

City of Topeka, Kansas

Three engineers, \$6.5 million a year in waterline replacement, and a capital plan that needed to be defensible to the dollar.

65%

of pipe failures predicted in the highest-risk tier, year two

\$18K

average direct savings per capital project

\$80–100K

in annual savings to Topeka utilities

THE CHALLENGE

Topeka's water utility was managing \$6.5 million in annual waterline replacements with a lean team of just three engineers. With hundreds of miles of aging infrastructure, the team needed a smarter, data-driven way to prioritize its Capital Improvement Program, one that went beyond simple pipe age or break history.

THE SOLUTION

Topeka deployed Fracta's **Total Risk**, combining Likelihood of Failure with Consequence of Failure for a complete risk picture. The machine learning model, trained on data from more than 200 utilities, identified the highest-risk segments by analyzing historical breaks alongside soil conditions, pipe material, age, and dozens of environmental variables.

Rather than replacing pipes on a simple age schedule, Topeka management could direct capital to precisely the segments most likely to fail and most consequential to service reliability.

THE RESULTS

In year one, Fracta correctly predicted 54% of pipe failures in the highest-risk tier; one year later that reached 65%. Risk-based prioritization saved Topeka an average of **\$18,000 per CIP project** in avoided emergency repair costs. At five to six projects a year, that is \$80,000 to \$100,000 annually, and full ROI in the first year of use.

- Highest-risk pipe tier identified each cycle
- CIP defensibility improved year over year
- \$80K+ in annual avoided repair costs
- Full ROI achieved in year one of deployment

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. Fracta is a member of the Kurita Group.

“Given the fact that myself and two engineers are managing \$6.5M worth of waterline replacements each year, 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

MODEL ACCURACY OVER TIME

2019		54%
2020		65%

Share of pipe failures occurring in the tier the model flagged as highest risk.