

Asset Management and Asset Valuation: The Implications of the Government Accounting Standards Bureau (GASB) Standards for Reporting Capital Assets

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Definitions of asset management commonly relate decision making for physical assets and the use of business principles commonly used in the private sector. New financial reporting requirements, issued by the Government Accounting Standards Bureau (GASB), have more closely linked these concepts for state Departments of Transportation, as they will soon be required to report the value of infrastructure assets in financial reports. Methods for assessing this value rely heavily on principles of asset management and supporting data. During the time frame that the GASB requirements have been under discussion, interest in asset management has also generated considerable activity in professional organizations—such as the American Association of State Highway and Transportation Officials and the American Public Works Association—agencies, and supporting organizations. This paper develops the relationships among the existing work on asset management, ongoing efforts on asset valuation, and the GASB requirements. This paper first reviews the GASB requirements and presents a rationale for their acceptance in terms of improved decision making and accountability and improved awareness of the need to preserve the existing investment. It then describes existing activities relating to asset management and asset valuation drawing on the following resources: 1) a survey of AASHTO member states and 2) an ongoing study for Transport Association of Canada focusing on measuring and reporting highway asset value, condition, and performance. The question “how well can the GASB requirements be met using asset management systems?” is then addressed. In conclusion, the paper presents a synthesis of the research related to asset management and asset valuation and makes recommendations regarding strategies for addressing the GASB requirements. Key words: asset management, asset valuation, financial reporting, infrastructure assets.

INTRODUCTION

There are many different definitions of asset management. The definitions have common elements related to decision making for physical assets and the use of business principles commonly used in the private sector. Asset management has received broad acceptance in the private sector (1) and is practiced in transportation agencies in Australia and New Zealand (2). In North America, most state departments of transportation are still struggling to determine what asset management means to them and are tentative as to whether this is an approach they want to adopt. However, external forces are influencing these decisions. Budget and legislative demands for better performance, public participation in the decision-making process, and

regulatory requirements all point to the role asset management can play in the decision-making process.

In June 1999, the Government Accounting Standards Bureau (GASB) issued a reporting requirement that state and local governments show the value of the infrastructure assets that they own. Historically, public sector agencies have used revenue and expense reports and have not reported the value of their investments or assets. However, consistent with other business principles, there is considerable interest in moving to a balance sheet that includes assets and enhances public accountability. Also, asset valuation is a key element for evaluating success within organizations.

During the fifteen years that the GASB requirements have been under discussion, interest in asset management has also independently generated considerable activity in professional organizations—such as the American Association of State Highway and Transportation Officials and the American Public Works Association—agencies, and supporting organizations. This paper develops the relationships among the existing work on asset management, ongoing efforts on asset valuation, and the GASB requirements.

WHAT IS ASSET MANAGEMENT?

Asset management has been defined as follows (1):

“Asset management is a systematic process of maintaining, upgrading and operating physical assets cost-effectively. It combines sound business practices and economic theory, and it provides tools to facilitate a more organized logical approach to decision making. Thus, asset management provides a framework for handling both short- and long-range planning.” (2)

Other definitions of asset management place slightly different emphases on business strategies or go beyond physical assets. Examples include:

- “Asset management is a comprehensive business strategy employing people, information and technology to effectively and efficiently allocate available funds amongst valued and competing asset needs.” (3)
- “Asset management is a methodology to efficiently and equitably allocate resources amongst valid and competing goals and objectives.” (4)

Asset management clearly means very different things to different people. However, there is a unifying theme of efficiency. As state departments of transportation have worked to understand what asset

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management means for their organization, there are other common themes including (1, 5, 6):

- Asset management is not a black box.
- One size does **not** fit all.
- Asset management is a concept or framework rather than a thing.

There has also been a realization that these agencies already manage assets, and asset management is a way to use these existing systems to look at their physical assets in a more holistic way in term of the service delivered to customers (7).

In the United States, the American Association of State Highway and Transportation Officials (AASHTO) Task Force on Asset Management, formed in 1997, the American Public Works Association (APWA), although the task force on asset management was disbanded in 1998, and the Federal Highway Administration (FHWA) Office of Asset Management, formed in 1999, provide a focus for asset management activities related to transportation. The AASHTO Task Force on Asset Management (8) developed a strategic plan in 1998 that identifies the mission of the task force: Champion concepts and practices that integrate transportation investment decisions regarding operation, preservation and improvement of transportation systems for member agencies. Specific ongoing activities of the task force include a December 1999 workshop focusing on a state-to-state exchange and the development of an asset management guide through the National Cooperative Highway Research Program (NCHRP). The APWA Task Force on Asset Management was formed to explore the relationship between asset management and the APWA and to investigate the relevance of the concepts to the public works community. The task force disbanded on completion of their report in 1998 (9), which recognized the importance of asset management. Since the completion of the report, the APWA has organized a video conference (10). The FHWA Office of Asset Management was formed to provide leadership, technical expertise, and program assistance. The office is providing assistance to the AASHTO task force, exploring educational initiatives, and providing support for the NCHRP project that will develop the guide for asset management.

Perhaps the most interesting activities related to asset management are activities going on in individual states and agencies. For example, New York has recently produced a concept plan for asset management (11). To facilitate dissemination of these experiences, the focus of the 1999 AASHTO Asset Management Workshop was a peer-to-peer exchange (12).

THE GASB REQUIREMENTS

GASB is a private non-profit organization that determines commonly accepted practices for government financial reporting. Reporting of infrastructure assets has been an option since 1974, but less than 1% of agencies actually report and fewer actually depreciate assets. The intent of the new requirements, known as Statement No. 34, is to make annual financial reports more useful to legislators, investors, and creditors (13) and to support assessment of whether costs are being shifted to future generations, and the relative change in the agency's financial position. Statement No. 34 requires government financial managers to provide a narrative, known as management's discussion and analysis (MDA), summarizing the overall financial position and contrasting it with the situation of the previous year. Revised financial

statements based on full accrual accounting for all government activities, specifically physical assets, will support the MDA.

Statement No. 34 requires public agencies to report the value of infrastructure assets such as roads, bridges, and tunnels (14). Although the requirements are effective June 1999, a transition period has been defined and the earliest implementation is June 2001. The value may be reported as an historical cost minus depreciation, or using a modified approach. Using the modified approach (13):

"Infrastructure assets are not required to be depreciated if 1) the government manages those assets using an asset management system that has certain characteristics and 2) the government can document that the assets are being preserved approximately at (or above) a condition level established and disclosed by the government. Qualifying governments will make disclosures about infrastructure assets in required supplementary information (RSI), including the physical condition of the assets and the amounts spent to maintain and preserve them over time."

The asset management system must have an up-to-date inventory, include condition assessments and estimate the annual amount required each year to preserve these assets at some level of performance specified by the reporting agency.

No matter what approach is taken, Madeleine Bloom, the director of FHWA's Office of Asset Management, summed up the issues in a report to the AASHTO Asset Management Task Force (15): "Adding highway infrastructure to the balance sheets of states will heighten the importance of these assets and draw attention to the need to maintain their condition, which is positive."

RELATED ACTIVITIES

Which State Is Doing What?

To determine "who is doing what" a survey was sent to each of the fifty states. The survey was aimed at providing input for planning the peer exchange AASHTO workshop on asset management but also captured experiences in the responding states. The results of the survey are documented in (12). Responses should not be interpreted to indicate state practice. For example, several states reported using multiple investment analysis tools, but in reality individual tools are used for specific and limited applications such as pavement design and bridge painting. The survey was divided into three parts with questions addressing what states are doing and how in areas related to inventory, performance, management systems, and investment analysis. Thirty states responded to the survey. Table 1 provides a general summary of the responses. Many states are undertaking activities that form the building blocks for asset management in terms of inventories, condition assessments, performance measures, and management systems.

Surprisingly, ten states (39% of those responding to this question) said they value assets. States were able to check multiple methods. Eight states indicated that they use replacement cost, three indicated use equivalent value, and three indicated use of historical costs. Follow-up telephone calls to several of these states revealed that responding states did not have comprehensive procedures for valuing assets but used the techniques in an exploratory way for a subset of assets. The results provided considerable insight into the diversity of approaches and the different ways in which states are implementing and applying analysis tools:

TABLE 1 Summary of Survey Responses

Question	Responses
States with no POC for asset management	12
States with one POC	13
States with multiple POCs	8
Number of states with inventories	33
Average number of inventories per state	9.2
Percent of inventories with condition information	64
Number of states with management systems	33
Average number of systems per state	9.2
Percent of systems with performance information	64
States that have attempted valuation of assets	13
States using decision-making tools	32
States that have applied tools across modes	7
States doing analysis to allocate for capital vs. maintenance	10
States doing CBA of major maintenance expenditures	11
States doing CBA for operational improvements	11
States doing quantitative evaluation of how much expenditure will improve system performance	17
States relating budget expenditures to system performance	22
States with mechanisms to automatically update systems based on capital or maintenance expenditures	13
Total Responses:	33

- A variety of tools are used by states in making decisions. Only one state did not use any tools and the majority of states using tools used more than one tool. In fact, three states used four or more methods. The most popular tools were lifecycle cost analysis (used by 88% of states using tools) and cost-benefit analysis (used by 85% of states using tools).
- The questions focusing on how these tools were used indicated that a significant number, but not the majority, of states used tools such as benefit-cost analysis across modes to analyze maintenance expenditures, operational improvements, and impacts on system performance.
- Respondents indicating the use of feedback mechanisms (~40%) usually cited bridge management systems as the application.

Transport Association of Canada Study

Some of the difficult issues related to asset valuation are being confronted in an ongoing project for the Transportation Association of Canada (TAC), titled "Measuring and Reporting Highway Asset Value, Condition and Performance" (16). The study has explored the applicability of different methods of valuation for different types of infrastructure. The study has also compiled information related to two Canadian experiences. In British Columbia, reorganization requires valuing assets to facilitate transfer from the owner to the operator. Amortized historical cost was used. In Alberta, assets have been capitalized using fixed values and a 50-year amortization with straight-line depreciation.

INTERPRETING THE GASB REQUIREMENTS

Like asset management, valuing assets can be interpreted in many different ways. The value of an asset depends on whether you are interested in the financial or the economic value. There are also many different methods for determining the value of an asset including (17):

- Book value—current value based on historical cost adjusted for depreciation,
- Written down replacement cost—current value based on replacement cost depreciated to current condition,
- Market value—price buyer is willing to pay,
- equivalent present worth in place—historic cost adjusted for inflation and wear,
- Productivity realized value - net present value of benefit stream for remaining service life.

Statement No. 34 provides an example of asset value based on book value using an estimated historical cost and straight line depreciation as follows (14):

"In 1998, a government has sixty-five lane miles of roads in a secondary road subsystem, and the current construction cost of similar roads is \$1 million per lane-mile. The estimated total current replacement cost of the secondary road subsystem of a highway network, therefore, is \$65 million. The roads have an estimated weighted average age of fifteen years. Therefore, 1983 is considered to be the acquisition year. Based on US Department of Transportation, Federal Highway Administration's "Price Trend Information for Federal Aid Highway Construction for 1983 and 1998", 1983 constructions costs were 69.03 percent of 1998 costs. The estimated historical cost of the subsystem, therefore, is \$44,869,500. In 1998, the government would have reported the subsystem in its financial statements to have an estimated cost of \$44,869,500 less accumulated depreciation for fifteen years based on that deflated amount. assume that the road system had a total useful life of twenty-five years. Assuming no residual value at the end of the time, the straight-line depreciation expense would be \$1,794,780 per year, and accumulated depreciation in 1998 would be \$26,921,700."

In deciding on a method, the availability of data, and what the results will be used for are critical factors. The value of the asset can be used for establishing accountability, decision making and decision support. It is important to recognize that the value of an asset should also include the question "to whom?" Answering this question requires knowledge of the users of the asset and consideration of time in the sense of whether or not the value of the asset should reflect its value for future generations. For example, an underutilized section of roadway may be in the same condition as a heavily traveled section. To the user they have very different values, but their value based on condition may be the same.

Tennessee's Experience

Using existing management systems data, Tennessee Department of Transportation has explored the effort required to value right of way, structures, pavement and buildings as required to meet GASB 34 (18). The exploratory analysis was based on the assumption that the modified method will be used with broad classes of infrastructure,

for example, long span bridges being grouped together. It was determined that adequate supporting data already available to be able to meet the reporting requirements including the RSI.

Using Micro PAVER

As illustrated by Tennessee DOT's experience, much of the existing data to support the GASB Statement 34 requirements already reside in existing asset management systems. The Micro PAVER pavement management system (19) provides a simple tool that provides the data to meet the GASB requirements. Specifically, and like other pavement management systems, Mico PAVER includes inventory, condition assessment, and tools for estimating the investment required to meet a specified level of pavement performance. Micro PAVER also illustrates some of the differences between the GASB requirements and asset management. While Micro PAVER meets the GASB requirements, and it is an asset management system for managing a particular type of asset, it is not asset management in the broader sense of the word. It encourages decision-makers to focus on traditional stovepipe decision making and relies heavily on engineering judgement.

Another Role for the Highway Economic Requirements System (HERS)

One of the important concepts of asset management is that there is some value to looking at highway assets as a whole rather than in terms of specific types of assets such as pavements and bridges. FHWA is exploring the role the Highway Economic Requirements System (HERS) may play in this (20). HERS is an elaborate benefit costs analysis model used to make recommendations to congress regarding the federal highway budget and considers highway performance in terms of safety, pavement preservation and congestion. The calculation of residual value is particularly interesting but as it currently stands, represents an economic value of a particular segment, rather than a financial value. However, HERS clearly has raw building blocks that are appropriate for developing asset value and for providing supporting information so that agencies do not have to depreciate their assets.

CONCLUSIONS

Asset management supports the mission of transportation agencies in the twenty-first century as they deliver customer-oriented service using aging infrastructure with ever more constrained resources. At the same time, GASB Statement 34 provides a motivation for agencies to improve their accountability and disseminate financial information that is meaningful. Meeting the GASB 34 requirements does not necessarily mean that an agency is practicing asset management, nor does practicing asset management mean that the GASB 34 requirements will be met. Data collection, analysis and communication are key elements in making both elements successful.

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