FOLLOW THE LEADER

How To Develop Your Own Best-in-Class Asset Management Program

BY DAVID A. CLARK, DARRYL STREET, AND SHAYNE KAVANAGH

In recent years, the District of Columbia has become a national leader in asset management and infrastructure renewal planning. In fact, in May 2018, Standard and Poor's released a report titled "Deferred Maintenance: How Can We Measure It?" recommending that other state and local governments follow the District's lead in creating a system to inventory, assess, and prioritize assets, and to develop plans for funding deferred maintenance.

However, the District was not always so fortunate. In fact, in 1995, the District's finances had fallen into such trouble that the United States Congress established a five-member "Control Board" to assume direct responsibility for the District's finances, with the power to override decisions made by the Mayor and City Council. The Control Board suspended its activities in September 2001, after four consecutive balanced budgets. It left a chief financial officer in place to provide the District with continuing independent oversight of the District's finances.

Since 2001, the District has improved its financial position in a number of areas, including fully funded pensions, strong reserves, strong credit ratings, and — the topic of this article — best-in-class capital asset management.

Funding assets is complex. Local governments need to determine the most cost-effective ways to maintain an asset over its lifecycle and catch up with deferred maintenance.

CAPITAL ASSET MANAGEMENT IN THE DISTRICT TODAY

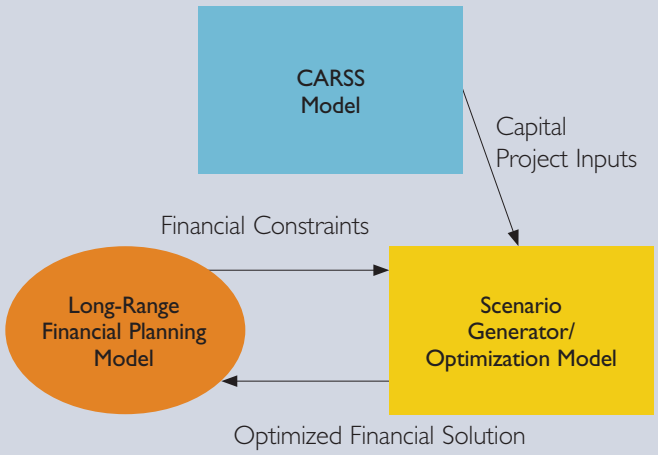
The District has many of the responsibilities of a city, state, county, and school district, so its infrastructure needs are substantial.

Given these diverse needs, a comprehensive review of the District's total capital needs is essential, including a ranking of each potential capital project to ensure that the highest-priority projects are funded. The District's assets are tracked in what is known as the "Capital Asset Replacement Scheduling System" (CARSS), which includes information such as the condition of each asset, replacement costs, and major maintenance that has been performed on the asset (which could affect estimated remaining useful life). Over the past few years, the amount of assets inventoried in CARSS has increased from 14 percent to more than 96 percent of all District assets. Condition assessments for all assets captured in CARSS have been either completed or are in progress. This comprehensive and detailed database of asset information is critical to assessing funding needs for maintaining quality infrastructure.

Funding assets is a complex undertaking, requiring governments to determine the most cost-effective ways to maintain an asset over its lifecycle and catch up with deferred maintenance. Further, governments need to balance debt, cash, and grant funding, while remaining mindful of constraints like statutory or self-imposed borrowing limits. To navigate this complexity, the District developed a long-range financial plan to address the District's unmet capital needs in the shortest time possible.

CARSS is used to prioritize, score, and rank all the District's capital projects. Then, given capital budget constraints and the priority ranking assigned to each project, the system determines which projects can be funded in the capital improvement plan each year. The unfunded capital projects are then analyzed in the long-range financial planning model. Given the relative priority of the unfunded projects, along with certain debt and resource assumptions, the District develops plans for an optimal solution to finance the unfunded capital gap over the shortest possible period. To develop this optimal solution, the city has a financial model that that identifies variables for its available debt, pay-as-you-go capacity, capital spending needs, and other relevant factors. These variables are then put together in various combinations showing which combination of debt and pay-as-you-go allows the District to find the earliest date it can meet its unfunded priority capital needs. This information is then used to present a complete long-term capital financing plan for the District over a 15-year period. Exhibit 1 illustrates this process, and Exhibit 2 shows examples of outputs from the District's capital planning finance analysis, where projects are prioritized against available funding.

Exhibit 1: The District's Asset Inventory, Condition Assessment, and Funding Model



In 2017, the long-range capital financial plan identified a funding gap of approximately $4.2 billion. As a result, the District Council passed legislation that, beginning in fiscal 2020, gradually increases the amount of pay-as-you-go funding annually until it reaches the level of annual depreciation. The dramatically increased pay-as-you go funding, coupled with additional debt capacity as existing debt is retired — combined with a growing economy — should enable the District to fund all identified and unmet capital needs by fiscal 2028 (see Exhibit 3).

The District's approach to asset management and deferred maintenance are cited in the reports of each of the major rating agencies as a key factor in their decisions to upgrade the general obligation bond ratings of the District to where they are today: Aaa/AA+/AA+ by Moody's, Standard & Poor's, and Fitch, respectively. So, how can other local governments enjoy similar success?

START SMALL: SLOW AND STEADY WINS THE RACE

Local governments possess a wide variety of assets, and the District of Columbia is no exception. In fact, the District has responsibilities that go well beyond those found in many municipal governments. Accordingly, the District has hundreds of facilities, including parks and public schools; an entire system of horizontal infrastructure in the form of roads, bridges, alleys and sidewalks; thousands of fleet assets, from trash hauling vehicles, to ambulances and fire trucks; and tens of thousands of equipment assets, from parking meters to IT systems for the management of important public-facing services like Medicare and unemployment benefits.

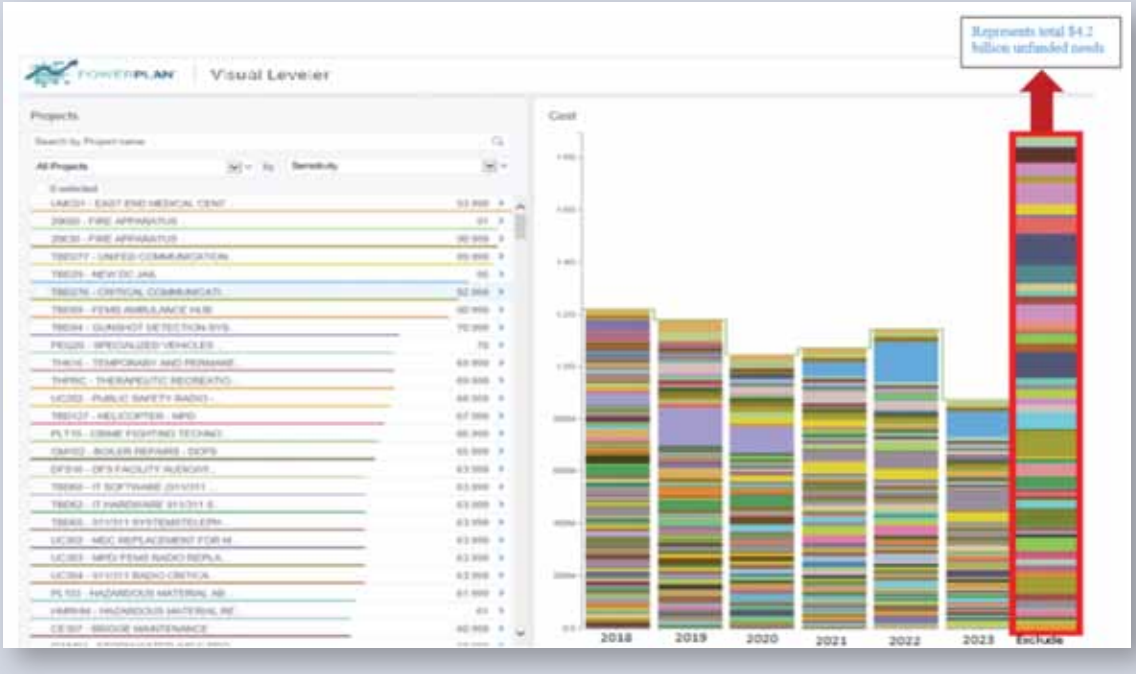
An ideal asset-management strategy requires knowing: 1) what assets you own; 2) the condition of those assets; 3) how to prioritize the maintenance of those assets; and 4) the amount of available funding to replace those assets in order to meet the needs of citizens. Given the large number of assets a local government typically owns, an attempt to inventory and assess the condition of all of them at once would be overwhelming. The District now has more than 100,000 individual assets inventoried, along with their condition and financial plans for maintaining their desired condition. The District did not schieve this overnight, though — it took a measured and gradual approach.

The District began with the notion that it needed a consistent data model for how it recorded asset information, which would allow for a coherent approach to asset management across the entire government. It was impossible to know at the outset what this data model should look like, however, so, the District started with three asset classes to test out the data model it wanted to build (which would eventually become CARSS). The three asset groups chosen for this pilot were representative of a majority of the District's asset types: 1) street segments, representing pavement, or horizontal infrastructure managed by the District Department of Transportation (DDOT); 2) school buildings, representing all District-owned buildings/facilities managed by their Department of General Services and the District of Columbia Public Schools (DCPS); and

CARSS is used to prioritize, score and rank all the District's capital projects. Then, given capital budget constraints and the priority ranking assigned to each project, CARSS determines which projects can be funded in the CIP each year.

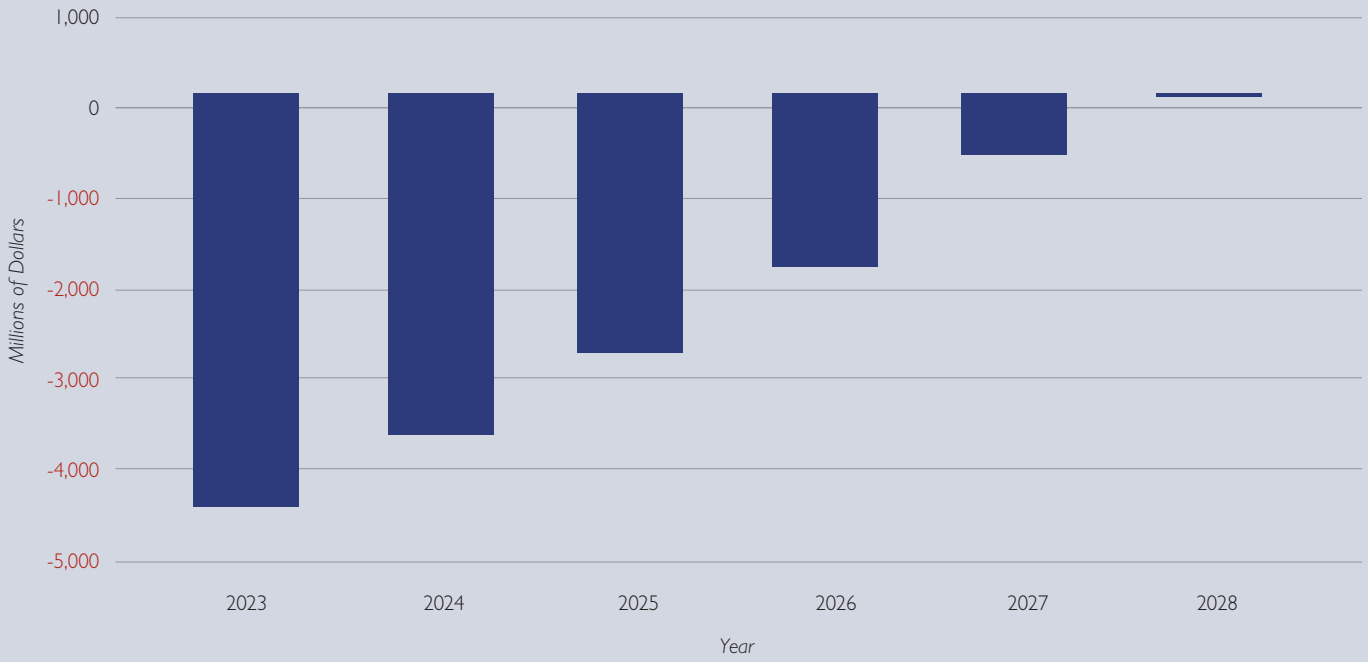
Exhibit 2: The District's Analysis of Capital Needs versus Funding Availability

Each color block represents an individual capital project in the District's fiscal 2018-2023 capital improvement plan (CIP). The red line represents the amount of available funding each year in the CIP, which clearly illustrates that capital needs exceed resources.



This graphic represents the fiscal 2018-2023 CIP after CARSS has prioritized the capital projects in each year, based on the ranking and scoring process. All capital projects that did not score high enough were placed in the excluded column, which represents total unfunded capital needs over the six-year CIP. These projects are then addressed through the District's long-range financial planning model to determine the soonest possible year that all of the unmet capital needs can be funded.

Exhibit 3: Cumulative Unfunded Capital Needs



3) school buses, representing fleet or rolling stock managed by the Office of State Superintendent of Education (OSSE). These assets were also selected because the departments that managed them already had high-quality data for these particular asset groups.

For these three asset types, each of the departments contributed the necessary data and the Office of the Chief Financial Officer (OCFO) coordinated the development of a proof-of-concept data model with an external software vendor. The OCFO worked with agencies that managed the assets to confirm the data and its integrity. The District interfaced the centralized asset management database to the source systems in the departments that managed the assets, helping ensure consistency in the data and giving the departments faith that the information in the central database was accurate.

From there, the modeling process became a useful tool in budget planning for the three asset types chosen. For example, the model suggested that the OSSE needed a certain amount of money to adequately maintain its fleet of school buses or to replace buses that had surpassed their useful lives. Before the model, the budget would be based on more traditional budget requests that did not have a strong grounding in data. After the model, OSSE's fleet budget was funded to the full extent the model suggested, which saved money in the long run by reducing the chances of buses becoming inoperable before the end of their estimated useful lives. This demonstrated the benefit of participating to all of the District agencies, which — along with top-level city management — began to realize the importance of the process, the data, and what they could mean for the protection of assets needed to serve District residents.

> An ideal asset-management strategy requires knowing what assets you have, the condition of those assets, and the cost of maintaining or replacing those assets in order to meet the needs of citizens.

The District learned two major lessons from its pilot that can guide other local governments.

First, collect the "Goldilocks" amount of detail in your data — not too much, and not too little, but just the right amount to help make better decisions. For example, recording an entire facility as a single asset would not provide sufficient detail for an effective maintenance strategy. While the life of a building might be 50 years, the roof will need replaced three times during that period and the HVAC system will need to be upgraded, etc. However, too much detail increases the cost of the asset management system, as someone needs to collect and maintain this additional information. The benefit of strategically planning light bulb and air filter replacements and interior repainting probably won't outweigh the cost of collecting and maintaining the data.

Second, look for opportunities to update the data model as you learn more about your assets, ensuring that the asset management system remains relevant to the operating departments. For example, when the District built its database for school buses, it focused primarily on mileage and age as two indicators of bus conditions that could warrant a replacement. But at later points, when vehicles from other departments were added, staff learned that mileage and age alone were not sufficient measures of vehicle condition. Vehicles used in public safety spend a significant amount of time idling, which still puts wear on the engine, so engine hours were added to the data model as another indicator of asset quality. Later, the amount of money actually spent on maintaining a vehicle was added as another indicator of condition. The indicators of vehicle condition eventually evolved into a point system that summarized the condition of any given vehicle.

FROM EARLY ADOPTERS TO EVERYONE ELSE

After a successful pilot with inventorying assets and assessing condition, other departments will need to be brought on board. In the District, having an empowered and independent chief financial officer helped make the case with District leadership that addressing unfunded capital needs and deferred maintenance was a pressing need.

The District wanted a consistent data model for how it recorded asset information, which would allow for a coherent approach to asset management across the entire government.

Leadership support made it possible to use asset data in formulating the budget. The asset database (CARSS) identified the true needs of each department, meaning that budgets could be based on what the data suggested as the best use of resources, rather than the amount of money a given department had historically received. One of the implications of this approach was that if a department did not collect and contribute data to CARSS, it was unlikely to get the budget it wanted. This provided extra motivation for departments to participate in CARSS.

The data model in CARSS evolved over time, making it possible to accommodate the needs of new departments that participated in the data model. For example, earlier we discussed how the data model for vehicles evolved to include engine hours in order to better reflect the wear and tear on public safety vehicles. Staff also developed automated interfaces between existing databases and CARSS, minimizing additional work that might be required of

agencies to participate in the asset management program. This eliminated the need for people to enter data twice, making the District's asset system easier to maintain.

> Look for opportunities to update the data model as you learn more about your assets, ensuring that the asset management system remains relevant to the operating departments.

MAKING HARD CHOICES: PICKING PROJECTS

As a local government develops and refines its inventory of assets, the need to maintain those assets will become more pronounced. At the same time, the demand for new assets will likely remain — so a government needs to decide where limited resources are best spent. This process must balance investments among areas of service, asset classes, and new and existing assets. Most of all, though, the process must be perceived as fair and legitimate. Capital spending is a high-stakes affair, and if many people believe spending decisions are unfair, asset management's reputation (and support) may suffer.

A fair decision-making process has four elements.[1]

1. Decisions Are Based on Accurate Information. Developing a comprehensive asset inventory, with the right amount of detail, will go a long way toward convincing people that decisions are based on good information. The asset inventory also allows for a better comparison of the costs of funding new projects versus the cost of deferred maintenance on existing assets.

2. A Transparent and Consistent Set of Decision-Making Criteria Are Applied Equally. Decision-making criteria should be rooted in the priorities of the elected officials, conferring a sense of legitimacy. The District's mayor had three major priorities for fiscal 2019:

- Improve outcomes for children and youth.
- Increase prosperity across all eight of the city's wards.
- Enhance government services.

Each priority was associated with two to four sub-priorities. For example, the priority for increasing prosperity included sub-priorities on affordable housing, reducing health disparities, and reducing homelessness.

All capital projects being considered for funding are then given opportunities to show how they might support one of these priorities. For example, roadway projects improve mobility (a sub-priority of "back to basics"), and library enhancements contribute to improving outcomes for children and youth.

The priorities of elected officials often cover a broad range of issues, reflecting the broad mission of local government. Capital projects rarely promote more than a handful of these priorities, so additional criteria are needed to differentiate among capital investments. The District has two sets of additional criteria: "cost-benefit factors" that give points to proj-

ects that have a positive impact on the operating budget (e.g., reduce costs) or that will generate their own revenue stream, for example; and "project specific criteria," which give additional points for projects that, for instance, extend the useful life of an asset or that co-locate projects/facilities (space is at a premium in Washington, D.C.).

> After a successful pilot with inventorying assets and assessing condition, other departments will need to be brought on board.

All classes of assets are scored against the same criteria, promoting consistency. The District then examines the list of projects, ranked from the highest to lowest. It then strives to fund projects, starting with the highest-ranked project. The District funds additional projects based on their relative priority, moving down the list until available funding is exhausted. Of course, there is room for other considerations to enter into decision making, as is the case in any high-profile, high-stakes public process like capital budgeting. But even when a higher ranking project is displaced by one with a lower ranking, the model illustrates the cost of doing so in terms of increases in future maintenance costs, as well as the inflation-adjusted higher cost of the capital project in later years. This helps decision makers remain mindful of the consequences of their actions. The scoring, ranking, and prioritization of all capital projects allows for a better comparison among the District's options to fund new projects versus maintaining existing assets.

3. Stakeholders Have the Opportunity to Provide Input. The District uses a team comprising representatives from across city government to score the projects. This way, key shareholders have a chance to provide input and are privy to the process of determining final scores.

4. Mistakes Are Recognized and Corrected. No evaluation system is perfect. Perhaps the biggest risk for a mistake, in the context of this article, is failing to account for the future operating and maintenance costs caused by today's asset management decisions. District staff regularly evaluate and report on future operating and maintenance costs, and they update their projections based on the estimated impact of new capital investments. This way, decision makers understand the cost of their decisions, and momentum is more easily created to correct decisions that aren't financially sustainable.

FUNDING THE PLAN

Governments resources are limited. Once a local government has developed an inventory of its assets and prioritized its capital needs, it will need to determine the funding available to address deferred maintenance, given competing priorities. A good starting point is to determine the amount of debt the government can support, including adopting a debt policy that states the maximum amount of debt the government is willing to incur. This shows stakeholders that the government will act responsibly in using debt.

Governments must also consider the role of current resources in addressing unmet capital needs. For example, a local government could use more pay-as-you-go funding, which means using current revenues to fund capital projects instead of debt. Historically, the District had not used much pay-as-you-go funding. The large gap in funding demonstrated by the long-term plan, coupled with the inability of debt to cover this gap, prompted the District to devote more of its current resources to capital investment. Other local governments will need to assess the amount of funding that can be redirected from operations to capital needs. This is not a simple trade-off: Every government has to deal with competing interests and limited resources.

Governments might need to explore other sources of funding, such as federal or state grants, public-private partnerships, or even new funding streams. An example of looking beyond traditional sources of funding can be seen in the District's Office of Public Private Partnerships (OP3). OP3 staff identify capital projects that have the potential for private funding through a partnership with a private organization. OP3 also examines how payments to the private partner fit into the District's financial capacity, given debt payments and other obligations.

CONCLUSIONS

Capital asset management is a challenge for many local governments. Washington, D.C. has had a great deal of success in comprehensively identifying its capital asset needs and funding them. The District's approach can be replicated by many, if not most, other local governments. The key is to take a slow and measured approach to: 1) inventorying assets their conditions; 2) prioritizing needs for new assets and maintenance of existing assets; and 3) developing a long-term financial strategy to fund priority capital needs that is inclusive of debt, pay-as-you-go, and other non-traditional sources of funding, like participation from the private sector.

Government resources are limited. Once a local government has developed an inventory of its assets and prioritized its capital needs, it will need to determine the funding available to address deferred maintenance, given competing priorities.

Note

1. Criteria derived from Russell Cropanzano, David E. Bowen, and Stephen W. Gilliland, "The Management of Organizational Justice," *Academy of Management Perspectives*, November 2007.

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