

Asset Management and Stormwater? Please Explain!

MPCA Workshop: February 6, 2017

Michael Thompson, P.E.
Public Works Director
City of Maplewood



More Focus on Asset Management

- MN 2050 Initiative <http://mn2050.org/survey>
- Office of the State Auditor: Infrastructure Stress Transparency Tool
<http://www.osa.state.mn.us/default.aspx?page=20160211.001>
- Storm Pond Inventory Requirements
- Call for More Government Transparency
- Why Were Certain Budget Decision Made?
 - Much easier to make the case or explain if leveraging actual data from a holistic asset management approach

What Are Stormwater Assets?

- Basins (Ponds, infiltration basins, raingardens, wetlands)
- Outlets (outfall attribute at city limits / wetland for MS4 outfalls)
- Treatment Devices (Grit chambers, stormceptors, draintile, etc...)
- Culverts
- Lift Stations
- Inlets
- Pipes
- Manholes (attribute for sumps)



Why Track Your Stormwater Assets?

- Preventative Maintenance (PM)
- Inspections
- Track Maintenance Activities
- Proactive vs. Reactive Decisions
 - Repairs
 - Replacement
 - Life Cycle Expectations
 - Budgeting
- MS4 Reporting



Who Currently Tracks Assets?

MN2050.org Asset Management Survey



Summary of key findings

- Just over half of Minnesota jurisdictions practice some form of asset management.
- Respondents identified multiple reasons for using asset management practices. The primary reason jurisdictions practice asset management is to preserve, maintain, and extend the life of infrastructure assets. Other reasons include budgeting, inventorying, and mapping infrastructure assets.
- On a 5-point scale (with “1” being not very effective and “5” being very effective), 79% of respondents gave their jurisdiction a rating of 3 or lower.
- Cities and counties are managing all assets listed in the survey, while state agencies are managing fewer asset types. Public infrastructure assets include more than just roads, bridges, and transit lines. Minnesota’s cities, counties, and state agencies manage many types of assets, including traffic fixtures, buildings, drinking water supply and distribution pipes, waste water collection and treatment facilities, storm sewers, storm ponds, airports, ports, railways, electrical systems, solid waste facilities, natural gas networks, parks, and fleet.

529 Agencies Responded to MN2050 Survey: Top Systems to Track Assets*

- 492 - **No Official Asset Management System**
- 100 – Cartegraph (*e.g.... 1 agency could represent 3 of the 100 if used for streets, lights, and storm sewer)
- 96 - Icon
- 81 - MnDOT SIMS
- 34 - Simple Signs
- 29 - CityWorks

City of Maplewood's Perspective on Asset Management System Selection

- Met with key department leaders to determine needs
- Vetted numerous programs
- Met with sales reps/vendors
- Met with fellow agencies to see in action
- Created internal city stakeholder group to help vet
- Created buy-in and ensured system would meet needs
- Currently in the implementation process
- Data from paper, other programs, Excel, etc.... must migrate to new system including all stormwater assets

Cartegraph Implementation

Screen Shot Courtesy of Cartegraph

The screenshot displays the Cartegraph web application interface. At the top, there are navigation buttons: 'Back', 'Home > Assets', 'Create +', 'Run Report', and 'Actions'. Below the navigation is a 'Map Filter' section with a search bar labeled 'Search by address' and a search icon. The main area is a satellite map showing a network of stormwater assets represented by colored lines and nodes. A sidebar on the left lists asset types with their counts:

- Storm Inlet: 6356
- Storm Manhole: 2715
- Storm Pipe: 9050
- Storm Outlet: 690
- Storm Culvert: 583
- Storm Pump: 6
- Storm Facility: 1

At the bottom, a data table is visible with the following columns: Asset Type, ID, Street, Estimated OCI, and Inspected OCI. The table shows one row for a 'Storm Basin' with ID 50000 and Street 'HIDDEN VALLEY'. The 'Selected' count is 0, and the total number of records is 1 - 1 of 19417.

Asset Type	ID	Street	Estimated OCI	Inspected OCI
Storm Basin	50000	HIDDEN VALLEY	65.81	73.33

How Does It Work?

- All assets are mapped and assigned a condition and value
- When creating new assets or updating existing assets (location or attributes) all changes get auto-updated to GIS map
- Program tracks asset issues and tasks
 - Integrated into daily operations
 - Inspection forms (ponds, manholes, pipes) on i-Pads for example
- An issue can be reported internally or externally from citizens
 - Example: Citizens snaps photo of flooding (issue) on smart phone app
 - Correct person is alerted and prioritizes, task assigned (clear debris) and resources then entered (2 crew members and 1 dump truck)

Example: Citizen reports paint dumped into catch basin

- Request input into system at asset location (MH254) as and issue termed “illicit discharge”
- Then assigned as a task for the proper city staff person to investigate and document
 - Documentation forms can be created for MS4 reporting and used in the field by staff
- At end of year all illicit discharge reports could be queried into a single report for MS4 reporting purposes
- Automated response to citizen when work is completed

Example: A section of storm pipe is found to be collapsed after a PM inspection

- Issue entered into system at asset location (Pipe345) as a "pipe break"
- This could then be assigned as a task of "replacement" with resources used (labor, equipment, material)
- Pipe gets repaired and City can now rate the pipe in new condition (e.g... went from 2 out of 10 to 10 out of 10; and how much it cost for that action)



Why All of This Asset Management Stuff?

- Reports and data at the touch of a button
 - How many manholes are rated poor?
- Visual map showing all assets that meet criteria to set work priorities for crews
- Triggers preventative inspections and maintenance
- Holistically stores all assets across many functions so they “can speak to one another”
- Shows the future resources needed to meet conditions you want
 - Helps inform budgeting and setting fees/rates
- FEMA Reporting (special labor rates, etc.)

Final Thoughts

- Asset management approach dependent upon your needs
- Maplewood went to holistic asset management for pavement, storm, lighting, sewer, buildings, parks etc... To better reflect asset condition, values, and future needs
- Very helpful to have all assets and information in a user friendly system that does not rely on specific individuals (retirements?)
- Ability to sort, create reports, drill down on data, heat maps, etc.
- Informed decisions (data driven), tells the story and need --- performance measures/outcomes
- City Council supportive with this approach in order to make smart capital investment decisions and provide transparency

Thank You! Questions?

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