Supporting Your Case

Using Intelligent Asset Management to Drive Budgetary Decisions

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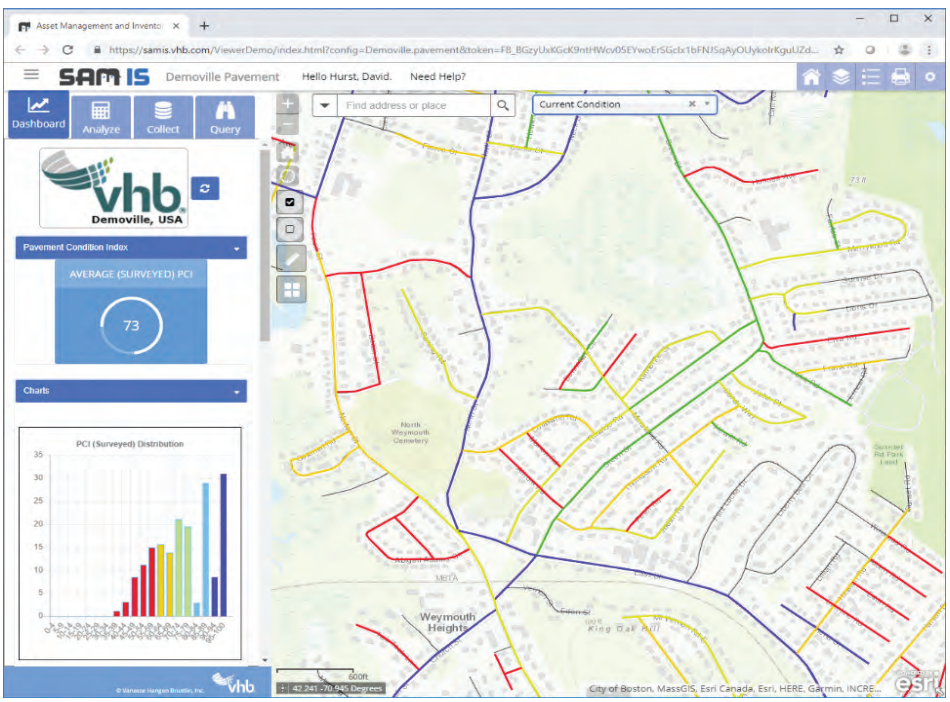
Budget requests always seem to exceed available funds. Use a real-time, visual, data-driven approach to secure the funds needed to achieve the greatest impact for your municipality.



Those charged with planning capital and maintenance improvements for municipalities can likely relate to this common situation: A city has 50 miles of pavement, for example, in various states of disrepair. Some need to be crack-sealed, some resurfaced and others need to be reclaimed all together. All should be improved during the next year. However, the budget will only allow for a portion of the needed projects to be completed. While requesting additional funding is an option, will it cover all the identified needs? If only half the increase is granted, how will projects be prioritized? What if the city council requires quantitative evidence to justify the request? How is that information produced?

This is a common scenario in which the public works and engineering departments, who are charged with maintenance and preservation of the municipality's infrastructure, cannot fully quantify the community's needs. Since every budget request can be approved, departments are sometimes competing against one another to justify and secure funding for annual programs. Similarly, decision-makers are charged with the proper management of public resources and tax dollars. Budget requests can be supported by data-driven decision making, primarily with the use of technology. It is relevant to any public asset needing routine maintenance and capital improvements. Below, we share a framework

See: Asset Management on Page 16

From Page 15: Get all of your Departments on the Same Page with Data-Driven Asset Management Tools

for how a public works or engineering department employee can use data to drive the decisions in a cost-effective and transparent way, aiding budget requests and conveying your department's asset needs in a comprehensive manner.

A Three-Step, Data-Driven Approach to Assemble Business Plans and Requests

Breaking the process into three steps allows more efficient implementation of the process and assists in the communication of its value. These steps are:

1. Inventory: Understand the "What" and "How Much"
2. Analyze: Move from Existing Conditions to Building a Case
3. Communicate: Justify Future Maintenance

Completing each of these steps helps achieve a better infrastructure network.

Asset management is:

- a business model;
- a decision support system; and
- a management approach that can be used across asset types.

Inventory: Understand the "What" and "How Much"

Building the request begins with gathering data to support that request. No matter the asset type, having a comprehensive inventory is key. This first step is a tabular record of every asset and location. Municipalities need to collect related data, including conditional data and repairs. As an example, the temporal aspect of the surveys and repairs allows the user to review historical aspects of the asset and decisions that were made. A database of assets also allows for a central repository of information to account for past decisions and provide access to information when a request or inquiry is made.

Moving forward, incorporating this information into a map to help visualize the data is key to planning and gaining efficiencies in both the preparation and execution of a work plan. Mapping the assets aids in the recall of the asset and allows for the layering of data so the user can see the location and all associated documents, files and photos that accompany it. It also standardizes the data model to ensure the data collected and stored is consistent and reliable.

Having all data in a system where users can access, modify and review the information benefits the budget-making process by understanding the composition of your asset network. A user can navigate to an asset, query information and easily obtain the answers needed to help propel the decision-making process in a positive and efficient way.

Analyze: Move from Existing Conditions to Building a Case

Once collected, it is often revealed that many assets are in sub-optimal condition – but how sub-optimal? To understand, the next step is to create the baseline, or current condition. This includes assessment or survey of the asset condition to determine the potential remaining useful life of the asset. As a best practice, this should be a uniform process performed routinely to be compared over time. Additionally, this is another digital file or data layer that can easily be stored

See: Asset Management on Page 17

From Page 16: Get all of your Departments on the Same Page with Data-Driven Asset Management Tools

inexpensively and recalled in an asset management system.

As the existing conditions and deficiencies of assets are determined, the natural progression is to ask what can be done to address them. Put another way: what is the next step in assessing the condition of the assets from the inventory and determining a logical progress to addressing the deterioration of the asset? This forward-thinking and prescriptive thought process moves municipalities from managing assets (reactive) to asset management (proactive).

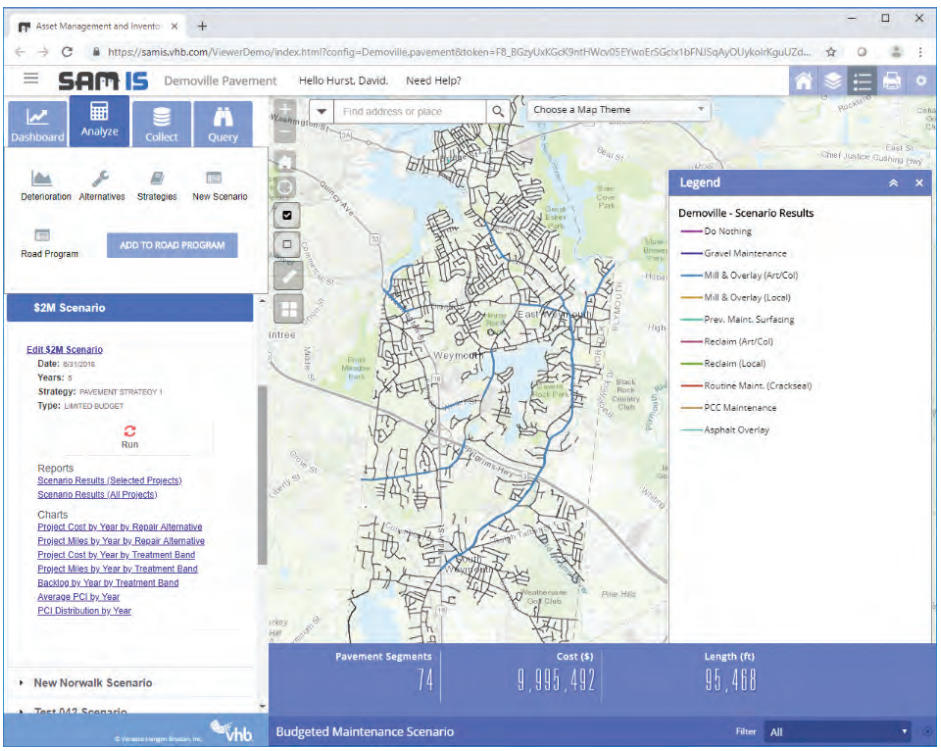
An asset management system (AMS) will help the user understand and define which key performance indicators (KPIs) or measures of effectiveness (MOEs) will be or should be used to determine how 'well' budget is spent. Additionally, the AMS has a set process to allow for a repeatable procedure. This adds confidence and buy-in to the process as the outcome of the analysis effort helps shape decision making and the well-maintained future of the assets.

A software-based asset management system will allow you to run 'what if...' analyses to compare how spending the same amount of budget in different ways will yield different impacts. Initially, the user will input to the system strategies that mirror your decisions (e.g., pavement condition index of 80 is a crack seal candidate), improvement alternatives that match work type to cost, and deterioration curves based on the life-cycle of the asset that properly forecast future condition expectations. Once configured, the asset management system can analyze multiple budget levels and funding scenarios to

See: Asset Management on Page 18

From Page 17: Get all of your Departments on the Same Page with Data-Driven Asset Management Tools

illustrate the outcome of those levels, and the long-term benefit (or negative impact) on those decisions. This process allows the user to validate the cost and convey the impact of different funding levels. It is useful for both responding to requests and demonstrating the negative impact of budget cuts to decision makers and the public.



Communicate: Justify the Maintenance Moving Forward

Those tasked with the maintenance of a municipality's infrastructure are also expected to be good financial stewards. As such, they must be able to illustrate and justify the decisions made on behalf of the public. The sound and repeatable methodology, coupled with a comprehensive inventory, leads decision makers to reliably discuss, defend and disseminate the results of asset analyses.

The analytical capabilities of an asset management system also prioritize the improvements. This helps guarantee the most "bang for your buck" as the system performs a benefit/cost calculation to rank the project according to the agency and user benefit versus the cost of the project. This allows the user to review and compare projects in the scenario, as well as across scenarios. By examining trade-offs in several scenarios against one or multiple metrics, budget proposals can be stack-ranked and prioritized. Decision-makers will also be better positioned to respond to alternative suggestions, without necessarily having to go back and run another analysis.

ring this information in a comprehensible way is also key to the justification. With the assets in a mappable interface, improvements can be shown in a variety of ways, shared with the public and used in the future for monitoring the progress of the scenario into an actionable plan. This can be coupled with graphs and charts from the analysis to justify the work. This extends to not only the work in the planning stages, but also the sharing of this same information to monitor the progress of the plan through inspections, adding accountability and confidence to the process. This will aid in facilitating the plan and justify that future requests; promoting buy-in from decision-makers.

At its core, asset management's intent is to implement the correct improvement at the correct time to optimize performance to maximize ROI and financial efficiency. This parallels the focus of municipal staff during budget-making efforts. Asset management can help decision makers:

- Be smarter by knowing more and planning well

See: Asset Management on Page 19

From Page 18: Get all of your Departments on the Same Page with Data-Driven Asset Management Tools

- Use data instead of gut instincts to make sound decisions
- Understand tradeoffs in the event not all requests are successful
- Protect the dollars allocated to stretch the impact of funding
- Be better fiscal stewards - making a case for budget changes in the next budget cycle, doing it faster and more accurately with technology-driven data.

Asset management system with decision-making methodologies can become a vital tool in the day-to-day operations, as well as annual budget planning tasks, helping municipal staff gain efficiencies and confidence through inventory, analysis and communication of the infrastructure network. ❒

About the author

David Hurst (dhurst@vhb.com) is the Program Manager for Asset Management at VHB. He has 18 years of experience helping maximize the efficiency and effectiveness of transportation on the local, state, and national level. David has demonstrated proficiency in transportation asset management, maintenance optimization and budgeting, data collection, long-range planning, and geographic information system (GIS). He is familiar with multiple asset management, decision support, and maintenance systems.

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