



## **An Ounce of Prevention –Performance-Based Maintenance Contracting – Christopher Warren, P.E. & Howard “Butch” Eley**

*“An ounce of prevention is worth a pound of cure.” Benjamin Franklin*

You wouldn't buy a new car, drive 100,000 miles, and never change the oil. However, that is analogous to the minimal resources devoted to maintaining our nation's deteriorating transportation infrastructure.

Usage of the U.S. roadway system, as measured by vehicle miles traveled, has doubled in the last 25 years to 2.7 trillion miles; while new miles constructed has only increased a mere 1.5 percent over the same period. Since many of the Interstate highways and other major thoroughfares were constructed in the 60s and 70s, continuing with the car analogy, we are now driving a vehicle that is decades old, twice as far, and still ignoring the service warning lights.

As a result, most transportation infrastructure studies indicate that roadways and bridges are becoming more obsolete and structurally deficient; highways more crowded and unsightly; and dwindling bridge and roadway maintenance budgets are being diverted to patching problems rather than preventing them.

### **Government Conundrum**

Much has been written about the conundrum faced by governments of providing expanding services with fewer dollars – departments of transportation in particular. The problem does not, however, reside within departments of transportations; nor does the solution. DOTs, for the most part, consist of dedicated public servants who understand the dilemma and could solve the problem if given the resources to do so. It should be obvious by now that the economic windfall needed to address the problem in the traditional manner is not going to happen. The solution to the transportation infrastructure problem, therefore, must come from outside the current model for addressing bridge and roadway maintenance needs.

### **An Innovative Solution – Toll Roads**

More money is not a viable solution to the transportation infrastructure maintenance issue. Therefore, the only source available to solve this dilemma is innovation – the kind of innovative thinking that spawned renewed interest in tolls as a viable way to increase the transportation infrastructure inventory.

This concept of developing public/private partnership has proved extremely successful and continues to expand at an ever-increasing rate. The new toll roads provide a way to create the much needed new transportation corridors while actually paying for themselves.

Government leaders and state departments of transportation should be applauded for the courage to engage in, what was at the time, a new and innovative concept.

IBBTA's President Steve Mayer has set a theme for 2005 of *Leadership and Learning*. The theme not only prompts us all to look towards the future but also should make those associated with the tolling industry in the past very proud of the innovation and leadership they have bestowed upon to the transportation industry. The basic autonomy of toll authorities has historically allowed them not only the opportunity to add additional highway miles, but to also become a laboratory for change to discover innovative methods for managing, operating, and maintaining other roadways, structures, and facilities as well.

## A Private Solution to a Public Problem

Toll authorities have increasingly turned to the private sector to ensure the roadways and structures for which they are responsible receive preventive maintenance in larger doses than repair maintenance.

Customer service is paramount to toll agencies as they deliver value in the form of safety, service and convenience. Therefore, maintenance condition of a toll asset is an important ingredient in delivering overall value to toll customers. Toll authorities are also focused on an asset's return on investment and the utilization of the private sector to maximize return. As toll assets develop into mature financial engines, greater and greater efficiencies turn into increased revenue for funding additional transportation.

By aggregating fence-to-fence maintenance needs under one long-term contract, toll authorities get a bigger bang for the buck – more services for fewer dollars with fewer internal headaches.

By securing the services of a single private company to manage the entire maintenance program of a particular toll road system for a long-term at a lump sum price, the authority will:

- experience cost savings
- achieve better and timelier resource allocation
- improve the driving experience for the traveling public.

This approach is most often referred to as performance-based contracting (sometimes called maintenance asset management). Though comprehensive performance-based contracting has been more readily adopted by toll authorities, several state DOTs – namely Virginia, Florida and Texas – have successfully implemented innovative performance-based contracting as a part of their asset management program.

Performance-based contracting looks at maintenance from a “stewardship” perspective rather than a “necessary evil” point-of-view. The basic theory behind the performance-based contracting approach comes from Benjamin Franklin: *An ounce of prevention is worth a pound of cure*. This concept is as applicable to roadways, bridges, and facilities as it is to our cars, our homes and our personal well-being.

## Win/Win

Performance-based or the asset management approach appropriately aligns the best interest of the owner/agencies and the contractor. The owner/agency sets required standards. The contractor agrees to meet those standards for an agreed lump sum for a specified period. Success is measured by adherence to the overall standards, not by the work resulting from an individual work order.

For example, under the work order process, if lighting at an interstate interchange is out, the contractor is issued a work order to *get* the lights back on. Under a performance-based contract, the contractor is required to *keep* the lights on regardless of the cause of the outage. The performance-based contractor wants to get to the root cause outage. The work order contractor has no incentive to address the root cause – the more the lights go out, the more the contractor is needed.

Owner/agencies and performance-based contractors share the same objective – keeping the lights on for the entire length of the contract. This is the best way to ensure true, long-term alignment

of interests of all parties.

### **Different Mindset**

Besides being an innovative approach, performance-based contracting is also a different mindset from that of most public departments of transportation where it is important that all employees have work to do. With Performance-based contracting the focus is on managing highway assets instead of managing people.

DOT field management forces have historically focused on managing department resources – equipment, materials, and most importantly labor. In-line managers are preoccupied with scheduling work duties, human resource development, equipment maintenance and assignments, as well as the purchase and inventory of in-house materials. Rarely does the condition of the asset come into play unless there is a big outcry from a politician or angry citizen regarding a major pothole or another public hazard.

Though some DOTs have level-of-service standards for particular highway assets, there is rarely any consequence if that standard is not met. Toll authorities that use asset management companies through performance-based contracting hold those companies accountable for every asset. The private management must ensure the asset meets the appropriate standard at all time.

Promotions in DOTs are most often based on an individual's ability to manage people rather than on efficiently managing the department's roadways, structures, and facilities assets. It's not that DOT professionals lack the ability, desire or knowledge to manage assets; it's that the system rewards resource utilization over results. That which gets measured gets done.

Asset managers focus entirely on the asset and most of the more successful companies in the business rely on subcontracting. They are, therefore, able to appropriately and quickly respond to specific needs with the right people and the right equipment at the right time. There is no extensive internal workforce (with ongoing payroll and benefits) that must be deployed everyday, needed or not.

And, subcontracting is significantly simpler and streamlined with private sector companies than with government agencies. Poor performers can be quickly replaced without the extended procurement procedures normally required by governmental red tape.

Toll authorities, rarely encumbered by the bureaucracy of government agencies, can really capitalize on employing the asset management approach to maintenance because most operate outside the sphere of ongoing political influence and with the primary focus on customer satisfaction. DOTs have many bosses and constituencies who can derail new ideas and concepts like maintenance asset management for reasons other than more effective asset management and preservation.

### **Cost Savings**

Those toll authorities and DOTs using maintenance asset management have all experienced cost savings along with the benefits stated above. These savings ranging from 10 to 20 percent come from:

- **More Efficient Resources Utilization** – Government operations are designed to handle peak workloads with regards to personnel and equipment. Unfortunately, the government entity is burdened with these additional expenditures for people and equipment in the future regardless of workload. Asset management companies have the flexibility to put subcontractors in place for temporary workload increases and can act quickly and decisively to eliminate ineffective or underutilized resources. Therefore, these companies spend less on capital and facility costs than do government agencies.

- **Better Private Sector Compensation Incentives** – A private company's ability to offer bonuses and other innovative incentives (e.g., performance-based) creates an environment where employees have motivation to reduce costs.
- **More Efficient Procurement Processes** – A public entity's procedures for buying and paying for goods and services are constrained by numerous regulations and bureaucracies that do not apply to private firms. An example is poor performing subcontractors take too much time and effort for governments to replace versus a private firm that can respond immediately to resolve issues with its subcontractors.
- **Cost-Effective Subcontracts** – Government agencies are constrained by the structure and type of contracts they can create and award, while private contractors are able to redesign these contracts into lower cost, multiyear agreements—resulting in lower bids.

## Shared Risks

In contracting with a private asset management firm, the authority or government shares the operational risk of highway maintenance with the private sector company while creating a guaranteed operating budget, guaranteed cash flow, and most importantly a guaranteed level of service. The guaranteed level of service is enforceable through payment withholdings and fines explicit within the executed contract. With asset management contracts, accountability is clear and measurable.

## The Industry

Of the over \$600 million in current performance-based asset management projects in the three major states there are three firms holding major contracts:

- Infrastructure Corporation of America
- VMS, Inc.
- Roy Jorgenson & Associates

An industry truly in its infancy, maintenance asset management has the ability to expand in both scope and markets. The industry has yet to penetrate the federal and local governments that account for approximately 40% or \$12 billion of annual transportation maintenance expenditures.

## The Contract

The fence-to-fence total maintenance asset management concept provides all the services necessary to maintain a stretch of highway.

For example, the Turnpike Enterprise in Florida originally contracted maintenance services through approximately fifty separate contracts with a variety of large and small private service providers. The Turnpike Enterprise not only administered each of these contracts, but also rebid them on an annual basis.

In 2002 the Turnpike Enterprise developed one comprehensive maintenance services contract using the asset management approach and issued a Request-for-Proposal (RFP). The three companies listed above responded with a packaged that included how the work would be performed and a lump sum price. The RFP was won by Infrastructure Corporation of America.

The work plan and the lump sum price submitted by the four firms was derived from a combination of standardized road condition assessments performed by the competing contractors, public historical costs for the roadway, from the contracting entity and published maintenance figures.

## The Work

These services included in the fence-to-fence contract were classified as follows:

**Pavement Maintenance:** Pavement maintenance includes maintenance of all paved surfaces, including paved shoulders, turnouts, and aprons. Activities include pavement patching and sealing joints/cracks, leveling of irregularities and depressions, concrete patching, pressure grouting, and under some contracts full pavement management programs including pavement rehabilitation.

**Drainage Maintenance:** The drainage asset group involves all efforts necessary to properly maintain surface/storm water management systems allowing them to function as designed. Work includes maintaining side and outfall ditches, pipes, culverts, catch basins, median inlets, and subgrade underdrains.

**Vegetation/Aesthetics Maintenance:** Vegetation/aesthetics is an area emphasized by most agencies since it is sensitive to their customer base. It includes mowing the median and roadside areas, fertilizing, chemical weed control, wildflowers, tree trimming/removal, and landscape area maintenance.

**Roadside Maintenance:** Roadside maintenance includes grading of nonpaved shoulders, slopes, and turnouts. Additional maintenance activities include the maintenance of concrete median barriers and sound barriers, fence repair, curb and sidewalk repair, and litter removal.

**Traffic Services:** Traffic services include the maintenance and repair of traffic control equipment; interstate call boxes; lighting systems; guardrail, pavement striping, and markers; and the replacement, repair, and cleaning of regulatory and warning signs including all overlane and cantilever signs. Also included in traffic services are any contracted services relating to directing traffic during accident response or extraordinary circumstances.

**Rest Area/Facility Maintenance;** Rest area/facility maintenance includes all activities related to the general servicing and cleaning of rest areas or wayside parks. This includes cleaning tables and restrooms, picking up debris and litter in the area, collecting garbage from containers, mowing and landscaping, wastewater treatment, and security services. Future opportunities exist with other facilities requiring maintenance include weigh stations, toll buildings, and toll plazas.

**Bridge Maintenance:** Bridge maintenance includes any maintenance and repair to structurally deficient components on a routine schedule such as bearings, beams, girders, trusses, decks, and bridge joints are included on a routine schedule. Nonstructure components may include the bridge railing, parapet walls, and electrical components.

These broad descriptions of asset categories accurately represent the overall scope of a performance-based contracting relationship. In a comprehensive performance-based asset management contract, however, detailed requirements for each asset characteristic would establish specific performance criteria.

It is through specific performance standards that ultimate performance is measured.

Again, that which gets measured gets done.

### **One Stop Service**

Today more than ever public and private transportation officials must administrate a wide-range of transportation assets to meet the public, governmental leaders, board members, and other stakeholders expectations. *Effective* maintenance of transportation assets is dependant on *efficient* asset management. Performance-based asset management maintenance services have proven to be a valuable tool to provide efficient comprehensive quality maintenance services while at the same time affording cost savings and allowing the owner to focus on the outcome desired for tomorrow rather than the detailed minutia of the daily hot-spot maintenance grind.

Imagine that the highway is a classic car requiring special care and attention. The owner/agency

owns the car but relies on an expert mechanic to take care of it as though it is his own – total preservation and maintenance from a single source for a predetermined fee.

It's not that the owner couldn't take care of the car on her own. It's just that the car is one of many assets needing attention. For an individual to gather the resources necessary to care for a single classic vehicle often is not cost effective. There is also usually a higher and better use of the owner's time and energy.

The contractor is paid to keep the vehicle in running order at all times; ready for the owner on a moments notice for her use and enjoyment – detailed, serviced, everything in perpetual working order.

The contractor works at the pleasure of the owner and because of the performance-based agreement shares equally in the pride and purpose of ownership.

Performance-based highway and structures contracting is a sensible approach for ensuring that transportation assets are safe, clean, functional, and maintained at the appropriate service level at all times. It is gaining in popularity, especially among toll authorities.

Performance-based asset management contracting is the object in the mirror that is closer than it may appear.

**Christopher L. Warren, P.E.**, serves as the Florida Turnpike Enterprise as its first Deputy Executive Director and Chief Operating Officer. He is responsible for all operational divisions within the Turnpike organization including: Planning and Production, Highway Operations, Toll Operations, and Business Development and Concession Management. Florida's Turnpike serves over 1.5 million customers a day, with the mission to help meet the transportation needs of the State, serve its customers and protect bondholders.

**Howard "Butch" Eley** is the founder and Chief Executive of Infrastructure Corporation of America. Infrastructure Corporation of America (ICA) is one of the nation's premier transportation asset maintenance management companies. Mr. Eley can be reached at (615) 377-4730.