

**WASTEWATER DEPARTMENT  
AWTP MAINTENANCE DIVISION  
AWTP MAINTENANCE  
AUDIT 22-08  
JUNE 10, 2022**



# City of Tampa

*Jane Castor, Mayor*

## Internal Audit Department

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

June 10, 2022

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

RE: AWTP Maintenance Division, Audit 22-08

Dear Mayor Castor:

Attached is the Internal Audit Department's report on AWTP Maintenance.

We thank the management and staff of Wastewater Department, AWTP Maintenance 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 & Mobility Administrator  
Brad Baird, Deputy Administrator of Infrastructure  
Gina Grimes, City Attorney  
Dennis Rogero, Chief Financial Officer  
Eric Weiss, Director of Wastewater  
Erik Garwell, Wastewater Treatment Plant Manager  
Albert Vander Ploeg, Wastewater Plant Maintenance Supervisor

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/s/ Stephen Mhere

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Senior Auditor

/s/ Christine Glover

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Audit Director

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**BACKGROUND**

The Advanced Wastewater Treatment Plant Maintenance Division is a division in the City of Tampa (COT)'s Wastewater Department. It is responsible for the maintenance of COT's wastewater treatment plant. The Howard F. Curren Advanced Wastewater Treatment Plant (AWTP)'s average daily flow is 55 million gallons but it has a design capacity of 96 million gallons per day. The AWTP Maintenance Division also maintains more than 225 pumping stations used to move wastewater discharged within the city and surrounding areas to the plant for treatment. The replacement cost for the AWTP system is over \$3.3 billion.

Howard F. Curren AWTP Preliminary Treatment Chamber 1



Source: City of Tampa Wastewater Department

The AWTP Maintenance Division carries out its function through a staff of 65 employees. The staff is professionally diverse, consisting of technicians, schedulers, and specialists.<sup>1</sup> Day-to-day maintenance tasks at the AWTP are led by the maintenance supervisor, who reports to the plant manager. The plant manager reports to the Wastewater Department Director.

**STATEMENT OF OBJECTIVES**

This audit was conducted in accordance with the Internal Audit Department's FY 2022 Audit Agenda. Audit objectives were to determine if:

1. The system of internal controls for the AWTP Maintenance Division is adequate.
2. The AWTP Maintenance Division performs preventive, corrective, and reactive maintenance tasks effectively and in a timely manner.

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<sup>1</sup> Staff consists of AWTP technicians, instrumentation & controls specialists, a work order technician, a power facility specialist, planner/schedulers, as well as operations, pump station, mechanical, and electrical specialists.

3. COT staff and employees of third-party entities doing maintenance work at the AWTP do so in a safe environment.
4. The AWTP Maintenance Division's performance metrics are accurate, relevant, and verifiable.

### **STATEMENT OF SCOPE**

The audit period covered activities of the AWTP Maintenance Division that occurred in FY 2021. Because of the COVID-19 pandemic, we reviewed metrics data going back to FY 2017 for context. We performed tests to determine whether the AWTP Maintenance Division fulfilled its stated duties and responsibilities in an effective and efficient manner. Original records were used as evidence and verified through observation and physical examination.

### **STATEMENT OF METHODOLOGY**

We accomplished our audit objectives as follows:

- Evaluated internal controls related to core activities, including a review of policies and procedures, the safety program, and inventory management procedures.
- Interviewed the plant manager as well as the plant maintenance supervisor to understand their perspective on the risk of fraud and disparity in AWTP Maintenance Division operations.
- Toured the AWTP to understand the scope of maintenance operations at the facility.
- Reviewed COT Council resolutions, contracts, and award letters relevant services outsourced to third-party entities.
- Reviewed technician qualifications (certifications and/or licensures) to verify that they satisfied requirements for their respective job positions.
- Reviewed the AWTP Maintenance Division's procurement practices to verify its compliance with the p-card policy.
- Assessed iMaint, the application used extensively in maintenance, to determine the reliability of work order data processed in the system.
- Assessed the accuracy, verifiability, and relevance of performance metrics reported on Wastewater Department's iNet webpage.

### **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 AWTP Maintenance Division has implemented a skills training matrix to track employee competency levels, development, and training. The training matrix identifies gaps between an employee's actual knowledge and the knowledge required in the position they hold, ensuring they have proper training and certification. In the three years FY 2019 through FY 2021, AWTP staff devoted more than 25,500 hours in skills matrix training, including electrical, operations, mechanical, and instrumentation.

## **AUDIT CONCLUSIONS**

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

1. The system of internal controls for the AWTP Maintenance Division is adequate.
2. The AWTP Maintenance Division performs preventive, corrective, and reactive maintenance tasks effectively and in a timely manner, notwithstanding the challenges of COVID-19.
3. COT staff and employees of third-party entities doing maintenance work at the AWTP do so in a safe environment.
4. The AWTP Maintenance Division's performance metrics are relevant and verifiable. However, their accuracy and usefulness as measures of performance can be improved.

## **PERFORMANCE METRICS**

**STATEMENT OF CONDITION:** There are three categories of metrics on Wastewater Department's iNet webpage: Preventive Maintenance Completed, Corrective Maintenance Completed, and Annual Work Hours by Type. These are summarized below.

<b>Performance Metric</b>	<b>Performance Metric Description</b>
Preventive Maintenance Completed	This metric consists of two subcategories, AWTP Preventive Maintenance Work Completed by Count and AWTP Preventive Maintenance Work Completed by Hours. These are depicted graphically as number of work orders or work hours completed as a percentage of work orders or work hours targeted to be completed for each month, respectively.
Corrective Maintenance Completed	This metric shows the number of hours of corrective maintenance work done each month. There are three subcategories within this metric: Reactive Corrective, Planned Corrective, and Planned Backlog Corrective Maintenance Completed.
Annual Completed Work Hours by Type	This metric keeps track of all preventative and corrective maintenance hours worked per year. The subcategories in this metric include reactive, planned, and preventive maintenance. These are presented graphically for each fiscal year.

We reviewed the two preventive maintenance metrics and found that the percentages displayed on the graphs were inconsistent with some of the underlying data shown on the graphs.

Our review included an inquiry of performance targets for these metrics. Management informed us that the performance objective for reactive as well as planned corrective work orders meeting a certain priority level is to complete 100% of them. No timeframe – length of time within which these work orders have to be completed – is specified for this objective.

**CRITERIA:** To be an effective evaluation tool, performance metrics should be accurate. They should also include specific objectives with timeframes (e.g., to close 90% of reactive work orders within 5 days).

**CAUSE:** Number of work orders displayed on the metric chart excludes work orders completed from the backlog, yet backlog work orders are part of the metric calculation. Timeframes are not specified in metrics because, according to management, procurement of repair parts is outside its control and sometimes repair parts are not readily available.

**EFFECT OF CONDITION:** Exclusion of work orders completed from backlog gives a perception of underperformance. Also, metrics without specified timeframe objectives are less effective as a tool for evaluation of performance.

**RECOMMENDATION:** Management should consider redesigning metrics so that they include:

- a) Both scheduled and backlog work orders for consistency and accuracy.

- b) Timeframes in their objectives, where appropriate, so they are a more effective performance evaluation tool. To establish a metric with a realistic percentage objective and timeframe, the AWTP Maintenance Division could analyze its past performance on appropriate work orders to determine what percentage it has been able to achieve in a specified timeframe, and then formulate the metric based on that. Such an approach allows the AWTP to comply with the standard it establishes while accommodating outlier projects and repair parts procurement delays.

MANAGEMENT RESPONSE: We have reviewed your submittal and agree with both recommendations (a) and (b). We will analyze past performance and modify the current metrics to incorporate a percentage objective for our corrective work and timeframe over the next six months. The six months target date will provide enough raw data to analyze to confirm desired results.

TARGET IMPLEMENTATION DATE: 10/31/2022