On the Combined Maintenance and Routing Optimization Problem

Abstract

The combined maintenance-routing optimization problem deals with planning and scheduling maintenance operations for a set of geographically-distributed sites that are subject to non-deterministic failures. To solve this problem, a maintenance model determines the optimal time to perform preventive maintenance operations for each site; while a routing optimization engine schedules visits to a set of technicians that perform these operations. We present a case study in the city of Bogotá, where the water utility needs to perform maintenance operations to prevent sediment-related blockages of the sewer system.