

**WASTEWATER DEPARTMENT  
COLLECTION DIVISION  
SYSTEM MAINTENANCE  
AUDIT 21-11  
JUNE 29, 2021**



# City of Tampa

*Jane Castor, Mayor*

## Internal Audit Department

315 E. Kennedy Boulevard  
Tampa, Florida 33602  
Office (813) 274-7159

June 29, 2021

Honorable Jane Castor  
Mayor, City of Tampa  
1 City Hall Plaza  
Tampa, Florida

RE: Wastewater Collection System Maintenance, Audit 21-11

Dear Mayor Castor:

Attached is the Internal Audit Department's report on Wastewater Collection System Maintenance Division (Division).

We thank the management and staff of the Division for their cooperation and assistance during this audit.

Sincerely,

/s/ Christine Glover

Christine Glover  
Internal Audit Director

cc: John Bennett, Chief of Staff  
Jean Duncan, Infrastructure and Mobility Administrator  
Brad Baird, Infrastructure Deputy Administrator  
Dennis Rogero, Chief Financial Officer  
Eric Weiss, Wastewater Director  
Francis Drovie, Wastewater Collection Operations Manager  
Brian Morrison, Assistant City Attorney

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*/s/ Anita Smith*

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Senior Auditor

*/s/ Christine Glover*

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Audit Director

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**BACKGROUND**

The City of Tampa (City) Wastewater Department (Department) collects, treats, and disposes of more than 55 million gallons of wastewater per day for over 100,000 customer accounts within the City and its immediate suburbs. In order to successfully accomplish this level of service, within the Department, the Wastewater Collection System Division (Division) maintains the City's wastewater collection system consisting of 225 pump stations and over 1,800 miles of pipelines, comprised of gravity and force main sewer lines, 30,000 manholes, and 667 air release valves.

The Division completes the varied tasks of construction, preventative and reactive maintenance, and repair and replacement of sewer lines. In order to do so successfully, the Division devised a comprehensive schedule for inspections and maintenance to the various components of the system based on industry best practices. This includes:

- Physical inspections of manholes and sewer lines - to discover defects, root intrusions, or signs of leakages or blockages.
- Closed circuit television (CCTV) inspections - to assess structural defects or maintenance needs.
- Sewer line cleaning - to remove grease and debris.
- Air release valve bleeding and inspections.

The Division conducts scheduled preventative maintenance and performs reactive maintenance as needed. The scheduled preventative maintenance of the collection system can help prevent sewer overflows by completing CCTV inspections and sewer line cleanings. However, in spite of the aforementioned activities, the Division may need to complete reactive maintenance to swiftly respond to and remedy sewer overflows to mitigate potential damage to property and threat to public health and safety. Among possible causes of overflows are blockages from grease or debris, line breaks, and sewer system defects. Reporting overflows to both the Florida Department of Environmental Protection and the Environmental Protection Commission of Hillsborough County provides transparency to mitigate potential impacts to public health and safety. The Division generates a detailed report for each event and sends to applicable regulatory body within five days of initial reporting of incident as required.

The Division uses multiple technology tools to accomplish the various tasks to maintain and repair the collection system. The iMaint database, a key tool used by the Division, creates work orders (WO), tracks and records related costs to WOs, schedules preventative and

reactive maintenance, and creates management reports. Additionally, the Division uses a separate tool, the Overflow database, to track and report all overflows that occur within the City's service area.

### **STATEMENT OF OBJECTIVES**

This audit was conducted in accordance with the Internal Audit Department's FY 2021 Audit Agenda. The objectives of this audit were to ensure that:

1. The Division has adequate internal controls over WOs, specifically related to monitoring and timely and efficient completion.
2. The Division completes overflow reporting within the required timelines and with appropriate required information for regulatory agencies.
3. Performance metrics reported are accurate, consistent, relevant, and verifiable.

### **STATEMENT OF SCOPE**

The audit period covered October 2019 to March 2021. We performed both qualitative and quantitative assessments to determine whether the Division fulfilled their stated duties and responsibilities in an effective and efficient manner. Original records as well as copies were used as evidence and verified through observation and physical examination.

### **STATEMENT OF METHODOLOGY**

We achieved our audit objectives by using the following methods:

1. Interviewed key personnel to identify and map processes and determine whether adequate internal control have been established.
2. Assessed Division documented standard operation procedures (SOP) for relevance and establishment of applicable internal controls.
3. Performed data reliability analysis to determine completeness and accuracy of the iMaint database and overflow reporting database.
4. Conducted walkthroughs of the preventative and reactive processes.
5. Evaluated pre and post vehicle inspection processes for completion, review and reconciliation.
6. Reviewed demonstrations of various web-based applications used during inspections.
7. Evaluated overflow reports for compliance with regulatory requirements
8. Analyzed samples of WOs for completeness and compliance to Division SOPs.

The following steps were performed in order to determine the accuracy, consistency, and relevance of metrics reported:

1. Identified source/system for metrics reported.
2. Reviewed data reliability testing for system generated data.
3. Surveyed comparable sized jurisdictions with same function for similar metrics used.

#### **STATEMENT OF AUDITING STANDARDS**

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 objectives.

#### **NOTEWORTHY ACCOMPLISHMENTS**

The Division established a seven-year schedule for preventative maintenance activities. The manhole inspections cycle started June 2017 and at the current rate, the Division expects to complete that cycle of inspections by May 2021, which reflects a four-year pace. Concurrently, sewer line cleaning and CCTV inspections cycle started July 2017, and the Division expects that cycle completed by December 2021, which reflects a four-and-a-half-year pace. These accomplishments occur despite an ever-expanding City and an aging infrastructure all the while keeping a workforce that has not expanded since 2006.

#### **AUDIT CONCLUSIONS**

Based upon the test work performed and the audit finding noted below, we conclude that:

1. The Division has adequate internal control over WOs, specifically related to monitoring and timely and efficient completion.
2. The Division completes overflow reporting within required timelines and with appropriate required information for regulatory agencies.
3. Performance metrics accuracy can be improved.

## **ENTERPRISE PERFORMANCE METRICS**

**STATEMENT OF CONDITION:** Wastewater publishes some of its performance metrics on the City's website to provide information to the public. Metrics published on the dashboard show the department's performance in four areas, namely gravity sewer pipe cleaning, grease trap inspections, manhole inspections, and sewer pipe inspections. There are two metrics for each of these areas, one showing performance on a monthly basis for the current fiscal year (October 2020 through March 2021) and the other performance on an annual basis from FY 2013 to 2020. We reviewed these metrics to determine their accuracy relative to the department's internal data. We noted variances in 4 of the 8 metrics: the variances were in 6 out of 56 data points, an error rate of 10.7%.

**CRITERIA:** The central function of a performance measurement process is to provide valid and accurate data on indicators of organizational performance.

**CAUSE:** The process of creating performance metrics involves data generation and processing by Wastewater and the subsequent visualization of that data by Technology and Innovation staff on the City's public website. Quality control procedures in place intended to verify data accuracy or consistency of metrics with source data before publication on the website did not identify the variances noted in the audit analysis.

**EFFECT OF CONDITION:** Information presented to the public on departmental performance may be inaccurate.

**RECOMMENDATION:** Management should improve quality control for its Enterprise Performance Metrics program. This should include ongoing training for individuals who process performance data so that metrics are as complete and accurate as possible.

**MANAGEMENT RESPONSE:** Although variances were noted in six (6) out of fifty-six (56) data points, we would like to state that only one (1) out of fifty-six (56) data points reported on the published dashboard was in error. All other variances were inaccurate in the departmental records only. These internal records variances occurred within the last six (6) months of the audit due to a transfer of the performance metrics generation duties to a new staff member.

We will improve our quality control as recommended by:

- Provide refresher training to the staff member currently preparing the metrics.
- We will train an additional staff member to produce the metrics, giving us two (2) staff members capable of producing the metrics for redundancy purposes.
- We will have a third person check their work for the first three (3) months to ensure they are producing the metrics correctly.

Every month after the Wastewater Collection internal metrics are produced, we will have them checked and validated against the published metrics for the previous month to ensure that there are no variances.

FULLY IMPLEMENTED