

Likelihood of Failure

Machine learning that scores every pipe segment in your network for probability of failure, so replacement capital is directed at the pipes that will actually break.

120+ VARIABLES

1 TO 5 YEAR HORIZON

NO NEW SENSORS

Most utilities prioritize replacement by age, material, or break history. Those are three of the many variables that determine whether a pipe fails, and on their own they send crews to the oldest pipe rather than the weakest one. **Likelihood of Failure scores every segment in the network against 120+ variables and returns a probability of failure at one, two, three, and five years.**

HOW IT WORKS

01

Data Assembly

Your pipe inventory and break history are combined with environmental data Fracta maintains: soil corrosivity, frost depth, elevation, land use, and surrounding conditions. No field work, no new sensors, no excavation.

02

Model Training

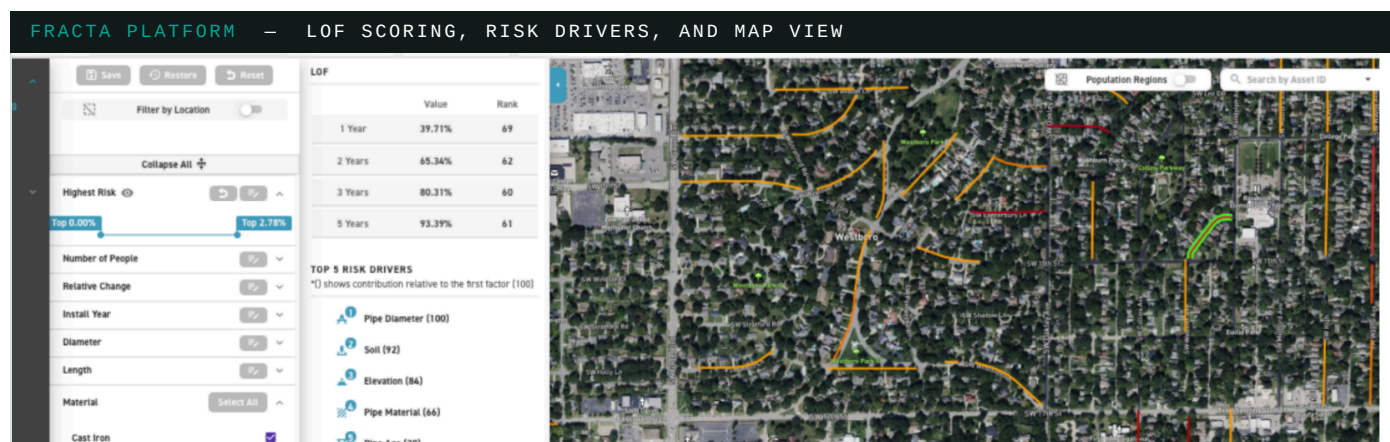
A model trained on more than 560,000 recorded breaks across 200,000+ miles of pipe is calibrated against your own system's failure record, not an industry average.

03

Segment Scoring

Every segment receives a probability of failure by year, a percentile rank across the system, and the five variables contributing most to that score.

IN THE PLATFORM



Segments colored by percentile rank of failure likelihood. The detail panel shows probability of failure at one, two, three, and five years, with the five risk drivers contributing most to the selected segment.

WHAT GOES IN, WHAT YOU RECEIVE

Model inputs

- Pipe inventory from your GIS material, diameter, install year, length
- Break and repair history on the segment and its neighbors
- Soil chemistry and corrosivity
- Frost depth, elevation, and surface conditions
- Land use, population served, and operating context

What you receive

- Probability of failure at 1, 2, 3, and 5 years
- Percentile rank for every segment
- Top five risk drivers per segment weighted
- Interactive map layer with filters
- Exportable asset list for your CIP and Job Planner

WHY IT CHANGES THE REPLACEMENT LIST

01

Replace the Right Pipes

Capital goes to the segments most likely to fail, which are frequently not the oldest ones on the map.

02

Stretch Capital Budgets Further

Every dollar directed by the model covers more avoided failures than age-based replacement does.

03

Minimize Service Disruptions

Planned work replaces emergency repair, which is cheaper, safer, and far less visible to customers.

PROVEN IN THE FIELD

200+

utilities served globally

200K+

miles of pipe analyzed

560K+

breaks analyzed and learned from

“We find that having a resource like Fracta to help make data-driven decisions on which line to replace is invaluable.”

BRAXTON COPLEY · DIRECTOR OF UTILITIES, CITY OF TOPEKA, KS

ABOUT FRACTA

Fracta applies machine learning to drinking water infrastructure, scoring every segment of the distribution network for Likelihood of Failure and Consequence of Failure so utilities can prioritize renewal against a finite capital budget. Likelihood of Failure is the first of the three scores: it establishes which segments are most likely to fail, before consequence and total risk are applied.