

**Performance Audit
Timeliness of Water System Repair
and Surface Restoration**

May 2013

City Auditor's Office

City of Kansas City, Missouri

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

May 16, 2013

Honorable Mayor and Members of the City Council:

This performance audit of the timeliness of the Water Services Department's water system repair and surface restoration jobs was initiated by the city auditor pursuant to Article II, Section 216 of the city charter.

Water Services contracts for the surface restoration work required after some water system repairs are finished. We found that about 36 percent of the surface restoration work orders we reviewed were completed on time. Water Services management said circumstances beyond the contractor's control (e.g., weather conditions, a backlog of work at the beginning of the contract, high number of water main breaks, etc.) made it impractical to enforce the contract's timeliness requirements during the period we audited.

Water Services rebid the surface restoration contract in 2012 with revised timeliness requirements and liquidated damages provisions. Water Services management states they have been monitoring the timeliness of restoration job completion, and have collected liquidated damages from the contractor for jobs that did not comply with the contract's timeliness requirements. Because surface restoration contract provisions and Water Services management's monitoring practices have changed, we made no recommendations.

We did not answer part of our objective, which was to determine how long it takes Water Services to complete water system repairs. As part of our quality assurance process, we brief management staff on the major audit findings and invite questions or discussion. Management raised issues that led the audit team to re-examine completed audit work. As a result of the re-examination, the team decided our evidence was insufficient to support a conclusion for the first part of the audit objective.

We shared a draft of this report with the director of the water services department on April 4, 2013. His comments are appended. We would like to thank Water Services Department and Information Technology Division staff for their courtesy and cooperation. The audit team for this project was Jason Phillips and Deborah Jenkins.

A handwritten signature in black ink that reads "Gary L. White". The signature is written in a cursive style.

Gary L. White
City Auditor

Timeliness of Water System Repair and Surface Restoration

Table of Contents

Introduction	1
Objectives	1
Scope and Methodology	1
Background	3
Repair and Surface Restoration Work	3
Repair and Surface Restoration Work Process	3
Findings	5
Summary	5
Most Restorations Completed Late	5
About a Third of Restoration Jobs Reviewed Completed on Time	5
Appendix A	9
Water Services Department Director's Response	9

List of Exhibits

Exhibit 1. Time to Complete Surface Restoration Jobs – March 3, 2011 through November 22, 2011	6
--	---

Introduction

Objectives

We conducted this audit of the Water Services Department repair and surface restoration work under the authority of Article II, Section 216 of the Charter of Kansas City, Missouri, which establishes the Office of the City Auditor and outlines the city auditor's primary duties.

A performance audit provides assurance or conclusions based on an evaluation of sufficient, appropriate evidence against stated criteria. Performance audits provide objective analysis so that management and those charged with governance and oversight can use the information to improve program performance and operations, reduce costs, facilitate decision making, and contribute to public accountability.¹

This report is designed to answer the following question:

- How long does it take the city to complete water system repairs and surface restoration?

Scope and Methodology

Our review focuses on the timeliness of water system repairs and surface restoration² from March 3, 2011 through November 22, 2011.

Our audit methods included:

- Interviewing Water Services staff to understand how water system repair and surface restoration work orders are created.
- Reviewing public testimony made by Water Services staff and the city manager to understand water system repair and surface restoration issues.
- Interviewing Water Services staff to understand what Hansen (the department's electronic maintenance management system) is

¹ Comptroller General of the United States, *Government Auditing Standards* (Washington, DC: U.S. Government Printing Office, 2007), p. 17.

² After repair work has been completed, it is sometimes necessary to restore pavement and/or turf.

designed to do, and how the department utilizes the Hansen system.

- Comparing a random sample of Water Services hard copy repair work orders to electronic data in the Hansen system to test electronic data reliability.
- Reviewing correspondence between Water Services staff and the surface restoration contractor to establish when restoration jobs were assigned and when the jobs were reported as completed.
- Reviewing data from the Water Services database³ against information in the Hansen system.
- Choosing an additional sample of work orders to determine the length of time to complete surface restoration jobs by calculating the number of workdays between the date the city assigned the surface restoration job to the contractor and the contractor's reported job completion date.
- Reviewing restoration contracts for performance measures and liquidated damages to understand the contractual obligations of the contractor.

We did not answer part of our objective, which was to determine how long it takes Water Services to complete water system repairs. A step in our quality assurance process is to brief management staff on the major audit findings and invite questions or discussion. The audit team considers whether any issues raised by management indicate a re-examination of completed audit work or the need for additional audit work. As a result of discussions with Water Services management, the audit team re-examined our completed audit work, and decided our evidence was insufficient to support a conclusion for the first part of the audit objective.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit

³ The Water Services database is a database the department uses in addition to the Hansen system. Data downloaded in an Access database program is used to maintain information such as work order number, water service systems repair start date and complete date, item quantity and costs, etc.

objectives. No information was omitted from this report because it was deemed privileged or confidential.

Background

Repair and Surface Restoration Work

The Pipeline Division of the Water Services Department is responsible for the repair of water main breaks, the repair and replacement of fire hydrants and/or their valves, and repair and maintenance of water valves. Since most of these repairs are done below ground, it is sometimes necessary to restore pavement and/or turf after the repair is completed. While Water Services field crews are generally responsible for completing repairs, the department uses a private contractor for surface restoration. Water Services has contracted out surface restoration work over the past several years.

Repair and Surface Restoration Work Process

When a resident reports a water main break to the city's 311 Action Center, a service order is generated. Water Services then inspects the site and creates a work order. Water Services management told us the division uses a "triage" approach for leaks, with the most serious ones being repaired first. Water Services maintains repair data in the Hansen system.

If surface restoration is necessary after repairs are completed, a water inspector goes to the site to determine what work and materials are needed. Staff in Water Services enters the inspector's information into a database that is separate from the Hansen system. Water Services uses this database to compare the inspector's information with the itemized request for payment from the contractor. This ensures the contractor used appropriate materials and tracks costs related to restoration.

Timeliness of Water Services Repair and Surface Restoration

Findings

Summary

The surface restoration contractor completed 36 percent of the jobs in our sample within the time required by the contract. Although the surface restoration contract contained timeliness requirements and liquidated damages provisions for noncompliance, Water Services did not hold the contractor to the timeliness requirements and did not seek liquidated damages. Management stated that circumstances beyond the control of the contractor made enforcement of the timeliness requirements impractical.

Water Services has revised the timeliness requirements and liquidated damages provisions in the current surface restoration contract. Management states they are currently enforcing the requirements and assessing liquidated damages when the contractor does not meet them.

Most Restorations Completed Late

The contractor met the contract's timeliness requirement for restoration completion in approximately 36 percent of the work orders sampled. The city did not hold the contractor accountable to the timeliness requirements in the contract, because Water Services considered the performance measures impractical due to several reasons. Therefore, the city did not collect liquidated damages when restoration jobs did not meet the contractual performance measures.

About a Third of Restoration Jobs Reviewed Completed on Time

Almost 36 percent of restoration jobs we reviewed were completed on time. We examined a sample of 234 restoration jobs completed during the audit period. We reviewed email correspondence between Water Services staff and the contractor to obtain dates the jobs were assigned to the contractor and dates the contractor reported the restoration completed. Since the contract specified the contractor had two days to begin restoration work and seven days thereafter to complete the restoration work, we allowed the contractor nine business days for each job. We considered any job taking ten days or more as late. Almost 15 percent of the restoration jobs we reviewed were completed more than 60 days late. (See Exhibit 1.)

Exhibit 1. Time to Complete Surface Restoration Jobs – March 3, 2011 through November 22, 2011

Completion Times	Number of Restoration Jobs	Percentage of Restoration Jobs
On time (within 9 days)	83	35.5%
1-30 days late	93	39.7%
31-60 days late	24	10.3%
61-90 days late	13	5.6%
91 or more days late	21	9.0%
Total	234	100% ⁴

Source: Water Services e-mails and City Auditor's Office calculations.

A consequence of prolonged surface restoration work is decreased citizen satisfaction.

Water Services did not hold the contractor to the timeliness requirement specification in the contract. Management stated there were circumstances beyond the control of the contractor that made enforcing the timeliness requirements impractical.

Water Services management gave the following reasons for excusing the contractor from meeting the timeliness requirements:

- When Water Services management created the timeliness requirements provision in the contract, it did not fully understand the complexities involved with the restoration work.
- The contractor objected to the liquidated damages because Water Services assigned approximately 250-300 backlogged restoration jobs after the contract started, which the contractor said they had not considered during the bid process.
- The summer of 2010 had a high number of breaks, which added to the backlog.
- The winter weather of 2010-2011 started earlier in the fall and ended later in the spring and was colder and wetter than usual, making restoration work impossible, and creating an additional backlog.
- Water Services expanded the contract's scope of work to include restoring grassy areas damaged during water repair work.⁵

⁴ Does not add to 100 due to rounding.

- Water Services started filling holes resulting from repairs with rock during the winter of 2010-2011 instead of covering the holes with metal plates. The contractor had to remove the rock before starting the restoration work, which added time to the process.

Since Water Services management considered the timeliness requirements in the surface restoration contract to be impractical, it did not hold the contractor to the requirements or seek liquidated damages for noncompliance.

Water Services revised the timeliness requirements and liquidated damages provisions in the current surface restoration contract.⁶

Water Services management states they have been monitoring the timeliness of restoration job completion, and have collected liquidated damages from the contractor for jobs that did not comply with the contract's timeliness requirements.

⁵ A change order was executed in December 2010 to add this responsibility to the restoration contract. However, due to the winter conditions the contractor did not begin grade and seed restoration until spring of 2011.

⁶ Ordinance 120327 passed on April 26, 2012 authorized the director of water services to enter into the current surface restoration contract.

Timeliness of Water System Repair and Surface Restoration

Appendix A

Water Services Department Director's Response



Water Services Department



DATE: May 8, 2013

TO: Gary White, City Auditor

FROM: Terry Leeds, Director of Water Services *JCL*

SUBJECT: Response to the Draft Report on Timeliness of Water System Repair and Surface Restoration

We reviewed a draft copy of the report. Based on that review, we are providing the following response:

A. Most Restorations Completed Late

Response: Agree

We agree that most water system restorations during the audit period were completed beyond the contractual time period. As noted in the Audit, several unique conditions occurred during the contract that impacted the completion time, such as unfavorable weather, adding additional requirements, and the substantial number of backlog jobs at the start of the contract.

In the current contract, Water Services recognized the challenges and complexity of restoration, such as a variable work load (work load on a monthly basis can vary significantly thus making contractor staffing challenging) and periods of bad weather, and made appropriate changes.

Understanding that most jobs should be completed in a reasonably prompt manner, Water Services revised the completion time requirements in the current contract and required 80 percent of the jobs be completed in 12 business days and 100 percent of the jobs completed in 22 business days. An allowance was also provided for inclement weather. Under the current contract, Water Services has collected more than \$40,000 in liquidated damages due to late completions.

In addition to improving the contract language, in November 2011 Water Services put in place a full-time person to manage the restoration contract.

One of Water Services' top priorities has been to expedite restoration work. Restoration times have improved significantly over the past two years.

CC: Troy Schulte, City Manager