



Business Spotlight

Keaton Clay
Oldcastle Infrastructure (CivilSense)



CivilSense™

Irvine Ranch Water District



Oldcastle Infrastructure
A CRH COMPANY

Addressing A Critical Challenge, Water Loss



2.3 Billion

people live in water-stressed countries, of which 733 million live in high and critically water-stressed countries. (UN-Water, 2021)

3.2 Billion

people live in agricultural areas with high to very high water shortages or scarcity, of whom 1.2 billion people – roughly one-sixth of the world's population – live in severely water-constrained agricultural areas.

(FAO, 2020)

4 Billion

About 4 billion people, representing nearly two-thirds of the global population, experience severe water scarcity during at least one month of the year.

(Mekonnen and Hoekstra, 2016)

40 of 50

In the USA, 40 of 50 states will face water shortages within the next year.

35%

Globally, around 35% of all treated drinking water is lost before it reaches consumers each year.

2 Trillion

The U.S. alone loses a staggering 6 billion gallons of treated drinking water every day due to leaks – this equates to 2 trillion gallons of drinking water lost annually.

Key Challenges To Non-Revenue Water Management



AGING INFRASTRUCTURE

Outdated systems lead to leaks and potential catastrophic failures.



WATER SCARCITY

Climate change and overuse strain water supplies, making distribution efficiency an essential priority.



RESOURCE LIMITATIONS

Financial and labor constraints hinder essential upgrades.



REGULATORY CHALLENGES

Evolving standards demand constant attention and significant investment.

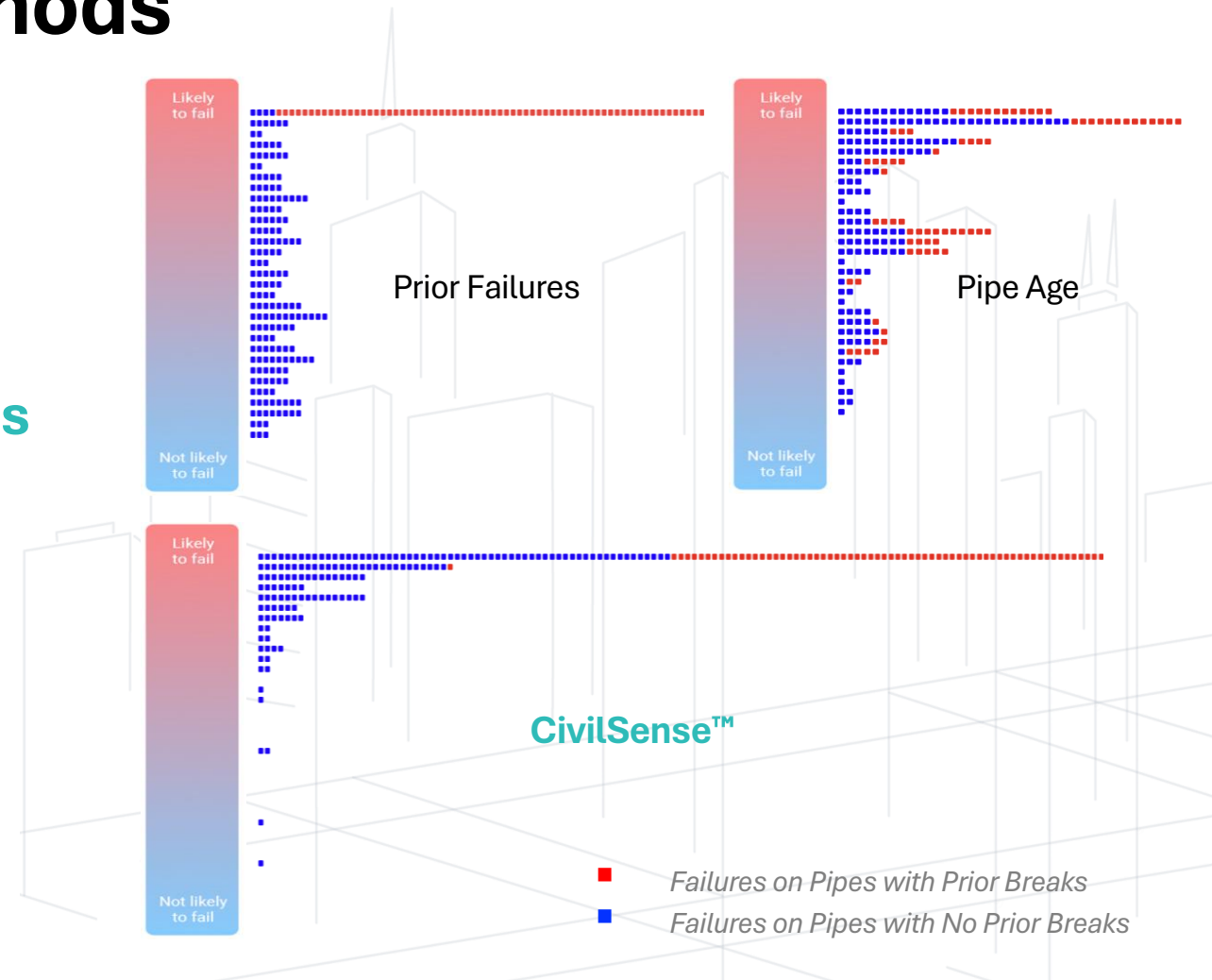
Conventional Modeling Methods

Legacy analysis models

- Prior failures
- Pipe age

CivilSense™ outperformed alternatives

- Identified almost **2x** as many failures as prior break model
- **50%** were considered low-risk pipes—never failed before



Conventional Leak Detection Technologies

Tough to scale

- Time consuming
- Resource intensive
- Best for surfacing leaks

Specialized

- 75% experience, 25% equipment
- Steep learning curve

Limited accuracy

- Estimated as low as 30-50%



Visual Inspections



Listening Sticks



Meter-Based



Acoustic & Pressure Sensors



Sniffing Dogs



The CivilSense™ Process



1

ASSESS RISK

Network data is analyzed by our AI to identify areas of risk. Network sections are then prioritized, and sensor deployment locations optimized.

3

ANALYZE

Data is securely collected and transmitted to our AI for analysis. The AI detects, locates and sizes leaks.

5

VALIDATE

Sensors continue to collect data to validate that repairs are performed successfully, and to check for additional “hidden” leaks.

2

DEPLOY

Our expert team installs proprietary acoustic sensors across the network.

4

PINPOINT

Field engineers pinpoint and mark the exact locations of each prioritized leak.

6

REPORT

Upon sharing post-repair dig and flow data, final evaluation and reporting are provided to quantify savings.



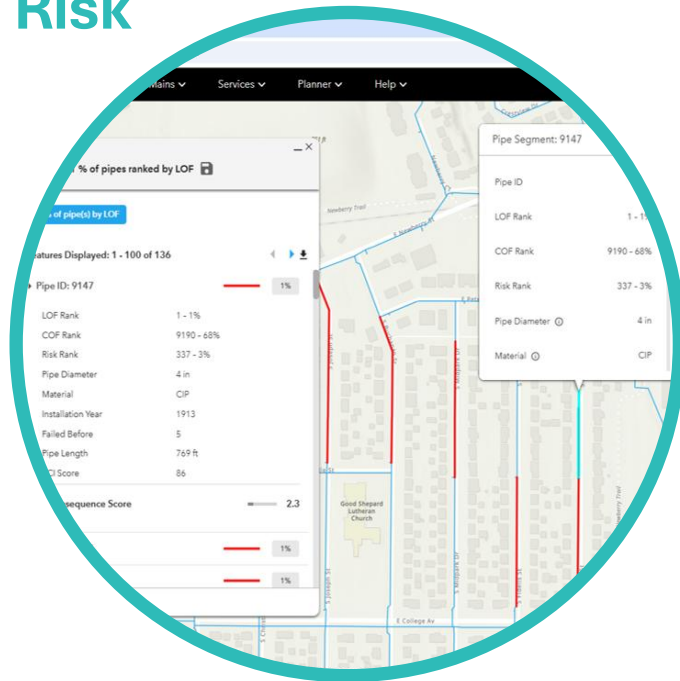
IRWD Project Recap



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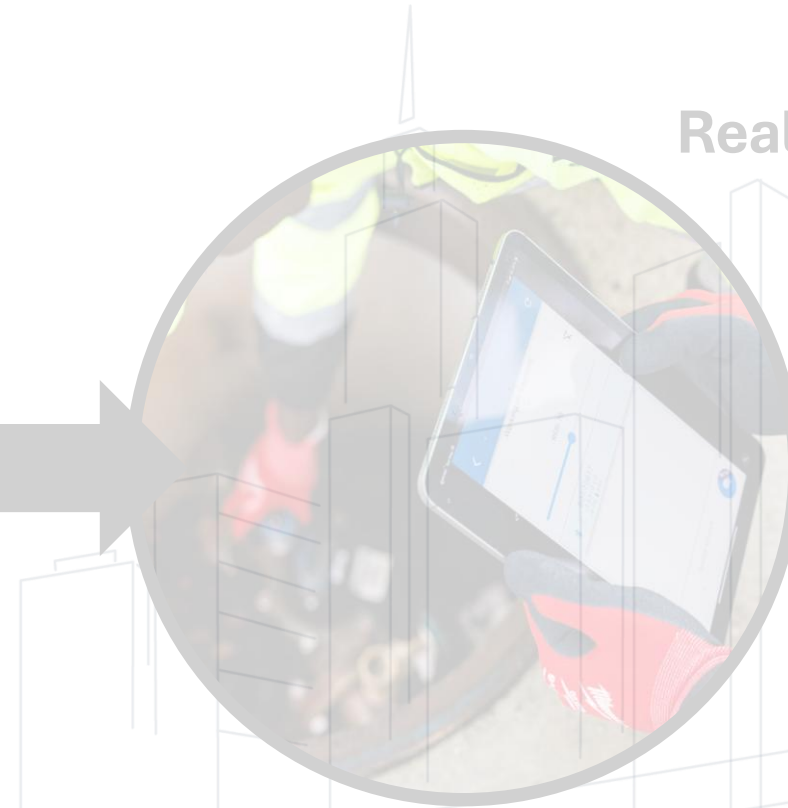
Project Recap

Predictive Risk Analysis



- Analyze future failure risk
- Assess likelihood, cost and impact of failure
- Prioritize and schedule ongoing repairs

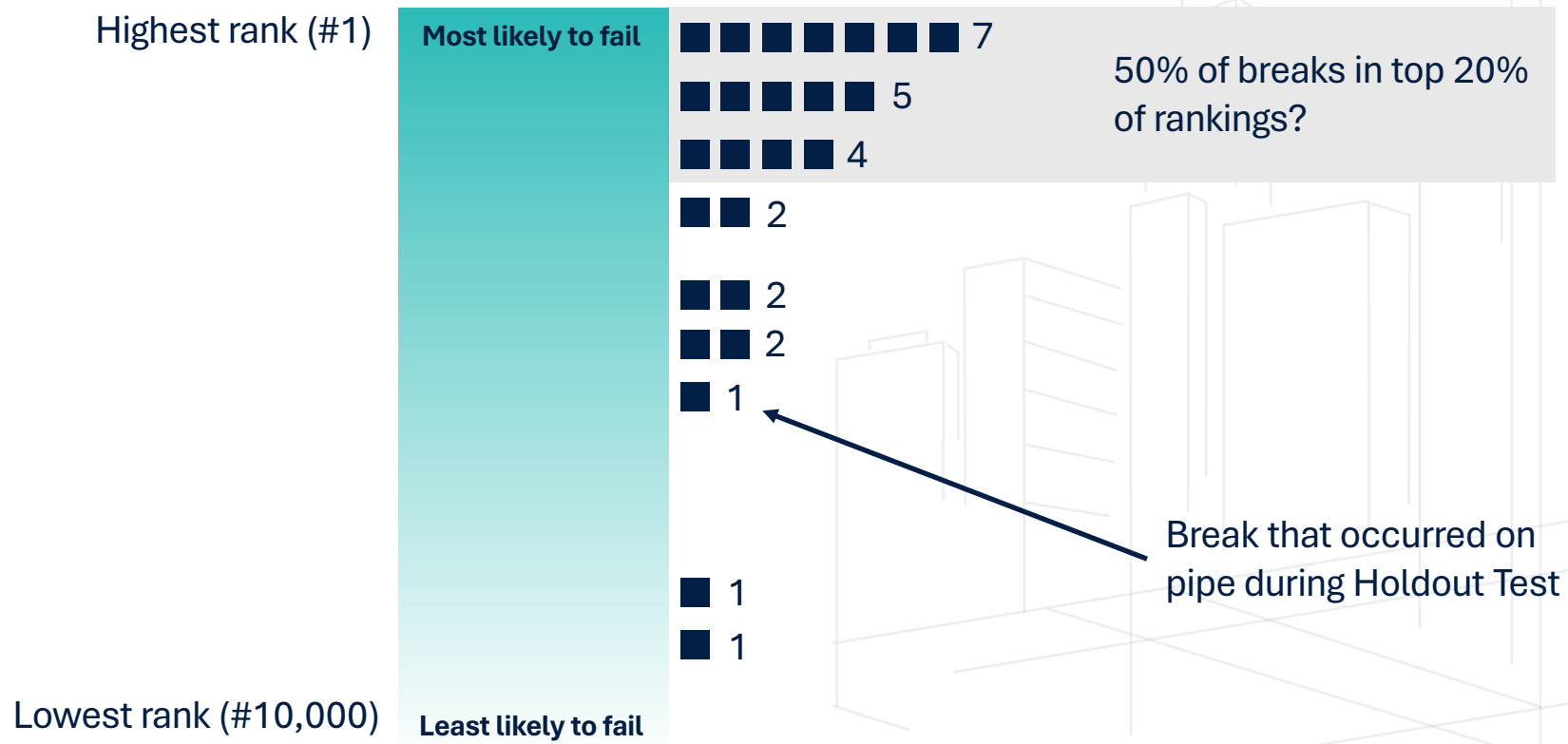
Real-Time Leak Detection



- Diagnose non-revenue water loss
- Detect, locate and pinpoint leaks
- Deploy and direct urgent and emergency repairs

Ranking All Pipes by LOF

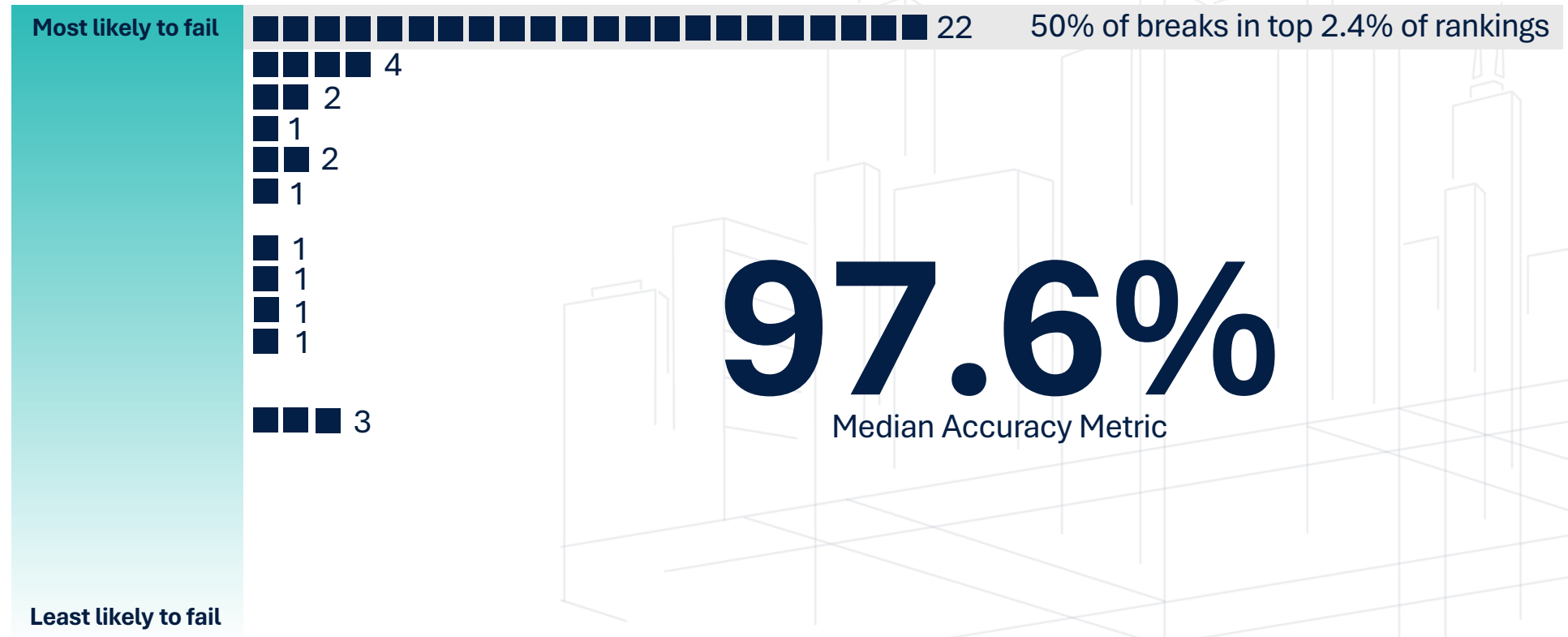
Example



Example data for demonstration purposes only

Model Performance

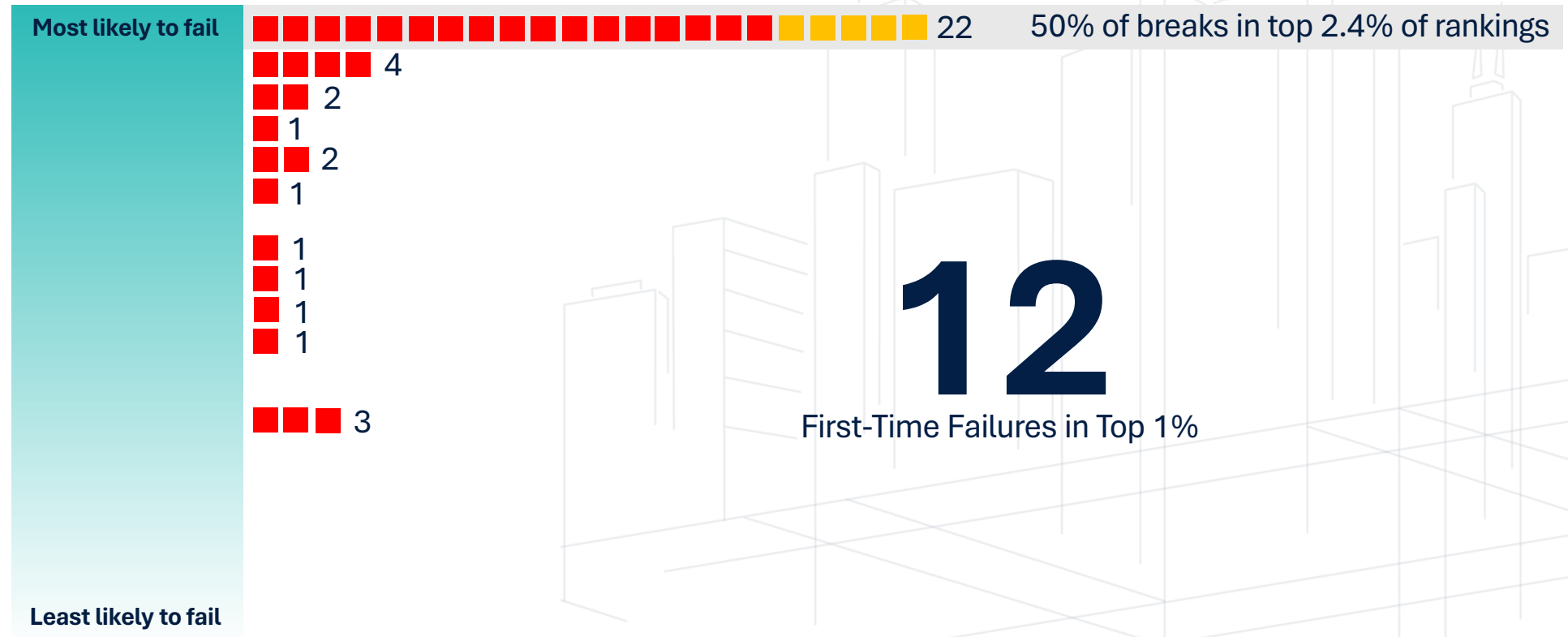
2023-2024 Actual failures



Model Performance

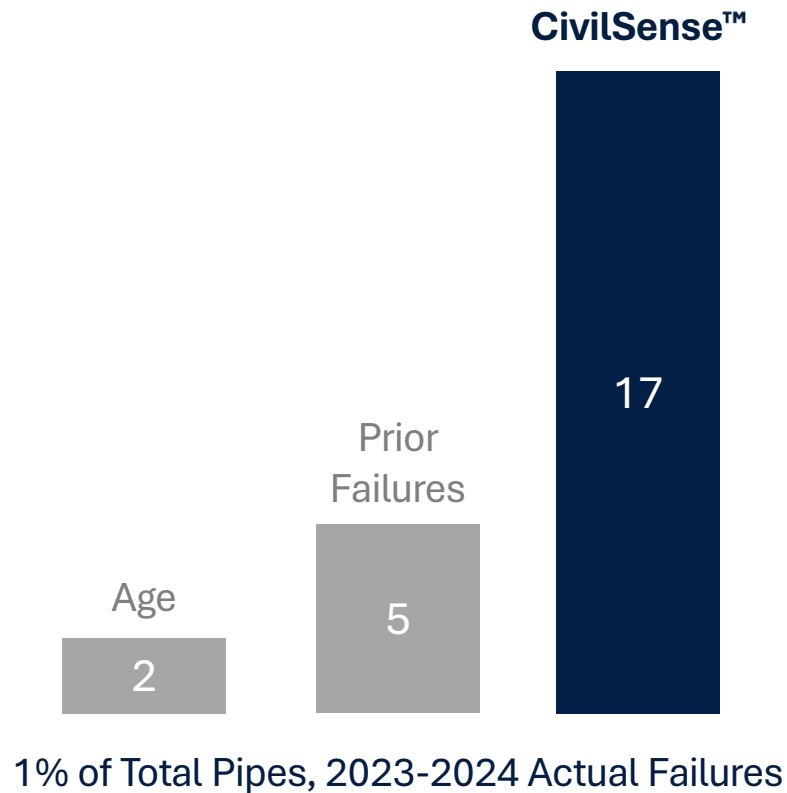
2023-2024 Actual failures

- Repeat failures
- First-time failures



Comparison With Other Methods

Versus age and prior failures



A table comparing CivilSense™ performance to other methods. The table has three rows: 'Failures Predicted', '% of All Failures', and a header row. The columns represent two different methods. The values are: 1% and 20% for the top row; 17 and 32 for the middle row; and 44% and 82% for the bottom row.

	Method 1	Method 2
Failures Predicted	17	32
% of All Failures	44%	82%
	1%	20%

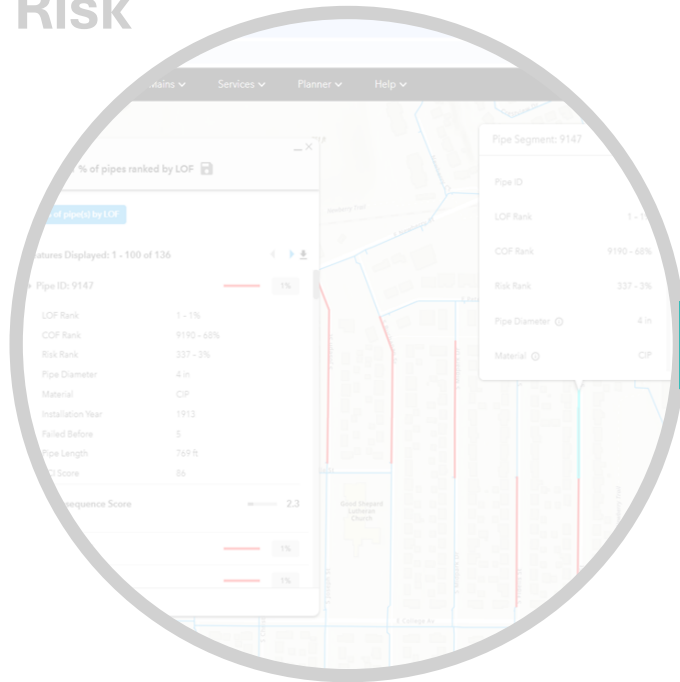
In Summary

CivilSense™ proved that it delivers actionable results

- Reliably predicted 2023-2024 failures
 - Top 1% LOF ranking: 44% of all failures
 - Top 20% LOF ranking: 82% of all failures
- Significantly outperformed alternative risk analysis methods
 - 8.5X better than pipe age
 - 3.4X better than prior failures

Phase 2 overview

Predictive Risk Analysis



- Analyze future failure risk
- Assess likelihood, cost and impact of failure
- Prioritize and schedule ongoing repairs

Real-Time Leak Detection



- Diagnose non-revenue water loss
- Detect, locate and pinpoint leaks
- Deploy and direct urgent and emergency repairs

City of Atlanta Phase 1 Summary

64

Miles of Distribution
Piping Surveyed

627.45

Gallons saved per minute

330M

Gallons saved per year

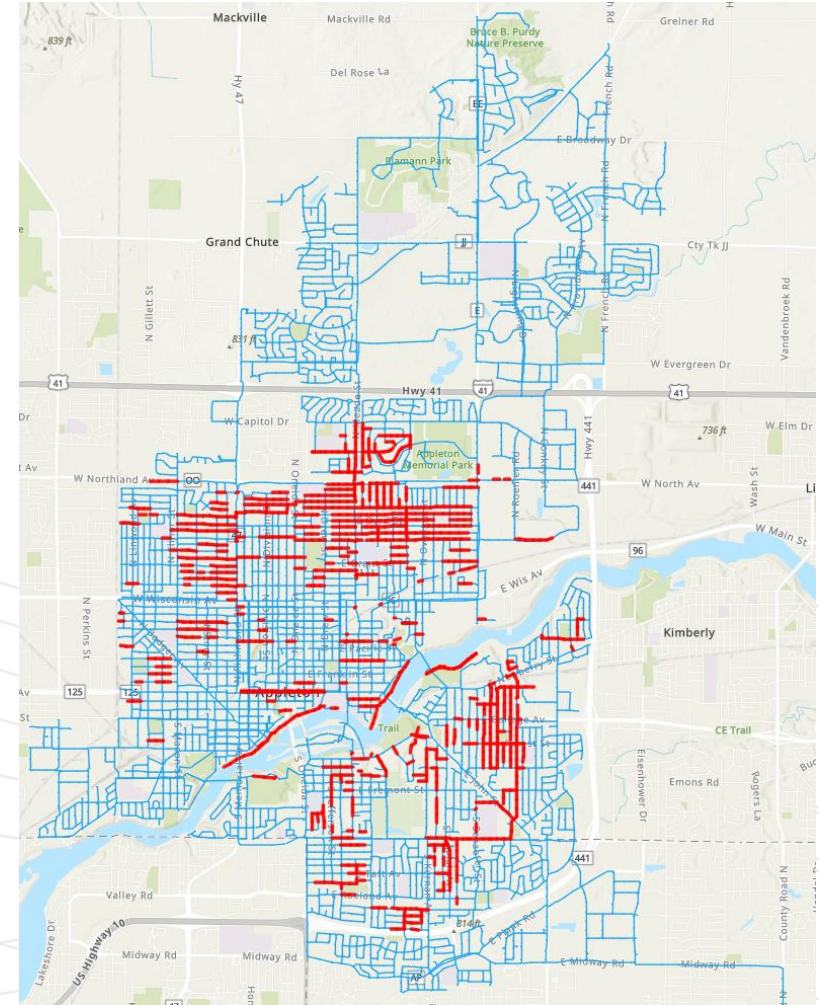
105

Leaks Marked for Repair

IRWD Leak Detection

Deployment date: March/April 2026

- **50 miles** of phase 1 investigation based on highest likelihood of failure
- Results to follow! (Peer to Peer 2026)



Questions

