

NEMA TRANSPORTATION MANAGEMENT SYSTEMS SECTION ISSUE PAPER ON OUTCOMES-BASED CONTRACTING

Updated 2021-03-05

Table of Contents

Purpose.....	2
Brief Overview of Outcomes-based Contracting.....	2
Roadway Infrastructure Advancements	3
OBC Can Meet Governments' Emerging Roadway Infrastructure Challenges	4
Overview	4
OBC Solutions.....	4
Selected Case Studies	6
GDOT ITS Comprehensive Maintenance Contract	6
Alpharetta City Council Traffic Preemption System for Emergency Response	7
Boston, MA Asphalt Resurfacing	8
Saint Paul, MN Street Construction	8
Conclusion	9

PURPOSE

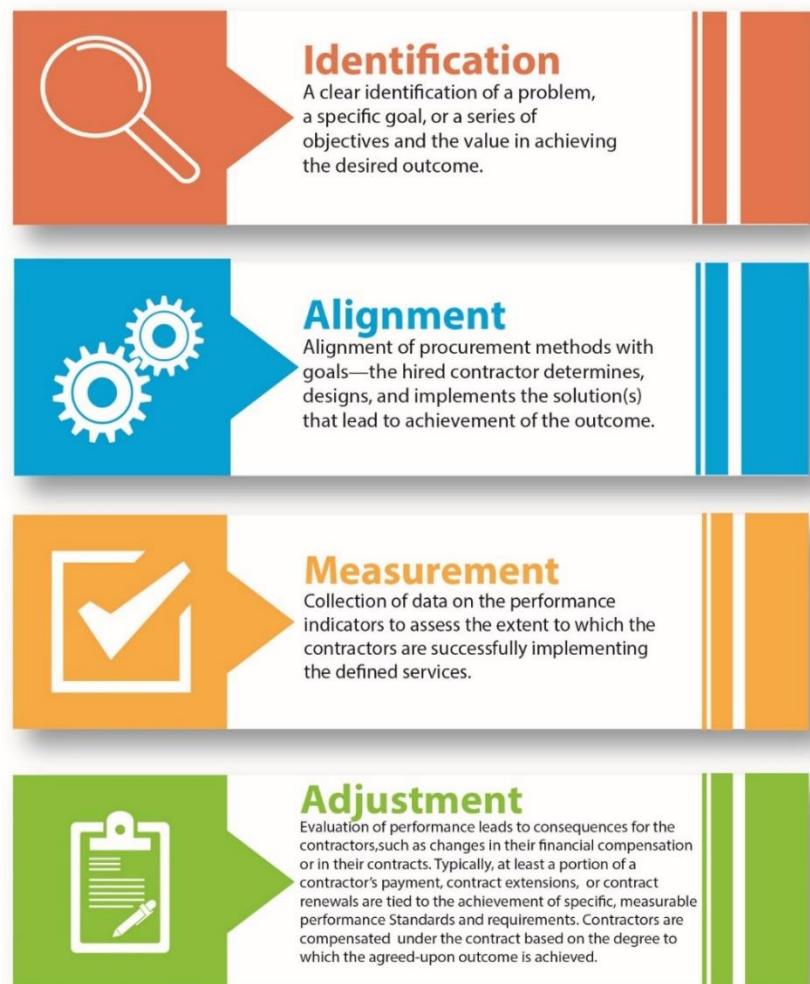
The purpose of this white paper is to inform government agencies of the benefits of outcomes-based contracting (OBC) and to encourage the use of OBC in government procurement activities.

BRIEF OVERVIEW OF OUTCOMES-BASED CONTRACTING

An essential function of federal, state, and local government involves obtaining goods and services. So, it makes sense that efforts to increase the effectiveness of procurement activities would lead to more efficient use of agencies' limited resources and overall ability to create public value.

To reach the goal of procurement that encourages greater accountability and performance, governments are increasingly using outcomes-based contracting methods (OBC). OBC requires that the hired contractor devise the most effective and efficient way to perform the contracted work.

The steady move away from traditional product-based sales into a world of solutions and services is changing the emphasis of contracts. Many agreements today now tie compensation to a contractor's ability to meet or exceed defined program outcomes in a meaningful and measurable way. When the focus is on results and outcomes, procurement officers and agency leaders can better design contracts that drive innovative, cost-effective services, reasonable risk-sharing, and measurable results.



OBC is a form of contracting comprised of four discrete characteristics: Identification, Alignment, Measurement, and Adjustment.^{1,2}

¹ <https://pwc.blogs.com/deals/2015/08/outcome-based-contracts.html>.

² https://hwpi.harvard.edu/files/govlabs/files/results_driven_contracting_overview.pdf.

Outcomes-based contracting can also include “SMARTER” objectives: Specific, Measurable, Achievable, Realistic, Timely, Evaluated, and Reviewed.³ Although “SMARTER” does not have one set definition, and not all goals utilize all parts of the concept, in general this technique can increase chances of success in meeting objectives.

OBC can assist governments in delivering desired performance through adoption of improved procurement strategies and contract types that align with its goals.

ROADWAY INFRASTRUCTURE ADVANCEMENTS

From multilane interstates to rural backroads, the United States boasts over four million miles of roads.⁴ Roads are among the most visible and familiar forms of infrastructure. These familiar transportation networks, which are fundamental to the economy, for national defense, and for simply providing access for all Americans to travel within their country need consistent upkeep to remain safe and effective. One out of every five miles of highway pavement is in poor condition, and our roads have a significant and increasing backlog of rehabilitation needs.⁵

Roadway infrastructure has evolved from traditional concrete and asphalt foundations to more complicated systems that use sophisticated communication and information technologies. Advanced technologies such as vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication systems, collision avoidance technologies, integration of intelligent transportation systems with the Smart Grid, and advanced mobility and access technologies are designed to improve safety, efficiency, system performance, and infrastructure return on investment.⁶ Modernizing roadway infrastructure and implementing these new technologies has increasing urgency across the nation.

The U.S. highway system and its related infrastructure continually need upkeep, repair, and both enhancement and expansion. Fixing and modernizing our country’s infrastructure needs to remain a top priority for federal, state, and local policymakers. Significant private-sector involvement can help bring our nation’s transportation infrastructure into the 21st century, and OBC is an excellent tool to help meet existing and emerging challenges.

³ <https://www.projectsmart.co.uk/brief-history-of-smart-goals.php>.

⁴ <https://www.infrastructurereportcard.org/cat-item/roads/>.

⁵ <https://www.infrastructurereportcard.org/cat-item/roads/>.

⁶ Testimony of Elaine Chao, Secretary of Transportation before the Committee on Environment and Public Works US Senate Hearing on Improving America’s Transportation Infrastructure: The Road Forward, (May 17, 2017). <https://www.transportation.gov/testimony/improving-america%20%99s-transportation-infrastructure-road-forward>.

OBC CAN MEET GOVERNMENTS' EMERGING ROADWAY INFRASTRUCTURE CHALLENGES

OVERVIEW

Unprecedented challenges demand innovative solutions. Traditional steel and concrete infrastructure quandaries are giving way to dilemmas associated with Intelligent Transportation Systems (ITS), such as those associated with the application of computer, electronics, and communications technologies. With roadway infrastructure facing both existing and emerging problems, OBC can offer government agencies an efficient solution to manage transportation repair, enhancement, and expansion issues. OBC would be beneficial in giving federal, state and local governments the ability to meet the demand for high-quality public services with limited budgets.

Federal highway law⁷ requires governments to measure and report on the safety as well as other performance metrics of their highway networks. The results of those measurements could provide the framework from which to build results-driven agreements with contractors.

The demand for public funding of transportation infrastructure projects greatly outstrips the constrained amount of public funds available. Under traditional contracting methods, government purchases assets (such as asphalt, signage and signaling) which are then deployed and maintained over time. With OBC, an agency develops clear goals for the efficient management of these assets. This shift in approach incentivizes contractors in the private sector to find the most efficient and cost-effective methods and technologies to meet the government's goals.

OBC SOLUTIONS

Financial Resources

The Challenge

Governments have limited financial resources.

OBC Solution

OBC puts the burden of solving the problem on the private sector. Removing the burden of developing solutions or being system integrators make government operations more efficient. For example, governments can set a fixed budget with "SMARTER" objectives (Specific, Measurable, Achievable, Realistic, Timely, Evaluated, and Reviewed; see explanation above) including penalties if those goals are not met (see Georgia DOT case study below as an example). This provides budget control, predictability, and the ability to select vendors that can best meet set objectives.

⁷ Approved in MAP-21 and affirmed by the FAST Act.

Need for Flexibility

The Challenge

Goals and objectives can change by time of day (e.g., traffic congestion) and throughout the year (e.g., need for snow removal). Need to have a flexible way to approach these problems.

OBC Solution

OBC solutions are the best way to deal with change and fluid conditions. The contractor is responsible for providing solutions to changing conditions. By focusing on desired outcomes, the agency's role is setting expectations and monitoring results, while the contractor develops solutions. Providing positive and negative incentives based on performance provides a method of guaranteeing performance.

Complicated Nature of Systems

The Challenge

One difficulty governments face in trying to solve roadway infrastructure challenges lies in the complicated nature of the systems for which they are responsible. For example, traffic signal systems are multifaceted. One intersection could have tens of individual sensors that often have a safety impact to the operation of the traffic signal. There is a need to have a comprehensive approach to meet these challenges.

OBC Solution

OBC solutions are best at solving daunting problems and managing complicated systems because the private sector developed the technology and systems and can best manage them. By defining the expected outcome and goals, the OBC vendor can defines how they are planning to achieve them and what are the measures that will be put in place to monitor and control the outcome. This model enables the vendors to understand the complexity of the environments upfront and to propose solutions that address the needs and targets.

Liability Issues

The Challenge

Governments must comply with existing laws and regulations and have an obligation to protect the citizens within their purview. As such, any governing body must remain cognizant of potential liabilities and take care to avoid them. For examples, a traffic signal's operation has a safety risk associated with it. To successfully outsource its operation, the associated liabilities must be addressed.

OBC Solution

Liability issues must be addressed in any outsourced work. The outcomes-based contracting process does not change any inherent liabilities or the need to address them. It provides a means for evaluation of whether goals are met and a mechanism for adjustment if needed.

SELECTED CASE STUDIES

GDOT ITS COMPREHENSIVE MAINTENANCE CONTRACT⁸

The Challenge:

To find a contractor to provide the Georgia Department of Transportation (GDOT or Department) with a comprehensive management, installation, and maintenance program for the Department's intelligent transportation system (ITS). The ITS is used to provide motorist assistance, traveler information, enhance safety, mitigate congestion, and reduce carbon emissions.

The contractor would be responsible for maintaining over 4,000 ITS devices that assist traveling motorists and emergency responders throughout Georgia. The contractor would manage the camera systems, video and presence detection systems, ramp metering systems, dynamic message signs and structures, and the maintenance of hub buildings which house and protect the backbone devices of the entire system

Applying OBC Practices:

In 2010, GDOT awarded a \$50 million five-year outcomes-based contract to a professional technology and management services company. This innovative performance-contingent management contract was the first of its kind for GDOT. Payment to this company is based upon how well the contractor meets performance goals.

One of the initial goals for the Department was to ensure that on any given day, a minimum of 90% of statewide traffic cameras would be operable. The inherent flexibility of the OBC provided that the contractor received increased pay if they met the performance metric goal. Conversely, the Department paid less (and consequently saved money) if the percentage of operable cameras fell below 90%.

Other significant features of the contract included clauses related to timing, quality of work, frequency of upgrades, and others. Furthermore, the contract was adjustable over time. In 2015, the 90% camera operability target was raised to 95% and the timeframe for repair went from 45 days down to 30 days. The 2020 goals are even more ambitious.

The Results:

OBCs provide many benefits, including a flexible structure. An external standard operating procedure (SOP) provides the foundation and can be easily updated. This creates inherent flexibility because the agreements can evolve over time. Varying maintenance plans allows for special situations (e.g., safety issues that need expedient remedies).

Utilizing an OBC method has not been a panacea, however, and GDOT realized an increased workload in getting such contracts to define accurately what was being sought. The contract scope

⁸ <https://www.prweb.com/releases/serco/dot-contract/prweb3523324.htm> and personal interview with Matthew Glasser, Assistant State Traffic Engineer, Georgia Department of Transportation on August 5, 2020.

and pricing alone can exceed 40 pages, which does not include any boilerplate contract language or SOPs. Consequently, project managers must be knowledgeable about (and responsible for) the entire document, which can comprise hundreds of pages for major projects.

It can also be difficult to find the appropriate balance in the agreement and to determine the balance between 100 percent efficiency and a breach of contract. Conversely, it can be challenging to ensure adequate performance without overpaying.

Nevertheless, the benefits of OBC generally outweigh the difficulties of the process, and GDOT has used OBC in other areas to increase efficiencies and achieve comprehensive ITS management goals.

ALPHARETTA CITY COUNCIL TRAFFIC PREEMPTION SYSTEM FOR EMERGENCY RESPONSE⁹

The Challenge:

In most growing cities throughout America, with the City of Alpharetta included, emergency response times are increasing as traffic worsens. Emergency vehicle drivers are finding it more difficult to navigate roadways safely and arrive at emergency scenes within prescribed times. Alpharetta's current system is more than 20 years old, operates at only 40 of the city's 129 signalized intersections and uses antiquated line-of-sight communication technology.

In March 2019 the City Council sent out a Request for Proposal (RFP) for a traffic preemption system that allows emergency fire vehicles to override traffic signals and turn lights to green when responding to a call.

Applying OBC Practices:

The City of Alpharetta (City) issued an OBC approach to seek qualified, experienced, and licensed firms to provide a GPS Emergency Traffic Preemption System. The Emergency Traffic Preemption System would be installed on fire equipment vehicles under this contract. The proposed system needed to be compatible with existing traffic signal control equipment, onboard technologies, communication systems, and centralized management systems.

The City requested the offeror to provide a turn-key solution for the City's Traffic Preemption System, including, but not limited to the following: all equipment, design for any required integration, interfacing, training, testing, optional hardware/software installation, warranties, and project management.

⁹ <https://alpharettaga.civicclerk.com/Web/GenFile.aspx?ad=11173>;
<https://www.bizjournals.com/atlanta/news/2020/07/23/autotalks-applied-information-traffic-tech.html>.

The Results:

The \$300,000 contract calls for the installation of preemptive systems in traffic cabinets at (100) of the city's (129) signaled intersections. The triggering devices are installed on all fire service vehicles and others in the town's Department of Public Safety hierarchy. The city is currently midway through its contract and the technology has been proven to "provide safer travel and shorter response time" for its first responders said Scott McCullers, Fire Operations Chief, City of Alpharetta Department of Public Safety.

BOSTON, MA ASPHALT RESURFACING¹⁰

The Challenge:

The Boston Public Works Department's contracts for road resurfacing were focused on achieving mileage targets to the detriment of other key goals, such as maintaining steady workflow and minimizing inconvenience to constituents.

Applying OBC Practices:

The city incorporated results-driven contracting strategies to reorient the roadway resurfacing contracts to a holistic set of goals, provide vendors with incentives to meet these goals, and increase the flow of performance data enabling the Department to course correct issues in real-time.

The Results:

The new contracts, worth \$6 million a year, set out a performance payment structure to align different interests and reduce vendor uncertainty around work hours. The Public Works Department has expanded this pilot and is implementing results-driven contracting strategies in all the city's yearly capital programs (worth \$40 million per year).

SAINT PAUL, MN STREET CONSTRUCTION¹¹

The Challenge:

The City of Saint Paul faced several key challenges with their street reconstruction contracts – vendor competition was low, and projects ran past agreed-upon budgets and timelines.

Applying OBC Practices:

The city conducted a vendor survey and implemented pre-bid meetings to improve vendor competition, streamlined project management responsibilities from design to construction completion, and created a dashboard to track vendor performance and enable real-time improvements.

The Results:

The city has seen a significant expansion of the vendor pool and there are early indications of fewer contract amendments for recent projects. In addition, the city has continued to foster a

¹⁰ <https://govlab.hks.harvard.edu/boston-ma-asphalt-resurfacing>.

¹¹ <https://govlab.hks.harvard.edu/saint-paul-mn-street-construction>.

culture of continuous feedback by following up with vendors at the end of each project to understand strengths and opportunities for improving the procurement process.

CONCLUSION

Governments should adopt OBC practices to address roadway infrastructure needs. Roadway infrastructure is evolving, and government procurement practices should follow suit. OBC is the best way to meet these challenges and NEMA welcomes the opportunities to further discuss these ideas with you. Please contact Steve Griffith (Steve.Griffith@nema.org) or Stacy Tatman (Stacy.Tatman@nema.org).