

Metropolitan Sewerage District of Buncombe County NC Pipe Rating Case Study

Jurisdiction:	Metropolitan Sewerage District of Buncombe County, NC
Best Management Practice:	Asset Management – Pipe Rating Program
Contact:	Ed Bradford, PE, Metropolitan Sewer District 2028 Riverside Drive, Woodfin, North Carolina (828) 254-9646, email: bradford@msdbc.org www.msdbc.org

Introduction: Water and wastewater utilities can improve the management of their systems by employing asset management practices. Asset management helps systems increase their knowledge of their systems and make better financial decisions. Good asset management systems help systems reduce their “down-time” and the number of emergency repairs. Some utilities have developed innovative systems of prioritizing rehabilitation and replacement needs and maximizing their rehabilitation funds.

Description: The Metropolitan Sewerage District of Buncombe County, N.C. (MSD) is located in the Blue Ridge Mountains of Western North Carolina and is operated as an independent municipality formed in 1962 under the NC Metropolitan Sewerage Districts Act. MSD’s service population is approximately 120,000.

MSD has developed a Pipe Rating Program, an innovative structural asset rating tool which utilizes multiple components to rate pipe segments for rehabilitation efforts. The objectives of the Pipe Rating Program are to serve as a guide for MSD’s rehabilitation efforts under its Capital Improvement Program (CIP) and also as an asset management tool for the collection system.

Many utilities have a system for scoring individual defects in sewer lines. They often use a *reactive* approach to planning as they rehabilitate an entire line after significant problems have occurred. MSD’s Pipe Rating is a more *proactive* planning tool which combines several scores together to generate a rating which is in turn utilized to prioritize rehabilitation.

The Pipe Rating Program generates and prioritizes sewer rehabilitation projects by using Closed Circuit Television (CCTV) information, a GIS database, and real-world maintenance history to view, rate, and score pipe segments based on a number of factors. These factors, for any given manhole-to-manhole segment, include maintenance work order history, both number and severity of defects, and history of overflows on that segment. These are all combined to yield a score which may then flag a particular line segment. Once flagged by the process, a line segment is reviewed by an engineer to determine the most efficient means of rehabilitating that segment. Segments will then be combined to form a project which will then be let to construction.

Results: MSD's pipe rating program has had many tangible benefits. It can quickly evaluate thousands of feet of sewer line from the database and flag only those segments truly needing attention, thus maximizing the efficiency of rehabilitation dollars. Pipe that is structurally sound, even if 75 years old or more, may be left in place; while failing sections are replaced using a variety of methods. These range from single point repairs to the various trenchless rehabilitation options, and up to full-scale dig & replace (D&R) projects.

As of June, 2005, MSD has applied the Pipe Rating Program to over 1,381,500 LF. Of this amount, 412,500 LF have been flagged for further investigation by engineering staff. MSD has completed two separate rehabilitation contracts based upon the Pipe Rating Program, and a third contract is underway. Combined, the three contracts total approximately 11,900 feet.

In addition to generating a list of prioritized repair projects, the database and inquiry features can also be used by MSD's maintenance crews to review previous repair history and upcoming projects on pipe sections when they receive maintenance calls.

The Pipe Rating Program is organic and will re-prioritize over time as new data is received and other pipes are rated. There has been a good correlation between pipes with high ratings and real-time maintenance problems.