



Asset Management – The Proper Balance of Capital and Maintenance

Introduction

None of us would dream of buying a new house and expect to live in it for 100 years without needing to replace the roof and buying a new air conditioning unit sometime during its lifespan. But in a way, that is what we are asking many of our transportation leaders to do. We have developed a cherished asset in the US transportation network over the last 50 years. Now, we as policy makers must be stewards of this cherished asset to ensure it is here for our children and grandchildren.

In today's environment of "doing more with less", asset management has been increasingly applied to the highway and transportation environment and the concept is being adopted by more and more transportation agencies. The genesis of asset management provides a guide for how transportation agencies balance capital and operational expenses and provides perspective on what can be expected in the future. As transportation agencies strive for the best long term, whole-life, strategies for optimizing asset value, the balance of capital and operational expenses will continue to take center stage.

Financial Influences on Transportation Decision Making

The tremendous expansion in highway capacity during the last century resulted in an enormous inventory of highways requiring maintenance. The first half of the century saw the construction of tens of thousands of miles of concrete and asphalt pavement in an attempt to "get out of the mud". The latter half of the century was the construction era of the interstate highway system, one of the largest public works projects in history. During these large capital construction periods, Federal funding played a major role (interstate highway funding was generally 90% federal and 10% state) and the policy was established early, that the States would be responsible for maintenance. At the same time that the capital construction program for the interstate highway system began to conclude, Federal and state officials began to redefine operations more inclusively. Transportation was no longer design, construct and maintain, suddenly transportation facilities were seen as assets to be operated.



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The ability to fund operations at an adequate level remained a concern. Maintenance funding requirements grew as vehicle miles of travel increased, larger loads were allowed and commercial traffic increased. NAFTA, deregulation of the trucking industry and just in time inventory all contributed to the need to ensure that assets retained their value and engineering condition. Concurrently, demand for additional capacity in urban areas steadily increased and congestion grew on a nonlinear curve. Large sections of rural interstate highways deteriorated to the point that major rehabilitation and reconstruction were necessary and overall, funding for Transportation was inadequate.

Political considerations are also a factor in transportation finance. There is little motivation to maintain existing facilities as few ribbons are cut on maintenance projects. Deferring maintenance expenditures in favor of new capacity was a political temptation and sometimes a financial reality. Strategy for asset value was greatest when all federal construction funds due to a state were received. The emphasis on construction was a natural outcome. Consequently, maintenance has been deferred on the interstate system in some states to such an extent that they are faced with major reconstruction to return the asset to its original value. It created a mentality of "run to fail" where maintenance was increasingly put on the back burner so funding matches could be met to build new highways.

It was apparent that highway facilities were not being maintained at optimum levels. As financial allocations shifted and construction programs reduced, strategies for maintaining asset value were more often followed. The industry began to consider life cycle costs to get the most out of highway funds in the long run. Funding levels that had been influenced by fund allocation decisions and the need to match available Federal funding were allocated to operations and maintenance. Life cycle costing served primarily to indicate the gap in maintenance funding but providing sufficient funds to support full asset management remained an infrequent result.

Toll agencies, though less affected by these funding dilemmas, were predominantly engaged in carrying out routine maintenance similar to state transportation departments. Toll agencies commonly used the same maintenance methods as the state DOT and numerous individual contracts were awarded to accomplish single maintenance activities such as mowing, lighting, shoulder repair etc. Toll agencies did fund maintenance at a higher level to provide a smoother, more aesthetic and safer trip than non tollroads. However, the focus was on accomplishing maintenance work rather than obtaining optimum asset value. Further, toll agencies differ from general purpose transportation agencies because of the use of tax exempt debt and the resulting financial interests of the investment public. As it would turn out, toll agencies would



make the shift to asset value strategies more abruptly with the promulgation of new accounting standards.

As these shifts in thinking began to occur, the financial community was formulating accounting standards that would more fully reflect the financial status of public infrastructure agencies through the Governmental Accounting Standards Board (GASB). In 1999 GASB voted to require that public infrastructure be depreciated on governmental financial statements. This proclamation, known as GASB 34, raised eyebrows as the noncash depreciation of large infrastructure investments made heretofore “thriving” transportation agencies look less robust. The final version of GASB 34 allows for expensing maintenance activities in lieu of depreciation as long as the condition of the facility demonstrates that maintenance expenditures are adequate. This lessened the sudden effect of large noncash depreciation expenditures but GASB 34 amplified the shift to long term asset value strategies. Financial reporting was no longer focused on the inputs to highway maintenance, the dollars spent, but rather on the asset value remaining at the end of the financial period. The measure of how well a governmental transportation agency performed changed from dollars spent to asset value at the end of the reporting period. The financial decision to spend money for maintenance was now directly tied to the asset value and performance of the agency.

As the concept of asset management develops, the existence of a consistent performance measurement technique becomes all the more important. This requires a condition rating program to ensure that the physical condition of the asset is maintained at an acceptable level. Fortunately, most state transportation departments have developed at least a minimal condition rating system based on various physical measures and expert observation. In some states, these systems have been in operation for decades and are crucial for performance measurement that corroborates asset values reported on financial statements. However, some states are not as advanced but recently they are making great strides to perfect their condition rating program. FHWA has been interested in seeing more of a national standard developed to ensure uniform standards throughout the US. The National Maintenance Quality Assurance (MQA) Peer exchange has been working on this since 2004 when the first meeting of the group was held. An example of standards from several states may be found on the MQA document library (www.mrutc.org/outreach/mqa). Since condition ratings are indicative of asset value, they provide a baseline of data that can be tracked overtime and evidences historical investment decisions. Whether the actual work is performed by the private sector or in house forces, a well developed condition rating system provides a basis for measuring performance.

Life Cycle Costing and Institutional Momentum



Any asset will naturally deteriorate with time and the relationship is nonlinear. If maintenance of an asset is deferred, the asset condition and value will decline at an accelerated rate. Once the deterioration of the asset begins to accelerate, increased routine maintenance will be insufficient to return the asset to original value. It will become necessary to rehabilitate the asset and perhaps even reconstruct. This nonlinear relationship has been in direct conflict with political and historical transportation funding allocation processes that sought to maximize the return of Federal gasoline taxes to the states via Federal construction funds. Nevertheless, life-cycle cost analyses demonstrate that it is less expensive to maintain an asset at near original condition than to allow it to deteriorate to a point that major rehabilitation or reconstruction is necessary.

All organizations suffer from institutional momentum. Policies, procedures, legal framework and a desire to maintain the status quo conspire to limit major change. The shift in strategy from routine maintenance funding, activity contracting and balanced capital spending is a major political and administrative shift in policy. Capital construction is supported by an enormous institutional infrastructure which provides support for maintaining construction expenditures even in a time of reduced transportation funding. Private enterprise engaged in planning, design, construction, right of way acquisition, environmental assessment, legal services, surveying, construction inspection and other businesses have a vested interest in ensuring that capital construction continues. While a strong case can be made for increased funding, the balance between asset management and capital construction should be made based on analysis and not political agenda or restrictions in fund allocations.

Asset Management and the Private Sector

The convergence of data from existing maintenance ratings systems and GASB 34 financial data have provided policymakers with better information with which to make transportation budget decisions. As the concept of asset management develops, agencies are more likely to fund programs which assure asset value is kept at an optimum level consistent with lifecycle costing. However, it is important that efficiency in delivery remains a focus. An expanded use of the private sector for asset management is supported by several factors.

Performance contracts are heavily dependent on a consistent performance measurement such as the condition rating system. The measurement of performance must be consistent and



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acceptable to both contracting parties. The condition rating process fulfills this need. Further, subsets of the condition rating are typically established at minimum levels and can become a part of the performance measurement system. Private companies interested in proposing on maintenance asset management projects have information available on the existing condition rating and the minimum condition rating required in the contract. They also perform their own extensive condition assessment before projects are bid. A comprehensive work plan is then developed to maintain the asset at the prescribed levels through the term of the contract. The emphasis is on managing the asset, not managing the in-house labor force or compliment of equipment. Asset management contractors are at liberty to subcontract activities to local firms based on their ability to perform and on the desires of the public agency to attain various public policy agendas. For example, experience has shown that asset management contractors can be very helpful in supporting small and minority local companies and they have demonstrated a willingness mentor and help these companies grow their businesses.

While multiyear asset management contracts are commonly bid below the maintenance expenditures of public agencies, it is not necessarily true that the private sector is inherently more efficient than the public sector. However, the rules by which the public sector procures and administers are clearly more burdensome than those of the private sector. Similarly, the ability to manage personnel is less restricted and the ability to provide bonuses and other financial incentives is available to the private sector. The maintenance of an asset is a process which involves large quantities of human resources, equipment and materials and is therefore highly dependent on procurement and management practices. To the extent the private sector is provided more freedom in these activities, greater efficiency should be expected.

The single change of procuring these services through multiyear vs. annual contracts creates tremendous alignment between the agency and the contractor. When 5 to 10 year contracts are procured, the asset management contractor must live with the work they do year in and year out. They have an financial incentive to take a life-cycle cost approach. This creates a shift from the "worst first" or "patch it" mentality that has evolved over the years, to a "fix it" mentality that is aligned with true asset management.

Private sector asset management contractors are focused on maintaining overall maintenance rating goals and specific maintenance ratings for various activities. No longer is the question related to how much should be spent for maintenance on an annual basis, the focus is on outcome and the private sector is at liberty to use best practices to attain the goal of maintaining asset value. The asset management company's financials are directly affected when



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the performance falls below agreed to condition ratings. The outcome becomes the focus, not the inputs.

An Acceptable Balance

While toll agencies and departments of transportation have unique and differentiating policies, procedures and legal frameworks, the need for a balanced transportation financial strategy is shared. While transportation departments must be concerned with Federal fund allocations as a balancing factor for asset management, toll agencies might be enticed to use available toll revenue for engineering, right away and other preliminary engineering activities to prepare for new capital construction. The classical sequence of budgeting for toll agencies is to fund administration and the collection of revenue as a first priority. Maintenance can subsequently be relegated to a minor role unless bond covenants prescribe specific maintenance standards or the board sets a policy designating a minimum standard. The temptation to fund engineering and preparatory right away activities for new capital construction can be considerable with the result that maintenance is deferred.

For state transportation departments, the budgetary process remains dependent upon the need to match Federal grants for capital construction. Failure to match these funds could result in revenue from Federal fuel taxes being distributed to other states, an outcome which would be politically devastating. However in recent years, Federal capital funding for construction has decreased, requiring fewer state funds to match and the number of categories in which the funds are allocated has also decreased. This has provided a greater flexibility for state transportation departments in the budget process and the reduced Federal construction funds have minimized the conflict with maintenance.

State transportation departments differ for toll agencies also because they have historically delivered maintenance services with in house crews, equipment and stockpiled material. This is especially the case in states that tend to balance the emergency needs for snow removal with maintenance activities in other seasons to support the emergency nature of winter services. The management of a large pool of human resources, the procurement of complex maintenance equipment to exacting specifications and the procurement and storage of materials make it difficult for a public agency to be efficient. Also accounting for these expenditures make it complex to determine relative efficiency.



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Increasingly toll agencies have begun to contract with the private sector on a performance basis for asset management as have state transportation departments, especially for the arterial and interstate highway systems. With a focus on output rather than input to the asset management process, there is a greater likelihood that life cycle costing analysis will form the basis for transportation budget decisions.

Conclusion

Life-cycle costing is a sound financial and policy strategy and is being adopted more frequently by transportation departments and toll agencies. Partially a result from changed financial reporting and shifting capital funding availability, asset management is positively affecting transportation policy in a way that will ensure that great transportation investments of the past will serve the next generation of customers. It will prevent the huge costs of rehabilitation and reconstruction that has become necessary in some states and it will serve to bring private sector efficiency to a crucial public policy agenda, the preservation of our national transportation facilities.