

EXHIBIT 2

Final WWIP

**Conditionally Approved
by the Regulators on
January 6, 2010**

**Dated: November 9, 2009
(with substitute pages 11 and last page of Attachment 2
submitted December 14, 2009)**

**Submitted by: the Metropolitan Sewer District of Greater
Cincinnati on behalf of the City of Cincinnati and
the Hamilton County Board of Commissioners**

**Submitted to: U.S. Environmental Protection Agency,
Ohio Environmental Protection Agency, and
Ohio River Valley Water Sanitation Commission**

Final Wet Weather Improvement Program

This Final Wet Weather Improvement Program ("Final WWIP"), is being submitted to fulfill consent decree requirements pertaining to submission of the CSO Long Term Control Plan Update ("LTCPU") and the Capacity Assurance Program Plan ("CAPP"). As used in this Final WWIP, "Defendants" means, collectively, the Board of County Commissioners of Hamilton County, Ohio and the City of Cincinnati, Ohio, and "Regulators" means, collectively, the U.S. EPA, Ohio EPA, and the Ohio River Valley Water Sanitation Commission.

In June 2006, Defendants submitted a Wet Weather Improvement Program plan ("2006 WWIP") to the Regulators. Defendants intended for the WWIP to fulfill the CAPP and LTCPU requirements of the Interim Partial Consent Decree on Sanitary Sewer Overflows ("SSO Decree") and the Consent Decree on Combined Sewer Overflows, Wastewater Treatment Plants and Implementation of Capacity Assurance Program Plan for Sanitary Sewer Overflows ("CSO Decree") (both Decrees entered in June 2004). On September 16, 2008, Defendants proposed significant changes to the 2006 WWIP, in a document entitled 2008 Revised Wet Weather Improvement Program Detailed Conceptual Outline Report ("2008 Revised WWIP"). On November 25, 2008, the Regulators issued a letter to Defendants declining to approve the 2006 WWIP and 2008 Revised WWIP. On March 25, 2009, Defendants proposed additional changes to the 2006 WWIP and 2008 Revised WWIP in a letter to the Regulators with detailed attachments ("2009 Revised WWIP"). The Regulators have thereafter obtained comments from the Sierra Club and have contacted Defendants in order that a final WWIP be submitted that is consistent with the Regulators' November 25, 2008 letter. This Final WWIP (including its attachments) is proposed as the final WWIP, which Defendants believe will address the Regulators' comments and inquiries. This Final WWIP is based upon and supported by the monitoring, modeling, analytical, and public participation efforts that Defendants performed in accordance with the SSO and CSO Decrees, the information developed and submitted to the Regulators in the 2006 WWIP, 2008 Revised WWIP, and 2009 Revised WWIP, and other reports, studies, and information provided to the Regulators and Sierra Club after the entry of the SSO and CSO Decrees. This Final WWIP is proposed on the condition that the CSO and SSO Decrees are modified to conform to this Final WWIP regarding

certain project and schedule related issues.

A. WWIP Phase 1

1. Schedule of Work: Defendants shall implement the projects or project bundles ("projects") listed as Phase 1 in accordance with the schedule set forth in **Attachment 1A**, which schedule shall achieve substantial completion of construction of all Phase 1 projects by no later than December 31, 2018, except in accordance with Paragraph A.2 below ("Phase 1 End Date") and according to the performance and design criteria set forth in **Attachment 1B** (and **Attachment 5** for EHRT facilities) and the project milestones set forth in **Attachment 1A**. Phase 1 includes about \$1.145 billion (all dollar (\$) values in this Final WWIP and its attachments are in 2006 dollars unless otherwise noted) in work, including projects and allowances (including green infrastructure). Estimated costs are identified in **Attachment 1B**.

2. LMCPR: Phase 1 includes a Lower Mill Creek Partial Remedy ("Original LMCPR") which specifically consists of a short deep tunnel and an Enhanced High Rate Treatment without ballasted flocculation ("EHRT") facility, described in **Attachment 1C**, which is presently estimated to cost approximately \$244 million.

a. LMC Study/Revised Original LMCPR: Phase 1 will include a 3 year study/detailed design period to examine green measures and other measures to refine the Original LMCPR approach and cost estimates. Defendants may submit to the Regulators proposed changes to, or improvements on, the Original LMCPR remedy as a result of this study, provided the proposed revised remedy ("Revised Original LMCPR") provides equal or greater control of CSO annual volume as the Original LMCPR and is completed by the Phase 1 End Date. Defendants shall submit to the Regulators a LMCPR Study Report and any proposal for a Revised Original LMCPR by December 31, 2012.

b. EHRT Alternatives Analysis: Subject to the terms of this Paragraph A.2.b, Defendants shall, no later than June 30, 2014, submit to Ohio EPA an EHRT alternatives analysis ("EAA") of the Original LMCPR EHRT or the Revised Original LMCPR EHRT which (i) describes the cost, benefits in pollutant removal, technology utilized, design and performance criteria of the facility for which Defendants intend seek a Permit to Install ("PTI"), (ii) describes a range of alternatives for the EHRT portion of the facility and (iii) compares the EHRT in the Original LMCPR (or any EHRT in a Revised Original LMCPR) with alternative enhanced high rate treatment technologies for clarification by cost, benefits in pollutant removal, and cost-effectiveness. However, the Defendants' obligation to submit an EAA shall exist only if Defendants seek a PTI for an EHRT in the Original LMCPR or an EHRT in the Revised Original LMCPR. Further, while the EAA will be considered a part of Defendants' PTI application for a specific EHRT, the EAA (in and of itself) shall not cause or give rise to the issuance of any type of action or determination by the Director of Ohio EPA, except a proposed action, final action or determination on the submitted PTI application.

c. LMCPR Schedule Extensions: It is presently expected that the Original LMCPR will cost approximately \$244 million. If Defendants demonstrate that the projected costs of the Original LMCPR or Revised Original LMCPR will exceed \$300 million, then Defendants have the right to extend the schedule for completing the Original LMCPR or Revised Original LMCPR by up to 2 years. If Defendants demonstrate that the projected costs will exceed \$350 million, Defendants may also submit to the Regulators a proposed schedule extension beyond 2 years if the Defendants can demonstrate that the additional time is necessary and that the schedule for completion is as expeditious as practicable. Any extension allowed under this Paragraph A.2.c would not serve to extend any other aspect of Phase 1, and would not serve to extend the deadline for submission of the Phase 2 schedule described below, but see Paragraph B.4 below.

d. Substitute LMCPR: If by June 30, 2015, Defendants submit a timely and complete application for a PTI for the installation and operation of the Original LMCPR EHRT (or the Original LMCPR as a whole, including the EHRT)(or an approved Revised Original LMCPR EHRT, or an approved Revised Original LMCPR as a whole, including an EHRT) and if, by December 31, 2015, a PTI is not granted by Ohio EPA, or is approved with conditions requiring ballasted flocculation technology (when no ballasted flocculation technology was proposed in the PTI application) or conditions that are inconsistent with Design and Performance Criteria that are listed on **Attachment 5** (when no conditions inconsistent with those Design and Performance Criteria were proposed in the PTI application), then:

- (i) Defendants are not obligated to commence (or substantially complete) construction of the Original LMCPR (or the Revised Original LMCPR), and,
- (ii) Defendants shall submit to the Regulators for their review and approval a proposed, substitute LMCPR ("Substitute LMCPR"), which shall provide equal or greater control of CSO volumes on an annual basis as the Original LMCPR, unless the costs of the Substitute LMCPR, when added to the costs expended by Defendants on implementing the Original LMCPR (or the Revised Original LMCPR), exceed the greater of (a) \$244 million or, (b) the costs of implementing the Original LMCPR as determined at the time that Defendants submitted their application for a PTI. If the costs exceed the greater of those two amounts, then Defendants shall submit to the Regulators for their review and approval a proposed Substitute LMCPR which shall both provide the greatest control of CSO annual volume practicable, and cost no less than \$244 million and no more than the greater of the two amounts set forth above in the preceding sentence in items (a) and (b).

The Defendants' submission to the Regulators of a proposed Substitute LMCPR shall also include a schedule for implementing the Substitute LMCPR that shall be as expeditious as practicable and may extend beyond the Phase 1 End Date. For the balance of this Final WWIP, the term "LMCPR" shall mean either the "Original LMCPR", the "Revised Original LMCPR", or the "Substitute LMCPR" as determined under this Paragraph A.2.

3. SSO 700: Phase 1 will also include a 3 year study to identify the SSO 700 Final Remedial Plan ("SSO 700 Remedial Plan"). This study will augment work Defendants have already performed for the SSO 700 Remedial Plan required by Section VI.C.3 of the SSO Consent Decree, and will also consider information arising from the evaluation of the effectiveness of the SSO 700 Interim Remedial Measures, the LMC Study being conducted pursuant to Paragraph 2.a., examinations of the potential use of green measures, RDI/I work upstream of SSO 700, and other factors. Defendants shall submit to the Regulators the SSO 700 Remedial Plan by December 31, 2012 (rather than December 31, 2009 as currently required by the SSO Consent Decree), which shall contain all of the information required in SSO Decree Section VI.C.3, except that the schedule for design and construction of the proposed remedial measures shall be submitted to the Regulators in accordance with, and shall be subject to, the Phase 2 schedule requirements specified in Paragraph B.1, below. The SSO 700 remedial measure (project # 10141180) set forth on **Attachment 2** is conditioned on, and may be changed as a result of, the Defendants' submittal of the SSO 700 Remedial Plan and the Regulators' approval of the SSO 700 Remedial Plan.

4. Werk & Westbourne Pilot EHRT Project: The Werk and Westbourne Pilot EHRT project (Project #10130740), is a pilot EHRT which will be constructed according to the design and performance criteria on **Attachment 5** to evaluate EHRT technology, and shall not require the EAA identified in Paragraph A.2.b, above.

B. WWIP Phase 2

1. Schedule of Work: By June 30, 2017, Defendants shall submit to the

Regulators a proposed Phase 2 schedule for additional WWIP projects to be constructed consistent with the priority order established in **Attachment 2**, and according to the design and performance criteria set forth on **Attachment 2** (and **Attachment 5** for EHRT facilities). The Phase 2 schedule shall be as expeditious as practicable, based on the considerations set forth in Exhibit 4, Section II. F of the CSO Consent Decree (June 9, 2004) (including the Residential Indicator analysis through the method set forth below) (in Paragraph B.3), and other relevant factors, including but not limited to (a) the impact that the cost and length of schedule of Phase 2 will have on Defendants' financing in the tax exempt market, (b) local and national experience with the time, cost, economics and practicality of CSO/SSO program implementation, (c) availability of "stimulus" money applicable to WWIP projects, and (d) technical feasibility.

a. If Defendants fail to submit a Phase 2 schedule by August 31, 2017, in addition to applicable stipulated penalties, the Regulators may impose on Defendants a schedule for all or a part of Phase 2 that is as expeditious as practicable, which schedule is not subject to dispute resolution. Upon receipt of the Regulator schedule, Defendants shall implement the Regulator schedule until they have submitted a proposed Phase 2 schedule (which Regulators shall promptly review) in accordance with the requirements of this Paragraph B, and they have either (1) obtained the Regulators' approval of Defendants' proposed schedule, (2) Defendants' Phase 2 schedule has been determined in accordance with dispute resolution as set forth below in Paragraph C.4, or (3) the Regulators agree to adjust the Regulator schedule pending the approval process of the Defendants' Phase 2 schedule.

b. The proposed Phase 2 schedule required under Paragraph B.1 above shall include all remaining WWIP projects unless Defendants choose to submit to the Regulators a proposed Phase 2 schedule for only a subpart of the remaining WWIP projects ("Phase 2A"), with the remainder of the WWIP projects to be scheduled as part of an additional subpart ("Phase 2B") to be scheduled at a later specified date. If Defendants choose to submit a schedule for only a subpart of the remaining WWIP

projects, then the Phase 2A and 2B schedules shall both be as expeditious as practicable, based on the considerations and factors described in Paragraph B.1 above. Defendants may request schedules for additional subparts beyond Phase 2B only if they can demonstrate that the additional schedule is necessary to avoid severe financial hardship and that the schedule for completion of remedial measures in that subpart is as expeditious as practicable based on the considerations and factors described in Paragraph B.1 above.

c. If Defendants submit to the Regulators a proposed schedule for Phase 2 for only a subpart of the remaining WWIP projects, the schedule for Phase 2A shall include (i) planning and design work for a subset of Phase 2B projects in priority order to ensure that WWIP project work does not stop between Phase 2A and Phase 2B for lack of planned and designed projects; and, (ii) a schedule for completing a geotechnical investigation for the remaining Lower Mill Creek remedial project bundle as set forth in **Attachment 2** (Lower Mill Creek Final Remedy or "LMCFR") (provided, however, that such investigation shall not be required if a revised LMCFR has been approved such that some or all of such investigation is not needed).

2. Outer Boundary Cap: In no event shall Defendants be required to propose a schedule for any Phase 2 WWIP projects or work or implement, including continuation of, an approved schedule for Phase 2 WWIP projects or work where the cost of the projects or work for the specific schedule at issue would cause or contribute to the Residential Indicator ("RI") for the proposed or approved Phase 2 schedule at issue exceeding a cap of 2.8% (see Paragraph B.3 below on the RI analysis). This cap is solely an outer boundary, not-to-exceed, percentage established to assist in obtaining financing by providing some financial certainty, and shall not create an inference or suggestion as to what constitutes "as expeditious as practicable" as that term is used in Paragraph B.1 above. If this cap is exceeded, its effect (to extend the schedule(s) for implementing the WWIP) shall not relieve Defendants of the requirement ultimately to implement all WWIP measures under a schedule

that is as expeditious as practicable.

3. RI Analysis: Defendants will perform RI analysis in accordance with U.S. EPA's Combined Sewer Overflows Guidance for Financial Capability Assessment and Schedule Development (March 1997) ("Guidance") (in the absence of an agreement by the Defendants and Regulators to use an alternative method) using (1) the projected costs of the remaining WWIP projects for one analysis; and (2) the projected costs of the projects specified in Defendants' proposed Phase 2 schedule at issue if Defendants are only proposing a schedule for a subpart of the remaining WWIP projects for the second analysis. Defendants (i) shall use the information inputs set forth in **Attachment 3**; and (ii) may include projected future costs for "Asset Management" and for "Allowances," provided that Defendants demonstrate that those costs are likely to be incurred and that, for Allowances, the amount does not exceed an annual average of expenditures spent during the course of implementing the Phase 1 schedule, and, for Asset Management, the amount does not exceed \$51 million per year. Defendants may request that different cost figures be used for the MSD Sustainable Infrastructure (Green) Program of Allowances, and/or for Asset Management, for purposes of calculating the RI, provided that Defendants reasonably demonstrate the necessity of greater spending. The Regulators' decision to accept or reject Defendants' request for use of a different cost figure for Asset Management is not subject to dispute resolution.

4. Phase 2 Schedule Modification: If, between the date that Defendants submit a proposed Phase 2 schedule to the Regulators and the date that Defendants complete construction of the LMCP, the costs of the LMCP increase substantially beyond the costs used in calculating the RI in support of the proposed Phase 2 schedule such that there is a substantial effect on the Phase 2 schedule, Defendants may submit to the Regulators a proposal to modify the Phase 2 schedule to account for the cost increases, as long as the proposed modified schedule remains as expeditious as practicable.

5. LMCFR: No later than two years before any first Milestone Date that

Defendants are required to meet for the LMCFR (as that project bundle is set forth in **Attachment 2**), Defendants may submit to the Regulators a proposal for a different project or projects for the LMCFR, provided the proposed remedy provides equal or greater control of CSO annual volumes as, and can be completed in a comparable timeframe to, the LMCFR set forth in **Attachment 2**. For purposes of scheduling, the LMCFR shall remain at the end of the **Attachment 2** priority list.

6. Supplemental Remedial Measures Plan: Defendants will be required to obtain a PTI from Ohio EPA for each specific EHRT facility included in **Attachment 2**. If (a) the Regulators provide notice to Defendants of the facts and circumstances of a controlling decision or rule indicating that Defendants will not be able to obtain a PTI for a specific EHRT facility, or (b) Defendants have determined, on an informed, reasonable basis, that Defendants will not be able to obtain a PTI for a specific EHRT facility, then as expeditiously as practicable, but in no event later than three months before the applicable date for Commencement of Construction of that specific EHRT facility, Defendants shall submit to the Regulators for their review and approval a proposed Supplemental Remedial Measures Plan ("SRM Plan").

Each SRM Plan shall specify remedial measures and a schedule that is as expeditious as practicable to ensure that the CSOs that were to have been addressed by the specific EHRT facility will comply with the requirements of the Clean Water Act, U.S. EPA's CSO Policy, Chapter 6111 of the Ohio Revised Code and the rules promulgated thereunder, the Compact (as defined in the CSO Decree) and the pollution control standards promulgated thereunder, and Defendants' Current Permits (as defined in the CSO Decree). To the extent that Defendants' proposed SRM Plan for a specific EHRT facility does not use EHRT technologies for clarification, Defendants shall explain why they chose their proposed alternative rather than an alternative utilizing ballasted flocculation technologies. In any event, Defendants shall also explain why they believe that their proposed SRM Plan will ensure compliance with all applicable laws, including why they believe Defendants will

likely be able to obtain any PTI(s) that will be required under Ohio law in order to implement their proposed SRM Plan.

C. Concepts Applicable to All Phases of the WWIP

1. Bond Covenants: The Regulators and Defendants do not presently expect or anticipate that implementation of the WWIP will cause Defendants to violate their existing bond covenants. However, because of the expected significance of a violation of bond covenants, if facts or circumstances arise that suggest that implementation of the WWIP may result in Defendants violating their bond covenants, Defendants may submit to the Regulators a proposed modification of an approved WWIP schedule (e.g., approved Phase 1 or 2 schedule) as necessary to avoid violating their bond covenants; provided, however, that Defendants demonstrate that:

a. the bond covenant(s) at issue are reasonable, taking into account (i) the Consent Decrees' requirement that WWIP schedules be as expeditious as practicable, and (ii) covenants that have been included in comparable bonds issued by other wastewater or combined water/wastewater utilities; and

b. the proposed modification is (i) necessary to avoid violating their bond covenants, and (ii) results in a schedule that is as expeditious as practicable.

2. Adaptive Plan Alterations

a. Defendants may submit to the Regulators proposed significant changes to one or more projects (including associated appropriate changes to Performance and Design Criteria) because of changes in watershed approaches, priorities, technologies, methods, and other information through the concepts of "adaptive management"; provided that such

changes will provide comparable or better aggregate control of annual volumes as the original project or projects. If Defendants seek a change under this provision that would result in a materially later final milestone date for the last scheduled milestone in an approved Final WWIP schedule (e.g., approved Phase 1 or 2 schedule), or if Defendants seek a change that would provide in the aggregate less than equal control of annual volumes as the original project or projects, and the Regulators agree with such change, then such change shall constitute a material modification of the Consent Decree and require judicial approval pursuant to Section XXIX of the Consent Decree. In any event, the Regulators' decisions to approve or disapprove any changes under this Section are not subject to dispute resolution.

b. Defendants should propose such requests for Adaptive Management review no more frequently than every 5 years. In Phase 1, the Parties anticipate Adaptive Management review in about 2013 and also as part of the Phase 2 scheduling. This provision does not prohibit requests for non-significant alterations to projects.

3. Green Projects: Defendants may identify proposed revisions to WWIP projects by adding or substituting "green infrastructure" for "grey infrastructure" where it is justified by business case evaluation in Defendants' sole discretion. At the end of the LMC Study Period (Paragraph A.3), Defendants may submit to Regulators such proposed modifications for review. At the time of submission of any Phase 2 schedule (Paragraph B.1), Defendants may submit to the Regulators such proposed modifications. Defendants will make reasonable best efforts to request any such green modifications or substitutions in one of these submissions, although requests may be made at other times as appropriate. The Regulators' decisions to approve or disapprove any WWIP modifications under this Section are not subject to dispute resolution.

4. Submittals and Dispute Resolution.

a. The submittals required or permitted under this WWIP shall be subject to review and approval by the Regulators in accordance with Section XXX of the CSO Decree. The Regulators may approve the submittal or decline to approve it and provide written comments. Within 60 days of receiving the Regulators' written comments (or within such other timeframe as may be agreed to by the Parties), Defendants shall either: (i) alter the submittal consistent with the Regulators' written comments, and submit the revised submittal to the Regulators for final approval; or (ii) except as provided in Paragraphs B.3, C.2, C.3, or otherwise in Section XXI of the CSO Consent Decree, submit the matter for dispute resolution under Section XXI of the CSO Decree. Upon receipt of the Regulators' final approval of the submittal, or upon completion of the submittal pursuant to dispute resolution (as permissible), Defendants shall implement the submittal in accordance with its terms.

b. Except as provided in Paragraphs B.3, C.2, C.3, or otherwise in Section XXI of the CSO Consent Decree, any dispute that arises with respect to the meaning, application, implementation, interpretation, amendment or modification of this WWIP, or with respect to Defendants' compliance herewith (including the adequacy of the Defendants' performance of the remedial measures and adequacy of the submittals required by this WWIP) or any delay hereunder, the resolution of which is not expressly provided for in this WWIP, shall be subject to dispute resolution pursuant to Section XXI of the CSO Consent Decree.

5. Asset Management. The term "asset management" generally refers to a comprehensive and structured approach to the long-term management of assets as tools for the efficient and effective delivery of services; for purposes of this WWIP, the term "Asset Management" means those same capital expenditures by MSD that are not formally considered WWIP projects or Allowance expenditures. Asset Management budgets are submitted as part of the annual capital budget which is then subject to public review and

evaluation prior to approval by the Board of County Commissioners. Annually, in one of the quarterly reports, Defendants shall provide an accounting and listing of the work for which Asset Management capital funds have been spent during the preceding year as well as MSD's 3-year estimate of future Asset Management expenditures.

6. Allowances. In addition to the Long Term Control Plan and the Capacity Assurance Program Plan projects, the WWIP includes eight subject matter programs, referred to as "Allowances." The Allowance programs exist to address, reduce and/or eliminate overflows and improve water quality consistent with federal and state law. Allowance program activities complement the LTCP and CAPP projects. However, unlike fixed location, discrete projects, Allowances instead arise due to newly discovered circumstances (e.g., WIB, Sewer/Manhole Relining, RDI/I, Urgent Capacity), opportunities to directly improve water quality (e.g., HSTS), District-wide, regional, or large-scale circumstances (e.g., RDI/I, Green), or information/analysis needs (e.g., RDI/I, WWIP studies). Because Allowances are typically not planned or designed years in advance, their budgets will vary from year to year. The Phase 1 Allowance budget for this WWIP represents a reduction relative to the budgets and needs identified in MSD's 2006 and 2008 submissions to the Regulators. Projected Allowance expenditures for 2009 and 2010, with breakdowns by Allowance Program, including specific defined projects where they have been determined, are listed on **Attachment 4**. A budget for Allowances, including each of the eight programs, will be prepared as part of the MSD annual capital budget which is then submitted to the Board of County Commissioners, becomes subject to public review and evaluation, and then requires approval by the Board of County Commissioners. Annually, in one of the quarterly reports, Defendants shall provide an accounting and listing of the work for which Allowance monies have been spent during the preceding year as well as MSD's 3-year estimate of future expenditures. Listed below are names and descriptions of the Allowance programs.

a. Water-in-Basement Program (WIB):

The WIB program operates clean-up, claims, and prevention activities,

customer education and communication, property acquisition, and other activities related to the administration and management of this program.

b. Sewer Relining (Trenchless Technology) Program:

This program conducts internal lining of sewers and external lining of aerial sewers as a cost effective method of rehabilitating structurally deteriorated sewers. This program will include, but not limited itself to, spiral wound pipe, pipe bursting, directional drilling, carbon filament wrapping, and jack and boring. These projects are identified through investigations of the sewer lines and are prioritized based on a standardized condition assessment procedure.

c. Manhole Rehabilitation (Trenchless Technology) Program:

The manhole rehabilitation program provides a cost effective method of rehabilitating structurally deteriorated manholes. Like the Sewer Lining Trenchless Technology Program, manhole rehabilitation projects are identified through investigations and are prioritized based on a standardized condition assessment procedure.

d. Rainfall Derived Infiltration and Inflow (RDI/I) Program:

This program assists in the elimination of Sanitary Sewer Overflows. Projects for RDI/I are identified through investigations which may use intrusive methods. Remedial projects are funded through this program or either or both of the Sewer Relining and Manhole Rehabilitation Allowance Programs, depending on the choice of construction methods.

e. Home Sewage Treatment System (HSTS) Elimination Program:

This program conducts the design, property acquisition and construction of new

sanitary sewers to connect properties in built up areas of the MSD service area to eliminate home sewage treatment systems (HSTS). These projects improve the water quality of WWIP watersheds by replacing failing or inadequate home systems. These projects are identified and prioritized based on the public health risk. HSTS construction projects will undergo public review and evaluation as part of proposed legislation and approval by the Board of County Commissioners.

f. Urgent Capacity Response Program:

This program funds measures that restore sewer capacity in existing CSO communities by identifying urgent WWIP construction work that is needed to address urgent CSO community capacity needs, WIB issues, or unpermitted flows. These measures are either not identified as WWIP projects or would be moved up from existing WWIP schedules. All construction projects will undergo public review and evaluation as part of proposed legislation and approval by the Board of County Commissioners.

g. WWIP Progress Studies and Recreation Management:

This allowance funds ongoing evaluation of the progress of the WWIP and various measures to address wet weather issues in CSO areas. Evaluations involve systematic review of the wet weather effect within watersheds, the sensitivity of various remedial projects on the system hydraulic grade lines etc. Findings of these studies will provide clear and strategic direction to the watershed planning group. This allowance also funds recreation management notice, reporting and information needs.

h. MSD Sustainable Infrastructure (Green) Program:

This program will use Low Impact Development Best Management Practices (LID BMP), storm water offloading through stream separation, and promotion of

sustainable best practices to remove storm water from sewers in both CSO and SSO areas. Program activities will initially include LID Demonstration Projects (to evaluate technologies and reduce storm water impacts to CSOs), Pilot Projects (to evaluate multiple methods in a set of multiple projects), Regional BMP Projects (larger sewershed projects expected to capture over 10 million gallons) and Large Scale Projects (long-term projects in major CSO sewersheds). These projects will be evaluated and, in some cases, prioritized on volumetric reduction of storm water from the system, and unit cost per gallon of water removed from the system. MSD intends to conduct this process in accordance with "asset-centric" prioritization principles which MSD will be publishing soon and will be open for public review and evaluation. The larger, more expensive green projects will focus on projects capable of removing a minimum of 10 million gallons of storm water from the combined sewer system, at equal or lower cost than comparable "grey" infrastructure projects.

List of Attachments

- Attachment 1A:** Phase 1 project list and schedule
- Attachment 1B:** Phase 1 project list with detailed information
- Attachment 1C:** Original LMCPR description
- Attachment 2:** Phase 2 project list with detailed information (no schedule)
- Attachment 3:** Information inputs for RI analysis
- Attachment 4:** Allowance information
- Attachment 5:** EHRT Performance and Design Criteria information

ATTACHMENT 1A
Phase 1 Milestone Schedule

PROJECT ID	PROJECT	PTI Submittal Milestone	Start Construction Milestone	End Construction Milestone
10130740	Werk & Westbourne	12/31/2013	12/31/2014	12/31/2017
10143960	Westwood Northern (Bundle)	06/30/2015	06/30/2016	06/30/2017
10142240	Blue Rock	12/31/2013	12/31/2014	12/31/2015
10171840	Lower Little Miami (Bundle)	12/31/2012	12/31/2013	12/31/2015
10120360	Pebble Creek WWTP			06/30/2009
10120420	Diamond Oaks		12/31/2009	12/31/2010
10120460	Towers East	12/31/2011	12/31/2012	12/31/2013
10130560	Muddy Secondary			06/30/2010
10130565	Muddy Pump Upgrade			06/30/2010
10130680	Harwinton			12/31/2010
10131220	Glenview	12/31/2013	12/31/2014	12/31/2015
10144441	1852 Columbia		12/31/2011	12/31/2012
10141440	Millbrook 1			06/30/2009
10141520	Arrowood			06/30/2009
10141540	Winton 1			12/31/2010
10141560	Winton 2			12/31/2010
10142020	Daly Road	12/31/2014	12/31/2015	12/31/2016
10142440	7601 Production			06/30/2009
10144880	Mill Grit		12/31/2010	06/30/2013
10144884	Mill Secondary	12/31/2009	12/31/2010	12/31/2014
10145180	Mill Diversion			12/31/2009
10145280	Mitchell RTC			11/01/2009
10145300	Badgely RTC			11/01/2009
10145320	Lick RTC			05/31/2010
10150012	Polk Phase 3B			06/30/2009
10160005	Sycamore 3			12/31/2010
10160010	Sycamore 4			12/31/2010
10170081	Montgomery		12/31/2011	12/31/2012
10170560	Woodruff			06/30/2009
10170780	LM WWTP Thickening			06/30/2010
10171900	Eastern Delta (Bundle)		12/31/2013	12/31/2015
10172090	Kenwood			06/30/2009
10180600	Mill Incinerator			12/31/2010
10145580	Mill Creek WWTP (Bundle)	12/31/2014	12/31/2015	12/31/2016
10131180	Muddy Creek WWTP (Bundle)	12/31/2013	12/31/2014	12/31/2015
10143220	North Side Upper (Bundle)	12/31/2016	12/31/2017	12/31/2018
10171620	Upper Duck All (Bundle)	12/31/2016	12/31/2017	12/31/2018
10145660	LMCPR	06/30/2015	06/30/2016	12/31/2018

ATTACHMENT 1B

INDEX	PROJECT	Completion	Sunk Costs		Remaining Costs		CSO SSO Identifier	Description / Design (NOTEA)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)	
			2006 Dollars	2006 Dollars	2006 Dollars	2006 Dollars						
1	10141660 Norman Ave.	Actual Jan-04	\$	137,501	\$		SSO 585	Relief sewer to Elim. SSO 585 - 285 ft of 12"	CONV	2 yr		
2	10141680 Mill Rd. Sewer	App-04	\$	1,855,869	\$			Phase 2 - Relief sewer to replace sewer - 2200 ft of 30"	CONV			
3	10142040 Completion Rd.	App-04	\$	210,603	\$			Relieve WIBs w/sewer - 62 ft of 12"	CONV			
4	10144880 Ross Run Grit Pit	App-04	\$	523,746	\$			Grit Pit				
5	10170040 SSO 570 & 1017 in Madiera	Jun-04	\$	3,357,676	\$		SSO 570 & 1017	Elim. SSOs 570 & 1017 w/sewer. 3600 ft of 24 - 30 inch	CONV	2 yr		
6	10141260 Springdale - Sharonville Sewer	Jul-04	\$	2,401,605	\$		SSO 915	Contract 3 - Relief sewer to eliminate SSO 915 - 7842 ft of 8-30"	CONV	2 yr		
7	10141720 Goodman Ave.	Aug-04	\$	1,807,061	\$		531, 577, SSO 1002, 1005, 1024	Relief sewer to Elim. SSOs 531, 577, 1002, 1005, & 1024 - 1850 ft of 24"; 860 ft of 18"; & 600 ft of 15"	CONV	2 yr		
8	10145220 Eggleston & Bold Face	Sep-04	\$	64,109	\$			HW/DW - Tide Gate Replacement	HW			
9	10170820 Gungahlin/Paddison Rd.	Sep-04	\$	3,126,594	\$			Replace existing pipe - Approx. 2800 LF of 12-24"	CONV			
10	10141700 Mill Creek WWTP Aux. Air Supply	Oct-04	\$	215,086	\$			Fulfillment of Need for Aux. Air Supply to Air Transfer Duct, connecting Incinerator Outlet to Scrubber Inlet to control pos. & neg. pressures in each unit.	WWTP	NOTE 1		
11	10141200 Northbrook SSO 628	Nov-04	\$	1,423,853	\$		SSO 628	Phase 2 - Relief sewer to replace sewer near SSO 628 - 3500 ft of 12-15"	CONV	2 yr		
12	10145000 Smooth Ridge	Nov-04	\$	2,144	\$			Solve WIB problems - 924 ft of 12-24"	CONV			
13	10141220 North College Hill	Dec-04	\$	5,391,761	\$		530, 531, SSO 567, 577, 634	Phases 2C & 3 - Relief sewer to eliminate SSOs 530, 531, 567, 577, & 634 - 9960 ft of 12-42"	CONV	2 yr		
14	10141740 St. Clair Sewer	Dec-04	\$	1,454,250	\$			Relief sewer to replace sewer on Elizabeth Ave. - 2638 ft of 8-24"	CONV			
15	10141580 Mill Creek WWTP Replacement Screens Ph1	Jan-05	\$	2,813,073	\$			Phase 1 - Replace Screens	WWTP	NOTE 1		
16	10145000 Michell Ave.	Feb-05	\$	615,916	\$		CSO 28	New sewer to eliminate CSO 28 and abandon siphon line under Mill Creek	RI		0	
17	10141240 Sewer 155 Cooper Creek	Mar-05	\$	5,104,573	\$		SSO 620	Contract 2B - Relief sewer to eliminate SSO 620 - 7410 ft of 8-36"	CONV	2 yr		
18	10141300 Camberly Acres FS	Mar-05	\$	321,573	\$			PS Elim w/sewer - 659 ft of 8"	CONV			
19	10170020 SSO 1053 East Fork Ave. Grating	Mar-05	\$	3,410,084	\$		SSO 1053 CSO 70, 200	Phase 2A, 2B, & 2C - Camargo Rd Sewer Improv. Elim. SSO 1053 and CSOs 70, 200 - 7088 ft of 8 - 36 inch	PS/CONV	2 yr	0	
20	10141400 Deer Park	Apr-05	\$	2,076,612	\$			Relief sewer to Elim. SSOs 1023, 600, & 601 - 3600 ft of 30" & 570 ft of 21"	CONV	2 yr		
21	10144840 Sawyer Point	Apr-05	\$	33,298	\$			sewer, remove diversion dam, and plugging existing dry line conduit				
22	10141880 Laboileux Ave.	Jun-05	\$	181,725	\$		SSO 597	Elim. SSO 597 w/sewer - 559 ft of 15"	CONV	2 yr		
23	10110300 Durango Green, Shadely Lane FS	Jul-05	\$	546,150	\$			Elimination of PS w/sewer - 2851 ft of 12-in.	CONV			
24	10150000 Park Run WWTP Ph 2 STO	Sep-05	\$	1,186,361	\$			WWTP Optim. - Phase 2	CONV	NOTE 1		
25	10150240 Maple Ave.	Sep-05	\$	233,361	\$			Leveand Supplemental Agreement	Optimization			
26	10144820 Harrison & State Ave. West 4	Oct-05	\$	171,960	\$		CSO 4	HW/DW Protection	HW			
27	10145020 Montana Ave.	Oct-05	\$	138,382	\$		CSO 89	New sewer and building connections to eliminate CSO 89	SEP		0.05	
28	10141680 406 Elliot Ave.	Nov-05	\$	130,892	\$		SSO 572	Relief sewer to Elim. SSO 572 - 203 ft of 16"	CONV	2 yr		
29	10145080 Eastern Ave. (Collins to Bayou)	Nov-05	\$	451,318	\$			Phase 2 - Express Sewer to allow for development and conveyance of wet weather flows	CONV			
30	10170940 Stewart Rd. East Regulator	Nov-05	\$	412,420	\$		CSO 557	Completed; CIP 2002-05 Full Separation - Elimination CD Exhibit 1	FS		0.0	
31	10141360 Garden Hills FS	Dec-05	\$	1,085,355	\$			PS Elim w/sewer - 4088 ft of 18 & 16" sewer	CONV			
32	10141620 Mill Creek WWTP Solids Mgmt Centrifuge Procurement	Dec-05	\$	2,616,020	\$		CSO 3	Solids Management Program Centrifuge Procurement - Cost in WWTP Optimization	WWTP	NOTE 1		
33	10144860 Harrison & State Ave. West 3	Dec-05	\$	325,357	\$			HW/DW Protection	HW			
34	PROJECTS IN CLOSEOUT											
35	10141760 Mill Creek WWTP Raw Sewerage Pump	Dec-05	\$	93,631,813	\$			Replace depleted wastewater Pumping System	WWTP	NOTE 1		
36	10120400 Arrow St. WWTP Elimination & North Bend Crossing	Jan-06	\$	3,153,931	\$			PS Elim & WWTP Elim. w/sewer - 6105 ft of 8-12"	CONV			
37	10141640 Mill Creek WWTP Solids Mgmt. Centrifuge Install.	Feb-06	\$	10,808,487	\$			Solids Management Program Centrifuge Installation	WWTP	NOTE 1		
38	10144800 Ludlow Run	Mar-06	\$	2,615,592	\$		CSO 151	Collector Upgrade CIP 83-10 Exhibit 1	CONV		16.8	
39	10145240 Edie Ave.	Jul-06	\$	80,636	\$			Flood Remediation Sewer, Edie Ave. Overflow				
40	10145140 Ghaudan Sewer	Sep-06	\$	67,933	\$			Removal of process flow from combined sewer to interceptor				
41	10170060 Markemont SSO Elimination 679A, 679B & 680	Sep-06	\$	8,271,513	\$		SSO 679A, 679B & 680	Elim. of SSOs 679, 679A, & 680 w/sewer. 5600 ft of 36 inch & 2000 ft of 8-21 inch	CONV	2 yr		

ATTACHMENT 1B

INDEX	PROJECT	Project Completion		Sunk Costs		Remaining Costs		CSO SSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
		Actual	2006	2006 Dollars	2006 Dollars							
42	10171420 Acher St. Div Dam, HDW	Sep-06	\$ 244,636	\$ -			CSO 86	HW/DW Protection		HW		
43	10171820 Beechmont Sluice Gate Rehabilitation	Oct-06	\$ 1,753,157	\$ 226,600				E-504 - Beechmont Sluice Gate Rehabilitation	WWTP			
44	10141500 Pleasant Run, PS	Nov-06	\$ 6,332,251	\$ 483,377				Phase 2 - Replace existing FM - 3000 ft of 16" FM	FM			
45	10170800 Berkeley Woods PS	Nov-06	\$ 198,244	\$ 123,747			FSO 851	PS Elm wisewer - 1745 ft of 12"	CONV		2 yr	
46	10120340 Streamwood Pump Station	Dec-06	\$ 270,565	\$ 96,942				PS Elm wisewer - 1072 ft of 12"	CONV			
47	10141380 N. Bend Rd./Connecticut Sewer	Dec-06	\$ 908,577	\$ 280,075			SSO 222	Relief sewer to Elim. SSO 222 - 1821 ft of 12-21"	CONV		2 yr	
48	10141820 SSO 700 CEHRS Treatment Facility	Dec-06	\$ 12,720,053	\$ 1,500,406			SSO 700	CEHRS Treatment Facility (Performance in 41180)	CEHRS			
49	10170840 Johnson Rd. PS	Mar-07	\$ 605,979	\$ 253,036			SSO 574	Phase 2 Elim. of P.S. wisewer - 834 ft of 30"	CONV			
50	10142000 W. Branch Mill Creek SSO 574	May-07	\$ 444,930	\$ 349,792				Elim. SSO 574 wisewer - 950 ft of 15"	CONV		2 yr	
51	10141220 Centurion Estates PS	Jun-07	\$ 385,144	\$ 307,478			PSO	PS Elm wisewer - 1570 ft of 12"	CONV		2 yr	
52	10141600 Mill Creek WWTP Replacement Screens Ph2	Jun-07	\$ 2,819,250	\$ 701,430			PSUJFM	Phase II - Replace Screens	WWTP		NOTE 1	
53	10141340 Greenridge PS	Sep-07	\$ 580,614	\$ 87,582			PSUJFM	PS and 1000 ft of 6" FM	PSUJFM			
54	10150011 Polk Run WWTP PS Elimination Sewer Ph3A	Sep-07	\$ 523,457	\$ 145,466			CSO 450	Polk Run WWTP PS Elimination Sewer Ph3A	Optimization		NOTE 1	
55	10145200 Butler St.	Oct-07	\$ 94,432	\$ -				Separation sewer to aid in elimination of CSO 450	PS			0.0
56	10172200 Broadview Dr./County Club, SEP	Nov-07	\$ 1,096,035	\$ 425,547			PSO 780, 798	Partial Separation	PS			
57	10141780 Arrowhead Ct. PS & Marview Terrace PS	Dec-07	\$ 657,361	\$ 131,280			CSO 437	Relief sewer to Elim. Marview PS (900 ft of 8") & New PS/FM to Replace Arrowhead PS (245 ft of 4")	PSUJCONV		2 yr	
58	10145040 West 3rd St., Ph3 CSO 437	Dec-07	\$ 301,714	\$ 54,969				Partial Separation Phase 3 CIP 98-91 - 2006 Construction (CO Exhibit 1)	PS			0.2
59	10130420 Wulff Run Rd.	Jan-08	\$ 94,677	\$ 57,510			CSO 487	Parallel section of Wulff Run Interceptor - 200 ft of 24"	CONV			In 43040 NOTE 5
60	10145220 Ross Run CSO 487 Twin Outfall	Jan-08	\$ 3,658,803	\$ 832,675			CSO 487	Real Time Control Project to retain water in CSO with inflatable dam (CSO annual reduction of approximately 250 MG/year)	RTC			
61	10145100 Ross Run	Apr-08	\$ 1,614,452	\$ 343,174			CSO 487	Aid in separation of existing combined sewer	SEP			In 45220
62	10160000 Sycamore WWTP Ph 1&2	Apr-08	\$ 26,566,214	\$ 3,035,574			SSO 1052	Sycamore WWTP Upgrade - 50 MGD, Phase 1 and 2	Optimization		NOTE 1	
63	10131200 Mt. St. Joseph Sewer Replacement	Jul-08	\$ 511,347	\$ 519,479			CSO 408	Mount St. Joseph Sewer Replacement	PS			In 30780
64	10120380 Hengehold 4th & Yales 3rd PSE	Oct-08	\$ 703,189	\$ 397,965			PSO 774, 783	PS Elm wisewer - 2708 ft of 12"	CONV		2 yr	
65	10141638 McGrew Ave. PSU	Oct-08	\$ 304,233	\$ 5,020				McGrew Ave. PS Upgrade	PSU			
66	10120360 Pebble Creek WWTP	Oct-08	\$ 828,541	\$ 647,905			CSO 191	WWTP replaced w/PS & FM	WWTP Elin.			
67	10142440 7801 Production Dr. Graling	Dec-08	\$ 122,447	\$ 104,550				Regulator Improvements -0.20 cfs	RI			0.2
68	10172890 Kenwood Rd. PSU	Dec-08	\$ 757,102	\$ 1,375,273				Upgrade of Existing Kenwood PS No. 724.	PSU			
69	10150012 Polk Run WWTP Expansion Ph3B	Dec-08	\$ 1,188,153	\$ 936,980			PSO 789	Polk Run WWTP Expansion Ph3B	Optimization		NOTE 1	
70	10141840 Millbrook T. PSU	Dec-08	\$ 402,371	\$ 302,501			PSO 852	PS and 800 ft of 6" FM - PS Upgrade	PSUJFM		2 yr	
71	10172850 Woodcreek Rd. @ 8 Mile/Bethany Acres PSU	Jan-09	\$ 530,061	\$ 371,610			PSO 851	1.2 MGD, 600 ft of 6" F.M. - PS Upgrade	PSUJFM		2 yr	
72	10141520 Arrowood PSE	Jan-09	\$ 425,189	\$ 613,609				Eliminate PSO 851	CONV		2 yr	
73	REMAINING PHASE 1 PROJECTS TO BE CONSTRUCTED											
74	10145280 Mitchell Ave. RTC		\$ 1,127,341	\$ 1,516,011			CSO 482	Real Time Control Project to retain water in CSO with inflatable dam (CSO annual reduction of approximately 100 MG/year)	RTC			In 45380 NOTE 5
75	10145300 Badgley Run RTC		\$ 305,654	\$ 2,617,058			CSO 125	Real Time Control Project to retain water in CSO with inflatable dam (CSO annual reduction of approximately 60 MG/year)	RTC			In 43520 NOTE 5
76	10145180 Mill Creek Interceptor Diversion Chamber		\$ 1,223,735	\$ 385,126			CSO 181	Bloody Run & Spring Grove Ave. - Phase 2 - REG	RI			In 42700
77	10145320 Lick Run RTC		\$ 76,572	\$ 1,376,782			CSO 5	Real Time Control Project to retain water in CSO (CSO annual reduction of approximately 200 MG/year)	RTC			In 45660 NOTE 5
78	10130560 Muddy Creek WWTP Secondary Enhancement		\$ 5,734,429	\$ 5,289,057				W-102 - WWTP Optimization Secondary Enhancement (98-09)	WWTP		NOTE 1	
79	10130565 Muddy Creek WWTP Effluent Pump Upgrade		\$ 608,071	\$ 2,801,053				W-102 - WWTP Optimization Raw Sewage Pump Upgrade, Effluent Pump Upgrade	WWTP		NOTE 1	
80	10170780 LM WWTP, Activated Sludge Thickening		\$ 2,429,843	\$ 3,346,832				E-503 - Activated sludge thickening (CIP 2005-31)	WWTP		NOTE 1	
81	10130680 Harwinton Lane		\$ 117,431	\$ 1,049,285			SSO 1012	Replace sewer - 2000 ft of 12"	CONV		2 yr	
82	10141540 Winton and Sherwood Ph1 PS		\$ 338,400	\$ 2,060,694			PSO 805	Phase 1 - New PS, gravity sewer from Winton 2 to Winton 1, and New FM in Winton Rd	CONV		2 yr	
83	10141560 Winton and Sherwood Ph2 PS		\$ 297,485	\$ 1,362,778			PSO 805	Phase II - New sewer to Elim. Sherwood PS - 2300 ft of sewer & 4730 ft of FM	CONV		2 yr	
84	10160005 Sycamore WWTP Ph 3		\$ 770,557	\$ 8,114,844			SSO 1052	Sycamore WWTP Upgrade - 50 MGD, Phase 3	Optimization		NOTE 1	
85	10160010 Sycamore WWTP Ph 4		\$ 216,253	\$ 2,550,814			SSO 1052	Sycamore WWTP Upgrade - 50 MGD, Phase 4	Optimization		NOTE 1	

ATTACHMENT 1B

INDEX	PROJECT COMPLETION ACTUAL	SUNK COSTS		REMAINING COSTS		CSO SSO IDENTIFIER	DESCRIPTION / DESIGN (NOTE 4)	TECHNOLOGY	PLAN CAPP	PLAN REMAINING CSO (MG/YEAR)	
		2006 DOLLARS	2006 DOLLARS	2006 DOLLARS	2006 DOLLARS						
86	10180600						Mill Creek WWTP, TPE Incinerator	WWTP	NOTE 1		
87	10120420	\$ 35,021,978	\$ 36,057,036			PSO	PS Elim w/ sewer - 3200 ft of 8" Montgomery Rd & Lester Ave	CONV	2 Yr		
88	10170081	\$ 306,882	\$ 1,336,137	\$ 57,618	\$ 984,962		2'45" feet of 27" to 36" combined sewer and 2050 feet of 36" storm sewer. Catch basins along the storm sewer will be diverted to the storm sewer, allowing the combined sewer to be downsized.	PS		In 44440	
89	10144441	\$ 242,189	\$ 1,744,316			CSO 465	C-402 - Mill Creek Grit Removal Improvements (CIP 2006-30)	WWTP	NOTE 1		
90	10144880	\$ 667,744	\$ 35,263,529			PSO 887, 891	Eliminate Towers East PS & Upgrade Ponderosa PS	PSE/PSU	2 Yr		
91	10120460	\$ 20,305	\$ 2,183,245				E-501 - Construct Real Time Control Chamber at Little Miami WWTP, construct 72" intersecting sewer to Eastern Avenue	WWTP	NOTE 1		
92	10144884	\$ 985,315	\$ 40,260,301				C-402 - Secondary Treatment Enhancements	WWTP	NOTE 1		
93	10171980 (A)	\$ 4,552,591	\$ 39,127,126			CSO 469	Extend interceptors to 2 new CSOs (469A & 469B)	CONV		75.9	
94	10171920 (A)	\$ 1,139,074	\$ 18,594,985			CSO 467A, 467, 468, 469, 657	Separation of area tributary to CSO 467A and 657; construction of new flow regulator and flap gate (H/D/W) structures at CSOs 467, 468, and 469; demolition of Delta Ave. Pump Station	CONV		47.5	
95	10171900 (A)	\$ 1,009,542	\$ 14,248,639			CSO 180	Full Separation - CIP 94-25 and Regulator Improvements - 7.7 cfs Community Priority	PSU	2 Yr	0.1	
96	10131220		\$ 760,302			CSO 471	Regulator Improvements - 9.3 cfs Premised on operational changes at Four Mile P.S.	RI		0.0	
97	10142240	\$ 2,931	\$ 1,897,181			CSO 470	Partial Separation & Regulator Improvements Construct storm sewer from Eastern Ave to Wilmer Rd	PS		0.0	
98	10171840 (B)	\$ 585	\$ 288,093				IV-102 - Add new Belt Filter Press-BSN Proj. DR-2	WWTP	NOTE 1		
99	10171860 (B)	\$ 309	\$ 1,607,283				Muddy Creek WWTP Grit Replacement	WWTP	NOTE 1		
100	10131180 (C)		\$ 1,246,000				Replace sewer #161 - 6500 ft of 21-30"	CONV			
101	10131240 (C)		\$ 4,470,000				Additional Optimization - Auxiliary Outfall Improvements	WWTP	NOTE 1		
102	10120200	\$ 505,196	\$ 13,425,834				Secondary Bypass Weir	WWTP	NOTE 1		
103	10165500 (D)		\$ 15,165,200				Additional Primary Sludge Pumping	WWTP	NOTE 1		
104	10145580 (D)		\$ 137,000				Partial Separation Community Priority	PS		3.0	
105	10145580 (D)		\$ 1,315,000				Partial Separation Community Priority	PS		3.7	
106	10143920 (E)	\$ 13,317	\$ 4,105,549				Partial Separation Community Priority	PS		2.5	
107	10143940 (E)	\$ 13,170	\$ 2,808,123				EHRT - 106 MGD Community Priority	EHRT		64.7	
108	10143960 (E)	\$ 6,619	\$ 2,407,688				(NOTE 2)				
109	10130740	\$ 374,405	\$ 26,259,984				New parallel sewer to follow original alignment - 1700 ft of 15"	CONV	2 Yr		
110	10141080 (F)		\$ 865,920				Partial Separation	PS		0.4	
111	10143220 (F)		\$ 1,306,000				Grey LMC Default Project - Tunnel and EHRT to remove a total of 1.6 billion gallons of overflow.	TunEHRT		451	
112	10145860	\$ -	\$ 244,342,000			CSO 1000, 152, 426, 429	(R)C projects remove an additional 0.41 billion gallons - 45220, 45280, 45300, 45320 - A total of 2 billion gallons of overflow removed.)				
113		\$ 58,038,261	\$ 252,000,000				Replace existing pipe - Approx. 4400 LF of 15-24"	CONV	2 Yr		
114	10170080 (G)		\$ 1,815,294				Replace existing pipe - Approx. 3100 LF of 15-18"	CONV	2 Yr		
115	10170100 (G)		\$ 1,381,001				Regulator Improvements-10.0 cfs CAPP P-LM-LIT-CAPP-C-064	RI		0.1	
116	10171580 (G)		\$ 277,344				No modification-int 0.50 cfs 0.0 MSD to UD Channel HRT	RI		0.0	
117	10171620 (G)		\$ 277,345				Sewer Separation	SEP		13.1	
118	10171740 (G)		\$ 3,781,924				Sewer Separation	SEP		5.4	
119	10171780 (G)		\$ 1,926,561				Regulator Improvements - 2.4 cfs	RI			
120	PHASE 1 PROJECTS/BUNDLES - PLANNING and DESIGN ONLY										
121	10171540	\$ 3,344,857	\$ 57,116,240				Regulator Improvements - 2.8 cfs	RI			
122	10171560		\$ 33,185				Regulator Improvements - 2.8 cfs	RI			
123	10171600		\$ 34,664				Regulator Improvement - 3.1 cfs	RI			

ATTACHMENT 1B

INDEX	PROJECT COMPLETION	SUNK COSTS	REMAINING COSTS	CSO SSO IDENTIFIER	DESCRIPTION / DESIGN (NOTE#)	TECHNOLOGY	PLAN CAPP	PLAN REMAINING CSO (MG/year)
124	10171640		\$ 2,346,676	CSO 214	Storage - 2.00 MG	STO		
125	10171680		\$ 34,275	CSO 500	Regulator Improvement - 1.5 cfs. See E-500	RI		
126	10171680		\$ 33,971	CSO 501	Regulator Improvement - 0.1 cfs. See E-500	RI		
127	10171700		\$ 33,731	CSO 549	Regulator Improvement - 5.0 cfs. See E-500	RI		
128	10171720		\$ 33,525	CSO 550	Regulator Improvement - 0.4 cfs. See E-500	RI		
129	10171760		\$ 35,234	CSO 552	Regulator Improvement - 19.4 cfs	RI		
130	10171800		\$ 2,347,477		E-500 - EHRT - 40MGSD - Serves CSOs 170, 549, 550, 501 & 500 (NOTE 2)	EHRT		
131	10170782		\$ 542,488		E-503 - Four Mile Pump Station Rec Proj - PS-1	WWTP	NOTE 1	
132	10170783		\$ 467,842		E-503 - Modify LMR Pump Station Rec Proj - PS-5	WWTP	NOTE 1	
133	10170784		\$ 1,185,142		E-503 - GRT Collection Proj - SG-1	WWTP	NOTE 1	
134	10170785		\$ 280,006		E-503 - Four Mile Pump Station to Screen Building Rec Proj - H-1	WWTP	NOTE 1	
135	10170786		\$ 231,868		E-503 - Primary to Secondary Conveyance Rec Proj - H-2	WWTP	NOTE 1	
136	10170787		\$ 899,299		E-503 - Chemical Enhance Primary Rec Proj - PT-2	WWTP	NOTE 1	
137	10170788		\$ 1,372,476		E-503 - Modification to Secondary Treatment Rec Proj - ST-2	WWTP	NOTE 1	
138	10170790		\$ 541,064		E-503 - Upgrade Chemical Feed Sys Storage - D-2	WWTP	NOTE 1	
139	10170793		\$ 64,639		E-503 - Improvement to Sludge Receiving Facility Rec Proj - DR-6	WWTP	NOTE 1	
140	10170794		\$ 1,074,223		E-505 - Dual Feed / Standby Power Rec Proj - E-1	WWTP	NOTE 1	
141	10172020		\$ 5,286,355		E-505 - Wet Weather Pump Station with Screening 150 MGD to Auxiliary Outfall	WWTP	NOTE 1	
142	10172260		\$ 125,000		Four Mile PS - Dry Weather Pumps - BSN Rec. Proj. PS-1	WWTP	NOTE 1	
143	10140400		\$ 381,514	SSO 1045, 1010	Replace collector following original alignment - 7988 ft of 12.24"	CONV		
144	10142280		\$ 36,201	CSO 226	Regulator Improvement-6 cfs. Combine with implementation of green infrastructure as redevelopment, renovation, and routine maintenance occurs to achieve CSO control to achieve 85%.	RI		
145	10142300		\$ 36,086	CSO 559	Regulator Improvements-14.0 cfs. Green potential greater than storage need.	RI		
146	10142320		\$ 33,680	CSO 515	Regulator Improvements-0.7 cfs	RI		
147	10142340		\$ 33,680	CSO 516	Regulator Improvements-0.11 cfs	RI		
148	10142360		\$ 36,066	CSO 538	Regulator Improvements-0.31 cfs	RI		
149	10142380		\$ 35,995	CSO 539	Regulator Improvements-5.0 cfs	RI		
150	10142400		\$ 35,994	CSO 562	Regulator Improvements-3.08 cfs	RI		
151	10130000		\$ 42,512	701, 702, 692, SSO 687,675-A, 1061	Storage & Conveyance Tunnel unloads Muddy Creek PS. Eliminating SSOs 692 & 697, provides CSO control for 518, 404, 405 and 406 - 25 ft diameter pumps, 12' FM for DWF, 36" FM for WWF (associated with 30000)	TUNNEL		
152	10130160		\$ 1,511,582	SSO 692, 697, SSO 675-A	Elim. PSO - Increase capacity & convey to Hillside Relief Tunnel - 25 MGD pumps, 12' FM for DWF, 36" FM for WWF (associated with 30000)	PSUFM		
153	10130400		\$ 53,862	SSO 702	Rapid Run/Bender Rd. Interceptor directly into New Tunnel - 800 ft of 36"	CONV		
154	10131020		\$ 797	CSO 402	Regulator Improvement - 13.3 cfs (dependent on 30000, 30160, 31120)	RI		
155	10131040		\$ 735	CSO 403	Regulator Improvement - 7.10 cfs (dependent on 30000, 30160, 31120)	RI		
156	10131060		\$ 704	CSO 404	Regulator Improvement - 26.9 cfs (dependent on 30000, 30160, 31120)	RI		
157	10131080		\$ 830	CSO 405	Regulator Improvement - 6.20 cfs (dependent on 30000, 30160, 31120)	RI		
158	10131100		\$ 5,611	CSO 406	Regulator Improvement - 15.4 cfs (dependent on 30000, 30160, 31120)	RI		
159	10131120		\$ 16,349	CSO 404, 405, 406	Convey Flow from CSO 404 to WWTP - 4000' - 60" sized for 85% control for CSOs 404, 405 and 406 (dependent on 30000, 30160)	CONV		
160	10140000		\$ 450,870	SSO 1048	Replace collector following original alignment - 4715 ft of 16.27" Tunnel 375 ft of 16.24"	CONV		

ATTACHMENT 1B

INDEX	PROJECT COMPLETION	SUNK COSTS	REMAINING COSTS	SSO IDENTIFIER	DESCRIPTION / DESIGN (NOTE A)	TECHNOLOGY	PLAN CAPP	PLAN REMAINING CSO (MG/YEAR)
167	10140020		\$ 375,348	SSO 1048, 587	Replace collector following original alignment - 4285' of 30-36"	CONV		
168	10140080		\$ 275,637	SSO 587	Replace collector following original alignment - 4235' of 15-24"	CONV		
169	10140720		\$ 4,639,634	SSO 1048, 587	24,929 LF of 30-66"; Tunnel 6250 LF of 30-78"	CONV		
170	10140480		\$ 310,718		W/Bs - Replace collector following original alignment - 4246' of 21-24"	CONV		
171	10141180		\$ 9,407,964	SSO 700	Increase Storage at existing site - Additional 24 MG (NOTE 3)	STOR		
172	10142120		\$ 36,064	CSO 512	Regulator Improvements-3.25 cfs	RI		
173	10142200		\$ 360,034	CSO 513	Partial Separation	PS		
174	10142220		\$ 193,696	CSO 514	Partial Separation	PS		
175	10130020		\$ 722	SSO 1061 CSO 518 MH 16006007	Clean Interceptor - 5000 ft of 36"	CLEAN		
176	10130040		\$ 856,426	SSO 1061 CSO 518 MH 16006007	Replace section of Muddy Creek Int. - 9000 ft of 36". Provides CSO interception capacity for CSO 518	CONV		
177	10130280		\$ 266,996	PSO 730, 241, 1092003	Elim. Adyolston P.S. w/gravity along Rte. 50 - 2850' of 36" and two 100' of EHRIT - 126 MGD Community Facility	CONV		
178	10130700		\$ 4,178,400	CSO 198	EHRIT - 126 MGD Community Facility	EHRT		
179	10130720		\$ 33,309	CSO 518	Regulator Improvement - 27.4 cfs Premised on CAPP Activity ID - 30040, 30020 Community Priority	RI		
180	10130760	\$ 281,421	\$ -	CSO 223, 408, 411, 412, 414, 415, 416, 654, 654	CD Exhibit 1 Partial Separation	PS		
181	10130840	\$ 208,080	\$ 953	CSO 412, 414, 415, 416	CD Exhibit 1 Regulator Improvement-3.21 cfs and Relocation Complete Partial Separation - Activity ID 31140	RI/PS		
182	10131000	\$ 1,238,034	\$ 103,652		W-103 - CD Exhibit 1 Interceptor Replacement Phase 1	CONV		
183	10131002	\$ 432,610	\$ -		W-103 - CD Exhibit 1 Interceptor Replacement Phase 2	CONV		
184	10131003	\$ 681,975	\$ -		W-103 - CD Exhibit 1 Interceptor Replacement Phase 3	CONV		
185	10131004	\$ 246,641	\$ -		East Branch Muddy Ph3-B Pump Station	CONV		
186	10131006	\$ -	\$ 362,587		W-105 - Interceptor Extension	CONV		
187	10131140		\$ 1,028,053	408, 411, 412, 414, 415, 416	W-104 - Complete Partial Separation in CSOs areas 408, 411, 412, 414, 415, 416	PS		
188	TOTAL PHASE 1	\$ 284,781,000	\$ 861,535,710					

NOTES:

- 1 PROJECT COMPLETE AND IN SERVICE AT SPECIFIED CAPACITY
- 2 FOR ALL PROJECTS WITH EHRIT TECHNOLOGY SHOWING IS REMAINING UNTREATED OVERFLOW - SEE ATTACHMENT 5.
- 3 INFORMATION RELATED TO THIS PROJECT IS PRELIMINARY AND SUBJECT TO CHANGE BASED ON FURTHER STUDY AS SET FORTH IN PARAGRAPH A.3. OF THE WWIP
- 4 CAPP DESIGN: ALL CAPP SEWER PROJECTS WILL BE DESIGNED TO MEET THE 10 YEAR DESIGN STORM EVENT. ALL CAPP PUMP STATION AND STORAGE FACILITIES WILL BE DESIGNED TO MEET THE 2 YEAR DESIGN STORM EVENT.
- 5 THE 2 AND 10 YEAR DESIGN STORMS ARE SCS TYPE II - 24 HOUR EVENTS.
- 6 FOR THESE RTC PROJECTS, THE STATED REDUCTION IN THE TYPICAL YEAR CSO DISCHARGE VOLUME SHALL ALSO BE THE PERFORMANCE CRITERIA FOR THE FACILITY.
- 7 PERFORMANCE CRITERIA FOR CSO VOLUMES REMAINING AFTER IMPLEMENTATION OF CSO CONTROLS ARE THE VOLUMES NOT TO BE EXCEEDED AT A PARTICULAR OUTFALL DURING MSDGC'S TYPICAL RAINFALL YEAR (1970).
- 8 COMPLIANCE WITH THESE CRITERIA WILL BE EVALUATED BY IMPLEMENTATION OF A POST CONSTRUCTION MONITORING PROGRAM (WHICH WILL BE SUBMITTED TO THE REGULATORY AGENCIES FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE GLOBAL CONSENT DECREE) THAT WILL UTILIZE MSDGC'S HYDROLOGIC AND HYDRAULIC MODEL TO NORMALIZE THE RESULTS OF THE POST CONSTRUCTION MONITORING TO THE TYPICAL YEAR.

Bundle Identifiers

- (A) The Eastern Delta Bundle on Attachment 1A consists of these projects.
- (B) The Lower Little Miami Bundle on Attachment 1A consists of these projects.
- (C) The Muddy Creek WWTP Bundle on Attachment 1A consists of these projects.
- (D) The Mill Creek WWTP Bundle on Attachment 1A consists of these projects.
- (E) The Westwood Northern Bundle on Attachment 1A consists of these projects.
- (F) The North Side Upper Bundle on Attachment 1A consists of these projects.
- (G) The Upper Duck All Bundle on Attachment 1A consists of these projects.

Attachment 1C

Original LM CPR

The Lower Mill Creek Partial Remedy (LM CPR) will be a series of measures constructed during Phase 1 of the WWIP to capture a significant volume of combined sewer overflows in the Lower Mill Creek basin. At the Regulators' direction (November 25, 2008 letter), a LM CPR preferred alternative ("Original LM CPR") was identified by Defendants during a preliminary planning analysis and reported to the Regulators in a Lower Mill Creek Alternatives White Paper, dated February 9, 2009, and provided to Sierra Club.

The Original LM CPR will be sized to provide 85% control for the listed consolidated CSO flows from CSO 009 down to the Lower Mill Creek treatment facility, and includes the following:

- Approximately 7600 feet of 30-foot diameter tunnel from the Mill Creek WWTP to CSO 005- Lick Run;
- Approximately 2000 feet of 7-foot diameter consolidation sewer from CSO 005 to CSO 009;
- The tunnel will store and convey overflows, some connected by consolidation sewer, starting with in the north CSO 009 and including CSO 007, CSO 006, CSO 005, CSO 004, CSO 003, CSO 002, CSO 666, CSO 152, CSO 429 and CSO 428;
- The tunnel will convey flows to an Enhanced High Rate Treatment (EHRT) facility with a capacity to treat 84 MGD, which will be located at or near the Mill Creek WWTP;
- Current Real Time Control projects at CSO 487- Ross Run, CSO 482- Mitchell, and CSO 125-Badgeley will be utilized;
- The currently identified projects will reduce an estimated CSO volume of 2,013 MG/year.

Performance and Design Criteria for the EHRT component of the Original LM CPR are set forth in Attachment 5.

ATTACHMENT 2

INDEX	Description	Remaining Costs		CSO SSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
		Sunk Costs 2006 Dollars	Remaining Costs 2006 Dollars					
185	10171540 CSO 135 Elimination		\$ 243,716	CSO 135	Regulator Improvements - 2.4 cfs	RI		0.0
186	10171560 CSO 43 Elimination		\$ 244,159	CSO 43	Regulator Improvements - 2.8 cfs	RI		0.7
187	10171600 CSO 170 Elimination		\$ 242,581	CSO 170	EHRT - Regulator Improvement - 3.1 cfs	RI		in 71800
188	10171640 CSO 214 Storage Facility		\$ 14,074,375	CSO 214	Storage - 2.00 MG	STOR		57.4
189	10171680 CSO 500 Improvements		\$ 243,068	CSO 500	Regulator Improvement - 1.5 cfs. See E-500	RI		in 71800
190	10171700 CSO 501 Improvements		\$ 243,373	CSO 501	Regulator Improvement - 0.1 cfs. See E-500	RI		0.0
191	10171720 CSO 548 Improvements		\$ 243,520	CSO 548	Regulator Improvement - 5.0 cfs. See E-500	RI		in 71800
192	10171760 CSO 550 Improvements		\$ 243,520	CSO 550	Regulator Improvement - 0.4 cfs. See E-500.	RI		in 71800
193	10171760 CSO 552 Improvements		\$ 242,109	CSO 552	Regulator Improvement - 19.4 cfs	RI		18.5
194	10171800 Upper Duck Creek EHRT Facility		\$ 14,541,318		E-500 - EHRT - 40-MGD - Serves CSOs 170, 549, 550, 501 & 500 (NOTE 2)	EHRT		106.0
195	10170782 LM Four Mile Pump Station Upgrade		\$ 3,617,502		E-503 - Four Mile Pump Station Rec Proj - PS-1	WWTP	NOTE 1	
196	10170783 LMWWTP Pump Station Reconfiguration		\$ 3,172,158		E-503 - Modify LMR Pump Station Rec Proj - PS-5	WWTP	NOTE 1	
197	10170784 LMWWTP Grit Station Upgrade		\$ 8,174,858		E-503 - Grit Collection Proj - SG-1	WWTP	NOTE 1	
198	10170785 LMWWTP Pump Station Hydraulic Improvements		\$ 1,759,992		E-503 - Four Mile Pump Station to Screen Building Rec Proj - H-1	WWTP	NOTE 1	
199	10170786 LMWWTP Primary to Secondary Hydraul. Improvements		\$ 1,328,132		E-503 - Primary to Secondary Conveyance Rec Proj - H-2	WWTP	NOTE 1	
200	10170787 LMWWTP Chemically Enhanced Primary		\$ 5,860,701		E-503 - Chemical Enhance Primary Rec Proj - PT-2	WWTP	NOTE 1	
201	10170788 LMWWTP Secondary Treatment Modifications		\$ 9,235,525		E-503 - Modification to Secondary Treatment Rec Proj - ST-2	WWTP	NOTE 1	
202	10170790 LMWWTP Chemical Feed Upgrades		\$ 3,618,335		E-503 - Upgrade Chemical Feed Sys Storage - D-2	WWTP	NOTE 1	
203	10170793 LMWWTP Sludge Receiving Improvements		\$ 455,361		E-503 - Improvement to Sludge Receiving Facility Rec Proj - DR-6	WWTP	NOTE 1	
204	10170794 LMWWTP Standby Power		\$ 7,141,778		E-503 - Dual Feed / Standby Power Rec Proj - E-1	WWTP	NOTE 1	
206	10172020 LMWWTP Wet Weather Pump Station		\$ 36,586,845		E-505 - Wet Weather Pump Station with Screening 150 MGD to Auxiliary Outfall	WWTP	NOTE 1	
205	10172850 LMWWTP Dry Weather Pump Station		\$ 375,000		Four Mile PS - Dry Weather Pumps - B&N Rec. Proj. PS-1	WWTP	NOTE 1	
207	10160400 Lockland Sewer Separation		\$ 2,424,377	SSO 1045, 1010	Replace collector following original alignment - 7968 ft of 12-24"	CONV		
208	10142280 Oxley Grating		\$ 241,149	CSO 226	Regulator Improvements-6 cfs. Combine with implementation of green infrastructure as redevelopment, renovation, and routine maintenance occurs to achieve CSO control to achieve 85%.	RI		4.6
209	10142300 914 Oak St. Grating		\$ 241,284	CSO 559	Regulator Improvements-14.0 cfs. Green potential greater than storage need.	RI		7.0
210	10142320 200 West of Bacon St. Grating		\$ 243,670	CSO 515	Regulator Improvements-0.7 cfs	RI		0.0
211	10142340 Bacon St. Grating		\$ 243,670	CSO 516	Regulator Improvements-0.11 cfs	RI		0.1
212	10142360 No. 86 North Park Grating		\$ 241,284	CSO 538	Regulator Improvements-0.31 cfs	RI		0.1
213	10142380 117 E. Charlotte Grating		\$ 241,356	CSO 539	Regulator Improvements-5.0 cfs	RI		1.3
214	10142400 428 South Cooper Grating		\$ 241,356	CSO 562	Regulator Improvements-3.08 cfs	RI		0.0
215	10130000 Muddy Creek Basin Storage & Conveyance Sewer		\$ 120,122,277	701, 702, SSO 692, SSO 697 675-A, 1061	Storage & Conveyance Tunnel unloads Muddy Creek PS. Eliminating SSOs 692 & 697, provides CSO control for 518, 404, 405 and 406 - 28 ft diameter, 8500 ft long, 35 MGD pumps at WWTP	TUNNEL	2 yr	
216	10130160 Muddy Creek Pump Station Upgrade and Force Main		\$ 8,643,782	SSO 675-A	Elim. P50 - Increase capacity & convey to Hillside Relief Tunnel - 25 MGD pumps, 12' FM for DWF, 36" FM for WWF (associated with 30000)	PSU/FM	2 yr	
217	10130400 River Rd. Near Muddy Creek WWTP Conveyance Sewer		\$ 396,774	SSO 702	Rapid Run/Bender Rd. Interceptor directly into New Tunnel - 800 ft of 36"	CONV	2 yr	
218	10131020 CSO 402 Topinabee Dr. Reg. Improvements		\$ 242,880	CSO 402	Regulator Improvement - 13.3 cfs (dependent on 30000, 30160, 31120)	RI		7.2
219	10131040 CSO 403 Elco St. Div. Dam Reg. Improvements		\$ 245,338	CSO 403	Regulator Improvement - 7.10 cfs (dependent on 30000, 30160, 31120)	RI		3.6
220	10131060 CSO 404 Ivainhoe St. Reg. Improvements		\$ 241,095	CSO 404	Regulator Improvement - 26.9 cfs (dependent on 30000, 30160, 31120)	RI		16.2
221	10131080 CSO 405 Revere St. Reg. Improvements		\$ 242,108	CSO 405	Regulator Improvement - 6.20 cfs (dependent on 30000, 30160, 31120)	RI		3.7
222	10131100 CSO 406 Kennebeck St. Reg. Improvements		\$ 242,079	CSO 406	Regulator Improvement - 15.4 cfs (dependent on 30000, 30160, 31120)	RI		9.0
223	10131120 West Branch Ohio River Interceptor Sewer		\$ 3,477,204	CSO 404, 405, CSO 406	Flow from CSO 404 to WWTP - 4000' - 60" size for 85% control for CSOs 404, 405 and 406 (dependent on 30000, 30160)	CONV		
224	10140000 SSO 1048 Conveyance Sewer Phase 1		\$ 1,710,579	SSO 1048	Replace collector following original alignment - 4115 ft of 18-27", Tunnel 375 ft of 18-24"	CONV	2 yr	
225	10140020 SSO 1048 Conveyance Sewer Phase 2		\$ 2,467,502	SSO 1048	Replace collector following original alignment - 4256' of 30-36"	CONV	2 yr	
226	10140080 SSO 587 Conveyance Sewer		\$ 1,178,958	SSO 587	Replace collector following original alignment - 4235 ft of 15-24"	CONV	2 yr	
227	10140120 Sharonville/Evendale Trunk to SSO 700		\$ 34,000,590	SSO 1048, 587	24,929 LF of 30-66"; Tunnel 6250 LF of 30-78"	CONV	2 yr	
228	10140460 Pleasant Run Interceptor Replacement		\$ 1,203,840		WIBs - Replace collector following original alignment - 4246 ft of 21-24"	CONV		
229	10141180 1-75 & Shepard Ave. SSO 700		\$ 60,020,365	SSO 700	Increase Storage at existing site - Additional 24 MG (NOTE 3)	STOR	2 yr	
230	10142120 Mill & Vine St. Grating		\$ 241,285	CSO 512	Regulator Improvements-3.25 cfs	RI		0.2
231	10142200 Bernard & Reisenberg Grating		\$ 2,242,366	CSO 513	Partial Separation	PS		1.7
232	10142220 Smallay Grating		\$ 1,226,004	CSO 514	Partial Separation	PS		0.2

ATTACHMENT 2

INDEX	Description	Sunk Costs		Remaining Costs		CSO SSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
		2006 Dollars	2006 Dollars	2006 Dollars	2006 Dollars					
233	10130020 Muddy Creek Interceptor Rehabilitation		\$ 4,889			SSO 1051 MH 16006007	Clean Interceptor - 5000 ft of 36"	CLEAN		
234	10130040 CSO 518 Muddy Creek Conveyance Sewer		\$ 5,495,655			SSO 1051 MH 16006007	Replace section of Muddy Creek Int. - 9000 ft of 36"	CONV	2 yr	
235	10130280 Adkyston PS Elimination		\$ 1,712,696			PSO 730 10502003	Elim. Adkyston P.S. w/gravity along Rte. 50 - 2650' of 36" and two 100' of 24"	CONV	2 yr	61.2
236	10130700 Muddy Creek @ Westbourne EHRT		\$ 24,184,412			CSO 198	EHRT - 126 MGD Community Priority (NOTE 2)	EHRT		8.4
237	10130720 CSO 518 Improvements		\$ 244,422			CSO 518	Regulator Improvement - 27.4 cfs Premised on CAPP Activity ID - 30040, 30000 Community Priority	PS		0.3
238	10130780 CSO's 223, 408, 410, 541, 654		\$ 1,855,360			CSO 410, 541, 654	CD Exhibit 1 Partial Separation	PS		12.9
239	10130840 CSO's 411, 412, 413, 414, 415, 416		\$ 4,082,231			CSO 411, 412, 413, 414, 415, 416	CD Exhibit 1 Regulator Improvement-3.21 cfs and Relocation Complete Partial Separation - Activity ID 31140	CONV		
240	10131000 E. Branch Muddy Ph1 Interceptor - Combined in 31006						W-103 - CD Exhibit 1 Interceptor Replacement Phase 1	CONV		
241	10131002 E. Branch Muddy Ph2 Interceptor - Combined in 31006						W-103 - CD Exhibit 1 Interceptor Replacement Phase 2	CONV		
242	10131003 E. Branch Muddy Ph3-A Pump Station - Combined in 31006						W-103 - CD Exhibit 1 Interceptor Replacement Phase 3	CONV		
243	10131004 East Branch Muddy Ph3-B Pump Station - Combined in 31006						East Branch Muddy Ph3-B Pump Station	CONV		
244	10131006 East Branch Muddy Interceptor		\$ 60,315,458				W-105 - Interceptor Extension	CONV		
246	10131140 E. Branch Ohio Rinterceptor Sewer Separation		\$ 15,848,746			CSO 408, 411, 412, 414, 415, 416	W-104 - Complete the Partial Separation in CSOs areas 408, 411, 412, 414, 415, 416	PS		In 30840 and 30780
247	REMAINING PHASE 2 PROJECTS/BUNDLES		\$ 1,547,626,371							
248	10144692 Mill Creek WWTP Chemical Enhanced Primary Treat.		\$ 164,235				C-002 - Enhanced Primary Treatment	WWTP	NOTE 1	
249	10170920 Nu-Tone Parking Lot Grating		\$ 9,959,847			CSO 68	Storage - 2.53 MG	STOR		36.9
251	10170960 Madison & Redbank Grating		\$ 277,349			CSO 66	Regulator Improvements - 2.7 cfs	RI		0.0
252	10171260 4730 Madison Ave. Grating		\$ 277,349			CSO 61	Regulator Improvements - 8.2 cfs	RI		2.1
253	10171280 End of Harrow St. Div. Dam		\$ 277,350			CSO 64	Regulator Improvements - 9.7 cfs	RI		0.1
254	10171900 Brotherton Rd. Grating		\$ 277,349			CSO 80	Regulator Improvements - 7.0 cfs	RI		0.0
255	10171920 3675 Forest Hills Grating		\$ 277,349			CSO 83	Regulator Improvements - 11 cfs	RI		2.7
256	10171940 3646 Madison Rd. Div. Dam		\$ 277,350			CSO 188	Regulator Improvements - 8.1 cfs	RI		4.4
257	10171960 Ford Gate Grating		\$ 277,350			CSO 189	Regulator Improvements - 27 cfs	RI		0.0
258	10171440 Camberwell Ave. Div. Dam		\$ 2,259,200			CSO 205	Partial Separation	PS		0.5
259	10171460 Old Red Bank Rd. Grating		\$ 5,514,020			CSO 84	Consolidate to STO @ CSO 503 1,500' of 72" sewer	STOR		in 71520
260	10171480 3979 Rosslyn Dr. Grating		\$ 19,158,278			CSO 136	Storage - 4.00 MG	STOR		31.0
261	10171520 Zaeh Rd. Grating		\$ 5,099,999			CSO 503	Pipe Rehab Replacement and Sream Restoration	SEPI/GREEN		15.1
262	10145540 Pleasant Run Wastewater Treatment Plant						Pleasant Run Flow Diversion from Mill Creek - Joint MSD/Butler Co. Facility	WWTP	NOTE 1	
263	10140540 Reading Lower		\$ 1,402,999			SSO 1001, 1020	Replacement collector following original alignment - 4336 ft of 12-21"	CONV	2 yr	0.4
264	10140540 Ronald Reagan & Reading Rd.		\$ 277,351			CSO 507	Regulator Improvements-0.9 cfs	RI		0.1
265	10142060 214 Clark St. Grating		\$ 277,350			CSO 509	Regulator Improvements-3.0 cfs	RI		0.0
266	10142080 Gebert St. Grating		\$ 277,350			CSO 511	Regulator Improvements-4.49 cfs	PS		2.2
267	10142100 531 Davis Street Grating		\$ 3,854,201			CSO 670	Partial Separation	RI		0.1
268	10142140 Reading Rd. @ Galbraith		\$ 277,350			CSO 510A	Regulator Improvements- 0.6 cfs	PS		1.3
270	10142160 Southern Ave. Grating		\$ 948,500			CSO 508	Partial Separation	PS		0.0
271	10142180 245 Clark St. Overflow		\$ 277,345			CSO 69	Regulator Improvements - 8.4 cfs Relocated Completed CJP 96-12	RI		0.3
272	Little Duck Regulators		\$ 277,345			CSO 71	Regulator Improvements - 2.0 cfs Relocated Completed CJP 96-12	RI		0.1
273	10171040 Camarop & East Fork Grating		\$ 277,344			CSO 72	Regulator Improvements -1.7 cfs	RI		0.7
274	10171080 Plainville & Indian Hill		\$ 277,344			CSO 74	Regulator Improvements -3.2 cfs	RI		1.3
275	10171100 4800 Jameson Grating		\$ 277,344			CSO 75	Regulator Improvements - 7.9 cfs	RI		1.3
276	10171120 6402 Roe St. Grating		\$ 277,344			CSO 76	Regulator Improvements - 7.9 cfs	RI		1.3
277	10171140 6333 Roe St. Grating		\$ 277,344			CSO 78	Regulator Improvements - 5.5 cfs	RI		0.3
278	10171160 3980 South Whetzel Grating		\$ 277,344			CSO 79	Regulator Improvements - 7.0 cfs	RI		1.5
279	10171180 3980 South Whetzel Grating		\$ 277,344							
280	10171200 Southern Ave. Grating		\$ 277,344							

INDEX		ATTACHMENT 2		Remaining Costs		Sunk Costs		Remaining Costs	
				2006 Dollars	2006 Dollars	2006 Dollars	2006 Dollars	2006 Dollars	2006 Dollars
281	10171220	Wooster @ Red Bank Div. Dam			\$ 277,343				
282	LDCR	Lower Duck Creek							
283	10171380	5150 Wooster Pike Grating			\$ 2,180,499				
284	10171400	Archer St. Div. Dam, SEP			\$ 2,327,200				
285	10171500	Turpin St. Div. Dam			\$ 277,349				
286	ICWMTIP	Indian Creek Wastewater Treatment Plant							
287	10110000	Indian Creek WMTIP			\$ 299,238				
288	10110020	Cleves Pump Station			\$ 1,042,000				
289	AC	Amberly Creek							
290	10141160	Reading Rd. & Losantville Rd.			\$ 824,988				
291	10142460	Bereth & Kincaid Grating			\$ 277,332				
292	10142480	Ridge/Lakeview Div. Dam			\$ 277,332				
293	10142500	6536 Cliffridge Grating			\$ 1,953,100				
294	CRU	Congress Run Upper							
295	10142520	146 Ridgeway Grating			\$ 277,350				
296	10142540	60 St. Clair Grating			\$ 277,350				
297	10142580	No. 41 Sherry Grating			\$ 928,701				
298	10141140	Ronald Reagan & Galbraith Rd.			\$ 784,079				
299	10145600	Anthony Wayne Flooded MHs			\$ 65,126,882				
300	10140880	W. Galbraith Road			\$ 3,181,999				
301	10141100	Ronald Reagan & Galbraith			\$ 7,297,254				
302	TWLL	Tributary to Winton Lake Lower							
303	10141020	Colerain & Galbraith Storage Facility			\$ 2,356				
304	10140820	Colerain - Jessup Replacement Sawer			\$ 2,406				
305	MA	Montgomery All							
306	10170160	Dawson Rd. & Rosecrest Ave.			\$ 2,150,290				
307	10170180	Miami Ave. N. Blum Mardel Dr. & Euclid Rd.			\$ 3,023,001				
308	10170320	Miami Rd. W. @ Miami-Demar Rd.			\$ 1,363,644				
309	10170340	Graves Rd. @ Rheinstorm Park			\$ 1,793,303				
310	CCA	Clough Creek A							
311	10170120	Beachmont Ave. South of Berkshire			\$ 3,524,420				
312	10170140	Birney Ln. South of Beachmont			\$ 1,929,768				
313	10170220	Shindler Dr. @ Beechview Estates			\$ 17,284,000				
314	10170240	Clough Pike @ Balaiva Rd. & Conby Rd.			\$ 18,560,565				
315	10170280	Clough Pike @ Berens Rd. & Coldegate Dr.			\$ 2,299,465				
316	10170280	Berkshire Rd.			\$ 2,882,335				
317	10170690	Berkshire HRT			\$ 17,781,369				
318	10170900	Clough Ctr. Div. Dam			\$ 277,729				
319	10170860	Prospect Woods			\$ 819,933				
320	W	Winton							
321	10140620	Springfield Pike & Riddle Rd.			\$ 24,900,000				
322	10141040	Winton Rd. & Lakeview Dr.			\$ 5,799,999				
323	10141320	Greenpine Acres PS			\$ 609,699				
324	10140800	Ronald Reagan & Hamilton			\$ 5,199,070				
325	DAL	Daha Ave. Lower							
326	10172000	Kellogg @ Wilmer, REG			\$ 277,730				
327	D	Deerfield							
328	10170980	Stewart & Ken Arbie Grating			\$ 277,349				
329	10171000	6735 Ken Arbie Grating			\$ 5,200,543				
330	10171020	Stewart Rd. West Regulator			\$ 11,779,329				
331	RR	Rapid Run							
332	10130440	Wulff Run Creek, From Neeb Rd. to Viscount			\$ 3,293,342				

CSO SSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
CSO 656	Regulator Improvements Remove downstream flow restriction @ Beachmont Sluice Gate	RI		In 71920
CSO 85	Full Separation	FS		0.0
CSO 86	Partial Separation CIP 95-02 HW/DW Relocate	PS		1.9
CSO 472	Regulator Improvements	RI		26.5
PSO 677	Opt. Existing Facility, 8.2 - 10.8 MGD 1.5 MG Storage w/inlet 3.6 MGD pumps and FM for wet weather flow	Optimization	NOTE 1	
SSO 1032	Replace collector following original alignment - 1793 ft of 12-18"	CONV	2 Yr	0.0
CSO 505	Regulator Improvements - 9.3 cfs	RI		0.0
CSO 631	Regulator Improvements - 3.75 cfs	RI		0.3
CSO 506	Partial Separation	PS		1.3
CSO 535	Regulator Improvements - 3.25 cfs	RI		0.0
CSO 560	Regulator Improvement - 3.25 cfs	RI		0.0
CSO 537	Partial Separation	PS		0.2
SSO 1029	Replace collector following original alignment - 3005 ft of 15-21" Future Wet Weather Facility to provide system capacity in the Mill Creek Interceptor system CIP 2008-25 (in planning)	CONV	2 Yr	
SSO 568, 569	Replace collector following original alignment - 15,583 ft of 21-48", Tunnel 200 ft of 42"	CONV	2 Yr	
SSO 1029	Below ground Storage, protects trunk sewer - 5.9 MG Replace collector following original alignment - 12,950 ft of 15-60"; Tunnel 220 ft of 18-42"	STOR CONV	2 Yr	
SSO 1008, 1014, 608	Replace existing pipe - Approx. 2600 LF of 18-27"	CONV	2 Yr	
SSO 1008	Replace existing pipe - Approx. 7300 LF of 15-21"	CONV	2 Yr	
SSO 1008	Replace existing pipe - Approx. 1700 LF of 18"	CONV	2 Yr	
SSO 588	Replace existing pipe - Approx. 3600 LF of 15-18"	CONV	2 Yr	
SSO 588	Replace existing pipe - Approx. 4000 LF of 27-30"	CONV	2 Yr	
SSO 588	Replace existing pipe - Approx. 4100 LF of 15-27"	CONV	2 Yr	
SSO 588	Regional Storage - 4.6 MG	STOR		
SSO 588	Replace existing pipe - Approx. 9600 LF of 15-48"	CONV		
SSO 588	Replace existing pipe - Approx. 3000 LF of 48"	CONV		
SSO 588	W/RS - Replace existing pipe - Approx. 4100 LF of 27-54"	CONV		
CSO 182	EHRT - 34.3 MGD Community Priority (NOTE 2)	EHRT		18.3
CSO 476	Regulator Improvements - 49.2 cfs Premised on operational changes at WWTIP Four Mile P.S.	RI		2.4
PSO 861	Prospect Woods PS Upgrade	PSU	2 Yr	
PSO 794	Partially buried Storage - Protects interceptors; 9.4 MG, gravity in & out New parallel sewer to follow original alignment - 11,238 ft of 18-42"	STOR		
PSO 612, 1003	Sensitive Receiving Stream PS Elim. - PSO 794, w/sewer Replace collector following original alignment - 12,396 ft of 12-48"; Tunnel 80 ft of 36"	CONV CONV CONV	2 Yr 2 Yr	
CSO 669	Regulator Improvement	RI		0.0
CSO 554	Regulator Improvements - 4.1 cfs	RI		0.0
CSO 555	Sewer Separation	PS		8.9
CSO 556	Storage - 2.90 MG	STOR		17.5
CSO 556	Replace Interceptor in Wulff Run - 4500 ft of 24"	CONV		

ATTACHMENT 2

INDEX	Description	Sunk Costs		Remaining Costs		CSO SSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
		2006 Dollars	2006 Dollars	2006 Dollars	2006 Dollars					
333	10130460 Delhi Rd & Oakwood Park Dr.			\$ 9,389,474		SSO 623	Storage Tank capturing SSO 623 - 1.25 MG w/3 MGD pump	STOR		
334	10130500 Delhi Rd. East to Schroer Ave.			\$ 1,524,566			Replace Interceptor along original alignment through Delhi - 5500 ft of 18" EHRT - 106 MGD Community Priority (NOTE 2)	CONV	2 yr	55.3
335	10130760 Rapid Run & Devils Backbone			\$ 26,634,390		CSO 523		EHRT		
336	TWLU Tributary to Winton Lake Upper					CSO 532	EHRT - 204.7 MGD Community Priority (NOTE 2)	EHRT		33.9
337	10142280 Daily Rd. Vortex Separator			\$ 63,483,831						
338	LDC Lower Duck Conveyance			\$ 1,844,367			WIBs - Replace existing pipe - Approx. 2800 LF of 12-27"	CONV		
339	10170200 Worcester Pike & West St.			\$ 1,580,866			WIBs - Replace existing pipe - Approx. 2800 LF of 12-27"	CONV		
340	10170680 Plainview Rd.			\$ 192,639			Replace pipe - 500 ft of 18"	CONV		
341	SP Sycamore Plan									
342	10160020 Montgomery & Deerfield			\$ 4,716,433			Replace existing pipe - Approx. 8800 LF of 21-27"	CONV		
343	CCB Clough Creek B			\$ 5,079,056			Replace existing pipe - Approx. 8600 LF of 15-18"	CONV		
344	10170300 Gungadin Dr. W. of 5 Mile & Paadison			\$ 766,806			Replace existing pipe - Approx. 2100 LF of 15"	CONV		
345	10170360 Concordridge Dr. & Hunley Rd.			\$ 4,263,535			Replace existing pipe - Approx. 5100 LF of 21-27"	CONV		
346	10170380 Lawyer Rd. @ Heatherwood Ln.			\$ 2,185,711			Replace existing pipe - Approx. 5300 LF of 18-21"	CONV		
347	10170480 Clough Pike @ Goldengate Dr.									
348	10170500 Clough Pike @ Wolfangale Rd.									
349	PRWTP Polk Run Wastewater Treatment Plant									
350	10150020 Polk WWTP STO Storage Tank			\$ 16,936,648			Storage - 6 MG (NOTE 1)	STOR		
351	10150015 Polk Run WWTP Optimization Ph4			\$ 8,156,003			Polk Run WWTP Optimization Ph4	Optimization	NOTE 1	
352	10150080 Polk WWTP STO Replace Pipe			\$ 5,952,872			Replacement pipe - 800 ft of 30"/1 MG tank	CONV/STOR		
353	10150100 Polk WWTP CNV Map 015			\$ 1,141,145			Replacement pipe - 2700 ft of 15-18"	CONV		
354	10150140 Polk WWTP CNV Map 002			\$ 5,424,237			Replace pipe (200 ft of 18"), New PS & Storage tank	CONV/STOR		
355	10150160 Polk WWTP CNV Map D10			\$ 12,537,008			Replace pipe - 7000 ft of 36 - 48"	CONV		
356	CA California Plan									
357	10170400 5 Mile Rd. & Old Kellogg			\$ 7,975,701			Replace existing pipe - Approx. 5000 LF of 36-54"	CONV		
358	10170420 5 Mile Rd. & Birney Ln.			\$ 6,037,842			Replace existing pipe - Approx. 2000 LF of 42"	CONV		
359	10170440 4 Mile Rd. @ E275			\$ 5,950,945			Replace existing pipe - Approx. 7400 LF of 21-30"	CONV		
360	10170460 Indian Creek Rd.			\$ 3,739			Seal Manhole Lids	Seal Manhole Lids		
361	10170540 Kellogg Ave. @ Coney Island			\$ 7,195,266			Replace existing pipe - Approx. 6200 LF of 54-66"	CONV		
362	WOL West Ohio Lower									
363	10144660 Delhi Ave. Div. Dam			\$ 583,399		CSO 420	Partial Separation	PS		0.1
364	10144680 River Rd. @ Delhi Div. Dam			\$ 857,500		CSO 421	Partial Separation	PS		0.2
365	10144760 Bold Face Sr. Div. Dam			\$ 96,810,229		CSO 419	EHRT - 275 MGD (NOTE 2)	EHRT		137.2
366	10144780 Mt. Echo Rd. Regulator			\$ 277,350		CSO 422	Regulator Improvements - 22.2 cfs	RI		13.4
367	10144800 Mt. Hope Ave. Regulator			\$ 13,886,537		CSO 423	Storage-3.5 MG	STOR		24.9
368	KRS Kings Run Upper									
369	10142940 Ross Run Regulator			\$ 277,300		CSO 485	Regulator Improvements - 70.4 cfs	RI		28.1
370	10143180 Wooden Shoe Regulator			\$ 25,596,976		CSO 217A	EHRT - 75 MGD (NOTE 2)	EHRT		23.3
371	10143000 Kings Run and Spring Cove		\$ 13,723	\$ 2,245,402		CSO 486	Partial Separation	PS		0.4
372	10143040 Ross Run Regulator			\$ 186,995,962		CSO 487	EHRT - 864 MGD (NOTE 2)	EHRT		289.2
373	10143140 Kings Run Regulator			\$ 5,487,501		CSO 483	Partial Separation to new Interceptor connection	PS		15.3
374	HS Hopple Street									
375	10142760 Vinton St. Regulator			\$ 277,301		CSO 8	Regulator Improvements - 1.54 cfs	RI		0.9
376	WF West Fork									
377	10143680 Powers No. 1 Grating			\$ 277,349		CSO 527A	Regulator Improvements - 4.6 cfs	RI		0.4
378	10143700 Beekman North Grating			\$ 277,350		CSO 528A	Regulator Improvements - 3.0 cfs	RI		0.2
379	10143720 Beekman South Grating			\$ 277,350		CSO 528B	Regulator Improvements - 8.5 cfs	RI		0.9
380	10143740 Liewallen Grating			\$ 277,350		CSO 529B	Regulator Improvements - 3.9 cfs	RI		0.1
381	10143760 Hoffer Grating			\$ 355,200		CSO 123	Partial Separation	PS		0.0
382	10143780 Hays Grating			\$ 895,800		CSO 127	Partial Separation	PS		0.2
383	10143800 Todd No. 2 Grating			\$ 1,337,900		CSO 128	Partial Separation	PS		0.3
384	10143860 Butter/Todd 1/1/1/1/1 Grating			\$ 85,000,001		CSO 130	Conveyance to Tunnel at Mill Creek, 12,600' of 84" sewer	CONV		56.3
385	10143820 Badgley Run Grating - incl. with 10143820					CSO 125	Conveyance to Tunnel at Mill Creek, 12,600' of 84" sewer. Cost in CSO 130	CONV		69.9

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INDEX		Sunk Costs		Remaining Costs		CSO SSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
		2006 Dollars		2006 Dollars						
386	10143840					CSO 126	Conveyance to Tunnel at Mill Creek, 12,600' of 84" sewer, Cost in CSO 130	CONV		33.2
387	10143880					CSO 203	Conveyance to Tunnel at Mill Creek, 12,600' of 84" sewer, Cost in CSO 130	CONV		5.4
388	10143900					CSO 117A	Conveyance to Tunnel at Mill Creek, 12,600' of 84" sewer, Cost in CSO 130	CONV		9.4
389	EL									
390	10142640			\$	1,019,100	CSO 544	Partial Separation	PS		0.1
391	10142660			\$	510,101	CSO 653	Partial Separation	PS		0.4
392	10142700			\$	75,986,176	CSO 181	EHRT - 230 MGD (NOTE 2)	EHRT		215.1
393	EO1U									
394	10144160					CSO 430	In-line Storage in existing piping (also 431 & 432)	STOR		27.6
395	10144180					CSO 432	In-line Storage in existing piping (also 430 & 431A)	STOR		5.2
396	10144200			\$	2,702,301	CSO 431A	In-line Storage in existing piping (also 430 & 432) Dewater pump station for 2.0 MGD	STOR		102.5
397	EO2									
398	10144220			\$	277,350	CSO 449	Regulator Improvement - 1.0 cfs	RI		0.1
399	10144240			\$	277,350	CSO 453A	Regulator Improvement - 2.6 cfs	RI		0.3
400	10144260			\$	1,530,200	CSO 447	Partial Separation	PS		0.1
401	10144320			\$	277,350	CSO 452	Regulator Improvement - 8.5 cfs	RI		4.1
402	10144340			\$	27,874,917	CSO 461	EHRT - 120 MGD (NOTE 2)	EHRT		119.2
403	10144360			\$	277,350	CSO 464	Regulator Improvement - 6.4 cfs	RI		3.6
404	10144380			\$	277,350	CSO 465	Regulator Improvement - 2.0 cfs	RI		1.0
405	10144400			\$	277,349	CSO 465E	Regulator Improvements - 5.8 cfs	RI		2.8
406	10144420			\$	277,350	CSO 466E	Regulator Improvement - 2.6 cfs	RI		1.6
407	WOU									
408	10144700			\$	381,500	CSO 668	Partial Separation	PS		0.5
409	10144720			\$	97,801	CSO 426A	Full Separation	FS		0.3
410	10144740			\$	1,682,099	CSO 426B	Partial Separation	PS		0.5
411	10144820			\$	4,237,794	CSO 424	Partial Separation	PS		5.2
412	10144860			\$	277,351	CSO 425B	Regulator Improvement - 1.7 cfs Overcontrol @ CSO 419	RI		8.5
413	EO1LW									
414	10144020			\$	277,353	CSO 435	Regulator Improvements - 11.2 cfs	RI		6.6
415	10144040			\$	2,638,500	CSO 433	Partial Separation	PS		1.0
416	10144080			\$	824,589	CSO 434	Partial Separation	PS		0.2
417	10144120			\$	785,300	CSO 489	Partial Separation	PS		0.1
418	10144140			\$	4,587,403	CSO 436	Partial Separation	PS		8.4
419	CRL									
420	10142560			\$	2,876,601	CSO 490	Partial Separation	PS		0.9
421	10142600			\$	8,274,751	CSO 171	Storage - 2.00 MG	STOR		23.0
422	KRL									
423	10142960			\$	277,301	CSO 026A	Regulator Improvements - 7.1 cfs	RI		0.0
424	10142980			\$	1,159,300	CSO 480	Partial Separation	PS		1.3
425	EO3W									
426	10144440			\$	6,473,589	CSO 455	Partial Separation	PS		3.3
427	10144460			\$	1,459,000	CSO 456	Partial Separation	PS		1.0
428	10144480			\$	1,323,000	CSO 457	Partial Separation	PS		0.2
429	10144520			\$	541,898	CSO 658	Full Separation	FS		0.0
430	10144560			\$	136,000	CSO 454B	Full Separation	FS		0.0
431	10144580			\$	1,272,000	CSO 457A	Partial Separation	PS		0.5
432	10144600			\$	19,890,435	CSO 458	Storage - 6.0 MG Consolidate with CSO 460	STOR		10.1
433	10144640			\$	277,350	CSO 454A	Regulator Improvement - 5.5 cfs	RI		12.7
434	EO1LE									
435	10144000			\$	277,331	CSO 438A	Regulator Improvements - 52.4 cfs	RI		8.9
436	10144100			\$	3,683,099	CSO 438	Partial Separation	PS		14.3
437	NSL									
438	10143200			\$	277,300	CSO 19	Regulator Improvement - 7.6	RI		0.9
439	EU									
440	10142620			\$	277,301	CSO 37	Regulator Improvements - 6.2 cfs	RI		1.3

ATTACHMENT 2

INDEX	Description	Sunk Costs		Remaining Costs		CSO Identifier	Description / Design (NOTE4)	Technology	Plan CAPP	Plan Remaining CSO (MG/year)
		2008 Dollars	2008 Dollars	2008 Dollars	2008 Dollars					
441	64th St. Div. Dam			\$	2,280,418	CSO 39	Partial Separation	PS		2.2
442	68th St. Div. Dam			\$	277,301	CSO 48B	Over Control at TBT to eliminate conveyance element	RI		35.3
443	SGL									
444	4710 Howard Grating			\$	277,300	CSO 110	Regulator Improvements - 2.80 cfs	RI		0.3
445	Springlawn Grating			\$	1,406,908	CSO 111	Partial Separation	PS		4.1
446	1547 Springlawn Grating			\$	1,218,789	CSO 112	Partial Separation	PS		0.7
447	EO3E									
448	Bayou St. 120 West Regulator			\$	471,800	CSO 459	Partial Separation	PS		0.3
449	Eastern and Gotham			\$	2,435,600	CSO 667	Partial Separation	PS		2.6
450	Bayou St. 100 West Div. Dam			\$	6,688,046	CSO 460/458	Consolidate with CSO 458	CONV		14.7
451	LMCFR									
452	Phase 2 Default (Lower Mill Creek Final Remedy)			\$	305,658,000		Default tunnel(s)/conveyance, to be designed with reference to the final LMCPR and to meet the Performance Criteria applicable to the CSO's below (see Plan Remaining CSO and Note 6)	Default tunnel(s)/CONV		
453	Bank Ave. Regulator - KRU - Incl. with 10145380					CSO 33	TBD	TBD		15.1
454	Denham St. Regulator - HS - Incl. with 10145380					CSO 10	TBD	TBD		81.4
455	Hopple St. Regulator - HS - Incl. with 10145380					CSO 11	TBD	TBD		6.7
456	Bates Run Regulator - HS - Incl. with 10145380					CSO 12	TBD	TBD		76.4
457	Yonkers St. Regulator - HS - Incl. with 10145380					CSO 13	TBD	TBD		11.2
458	Station 15 Regulator - HS - Incl. with 10145380					CSO 14	TBD	TBD		15.3
459	Arlington St. Regulator - HS - Incl. with 10145380					CSO 15	TBD	TBD		24.3
460	Ludlow Ave. Div. Dam - NSU - Incl. with 10145380					CSO 22	TBD	TBD		14.5
461	Albion St. & Ludlow Run Regulator - NSU - Incl. with 10145380					CSO 23	TBD	TBD		19.9
462	Ludlow Run Regulator - CNV - NSU - Incl. with 10145380					CSO 24	TBD	TBD		36.6
463	Mitchell Ave. Regulator - KRL - Incl. with 10145380					CSO 482	TBD	TBD		109.5
464	Clifton Ave. East Grating - KRL - Incl. with 10145380					CSO 28	TBD	TBD		10.3
465	Donnell St. Grating - KRL - Incl. with 10145380					CSO 29	TBD	TBD		1.7
466	Lafayette Cir. Grating - KRL - Incl. with 10145380					CSO 30	TBD	TBD		24.5
467	Winton Rd. A Regulator - KRL - Incl. with 10145380					CSO 025A	TBD	TBD		8.4
468	New Esle Ave CSO - KRL - Incl. with 10145380					CSO Esle	TBD	TBD		8.6
469	Colerain Ave. Div. Dam - NSL - Incl. with 10145380					CSO 18	TBD	TBD		31.9
470	Streng St. Div. Dam - NSL - Incl. with 10145380					CSO 21	TBD	TBD		2.9
471	Dreman Ave. Div. Dam - NSL - Incl. with 10145380					CSO 017B	TBD	TBD		
472	TOTAL PHASE 2 WITHOUT PHASE 2 ALLOWANCES			\$	182,720					
				\$	2,015,466,833					

- NOTES:**
1. PROJECT COMPLETE AND IN SERVICE AT SPECIFIED CAPACITY
 2. FOR ALL PROJECTS WITH EHRT TECHNOLOGY VOLUME SHOWING IS REMAINING UNTREATED OVERFLOW - SEE ATTACHMENT 5.
 3. INFORMATION RELATED TO THIS PROJECT IS PRELIMINARY AND SUBJECT TO CHANGE BASED ON FURTHER STUDY AS SET FORTH IN PARAGRAPH A.3. OF THE WWIP
 4. CAPP DESIGN, ALL CAPP SEWER PROJECTS WILL BE DESIGNED TO MEET THE 10 YEAR DESIGN STORM EVENT. ALL CAPP PUMP STATION AND STORAGE FACILITIES WILL BE DESIGNED TO MEET THE 2 YEAR DESIGN STORM EVENT.
 5. THE 2 AND 10 YEAR DESIGN STORMS ARE SCS TYPE II - 24 HOUR EVENTS.
 6. FOR THESE ETC PROJECTS, THE STATED REDUCTION IN THE TYPICAL YEAR CSO DISCHARGE VOLUME SHALL ALSO BE THE PERFORMANCE CRITERIA FOR THE FACILITY.
 7. PERFORMANCE CRITERIA FOR CSO VOLUMES REMAINING AFTER IMPLEMENTATION OF CSO CONTROLS ARE THE VOLUMES NOT TO BE EXCEEDED AT A PARTICULAR OUTFALL DURING MSDGCS TYPICAL YEAR RAINFALL (670). COMPLIANCE WITH THESE CRITERIA WILL BE EVALUATED BY IMPLEMENTATION OF A POST CONSTRUCTION MONITORING PROGRAM (WHICH WILL BE SUBMITTED TO THE REGULATORY AGENCIES FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE GLOBAL CONSENT DECREE) THAT WILL UTILIZE MSDGCS HYDROLOGIC AND HYDRAULIC MODEL TO NORMALIZE THE RESULTS OF THE POST CONSTRUCTION MONITORING TO THE TYPICAL YEAR.

CURRENT WWT COSTS		Attachment 3	
Line No.	Source	Methodology	
1	Annual O&M Expense (excl. depr.)	O&M - Financial Statements, most current year. Annual Equipment Purchases - Current budget, Fund 401 (MSD), Agency 410 (Office of the Director), Object 7600 (Office/Tech Equipment) and Object 7615 (Motorized Equipment)	Total O&M from Financial Statement, (not including depreciation) plus Annual Equipment Purchases, which includes Office/Tech Equipment and Motorized Equipment
2	Annual Debt Service	Audited Financial Statements, most current year	Total principal and interest payments from all debt, as listed in Notes to Audited Financial Statements
PROJECTED WWT AND CSO CAPITAL COSTS			
3	Estimated Additional Annual Expenditures Projected O&M for WWIP	Reasonable, documented MSDGC Engineering Estimates	Total additional O&M (in current year dollars, excluding inflation) expected at the conclusion of the ensuing Phase (or subpart) from implementation of the total capital program (WWIP and asset management) or other sources (e.g., benefits, new regulator requirements).
4	Estimated Total Cash Financed Capital	Reasonable, documented MSDGC Engineering Estimates and MSDGC Rate Model	Amount of cash financed capital for total capital program (WWIP, Asset Management and other capital costs), in current year dollars.
5	Total CSO Capital Costs (debt financed)	Reasonable, documented MSDGC Engineering Estimates and MSDGC Rate Model	Amount of debt financed capital for WWIP based on calculation of required debt financed capital after taking into account other expected funding sources (e.g. cash financed capital, connection fee revenue, certain interest income).
6	Total WWT Costs, including Asset Management and Other Capital Costs (debt financed)	Reasonable, documented MSDGC Engineering Estimates and MSDGC Rate Model	Amount of debt financed capital for WWIP Capital (including Asset Management and other non-WWIP capital) costs based on calculation of required debt financed capital after taking into account other expected funding sources (e.g. cash financed capital, connection fee revenue, certain interest income).
7	Bond Interest Rate, Term, and Amount	Amount of debt financing determined by most recent rate study. Other expected funding sources (e.g., SRF loans, grants, etc.) would be incorporated into computations model, with appropriate rate and term applied)	Opinion of expert in municipal revenue bond financing on expected bond interest rate(s) and bond term(s) (years), based upon existing and anticipated market conditions, MSDGC financial condition, bond rating, MMD General Municipal Revenue Bond Index (or then available and applicable municipal bond market indexes), and other relevant factors.
8	Residential Share	Based on industry accepted standards and consistent with the most recent MSDGC Rate Study, utilizing MSDGC billing records and treatment plant records.	Rate model calculations based on most recent full year data and consistent with most recent MSDGC rate study. Rate model calculates total infiltration/inflow, and allocates such to customer classes based on industry accepted standards. Sum of contributed volume and allocated infiltration/inflow results in total share per customer class. Residential share is sum of Residential and Multifamily customer classes. (See attached example)
9	Total Number of households in area	Based on its billing database and/or GIS, MSDGC will provide information that identifies, by map or geographic unit (e.g., ZIP or place) the areas served by its sewers. Most recent data available from the Census Bureau, including both the Decennial Census and the American Community Survey, will be collected for all geographic units that are wholly or partially within these areas.	Using American Community Survey data, all households within a geographic unit served in its entirety will be included in the estimate. The household estimate for each sewer area that is part of a larger geographic unit will be based on a determination of the proportion of that unit that is served by MSDGC sewers. The overall estimate will be the sum of the estimates for the individual geographic units (less the number of households determined to be served by septic or other package systems). Using American Community Survey data (see note below), households by income will be aggregated for all geographic units served in their entirety and for the appropriate proportions of partially served geographic units. The median household income of the entire area will be estimated by calculating a median for the aggregated household income distribution (assuming all households within an income range are evenly distributed across that range), and adjusting that figure by the ratio of the reported median to the calculated median for Hamilton County. (See attached example)
10	Median Household Income (MHI)	same as line 108	

Line 10 Note re use of American Community Survey (ACS) data: Step 1: calculate using most recent three-year ACS estimates for the entire service area. Step 2: calculate using one-year ACS estimates for those geographic entities where that data is available (currently, populations more than 65,000). Step 3: add the results of Steps 1 and 2 and divide by 2.

Example of MHI Calculation

Step 1: Using the American Community Survey (ACS), gather data on households by income level in each geographic unit served (as determined in calculation of Line 108). Estimates for each served area that is part of a larger geographic unit will be based on a determination of the proportion of that unit that is served by MSDGC. MHI data for some geographical units may overlap, and proper adjustments must be made. For example, if one geographic unit is the City of Cincinnati and another is Hamilton County as a whole, then the appropriate household figure for the Hamilton County unit would be based on County households less City households.

Step 2: Sum households across all units served for each income bracket to arrive at the total distribution of households in the service area by income level.

Step 3: Calculate cumulative households by income group.

Step 4: Calculate Service Area MHI

- > Find the median household by adding one to total households and dividing by two (Line A).
- > Determine the income bracket in which the median household is located by comparing the value calculated in Line A to the cumulative household column (in this example it is the \$30,000 to \$34,999 bracket, highlighted in red).
- > Take the value calculated in Line A and subtract cumulative households in all income brackets preceding the bracket that contains the median household to find the numbered location of the median household within the median income bracket (Line B).
- > Divide the value from Line B by the number of households in the medium income bracket to get the percentage of households in the median income bracket lower than the median household.
- > Multiply the percentage from Line C by the range of the median income bracket (Line D).
- > Add the value from Line D to the lower bound of the median income bracket to arrive at the preliminary MHI value for the service area.
- > Adjust the preliminary MHI value based on the ratio of the county's reported MHI to the MHI calculated by using this methodology.

	Unit 1	Unit 2	Unit 3	Unit 4	Service Area	Cumulative	County
Total pop:	1,297	2,156	7,797	4,486	15,736		26,850
Total hhd's:	590	1,087	2,528	1,435	5,640		9,363
Less than \$10,000	0	26	16	0	42	42	105
\$10,000 to \$14,999	27	17	81	73	198	240	448
\$15,000 to \$19,999	26	24	164	104	318	558	728
\$20,000 to \$24,999	55	30	265	163	513	1,071	861
\$25,000 to \$29,999	48	87	424	286	845	1,916	1,419
\$30,000 to \$34,999	162	196	683	325	1,366	3,282	2,008
\$35,000 to \$39,999	29	236	360	189	814	4,096	1,325
\$40,000 to \$44,999	79	192	130	120	521	4,617	680
\$45,000 to \$49,999	9	30	57	30	126	4,743	310
\$50,000 to \$59,999	10	74	107	32	223	4,966	363
\$60,000 to \$74,999	21	80	81	55	237	5,203	321
\$75,000 to \$99,999	32	35	52	7	126	5,329	232
\$100,000 to \$124,999	31	39	40	0	110	5,439	182
\$125,000 to \$149,999	9	11	57	16	93	5,532	193
\$150,000 to \$199,999	33	10	11	11	65	5,597	107
\$200,000 or more	19	0	0	24	43	5,640	81
Median household income							\$32,363
Calculated MHI							\$32,790
Actual MHI as % of Calc. MHI							98.7%

Line	Service Area Calculated MHI
A	2,821
B	905
C	66.22%
D	3,310
E	\$33,310
F	\$32,876

**Table 1
2006 Data**

	<u>Equivalent Meters</u>	<u>Billed Volume</u> <i>ccf</i>	<u>I/I</u>		<u>Total</u> <i>ccf</i>	<u>Total</u> <i>ccf</i>
			<u>Customer</u> <i>ccf</i>	<u>Volume</u> <i>ccf</i>		
By Customer Class						
Resid-Q	231,193	16,797,000	19,327,200	3,840,175	23,167,375	39,964,375
Comm-Q	45,054	3,475,900	3,766,400	794,700	4,561,100	8,037,000
Ind-Q	10,225	1,013,700	854,800	231,800	1,086,600	2,100,300
MF-Q	22,130	3,321,300	1,850,000	759,300	2,609,300	5,930,600
Resid-M	624	1,158,400	52,200	264,800	317,000	1,475,400
Comm-M	5,581	4,887,100	466,600	1,117,300	1,583,900	6,471,000
Ind-M	20,275	10,188,300	1,694,900	2,329,300	4,024,200	14,212,500
Total	335,082	40,841,700	28,012,125 75.0%	9,337,375 25.0%	37,349,500	78,191,175
Total Residential		21,276,700	52.1%		47,370,375	60.6%

Excerpt from 2005 Rate Study.

Wastewater collected and treated by the District consists of two elements: (1) contributed sanitary wastewater flow, and (2) infiltration/ inflow of ground water and stormwater runoff into the sewers. Contributed wastewater flow is that portion of the annual water use or other discharge of each customer class which enters the sanitary wastewater system. Estimates of the contributed volume of each class is generally based upon wastewater billing records that exclude estimated water use not reaching the wastewater system, such as that used for lawn sprinkling and car washing or included in manufactured products.

Based on a historical analysis, it is estimated that the amount of flow entering the sewers through I/I will average 48 percent of the total wastewater flow reaching the treatment plants. Each customer class should bear its proportionate share of the costs associated with I/I as the wastewater system must be adequate to convey and process the total flow. Recognizing that the major cost responsibility for I/I is allocable on an individual connection basis, three-fourths of the I/I volume is allocated to customer classes based on estimated customer equivalent connections with the remaining one-fourth allocated on the basis of contributed volume.

The responsibility for collection system capacity cost varies with the estimated peak flow rates of contributed wastewater and infiltration attributable to each customer class. Infiltration/inflow is estimated to comprise 64 percent of the total peak flow.

Attachment 4

		2009		2010
1	MSD Green program	\$ 8,000,000.00	\$	15,000,000.00
2	System-wide RDI/I	\$ 2,750,000.00	\$	527,600.00
3	Trenchless technology - Manholes	\$ 1,165,800.00	\$	1,235,600.00
4	Trenchless Technology - Sewers	\$ 6,993,500.00	\$	7,413,700.00
5	Urgent Capacity Response	\$ 2,331,100.00	\$	2,471,100.00
6	WIB Prevention Program	\$ 2,800,000.00	\$	2,750,000.00
7	Wet Weather Strategy Development	\$ 1,165,700.00	\$	1,235,500.00
8	Home Sewer Treatment Systems Extensions	\$1,969,695.00		\$917,600.00
	Sub Total - per year	\$ 27,175,795.00	\$	31,551,100.00

GREEN PROGRAM

		2009	2010
A	LID Demonstration	\$ 5,000,000.00	\$ 5,000,000.00
B	Regional BMP		
	Planning	\$ 1,000,000.00	\$ 2,000,000.00
	Design	\$ 500,000.00	\$ 3,000,000.00
	Construction		\$ 2,000,000.00
C	Large Scale Projects		
	Lick Run - Planning	\$ 1,500,000.00	\$ 2,000,000.00
	Design		\$ 1,000,000.00
	TOTAL	\$ 8,000,000.00	\$ 15,000,000.00

Green Demonstration Program Summary



1A Expression of Interest Projects in this phase: 4

Emright EcoVillage Street Bumpout	Schenk, Jim		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Surface
Jefferson Quad	University of Cincinnati	Institution Educational	\$0.00	\$0.00	\$0.00	\$0.00	To be determined	Surface
Price Hill Pilot	MSD	Resident Single Family	\$0.00	\$0.00	\$0.00	\$0.00	Curb Extension	Surface
							Pervious Pavement: Concrete	Surface
							Rain Garden: Natural	Roof and surface
							Rainwater Harvesting: Barrels	Roof
Santa Maria Community Center	Jess Lhz		\$0.00	\$0.00	\$0.00	\$0.00	Rain Garden: Natural	Roof

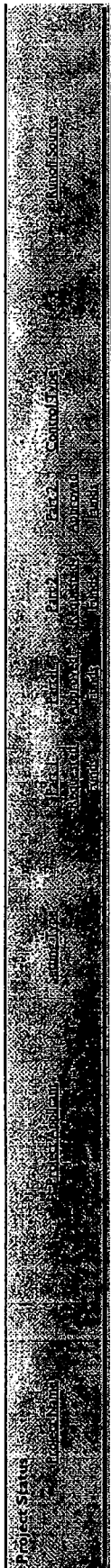
Notes: This is a research and development program exploring the use of green storm water controls to manage storm water in the Greater Cincinnati MSD combined sewer areas. These research projects will be monitored to determine the relative effectiveness of a wide variety of green controls in reducing the volume of storm water runoff reaching the combined sewer system. Various design variables, runoff sources, and settings are being explored through partnerships with a wide variety of public and private entities to determine which controls perform most cost effectively and could be targeted in a larger green infrastructure program. The program is set up in two phases: Part 1 Concept and Part 2 Construction. Not all proposed projects are asked to participate in this program. Only approved Part 1 project applicants are invited to submit Part 2 applications for construction. There are multiple stages in each phase and each project only occupies one stage at a time in this report. Part 1 and Part 2 projects have the numbers "1" and "2", respectively in their status designation. The green storm water controls presented in this report are preliminary until a Part 2 Construction Application has been approved and the funding allocated. Some of the Part 1 requested funding includes approximate construction costs if those costs are presented in the Part 1 Concept Application. Questions regarding these projects should be directed to the program staff.

Project Status	Project Name	Project Address	Project Type	Project Category	Project Phase	Project Size	Project Value	Project Source
IB Part I Application Sent	5500 Ridge Avenue		Office/Retail Large				\$0.00	
	Amberley Village Green Project		Amberley Village				\$0.00	
	CPS AMIS		Cincinnati Public Schools	Institution Educational			\$0.00	
	CPS College Hill Elementary		Cincinnati Public Schools	Institution Educational			\$0.00	
	CPS Dater Montessori School		Cincinnati Public Schools	Institution Educational		\$8,850.00	\$0.00	
	CPS New Evanston		Cincinnati Public Schools	Institution Educational			\$0.00	
	CPS Rothenberg School		Cincinnati Public Schools	Institution Educational			\$0.00	
	CPS Western Hills-Dater High School		Cincinnati Public Schools	Institution Educational			\$0.00	
	CPS Westwood Elementary		Cincinnati Public Schools	Institution Educational			\$0.00	
	Lunken Airport		Cincinnati DOTE	Institution Other			\$0.00	
	Mt. Lookout Square		Cincinnati DOTE	Roads Local			\$0.00	
	Westwood Development		Duffy, Carolyn	Office/Retail Small			\$0.00	

Projects in this phase: 12

Project Name	Address	Project Type	Project Category	Project Phase	Project Size	Project Value	Project Source
5500 Ridge Avenue		Office/Retail Large				\$0.00	
Amberley Village Green Project		Amberley Village				\$0.00	
CPS AMIS		Cincinnati Public Schools	Institution Educational			\$0.00	
CPS College Hill Elementary		Cincinnati Public Schools	Institution Educational			\$0.00	
CPS Dater Montessori School		Cincinnati Public Schools	Institution Educational		\$8,850.00	\$0.00	
CPS New Evanston		Cincinnati Public Schools	Institution Educational			\$0.00	
CPS Rothenberg School		Cincinnati Public Schools	Institution Educational			\$0.00	
CPS Western Hills-Dater High School		Cincinnati Public Schools	Institution Educational			\$0.00	
CPS Westwood Elementary		Cincinnati Public Schools	Institution Educational			\$0.00	
Lunken Airport		Cincinnati DOTE	Institution Other			\$0.00	
Mt. Lookout Square		Cincinnati DOTE	Roads Local			\$0.00	
Westwood Development		Duffy, Carolyn	Office/Retail Small			\$0.00	

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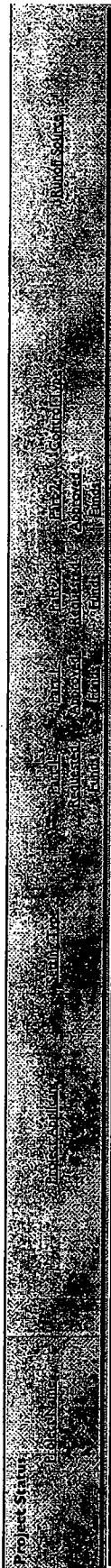
ID Part 1 Under First Review **Projects in this phase: 3**

City of Wyoming Rain Gardens	Wyoming Environmental Commis	Institution Govt Municipal	\$0.00	\$0.00	\$10,000.00	\$0.00	Rain Garden: Natural	Surface
Evenston Aquatic Center	Cincinnati Recreation Commissio		\$15,000.00	\$0.00	\$0.00	\$0.00	Bioretention Basin Pervious Pavement: Concrete Pervious Pavement: Pavers	Surface Surface Surface
Green Streets	City of Cincinnati	Roads Local	\$241,000.00	\$0.00	\$0.00	\$0.00	Bioretention Trench Curb Extension Pervious Pavement: Concrete Rain Garden: Urban Planter	Roof and surface Roof and surface

IE Part 1 Information Needed **Projects in this phase: 6**

Barrett Condo Green Roof	Barrett, Catherine	Resident Multiple Family	\$15,000.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Dent	Dent, Wade	Resident Multiple Family	\$0.00	\$0.00	\$0.00	\$0.00	Rainwater Harvesting: Cistern	Roof
Green Off the Grid	Cincinnati State Technical Colleg	Institution Educational	\$0.00	\$0.00	\$0.00	\$0.00	To be determined	Roof and surface
O'Neal Green Roof 1	O'Neal, Todd	Resident Single Family	\$10,000.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
O'Neal Green Roof 2	O'Neal, Todd	Resident Multiple Family	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
The Arbors	City Lands Development	Resident Single Family	\$21,000.00	\$0.00	\$0.00	\$0.00	Pervious Pavement: Asphalt Rain Garden: Natural	Surface Surface

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IF Part I Under Revision

Projects in this phase: 4

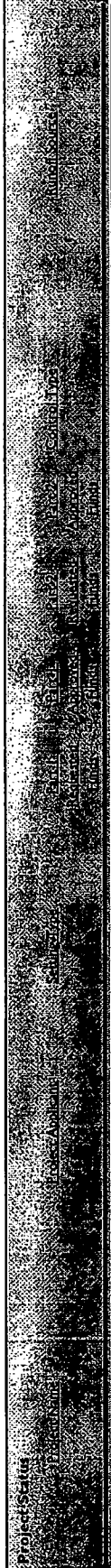
Project Name	Client	Category	Cost	Phase	Control Type
American Can Site Development	American Can LLC	Office/Retail Large	\$44,000.00	\$0.00	\$0.00
Burnet Woods Park CSO Control	Cincinnati Park Board	Large Open Areas	\$172,000.00	\$0.00	\$0.00
Cincinnati Business Development & Permit Ca	City of Cincinnati	Institution Govt Municipal	\$0.00	\$0.00	\$0.00
CPS Pleasant Ridge Montessori	Cincinnati Public Schools	Institution Educational	\$0.00	\$0.00	\$0.00

II Part I Approved

Projects in this phase: 3

Project Name	Client	Category	Cost	Phase	Control Type
1600 Gest Street Rain Garden	MSDCC	Institution Govt Municipal	\$869,659.00	\$15,000.00	\$0.00
Christ Hospital Bioswales	Christ Hospital	Institution Hospital/Churc	\$4,800.00	\$43,000.00	\$0.00
CPS Kligour Elementary	Cincinnati Public Schools	Institution Educational	\$25,000.00	\$25,000.00	\$0.00

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II) Part I Not Approved

Projects in this phase: 4

Project Name	MSDGC	Institution Govt Municipal	\$185,000.00	\$0.00	\$0.00	\$0.00	To be determined	Roof and surface
1600 Gest Street BMP Study								Roof
Mt. Washington Green Demonstration Project	Hillside Trust	Institution Hospital/Churc	\$0.00	\$0.00	\$0.00	\$0.00	Broswale	Surface
Spring Grove Avenue Rain Gardens	Cincinnati DOTE	Roads Local	\$66,000.00	\$0.00	\$0.00	\$0.00	Rain Garden: Natural	Surface
Springfield Township Schools Green Curricula	GAIA Foundation		\$1,800.00	\$0.00	\$0.00	\$0.00	Other	

III) Part I Funding Agreement

Projects in this phase: 1

Union Terminal Green Roof	Cincinnati Museum Center	Institution Govt Municipal	\$31,919.00	\$10,000.00	\$212,795.00	\$0.00	Green Roof: Extensive (shallow)	Roof
							Rainwater Harvesting: Barrels	Roof

IV) Part I Complete

Projects in this phase: 2

CPS School Study	Cincinnati Public Schools	Institution Educational	\$0.00	\$0.00	\$0.00	\$0.00	Other	
Fire Station 51 Rain Garden	Cincinnati City Facility Managem	Institution Govt Municipal	\$0.00	\$0.00	\$0.00	\$0.00	Rain Garden: Natural	Surface

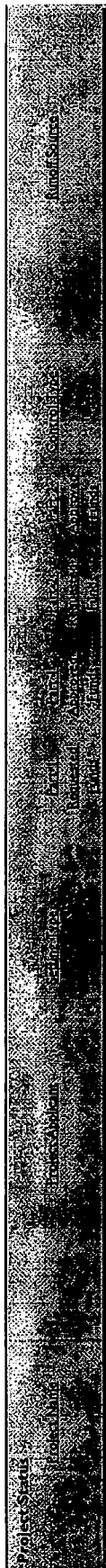
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2A Part 2 Application Sent **Projects in this phase: 9**

Project Name	Project Address	Project Type	Project Status	Project Cost	Project Funding	Project Description	Project Location	Project Type	Project Status
American Red Cross Building	American Red Cross	Institution Other		\$22,300.00	\$22,300.00			Surface	Surface
				\$0.00	\$0.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof
				\$0.00	\$0.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof
				\$0.00	\$0.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof
CPS Clark Montessori	Cincinnati Public Schools	Institution Educational		\$19,000.00	\$19,000.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof
				\$0.00	\$0.00			Roof	Roof
				\$0.00	\$0.00			Surface	Surface
CPS Hartwell	Cincinnati Public Schools	Institution Educational		\$26,200.00	\$26,200.00			Roof	Roof
				\$0.00	\$0.00			Roof	Roof
				\$0.00	\$0.00			Surface	Surface
CPS North Avondale Montessori	Cincinnati Public Schools	Institution Educational		\$9,800.00	\$9,800.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof
				\$0.00	\$0.00			Surface	Surface
CPS Sands Montessori	Cincinnati Public Schools	Institution Educational		\$14,500.00	\$14,500.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof
Hixson Building	Hixson Properties LLC	Office/Retail Large		\$0.00	\$500,000.00			Roof	Roof
Osborn Alley	Cincinnati DOTE	Roads Local		\$6,000.00	\$75,000.00			Roof	Roof
				\$0.00	\$0.00			Roof and surface	Roof and surface
Pleasant Ridge Park	Pleasant Ridge Community Coun	Institution Hospital/Churc		\$6,500.00	\$5,000.00			Surface	Surface
Zoo African Savannah	Cincinnati Zoo	Institution Hospital/Churc		\$20,000.00	\$20,000.00			Surface	Surface
				\$0.00	\$0.00			Roof	Roof

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Zoo African Savannah	Cincinnati Zoo	Institution Hospital/Church	\$20,000.00	\$20,000.00	\$0.00	\$0.00	Pervious Pavement: Asphalt	Surface
							Pervious Pavement: Concrete	Surface
							Rainwater Harvesting: Cistern	Roof

2C Part 2 Technical Review

Projects in this phase: I								
CPS T&IT	Cincinnati Public Schools	Institution Educational	\$13,800.00	\$13,800.00	\$465,000.00	\$0.00	Green Roof: Extensive (shallow)	Roof
							Rain Garden: Natural	Surface

2D Part 2 Cost Review

Projects in this phase: I								
Oakley Square	Cincinnati DOTE	Roads Local	\$0.00	\$0.00	\$252,000.00	\$0.00	Pervious Pavement: Concrete	Surface
							Rain Garden: Urban Planter	Surface

2E Part 2 Information Needed

Projects in this phase: I								
Green Station (aka Off the Grid)	Civic Garden Center	Special Learning Center	\$30,000.00	\$30,000.00	\$500,000.00	\$0.00	Bioswale	Surface
							Green Roof: Extensive (shallow)	Roof
							Green Roof: Intensive (deep)	Roof
							Green Roof: Modified	Roof
							Pervious Pavement: Asphalt	Surface
							Pervious Pavement: Concrete	Surface
							Pervious Pavement: Pavers	Surface
							Rain Garden: Natural	Surface
							Rainwater Harvesting: Barrels	Roof
							Rainwater Harvesting: Cistern	Roof and surface

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21 Part 2 Funding Agreement

Project Name	Projects in this phase: 1	Cincinnati DOTE	Roads Local	Institution Hospital/Churc	Cincinnati Zoo	ASIDACO	ASIDACO Green Roof	Roof and surface
Comer Alley		\$0.00	\$0.00	\$15,000.00	\$360,460.00	\$301,783.00		

21 Part 2 Implementation

Project Name	Projects in this phase: 1	Cincinnati DOTE	Roads Local	Institution Hospital/Churc	Cincinnati Zoo	ASIDACO	ASIDACO Green Roof	Roof and surface
Zoo Main Entry		\$0.00	\$0.00	\$15,000.00	\$360,460.00	\$301,783.00		

4A Not interested in MSD Program

Project Name	Projects in this phase: 1	Cincinnati DOTE	Roads Local	Institution Hospital/Churc	Cincinnati Zoo	ASIDACO	ASIDACO Green Roof	Roof and surface
ASIDACO Green Roof		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

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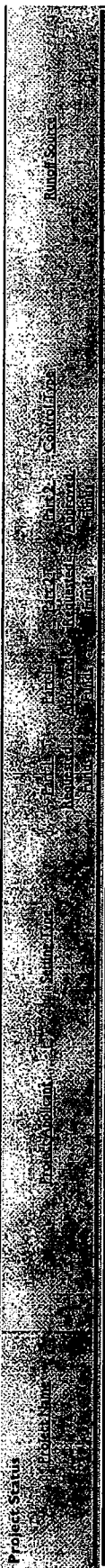
4B Referred to Cincinnati Green Roof Program Projects in this phase: **11**

700 Broadway Green Roof	KZF	Office/Retail Small	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Cincinnati Permit Building Green Roof	City of Cincinnati Building and Pe	Institution Govt Municipal	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Craig Green Roof	Craig/PB World		\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Cunningham Green Roof & Rain Gardens	Cunningham, Kenneth		\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
De Groot Green Roof & Rain Gardens	DeGroot, Joan	Resident Single Family	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow) Rain Garden: Natural	Roof
Gadkins Green Roof	Gadkins	Resident Single Family	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Geeding Residences Green Roof	Dan Geeding	Resident Single Family	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Spark Green Roof	Joanna Spark	Resident Single Family	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Warm Green Roof	Warm/Warm Construction		\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof
Woodye Express Car Wash	Larry Woodcock	Commercial Small	\$0.00	\$0.00	\$0.00	\$0.00	Other	Roof
Xavier Green Roof	Coleman, Adam	Institution Educational	\$0.00	\$0.00	\$0.00	\$0.00	Green Roof: Extensive (shallow)	Roof

4C External Program MSD as Partner Projects in this phase: **2**

I-75 Mitchell Interchange	MSD, ODOT and Cincinnati Park	Roads Arterial	\$0.00	\$0.00	\$0.00	\$0.00	Biofiltration Basin	Surface
Owls Nest Rain Garden	Cincinnati Park Board	Institution Hospital/Churc	\$0.00	\$0.00	\$0.00	\$0.00	Rain Garden: Natural	Surface

Notes: This is a research and development program exploring the use of green storm water controls to manage storm water in the Greater Cincinnati MSD combined sewer areas. These research projects will be monitored to determine the relative effectiveness of a wide variety of green controls in reducing the volume of storm water runoff reaching the combined sewer system. Various design variables, runoff sources, and settings are being explored through partnerships with a wide variety of public and private entities to determine which controls perform most cost effectively and could be targeted in a larger green infrastructure program. The program is set up in two phases: Part 1 Concept and Part 2 Construction. Not all proposed projects are asked to participate in this program. Only approved Part 1 project applicants are invited to submit Part 2 applications for construction. There are multiple stages in each phase and each project only occupies one stage at a time in this report. Part 1 and Part 2 projects have the numbers "1" and "2" respectively in their status designation. The green storm water controls presented in this report are preliminary until a Part 2 Construction Application has been approved and the funding allocated. Some of the Part 1 requested funding includes approximate construction costs if those costs are presented in the Part 1 Concept Application. Questions regarding these projects should be directed to the Project Manager.



4D Project Not Eligible **Projects in this phase: 2**

Project Name	Project Status	Amount	Category
Argo, David	05/21/2009 10:37:45 AM	\$0.00	Other
Children's Home of Cincinnati	05/21/2009 10:37:45 AM	\$0.00	Rain Garden, Natural

Green Demonstration Program Summaries

Project Status	Number of Projects in Concept Phase	Number of Projects in Design or Construction Phase
1D Part 1 Under First Review	3	1
1E Part 1 Information Needed	6	1
1F Part 1 Under Revision	4	1
1I Part 1 Approved	3	1
1L Part 1 Funding Agreement	1	1
2A Part 2 Application Sent	9	5
Projects in Concept Phase	26	5

Project Status	Amount	Category
2C Part 2 Technical Review	\$0.00	Rain Garden, Natural
2D Part 2 Cost Review	\$0.00	Rainwater Harvesting: Barrels
2E Part 2 Information Needed	\$0.00	Other
2I Part 2 Funding Agreement	\$0.00	Other
2J Part 2 Implementation	\$0.00	Other
Projects in Design/Construction Phase	\$0.00	Other

Project Status	Amount	Category
Concept Phase Funding Requested as of	05/21/2009 10:37:45 AM	\$1,414,126.00
Concept Phase Funding Approved as of	05/21/2009 10:37:45 AM	\$236,400.00

Project Status	Amount	Category
Construction Phase Funding Requested as of	05/21/2009 10:37:45 AM	\$2,449,255.00
Construction Phase Funding Approved as of	05/21/2009 10:37:45 AM	\$332,783.00

Notes: This is a research and development program exploring the use of green storm water controls to manage storm water in the Greater Cincinnati MSD combined sewer areas. These research projects will be monitored to determine the relative effectiveness of a wide variety of green controls in reducing the volume of storm water runoff reaching the combined sewer system. Various design variables, runoff sources, and settings are being explored through partnerships with a wide variety of public and private entities to determine which controls perform most cost effectively and could be targeted in a larger green infrastructure program. The program is set up in two phases: Part 1 Concept and Part 2 Construction. Not all proposed projects are asked to participate in this program. Only approved Part 1 project applicants are invited to submit Part 2 applications for construction. There are multiple stages in each phase and each project only occupies one stage at a time in this report. Part 1 and Part 2 projects have the numbers "1" and "2" respectively in their status designation. The green storm water controls presented in this report are preliminary until a Part 2 Construction Application has been approved and the funding allocated. Some of the Part 1 requested funding includes approximate construction costs if those costs are presented in the Part 1 Concept Application. Questions regarding these projects should be directed to the program staff.

Regional BMPs relate to green infrastructure projects affecting larger sewer sheds with anticipated stormwater capture benefits of greater than 10 million gallons.

Regional BMP's

Regional BMP's

2009	T.O No.	Project Name	Phase	Planning Cost	Design Cost	Construction Cost	Total Cost
1	078090007	Kings Run - Stream Removal	P + D	\$49,900	\$50,000		\$99,900
2	028090006	St Leo - Stream Removal	P	\$80,000			\$80,000
3	118090004	CSO #410 - Stream Removal	P + D	\$77,109	\$77,000		\$154,109
4	108090003	CSO #416 - Stream Removal (Gilday Park Bioretention Basin)	P + D	\$80,559	\$80,000		\$160,559
5		4609 Crawford - Stream Removal	P	\$80,000			\$80,000
6		4815 Winton Road	P	\$80,000			\$80,000
7		2888 Marxhall Ave	P	\$80,000			\$80,000
8		3071 Massachusetts Ave	P	\$80,000			\$80,000
9		Blair Basin	P	\$80,000			\$80,000
10		MH42202005	P	\$80,000			\$80,000
11		MH45608036	P	\$80,000			\$80,000
12		MH47611006	P	\$80,000			\$80,000
13		MH42203004	P	\$80,000			\$80,000
14		MH42109031	P	\$80,000			\$80,000
15		MH40802001	P	\$80,000			\$80,000
total				\$877,668	\$157,000	\$0	\$1,374,568

2010

1	078090007	Kings Run - Stream Removal	C			\$3,300,000	\$3,300,000
2		St Leo - Stream Removal	D		\$80,000		\$80,000
3		4609 Crawford - Stream Removal	D		\$80,000		\$80,000
4		4815 Winton Road	D		\$80,000		\$80,000
5		2888 Marxhall Ave	D		\$80,000		\$80,000
6		3071 Massachusetts Ave	D		\$80,000		\$80,000
7		Blair Basin	D		\$80,000		\$80,000
8		2856 Fischer Place (park)	P+D	\$80,000			\$160,000
9		3301 Beekman St	P+D	\$80,000			\$160,000

10	4932 Kirby Road	P+D	\$80,000	\$80,000	\$160,000
11	4481 Colerain Ave (from Airt Park)	P+D	\$80,000	\$80,000	\$160,000
12	MH42202005	D		\$80,000	\$80,000
13	MH45608036	D		\$80,000	\$80,000
14	MH47611006	D		\$80,000	\$80,000
15	MH42203004	D		\$80,000	\$80,000
16	MH42109031	D		\$80,000	\$80,000
17	MH40802001	D		\$80,000	\$80,000
18	MH42315049	P+D	\$80,000	\$80,000	\$160,000
19	MH47615013	P+D	\$80,000	\$80,000	\$160,000
20	MH42805028	P+D	\$80,000	\$80,000	\$160,000
21	MH45402004	P+D	\$80,000	\$80,000	\$160,000
total			\$640,000	\$1,600,000	\$3,300,000
					\$5,540,000

Long Term Projects

Description	2009	2010
Land use/Community coordination		
Breen BMP's Inform/Influence		
Research Support		
Water quantity/quality monitoring		
Lick Run/Muddy Creek Sewershed Planning		
Lick Run- Design		
Muddy West - Design		
Regional Planning Commission	\$ 150,000.00	\$ 175,000.00
Ohio State University	\$ 250,000.00	\$ 275,000.00
University of Cincinnati	\$ 200,000.00	\$ 500,000.00
USGIS/Federal EPA Joint Research	\$ 200,000.00	\$ 300,000.00
Strand/AECOM/Human Nature	\$ 700,000.00	\$ 750,000.00
	\$	\$ 700,000.00
	\$	\$ 300,000.00
Sub Total	\$ 1,500,000.00	\$ 3,000,000.00

Attachment 5

EHRT Design and Performance Criteria

Defendants agree to construct, according to the Design and Performance Criteria stated below, two Enhanced High Rate Treatment (as defined in Paragraph A.2 of the Final WWIP, "EHRT") Projects in Phase 1 of the WWIP. The two Phase 1 EHRT projects are 1) the EHRT Pilot Project at Werk and Westbourne, Project Number 10130740, and 2) the EHRT facility proposed as part of the LMCPR, which is subject to continuing study under the LMC Action Plan (collectively, the projects are "the Phase 1 EHRT Projects"). The Phase 1 EHRT Projects will confirm the treatment performance of the EHRT technology of high rate sedimentation treatment, with disinfection treatment and dechlorination during the recreational season.

After construction, the Phase 1 EHRT Projects will be operated and studied. The results of the studies shall be submitted to the Regulators. The design for EHRT facilities to be constructed in Phase 2 will be based on the Design Criteria below, the results of the performance studies on the Phase 1 EHRT Projects and applicable requirements of federal and state law.

Design Criteria Applicable to All EHRT Facilities:

A. Design Numeric Criteria Goals

- (1) High Rate Sedimentation Treatment. The EHRT facility shall be designed with the goal of achieving during the Recreation Season (May 1 to October 30) an average total suspended solids (TSS) removal rate of 70% at its design flow rate or below for all events in which the average influent solids exceed 150 mg/l, and for events in the Recreation Season in which the average influent TSS concentration is less than 150 mg/l an average effluent TSS concentration of no more than 45 mg/l.
- (2) Disinfection Treatment. The EHRT facility shall be designed with goals of:
 - (a) Achieving a mean of 3 to 4 log reduction of E. coli for all events during the Recreation Season at the design flow rate or below.; and
 - (b) Complying with water quality-based E. coli limitations (or other then-applicable bacteriological parameters) and disinfection residuals requirements at its design flow and all flow rates below that design flow rate.

B. Design Criteria Specifics for Unit Processes

Each EHRT facility shall include the following unit processes:

- (1) Fine screens
- (2) Coagulant-assisted sedimentation

- (3) Coagulant feed and storage
- (4) Hypochlorite disinfection
- (5) Disinfectant feed and storage
- (6) Disinfectant removal (e.g., dechlorination)

C. Each EHRT facility shall be designed with the following attributes:

- (1) Effective mixing at each point of chemical addition;
- (2) Separate sedimentation and disinfection contact zones;
- (3) A minimum total nominal detention time of 27 minutes;
- (4) A minimum nominal disinfection contact time of 10 minutes; and
- (5) A maximum nominal sedimentation zone surface loading rate of 7,000 gpd/square foot.

Performance Criteria Applicable to All EHRT Facilities: Discharges from each EHRT facility shall comply with all requirements of state and federal law applicable to such discharges, and all requirements of state and federal permits applicable to such discharges.