GIS and Asset Management:
The Center of a Sanitary Sewer MOM Program

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Background

As part of a regional sanitary sewer system, the City of Newport News is under a Special Order by Consent. An element of the Order requires a Management, Operations, & Maintenance (MOM) Program. Our MOM includes a summary of the wastewater collection system and program goals. To successfully implement and support the MOM, the Department of Public Works uses GIS and asset management. This presentation will detail the crucial roles both GIS and asset management play in the success of the MOM.
Where is Newport News?

- Named for Christopher Newport, the British sea captain and commander of the Susan Constant, the flagship of the English fleet that landed in Jamestown.
- Runs 25 miles along the James River and Hampton Roads Harbor.
- 69.2 square miles
- Population of 180,719 (2016)
- Fifth most populous city in Virginia
Asset Management Division

• Implemented GIS-centric asset management system in 2004; administrates and supports Cityworks and a multitude of ancillary programs.
• Supports all divisions of Public Works with respect to software/hardware, servers/network, cameras, radios, and phones.
• GIS team inputs and maintains Public Works owned assets and related layers and ensures the accuracy of all GIS products.
• Performs records management.
• Coordinate with the 311 Contact Center and IT.
MOM Definition

Management, Operations, and Maintenance Program for the City of Newport News’ sanitary sewer system.
The MOM report presents an overview of the City of Newport News Wastewater Collection System and details:

- The management organization to support the collection system.
- A review of operation and maintenance practices.
- The MOM risk assessment approach, recommendations, and implementation.
- Tangible performance measures for the Wastewater Division.
- The MOM program implementation plan and monitoring.
The goals of the MOM are:

• Proper management, operation, and maintenance of the collection system over which the City has operational control.

• Stop/reduce and mitigate the impact of sanitary sewer overflow (SSO) in the portion of the collection system over which the City has operational control.

• Providing notification to the Virginia Department of Health so that they can provide notification to parties with a reasonable potential for exposure to pollutants associated with SSO events.
The GIS:

• Robust infrastructure asset inventory in the GIS.

• Constantly adding additional assets.

• GIS-centric asset management system used to capture work performed on the sanitary sewer system.
Continuing Sewer Assessment Plan:

- Analysis, Inspection, Maintenance, and Service (AIMS) Pump Station (PS) Service Area (SA) Analysis Program.
- Sewer System Deficiencies Tracking Program
- Construction/Maintenance Program
- Pump Station Analysis Program
- Capital Improvement Program (CIP)
- System Evaluation
- Fats, Oils, and Grease (FOG) Reduction Program
Regional Collaboration Components of the MOM Program (a few examples):

- Wet Weather Operation
- Flow, rainfall, and pressure monitoring
- SSO response
- Regional design guidelines
- Memorandum of agreement
Metrics will be used to measure performance of the system. Performance gaps will be annotated and evaluated annually.

- Effective transition of basins from Sanitary Sewer Evaluation Study (SSES) basin to MOM status.
- Establish a critical spare parts list with minimum inventory levels.
- Reduce sanitary sewer overflows (SSOs) that are caused by hydraulic deficiency.
Asset Management and Geographic Information System (GIS)

Goal:
Review any/all adds, changes, and/or deletions submitted by the Wastewater Division (or other Consent Order entity) with respect to GIS Assets and perform asset update(s) in the GIS within seven (7) business days of receipt/notification.

How will it be accomplished:
The Sanitary Sewer GIS data is displayed in the GIS-centric computerized maintenance management system (CMMS). To ensure CMMS users have access to the up-to-date GIS data, edits will be performed and posted on a regular weekly, if not daily, basis.

Who will coordinate & supervise the work:
The Public Works, GIS Manager is responsible for assigning and overseeing the work performed. The GIS team will be responsible for documenting the work performed.

Result:
The GIS is up-to-date and is available for use in the CMMS as a result of the updates received from MOM-related work.
Metrics – Infrastructure Assets

Force Mains:
• Inspections

Gravity Mains:
• Smoke testing, cleaning, closed circuit television (CCTV)

Manholes:
• Inspections

Public Side Laterals:
• CCTV

Pump Stations:
• Mechanical, electrical and instrumentation, bypass pumps, inspections

Valves:
• Inspect and exercise
Metrics – Capturing the Data

Tasks:
Broken down step by step for each work function
Personnel

- Labor rates
- Wearing apparel
- Small tools
- Other supplies
Equipment

- Captured by charge code
- Work orders
- Run-time hours
Reporting

- Internal reports
- External reports
- City’s Paperless Initiative
# The 311 Contact Center

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What has helped?

• Buy in and flexibility (Wastewater staff)
• Open communication
• Support
  o Users
  o Upper Management
  o Contractor
• Testing
Evolving

• Review service request and work order templates
• Refine tasks
Questions?

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