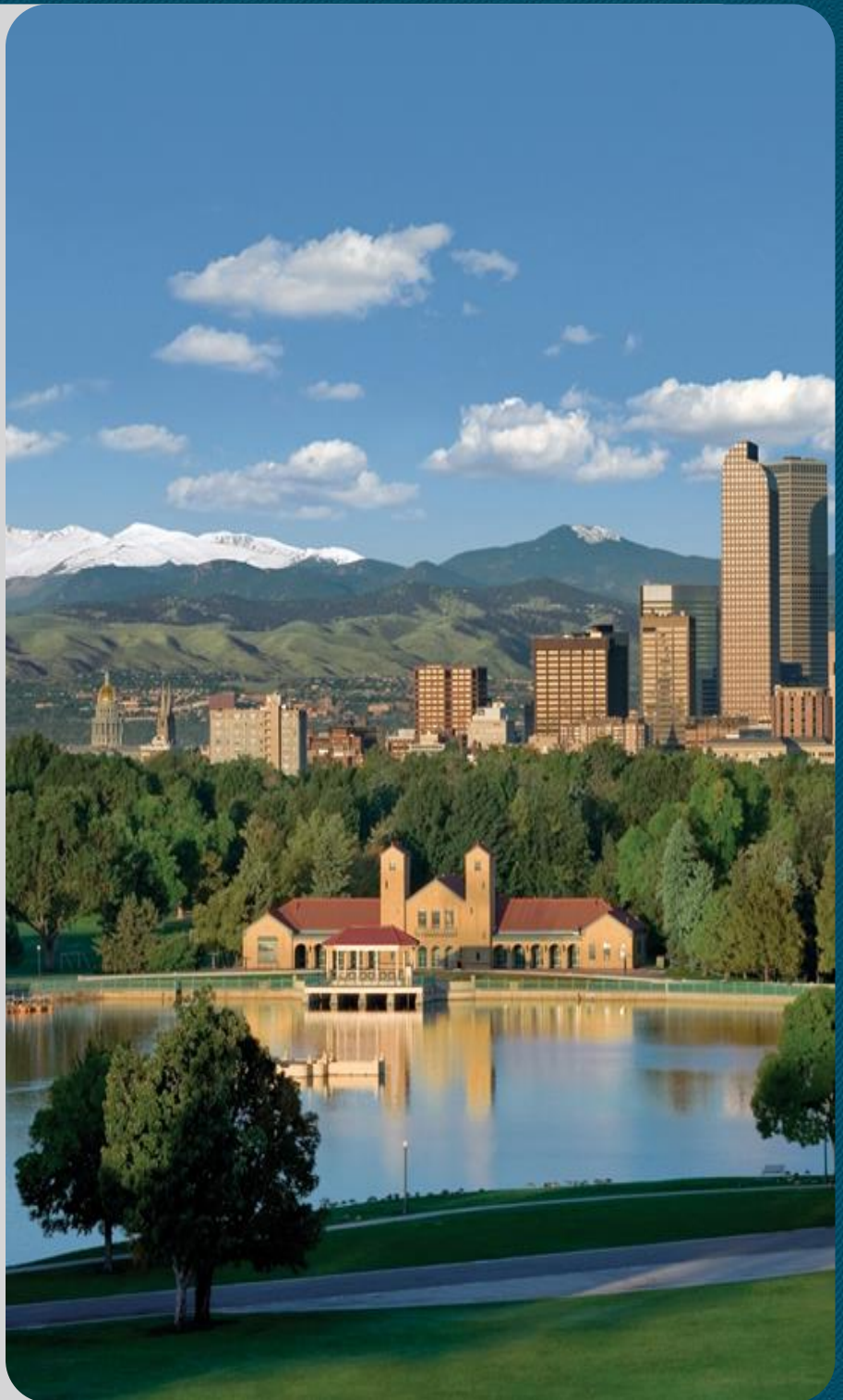


**FOLLOW-UP REPORT**  
**Department of Public Works**  
***Stormwater Administration Audit***  
**February 2017**

**Office of the Auditor  
Audit Services Division  
City and County of Denver**



**Timothy M. O'Brien, CPA  
Denver Auditor**



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Yvonne Harris-Lott, CPA, Audit Supervisor  
Tyler Kahn, Senior IT Auditor

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### Office of the Auditor

201 West Colfax Avenue, #705  
Denver CO, 80202  
(720) 913-5000 ♦ Fax (720) 913-5247

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Report number: **A2014-018**



**Timothy M. O'Brien, CPA**  
Auditor

# City and County of Denver

201 West Colfax Avenue, #705 • Denver, Colorado 80202

720-913-5000 • Fax 720-913-5253 • [www.denvergov.org/auditor](http://www.denvergov.org/auditor)

February 2, 2017

Mr. Jose Cornejo, Executive Director  
Department of Public Works  
City and County of Denver

Re: Audit Follow-Up Report

Dear Mr. Cornejo:

In keeping with generally accepted government auditing standards and the Audit Services Division's policy, as authorized by D.R.M.C. § 20-276, our Division has a responsibility to monitor and follow-up on audit recommendations to ensure audit findings are being addressed through appropriate corrective action and to aid us in planning future audits.

This report is to inform you that we have completed our follow-up effort for the Stormwater Administration audit issued February 19, 2015. Despite the Department of Public Work's efforts, auditors determined that the risk associated with the audit team's initial findings has not been fully mitigated. As a result, the Division may revisit these risk areas in future audits to ensure appropriate corrective action is taken.

For your reference, this report includes a Highlights page that provides background and summary information on the original audit and the completed follow-up effort. Following the Highlights page is a detailed implementation status update for each recommendation.

This concludes audit follow-up work related to this audit. I would like to express our sincere appreciation to you and to the Department of Public Works personnel who assisted us throughout the audit and follow-up process. If you have any questions, please feel free to contact me at 720-913-5000 or Yvonne Harris-Lott, Internal Audit Supervisor, at 720-913-5086.

Denver Auditor's Office

A handwritten signature in black ink, appearing to read "Timothy M. O'Brien".

Timothy M. O'Brien, CPA  
Auditor



# Stormwater Administration

## February 2017

### Status

The Department of Public Works (Public Works) has implemented four of the five recommendations made in the February 2015 audit report.

### Background

The Wastewater Management Division (Wastewater) within Public Works was established in 1966 as an enterprise fund to provide storm and sanitary sewer services to the residents of Denver and charge for services provided. Wastewater maintains more than 1,500 miles of sanitary sewers and over 800 miles of storm drainage facilities. Wastewater plans, designs, constructs, operates, and maintains Denver's sanitary and storm sewer systems. Wastewater consists of three sections: Design Engineering, Operations, and Wastewater Administration. Wastewater employs 260 full-time equivalent staff and operates on a 2015 approved budget of \$102 Million.

### Purpose

Audit work was focused on regional and Citywide collaborative approaches to stormwater management that include identifying sources of water pollutants, assessing Wastewater's stormwater quality improvement actions from a compliance and best practices standpoint, reviewing the City's storm drainage fees, and examining water quality considerations in the design of City infrastructure projects.

# REPORT HIGHLIGHTS

## Highlights from Original Audit

The audit has two findings with regard to how the City approaches stormwater management.

### FINDING 1

Our first finding states that additional data analysis to assess effectiveness of best management practices (BMPs) is necessary to decrease stormwater pollution. We found that Wastewater has implemented BMPs to comply with the City's National Pollutant Discharge Elimination System (NPDES) MS4 permit. Wastewater is now experimenting with additional BMPs to supplement the existing BMPs in an effort to reduce E. coli levels for certain priority water basins. Permit holders are required to routinely assess whether additional BMPs are necessary to stay in compliance or achieve compliance.

### FINDING 2

We determined that Public Works should improve management of the financial aspects of its stormwater quality programs and activities in four areas. First, using the Consumer Price Index for All Urban Consumers (CPI-U) as the basis for storm drainage rate increases is not aligned with the intention of storm drainage service charges. Second, expenditures of the MS4 program and water quality activities are not comprehensively tracked. Third, funding for stormwater quality related projects is limited. Lastly, Public Works lacks data supporting stormwater quality impacts of certain wastewater expenditures.

### Findings at Follow-up

Of the five recommendations made, four have been fully implemented. Public Works now monitors and assesses the effectiveness and economy of its best management practices. Public Works Storm drainage fee increases have been substantiated based on the cost of maintaining, replacing, and improving the City's storm drainage facilities.

Public Works has included in its annual budget a dedicated funding source for stormwater quality projects. Data is also being collected that shows stormwater quality improvements resulting from the Street Maintenance Division Activities that are partially reimbursed by the Wastewater Enterprise Fund. The one remaining recommendation is in-progress with Public Works committed to implementing it in 2017.

For a complete copy of this report, visit [www.denvergov.org/auditor](http://www.denvergov.org/auditor)

Or contact the Auditor's Office at 720.913.5000

# Recommendations: Status of Implementation

Recommendation	Auditee Action	Status
<b>FINDING 1: Additional Data Analysis to Assess Effectiveness of BMPs is Necessary to Decrease Stormwater Pollution</b>		
<p><b>1.1</b> Public Works should monitor and assess the effectiveness and economy of its current and additional best management practices in reducing levels of E. coli and possibly other pollutants to improve stormwater quality and assess the need for additional funding.</p>	<p>Wastewater Operations is currently working on five separate initiatives to improve stormwater quality levels by reducing E. coli and other pollutants. First, Wastewater Operations has implemented a system tracking spreadsheet to correlate specific focused cleaning actions to outfall E. coli reduction. Second, Wastewater Operations has completed pilot testing of ultraviolet technology, and the technology is scheduled to be installed in 2017. Third, Wastewater Operations is monitoring and assessing best management practices to mitigate E. coli from dry and wet weather discharges. Construction on one water treatment facility is complete and is treating dry and wet weather discharges for pollution reduction efficacies. Additionally, design is 60 percent completed for two other water treatment facilities that will treat dry and wet weather discharges, and construction is slated to begin in late 2017 for each of these facilities. Fourth, Wastewater Operations is working with the Colorado School of Mines and Stanford University to pilot a bio filtration technology to treat dry weather discharges, which is slated to complete in April 2017. If successful, this technology will be installed in other outfalls. Lastly, Wastewater Operations is currently implementing recommendations made by a water engineering consulting firm, which outlines the City's efforts in managing water quality best practices and identifies next steps for reducing E. Coli concentrations.</p>	<p><b>Implemented</b></p>



# Recommendations: Status of Implementation

Recommendation	Auditee Action	Status
<b>FINDING 2: The Department of Public Works' Management of the Financial Aspects of Its Stormwater Quality Programs and Activities Should Be Improved</b>		
2.1	Public Works should ensure that any storm drainage fee increases are substantiated based on the cost of maintaining, replacing, and improving the City's storm drainage facilities rather than unrelated factors such as the Consumer Price Index for All Urban Consumers (CPI-U).	A new ordinance was passed on June 13, 2016, that replaced the substantiation of storm drainage fee systems being based on the Consumer Price Index (CPI) with fixed rate increases through 2020. The new rate structure calls for an 11 percent increase in stormwater fees. If CPI-increase-rates were still in effect, an increase of only 1.2 percent of stormwater fees would have occurred, falling short of the annual cost increases incurred by the City.
2.2	Public Works should track the cost of all stormwater quality activities to ensure adequate and timely funding for these activities.	Public Works is in the process of implementing a Water Quality Scorecard, which identifies six priority water basins based on stormwater quality and quantity, and additionally identifies five water quality/green infrastructure projects. Although the scorecard is not fully implemented, it is 90 percent complete, soon to be under review, and is set to be completed by the first quarter 2017 in alignment with the 2018 budget cycle.
2.3	Public Works should have a dedicated funding source in its annual budget for all its stormwater quality projects.	Public Works has implemented a dedicated funding source in the annual budget for stormwater quality projects. This dedicated funding source will contribute to water quality projects specified in the Mayor's 2017 budget.

# Recommendations: Status of Implementation

	Recommendation	Auditee Action	Status
2.4	Public Works should collect data showing that stormwater quality improvement has resulted from the Street Maintenance Division activities that are partially reimbursed by the Wastewater Enterprise Fund.	Public Works collects data showing that stormwater quality improvement has resulted from the Street Maintenance Division activities that are partially reimbursed by the Wastewater Enterprise Fund. This consists solely of street sweeping, as curb and gutter work and snow removal do not relate to water quality. Public Works keeps data on how many cubic yards of debris has been swept from City streets. In 2015, 50,924 cubic yards of debris were swept from City streets, improving the water quality, as this debris was prevented from entering into storm sewers and rivers.	Implemented

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## Conclusion

Although the Department of Public Works has implemented some recommendations made in the Stormwater Administration audit report, others have yet to be acted upon or fully implemented. Despite the Department of Public Works efforts, auditors determined that the risk associated with the audit team's initial findings has not been fully mitigated. Risks included are a result of recommendations being partially implemented, or in progress. Public Works has not yet fully implemented a method to track the costs of all stormwater quality activities and the related funding. As a result, the Audit Services Division may revisit these risk areas in future audits to ensure appropriate corrective action is taken.

On behalf of the citizens of the City and County of Denver, we thank staff and leadership from the Department of Public Works for their cooperation during our follow-up effort and their dedicated public service.