Seeing Farther

Infrastructure for where you're going.

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Getting the most from your infrastructure

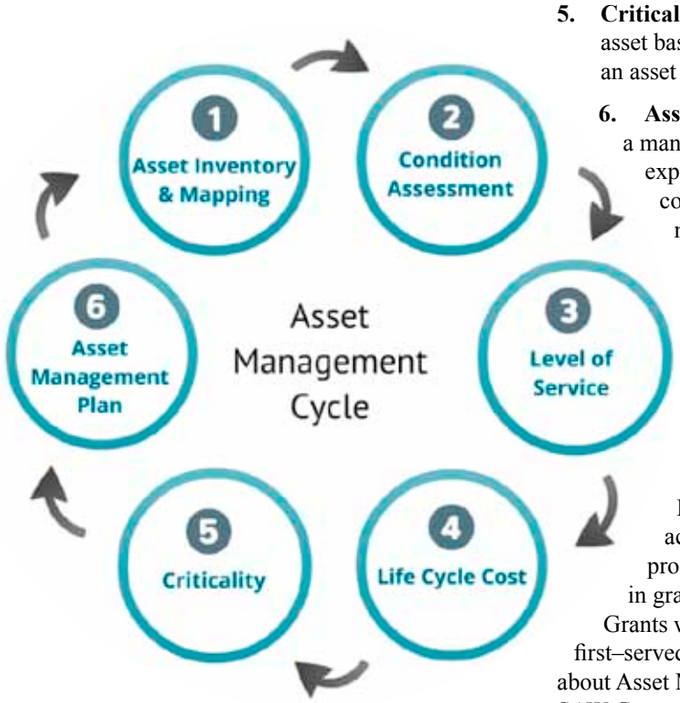
By James R. Hegarty, P.E., Barbara Marczak, P.E., and Brian Vilmont, P.E.

Our infrastructure provides the foundation on which our communities are built: the roads that enable our transportation, the watermains that provide our drinking water, the sewers and treatment plants that put clean water back into our environment, and the buildings upon which our communities depend for services and support. All the assets that make up our infrastructure systems must be managed in order to maintain their value to our communities. Without asset management, our limited funds will continue to be depleted with reactionary repairs instead of leveraged to maximize the value of each dollar spent.

Asset management is not a new concept. The old Aesop fable of the grasshopper, who sings during summer instead of preparing for winter, and the ant, who stores up food for winter during the summer, ended with this lesson: "It is best to prepare for the days of necessity." We know that our assets will not last forever, but we can get the most value from them if we invest in their management and maintenance. Like the ant, it is important that we do our work now and not wait for the proverbial winter for our assets to fail. To be able to choose from the many tools available for asset management, it is important to understand the fundamentals first.

How asset management works

The goal of asset management is to provide the desired level of service from our assets at the lowest, long–term costs. Proactive asset management can reduce short–term reactionary expenditures and make the most out of the available funding. To accomplish this, we need to follow these basic steps:



1. **Asset Inventory and Mapping** – Document what you have, how much of it you have, and where it is. Identify the assets and components of each asset that should be managed. Maps provide physical location and documentation of your systems.
2. **Condition Assessment** – Rate the condition of each asset and component. This documents what needs to be repaired and/or replaced.
3. **Level of Service** – Determine what level of service your community expects each asset to provide. This identifies what level of depreciation is acceptable before replacement is required.
4. **Life Cycle Cost** – Calculate asset costs based on expense required to maintain the desired level of service and replacement value. Create expenditure timelines as part of this process.
5. **Criticality** – Assign priority ratings to each asset based on the severity of impact should an asset fail.
6. **Asset Management Plan** – Develop a management plan that predicts expenditures for maintenance, coordinates replacement of assets, and maximizes available funding.

Grants Available

The State of Michigan is moving forward with funding of asset management plan development for municipalities through the Stormwater, Asset Management, and Wastewater (SAW) Grants. Later this summer, MDEQ will accept grant applications for this program, providing up to $2,000,000 in grant funding per municipality. SAW Grants will be awarded on a first–come, first–served basis. For more information about Asset Management Plans and MDEQ SAW Grants, contact Jim Hegarty, P.E., Brian Vilmont, P.E. at (616) 364–8491, or Barbara Marczack, P.E. at (231) 798-0101.

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P&N Adds Asset Management Specialist

Prein&Newhof welcomes **Brian Vilmont, P.E.**, a 22–year veteran Civil Engineer, to its Grand Rapids office. Vilmont, a Michigan Technological University graduate, brings his experience in municipal civil engineering, project management, and asset management to P&N's clients. P&N's President Jim Cook, P.E., said "Brian's work in asset management and his broad municipal engineering experience deepen our current strengths in each of these practice areas. We're happy to have Brian on our team."

Prein&Newhof Opens a New Office in Cadillac

Puts former Wilcox employees back to work

In January, when Wilcox Engineering announced it was closing its business, P&N reached out to employees in its Cadillac office. Within two months, Prein&Newhof opened a new office in Cadillac in a vacant building at 1202 North Mitchell Street owned by the Wexford County Transit Authority.

P&N's Cadillac office plans to provide transportation, municipal, environmental, and geotechnical engineering services. "The employees in our Cadillac office were key members of the former Wilcox Professional Services organization, and work extensively with MDOT and with northern Michigan municipalities and County Road Commissions." said P&N President Jim Cook. Connie Houk, P.E. and Henry Diemer, P.E. will lead the design services, Fernando Souto, P.E. geotechnical services, Maureen Allen environmental services, and Josh Gottschall construction services. "This move is a win–win for our new employees and for Prein&Newhof; we hope it will also be a benefit for the City of Cadillac and the communities of northern Michigan."

Allegan's Water Treatment Plant wins ACEC Award

The American Council of Engineering Companies (ACEC) of Michigan honored the Allegan Water Treatment Plant project with its Merit Award. Congratulations to all those involved in this innovative project that converted a lime softening water treatment plant into a much greener and more efficient reverse osmosis water treatment plant utilizing over $6 million in grants from the US EDA and MDEQ."We got a state–of–the–art water treatment facility for a fraction of its value and a much–improved site," said Ray Berkin, Allegan Water Treatment Plant Superintendent.

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Norton Shores embraces GIS for asset management

By Edward Dempsey, GISP

A few years ago, Prein&Newhof helped Muskegon County establish Geographic Information System–based data models to store and retrieve its water and wastewater system data. The data models act as blueprints for communities as they inventory infrastructure assets through GIS by defining the features, attributes and ancillary information necessary to provide up–to–date information on these critical systems.

The Inventory

The City of Norton Shores became the first community in Muskegon County to leverage the County's data models by embarking on an ambitious task to inventory its water and wastewater systems. After initial training and setup by Prein&Newhof, City staff, using GPS receivers, collected the locations and descriptive attributes of a host of assets including manholes, valves, hydrants and pump stations. Fortified by additional layers provided by Muskegon County, including aerial photography and parcels, the collected data was imported into GIS and today Norton Shores has a complete and centralized view of its water and wastewater systems.

Added Benefits and Moving Forward

With its inventory complete, Norton Shores can now focus on augmenting its GIS to help answer critical system-wide questions and to increase operational efficiencies. For example, the City recently scanned over 4,500 paper and mylar as–built sheets. Prein&Newhof linked these scanned documents to GIS, giving both office staff and those in the field one–click access to these information–rich resources.

On this sample water system map, red dots represent hydrants and blue lines identify the the pipes.

The true power of GIS in asset management is its continuing ability to evolve and meet the challenges facing our clients as they manage their critical infrastructure.

For more information on how you can use GIS to store, retrieve, and analyze infrastructure systems, contact Ed Dempsey, GISP at (616) 364–8491 or edempsey@preinnewhof.com.

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Prein&Newhof specializes in civil and environmental engineering, environmental consulting, surveying, GIS, and laboratory testing.

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