



Case Study

Organization
Sanitation District No. 1

Location
Fort Wright, Kentucky

Industry
Wastewater and
Storm Water Utility

Sanitation District Reduces Overflow, Improves Compliance

Sanitation District No. 1 (SD1) manages wastewater and storm water for nearly 300,000 northern Kentucky residents. SD1 maintains more than 78,000 structures and more than 2,000 miles of sewer line. Sewage overflow in wet weather led SD1 to enter a consent decree with the federal Environmental Protection Agency (EPA) and state Environmental and Public Protection Cabinet in 2005. The decree called for total asset inspection once every 10 years and a 20-year plan to improve waterways by addressing overflow.

What did they do?

Increased inspections led to more known asset issues. SD1 staff needed to prioritize incoming maintenance needs, so they implemented a three-phase solution with existing geographic information system (GIS) resources. The first phase produced categories of asset-failure impact (e.g., environmental, social). Next came collection of relevant data points (e.g., schools, hospitals). Finally, SD1 used Esri's ModelBuilder™ within ArcMap™ to geoprocess a cost of failure (COF) score for each asset, based on information gathered in the first two phases. By weighting new COF scores against existing probability of failure (POF) scores, SD1 arrived at the total business risk exposure (BRE) of each asset, thus focusing its maintenance efforts and capital improvement dollars.

Do I need this?

SD1 needed a low-cost, high-return process to better comply with state and federal regulations, including the Clean Water Act. Calculating BRE enabled SD1 to get the most out of its increased inspections by optimizing maintenance targets and adding available risk management tools to prioritize system renewal. The BRE calculations are repeatable and make use of SD1's existing GIS resources. Thus, SD1 is able to better reduce overflow for regulation compliance and optimize its wastewater and storm water treatment.

"The valuable experience gained by performing this project internally will allow for continued success on similar or more complex projects in the future."

Rich McGillis
Director of Collection Systems
Sanitation District No. 1



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