Knowledge is **Power**

New city builds storm water program on asset management

By David Chastant, P.E.

Determining funding for storm water maintenance and repairs is a familiar issue for municipalities. The newly incorporated city of Sandy Springs, Ga., knew it needed a storm water management program to address state and federal water quality regulations and to improve its storm water system.

What the city did not know was how large its storm water system was, what condition it was in and how much money it would require. Sandy Springs officials decided to use an asset management approach with a computer management maintenance system to meet its storm water permit requirements, track citizen maintenance requests and develop the data needed to define the city storm water budget.

Planning

First, the city needed to conduct a storm sewer system inventory that included location, size, type, construction date and material. A visual assessment and ranking system would determine the structural condition of the pipe or structure and how badly it needed to be cleaned or repaired. The resulting data would allow the city to develop planning-level budgets for a five-year capital improvement program (CIP), as well as identify the following year's capital and operating budget needs and develop monthly work schedules.

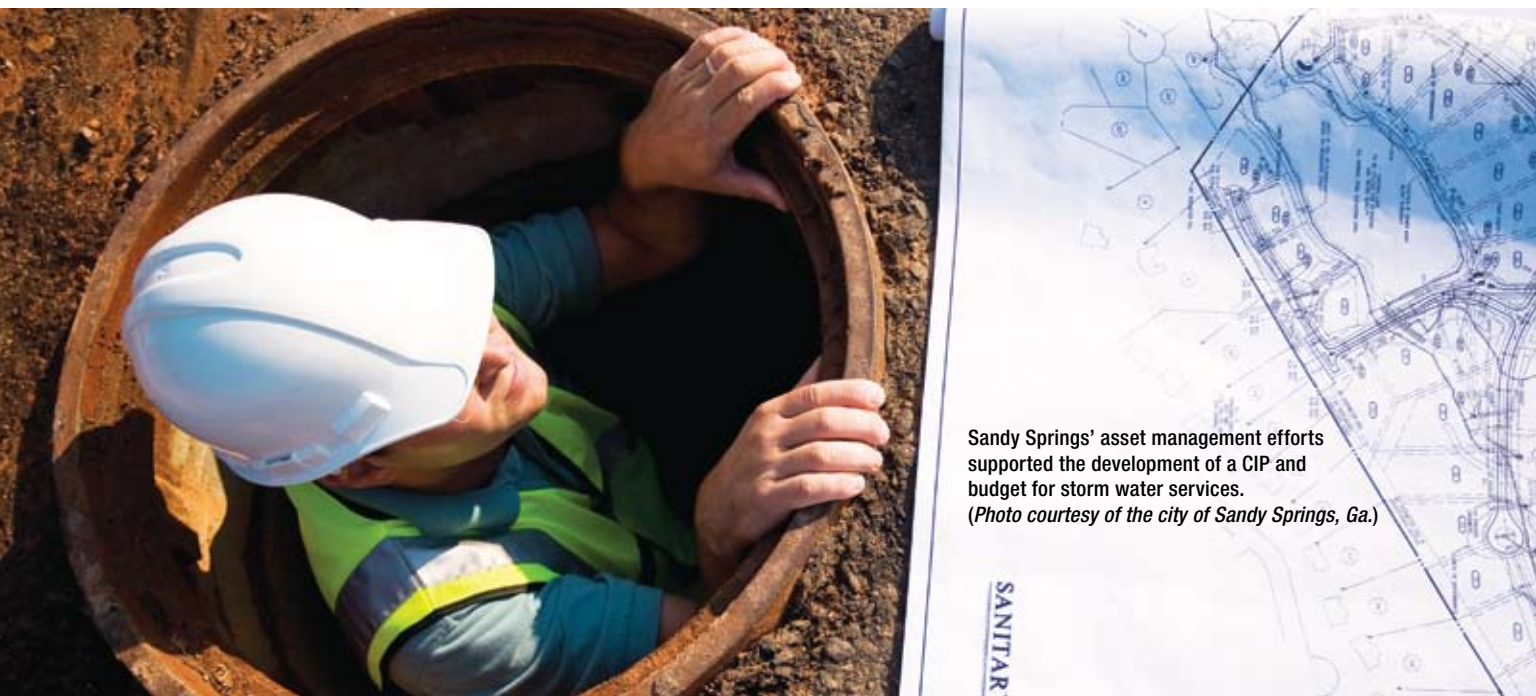
The U.S. Environmental Protection Agency describes implementing asset management as answering five core questions, and suggests 10 steps to take:

1. ***What is the current state of assets?***
   Step 1: Develop asset registry
   Step 2: Assess condition failure modes
   Step 3: Determine residual life
   Step 4: Determine life-cycle and replacement costs
2. ***What level of service is required?***
   Step 5: Set target levels of services
3. ***Which assets are critical to sustained performance?***
   Step 6: Determine business risk.
4. ***What are the best operation and maintenance (O&M) and CIP investment strategies?***
   Step 7: Prioritize O&M investment
   Step 8: Prioritize capital investment
5. ***What is the best long-term funding strategy?***
   Step 9: Determine strategy for funding
   Step 10: Build asset management plan

Implementation

The first step in Sandy Springs' asset management process was to develop an asset registry and determine which assets were going to be collected. Level of service is not only what services are provided, but also the extent of the system. Assets included pipes and channels, nonstructural intersections and structures such as headwalls, junction boxes, catch basins, drop inlets and plain ends. Although no physical structure exists, plain ends were included as structures because maintenance often is required.

During the inventory, it was necessary to remember that different assets have different attributes that are



Sandy Springs' asset management efforts supported the development of a CIP and budget for storm water services. (*Photo courtesy of the city of Sandy Springs, Ga.*)

important to consider. An example is pipe: It has diameter, but depth of cover is important for cost and priority.

The next question in the asset management process asked what asset data should be collected, including location to help determine if maintaining the asset was the responsibility of the city. The second and third steps were to determine the condition and residual life of the assets. The type, size and depth of the asset, and whether it was in the road or in a yard would help determine the cost of replacement in step four. Knowing if the asset was on a local or major arterial road would help set levels of service, criticality and priorities in the fifth, sixth and seventh steps. Knowing how much debris existed in the asset would help prioritize maintenance in step seven. Performance issues discovered by physical signs, citizen reports and analysis calculations would be used in setting priorities. Observed illicit discharges also were needed.

Results

The city's asset inventory found that approximately 22% of the pipes are located in the right-of-way, and another 18% are in single-family residential subdivisions and attached to the road system. Sandy Springs, therefore, had responsibility for as much as 40% of the system. The inventory found that 23% of the structures are in the right-of-way and are the responsibility of the city to maintain. Another 16% are located in single-family residential subdivisions and attached to the road system; these assets must be reviewed by the city's legal staff to determine ownership. According to these findings, the city may be responsible for up to 39% of the structures.

Tracking the condition of the pipes and structures during the inventory was key, as it helped determine the budget required for repairs. A lesson learned during the inventory process involved the decision to use a pole camera to re-investigate pipes under the road regardless of the previous determination of pipe condition. Of the 2,217 re-inspections, 61% were unchanged. The pipe condition improved on 9% of the inspections, and the pipe conditions deteriorated on 30% of the inspections. In all, 113 pipes were found to be in need of repair and 782 structures were found to require cleaning.

Sandy Springs' asset management program is satisfying federal and state storm water requirements and was used to develop and forecast a CIP and a budget for storm water services. The budget was presented with confidence and provided documentation to justify the needs to the city council and to the public. A capital budget of $1.8 million was approved for storm water services in fiscal year 2011. SWS

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