has proven to be a more cost-effective option than the original design for two separate projects.

Details on the modification of the 13th Street and Rowan Street Storage Basin to compensate for the consolidation of flows from the CSO 058 Sewer Separation are available in the 13th Street and Rowan Street Storage Basin project modification letter. This consolidated project will include a modification of the completion date to December 31, 2017.

For your reference, copies of the original project fact sheet and map from the 2009 IOAP have been provided in Attachment A. A revised project fact sheet and map is attached to the 13th Street and Rowan Street Storage Basin modification letter reflecting the new project size and conveyance alignment.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,



W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

**Project Eliminated
or Combined with Another**

No Attachment B



*Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org*

August 17, 2012 (Revised September 20, 2012)

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO 093 Sewer Separation
Minor Project Modification
IOAP Project No. L_SO_MF_093_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the CSO 093 Sewer Separation project (IOAP Project No. L_SO_MF_093_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original CSO 093 Sewer Separation project included the separation of 2,975 linear feet of combined sewer line, with a completion date of December 31, 2015.

Proposed Project Modification

The project modification involves the re-construction of the CSO structure to replace the existing leaping weir with a more conventional overflow weir. The project completion date will remain at December 31, 2015. Based on benefit/cost analysis, the level of control will remain at zero CSO events in a typical year. Note also that the original sewer separation project would have allowed "first flush" urban stormwater runoff to reach the waters of the US with virtually every rain event. It is likely that capturing



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first flush stormwater runoff represents an improvement in capture of contaminant loadings as compared to sewer separation, even if the level of control does not appear to change.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

The existing CSO structure consists of a leaping weir which will be removed, and a conventional weir will be constructed that will enable MSD to properly monitor the overflow line. The elimination of the leaping weir will allow higher peak flows from the CSO basin to remain in the system if the downstream system has sufficient capacity. MSD also intends to potentially incorporate green infrastructure components in the sewershed to account for any potential future model re-calibration impacts as additional flow monitoring data is obtained. The project will be renamed 'CSO 093 Structural Modifications & Green Infrastructure' and will maintain a December 31, 2015, completion date as previously submitted.

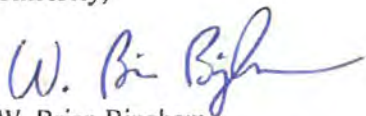
For your reference, a copy of the original project fact sheet and map from the IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

CSO 093 Sewer Separation
August 17, 2012 (Revised September 20, 2012)
Page 3 of 3

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Brian Bingham". The signature is fluid and cursive, with the first name "W." and last name "Bingham" clearly distinguishable.

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

Project Name: CSO093 Structural Modifications & Green Infrastructure

Project Type: Structural Modifications & Green Infrastructure

Rec Stream: South Fork Beargrass Creek

Project Description: Modify existing structure to eliminate 'leaping weir'. Implement cost effective green infrastructure practices to reinforce overflow control level. Project will reduce overflows to zero overflows in a typical year.

Design Assumption:

Capital Cost: \$488,000

Capital Benefit/Cost: 81.97

Present Worth Benefit Cost: 91.53

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|---------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO093 | SPRING STREET | 0.00 | 0 | 0.00 | 0 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



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August 17, 2012 (Revised September 20, 2012)

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300 Fair Oaks Lane
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Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
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61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO140 Sewer Separation
Minor Project Modification
IOAP Project No. L_MI_MF_140_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the CSO 140 Sewer Separation project (IOAP Project No. L_MI_MF_140_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original CSO 140 Sewer Separation project included the separation of 10,700 linear feet of combined sewer line, with a completion date of December 31, 2015.

Proposed Project Modification

The project modification involves the re-construction of the CSO structure to increase the low flow line to a 42-inch diameter opening which will increase the conveyance capacity. The project completion date will remain at December 31, 2015, and level of control will be maintained at zero overflows in a typical year.



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These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

Further investigation indicates that the existing Middle Fork Trunk downstream of CSO 140 has available capacity to convey and store the runoff to meet the zero overflow level of control in a typical year. Therefore, MSD intends to modify the CSO structure by increasing the low flow line to a 42-inch diameter opening.

MSD also intends to include green infrastructure as part of the solution to account for any potential future model re-calibrations as additional flow monitoring data is obtained. The project will be renamed 'CSO140 In-Line Storage & Green Infrastructure Controls' and will maintain a December 31, 2015, completion date as previously submitted.

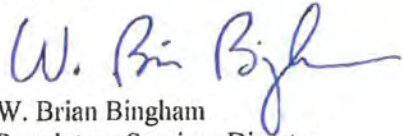
For your reference, a copy of the original project fact sheet and map from the 2009 IOAP is in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

CSO140 Sewer Separation
August 17, 2012 (Revised September 20, 2012)
Page 3 of 3

Sincerely,

A handwritten signature in blue ink, reading "W. Brian Bingham". The signature is fluid and cursive, with the first name "W." and last name "Bingham" clearly legible.

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy
Attachments

Project Name: CSO140 Inline Storage & Green Infrastructure Controls

Project Type: Upsize Pipe Conveyance

Rec Stream: Middle Fork Beargrass Creek

Project Description: Upsize the downstream, low flow line to a 42". The new line may need backflow prevention. Project costs includes cost effective green infrastructure controls to reinforce level of protection. Project will reduce overflows to zero overflows in a typical year.

Design Assumption:

Capital Cost: \$574,000

Capital Benefit/Cost: 348.56

Present Worth Benefit Cost: 394.85

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|---------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO140 | LOCUST STREET | 0.98 | 21 | 0.96 | 21 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



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Atlanta, GA 30303

Subject: CSO160 Sewer Separation
Project Modification
IOAP Project No. L_OR_MF_160_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the CSO160 Sewer Separation project (IOAP Project No. L_OR_MF_160_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original CSO160 Sewer Separation project included the separation of 425 linear feet of combined sewer line, with a completion date of December 31, 2015.

Proposed Project Modification

The project modification involves the creation of in-line storage provided by a combination of raising the existing overflow weir and installing 88 feet of 72-inch diameter pipe. Based on benefit/cost analysis, the level of control will remain at zero CSO events in a typical year. Note also that the original sewer separation project would have allowed "first flush" urban stormwater runoff to reach the Waters of the US with virtually every rain event. It is likely that capturing first flush stormwater runoff represents an



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improvement in capture of contaminant loadings as compared to sewer separation, even if the level of control appears to be the same.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

Further investigation indicated that in-line storage can be provided by a combination of raising the existing weir and installing 88 feet of 72-inch diameter pipe. This proves to be a more cost effective alternative to mitigate the overflows at CSO160 in comparison to completing a full CSO separation project. This solution also provides the best benefit/cost ratio.

MSD also intends to incorporate green infrastructure components in the sewershed to account for any potential future model re-calibrations as additional flow monitoring data is obtained. Green infrastructure may also be used to potentially reduce the size of the project. The project will be renamed 'CSO160 In-Line Storage & Green Infrastructure' and will maintain a December 31, 2015, completion date as previously submitted.

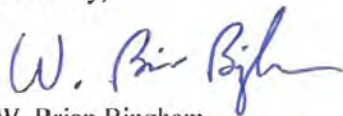
For your reference, a copy of the original project fact sheet and map from the IOAP in Attachment A are attached. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

CSO160 Sewer Separation
August 17, 2012 (Revised September 20,2012)
Page 3 of 3

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Brian Bingham".

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

Project Name: CSO160 In-Line Storage

Project Type: In-Line Storage

Rec Stream: Ohio River

Project Description: The CSO structure is being rebuilt to raise the overflow weir, and in-line storage will be provided through the addition of 88 feet of 72 inch pipe.

Design Assumption:

Capital Cost: \$231,000

Capital Benefit/Cost: 554.11

Present Worth Benefit Cost: 684.49

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|------------------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO160 | SEWER IN ALLEY SAN DIV | 0.07 | 2 | 0.09 | 4 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



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Water Management Program
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Atlanta, GA 30303

Subject: Derek R. Guthrie Water Quality Treatment Center
Minor Project Modification
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a minor project modification to the completion date for the Derek R. Guthrie Water Quality Treatment Center (DRG WQTC) project. This proposed date modification is not intended to change any of the completion dates for sanitary sewer overflow (SSO) elimination specifically called out in the Amended Consent Decree.

2009 IOAP Project Description

The DRG WQTC project included in the approved 2009 Integrated Overflow Abatement Plan (IOAP) was originally defined in the Interim Sanitary Sewer Discharge Plan (ISSDP) as part of a suite of projects that eliminated SSOs at the Southeast Diversion Structure, the Highgate Springs Pump Station, and the Hikes Point area. While the DRG WQTC project did not eliminate any SSOs by itself, the wet weather treatment capacity provided by this project allowed these Amended Consent Decree-specified overflows to be eliminated with the captured flows routed downstream through the Northern Ditch Diversion Interceptor to the WQTC.

The first of these Consent Decree required SSO eliminations was the constructed SSO at the Southeast Diversion Structure, which was required to be eliminated by December 31, 2011. This date was also selected for completion of the entire DRG WQTC project, even though eliminating the constructed SSO at the Southeast Diversion provided only a small portion of the flow that would eventually be added to the DRG WQTC's wet weather service area. Additional wet weather flow will be added to the DRG WQTC with the elimination of the Hikes Point and Highgate Springs pumped SSOs in November, 2012. The



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DRG WQTC wet weather service area will be completely connected by December 2023, with the completion of the Upper Middle Fork Pump Station and Diversion Project.

The DRG WQTC project was split into four separate packages to allow an early start to procuring new aeration blowers, and also to improve bid competition in what would otherwise have been a project too large for most local contractors to bid. Construction of the DRG project was delayed by unusual weather conditions as documented in MSD's letter to USEPA Region 4 and the Department for Environmental Protection dated December 15, 2011. While these weather delays and equipment start-up and commissioning problems have caused final certification of the DRG WQTC project to be pushed back from the originally proposed date, consistent with the our letter of December 15, MSD did close the Southeast Diversion constructed SSO before December 31, 2011. MSD has also provided sufficient treatment capacity at the DRG WQTC through partial utilization of the new facilities to prevent any treatment capacity related SSOs in the service area, thereby complying with the specific requirements of the Amended Consent Decree and the intent of the ISSDP.

Proposed Project Modification

The proposed project modification is limited to a change in the substantial completion date for the DRG WQTC project as a whole. While portions of the project are complete and currently in full operation, the entire project (all four packages) may not be substantially complete until November 27, 2012. MSD proposes the project completion date be modified to this date.

Technical Justification

As noted in our letter dated December 15, 2011, construction progress was significantly impacted by unusual weather, with calendar year 2011 the wettest year on record, and April 2011, when most of the deep excavations were being completed, was the wettest April on record, with more than 19 inches of rain recorded in parts of the county. Other construction, start-up and commissioning issues have also impacted completions of the project.

When all components of the project are completed the DRG WQTC will be able to handle 200 million gallons per day (MGD) through treatment (compared to 96 MGD peak capacity before the expansion), and peak flows of up to approximately 300 MGD using the Wet Weather Pump Station and the Equalization Basin. We currently can handle in excess of 200 MGD, which has proved adequate for the flows received from the currently connected wet weather service area. Note that the maximum daily flow experienced at the plant in 2012 has been 82 MGD, which was associated with a 1.63-inch rain event (following a period with over 2.5 inches of rain in the preceding two weeks).

The current capacity of the DRG WQTC is sufficient to deal with wet weather flows from the currently connected service area, and the full intended capacity will be available prior to November 27, 2012, when the next significant addition to the wet weather service area will be made with the elimination of the pumped overflows in the Hikes Point area and at the Highgate Springs Pump station. Since the proposed schedule meets the intent of the ISSDP and fully complies with the specific requirements of the Amended

Consent Decree, MSD believes a schedule modification to reflect current conditions is appropriate and requests this action be taken at this time.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,


W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments



Interim SSDP Project Fact Sheet



| | |
|-----------------------------------|---|
| <u>SSO Project Number:</u> | Interim SSDP Project |
| <u>Project Name:</u> | Derek R. Guthrie WQTC |
| <u>Modeled Area:</u> | N/A |
| <u>Branch or SSO ID:</u> | N/A |
| <u>Project Type:</u> | WQTC Upgrade |
| <u>Receiving Stream:</u> | Mill Creek, Black Pond Creek, Alvey Ditch, and the Ohio River |

Project Description:

This project includes improvements to the Derek R. Guthrie WQTC to allow treatment of all wet weather flow from other SSDP system improvements. The 100 MGD peak flow capacity secondary treatment facility will consist of a flow control structure, new influent pumps, piping modifications, new screening facility, a new equalization basin, construction of a wet weather pump station, and secondary clarifiers.

Reason for Overflow:

Treatment Plant Capacity

Design Parameters / Assumptions:

N/A

Project Constraints:

N/A

Estimated Capital Cost (2008 dollars):

\$102,700,000

Weighted Benefit/Cost Ratio (Present Worth):

N/A

Overflow Points Addressed:

| <u>SSO</u> | <u>SSO Name</u> | <u>Service Area</u> | <u>Overflow Type</u> | <u>Discharge To</u> | <u>Average Overflow / Incident (gallons)</u> |
|-------------------|------------------------|----------------------------|-----------------------------|----------------------------|---|
| 22370 | Greenbelt Highway | West County | Manhole | Ground | 4,858,000 |

| | | | | | |
|---------|---------------------|-------------|---------|--------|------------|
| 22385 | Johsontown Road #2 | West County | Manhole | Stream | 1,628,500 |
| 32682 | 12700 Abbey Road #2 | West County | Manhole | Stream | 2,392,000 |
| 32688 | 12701 Abbey Road #1 | West County | Manhole | Ground | No Data |
| 59169 | Johsontown Road #1 | West County | Manhole | Ground | 1,905,250 |
| MSD0277 | West County | West County | Pumped | Stream | 48,477,223 |



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300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: I-64 and Grinstead Drive Storage Basin
Minor Project Modification
IOAP Project No. L_MI_MF_127_M_09B_B_A_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the I-64 and Grinstead Drive Storage Basin project (IOAP Project No. L_MI_MF_127_M_09B_B_A_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original I-64 & Grinstead Drive Basin project involved the construction of a 2.74 million gallon (MG) storage basin to be completed by December 31, 2014, with an eight overflows per typical year level of control.

Proposed Project Modification

The project modification involves the construction of a 15.33 MG storage basin to be completed by December 31, 2020, with a four overflows per typical year level of control. Moving the schedule into 2020 will allow for the proper construction of such a large basin and the incorporation of the green infrastructure within the drainage area of the four combined sewer overflows controlled by the basin. MSD is analyzing potential green infrastructure projects to possibly reduce the size of the storage basin.



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These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

Based on the results of the re-calibration, a level of control analysis was conducted on the I-64 and Grinstead Storage Basin. The level of control analysis showed that the basin size of 15.33 MG would meet a level of control of four overflows per year and provide the highest benefit/cost ratio. Therefore, MSD proposes to change the I-64 and Grinstead Drive Storage Basin solution from a 2.74 MG basin to a 15.33 MG basin.

Additionally, the public has requested that the use of green infrastructure strongly be considered in this area in conjunction with gray infrastructure. Based on this request, MSD is also proposing to evaluate green infrastructure to determine if its use in some areas is cost effective to reduce the basin size. Based on the large drainage area, the large basin size, and the resulting high quantity of stormwater reduction required, significant public and private participating will be necessary to evaluate the potential impacts. Therefore, based on the increased basin size and the desire to further evaluate and implement potential green infrastructure opportunities, MSD is requesting to change the project completion date from December 31, 2014, to December 31, 2020.

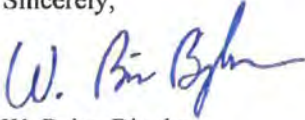
For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

I-64 and Grinstead Drive Storage Basin
August 17, 2012 (Revised September 20, 2012)
Page 3 of 3

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Brian Bingham".

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

Project Name: I-64 and Grinstead Drive Storage Basin

Project Type: Off-Line Storage

Rec Stream: Middle Fork Beargrass Creek

Project Description: This project is to provide a 15.33 MG off-line storage facility consisting of a covered concrete basin for CSO125, 126, 127 & 166 to reduced overflows to 4 overflows per typical year. The facility will be a gravity in-pump out operation.

Design Assumption: No backflow from Beargrass Creek is accounted for in model. Flapgates may need to be analyzed. Direct runoff from I-64 into outfall pipes is currently included in basin size. Separation may reduce basin size if cost effective. CSO 126 likely will be conveyed directly under I-64.

Capital Cost: \$52,002,000

Capital Benefit/Cost: 17.73

Present Worth Benefit Cost: 19.25

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|--------------------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO125 | REG NO 24 - GRINSTEAD DR | 201.71 | 57 | 200.36 | 57 |
| CSO126 | REG NO 26 - RAYMOND AVE | 5.55 | 27 | 3.93 | 24 |
| CSO127 | ETLEY AVENUE | 9.71 | 30 | 9.40 | 30 |
| CSO166 | BEALS BRANCH SAN DIV | 64.66 | 36 | 62.36 | 36 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



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August 17, 2012

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300 Fair Oaks Lane
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Chief, Water Programs Enforcement Branch
Water Management Program
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61 Forsyth Street SW
Atlanta, GA 30303

Subject: Meadow Stream Pump Station Storage Basin
Minor Project Modification
IOAP Project No. S_HC_HC_MSD1082_S_09A_C
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Meadow Stream PS Inline Storage project (IOAP Project No. S_HC_HC_MSD1082_S_09A_C). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The existing Meadow Stream Pump Station is a 1.58 million gallon per day (MGD) facility owned by the City of Crestwood (Crestwood), Kentucky. MSD has an agreement with Crestwood to operate and maintain this station. The original project was the construction of underground, in-line storage near the pump station to mitigate sanitary sewer overflows to a 1.82-inch cloudburst rain event to be constructed by December 31, 2016.

Proposed Project Modification

After submittal of the final 2009 IOAP, MSD received a request from the City of Crestwood to participate in a project to expand the station, in response to both residential and commercial development pressures. The proposed sizing of the pump station upgrade to 3.89 million gallons per day (MGD) with a new, parallel force main will mitigate existing wet weather issues to a 10-year design storm and eliminates the need for the original proposed inline storage. The upgrade will be completed by December 31, 2012.



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Meadow Stream Pump Station Storage Basin
August 17, 2012
Page 2 of 2

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

The project modification involves the upgrade of the Meadow Stream Pump Station to 3.89 MGD including a new wet well that mirrors the existing well and the construction of a new 18-inch diameter force main parallel to the existing main. The project will be constructed with funding from MSD and Crestwood.

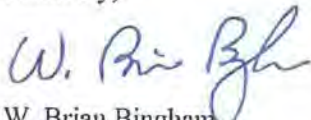
MSD completed a Sanitary Sewer Evaluation Study (SSES) for the Meadow Stream service area in February 2011. The study found only minor defects in the 166,730 linear feet inspected with an estimated flow reduction of 433,000 gallons per day. MSD has a rehabilitation project scheduled for completion by December 2013, which should have a measurable impact on inflow and infiltration.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,



W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

Project Name Meadow Stream Pump Station & Force Main Upgrade

Modeled Area Hite Creek

Branch or SSO ID MSD1082

Project Type Inline Storage

Receiving Stream Floyds Fork and South Fork Harrods Creek

Project Description This project involves the upgrade of Meadow Stream Pump Station to 3.89 MGD including a new wet well that mirrors the existing well and the construction of a new 18-inch force main parallel to the existing main. The project is to be constructed with funding from MSD and the City of Crestwood. The City's interest in the upgrade is to enable additional development within its boundaries. Sizing of the project was to mitigate existing wet weather issues and to accommodate this new development. As such, the IOAP benefit/cost methodology did not apply.

Reason for Overflow Pump station capacity

Design Parameters This solution is based on a 2.6 inch cloudburst rain event

Project Constraints Project will occur in MSD easements or land

Estimated Capital Cost \$974,000

Weighted Benefit/Cost Ratio Not Applicable

| Asset-ID | SSO Start Date | Volume (Gal) |
|------------|-----------------------|--------------|
| 91087 | 3/18/2008 6:40:00 PM | 1,440,000 |
| 91087 | 4/4/2008 4:30:00 AM | 180,000 |
| 91087 | 9/21/2009 2:15:00 AM | 12,700 |
| 91087 | 10/9/2009 6:30:00 AM | 56,250 |
| 91087 | 5/2/2010 10:30:00 AM | 21,000 |
| 91087 | 3/9/2011 10:50:00 AM | 20,600 |
| 91087 | 4/11/2011 9:45:00 PM | 335,250 |
| 91087 | 4/23/2011 11:30:00 AM | 652,500 |
| 91087 | 5/3/2011 5:35:00 PM | 112,500 |
| 91087 | 11/28/2011 4:05:00 PM | 6,400 |
| 91087 | 12/5/2011 8:30:00 AM | 78,500 |
| MSD1082-PS | 1/3/2005 2:04:00 PM | 97,000 |
| MSD1082-PS | 9/16/2008 | 25 |
| MSD1082-PS | 2/25/2011 9:50:00 AM | 6,600 |
| MSD1082-PS | 4/27/2011 5:05:00 AM | 348,125 |
| MSD1082-PS | 1/27/2012 | 159,750 |



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August 17, 2012

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Department of Environmental Protection
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Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Paddys Run Wet Weather Treatment Facility
Minor Project Modification
IOAP Project No. L_OR_MF_015_M_13_B_B_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Paddys Run Wet Weather Treatment Facility project (IOAP Project No. L_OR_MF_015_M_13_B_B_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original Paddys Run Wet Weather Treatment Facility included the construction of the 50 million gallons per day (MGD) high rate treatment (HRT) facility and 9.6 million gallons (MG) of in-line storage in the Southwestern Outfall. The facility was originally sited near the existing Paddys Run Flood Pump Station and was scheduled to be completed by December 31, 2014.

Proposed Project Modification

The newly proposed project includes the construction of 25 MG of off-line storage, a 50 MGD HRT facility and an upgrade of the existing Southwestern Pump Station from 105 MGD to 160 MGD to be completed by December 31, 2016.



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These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

In the 2009 IOAP the location of this facility was near the Paddys Run Flood Pump Station, just inside the flood control levy. The land was MSD property and in close proximity to the Southwestern Outfall, which was intended to be used for approximately 11 million gallons of in-line storage. During preliminary design, MSD pursued an easement or fee-simple land purchase for a construction and operating access point that would be under MSD's full control.

Current operating access to the flood pump station is from the south, through a chemical manufacturing plant owned by DuPont. This access requires MSD and contractor vehicles to pass through DuPont's secure gate, and follow DuPont's internal safety and security requirements. This would not be acceptable for a wet weather treatment facility that requires 24-hour a day access for chemical delivery, grit and screenings haulers, and system operators. Attempts to negotiate an MSD-controlled access through the DuPont plant failed, with DuPont citing Homeland Security Act regulations that prohibit the type of access MSD needs.

MSD then attempted to negotiate access from the north, through a Louisville Gas & Electric (LG&E) power generation and switchyard. Similar problems with security were encountered, in addition to design issues with turning radius and grade changes that would make chemical delivery and construction access very challenging.

MSD also evaluated the remainder of the Southwestern Outfall pipeline route. MSD's easements and owned property parcels along this route are narrow and follow very rough terrain of the Paddys Run stream channel. None of that route was deemed suitable for this facility.

The location ultimately selected is property near the existing Southwestern Pump Station and at the outfall for CSO 015 and CSO 191 (called the Southwestern Outfall, which the Paddys Run Wet Weather Facility will control.) This property is close enough to the Southwestern Pump Station that upgrades to this facility can replace the new 50 MGD pump station originally proposed. The disadvantage of this site is that it cannot make use of the in-line storage potential of the Southwestern Outfall, since the property is upstream of most of the volume of this pipe.

As such, storage required for this facility must be provided off-line through a new storage basin. MSD is currently in the process of purchasing this property, which includes developing an approach to properly mitigate contamination issues arising from previous land uses on the site in addition to negotiating the

purchase price. Assuming contamination issues are not difficult to remediate, MSD intends to purchase this property either through negotiation or condemnation.

Over the past two years, as part of the ongoing model recalibration and refinement described in Volume 1, Chapter 6 of the 2009 IOAP, MSD conducted a major recalibration of the combined system model utilizing new flow monitoring data and upgraded hydrology as well as a review of the real time control (RTC) operating rules for the combined sewer system. As a result of these efforts, MSD determined that approximately 25 MG of storage is required at the wet weather treatment facility site, rather than the 11 MG of in-line storage in the approved 2009 IOAP.

As noted previously, MSD is now proposing the upgrade of the existing Southwestern Pump Station from a 105 MGD maximum pumping rate to 160 MGD rather than the construction of a new 50 MGD pump station. Finally, the 50 MGD HRT capacity originally proposed in the 2009 IOAP is still accurate in the newly proposed project sizing.

The level of control proposed in the 2009 IOAP was to reduce CSO 015 and CSO 191 to eight overflows in the typical year. MSD re-analyzed the level of control using the same stakeholder- defined benefit/cost approach for the revised project location, size and configuration. The same level of control was confirmed to be the one that scored highest in the benefit/cost analysis.

The approved IOAP shows the Paddys Run Wet Weather Treatment Facility being complete and operational by December 31, 2014. The significant changes proposed for this project, both in location and size, make achieving this completion date impractical. Assuming MSD is successful in purchasing the property for the site in 2012, design and construction of this revised project is expected to be completed by December 31, 2016. A significant part of the time required is related to modifying and expanding the Southwestern Pump Station. Completing major construction on this pump station while keeping at least half of it in service at all times adds considerable time to the overall schedule.

An additional driver for the schedule change is the need to design, permit, and execute a site remediation plan prior to the start of facility construction. MSD expects that constraints on construction operations will also add time to the construction duration, contributing to the need to push the completion date to the end of 2016.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps reflecting the creation of separate projects for the two in-line storage facilities on the Southern Outfall have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Paddys Run Wet Weather Treatment Facility
August 17, 2012
Page 4 of 4

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Brian Bingham". The signature is fluid and cursive, with the first name "W." and last name "Bingham" clearly visible.

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

Project Name: Paddys Run Wet Weather Treatment Facility

Project Type: High Rate Treatment & Off-Line Storage

Rec Stream: Ohio River

Project Description: This project is to provide a 50 MGD Retention Treatment Basin to serve as a high rate treatment facility, a 25 MG earthen basin off-line storage for CSO015 and 191 to reduce overflows to 8 overflows per typical year. The project also includes an expansion of the Southwestern Pump Station to 160 MGD. The treatment and storage basins are located in the vicinity of the Southwestern PS adjacent to the outfall.

Design Assumption: The HRT is started at the beginning of the event and flow is pumped to the off-line storage basin after the capacity of the HRT is reached. After the off-line storage is used, in-line storage in SWOR1 and SWOR2 are used to further attenuate the peak flow. The project is located in the vicinity of the Southwestern PS adjacent to the outfall. Morris Forman WQTC receives 325 MGD from the gravity Main Diversion Structure and Southwestern Pump Station is modulated to maximize gravity flow to Morris Forman.

Capital Cost: \$34,400,000

Capital Benefit/Cost:

Present Worth Benefit Cost:

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|------------------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO015 | SOUTHWESTERN PS | 1249.68 | 56 | 722.13 | 46 |
| CSO191 | ALGONQUIN PKWY SAN DIV | 31.71 | 27 | 20.27 | 22 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



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August 17, 2012

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Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Story Avenue and Main Street Storage Basin
Minor Project Modification
IOAP Project No. L_OR_MF_020_S_09B_B_A_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Story Avenue and Main Street Storage Basin project (IOAP Project No. L_OR_MF_020_S_09B_B_A_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The Story Avenue and Main Street Storage Basin project entailed the construction of a 0.13 million gallon (MG), off-line storage basin adjacent to the Starkey Pump Station to be completed by December 31, 2013. The project controlled CSO 020 to an eight overflow per typical year level of control.

Proposed Project Modification

The project modification involves the construction of a 5.42 MG, off-line storage basin adjacent to the Starkey Pump Station to be completed by December 31, 2020. The project will control CSO 020 to an eight overflows per typical year level of control.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical



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representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

As part of an internal modeling review and re-calibration, MSD initiated a detailed review of the combined sewer system hydraulic model. Upon completion of this review MSD discovered that the Story Avenue and Main Street Storage Basin was undersized in the previous submittal.

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the outfalls. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects. Additionally, MSD Operations staff determined that the Starkey Pump Station could not run at the design pumping rate of 140 million gallons per day (MGD) as assumed in the original analysis. A revised pumping rate of 108 MGD was used in the current model.

Based on the results of the re-calibration, a level of control analysis was conducted on the Story Avenue and Main Street Storage Basin. The level of control analysis showed that the basin size of 5.42 MG would limit the number of overflows to eight per year while providing the best benefit/cost ratio. Therefore, MSD proposes to change the Story Avenue and Main Street Storage Basin solution from 0.13 MG to 5.42 MG. MSD is proposing to revise the schedule from the original completion date of December 31, 2013, to December 31, 2020. The need for this proposed change is based on the scale of the change and the size of the property that is needed. Additionally, MSD would like to further monitor the pumping rate of the Starkey Pump Station to verify that the 108 MGD pumping rate can be met.

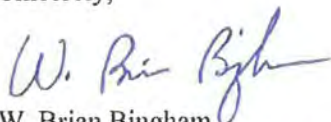
For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Story Avenue and Main Street Storage Basin
August 17, 2012
Page 3 of 3

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Brian Bingham".

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

Project Name: Story Avenue and Main Street Storage Basin

Project Type: Off-Line Storage

Rec Stream: Middle Fork Beargrass Creek

Project Description: This project includes the construction of a 5.42 MG off-line underground covered storage basin for CSO020 to reduce overflows to 8 overflows per typical year. Project assumes that the Starkey Pump Station has a typical, minimum pumping rate of 108 MGD. Additional storage or a higher pump-out rate may be added if deemed advantageous to operational and maintenance flexibility as well as impacts to other downstream CSO control projects.

Design Assumption: Basins are designed to the 9th overflow event volume, resulting in 8 CSO overflows per typical year. Type of basin based on hydraulics and surroundings. Starkey PS must be able to maintain a minimum pumping rate of 108 MGD.

Capital Cost: \$13,949,000

Capital Benefit/Cost: 18.78

Present Worth Benefit Cost: 20.37

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|-------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO020 | BUCHANAN PS | 436.87 | 51 | 143.94 | 37 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.



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Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Story Avenue and Spring Street Storage Basin
Minor Project Modification
IOAP Project No. L_SO_MF_130_S_09B_B_A_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Directors:

MSD is requesting approval of a proposed minor project modification to the Story Avenue and Spring Street Storage Basin project (IOAP Project No. L_SO_MF_130_S_09B_B_A_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original IOAP project for this basin included the construction of a 0.01 million gallon (MG), off-line underground covered storage basin located south of CSO 130 to be completed by December 31, 2016. The basin would require a small pump station to return stored flow to the interceptor and would control CSO 130 to an eight overflows per typical year level of control.

Proposed Project Modification

The project modifications requested include the construction of a green infrastructure project suite that will achieve the same level of control as the off-line storage basin. The green project suite would have the same eight overflows per typical year level of control and an accelerated project completion date of December 31, 2014. Performance of the green projects will be conducted over the next two years, and the project certified or remedial actions identified by December 31, 2016.



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These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

As a first step in the design process and in accordance with Louisville MSD's Green Infrastructure Program, MSD performed a detailed study and determined green infrastructure practices, in-lieu of gray infrastructure, would be most effective in reducing overflow volume. Open tree boxes and permeable pavements were chosen to reduce the volume of flow and pollutants to CSO 130.

As part of this process, MSD developed a hydraulic sewer model for CSO 130. The detailed recalibration of this model caused the volume necessary to maintain the level of control at eight overflows per year to increase from 0.01 MG to 0.08 MG. Green practices were incorporated into the geometry to create a proposed conditions model. This model confirmed that the proposed green infrastructure solutions and a minor outfall modification could reduce the 20 current overflows per year to eight overflows per year. Due to backwater effects from the trunk line, the weir height at CSO 130 will be raised from the current elevation of 426.70 feet to an elevation of 426.95 feet. The green practices will adequately reduce overflows and that the depth in the sewer for the 9th largest storm does not exceed 426.83 feet compared to the minimum CSO overflow elevation new weir height of 426.95 feet.

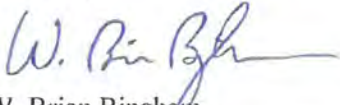
For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Story Avenue and Spring Street Storage Basin
August 17, 2012
Page 3 of 3

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Brian Bingham", with a long horizontal flourish extending to the right.

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

Project Name: Story Avenue and Spring Street Green Infrastructure

Project Type: Green Stormwater Infrastructure

Rec Stream: Middle Fork Beargrass Creek

Project Description: This project includes the construction of a suite of green infrastructure practices in the CSO130 contributing drainage area to achieve 0.08 MG in overflow reduction and mitigate the overflow to 8 overflows in a typical year.

Design Assumption: Green practices are designed to contain the 9th overflow event volume, resulting in 8 CSO overflows per typical year.

Capital Cost: \$896,000

Capital Benefit/Cost: 131.70

Present Worth Benefit Cost: 125.80

| CSO | CSO Name | Existing May 2012 ¹ | | Baseline May 2012 ² | |
|--------|----------------|--------------------------------|-----------------------|--------------------------------|-----------------------|
| | | Avg. Annual Overflow Volume | Avg. Annual Frequency | Avg. Annual Overflow Volume | Avg. Annual Frequency |
| CSO130 | WEBSTER STREET | 6.87 | 34 | 1.96 | 20 |

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

DRAFT MEMORANDUM

TO: Louisville and Jefferson County Metropolitan Sewer District Board

FROM: Stakeholder Members of the Wet Weather Team

DATE: ~~December 10, 2008~~ January 30, 2013

SUBJECT: Draft Integrated Overflow Abatement Plan 2012 Modifications

As stakeholder members of MSD's Wet Weather Team (WWT), we wish to indicate our support for the Final Integrated Overflow Abatement Plan (IOAP) 2012 Modifications as MSD transmits the plan modifications to the U.S. Environmental Protection Agency (EPA) and the Kentucky Environmental and Public Protection Cabinet. The attached documents, "Vision for MSD's Integrated Overflow Abatement Plan," and "2012 IOAP Project Modifications" summarize the Wet Weather Team's common understanding of the high-level architecture and components of the IOAP and the proposed 2012 Modification. As stakeholder members of the WWT, we played an active role in developing the IOAP Vision and are pleased to see that the principles of this Vision have been retained in the 2012 Modification. Our support for the IOAP and the 2012 Modification is based on the expectation that the complete plan is fully reflective of and consistent with the IOAP Vision and the 2012 IOAP Project Modifications documents attached. We support this vision for improving wet weather sewer overflow management in our community. In this memorandum, we review the composition and charge of the Wet Weather Team, describe the results of the stakeholder subgroup's deliberations, and outline our support for the IOAP.

Wet Weather Team Composition and Charge

The Wet Weather Team consists of community representatives, elected officials, MSD personnel, and technical consultants. The ~~nineteen~~ stakeholders on the Wet Weather Team include individuals recognized as community opinion leaders associated with environmental advocacy, business and industry, elected officials, local government, community neighborhood, recreation, public health, environmental justice, and organized labor interests. WWT stakeholders have not formally represented their specific affiliated organizations as part of the team, but rather have provided input reflective of the broad interest areas in which they lead.

MSD chartered the stakeholder subgroup of the Wet Weather Team to "provide guidance on the development of an integrated Wet Weather Program that will comply with applicable regulatory requirements and will minimize the impacts of wet weather discharges on water quality, aquatic biota, and human health." Through MSD's consent decree with EPA and the Kentucky Environmental and Public Protection Cabinet, the WWT was charged with two primary tasks: (1) preparing a plan for funding MSD's overflow abatement program and (2) developing a program for public information, education, and involvement. In addition to these tasks, MSD sought guidance from WWT stakeholders on MSD's overall investment, policy, and performance choices in the development of the IOAP.

Results of the Wet Weather Team's Deliberations

The Wet Weather Team met 22 times from July 2006 through December 2008 and provided input on all major components of the IOAP, as well as the analytic framework and the public involvement process

MSD used to develop the IOAP. The WWT also met to review the public comments submitted on the Draft IOAP and discuss the changes proposed for the Final IOAP. There are four areas of the WWT stakeholder subgroup's deliberations that we would like to highlight, as follows.

1. Development of the Analytic Framework: The WWT stakeholders, along with other WWT members, identified and agreed upon a set of community values to use in the development of MSD's IOAP. We also advised MSD's technical team on a performance evaluation framework for using those values to evaluate project alternatives for MSD's IOAP. The performance evaluation framework includes both a benefit-cost scoring methodology for selecting the best alternatives at the project level and a systematic process for considering values that relate to the program as a whole. (This analytic framework is further described in the attached Vision.) We believe that this analytic framework is rigorous, transparent, and replicable, and that it provides an effective way to understand and balance tradeoffs among potentially conflicting community interests.
2. Application of the Analytic Framework: The WWT stakeholder subgroup has reviewed examples of how MSD's technical team has used the values-based performance evaluation framework to evaluate project alternatives to address combined sewer overflow (CSO) and sanitary sewer overflow (SSO) problems in our community. Moreover, we have also reviewed and provided input on how the technical team has evaluated the IOAP according to the WWT's programmatic community values—customer satisfaction, economic vitality, education, environmental justice and equity, financial equity, and financial stewardship. We believe that the analytic framework has been applied consistent with the WWT's expectations in the development of the IOAP and has produced a robust, replicable, and transparent analysis.
3. IOAP Vision: We helped develop the attached "Vision for MSD's Integrated Overflow Abatement Plan" along with the MSD personnel and technical consultants who are on the Wet Weather Team. The IOAP Vision summarizes the WWT's common understanding of the high-level architecture and components of the IOAP, and it documents the WWT's consensus about several crucial aspects of the IOAP. The Vision outlines and provides highlights of the expected water quality benefits of the IOAP; the levels of control for CSOs and SSOs in our community; the range of control options in the IOAP; the analytic framework and process used to select control options; the public information, education, and involvement program (known as "Project WIN"); the monitoring, evaluation, and adaptive management plan; future development considerations relevant to the IOAP; and the IOAP funding plan. As stakeholder members of the WWT, we support this vision for improving wet weather sewer overflow management in our community.
4. Summary of IOAP Projects: We believe the project mix and outcomes that form the backbone of the IOAP (as captured in the attached IOAP Vision) reflect responsiveness to MSD's consent decree and provide for a critical, first increment of water quality improvement for our community, while ensuring wise and effective use of our community's resources. The IOAP Vision draws on front end consideration of and investment in green infrastructure and other source control approaches, including "private side" inflow and infiltration (I&I) control. These early investments will act to test and demonstrate the effectiveness of these approaches, creating the prospect, based on demonstrated performance, for expanding their role and lowering community costs as MSD implements the IOAP. We understand that MSD, consistent with the Post-Construction Compliance Monitoring Plan, will closely monitor and report on the efforts for both regulatory and public education purposes. We further understand that MSD, over the

coming months, will work with community members to further articulate and enhance the scope and scale of its IOAP public education and outreach program, including developing a robust approach for measuring the effectiveness of the program.

After IOAP approval in September 2009, the WWT Stakeholder Group continued to meet twice per year for progress reports and updates. When the need for the 2012 IOAP Modifications became apparent, MSD invited the original members of the WWT Stakeholder Group to continue to serve as a sounding board, ensuring the modifications to the plan and specific project designs remain true to values, priorities and financial plan that was originally developed. Most of the original members chose to continue their active participation in the process.

As MSD moves forward in coming years with IOAP implementation, we do anticipate the program will face, as all programs of this type do, project-specific challenges related to local community understanding and acceptance. In this context, we understand MSD is committed to using focused and sustained neighborhood education and outreach efforts to support project-specific and overall program implementation and will strive to address localized needs consistent with overall IOAP requirements. At the same time, we believe all localities throughout the MSD system must keep in mind that individual IOAP project locations and types have emerged from a rigorous and consistently applied technical analysis that has been continued through the 2012 IOAP Modifications. The IOAP projects exist as critical building blocks for an overall community program framed by federal and state regulatory requirements, community water quality and public health improvement objectives, and overall rate payer capacity.

The stakeholder subgroup of the Wet Weather Team appreciates the opportunity to have contributed to MSD's IOAP development efforts. During our ~~final~~ meeting on December 4, 2008, we discussed the importance of an overarching, sustained community water quality education initiative directed at enhancing appreciation for water quality improvements and building understanding of the actions all members of the community can take to improve water quality. We understand this effort is substantially broader in scope than the CSO and SSO improvements addressed by the IOAP, but we believe it is important to take this opportunity to raise awareness for this need, particularly as our community turns its attention to stormwater management in the context of the multi-jurisdictional Municipal Separate Storm Sewer System (MS4) permit. We appreciate MSD's willingness to be a contributor to such an effort, even as we recognize the need for broader involvement and leadership throughout the Louisville community and across Louisville Metro Government.

We look forward to the MSD Board's review of the Final 2012 IOAP Modifications and MSD's submittal of the Final 2012 IOAP Modifications to EPA and the State of Kentucky. ~~by December 31, 2008.~~ Thank you for the opportunity to contribute to this critical community improvement initiative. Please feel free to contact us individually or collectively with any questions or perspectives you may have.

Stakeholder Members of the Wet Weather Team

| <u>Member</u> | <u>Organization*</u> |
|-----------------|--|
| Steve Barger | Labor <u>(retired)</u> |
| Susan Barto | Mayor of Lyndon |
| Stuart Benson | Louisville Metro Council, District 20 |
| <u>Jim Mims</u> | Louisville Metro Planning & Design Services |
| Allan Dittmer | University of Louisville |
| Arnita Gadson | Kentucky Environmental Quality Commission |
| Mike Heitz | Louisville Metro Parks Department |
| Tom Herman | Zeon Chemicals |
| Rick Johnstone | Deputy Mayor, Louisville Metro Mayor's Office <u>(retired)</u> |
| Bob Marrett | CMB Development Company, LLC |
| 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 <u>(retired)</u> |

*Stakeholders on the Wet Weather Team do not formally represent their specific affiliated organizations, but rather seek to provide input reflective of the broad interest areas in which they lead. Along with the stakeholder subgroup, the Wet Weather Team includes MSD personnel and technical consultants.

IOAP Progress Update and Modification Review



December 4, 2012



Meeting Objective

Prepare for the development of a
“2012 IOAP Modification”
Statement of Support
for the February 2013
Public Review & MSD Board Submittal
from the Wet Weather Team
Stakeholder Group

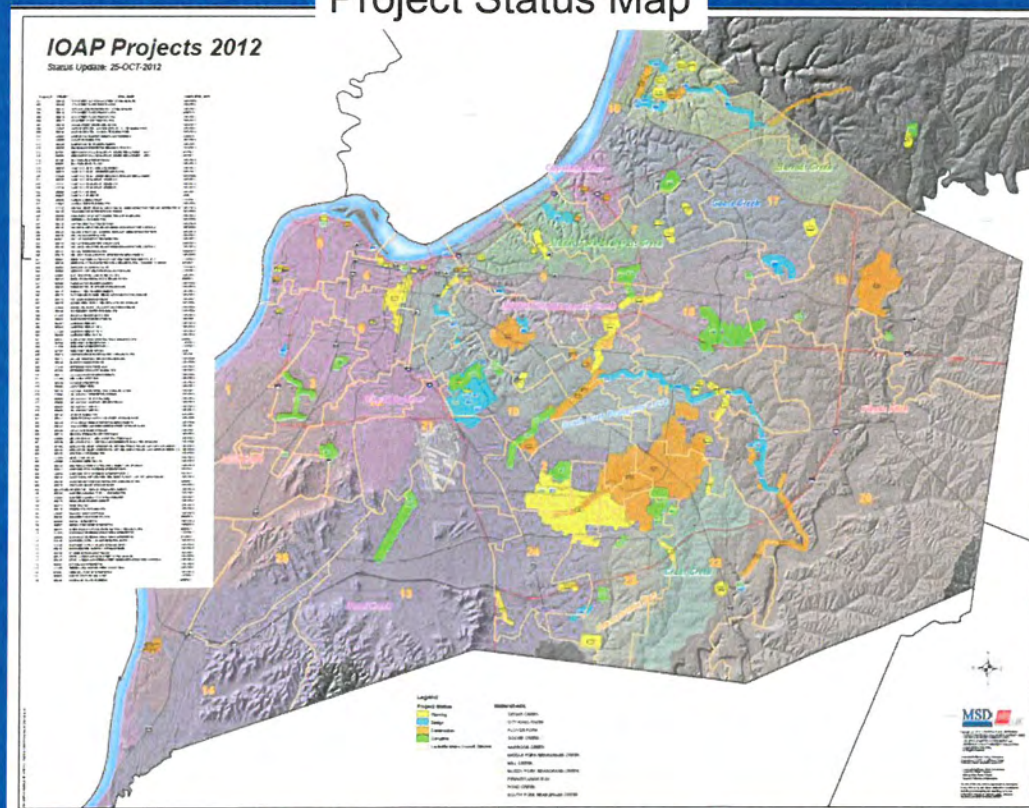


Agenda

- IOAP Implementation Progress Update
- IOAP Redline Highlights
- Schedule to Complete and Submit the Revised IOAP
- WWT Stakeholder Group IOAP Modification Support Memo
- Next Steps



Project Status Map



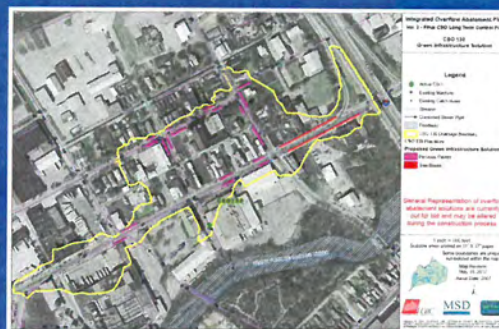
Implementation Progress 2007 - 2012

- **Gray Infrastructure Projects**
 - 25% completed
 - 20% in design or construction
- **Green Infrastructure Projects**
 - 25 completed
 - 40 in design or construction
 - 30% of program budget committed (\$15 million spent or committed)
- **I/I Reduction Projects**
 - 9 rehab/replacement projects completed
 - 8 rehab/replacement projects in design or construction
- **Overall program**
 - About 25% complete (\$200 million + spent)
 - About 5% under budget, compared to original IOAP estimates



LTCP Progress

- **Projects Completed**
 - CSO 108 Dam Modification
 - Beargrass Interceptor Rehab
 - 34th St, 4th St. Flood Pump Stations
- **Projects in Construction**
 - CSO 206 Separation
 - Butchertown Green Infrastructure
 - 17th St., Shawnee Flood Pump Stations
- **Projects in Design**
 - Paddys Run Wet Weather Treatment
 - Logan & Breckenridge Storage Basin
 - Adams St Sewer Separation
 - CSO 123 Downspout Disconnect



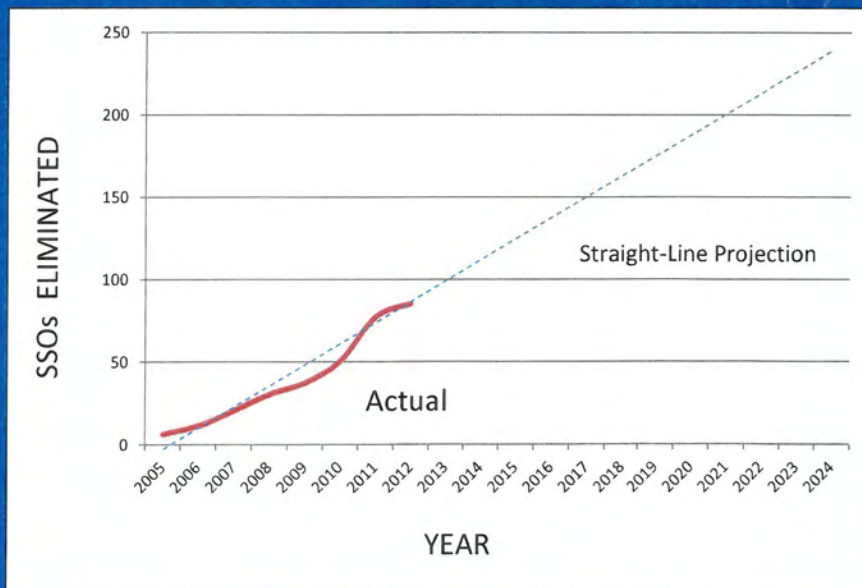
SSDP Progress

- “Big 4” SSOs eliminated
 - Beechwood Village
 - Southeast Diversion
 - Hikes Point
 - Highgate Springs Pump Station
- 22 projects completed (some with multiple phases)
 - PS eliminations (many done early)
 - SSES and I/I reductions
 - Relief sewers
 - CPE/CCP improvements all complete



SSO Elimination Progress

SSO Volumes Reduced 70%



Proposed Modifications



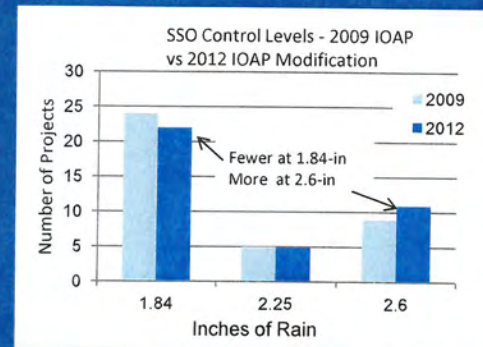
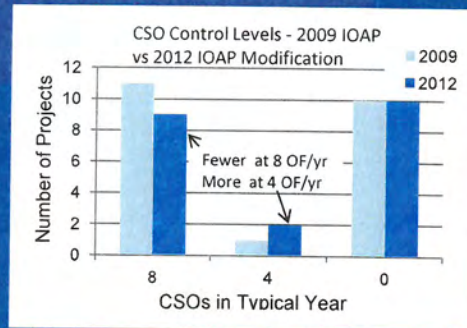
Measure Twice, Cut Once

Proposed Modification

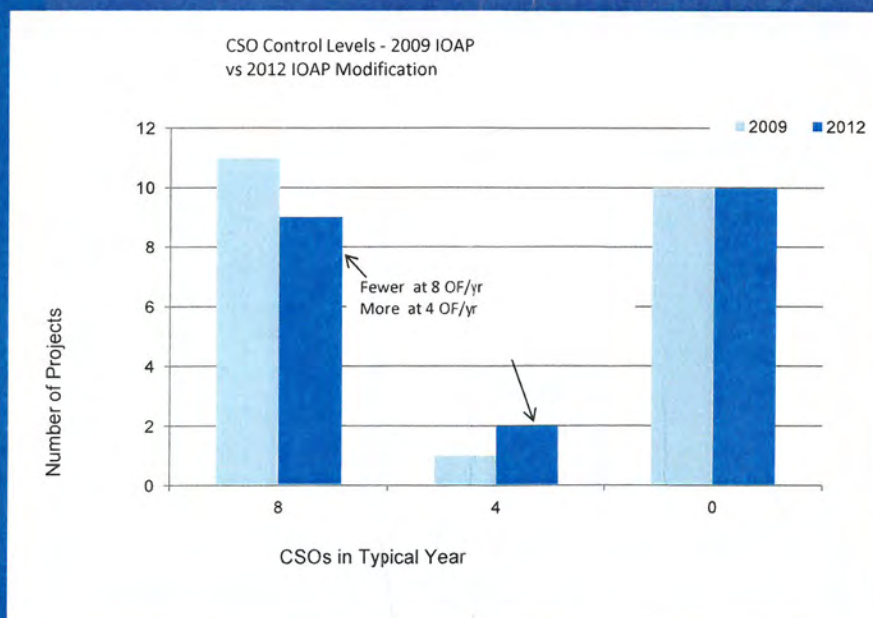
- Program Costs Remain at \$850 Million
- Some projects grew significantly in size and cost, or are new projects
- Some projects shrank, or were eliminated
- Overall program benefits increased
- Project schedule revisions necessary

Project Modifications Summary

- 7 projects got larger
- 7 projects got smaller
- 12 projects move forward in schedule – some split from other projects
- 4 projects move back in schedule for “green” & size increases
- 3 projects have higher level of overflow control, 1 project has lower control level

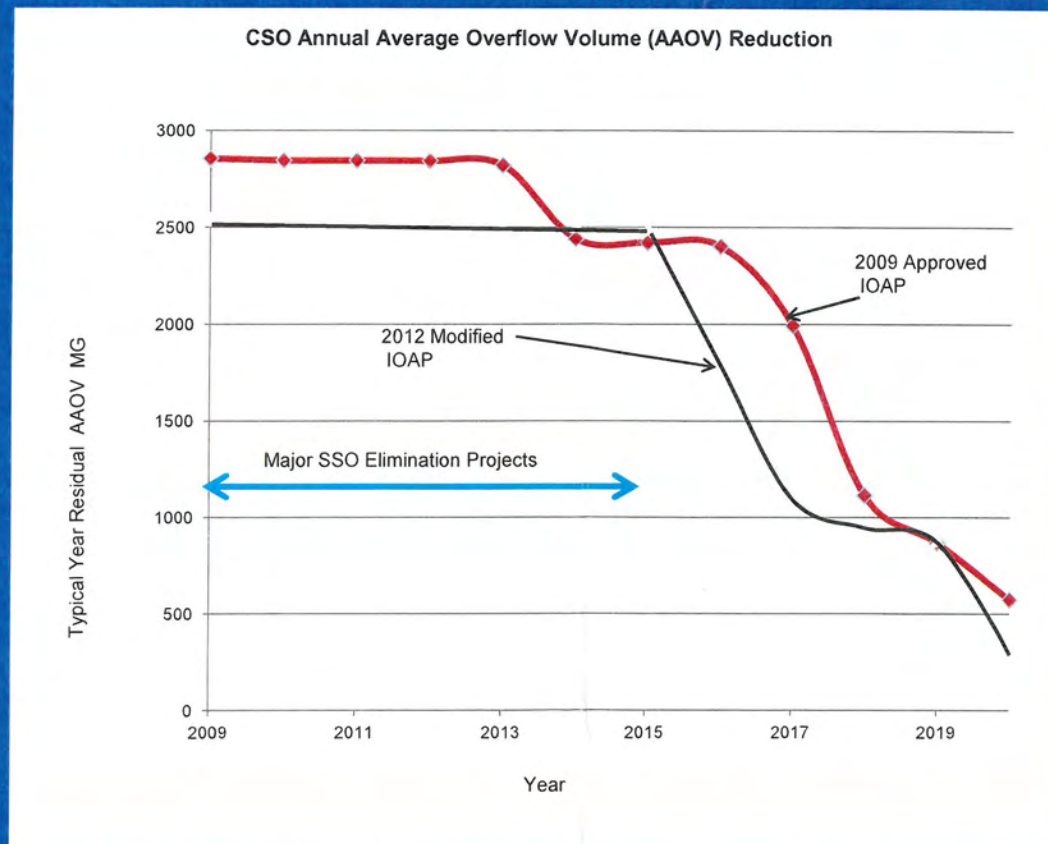
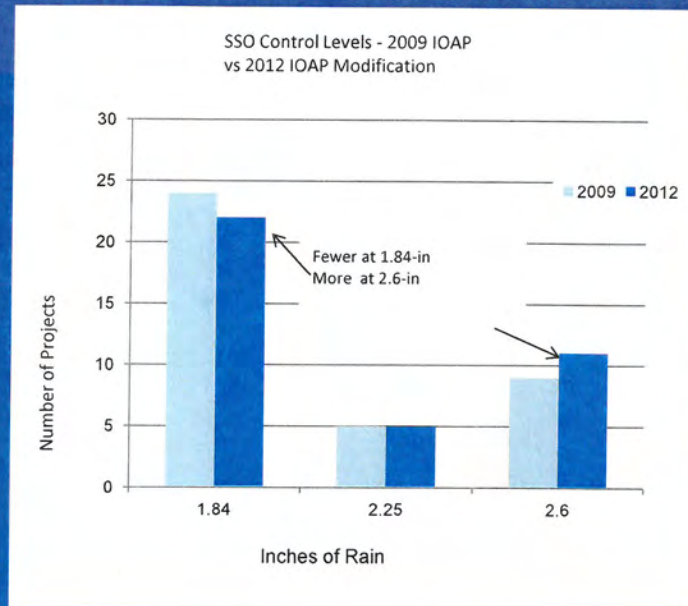


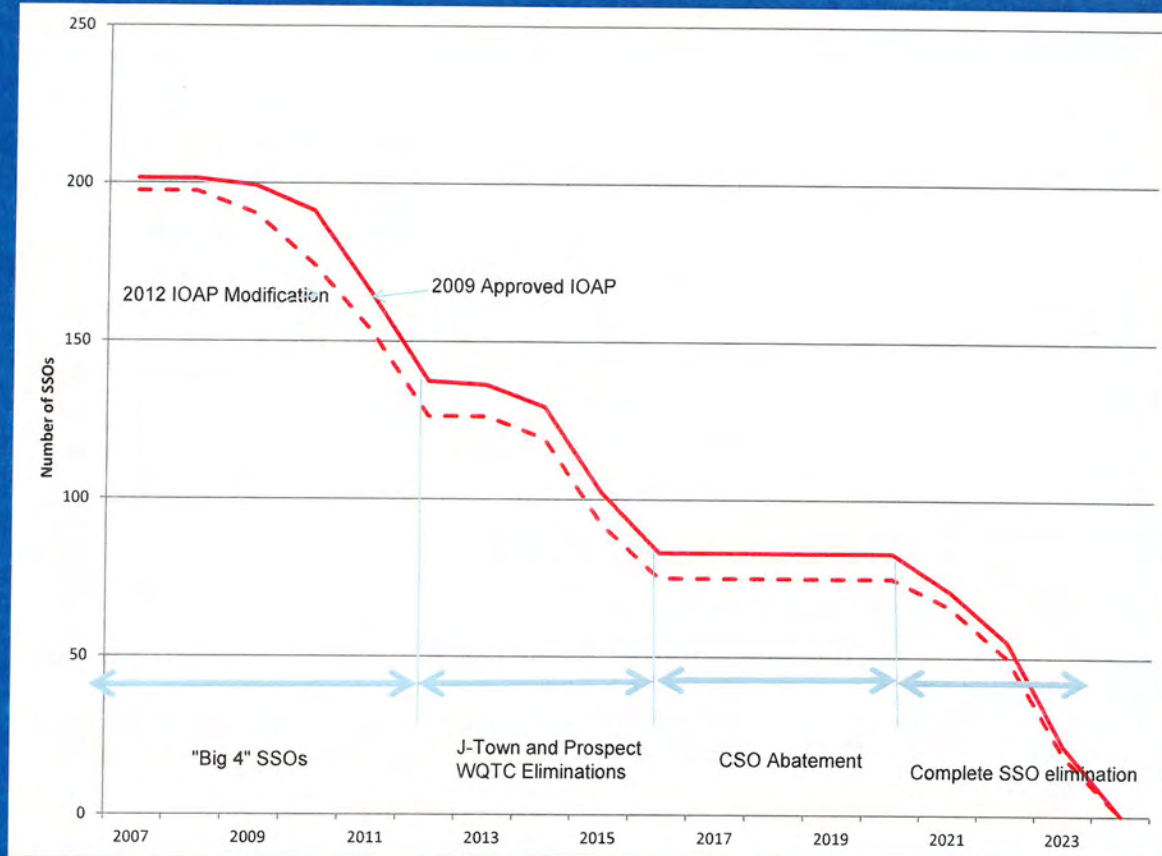
Project Modifications CSO Control Levels



Project Modifications

SSO Control Levels





Volume 1

Highlighted Changes

- Chapter 1 – Introduction
 - No substantive changes
 - Describe new Chapter 5 in Vols 2 and 3
- Chapter 2 – IOAP Approach
 - No substantive changes
 - Discuss potential approach to private programs

Chapter 3 – Public Participation and Agency Interaction

- Sect. 3. 3 – activities between 2009 and 2012
 - Sec 3.3.2 – WWT continued engagements
 - Sec 3.3.2.4 – WWT quals for succession planning
 - Sec 3.3.3 – Project review and input meetings
- Sect. 3.4 – future activities
 - Sec 3.4.5.5 – education
 - Sec 3.6.1.1 rate resistance
 - Sec 3.6.2.3 survey and characterize the public reached



Chapter 4 – Integrated Overflow Abatement Plan

- Header and Note
- Sect. 4.2 LTCP tables red-line update
- Sect. 4.3 SSDP tables red-line update
- Sect. 4.4 WQTC elimination
- Sect. 4.5 Source Control and Illicit Connections



Chapter 5 – Regulatory Compliance

- Note what didn't change
 - Sect. 5.2 knee-of-curve graphs
 - Sect. 5.4 Required elements tables
- Assumption – slightly higher level of control for both LTCP and SSDP would not change the conclusions demonstrated by these tables and graphs



Chapter 6 – Implementation Plan

- Sec. 6.2 staffing and operations costs still to be refined
 - Reorganization and transfer of responsibilities
 - Consider different project suite
- Sec. 6.3 schedule as submitted previously
- Sec. 6.4 Financial Plan
 - Total cost the same
 - Rate predictions the same
- Sec. 6.5 Post Construction Compliance Monitoring (PCCM)



Sect. 6.5 Post Construction Compliance Monitoring

- Conformed to examples in “CSO Post Construction Compliance Monitoring Guidance”
- Reporting
 - Project specific vs. programatic
 - Annual progress and final
- Public Surveys moved to Sect. 3
- Adaptive management describes this modification process



Volume 2 Highlighted Changes

- Chapter 1 – Introduction
 - no substantive changes
- Chapter 2 – System Characterization
 - no substantive changes
- Chapter 3 – Development and Evaluation of Alternatives
 - no substantive changes



Volume 2

Highlighted Changes

- Chapter 4 – Selection of the Final LTCP
 - Update green infrastructure demo projects
 - Tables unchanged but color-over
- Chapter 5 – NEW SECTION
 - Project Modifications
 - Green Infrastructure Highlights



Volume 3

Highlighted Changes

- Chapter 1 – Introduction
 - no substantive changes
- Chapter 2 – System Characterization
 - no substantive changes
- Chapter 3 – Development and Evaluation of Alternatives
 - no substantive changes
- Chapter 4 – Selection of the Final SSDP
 - Update green infrastructure demo projects
 - Tables unchanged but color-over



Volume 3

Highlighted Changes

- Chapter 5
 - Project Modifications
 - Infiltration/Inflow Reduction Program Highlights
 - New Projects
 - Sanders Lane
 - Oreland Mills
 - Muddy Fork Interceptor project modification



Executive Summary

- Updates per revisions to project suite



Schedule to Complete 2012 IOAP Modification

- Informal EPA and KDOW comments January 4, 2013
- Next round Project Review and Public Input Meetings
 - Tue, January 8 - IOAP Public Meeting, Shively City Hall
 - Tue, January 22 - IOAP Public Meeting, Kammerer Middle School
 - Tue, January 29 - IOAP Public Meeting, Shawnee Community Center (*waiting for confirmation*)
 - Tue, February 5 - IOAP Public Meeting, Moore High School
- WWT Stakeholder Group Meeting January 30, 2012



Schedule to Complete 2012 IOAP Modification

- Distribute Draft IOAP to libraries and start public notice period Feb 15, 2013
- Public Hearing March 1, 2013
- Close public comment period March 15, 2013
- MSD Board action April 2013
- Submit IOAP to EPA/DOJ/DKEP May 2013



WWT Stakeholder Group IOAP Modification Support Memo



Next Actions

