Flow Metering for Maintenance and More

MWEA ANNUAL CONFERENCE
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Flow metering can...

1. Help identify unusual conditions for Pipe Assessment Certification Program (PACP) prioritization

2. Detect abnormal behavior, leading to the discovery of a sign pole in the sewer

3. Benchmark meter districts under a common wetness condition and storm event against dozens of mid-west meter districts
City of Livonia: Proactive

9th largest municipality in Michigan
96,000 people

Metering Technology:
- 8 permanent meters
- 3 permanent rain gauges

Robust GIS & Cityworks Asset Management Program

1st-Round SAW Grant
Temporary meters help in problem areas

13 temporary flow meters
April – October
~$1,000/meter/month
Assess system capacity
Identify locations for further inspection
PACP Prioritization

Potential Downstream Obstruction

Depth (ft)

Velocity (ft/sec)

Modified Manning

April - October 2015
Detect Abnormal Behavior
What happened?
What happened?
An added element...
Detect Abnormal Behavior
Benchmarking of Flow
Benchmark Meter Districts

- Benchmark meter districts under a common wetness condition and storm event
- 2 dozen Midwest communities
- 100 Midwest sewersheds
- Continuous models built from meter data
Is my system on the wet or dry end?

Benchmark Results from Continuous Sewershed Models

(Peak flow from 1", 1 hour storm − Diurnal) ∗ \( \frac{1000}{\text{Sewershed Acres}} \)

Peak I/I Flow (cfs) Per 1,000 Acres
(for 1" rain in 1 hour on AM conditions from April 20, 2000)
Flow metering can...

1. Help identify unusual conditions for Pipe Assessment Certification Program (PACP) prioritization

2. Detect abnormal behavior, leading to literally finding a street light pole in the sewer

3. Benchmark meter districts under a common wetness condition and storm event against dozens of mid-west meter districts
Q&A