



**NORTH AMERICAN SOCIETY FOR TRENCHLESS TECHNOLOGY**

# **IMPLEMENTATION OF ACOUSTIC INSPECTION TECHNOLOGY**

**AT THE CITY OF AUGUSTA**

**NASTT's 2015 No-Dig Show**



# AGENDA

- **Situation Overview**
- Acoustic Inspection Technology
- Implementation Case Study
- Summary



# AUGUSTA UTILITIES OVERVIEW

- Founded 1822
- Combined operations with Richmond County in 1996
- Population Served 190,000

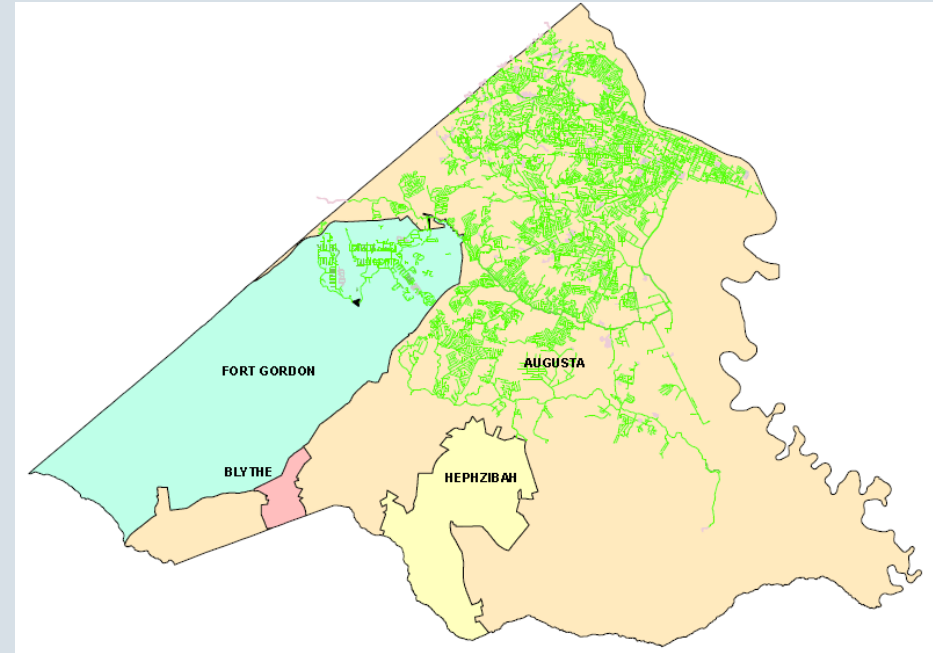


- 1,040 miles of sewer
- Covers 280 square miles
- Under GA EPD Consent Order



# REASON FOR SELECTING THE SL-RAT

- Needed to get “outside the box” to meet the requirements of the Consent Order
- Needed to get a handle on SSO performance
- Hence, needed to get an overall snapshot of their system
- SL-RAT provided a simple low-cost solution





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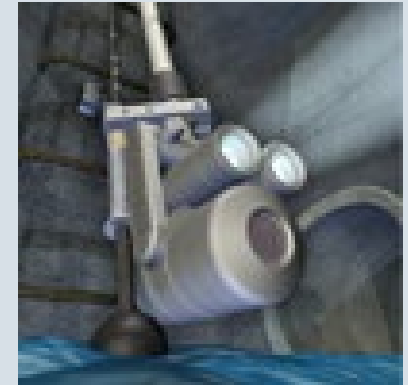
# SEWER LINE INSPECTION METHODS



▶ Manhole Inspection



▶ *Acoustic*



▶ Zoom Camera



▶ Push Camera



▶ CCTV/Robotic Camera, etc



# ACTIVE ACOUSTIC PIPE INSPECTION

- Patented technology
- Gravity-fed sewer focus
- Winner 2012 WEF Innovative Technology Award



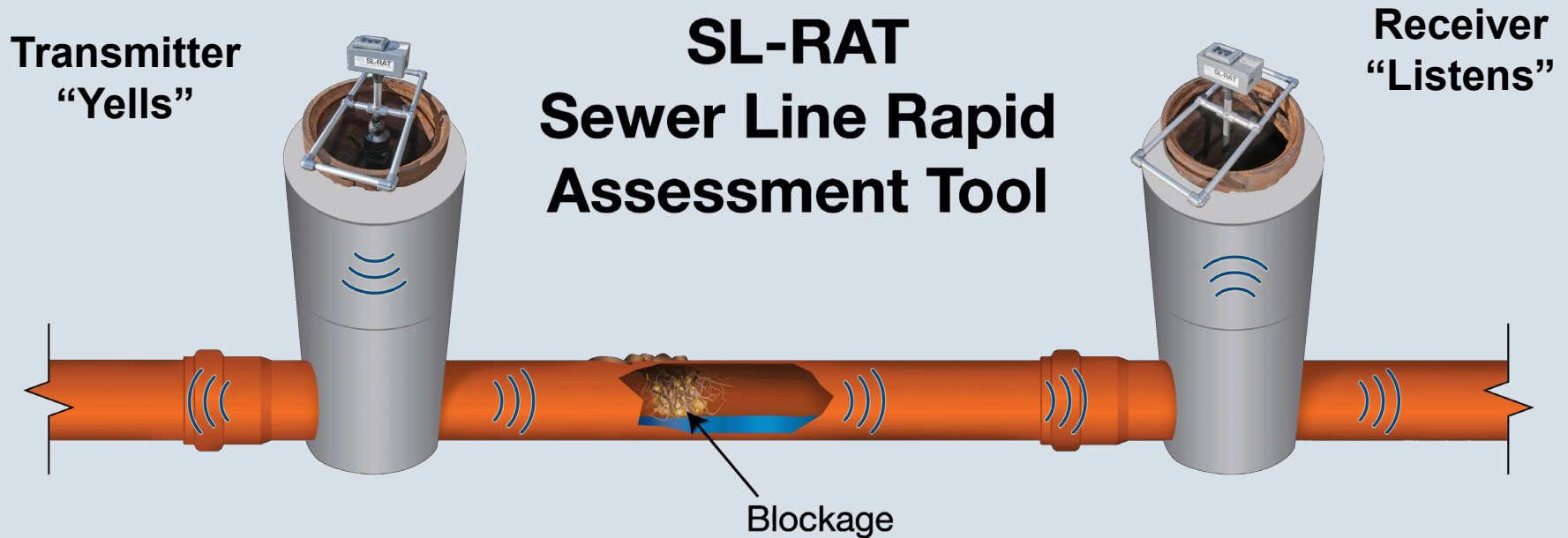
- Over 12M feet inspected
- Rapid assessment helps better focus cleaning and CCTV resources





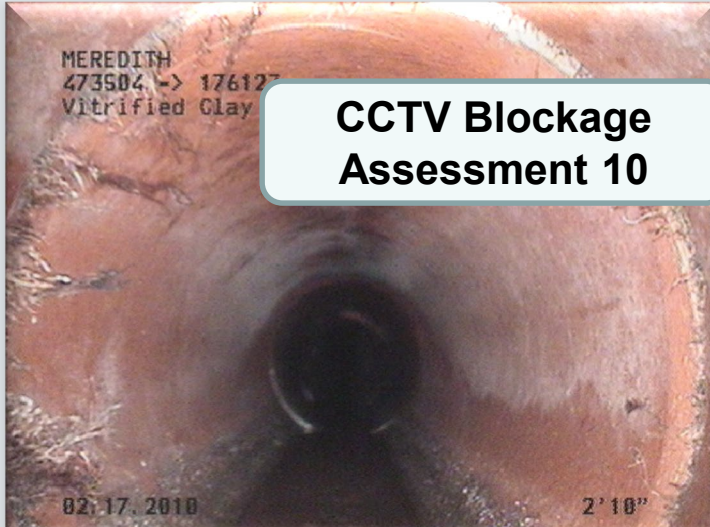
# ACOUSTIC INSPECTION TECHNOLOGY

- How Does it Work?

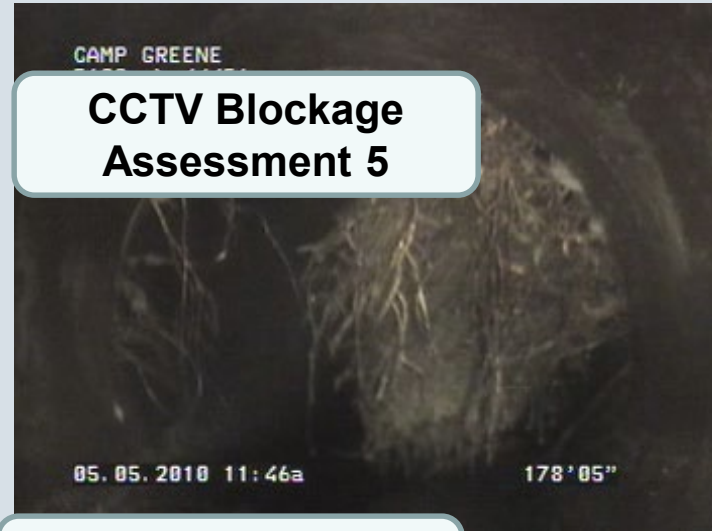




# VISUAL COMPARISON

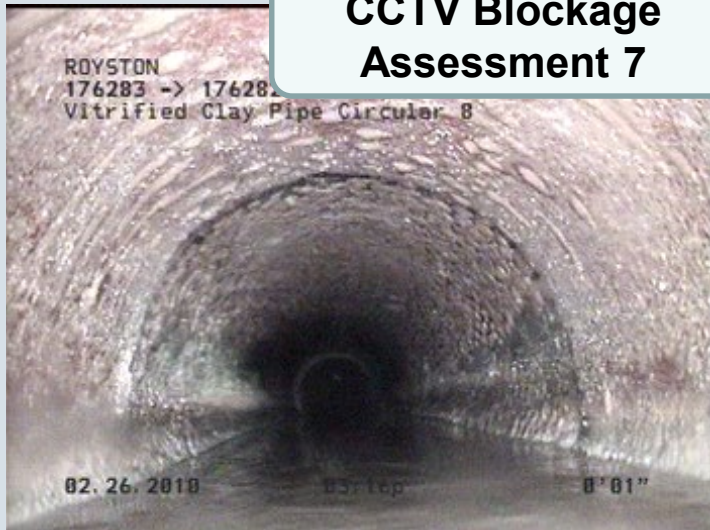


**CCTV Blockage Assessment 10**



**CCTV Blockage Assessment 5**

**CCTV Robot was Able to Pass Through Root Fibers**



**CCTV Blockage Assessment 7**



**CCTV Blockage Assessment 2**

**CCTV Robot was Not Able to Pass Through Obstruction**



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# HOW IT WAS OPERATIONALIZED

## UPDATE FROM HERE

- 3 SL-RAT's
- Managed by Asset Management
- Run with 2 person crews per SL-RAT
- Averaging ~7500 feet/8 hour day per crew
- Plan out inspection areas based on tax-maps
- Combined with manhole inspection program

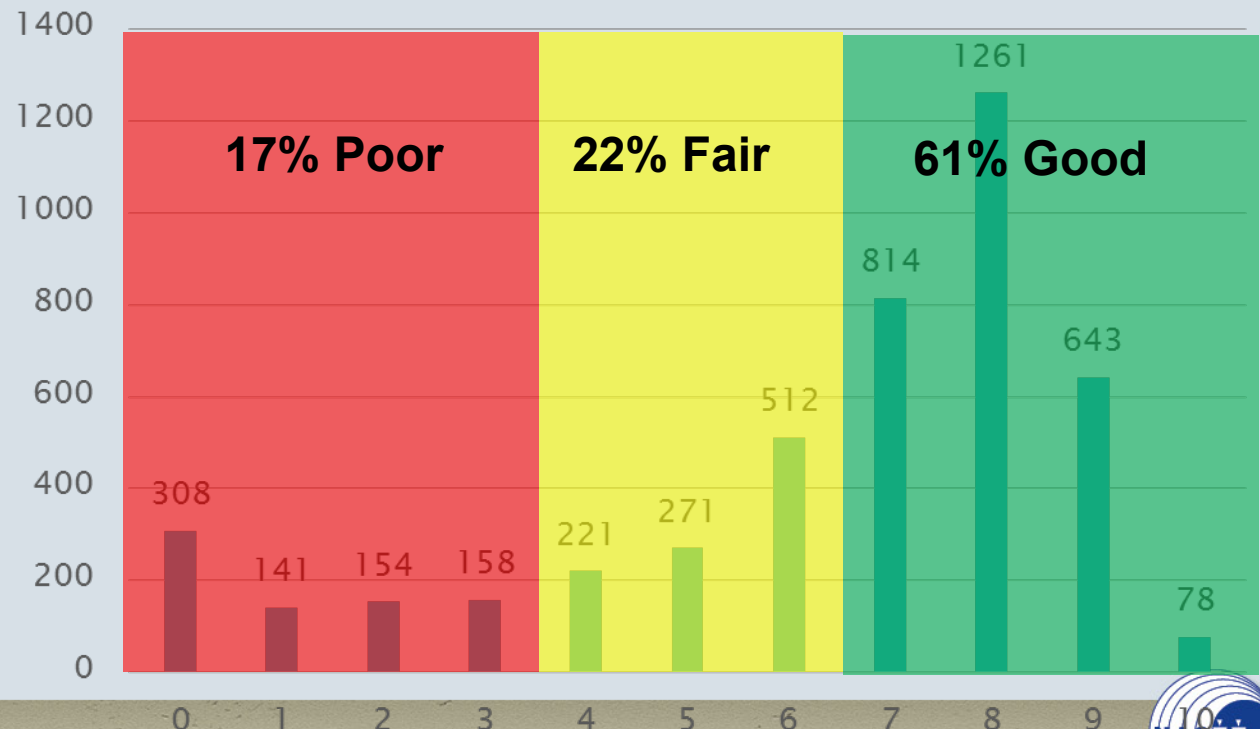




# Results So Far...

- >4,500 segments inspected in ~9 months of work
- >9,000 manholes located and inspected
- >1 MILLION Feet (197 miles)

## Histogram of Acoustic Scores





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# Key Learnings

1. The SL-RAT is simple, reliable, and easy to use
2. Keep up with the data - DAILY! Backlogs can get overwhelming
3. Forces discipline in visiting every manhole – identify issues, update GIS records, etc
4. Has focused efforts on the 39% of segments that are Poor or Fair
5. Requires teamwork to achieve full potential – cleaning crews, GIS, inspection crews – must all work together
6. Future plans include conducting post-cleaning QA



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# ADDITIONAL INFORMATION

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