rjngroup
Engineering infrastructure for tomorrow

ASSET MANAGEMENT

UNDERGROUND UTILITY ASSETS

- Sewer
- Water
- Stormwater

MEASURING RISK

- Consequence of Failure
- Likelihood of Failure

INTEGRATION

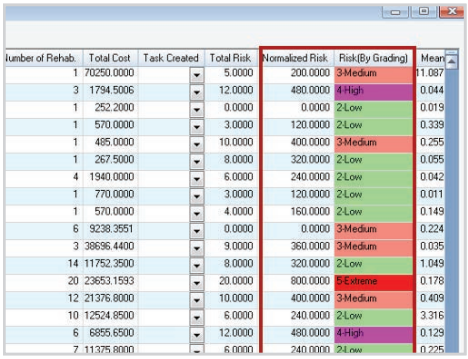
- ESRI ArcGIS
- CMMS Programs

PLANNING AND REPORTING

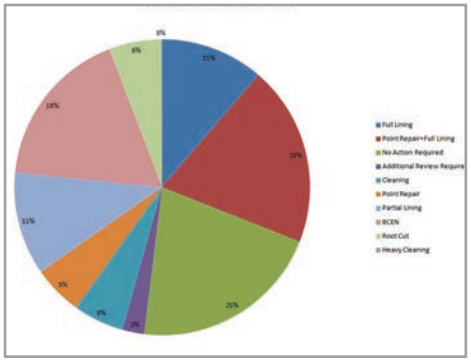
- CMOM Programs
- Capital Improvement Plans
- Remedial Measures Planning
- Regulatory Compliance Reporting

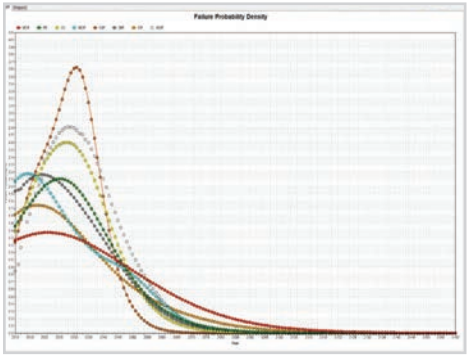
IF SEWER, WATER, OR STORM SEWER ASSETS FAIL, RESPONSE USUALLY NEEDS TO BE IMMEDIATE AND CAN BE EXPENSIVE.

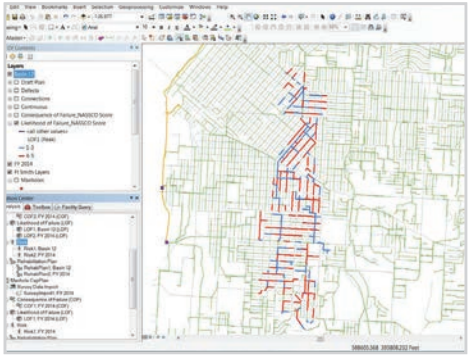
Conducting a comprehensive risk-based assessment of your system assets can drive CMOM and capital planning programs or meet the needs of regulatory reporting. RJN Group, Inc. engineers leverage asset condition along with GIS attribute information to evaluate your underground infrastructure assets, accounting for consequence and likelihood of failure. Our proven risk management process builds an asset "report card", letting you know what assets should be addressed quickly, what can be deferred, and what can simply be watched.



Number of Rehab.	Total Cost	Task Created	Total Risk	Normalized Risk	Risk(By Grading)	Mean
1	70250.0000		5.0000	200.0000	3-Medium	11.087
3	1794.5006		12.0000	480.0000	4-High	0.044
1	252.2000		0.0000	0.0000	2-Low	0.019
1	570.0000		3.0000	120.0000	2-Low	0.339
1	485.0000		10.0000	400.0000	3-Medium	0.255
1	267.5000		8.0000	320.0000	2-Low	0.055
4	1940.0000		6.0000	240.0000	2-Low	0.042
1	770.0000		3.0000	120.0000	2-Low	0.011
1	570.0000		4.0000	160.0000	2-Low	0.149
6	9238.3551		0.0000	0.0000	3-Medium	0.224
3	38696.4400		9.0000	360.0000	3-Medium	0.035
14	11752.3500		8.0000	320.0000	2-Low	1.049
20	23653.1593		20.0000	800.0000	5-Extreme	0.178
12	21376.8000		10.0000	400.0000	3-Medium	0.409
10	12524.8500		6.0000	240.0000	2-Low	3.316
6	6855.6500		12.0000	480.0000	4-High	0.129
7	11375.8000		6.0000	240.0000	2-Low	0.225







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RISK-BASED ASSET PLANNING
Where Does It Start?

THE FOUNDATION (DATA SOURCES)

Your system data builds the foundation.

- GIS Asset Attribute Information (i.e., materials, age)
- Condition Data for Pipelines, Manholes, and Structures (i.e., SSES field data, CCTV footage, leak detection sites, maintenance history, O&M records, etc.)
- Hydraulic Modeling Data (capacity issues)
- NASSCO Pipeline Assessment Certification Program (PACP) and Manhole Assessment Certification Program (MACP) Severity and Criticality Coding

Your existing data sources will undergo a series of "gap" analyses to ensure that the level of data is sufficient to conduct a risk assessment.

Attribute (materials, age) and structural condition data is evaluated and rated using the industry-accepted NASSCO severity and criticality rankings to standardize the review of your underground infrastructure.

RJN NASSCO-certified field and engineering professionals will use your existing GIS, capture attribute data from record drawings, or conduct condition inspection services to fill data gaps, or inspect your system to acquire complete system attribute, spatial coordinate, and condition data.

LIKELIHOOD OF FAILURE

- Material
- Age
- Pressure changes
- Break history
- Maintenance history
- Conditions (i.e., soil, exposure)

CONSEQUENCE OF FAILURE

- Service needs
- Critical facility impacts (i.e., schools, hospitals, power plants, roads, etc.)
- Proximity to environmentally sensitive areas
- Flow requirements

YOUR CRITERIA DRIVES THE ANALYSIS

Using InfoAsset Planner®, an Innovyze software tool, RJN engineers derive a risk ranking for each asset (pipeline, manhole, etc.) by analyzing the probability that it will fail and evaluating how significant the impact will be to overall system operations. Asset risk scoring is derived from two key factors.

- **Likelihood of Failure (LOF):** measures the aging and deterioration process by comparing the expected useful life, failure potential, and the occurrence distribution over time
- **Consequence of Failure (COF):** measures the service level, social, and environmental impacts in terms of an asset failure

Your unique requirements focus the InfoAsset Planner® tool by structuring "if-then" **decision-tree** algorithms to slot each asset into an improvement grouping. The decision-tree is customized to your standards for planning, repairing, and restoring system assets.

RJN engineers guide you through this iterative process and can offer proven baseline criteria to start your customization process.

RISK-BASED ASSET PLANNING
How Does It Work?

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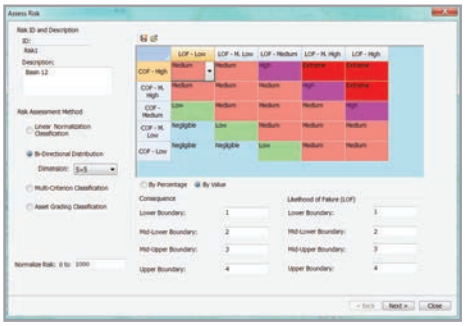
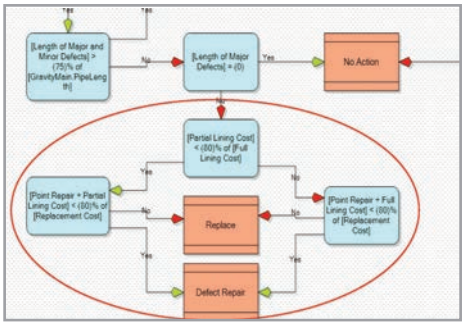
THE PROCESS

The level of analytics performed is structured to meet the goals of your program. The analysis looks at each asset holistically factoring all condition data for the asset as well as improvement costs.

- Risk analytics score each asset using the COF and LOF risk factors, producing a risk rating and a specific plan for each asset
- Decision-tree analysis drives planning by processing each asset through a "yes-no" decision matrix, resulting in corrective action recommendations for repair, replacement, construction methods, or just assigning a timeline for re-inspections ("watch list").
- Costs and budgets always factor into plan development, providing estimates for each recommended action using current, local bid data



Risk Assessment



"Decision-Tree"

The Plan

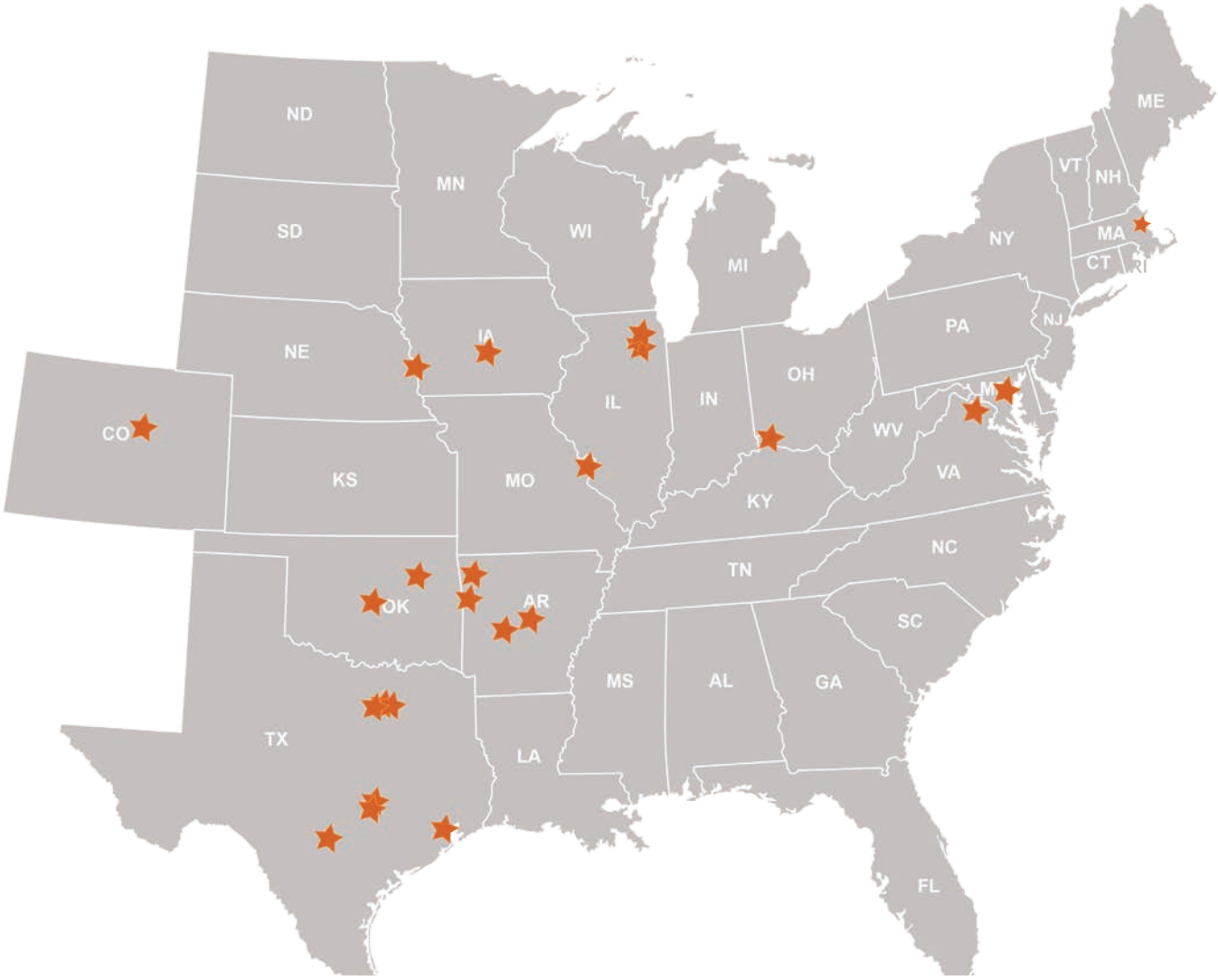
THE RESULTS - DATA TRANSFORMED INTO ACTIONABLE SOLUTIONS

- An actionable plan phased by immediate action needs, future capital planning needs, and potential watch lists
- Results presented in GIS map layout and tabular format with options for customized reporting
- Recommendations that are easily integrated with your CMMS application

Contact Us

Locations

RJN serves municipalities and utilities through offices located across the country.



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