### NJAW Experience with Permanent Leak Detection Equipment – Case Studies

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### **Presentation Outline**

Leakage Control ✓ Start with a water audit Building a Case Leak Monitoring Case Studies ✓ Irvington, NJ ✓ Washington, NJ ✓New Egypt, NJ





### Water Audit Overview

System Input







### **Real Loss Control Actions**

- Active Leakage Control
- Speed & Quality of Repairs
- Rehabilitation and Replacement
- Pressure Management



American Water

### **Active Leakage Control vs. Permanent Leak Monitoring**



Years



### **Ancillary Benefits**

#### **Operational:**

- 1. Identify and monitor fast growing leaks
- 2. Prioritize repair of high consequence leaks (hospital, highway, airport)
- 3. Plan workflow reduce leak backlog in good weather

#### Management:

- 1. Increase management visibility
- 2. Optimize pipe maintenance workflow
- 3. Customer service improvement proactive leak management





### **Calculate Value of Improved Leak Management**

### Savings

- ✓ Increased repair efficiency
- ✓ Reduced leak damage (liability)
- ✓ Reduced leak detection costs

### Added Value

- Deferred capital investments in plants/pump stations
- ✓ Value of regulatory support/compliance
- ✓ Value of increased customer service





### **Non-Monetary Benefits – Triple Bottom Line**

#### **Environmental**



### Chlorine Pollution of Rivers Kills Fish

- California Regional Water Quality Control Board

#### **Social**



Water Main Break Floods Terminal, delays flights at New York's JFK - New York Times & Yahoo News



# Case Study: Irvington, NJ

- Very limited proactive leak surveys
- Leak investigations and repairs are now scheduled
- System Operational in March, 2016
- First year of operation
  - 67 leaks repaired
  - 880 gallons per minute of water loss prevented
  - 90% of leaks not surfacing





#### System Payback in 9 months

### **Remember the Water Audit Drivers?**

	2015	2016	2017
Short Hills - NRW %	27.8	25.2	20.2
<b>Short Hills -</b> Real Losses per Service Connection (gpd/conn)	131	111	84
Short Hills - Real Losses per Service Connection per psi (gpd/conn/psi)	1.82	1.54	1.18
Irvington - Recorded Water Loss Reduction (Million Gallons)	N/A	589	227

Irvington is part of the Short Hills Water System



### **Irvington Non-Revenue Water Impact**

System Location	Approximate Length of Pipe Network Monitored (mi)	Primary Driver For Leak Monitoring	Initial Modeled Payback (Years)	Revised or Actual Payback Estimate (Years)
Irvington, NJ	73	Reduce Water Loss & Economic Return	3	0.7
Washington, NJ	39	Regulatory Driver	9	6.5
New Egypt, NJ	6	Asset Awareness at remote System	-	-



# Case Study: Washington Borough, NJ

- Located in Warren County, New Jersey
- Population ~ 6,500 people
- Current State: Annual Leak Detection Survey
- Leak Monitoring Drivers:
  - Asset awareness at a remote system
  - Reduce capital needs defer drilling new well
  - Regulatory compliance initial NRW of 36%





# Case Study: New Egypt, NJ

- Unincorporated Census-designated place
  New Jersey
- Population ~ 2,500 people
- Current State: Annual Leak Detection
  Survey
- Leak Monitoring Drivers:
  - Asset awareness at a remote system
  - Reduce capital needs defer drilling new well
  - Regulatory compliance initial NRW of 45%





### **Summary: Review Decision Flow**

1. AWWA Water Audit

2. System Specific Cost-Benefit Analysis

3. Program Review



# **Thank You!**