

CASE STUDY

**Cross-bore analysis with
70% reduction in review
time & 100% accuracy.**



The Situation

Automating cross-bore analysis: Crossing out waste and inefficiencies

To mitigate the risks of cross-bore incidents that create accidental conflicts and damage to utilities—especially side sewer laterals—most US gas utilities have invested significant resources in CCTV sewer inspection programs.

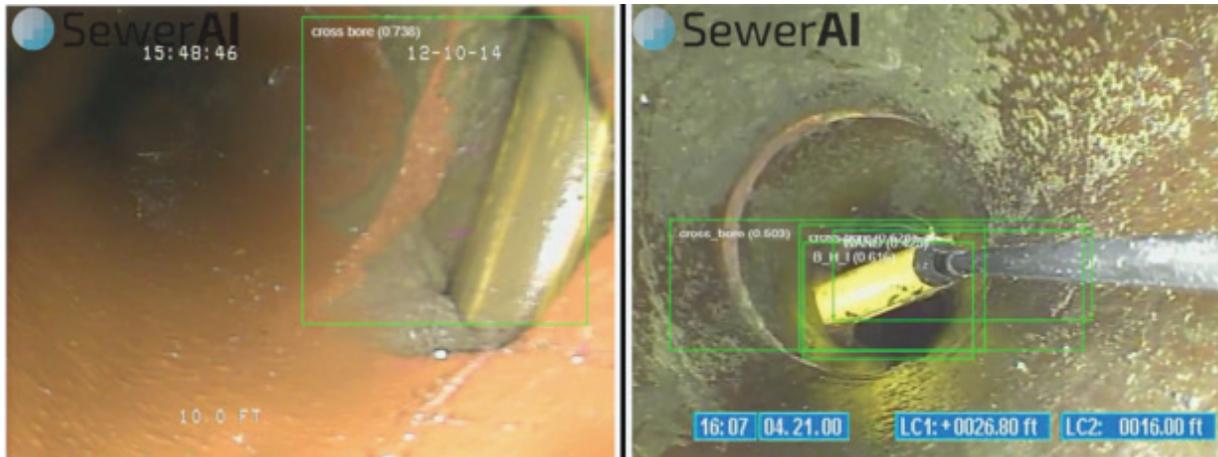


Figure 1. Examples of Cross Bores Found in CCTV Sewer Inspection

These programs capture video of the networks of sewer collection pipes to identify previous cross-bores and support safer construction practices in new Horizontal Directional Drilling (HDD) gas installations.

The intended result:

The capture of data on millions of miles of sewer pipes to protect communities and infrastructure.

The unintended result:

Workflow bottlenecks and errors in data review.

The Problem

Too much tedious work, too many errors.

Traditionally, utilities task team members with watching thousands of hours of video inspections captured in the field. In addition to taking up valuable time and creating backlogs of work, this manual effort yields errors in the identification of pipe defects.

Up to 20% of pipe facts are not reported with manual analysis.

To address both of these issues, SewerAI created a solution using artificial intelligence that lives up to the name.

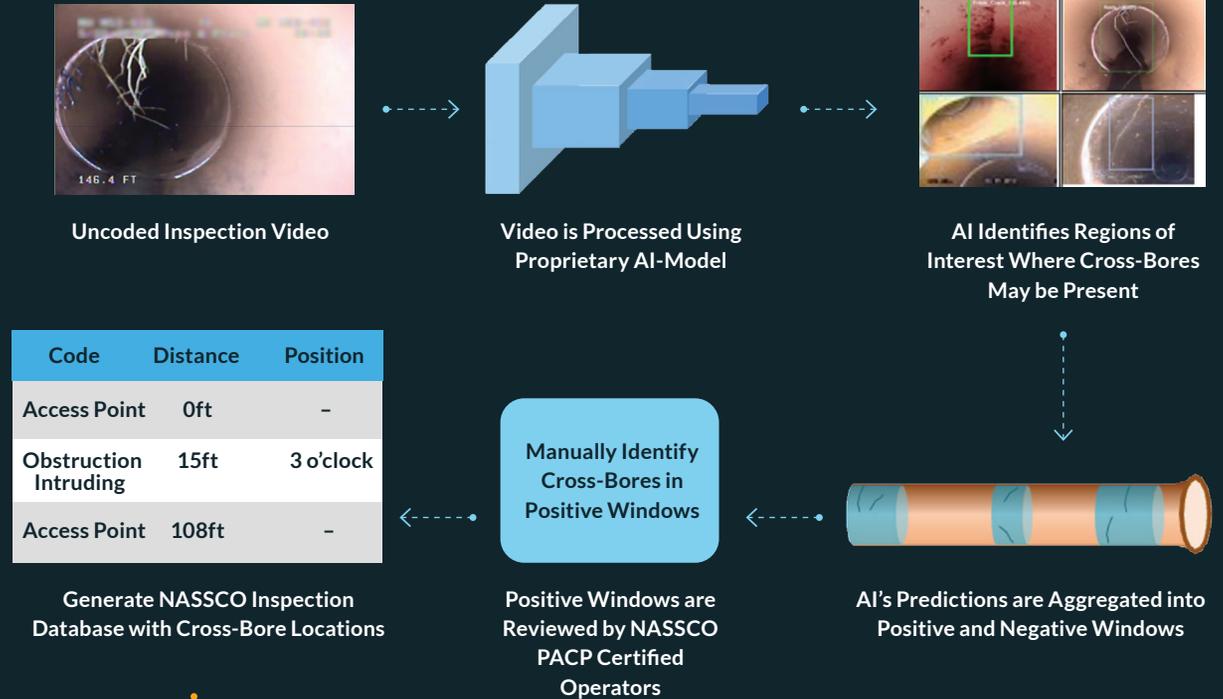


The Solution

Automating success with AutoCode.™

AutoCode sewer assessment AI leverages artificial intelligence and machine learning algorithms to rapidly and accurately analyze sewer system data, including CCTV footage and sensor readings. By automating the assessment process, AI identifies structural defects, predicts maintenance needs, and prioritizes rehabilitation efforts.

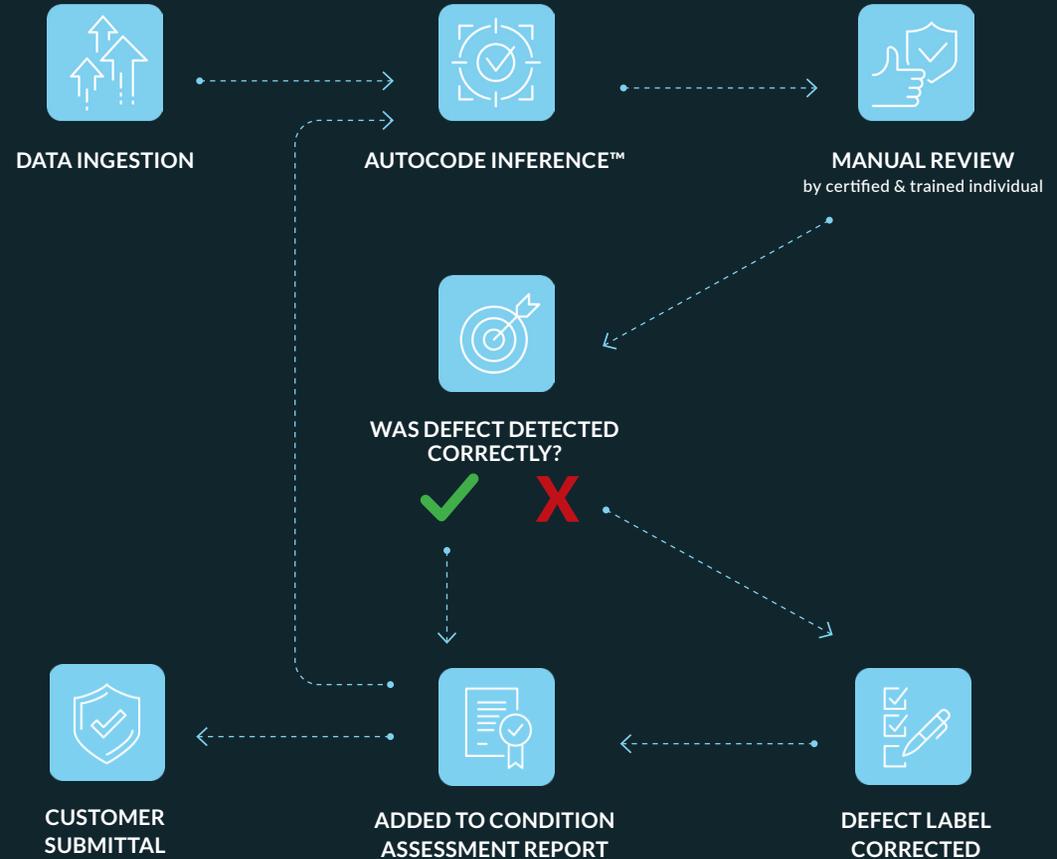
Overall Process of AI-Assisted Cross-Bore Identification



The Solution

This automatic processing is followed by manual review of AutoCode's predictions by NASSCO PACP™ certified reviewers to delete false positives and enable the entry of descriptors, modifiers, clock positions, and pipe cross section percentages.

Workflow for AI Output Review & Final Condition Assessment



The Solution

SewerAI has performed inspection data reviews for some of the largest utilities and inspection contractors in the United States.

When a client presented us with the opportunity to validate AutoCode on cross-bore inspection videos, we were eager to demonstrate that greater efficiency with fewer errors could be part of the pipeline.

TOTAL
SURVEYS

400K+

Total inspections completed with AutoCode™

MILES UNDER
MANAGEMENT

22,000mi

AutoCoded, stored, and managed in PIONEER™

POPULATION
SERVED

130 MM

The people we are proud to help and serve

Study specifics:

We selected 1,040 lateral inspection videos, 40 of which had known cross-bores and 1,000 of which did not. The videos represented approximately 25,000 linear feet of pipe data and had a total playback time of 64 hours.



25K

linear feet of pipe data



64 hrs

playback time

The process:

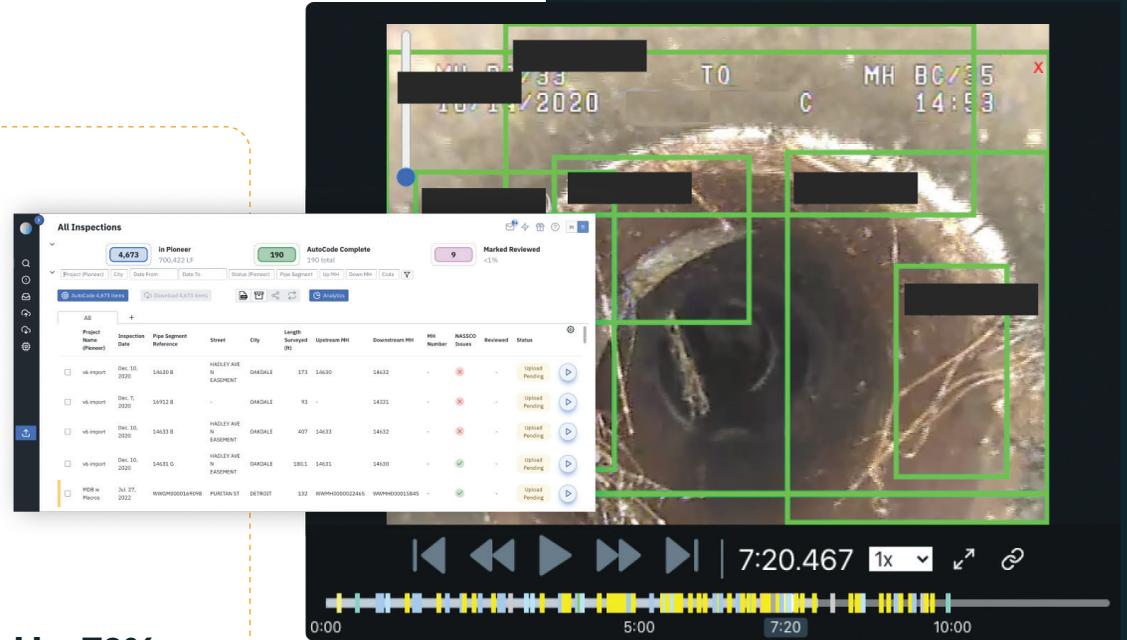
1. All videos processed using SewerAI's proprietary AI model, which had been specially calibrated to identify cross-bores
2. AI's predictions aggregated into video clips (a.k.a. Positive Windows)
3. Positive Windows manually reviewed by NASSCO PACP-certified technicians to identify the existence of cross-bores

The Results

Faster. Better. More powerful.

SewerAI narrowed down the cross-bore search to 19 of the original 64 hours of footage, 30% of the original. Manual review of this 19 hours of footage took an additional 13 hours due to video loading time, the time re-review blurry video segments.

Time needed to review the videos without AI was 108 hours.



By using SewerAI, the review time was reduced by 70%.

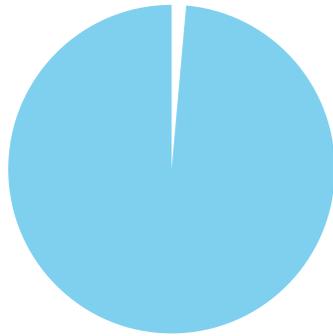
SewerAI 32 hours total

Manual (non AI) 108 hours total

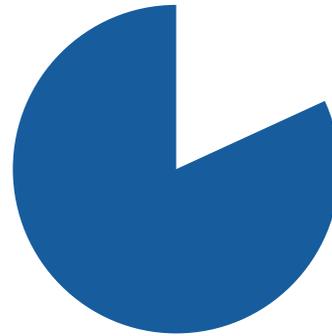
32 hours = 30% of 108 hours = **70% reduction**

The Results

Additionally, SewerAI initially correctly identified 39 out of the 40 cross-bores (97.5%), which would later increase by continuing to train the AI with additional images of cross-bores, with a 100% recall for the AI-assisted process in its entirety. This is a nearly 20% improvement over manual methods.



SewerAI
97.5% accuracy with SAI



Manual (non AI)
80% accuracy

Bottom line:

SewerAI's superior analysis speed and accuracy can help utilities improve workflows, reduce bottlenecks, eliminate the need to watch CCTV footage, and correctly report on defects—saving time, money, resources, and communities' wellbeing.



You've read the case study. Now become one.

Inspect more pipe for less money. Reach out to see how quickly and easily you can exponentially increase your productivity and lower your costs, while increasing the accuracy of your data.

[Book a Call](#)



References

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