



**METROPOLITAN GOVERNMENT OF NASHVILLE  
AND DAVIDSON COUNTY - METRO WATER SERVICES  
PERFORMANCE AUDIT OF CLEAN WATER  
NASHVILLE OVERFLOW ABATEMENT PROGRAM**

**INTERIM REPORT - JULY 1, 2012 - APRIL 30, 2013**

**DATE ISSUED: AUGUST 31, 2013**



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**INTRODUCTION**

**Performance Audit Initiation**

Metro Water Services (“MWS”) engaged Crosslin & Associates, P.C. (“C&A”) in March 2013 to design and implement a performance audit for the Clean Water Nashville Overflow Abatement Program (“Program”). The design phase of the engagement included three tasks as follows:

1. Identify specific objectives and strategies for achieving the performance engagement goals through discussion with Program personnel, review of available documentation, and review of both legal and internal control requirements.
2. Identify relevant operational and financial performance measures to attain Program goals and objectives.
3. Assist MWS by developing a program to report performance measurement information which will allow MWS to monitor progress toward achieving Program goals and objectives.

The implementation phase of the engagement included testing these determined performance measurement objectives and goals and issuing the results of the engagement procedures in an annual report that includes both observations and any related recommendations. An annual report will be issued throughout the duration of the Program. This is the first annual performance audit report for the Program.

**Background**

MWS began an aggressive improvement and rehabilitation program in 1990 through 2006 to reduce the number of combined sewer overflows (“CSOs”) and sanitary sewer overflows (“SSOs”), making tremendous progress toward improving water quality in the Cumberland River and its major tributaries. However, despite these improvements, a significant number of overflows still remained, prompting state and federal regulatory agencies to approach MWS in 2006 about the need for additional work within the sewer system.

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**INTRODUCTION - Continued**

**Background - Continued**

In March 2009, a Consent Decree between the United States of America, the State of Tennessee, and the Metropolitan Government of Nashville and Davidson County was approved and entered with the United States District Court for the Middle District of Tennessee. The Consent Decree was filed on behalf of the United States Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC), requiring MWS to use its best efforts to achieve the following goals:

1. Full compliance with National Pollutant Discharge Elimination System (NPDES) permits, the Clean Water Act (“CWA”), the Tennessee Water Quality Control Act, and related regulations.
2. Elimination of SSOs, due to a later submitted design storm.
3. Compliance with EPA’s CSO Control Policy.

Under the Consent Decree, MWS is required to fully develop, in two years, a Corrective Action Plan/Engineering Report (“CAP/ER”) for its sanitary sewer system, a Long-term Control Plan (“LTCP”) for its combined sewer system to achieve the goals of the CWA, and meet water quality requirements in the Cumberland River. Due to the impacts of the May 2010 flood, MWS received a six month extension for the CAP/ER and the LTCP to be fully developed, and further a two year extension for final compliance. As such, these reports were developed and filed with the EPA, effective September 12, 2011. At a total estimated cost of \$1.0-\$1.5 billion, the Program represents a major investment in overflow abatement for the Nashville community.

See Appendix A for both the CAP/ER and LTCP Implementation Plans and Schedules submitted to the EPA.

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**EXECUTIVE SUMMARY**

**Scope of Performance Audit**

MWS engaged C&A to perform the first annual performance audit of the Clean Water Nashville Overflow Abatement Program (“Program”) for interim period of July 1, 2012 through April 30, 2013. The performance audit was conducted over a two month period from April 2013 through May 2013. At that time, the Program had 28 active projects (20 projects in the planning phase, 6 projects in the design phase and 2 in the construction phase) that are covered under the Consent Decree (see Appendix A for complete list of Consent Decree projects) and one rehabilitation project, 2011 Collection System Structural Defect Repair project, which is not included in Consent Decree. As of August 31, 2013, a total of approximately \$75.9 million out of a budgeted \$1.5 billion had been incurred for projects (See detail of these expenditures by project at Appendix A). Another \$60,000 out of a budgeted \$1.1 million had been incurred for the rehabilitation project.

C&A selected 6 active projects for testing performance measurement objectives. As of March 30, 2013, the following projects were active and selected for testing:

<u>Project Name</u>	<u>Escalated Budget</u>	<u>Project Phase</u>
Joelton Rehabilitation	\$6.9 million	Planning
Dodson Chapel Pipe Improvements	\$14.2 million	Design
West Park Equalization Facility Phase II	\$33.8 million	Design
Dodson Chapel Equalization Facility	\$25.1 million	Construction
Driftwood Equalization	\$ 4.1 million	Construction
2011 Collection System Structural	\$ 1.1 million	Construction

**Key Recommendations**

Key recommendations of this report include:

- Create and disseminate conflict of interest disclosures and related forms for potential related party transactions. Such forms should be signed by all members of the Program team including key decision makers employed with MWS, each independent contractor and sub-contractor working on Program projects.
- Perform a risk assessment for each individual project in the Program as outlined in the Program Management Plan Manual, Volume 1, Section 6. The Project Manager should be responsible for preparing the risk assessment and use the risk rating criteria employed for the Program Risk Management Plan. The Project Manager should then calculate risk score by estimating the consequence and likelihood of occurrence for each risk. Such calculation results in a maximum foreseeable loss for the project.

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**EXECUTIVE SUMMARY - Continued**

**Key Recommendations - Continued**

- Perform a monthly reconciliation of Program costs by project between the PMIS database and the EBS system (general ledger database) to ensure Program costs are entered timely, accurately and closely monitored for potential budget overruns.
- Create and implement a report that reflects total Program costs including MWS payroll costs, flow monitoring costs and other administrative program management costs incurred by contractors and subcontractors to ensure the costs are being properly allocated to all related active projects.
- Costs associated with all projects within the Program should be entered into the PMIS database, including those projects that had costs prior to the implementation of the PMIS system (i.e., Washington CSO Facility Improvements, Whites Creek Wastewater Pump Station, and rehabilitation project, which is not included under the Consent Decree).

See the Performance Audit Observations, Recommendations and Management Responses section of the report for detailed observations, recommendations and management responses for each performance measurement tested.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES**

**CONFLICTS OF INTEREST**

Observation

During fieldwork, C&A noted that no conflict of interest disclosures had been disseminated. One conflict of interest had been discovered by the management team and a plan put in place to address it. A project manager's wife worked for one of the subcontractors. The control was for the project manager to recuse himself from signing off on related items. Our observation was that he still had signed off on one invoice payment. Subsequent to fieldwork, conflict of interest documentation was obtained from the project contractors; however, no conflict of interest documentation was obtained from MWS employees or the subcontractor's key individuals.

Recommendation

C&A recommends signed conflict of interest disclosures be obtained annually for all key individuals. Any disclosures should be reviewed for potential conflicts and controls be put into place for any potential ethics violations. Signed conflict of interest disclosures and related controls should be monitored regularly for compliance.

Management's Response

In compliance with the COI policy reviewed by C&A, signed conflict of interest policy and disclosure statements were obtained for all staff engaged under the Program Management Consultant or Construction Management Consultant contracts a minimum of 10 hours per week (25% of the time) and filed in the Program Management Information System (PMIS) on August 1, 2013. The conflict of interest documentation for MWS employees is already on file at Metro. Regarding construction contractors, all construction projects will be competitively bid so any relationships that may exist with subcontractors or suppliers will not impact project costs to Metro.

The Program Management Team will document in the Program Management Plan (PMP) the process for regular compliance monitoring.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES**

**PROJECT COST ESTIMATES**

Observations

During fieldwork, C&A noted that the majority of the active projects were under budget from the initial design estimates. These savings were primarily as a result of better than expected conditions or redesigns that were more cost effective. It was noted that the “extra” funds were in the “Pending Budget Change” classification. Program management stated that these funds remain as available budgeted funds within the related project to indicate better project performance tracking. No excess funds had been moved from the budgeted projects.

Recommendations

C&A recommends that a method be developed and documented for addressing the use of unused budgeted funds. Budgeted funds not spent should be moved from the respective projects and captured as available budgeted funds for the Program in total, such that the performance can still be tracked by both individual projects and by the overall Program. Accordingly, these funds would be captured in a reserve area to be reallocated only by approved re-budgeting procedures.

Management's Response

The Program Management Team concurs with this recommendation.

**PROGRAM AND RELATED PROJECT BUDGET COSTS VS. ACTUAL RESULTS**

Observations

While performing our procedures, C&A noted that Consent Decree projects, not overseen by the contracted Program Management Team, were not included in the actual cost data within the PMIS database. The PMIS database had captured only approximately \$12 million of the total approximate \$76 million spent to date. Most of these projects were started several years before developing the contracted Program Management Team and implementing the PMIS database.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES**

**PROGRAM AND RELATED PROJECT BUDGET COSTS VS.  
ACTUAL RESULTS - Continued**

Recommendations

C&A recommends that all projects associated with the Consent Decree be included in the PMIS database. This will allow Program management to closely monitor and analyze budget and actual costs for all projects covered under the Consent Decree from inception and to disseminate to MWS management any cost overruns being incurred for the overall Program.

Management's Response

The Program Management Team will work with MWS management to identify those historical costs that are associated with the Consent Decree and transfer them to PMIS.

**PROCESS FOR CHANGING PROJECT BUDGET COSTS**

Observation

C&A reviewed certain project budget cost changes to verify that the changes were made with proper approvals, had a justification document properly completed and appeared reasonable in nature. The most significant budget change was for 22 individual projects to be delayed several months on the timeline. This was considered necessary due to anticipated timing of cash flow resources. The delay in beginning these projects may increase the cost due to inflation and could be affected by material pricing changes. The changes to budgets reviewed were supported by source documents, approved by appropriate Program management and noted in meeting minutes.

Recommendation

None.

Management's Response

No response necessary.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**PROGRAM MANAGEMENT INTERNAL CONTROLS FOR  
PAYMENT PROCESSING**

Observations

During fieldwork, payments were tested for evidence of proper review of documentation, accuracy and timeliness. It was noted that items paid directly by MWS did not have invoices included in the PMIS database (i.e. flow monitoring, labor costs). A service invoice checklist was implemented during the last year and is now being utilized by the team. We also observed occasions when invoices were properly sent back through the review process for questions related to cost and support.

Recommendations

None.

Management's Response

No response necessary.

**FINANCIAL DATA TRACKING WITHIN THE PMIS DATABASE  
AND METRO FINANCE**

Observation

As previously discussed, C&A observed that not all projects within the Program are included in the PMIS data files. Such projects are primarily projects under the Consent Decree that were started prior to forming the Program Management Team as well as Program projects that are not included under the Consent Decree.

Recommendation

While many projects were completed or started prior to the formation of the Program Management Team, and some projects continue to be managed by the MWS staff, it is recommended that the resources for monitoring timelines and cost within the PMIS program be utilized to monitor overall Consent Decree related activity. This is an excellent tool and should be the central location for all monitoring. Despite the time required to enter basic information for the projects not handled by the Program Management Team, the quality of overall monitoring would be important in future years.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**FINANCIAL DATA TRACKING WITHIN THE PMIS DATABASE  
AND METRO FINANCE - Continued**

Management's Response

The Program Management Team will work with MWS management to identify those historical costs that are associated with the Consent Decree and transfer them to PMIS.

**PROJECT COST RECONCILIATION BETWEEN PMIS DATABASE  
AND METRO FINANCE**

Observation

The Program Management Team matches the invoices submitted to MWS to the access database report, provided by MWS Finance each week. The access database is a project management program used by MWS Finance for internal projects. This process began when the Program Management Team was formed and began operating in 2012. MWS Finance reconciles each payment request received to the EBS general ledger system ("EBS") (both on the vendor payment side and the encumbrance side) verifying the accuracy of their access database to the general ledger. However, the Program Management Team does not perform a reconciliation between the PMIS database and EBS. The Program Management Team verifies that the current week's invoices are included in the access database report and verifies with the vendors that they have been paid, but the Team does not verify that all access database information matches what is currently in the PMIS system. As mentioned previously, because not all of the \$110 million of costs incurred and paid under the Program are included in the PMIS database, there is no current reconciliation between PMIS and the access database. Furthermore, there is no reconciliation between the PMIS database and EBS, which is the primary source for payments. Lastly, there are some expenditures that are allocations and these are not addressed within the vouching of invoices. Without the full reconciliation process to EBS, duplicate payments, inappropriate paid amounts or other errors could potentially be missed. In addition, total Program costs overruns may not be detected on a timely basis.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**PROJECT COST RECONCILIATION BETWEEN PMIS DATABASE  
AND METRO FINANCE - Continued**

Recommendation

While tedious, C&A recommends a complete reconciliation between the invoicing data in the PMIS database and EBS for all projects listed in the consent decree, including those managed by the Program Management Team and those initiated prior to submission of the consent decree. The reconciliation should be performed going forward on a monthly basis within 30 days after each month end.

Management's Response

The Program Management Team will modify the PMP to require a memorandum be submitted quarterly to MWS Accounting that documents the reconciliation and notes any inconsistencies.

Observation

Upon reviewing the allocation of costs to each individual project, we observed that not all of the amounts provided had been accounted for within specific projects. Also, we noted that various items (i.e., program management costs, construction management costs, flow monitoring costs and labor costs) had different end dates.

Recommendation

C&A recommends a reconciliation process (cross-phase expense report) be designed to confirm that the total amounts from the allocation schedules (program/project management cost, monitoring, MWS personnel cost) match the amounts allocated to the projects. In addition, end dates should be consistent to not allow for missed time periods.

Management's Response

The Program Management Team has been evaluating alternatives to the current cost allocation with the goal of aligning the responsibilities for work activities with the accounts where costs are applied. The recommended alternatives would centralize the costs which cannot be accurately allocated by project into Program-level accounts.

Note: The "cross-phase expense report" recommended by C&A is already in place and was provided via mail on July 25, 2013. This report entitled the "Non-Contract Actuals" report summarizes the amount of each invoice that was allocated to individual projects.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**COMPLIANCE WITH METRO PROCUREMENT REGULATIONS**

Observation

C&A reviewed selected projects to ensure proper procurement procedures were followed and to confirm whether relevant data was entered correctly in the project cost sheets within PMIS, consistent with each individual contract. We also reviewed change orders to confirm that proper signatures were obtained. We compared the contracted amounts with the budgets to see if there were any unsupported variations. No unexplained deviations were noted. We noted that, in certain circumstances, only limited procurement documentation existed. We inquired about the limited documentation as it related to the procurement process. It was noted that the procurement process is handled by the Metro Procurement Department and communicated to the Project Management Team through a liaison and that management did not think that it is prudent to place sensitive documents within the file that is viewed by various contractors and subcontractors.

Recommendation

While we do agree restricting procurement documentation in the files, particularly for the process of assessment and evaluations, we recommend that the RFP, executed contracts, proof of bonding liability insurance information and key individual listings for related party consideration be included. All the project files contained much of this information, but not in a consistent manner.

Management's Response

To address the consistency of document capture, the Program Management Team will work with MWS Purchasing to provide access in iProcurement to all Program-related procurements to the Deputy Program Director. This will facilitate the process of transferring executed contracts and related documents (RFP, certificate of insurance, etc.) from MWS Purchasing to Program Controls for filing the documents in PMIS.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**PROGRAM MANAGEMENT PROCESSES FOR QUALITY CONTROLS  
AND RISK ASSESSMENT**

Observation

C&A conducted an assessment of quality control documents that are required to be prepared, reviewed and signed by designated responsible parties at various phases of the projects. While most documentation was properly filed, there were several instances of missing documents. There were also instances where the documentation was found, but not in the files.

Recommendation

We recommend that quality control documents consistently be prepared, reviewed, and signed in the future, and a system be put in place to ensure that the documents are properly and timely maintained within PMIS.

Management's Response

The Program Management Team concurs with this recommendation.

Observation

The Program Management Plan ("PMP") - vol. I, section 6 states that risk assessment should be performed at the project level with a defined set of documentation (risk assessment matrix including consequence ratings and likelihood of occurrence rating). Risk assessment documentation within the PMIS database was only completed at the Program level. A general risk assessment, rather than a project specific risk assessment, was stated in the project plan summaries.

Recommendation

C&A recommends risk should be assessed at an individual project level to comply with the PMP. While there is evidence of regular meetings to discuss items of concern for projects, it is our opinion that the assessment of risk, preventive measures, and monitoring of status are important for early detection of issues that could affect the project's compliance with laws and regulations, time restrictions, and cost. Although there was a large volume of email communications related to these concerns, a formal specific risk assessment for each project, centrally located in the PMIS database would help to ensure more complete results and compliance with the PMP.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**PROGRAM MANAGEMENT PROCESSES FOR QUALITY CONTROLS  
AND RISK ASSESSMENT - Continued**

*Management's Response*

The Program Management Team will implement the approach to risk management outlined in the PMP which requires formal, risk management deliverables for each project.

Observation

The PMIS database is designed in such a way that it can be utilized by all members of the Project Team Managements, and all contractors and subcontractors at a level appropriate for their needs. We noted in the PMP that training for individuals at various levels should be provided to allow for full utilization of the resources provided and for consistency in documentation placed in the file. While the Project Management Team maintains that training has been provided, only limited documentation exists to support this assertion.

Recommendation

We recommend a training log be developed and maintained for not only the primary project team members, but also for contractors, subcontractors, and others who utilize the system.

*Management's Response*

The Program Management Team will develop and maintain a training log that documents the PMIS-related training conducted for the PMT, designers and contractors.

Observation

During our performance audit, it was noted that there were still modifications being made to the PMP reference materials.

Recommendation

As processes are improved, changes will continue to occur within the PMP reference materials. We recommend future changes or updates be dated for clarity to reflect when a process or procedure has changed.

*Management's Response*

The Program Management Team concurs with this recommendation.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
AND MANAGEMENT RESPONSES - Continued**

**PROGRAM MANAGEMENT PROCESSES FOR QUALITY CONTROLS  
AND RISK ASSESSMENT - Continued**

Observation

The PMP states that periodic audits are to be performed internally. C&A noted an internal assessment was performed by the Program Controls Manager.

Recommendation

C&A recommends an internal audit be performed periodically by a member of the Program's quality assurance group. This member should develop and perform procedures based on risk assessments.

Management's Response

The Program Management Team will conduct the annual internal audit by the PMC Quality Manager as described in the Quality Management Plan.

**PROGRAM AND RELATED PROJECTS TIMELINE PERFORMANCE**

Observation

C&A reviewed the timeline for tested projects to determine if any significant changes had been made, and if so, we obtained support for the justification and approval of these timeline changes. For any significant delays, we found that there was documentation to support that the proper members of management (both Program Management and MWS) had been informed.

Recommendation

None.

Management's Response

No response necessary.

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**PERFORMANCE AUDIT OBSERVATIONS, RECOMMENDATIONS  
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**PROJECT PERFORMANCE IN ACCORDANCE WITH DESIGN**

Observation

C&A noted that there were limited projects in the construction phase that had been processed through the PMP. Of the projects reviewed, the designs submitted appeared to represent the RFPs with one exception. In this case, a design was presented that saved Metro Nashville significant funding and therefore was chosen. One other design that was reviewed is not being constructed under the Program Management Team; therefore, the monitoring is strictly within MWS. We were able to view communications that indicated the project is being properly monitored by MWS. Reviews of the designs at various milestones were being performed by management and the engineers of record were monitoring changes that may impact the intent of the design for maximizing resources to resolve problems. We also noted field visits are being performed by the Construction Managers with cross-references to the expectations.

Recommendation

None.

Management's Response

No response necessary.

**EPA AND TDEC REPORTING REQUIREMENTS COMPLIANCE**

Observation

C&A reviewed MWS's compliance with the various reporting requirements as it relates to the Consent Decree with particular attention to the Project Management Team's maintenance of documentation, content and deadlines. C&A did not note any non-compliance.

Recommendation

None.

Management's Response

No response necessary.

# Clean Water Nashville Overflow Abatement Program

## CAP/ER & LTCP Implementation Plans & Schedules

CD Name	Sub-Program	Expended Amount	Start	End
<b>Early Action Projects (EAP)</b>				
Barker Road Omohundro Equalization Storage Phase I	CAP-ER	\$0	5/15/2006	5/14/2008
Broadway Improvements	LTCP	\$0	7/1/2010	11/1/2011
Dodson Chapel Equalization Facility	CAP-ER	\$11,624,406	12/6/2010	11/29/2013
Driftwood Equalization Facility	LTCP	\$2,246,092	1/4/2011	7/31/2013
Dry Creek Waste Water Treatment Plant Optimization	CAP-ER	\$0	7/1/2003	12/31/2007
Holiday Travel Park Gravity Conversion	CAP-ER	\$0	6/2/2007	8/31/2012
Lakewood Rehabilitation (EAP)	CAP-ER	\$118,826	1/10/2011	8/27/2015
Mill Creek 36 in Trunk Sewer System Rehabilitation	CAP-ER	\$2,244,436	1/2/2008	9/30/2011
Rockwood Conveyance Improvement	CAP-ER	\$1,219,301	12/1/2011	4/30/2012
Smith Springs Equalization Storage	CAP-ER	\$0	7/11/2005	4/7/2006
Van Buren Improvements	LTCP	\$0	7/1/2010	11/1/2011
Washington CSO Facility Improvements	LTCP	\$19,650,724	7/1/2010	3/4/2013
West Park Equalization Storage Phase I	CAP-ER	\$0	1/2/2006	6/29/2011
Whites Creek Pump Station Improvements	CAP-ER	\$21,120,137	7/1/2009	11/18/2013
Whites Creek WWTP Disinfection & Optimization	CAP-ER	\$5,590,031	7/1/2008	12/21/2012
Subtotal:		\$63,813,953		
<b>Overflow Abatement Program (OAP)</b>				
28th Avenue Rehabilitation	CAP-ER	\$222,079	3/1/2012	12/30/2021
Apex Sewer Corrections	LTCP	\$163,158	7/5/2012	10/24/2014
Bandywood - Green Hills Rehabilitation (SU03A)	CAP-ER	\$0	11/25/2015	3/4/2019
Benedict & Crutcher Equalization Facility	LTCP	\$0	4/27/2016	12/30/2019
Berwick Trail Pipe Improvements	CAP-ER	\$0	10/29/2013	12/3/2019
Berwick Trail Pump Station Upgrades	CAP-ER	\$100,783	7/31/2013	2/4/2019
Boscobel Equalization Facility	LTCP	\$0	2/1/2017	2/3/2021
Brick Church Pike Equalization Facility	CAP-ER	\$311,046	5/7/2012	12/29/2017
Brick Church Pike Pipe Improvements	CAP-ER	\$407,316	4/12/2012	9/24/2018
Central Wastewater Treatment Plant Equalization - Phase I	LTCP	\$0	1/28/2014	8/8/2019
Central Wastewater Treatment Plant Equalization - Phase II	LTCP	\$0	4/8/2015	11/5/2020
Central Wastewater Treatment Plant Equalization - Phase III	LTCP	\$0	6/4/2018	3/8/2023
Central Wastewater Treatment Plant Grit and Pump Station Upgrades	LTCP	\$0	1/28/2014	5/8/2020
Central Wastewater Treatment Plant Optimization and Equalization Conversion	LTCP	\$0	1/27/2014	4/20/2018
Cleece Ferry Rehabilitation	CAP-ER	\$0	12/30/2016	2/28/2022
Combined Sewer System and First Avenue Tunnel Rehabilitation	LTCP	\$0	9/3/2019	3/9/2023
Cowan Riverside Rehabilitation	CAP-ER	\$695,051	12/30/2011	11/3/2017
Cowan Street Pipe Improvements	CAP-ER	\$0	7/3/2017	1/26/2023
Cowan Street Pump Station Upgrades	CAP-ER	\$0	6/5/2018	8/4/2021
Davidson Branch Equalization Facility	CAP-ER	\$254,627	5/7/2012	6/2/2017
Davidson and Brook Hollow Rehabilitation	CAP-ER	\$80,531	12/28/2012	5/19/2016
Dodson Chapel Pipe Improvements	CAP-ER	\$539,266	11/30/2011	10/31/2016
Dry Creek Pipe Improvements	CAP-ER	\$67,176	8/31/2012	1/30/2019

# Clean Water Nashville Overflow Abatement Program

## CAP/ER & LTCP Implementation Plans & Schedules

CD Name	Sub-Program	Expended Amount	Start	End
First Avenue Tunnel Access	LTCP	\$0	3/29/2017	4/28/2021
Foster Avenue Rehabilitation GL01	CAP-ER	\$0	12/31/2018	1/3/2022
Gibson Creek Equalization Facility	CAP-ER	\$0	4/3/2014	4/3/2019
Gibson Creek Rehabilitation	CAP-ER	\$0	12/3/2012	3/3/2017
Green Improvements	LTCP	\$0		
Henry Ford Drive Pipe Improvements	CAP-ER	\$0	10/27/2017	5/4/2022
Hidden Acres Pump Station Upgrades	CAP-ER	\$0	6/3/2014	4/1/2020
Highway 100 Tyne Boulevard Pipe Improvements	CAP-ER	\$602,219	12/1/2011	1/6/2021
Hurricane Creek Pipe Improvements	CAP-ER	\$0	8/5/2014	2/11/2019
Joelton Rehabilitation	CAP-ER	\$288,180	3/6/2012	7/1/2014
Kerrigan Trash Trap Replacement	LTCP	\$0	11/20/2019	2/27/2023
Kerrigan Weir Dynamic Addition	LTCP	\$0	6/5/2014	3/9/2018
Lakewood Rehabilitation	CAP-ER	\$130,706	1/10/2011	4/3/2018
Langford Farms Rehabilitation	CAP-ER	\$0	12/30/2014	1/4/2017
Loves Branch Pump Station Upgrades	CAP-ER	\$208,541	7/31/2013	9/18/2019
Madison Heights Rainbow Terrace Rehabilitation	CAP-ER	\$0	12/30/2014	4/3/2017
Mill Creek Opryland Equalization Facility - Phase II	CAP-ER	\$888,933	2/2/2012	5/6/2015
Mill Creek Opryland Equalization Facility - Phase III	CAP-ER	\$0	4/3/2014	9/29/2021
Mill Creek Trunk Improvements	CAP-ER	\$0	3/6/2015	4/21/2022
Neely's Bend Pump Station Upgrades	CAP-ER	\$238,526	7/31/2013	2/4/2020
Neely's Bend Rehabilitation	CAP-ER	\$241,040	12/30/2011	3/13/2014
Norman Drive Pipe Improvements GC14	CAP-ER	\$0	8/5/2014	2/8/2019
Parthenon Area Improvements	LTCP	\$234,528	3/26/2012	6/7/2018
Program Development	CAP/ER & LTCP	\$4,440,750	9/5/2013	9/5/2013
River Drive Rehabilitation	CAP-ER	\$0	12/29/2017	12/31/2020
Riverside Drive Pump Station Upgrades	CAP-ER	\$0	6/5/2018	4/7/2022
Schrader Equalization Facility	LTCP	\$0	2/12/2018	7/13/2021
Shelby Park Rehabilitation	CAP-ER	\$716,023	2/1/2012	3/7/2022
Smith Springs Rehabilitation	CAP-ER	\$179,330	4/3/2012	12/31/2020
Vandiver Pump Station Upgrades	CAP-ER	\$133,991	2/26/2014	2/6/2019
West Park Equalization Facility Phase II	CAP-ER	\$941,537	1/3/2012	12/29/2016

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Subtotal: \$12,085,337

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Total: \$75,899,290

Count: 69

1.The actual costs associated with completed EAP projects have not been entered into the system but are available through MWS Accounting.

Total for LTCP:	\$22,294,502
Total for CAP-ER:	\$53,604,788

