



Fire Hydrant Inspection and Maintenance

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Audit Objectives

- Is the city aware of the operational status of all its hydrants?
- Does the Atlanta Fire Rescue Department perform fire hydrant inspections in a timely manner?
- Does the Department of Watershed Management perform fire hydrant repairs in a timely manner?



Scope and Methodology

- Reviewed the Atlanta Fire Rescue Department and the Department of Watershed Management's procedures and practices for inspections and repairs
- Interviewed subject matter experts from other jurisdictions to understand how each city relays hydrant repair requests to the Department of Watershed Management
- Conducted field observations of hydrant:
 - AFRD inspections from October through December 2018
 - DWM repairs in December 2018
- Analyzed reports from Fire Rescue's hydrant database and compared hydrant card records to its database for consistency
- Tracked 36 hydrants through the repair process from inspection to maintenance to confirm whether reinspection and repair reporting procedures were followed during the fall 2018 inspections
- Analyzed Hansen records for hydrant repair work orders from January 1, 2015, through December 14, 2018, to determine repair turnaround times and whether Watershed Management met service level agreements

Findings Overview

- Atlanta Fire Rescue Department may not inspect all hydrants under its jurisdiction
 - lack of alignment between Fire Department and Watershed Management's hydrant populations
 - Fire Department uses an antiquated and unreliable system that does not capture all inspections
 - Fire Department inconsistently records inspections on hydrant cards
- The city should complete the asset identification application to identify real-time hydrant operational status; would help address lack of communication of hydrant repair needs and completed repairs
- Department of Watershed Management reduced repair times, but fell short of targets

Atlanta Fire Rescue Department's Database May Not Record All Inspections

- 9% of fire hydrants did not have an inspection date for fall 2018

Exhibit 7: Hydrant Database Shows No Inspection for 1,463 Hydrants in Fall 2018

	Inspected	Not Inspected	Total
Private Hydrants	1,173	133	1,306
Public Hydrants	13,609	1,328	14,937
Not Assigned	1	2	3
Total	14,783	1,463	16,246
Percent of Total	91%	9%	

Source: Records from the Atlanta Fire Rescue Department hydrant database as of March 2019.

Lack of Alignment Between Systems May Lead to Missed or Unrecorded Inspections

- Discrepancies among data sources could result in missing inspections or maintenance
 - Atlanta Fire Rescue Department’s hydrant database is unstable and does not capture all records
 - Fire Rescue’s recordkeeping process is inconsistent, which may reduce the accuracy of the records in the hydrant database

Exhibit 8: Watershed Management and Fire Rescue Hydrant Populations Do Not Align

Responsible Department	Private Hydrants Within City Limits	Public Hydrants Within City Limits	Public Hydrants Outside City Limits	Total Hydrant Population
Atlanta Fire Rescue Department <i>Inspects</i>	1,306	14,940*	N/A	16,246
Department of Watershed Management <i>Maintains</i>	N/A	14,633	10,054	24,687

*Public hydrants within city limits include three hydrants that were not assigned to either the public or private designations.
Source: Fire Rescue hydrant database as of January 2019 and Watershed Management’s records as of November 2018.

Lack of Communication Hinders Hydrant Inspection and Maintenance Process

Exhibit 11: Fire Rescue Did Not Send Two-Thirds of Sampled Hydrant Repair Requests to Watershed Management

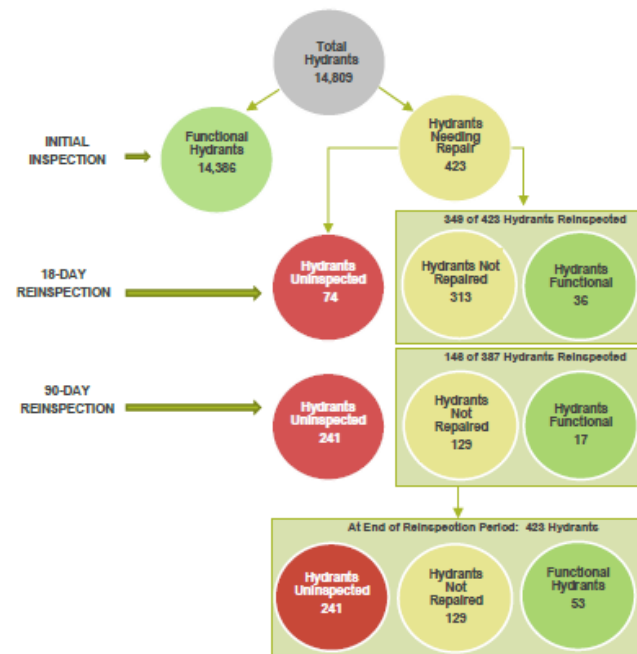
Status of Repair Request	Total	Percent of Total
Sent to DWM for Repairs	11	31%
Did Not Send to DWM for Repairs	25	69%
Total	36	100%

Source: Sample pulled from auditor observations in the field or of the database during October 2018. Contact status was determined by the Department of Watershed Management between January and March 2019.

Lack of Communication Hinders Hydrant Inspection and Maintenance Process

- While companies completed 95% of initial inspections by the 45-day inspection deadline, Fire Rescue did not consistently transfer repair requests to Watershed Management
- Fire Rescue did not complete reinspections as required by its policy
- Watershed Management does not have standard operating procedures in place for communicating to Fire Rescue when hydrant repairs are completed

Exhibit 12: Fire Did Not Consistently Reinspect Hydrants



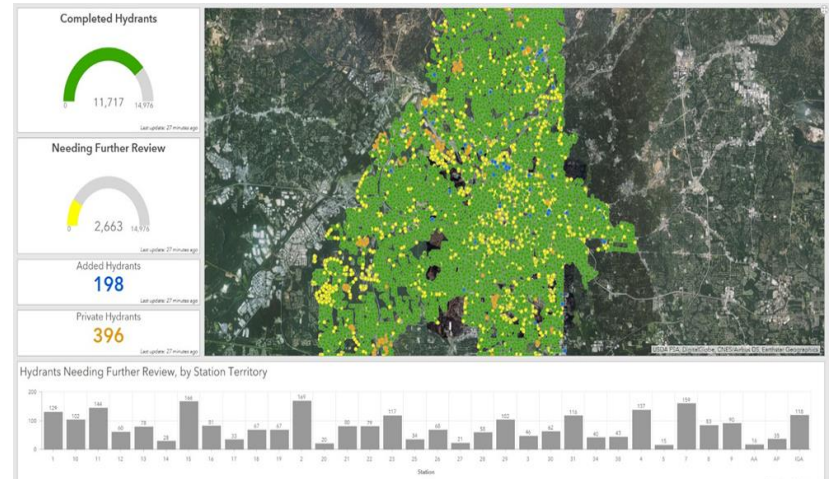
Source: Developed by auditors using data pulled from the Atlanta Fire Rescue Department's hydrant database in January 2019.

Hydrant Inspection Recommendations

- Fire Rescue should revise departmental policy to include specific verification procedures to ensure that all hydrants are inspected as required, and the hydrant database is updated with the inspection date and results
- Fire Rescue should enforce the department's policy and city code to inspect all private hydrants within the city limits
- Fire Rescue and Watershed Management should create a policy to communicate hydrant installations and removals, which should include procedures for updating the fire hydrant database
- Watershed Management should create and formalize memorandums of understanding between Fire Rescue and each of the other jurisdictions to document each entity's roles and responsibilities

City Should Complete GIS Application To Identify Real-time Hydrant Status

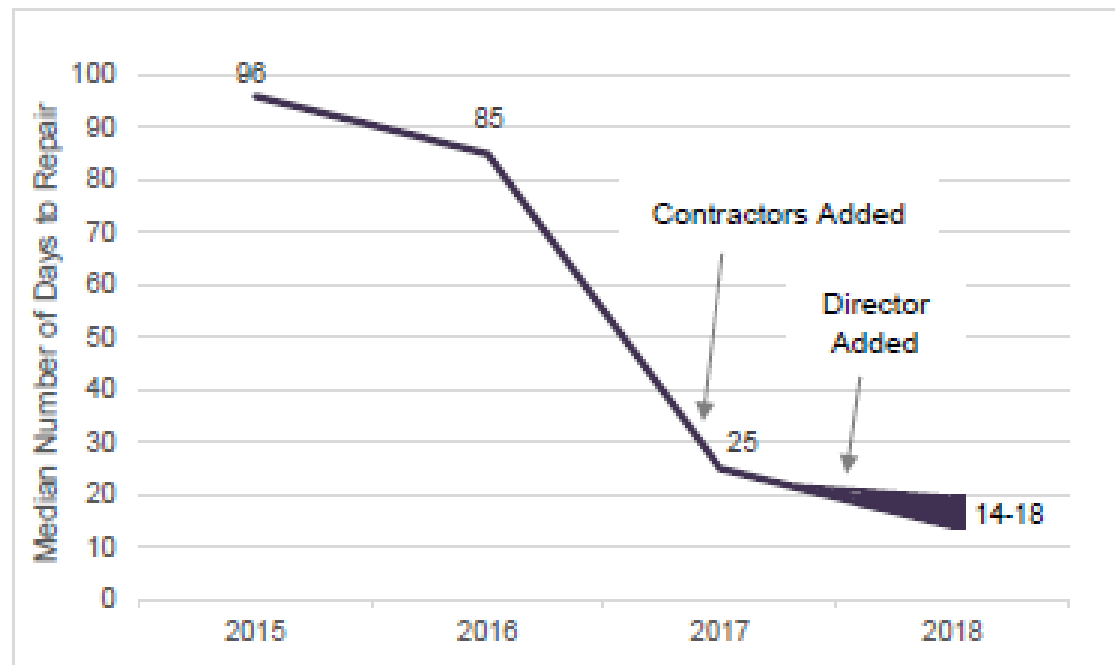
- Difficult to locate hydrants
- Link Hansen asset numbers with those of fire ID numbers
 - Project was never official and resources were never allocated
 - Captures GPS coordinates of each hydrant
 - Increase accuracy in identifying hydrant in need of repair
 - Displays hydrant functionality in real time



Watershed Management Reduced Repair Times, But Fell Short of Targets

- Decreased fire hydrant repair times by more than 80%
- Addition of contractors and permanent staff

Exhibit 15: Median Hydrant Repair Times Declined About 80 Days Over Four Years

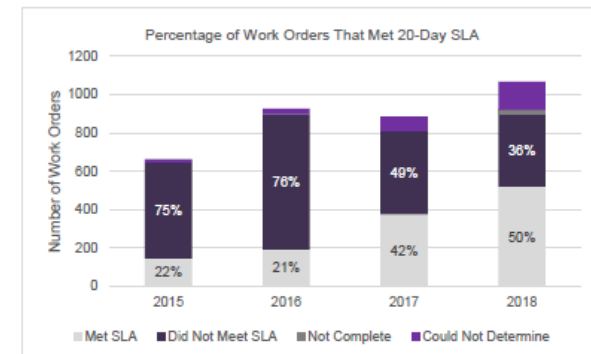
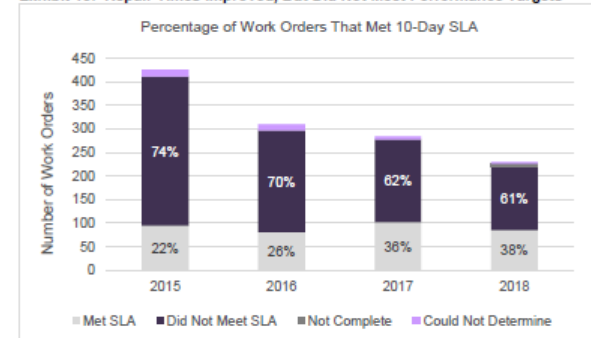


Source: Work order data from Hansen, January 2015 through December 14, 2018, and historical information from the Department of Watershed Management.

Watershed Management Reduced Repair Times, But Fell Short of Targets

- Watershed Management completed 38% of work orders with 10-day service level agreements on time in 2018, up from 22% in 2015
- The department completed 50% of work orders with 20-day service level agreements on time in 2018, compared to 22% in 2015
- Performance target of 90% still not reached

Exhibit 18: Repair Times Improved, But Did Not Meet Performance Targets



Note: Percentages do not total 100% for each year because "Not Complete" And "Could Not Determine" are not reflected numerically.

Source: Work order data from Hansen as of December 14, 2018.

Hydrant Repair Recommendations

- Department of Watershed Management should continue to work with the Atlanta Fire Rescue Department to complete the hydrant asset identification project including customization and resource acquisition
- Department of Watershed Management should continue to track progress toward meeting service level agreements and consider the feasibility of adding additional resources to help meet the targets

Questions?

Full Report:

<http://www.atlaudit.org/audit-reports.html>

