

# Leading in Lean Times: Maximizing Resources in a Constrained Environment – Workshop Final Report

*Prepared for:*

NCHRP 20-24(81)

*Prepared by:*

Hyun-A Park  
Spy Pond Partners, LLC  
Arlington, MA

Under contract to ICF International

*June, 2012*

The information contained in this report was prepared as part of NCHRP Project 20-24, Task 81,  
National Cooperative Highway Research Program.

**SPECIAL NOTE:** This report **IS NOT** an official publication of the National Cooperative Highway  
Research Program, Transportation Research Board, National Research Council, or The National Academies.

**Acknowledgements**

This report was requested by the American Association of State Highway and Transportation Officials (AASHTO), and was produced as part of National Cooperative Highway Research Program (NCHRP) Project 20-24 (81). The NCHRP is supported by annual voluntary contributions from the state Departments of Transportation. NCHRP Project 20-24 provides funds for research studies intended to address specific needs of chief executive officers (CEOs) and other top managers of DOTs. The report was prepared by a research team including Principal Investigator Hyun-A Park of Spy Pond Partners, LLC, Perry Lubin of Spy Pond Partners, LLC, and Janet D'Ignazio of ICF International. The work was guided by a technical working group. NCHRP Senior Program Officer Andrew C. Lemer, Ph.D. had staff responsibility for the management of this project.

**Disclaimer**

The opinions and conclusions expressed or implied are those of the research agency that performed the research and are not necessarily those of the Transportation Research Board or its sponsoring agencies. This report has not been reviewed or accepted by the Transportation Research Board Executive Committee or the Governing Board of the National Research Council.

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>INTRODUCTION .....</b>	<b>5</b>
<b>WORKSHOP SUMMARY.....</b>	<b>7</b>
<b>DISCUSSION.....</b>	<b>15</b>
<b>WORKSHOP PROCEEDINGS .....</b>	<b>17</b>
KEYNOTE SPEAKER .....	19
PANEL ONE.....	23
PANEL TWO .....	31
PANEL THREE.....	37
CLOSING SPEAKER.....	47
<b>APPENDIX A: WORKSHOP SPEAKERS AND PANELISTS .....</b>	<b>53</b>
<b>APPENDIX B: ATTENDEES .....</b>	<b>71</b>
ATTENDEE DIRECTORY.....	72



# Executive Summary

---

In this time of shrinking resources and heightened focus on accountability and performance, state DOTs are challenged to maintain existing infrastructure and maximize available system capacity, making best possible use of available funding. Many DOTs have faced reductions in staff, furloughs, and cuts to both capital programs and administrative functions. To help meet these challenges, AASHTO has sponsored a workshop where senior leaders from state DOTs can engage with strategic management experts in substantive dialog on the experience of public and private sector organizations that have faced challenges similar to state DOTs. The critical focus of the workshop was the exchange of useful knowledge required to improve organizational efficiency, effectiveness and transparency.

The workshop addressed key issues facing state DOTs:

- **Transportation needs are growing.** Assets that were constructed during the major capacity building periods 30 to 50 years ago are reaching the end of their useful lives, opportunities to improve mobility through operations technology require investment, and there are growing needs to weave together an increasingly complex transportation system.
- **The current model for transportation funding is not sustainable.** New models for financing transportation programs are needed. Alternative models exist and are being explored—such as VMT-based charges and public-private partnerships (PPP)—but they are both promising and challenging.
- **The nature of state DOT organizations is changing.** Many senior experts who have more than 25 years working at DOTs are poised for retirement, and many DOTs have had to reduce workforces and/or institute mandatory furloughs to meet budget constraints. Some DOTs have undertaken major restructuring of their organizations to eliminate field offices and reduce central office functions. In this dynamic environment, there is a need for creative thinking about new models for delivery of DOT products and services.
- **The influence of politics in executive leadership has contributed to short tenures for DOT CEOs.** The average tenure of a DOT CEO is just over two years. This has destabilized initiatives that take multiple years to complete and has added uncertainty and confusion in critical business processes.
- **New tools and processes are available for improving agency efficiency.** However, implementing new tools and approaches can be costly and carries risk. Many public and private sector organization have experienced cases where a new system does not yield promised savings, or where legal or technical constraints delay deployment of system and process improvements.
- **DOTs face external challenges given the growing importance of partnerships with other agencies at the federal, state, and local levels.** These partnerships are dynamic in nature, requiring adjustments as different agencies undergo internal changes or establish new regulations.



# Introduction

---

On February 7-8, 2012 the senior executives of 13 state departments of transportation (DOTs) assembled at Southern Methodist University's Cox School of Business for a workshop, *Leading in Lean Times: Maximizing Resources in a Constrained Environment*, sponsored by the American Association of State Highway and Transportation Officials (AASHTO). This group of executives convened expressly to discuss the lessons their agencies could learn from the experiences of private sector enterprises and other organizations facing challenges similar to those confronting DOTs. Featuring presentations from industry professionals and leading consulting firms, the workshop focused on specific tactics, tools, and role models for maximizing success within the confines of available resources. Cases and models covered:

- Major corporations that made successful transformations when facing dramatic reductions in revenue sources
- Agencies outside transportation that successfully improved efficiency and effectiveness through process streamlining
- Successful examples of innovation within transportation agencies.

## WORKSHOP FORMAT

The workshop began with a welcome from Kirk Steudle, Michigan DOT State Transportation Director and AASHTO President, followed by a keynote address from Matt Rose, Chairman and Chief Executive Officer of BNSF Railway. The workshop then featured three panels, each with a thematic focus. Each panel included three or four speaker presentations followed by facilitated discussion with workshop attendees. This format provided opportunities for dialog about specific tactics, tools, and role models that can be applied to maximize DOTs' success within the confines of available resources.

The first panel, *Refocusing Agency Strategy*, featured three presentations that addressed state DOT leadership needs, illustrated with cases and models drawn from both transportation and non-transportation organizations. Tyler Duvall, Associate Principal, McKinsey & Company, led off the first panel with a presentation entitled "Road Agency Efficiency: Lessons from the Old World;" Pete Rahn, Senior Vice President, Leader of National Transportation Practice, HNTB, followed with a presentation entitled "We Can't Afford 'The Way We've Always Done It;'" and Miguel Quiñones, O. Paul Corley Distinguished Chair of Organizational Behavior, SMU Cox School of Business, concluded the first panel with a presentation entitled "Thinking Strategically About Human Capital."

The second panel, *Improving Agency Efficiency*, consisted of three presentations highlighting challenges encountered and lessons learned in driving transportation and non-transportation agencies toward greater organizational efficiency, effectiveness, and transparency. Faisal Alam, Business Sales and Delivery Executive, Public Sector Enterprise Applications, IBM, opened the second panel with a presentation entitled "Get Smart: Strategies for Managing in Lean Times;" Howard "Butch" Eley, Chief Executive Officer, Infrastructure Corporation of America, continued with a presentation entitled "FedEx vs. the US Postal Service: Adapting your Delivery Model for the New Frontier;"

and Stephen Van Beek, Executive Director of Policy and Strategy, Leigh Fisher, concluded the second panel with a presentation entitled “Managing Lean: Initiatives from Airports and Abroad.”

The third panel, *Incorporating Innovation*, consisted of four presentations featuring cases and examples of transportation and non-transportation organizations channeling the benefits of innovative solutions for added value. Tyler Duvall, Associate Principal, McKinsey & Company, opened with a presentation entitled “Innovation Isn't Just About Technology;” Michael Noblett, Associate Partner and Business Solutions Professional, IBM Global Business Services, followed with a presentation entitled “Data Isn't Information and Real-Time's Too Slow;” Patrick McGowan, President, Telvent Transportation North America, continued with a presentation entitled “Infrastructure Needs to Get Smarter;” and David Boghossian, founder and Principal, Strategy Execution Partners, concluded the third session with a presentation entitled “Innovation Tools for Lean Times: Long Tails and Weak Signals.”

Jack Basso, AASHTO Director of Program Finance and Management, was the workshop's closing speaker. He delivered a presentation entitled “Transportation at a Crossroads.” The workshop concluded with remarks from John Horsley, AASHTO Executive Director, and a facilitated discussion on how AASHTO and TRB could best support DOT leaders going forward.

Workshop slides are available online at: <http://aash.to/LeadingInLeanTimes> .

## **ACKNOWLEDGEMENTS**

The workshop Leading in Lean Times: Maximizing Resources in a Constrained Environment was sponsored by the American Association of State Highway and Transportation Officials (AASHTO) as part of National Cooperative Highway Research Program (NCHRP) Project 20-24 (81). This project was overseen by an NCHRP project panel; Jack Basso, Director of Program Finance and Management, AASHTO; John Horsley, Executive Director, AASHTO; and Joung Lee, Associate Director for Finance and Business Development, AASHTO. NCHRP Senior Program Officer Andrew C. Lemer, Ph.D. had staff responsibility for the management of this project.



# Workshop Summary

---

## OVERVIEW

This section summarizes the content of the Leading in Lean Times workshop, drawing upon workshop presentations and discussions. This summary is organized into three sections:

- Refocusing agency strategy
- Improving agency efficiency
- Incorporating innovation

Each section presents the central themes that emerged over the course of the workshop. The workshop's emphasis on models and cases drawn from successful private sector firms defined clear parallels and contrasts between participating organizations. Each panel highlighted both critical challenges and opportunities for innovative solutions.

## REFOCUSING AGENCY STRATEGY

### Revenues and Financing

- **Current Motor Fuel Taxes will not continue to serve DOTs' needs.** Flattening VMT, increasing fleet fuel efficiency, and inflation all undercut the efficacy of this revenue source. Inflation alone has caused a decline in the purchasing power of Motor Fuel Taxes to such a degree that by 2015 it will be reduced by nearly 80 percent relative to 1993 levels. Indexing the tax to inflation may have value, but not enough to represent the solution to the larger revenue problems. The current trend represents the gradual devolution of the federal share of transportation financing. This has the potential to undermine the role of the federal government in setting national policy.
- **New revenue models are needed.** The current revenue model has significant leakage. CAFE standards are a factor; electric vehicles and hybrids are increasingly significant. If these issues are not addressed, the problems will only become more acute over the next five to ten years, when these alternative technologies may power the majority of all vehicles. Panelists argued that a private concessionaire would be obliged to address this issue of leakage immediately. Similarly, DOTs need to urgently pursue new, creative pricing strategies. DOTs should prioritize pilot programs looking at VMT pricing models and alternative ways of collecting revenues. VMT collection systems are seen as the leading options to consider. There may be money for VMT pilot programs included as part of reauthorization.
- **Moving away from user-pay carries significant risk.** In every year but one since 2004, more money has been spent out of the Highway Trust Fund than was taken in. As a result, without drawing upon money from the general fund, the Highway Trust Fund would have been bankrupt three years ago. Panelists noted when DOTs move away from user-pay, they may face new risks. Although it is tempting to draw from any and all resources available, including the general fund, one panelist predicted that there will be times during deficits or other difficult economic circumstances where this money simply is not available. Another risk associated with funding transportation through the annual appropriations process is that this would limit, or potentially eliminate, DOTs' contract authority to make long-term commitments.

- **Public-Private Partnerships (PPPs) can play an effective role.** Although PPPs have great potential, significant challenges remain. The US lacks the national private finance templates for structuring PPPs that have been developed in other countries and may facilitate the creation of a national market. In the US, each state must develop its own approaches, rules, and structure. One panelist observed that although the size of the US market is about ten times Canada's, the US had five PPP deals last year while Canada had 21. One proposal put forward at the workshop called for AASHTO to operate and facilitate a multi-state PFI (Private finance initiative) — for states that have a PPP law and want to encourage PPPs—strictly on a voluntary basis. AASHTO could facilitate this standardization, which may shorten and simplify the PPP process, reduce the number and complexity of legal issues, and ultimately save money.

### **Agency Structure and Business Model**

- **The priorities of DOTs—mobility, connectivity, access, etc.—are societal imperatives.** These priorities simply must met, even if developing new lines of business or doing business differently are the only viable options. One panelist observed, “When external conditions change, you have to change how you do business or you are out of business.” DOTs may have to innovate in order to move projects forward—whether by enabling tolling, working with new partners, or aligning and leveraging modes. Panelists suggested that the future role of state DOTs may primarily consist of facilitating projects, whether by providing just a small, intermodal element, or making a large investment in infrastructure.
- **DOTs must continue to enhance mobility without additional investment in infrastructure.** One panelist argued that today, infrastructure is limited and DOTs cannot expand it at the rates they would like. A model where DOTs build substantial new infrastructure and simply let customers use it without constraints can no longer be supported. Instead, DOTs must make better use out of past infrastructure investments by supporting innovation and investing in technology to improve operations.
- **The cost of providing additional capacity through investments in hard infrastructure may greatly outweigh the cost of investing in new technology to optimize system performance.** Through improving system efficiency, a DOT can often delay capacity investments and experience significant savings. This dynamic does not just apply to the transportation sector. Energy, water, and other sectors are facing a confluence of less money, greater demand, and the inability to build infrastructure the way they traditionally would. Industries across the board will have to find ways to act more efficiently than ever before. Panelists believe there is the opportunity to learn from these industries.
- **DOTs must overcome politicized decision making processes.** Panelists observed that DOTs are vulnerable to the impacts of highly politicized decision making. Moreover, DOTs’ data-driven approaches to investment decisions are not generally robust. One panelist proposed drawing a lesson from the experiences of airports. Airport budgets are increasingly separated from sponsoring jurisdictions through enterprise funds, allowing them to adopt decision making structures and processes that would be difficult or impossible to achieve within a municipal framework.

## Workforce Management

- **DOTs' aging workforce imposes special challenges.** Panelists argued that due to a long phase of limited hiring, DOTs now lack the resources ready to step into leadership roles and maintain established knowledge bases. One panelist drew lessons from private sector firms that are successfully creating new roles for their veteran leaders, thereby increasing retention. For example, one leading firm brings veteran leaders to an off-site location for 10 weeks to create new initiatives. Specific innovation initiatives were proposed as a means to keep valuable human capital engaged around innovation. Panelists also noted challenges for DOTs around assembling the necessary cross-discipline teams, given common concerns about stepping into a temporary cross-cutting role.
- **DOTs need improved measures with respect to workforce management.** One DOT discovered that only 35 out of 7000 employees were terminated for cause, annually. In response, leadership established a goal of 2 percent annual turnover as a healthy and reasonable target. Within two years annual turnover was around 1.8 percent. By tracking this figure, the DOT changed the culture and conversation around performance and accountability. This action highlighted the effort of the DOT to hold all employees accountable. Substantive training and coaching of managers, HR, and other resources was needed in order to achieve this outcome.
- **A new strategic focus implies the need for an equal focus on human capital.** Many panelists observed that DOTs are looking toward new models like PPPs for growth. One panelist argued that DOTs must assess whether this change in strategic orientation will require incorporating substantially new skillsets or hiring new types of employees. In this case, the quality of people and how well they're managed may function as a key driver of execution success.
- **DOTs would benefit from a focus on selection in the hiring process.** Panelists observed that making the correct hires and rejecting others is a great challenge, but is of critical importance. The consequences are particularly high in the public sector where there may be special challenges related to workforce management. One panelist observed that if HR is held to a typical time-to-fill measure, perverse incentives are created. The focus must be on whether the right person in the right role, not how long it takes to fill a position.
- **There are potential pitfalls associated with strong incentives.** While clear performance measures are important, strong incentives may lead to unintended consequences. An even greater problem follows from having the *wrong* strong incentives. One panelist noted that strong incentives to avoid risk are prevalent in the public sector. In contrast, this is not true in successful companies, which have appropriate incentives in place for taking risks and identifying and capturing savings. In this context, there is a critical need for DOTs to introduce positive incentives around risk.
- **The slow uptake of technological change and innovation limits productivity.** Even where a DOT may have highly sophisticated systems in place, its end users may not have the skillset to maximize its advanced capabilities. Under these circumstances, one approach to managing technological change is to segment users and target outreach as appropriate. While some may be hostile to new technology, others may simply need to take advantage of resources such as online universities or other training. Town hall meetings can also facilitate uptake and productive conversation. Even if some people don't see direct benefits of technological change, it is highly useful to communicate that benefits exist at higher levels of the organization.

## IMPROVING AGENCY EFFICIENCY

### Operational Costs

- **Longer contracts of greater extent can drive contractors towards minimizing lifecycle costs.** Panelist argued that this alignment is critical. In concept, longer-term contracts force the contractor to take increased responsibility for the work they do. The DOT may choose not to specify the methods or specific approach, as DOTs simply want a service provider to come in at a lower cost basis with a higher level of reliability. A contractor on such a contract is incentivized to fix problems the first time, not to try to get by without doing the job correctly. Similarly, by bundling maintenance activities, a contractor can provide a single point of contact with a single entity responsible for what are otherwise piecemeal activities. Benefits may even accrue more broadly; one panelist reported finding that having the contractor on site creates incentives for the DOT to increase productivity.
- **Healthcare and pension benefits are leading cost inflation for DOTs.** Panelists noted that in this respect, the private sector has a structural advantage that the public sector may not be able to match. Looking at a set of maintenance contracts one panelist reported that the public sector total benefit package is at least 10-15% higher than the equivalent on the private sector side, driving a significant differential.
- **An integrated asset management approach can drive lower operational costs.** One panelist observed that DOTs are one of the biggest users of power in a metro region. This creates a potential opportunity: with good asset data coming in, DOTs can begin to investigate whether lighting can be dynamically reduced based on the weather, moon, cloud cover, or other factors such as the presence or absence of vehicles on the road. He noted that this is information that is already collected today, but which has not yet been productively used in this manner.

### Capital Programs

- **Capital programs are not managed efficiently.** Panelists made the case that DOTs face increasingly high permitting and regulatory hurdles to capacity expansion. Even in cases where funding is available, these issues can make certain projects impossible or infeasible to realize. Moreover, mega projects may demand organizational resources that prevent agencies from devoting the resources needed to deliver many smaller projects.
- **A narrow organizational focus on individual projects can drive over-specification.** One DOT developed the concept of *practical design* to describe an alternative strategy. Practical design addresses the imperative for “a good system not great projects” by “prioritizing the needs of the system over the wants of the project.”
- **Where over-specification is a widespread problem, savings can be realized through the revision of standards.** In one case, in response to over-specification, a European road agency moved to a total cost of ownership (TCO) evaluation process and based revised standards on TCO. Through this effort they implemented cost benefit analysis to a greater extent and at a much higher level of sophistication and rigor. It may also be the case that current standards are not entirely inflexible. The AASHTO Green Book defines a range for most specifications. Instead of starting at the desired specification and relaxing it until reaching the budget, DOTs can start at the minimum specification and increase it until it meets the actual need. One panelist remarked that, “that gap between meeting the need and spending the budget is substantial.”

- **Revised standards are only part of the solution.** Effecting change requires a systematic approach. Change needs to be captured as part of standards and policies. Panelists argued that it takes executive leadership to force DOTs to change these policies. This can't be accomplished by the commissioner personally reviewing a small number of projects — the impact of such actions is far too limited in extent and they are largely symbolic.
- **A DOT's failure to update outdated standards can also lead to over-specification.** For example, one panelist reported that a traffic monitoring camera put in place 20 years ago would have weighed over 30 pounds and required a \$15,000 pole to support it. A modern camera is a tiny digital device that weighs 5 pounds. Although a DOT could buy a far smaller and cheaper pole for its new cameras, in at least one case a DOT's standards still require the \$15,000 pole.
- **Closed monopoly suppliers drive high input prices.** One response is to recruit suppliers from other countries. While various restrictions on sourcing apply to DOTs, strategic sourcing is increasingly relevant. Many companies have created strategic sourcing expertise and have reaped the benefits. One panelist identified an opportunity to both save money and also to develop organizational culture around sourcing.
- **DOTs can develop the skills needed for close contractor and change management.** DOTs should develop in-house construction capabilities based on the latest thinking in construction management. This effort can be modest and still be effective. One panelist argued that productivity is generally low in the construction sector. By applying quality management principles pioneered by Toyota 40 years ago, DOTs can start to more effectively manage projects. Panelists reported DOTs can drive savings by reducing waste and increasing the use of standardization and pre-fabrication.

## Process Improvements

- **DOTs' existing business model is not downward scalable.** One panelist predicted that DOTs' attempts adapt to smaller budgets by merely scaling down will be unsuccessful. He argued that DOTs cannot simply reduce scale; substantial business reengineering is required. Panelists made the case that the changes required are not limited to the transformation of DOTs' operations; they represent an imperative to transform the operation itself.
- **When thinking about efficiency and reducing cost, DOTs have to look outside the transportation industry.** One panelist reported that efficiency in building energy management is a service that is currently developing rapidly and may provide a model for DOTs. Under this model, companies can offer eco-efficiency services at no cost, simply splitting the utility savings with their customers. If DOTs are looking at a portfolio of buildings they can make good a business case for providing automation at scale.
- **Innovation functions as both a strategy and an approach to solving problems.** One panelist reported on McKinsey & Co.'s success in extending an innovative study documenting the abatement potential of various CO<sub>2</sub> mitigation strategies to other domains, including road agencies' safety investments. The innovative problem-solving approach was capable of being widely extended; its successful application to safety investments yielded powerful insights and suggested further innovative practices.



## INCORPORATING INNOVATION

### Technology Implementation

- **Many DOTs have siloed systems, addressing isolated needs with no enterprise architecture.** Panelists made the case that with an application portfolio method, DOTs can go through a rational process of aligning applications against their mission and strategic objectives. This process identifies opportunities for eliminating or expanding applications. In one example, the metropolitan Washington airport authority eliminated 3000 spreadsheets to move toward on-demand reporting for their finance, supply chain, and inventory functions. They were able to redeploy staff to higher-value areas.
- **DOTs can make more effective use of existing technology investments.** One panelist made the case that while many states have traffic management centers, less than three percent of all intelligent intersection control devices delivered in the last 10 years have any dynamic application. He questioned the notion that these are traffic *management* systems, arguing that these are really traffic *monitoring* systems. Panelists agreed that the idea behind intelligent transportation systems is not a new concept and great value remains in leveraging that investment to convert the monitoring system into management centers. One panelist remarked that this requires converting data into information.
- **Simple tools are available that can help with forecasting, prioritizing, and planning.** One panelist provided the example of a project prioritization tool, describing a research initiative to evaluate a portfolio of innovative energy conservation projects. With a manual approach to project prioritization, the set of selected projects yielded savings of about \$600,000 in year one and \$3.4 million over five years. But when projects were selected through a stochastic forecasting process, the savings were about \$760,000 in year one and \$4.4 million over five years. Panelists argued that adopting these tools is not likely to be a complicated or expensive undertaking for a DOT.
- **There is a potential business to be built around providing the same core traveller information to multiple end users.** Panelists reported that DOTs are starting to accept that there are many end users for information, increasing demand for a more holistic approach to operations data. Under this approach a DOT can push traveller information out, through the web, phone, and other channels.
- **There is a complementary opportunity centered on integrating data from multiple sources.** Panelists made the case that these sources should include weather data, social media, and other data streams. Through advanced analytics these data streams can provide a very accurate predictive model of what a network will look like 30 or 60 minutes in the future.

### Communications, Transparency, and Accountability

- **“You can’t do it until you can measure it.”** Panelists agreed that this maxim is true of budgets, true of people, true of operations, true in essentially any area. One panelist framed the following challenge for DOTs: “simply collecting data is not helpful; it is necessary to convert data to actionable information using intelligent devices.”
- **Leading firms are achieving success by leveraging external resources.** For example, IBM’s innovation hub is designed to take advantage of the finding that customers and IBM outsiders generate many of the best, most innovative ideas for improving or transforming IBM’s practices. This is seen as a largely untapped area for DOTs.

- **Embracing openness and transparency can transform organizations.** Although public record requirements can be stifling, there is a promising opportunity here for DOTs. While polling has shown that public perception of wasted resources is a significant impediment to funding increases, a commitment to accountability and transparency can increase public confidence. With greater openness, DOTs stand to share and to benefit as more and more organizations globally are embracing openness.

## Managing Innovation

- **DOTs can innovate by targeting new customers.** An organization looking strictly at existing customers and existing products innovates by improving processes. One panelist observed that many of the issues and challenges discussed throughout the workshop sessions were targeted in this area. However, it is also possible to innovate in the products delivered to existing customers or by targeting new customers. DOTs can benefit by focusing on delivering new products to new customers, looking at how to get better connected to how people are using the systems, looking at customer intimacy, weak signal analysis, and co-creation.
- **There are critical elements for mobilizing innovation.** One panelist expressed the view that the key elements are:
  - Leadership*—Directing organizational energy toward innovation is critical;
  - Focus*—Innovation is driven by constraints and benefits from accountability;
  - Flexibility*—Idea generation requires maximum flexibility;
  - Openness*—Open organizations are increasingly shown to outperform other organizations in this area;
  - Talent*—High performers expect to work with other high performers
- **DOTs must be strategic about innovation.** One panelist described his firm’s work preparing and organizing major firms for innovation. The central principle is that innovation is something firms must plan for. He argued that there is a market—and supply and demand—that one needs to organize in order to produce innovation.





# Discussion

---

Workshop facilitators Hyun-A Park and Janet D'Ignazio led a discussion on how AASHTO and TRB could best follow up on the Leading in Lean Times workshop. The following ideas were put forward for discussion:

- **CEO List Serve**

A list serve for state DOT executives could be a valuable resource. This could be a forum for questions or a launch pad for conference calls. Each class that attends the Operations Academy uses a list serve and this has proved to be very useful. Regardless of the specific technology and format, the solution that is ultimately implemented must be simple to use so that a CEO can quickly elicit responses from the community.

- **Case Study Presentations by DOT Leaders**

It was suggested that AASHTO support case study presentations by DOT leadership, for DOT leadership. These presentations would be strictly from other DOTs who are truly motivated to share what they are doing, rather than from vendors. These presentations should be CEO-to-CEO as these leaders would likely be constrained in their discussion of issues within DOTs if managers or others are present.

- **Standardized PPP Boilerplate and/or Design-Build Boilerplate**

There is a tremendous amount of effort that goes into concession agreements and related RFPs. Increasingly, states will have interest in these options. They will greatly benefit if they can rely upon standardized boilerplate. One proposal called for the development of a PPP knowledge management library that could support these activities.

- **Contests to Spur Innovation**

Contests for innovative technologies are becoming very popular. WSDOT recently ran a successful competition on communicating congestion. The most recent World ITS Congress in Orlando saw great enthusiasm for a smartphone app development contest.

- **Video Distribution of Presentations**

It would be useful to post presentations such as those from this conference. In these lean times it is important to expose DOT leaders to entrepreneurs and contractors who may have new or unfamiliar solutions to offer DOTs.

- **Non-Traditional Conferences**

The “un-conference” format is similar to how TED has been developed and run. People submit topics for sessions, then participants vote on proposed topics at the conference in order to develop the schedule. This approach could generate new ideas and encourage greater participation.

- **Network of Chief Deputies**

It is important to consider connecting the next level of DOT management below the CEO—this may be primarily deputies and CFOs. The average tenure a CEO is short and agencies must be prepared for change. Otherwise, DOTs may make progress on larger initiatives only to have their

work interrupted. There needs to be more dialogue between the next levels of management in order to build the necessary continuity across agencies.

- **Guidance to Shepard New Technologies within the State Political Environment**

One of the biggest challenges that DOT CEOs face is that new and exciting technologies have to pass through the filter of the political context. Not only are there significant budget and revenue issues, there are also political barriers that CEOs have to overcome, some specifically associated with new technologies. CEOs must manage the political environment in order to implement innovative technologies.

- **Clearinghouse of Best Practices**

An online clearinghouse of best practices was proposed. It was suggested that this resource for best practices be oriented toward senior leadership.

- **TRB Information Resource Pages**

There are some 200 TRB committees and each one has set up a web page that cites or collects the useful information that TRB has collected. A great deal of valuable data is available through these pages and could be mined. The partnership that exists between TRB and AASHTO could also be leveraged, providing more people with access to these online resources. Sharing TRB data and research more effectively could be accomplished through executive summaries, white papers, etc.

- **Greater Leadership and Investment to Support Innovation**

One suggestion for improving leadership and opportunities for innovation was an “innovation fund” within each DOT. Committing \$500,000 to this innovation fund would give the CEO personal responsibility for investment decisions.

- **New Apps to Make Data Available to the Public**

Many state DOTs are running TMCs, using them to store the data their agency is collecting. Through this application, DOTs can start to dabble in the information space and make more data publicly available. USDOT has developed new policies that support the widespread availability of data at the national and state levels.

# Workshop Proceedings

---

## KIRK STEUDLE

*State Transportation Director, Michigan DOT and President, AASHTO*

Mr. Steudle began by thanking John Horsley, Jack Basso, Joung Lee, and Andy Lemer for their support. He noted that this is a significant year. It is the 50th year of the NCHRP, a cooperative effort doing valuable research across the whole transportation spectrum.

The Leading in Lean Times workshop fits right into AASHTO's strategic plan, addressing accountability & performance in state DOTs. It will focus on some of the challenges all state DOT leaders face: budgets and revenues are much smaller, while at the same time expectations are growing. Whether in the north or the south, state DOT leaders deal with common issues and goals.

Mr. Steudle believes he speaks with authority, coming from a state facing over a decade of lean times. In MI, revenues peaked in 2004 and have been declining since. In the meantime, the past 10 years have been focused on efficiencies, looking at what they do to squeeze a little bit extra performance out of the system.

Throughout this workshop, participants will have a chance to learn a lot from each other and Mr. Steudle encouraged participants to be actively engaged. He noted that AASHTO put a very strong panel together and the workshop should be exceptionally good.

Wrapping up, Mr. Steudle thanked the participants for their time and perspectives.

# Keynote Speaker

---

## **JOHN HORSLEY**

*Executive Director, AASHTO*

Mr. Horsely thanked Hyun-A Park and Janet D'Ignazio for organizing the workshop. He also thanked the workshop participants for coming in to talk about an important issue. The goal of the workshop is to bring in private sector firms with expertise advising organizations on how to deal with these types of challenges. For state DOT leaders, the opportunity to learn from outside experience at a session like this will be helpful.

Mr. Horsley then introduced Matt Rose, CEO of BNSF Railroad. Mr. Rose is a national leader as the CEO of one of the major transportation companies in America. Mr. Horsley and Mr. Rose had gotten better acquainted when the latter joined Frank Busalacchi of WisDOT as the rail caucus in the National Surface Transportation Policy and Revenue Study Commission. Mr. Horsley noted that Mr. Rose started as CEO in 2000 and in 2010 BNSF was acquired by Berkshire Hathaway. Mr. Horsley concluded that if Warren Buffet is in your corner, things cannot be all bad; with that, he welcomed Mr. Rose.

## MATT ROSE

*Chairman and Chief Executive Officer, BNSF Railway*

Mr. Rose, who served on the National Surface Transportation Policy and Revenue Study Commission and on the president's jobs council, believes that the United States has a freight mobility crisis. He described the larger context of this crisis:

1. **Population growth will continue to be a major driver of VMT and freight rail movements.** Since Mr. Rose became the CEO of BNSF in 2000, the US population has gone from 281 to 308 million. Looking out 20 years in the future, there will be continued growth from about 308 to 330 million people. In Mr. Rose's view, the VMT and gross tons predicted to be coming across these networks are mind-boggling. There will be increases of approximately 150 percent in VMT and a 90 percent in freight rail movements over a 20-year timeframe. Since the Eisenhower build-out ended in the early seventies, we have added only about 5 percent new lane miles to the highway system - and VMTs are up 90 percent. We have actually shrunk about 1/3 of the rail miles in the US since the early 1970s. Yet we are moving about 70 percent more gross ton-miles over the network. In Mr. Rose's view, congestion in all modes is going to get worse.
2. **Planning for these big increases is a tremendous challenge.** The US lacks both a national freight policy and a true capacity growth plan. The Federal Railroad Administration did a study in which it estimated that the average American consumes about 40 tons of freight per year. Even if this estimate is off by half, 20 tons of freight multiplied by the projected population growth means a tsunami of business freight is coming at us. In response, this year BNSF will put about 400M into pure expansion with a real strategic lane focus.
3. **The current revenue model isn't working.** Fuel cost increases will make a fuel tax even harder to achieve. Mr. Rose proposed fees as a means to bring more revenue into the highway trust fund and to correct market imbalances. He reported that a recent FHWA study concluded the heaviest trucks today pay only about 80 percent of their share of impact on roads and bridges. Mr. Rose argued that a fee should be charged to these trucks, commensurate with their impact. He warned that failing to achieve the right tax/subsidy balance will just lead to greater numbers of heavier trucks on the highway; this will result in roads and bridges deteriorating at a much faster rate.
4. **There are high permitting and regulatory hurdles to capacity expansion.** When we do have the money for a project, permitting and regulatory issues can make it impossible or infeasible to realize. Mr. Rose sees partnering with government organizations as one area where railroads do need help. Even though there is no single line item for rail, congress and the state DOTs have a great impact by regulating and legislating around railroads.
5. **Mr. Rose believes that the last 12 years can be segmented into three periods.**
  1. **The first period** coming out of 2000 saw the economy and trade, particularly trans-Pacific trade, growing. By 2006, our networks were not in good shape and congestion was a serious problem.

2. **The second period** arrived as we headed into the recession and we saw lower volumes. It began to look like a much more efficient system. It began to look like we had really done a good job with railroad velocity and planning out the highway system.
3. **The third period**, where we are now, VMT's are coming back and if you look at the railroad it's really a great example of what's happening with the economy. BNSF's all time high was 2006, the all time low was 2009. 2010 was a lot better than 2009. 2011 was better than 2010. Similarly, Mr. Rose expects that by 2013 or 2014 the US VMT will be back to 2006 levels. When this happens, although we have added some capacity, we will not have the capacity needed to facilitate the US economy.

**The takeaway:** From Mr. Rose's perspective it appears clear that as the US population grows, we will just keep loading up these networks to the point where congestive costs over time will become a real impediment to economic growth. As a nation, we must decide if we are going to make our networks, our rail and highway, ports and intermodal, into assets that improve our competitiveness and allow the American workforce to contribute to the economy, or if we are going to just let this freight come.



# Panel One

---

## TYLER DUVALL

*Associate Principal, McKinsey and Company*

Mr. Duvall began by describing four key trends that are driving the challenges facing DOTs (and transportation owner/operators):

1. **Slowing or flat revenue growth.** This trend is driven by the economic crisis, changing customer habits, and a lack of creative approaches to pricing to make up the difference.
2. **Inefficient capital programs.** Aspirations are not set high enough and project delivery strategies are too inefficient. Mega projects demand large-scale organizational resources, but this scale prevents agencies from effectively delivering smaller projects. Procurement strategies fail to match up risks and incentives properly within this organizational system.
3. **Rising operational costs.** Substantial cost inflation is related to healthcare and pension expenditures. The adoption of technological change and innovation has been too slow, limiting labor productivity. Organizational and personal incentives to find and capture savings are also insufficient.
4. **Weak investment decision-making.** Organizational inability to withstand politicized decision making and the lack of data-driven approaches to investment decisions are key challenges. Mr. Duvall added that Matt Rose could make important contributions to this discussion, given BNSF's disciplined approach to capital planning.

After framing these problems, Mr. Duvall presented a case study drawn from McKinsey & Co.'s extensive work with Trafikverket, the national road agency in Sweden.

McKinsey's work in Sweden validated the agency's requests for additional funding but also identified many opportunities to reduce costs. In general, Mr. Duvall sees a synergy between achieving a lean, efficient program and making an effective case for more resources. Polling on this topic has shown that public perception of wasted resources is a huge impediment to funding increases.

In the context of the Swedish case study, Mr. Duvall described four key challenges to efficient project delivery and maintenance and the approaches that address each challenge:

1. **Over-specification.** Over-specification was a significant problem in this case. In response, the agency implemented cost benefit analysis to a greater extent and at a much higher level of sophistication and rigor. They moved to a total cost of ownership (TCO) evaluation process and based their revised standards on TCO.
2. **Exorbitant input prices.** Some closed monopoly suppliers had been driving up input prices for Trafikverket. In response, the agency recruited international suppliers and saw input prices drop. While Mr. Duvall is aware there are various restrictions on sourcing that apply to DOTs, he believes that strategic sourcing is here to stay. He sees an opportunity to both save money and develop an organizational culture around sourcing strategies. Many companies have created strategic sourcing expertise, internally. However it is accomplished, there needs to be an entity within the organization responsible for sourcing.
3. **Inefficiency in execution.** Productivity was low in Sweden's construction sector, but McKinsey & Co. was able to maximize savings by reducing waste and increasing the use of standardization and pre-fabrication. Through this effort, the agency began more closely monitoring maintenance and construction, actively overseeing the development process.

This meant that the agency was driving lean construction themselves rather than deferring to the two or three big firms competing for projects. While this did require some novel skillsets for the agency, as they began to look more closely at the construction side, they discovered that the waste was just massive. Savings of five or ten percent here really moves the needle.

4. **Ineffective project steering.** McKinsey found that the organization lacked skills needed for close contractor and change management. Mr. Duvall believes that states should be building some in-house construction capabilities, around the latest thinking in construction management. By applying these principles, pioneered by Toyota 40 years ago, DOTs can start to manage projects more effectively.

McKinsey was able to trim about \$6.5 billion through these efforts. Ongoing research found overall productivity gains of one-two percent in the Swedish construction sector simply through these government-driven efficiency initiatives. By targeting administrative efficiency and IT, those costs were reduced 30-40 percent. While these changes don't compare to capital programs in absolute terms, they can unleash a culture of efficiency.

**The takeaway.** Don't assume your organization is doing as well as it can—significant efficiencies can be gained. McKinsey is finding huge opportunities without getting caught up in fights with labor or killing capital programs. The approach taken by McKinsey in Sweden demonstrates that there are significant savings out there for state DOTs.

## PETE RAHN

*Senior Vice President, Leader of National Transportation Practice, HNTB*

Mr. Rahn began by describing the build-out of the interstate system as a great time for DOTs—an era when DOTs had lots of resources, accumulated phenomenal talent, and built the system to incredibly high standards. Since that time, DOTs have been developing standards and more standards, continually raising the bar for 60 years regardless of the resources available. As a result, DOTs have developed as project factories, organized to plan, design, and build projects.

If you look at a program project by project and you can't do everything, the response is to choose which projects to build and push the others out. Similarly, when managing projects the incentive is to spend through the full budget. If savings are identified, the response is to add features to spend up to the budget for each project. That's the standard DOT approach.

**Safe and Sound Bridges.** MoDOT launched the Safe and Sound bridge replacement program. But in many cases, the standards being applied, like a 100 year flood standard, necessitated replacing existing bridges with much larger, much more expensive structures. This might take a bridge with low traffic volumes, not an interstate bridge, that might be a quarter million dollars to replace as-is and drive the cost up to a million and a half dollars. Because that's what standards say should be built. This would have limited what the DOT could accomplish through the program.

So MO took the approach that if no safety issue existed with a bridge, it would be replaced as-is. The DOT developed revised standards, for example, minimum width of 28 feet as opposed to 40 feet. The result was that the DOT could actually replace a bridge for less than \$240,000. Out of 802 bridges, now delivering new bridges at a rate of one every other day. These are not high priority bridges—it's possible to close the road, demolish and replace a bridge in 26 days.

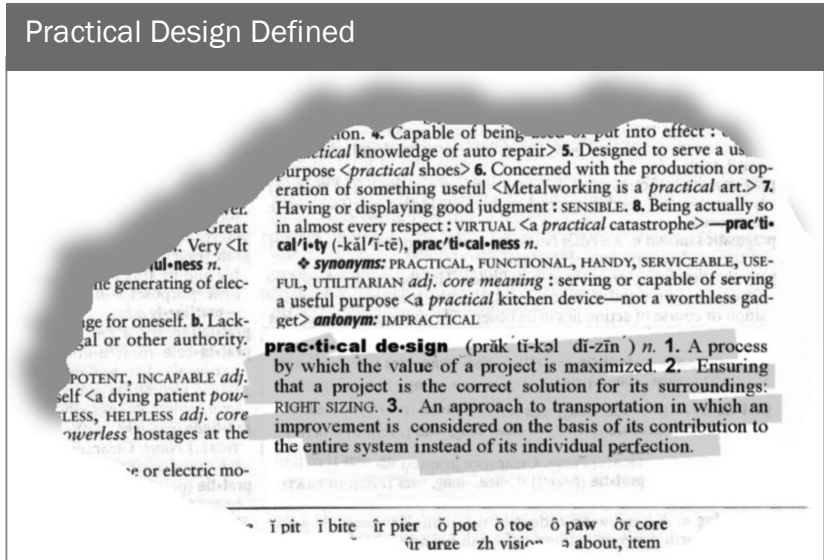
By being replaced in place and following 25 year flood standard rather than a 100 year flood standard, maybe every 25 years the bridge will go under water. Mr. Rahn asked, is that tolerable? The answer is that the public loves the new bridge and is perfectly willing to accept that it may be under water once in 25 years. The implication is that DOTs, have imposed upon themselves standards that dramatically drive up the cost of everything they do, without good justification.

**Practical Design.** Mr. Rahn identified the cause of this problem as an organizational focus on a collection of projects rather than the system. He argued that DOTs have to start looking at the system. MoDOT coined the phrase 'practical design' to describe an alternative approach. Mr. Rahn described practical design as an approach to transportation in which an improvement is considered on the basis of its contribution to the entire system instead of its individual perfection. It addresses the need for a good system not great projects. Mr. Rahn's definition is: Prioritizing the needs of the system over the wants of the project.

Mr. Rahn made the point that the AASHTO Green Book actually has a range for most specifications. He suggested that instead of starting at the desired specification and cranking back until meeting the budget, DOTs start at the minimum specification and crank it up until it meets the need. That gap between meeting the need and spending the budget is substantial.

A CEO might get involved in a project in order to make such changes, but that's a small fraction of what the organization is actually doing. The great majority of what the agency is actually doing is driven by the policies and standards that are in place. Mr. Rahn made the case that if you want to change the organization, you have to change policy and standards.

At MoDOT this practical design approach was applied to the \$3 billion of projects in the STIP. In applying practical design, the goal was to save \$300 million and, in the end, it saved \$400 million. The DOT was able to take that savings and put it back into the system for additional projects. There were no complaints from anyone about practical design. In fact, they only heard comments about how quickly the system was being improved.



**The takeaway.** Practical design is not easy. It absolutely requires a systematic approach and it needs to be part of standards and policies. Crucially, it takes executive leadership. Because it's been ingrained that there is one right way to build a project, it takes leadership to force things in a different direction. But the payoffs can be huge.

## MIGUEL QUIÑONES

*O. Paul Corley Distinguished Chair of Organizational Behavior, SMU Cox School of Business*

Dr. Quiñones welcomed the workshop attendees to SMU. He noted that the university currently has lots of projects, fitting for DOTs.

**The Importance of Human Capital.** Dr. Quiñones began with the observation that for all the topics discussed so far — resource constraints, containing costs, thinking more systemically — where the rubber meets the road is ultimately people, human capital. He made the point that there are rigorous and sophisticated processes for allocating financial capital, but not for human capital, one of the most high-value resources. Too frequently, he finds that little attention, and inadequate systems, are devoted to human capital.

Dr. Quiñones noted that an aging workforce presents special challenges, which may be the case for state DOTs. Having gone through a long phase with little hiring, these organizations may now lack the generation ready to step into leadership roles and maintain the knowledge base that has been built up over the years.

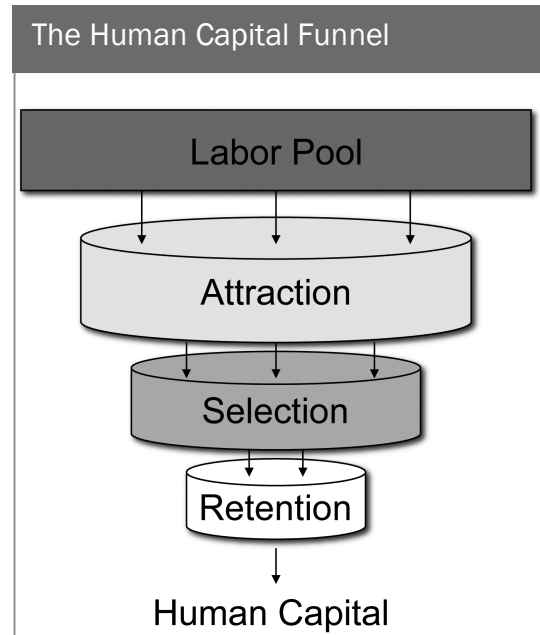
In his work Dr. Quiñones increasingly finds cases where organizations have ready financial capital, but growth is limited by inability to find the right people. He believes that a focus on growth requires an equal focus on human capital. As DOTs are looking toward new models like PPPs for growth, they will have to look at whether new skills, perhaps new types of people are needed. The quality of people and how well they're managed are often what drive execution success. Leadership can talk at length about the issue of strategy — how to change how we look at things and how we do business — but Dr. Quiñones would contend that we can't have that conversation without considering human capital.

**Understanding Human Capital.** Dr. Quiñones offered the following observations:

1. **Identification.** A sound assumption is that people who work for the DOT are not uniformly like everybody else. They are not merely a random grouping. When one considers the processes of identifying, attracting, selecting, and retaining people, these layers work like a funnel narrowing the overall population. The question is: At whom do you aim this funnel?
2. **Attraction.** The next question is: How do you compete for the best and the brightest people? Organizations spend a lot of attention on attraction and branding. They are aware that they need to compete for the talent that will drive results. If you ask employees what they most value, has been a shift here in recent years. It's a sign of the times that people are now most concerned with stability and security.
3. **Selection.** On the selection side, we must ask: What approach do we take to selecting the people that we get? Organizations are really looking for greater success in making the correct hires and correctly rejecting others. With the traditional approach, the typical outcome is that you are equally likely to make a good or bad decision. There are many indicators used for this purpose, some work much better than others. At the highest end, work samples are very predictive. For an unstructured interview, where so much effort is expended, the generalized validity is very low — almost a shot in the dark. There is much room for improvement but if all else fails, hire the smart person.
4. **Retention.** Retention also presents a challenge: How to keep the talent? One way of driving retention is through engagement. Engagement is well studied and clearly important, but the

question is how to achieve it. Studies show one of the primary drivers of engagement is the direct manager, so the relationships with managers are key. This implies the need to be very careful whom we make managers. We typically promote people who were very good at their previous role. These are not necessarily the people well suited for managing.

**The takeaway:** Dr. Quiñones argued that it is the job of senior executives to manage human capital. Strategic planning often happens in isolation, which can result in great strategy but the wrong people to execute it. Ultimately, we need better metrics in terms of human capital to drive us toward better use of a key resource.







## Panel Two

---

## FAISAL ALAM

*Business Sales and Delivery Executive, Public Sector Enterprise Applications, IBM*

Mr. Alam opened with the observation that there are a number of acute drivers of change today, from population to urbanization to globalization to technology. These are giving rise to key challenges for state DOTs including: growing congestion and capacity constraints, more empowered customers, increasing maintenance and repair costs, and a greater demand for efficient, green operations. The need for cost predictability and transparency is growing as the resources available are declining. DOT leaders face hiring freezes, layoffs, and increased competition with other programs statewide.

Mr. Alam stated that meeting these challenges will require substantial effort in the following areas:

- Predicting demand and optimizing capacity and assets.
- Dramatically improving the end-to-end customer experience.
- Improving operational efficiency while reducing environmental impact.
- Assuring safety and security.

Mr. Alam argued that the current constrained operating environment has encouraged agencies to think operationally, not strategically. This approach causes organizations to get locked into a spiral. The pressure to solve immediate problems sabotages strategic thought and insight. Technology is applied haphazardly and redundantly. Siloed systems contribute to redundancy, latency, and lack of clarity. As the rate of change is increasing the amount of control over that change is decreasing.

Mr. Alam does not believe that DOTs can simply reduce scale. He hears a lot of talk about scale: learning to live with smaller budgets, learning to scale things down. However, he believes that the existing business model is not downward scalable. Consequently, DOTs have to substantially reengineer their business and do so with deliberation and strategic forethought.

Mr. Alam then turned to the strategic imperatives facing DOTs, and how IBM proposes to meet these needs.

1. Mr. Alam described the common problem of siloed systems sprouting up to address issues with no real enterprise architecture in mind. With an application portfolio method, the DOT can go through a process of aligning applications against the mission and strategic objectives. This process can identify opportunities for eliminating or expanding applications. Mr. Alam noted that GM saved a billion dollars by cutting their portfolio of applications by half.
2. In another example, the metropolitan Washington airports authority eliminated three thousand spreadsheets to move toward on-demand reporting for their finance, supply chain, and inventory functions. They have been able to redeploy staff to higher-value areas.

There are other such examples within reach — Mr. Alam concluded with the comment that the people in this room need to take responsibility for making the changes happen.

**The takeaway:** DOTs need to enable an environment that has predictive capabilities, has more transparency, and has better integrated technology that's mission aligned. That's how DOTs will take advantage of the opportunities the current environment presents.

## BUTCH ELEY

*CEO/Founder, Infrastructure Corporation of America*

Every state is facing a tremendous challenge: how to do more with less. The broad trends are:

- VMT are not going to go down.
- Most of the system was built out over the last 50 years; the next 50 years will be devoted to preserving and maintaining it.
- DOTs will continue to have fewer people and fewer resources.

50 years ago, the DOTs did all maintenance with “in house” crews. Today you see more piecemeal activity, with perhaps a dozen contractors doing a dozen different things at the same time out on the same stretch of roadway. This may result in an inefficient operational model. The idea behind ICA’s asset management approach is to bundle these activities to provide one point of contact with a single entity responsible for an entire stretch of roadway. When you evaluate the model to determine how the private sector can deliver roadway O&M to a high standard at a costs savings while making a profit, there are some basic contrasts that have a big impact:

1. **Benefits.** In this area, Mr. Eley believes that the public sector total benefit package is at least 10-15% higher in cost than most of the private sector, resulting in a significant differential, just in the labor side of what the private sector offers.
2. **Reengineering subcontracts.** Creating contracts for maximum long term efficiencies. When ICA took over I-75 in Florida, management met with the former DOT contractor that performed mowing and discussed cost drivers. The answer was high uncertainty as to future work. When given a longer contract term, and larger contract area the contractor was able to cut his price by 25%, with the same equipment and same cycles per year. No difference in service, just a difference in stability he has knowing he can make payroll and pay the capital cost for new equipment.
3. **Innovation in asset management and managing lifecycle costs.** When ICA took over 35 movable bridges in Florida one responsibility was immediately changing out navigation lights on bridges when they failed. ICA soon realized that these were non-LED lights. Given the 7-14 year contract term, it made sense to go out and make the investment on the front end to save operational cost in the future.
4. **Incentives and alignment.** Incentives are an important component in the asset management model. ICA hears from many DOT managers that having the private sector share work load creates tremendous incentive for the DOT to be more productive itself. Alignment is also important, the mere fact of creating a longer-term contract forces the private companies to live with the work they do. If you have a contractor there for the long haul, you have a contractor that is incentivized to fix it right the first time. There is no patching it or trying to get by without doing it right. This new relationship has the potential to create a more effective delivery model in the future.

Mr. Eley spent 10 years in government himself. He doesn’t come from the perspective that the private sector are the only people who know how to do business. He believes that public sector employees are very dedicated, perhaps more dedicated, and just as smart.

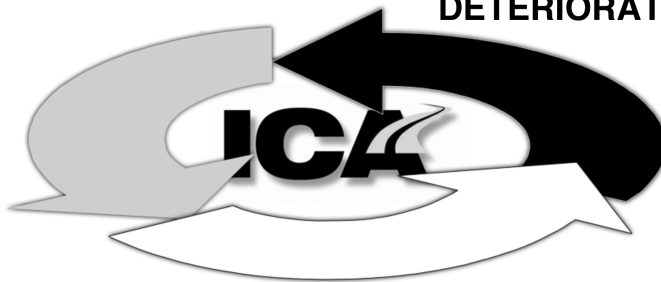
**The takeaway:** With the increased pressure on DOT's to “do more with less,” utilizing a new performance-based delivery model for Operations and Maintenance can be part of the solution to preserve our transportation assets saving valuable dollars.

#### The Current Challenge

## The Challenge

VMT INCREASING

INCREASING  
DETERIORATION



## STEPHEN VAN BEEK

*Executive Director of Policy and Strategy, LeighFisher*

Dr. Van Beek began with some observations on the challenges facing state DOTs. He believes that in the current environment, if agencies can't manage the system with resources available or projected to be available, then they simply have to move toward new solutions. DOTs cannot continue just delivering projects; they have to deliver solutions. In delivering a solution, a DOT may play only a small but critical part; it may be the case that the DOT has responsibility only for the last mile, but this is still absolutely critical.

With that, Dr. Van Beek offered an overview of some opportunities for DOTs to maximize resources derived from his experiences on projects in the US, particularly airport and multimodal. He identified four topic areas for discussion: agency structure, management and organization, funding and finance, and leveraging modes.

1. **Agency Structure.** Dr. Van Beek described how post-deregulation, airports' organizational structure was ill suited to the new competitive environment. Primarily, the leadership was far too politicized. Furthermore, airports are operated on a cost recovery basis, but too often are lumped together with agencies that rely on general funds. Procurement and contracting are slow and overly burdened by bureaucracy. This makes it challenging to provide service in the aviation industry—one that is very dynamic and competitive.. Performance pay and incentives are also challenging. Finally, hiring is burdened by civil service classifications, resulting in a very slow process that is often not tied to airport operating environment. Most airports have started to implement some solutions. More and more have separate governing boards focused just on the services delivered by an airport not on all the services delivered by a city or county. In Tulsa, OK Dr. Van Beek has been involved with such an effort—transitioning the airport authority and management from one in which the City provides many services (e.g., human resources and purchasing) to one where the airport provides them itself. Increasingly, airport budgets are more separated from sponsoring jurisdictions. More and more this is effected through enterprise funds that allow airports to do things that are difficult or impossible to accomplish within a traditional municipal framework.
2. **Management and Organization.** Dr. Van Beek noted that an increasing number of city and county organizations are considering reform of their legal structure and enabling statutes to ensure that they have the wherewithal to use commercial business practices and innovative methods of project delivery. Using these tools in tandem with a more collaborative approach with other transportation providers—public and private—will increasingly orient management to transportation solutions.
3. **Funding and Finance.** Dr. Van Beek noted that while we see much more private capital involved today, there is still very little in the US. The US had five PPP deals last year while Canada had 21. The US is 10 times Canada's size so that provides some perspective.

Dr. Van Beek believes there are a number of reasons for this. Primary among them is that each state has its own approaches, rules, and market. This discourages the development of a national market. Each state tends to reinvent the PPP deals, which can be quite complex. This is particularly true with respect to apportioning risk, types of PPPs, and length of concession.

Elsewhere, nations have instituted private finance templates for doing PPP's throughout the country, beginning with the Private Finance Initiative in UK in 1999. These were made mandatory in some cases. And in Canada, it is now required to complete a process to show a project cannot be funded by the private sector in order to get public funding.

Dr. Van Beek is aware of concerns in the US that this might become too coercive and the national government might use it to drive its own goals. One solution would be for AASHTO to operate to facilitate the development of a multi-state PFI - for states that have a PPP law, and want to encourage more. AASHTO could facilitate the standardization that would send a signal to the market that the US is actually serious about developing a PPP market for transportation.

4. **Leveraging Modes.** Dr. Van Beek addressed the concept of leveraging modes in the context of a \$2 million planning effort he was engaged in in San Diego, California. The objective was to assess the impact on California airports if high speed rail (HSR) phases one and two were built. This question is interesting because all the major southern California airports are capacity-constrained. In about 10 years they will be full – with the resultant rise in prices, decline in travelers, and associated economic hit. This scenario is not good for anybody.

Dr. Van Beek started from the perspective that short haul HSR could actually displace aviation, and in doing the study found that 20% of the traffic in San Diego was intra-state (e.g. San Diego-San Francisco, San Diego-San José). He found that if California actually had HSR, it could extend the life of the airport and the ability to meet demand for 8-10 years. This may not sound like a lot, but if one is familiar with airport projects and the cost of adding capacity it is a very good bargain indeed.

The problem Dr. Van Beek encountered at the outset of the project was that the airport, MPO, and state each had different planning horizons, needed to meet requirements for various sources of federal funding. Dr. Van Beek found it necessary to develop a travel demand model within which to align these various forecasts and planning data to provide a common denominator. He could then model travel to airports by modes and given markets and fares could project numbers at each southern California airport. This really got the staff, initially skeptical, to buy-in.

As Dr. Van Beek sees it, the role of state DOTs in the future will be about how to make projects go forward, whether by providing just a limited intermodal piece, or making the large investments in infrastructure. And if, in the future, the DOT concludes that the only way to make a project go forward is by tolling, or by working with the airport, or by aligning transit and HSR, then the DOT will simply have to do these things. The priorities of DOTs must be met somehow, even if it is only possible by developing new lines of business and doing things very differently. The question is: who is going to provide leadership on coordinating and integrating State, MPO, rail, maritime and airport planning? Roles and practices are necessarily changing, in a manner analogous to airport deregulation.

**The takeaway:** If DOTs can't get more federal funding for projects, the options are either to raise state taxes or to increasingly engage private capital. Dr. Van Beek observed that the trust fund era for airports, highways, and transit is going away and not coming back. This means that DOT leaders have to identify the post-trust fund era set of responsibilities that the states, together with the national government and other infrastructure providers, are going to provide.

## Panel Three

---

## MIKE NOBLETT

*Associate Partner and Business Solutions Professional, IBM Global Business Services*

Mr. Noblett began with the observation that there is much discussion of some of the great “immovable objects” in transportation. This takes the form of questions like:

“Wouldn't it be great to get congress to redo transportation funding in the US?”

"Wouldn't it be great if we all had governors who were behind transportation 100%, willing to lay it all on the line to give DOTs the authority they need?"

"Wouldn't it be great if we had new infrastructure investment models that could do everything we need to do to improve the system?"

He agreed that these would be desirable outcomes but given the environment that DOTs are in today, Mr. Noblett proposed to talk about the possibility of making better use out of the infrastructure investments that DOTs have already made and optimizing their investments and operations budgets to get better use out of them. He believes that there are tools that can help with forecasting, thinking, prioritization, and planning – not necessarily complicated enterprise ERP tools that are challenging to implement and socialize. There are some simple tools that can just work.

Mr. Noblett said that many people he meets with at the city and state DOT level have made multimillion dollar investments in traffic management centers. But by-and-large they have really ended up with transportation *monitoring* centers.

They have CCC, some loop detectors, some fancy software for control of intelligent devices. But the reality is that of all intelligent intersection control devices delivered in the last 10 years, 70% have never been changed, 27% were changed only within the first year or two and not since, and only 2-to-3% get any dynamic application at all. So the notion that this constitutes traffic management is a stretch. But Mr. Noblett sees great value in leveraging that investment to convert the monitoring system into management centers. This requires converting data into information – and being able to do some prediction to have a view out into your operations 45, 60 minutes from now. Mr Noblett sees this as, “bigger than the opportunity to transform operations; it’s the opportunity to transform the operation itself.”

Mr. Noblett argued that “you can't do it until you can measure it.” He believes that this is true of people, true of budgets, true of operations, true in any area. And simply collecting data is not helpful; it is necessary to convert data to actionable information using intelligent devices. For any new idea, you need to measure the effect in order to justify it. It’s not good enough to say just feels right.

Mr. Noblett provided an example of how to accomplish this. For the facilities that IBM owns, energy is 20% of the cost of the assets. So IBM launched a research project to look at the energy and water use at these facilities. They were able to try a whole portfolio of innovative projects to achieve efficiencies. But IBM discovered that once you have a list of several thousand projects it becomes quite difficult to determine which to tackle first. While with 20 projects you can sit down at a table and hash it out, when it runs into the thousands of projects with a fixed budget and many decision criteria for each project you just can't do it.

In this area, IBM has advanced from descriptive tools to predictive tools to prescriptive tools. To evaluate these tools IBM ran an experiment. First, they tested the savings and optimization they



could achieve with a manual prioritization approach. The savings were about \$600,000 in year one and \$3.4 million over five years with an optimal sequencing to maximize savings.

But when projects were selected through a stochastic forecasting process the savings were about \$760,000 in year one and \$4.4 million over five years. And the interesting thing about this approach is that the tool is set up to maximize the budget and also to use savings and revenue increases from previous projects. Using these tools is not a hard thing to do. Mr. Noblett believes it is not a complicated or expensive exercise for a DOT.

**The takeaway:** The key point is to look at the cost of providing additional capacity vs. the cost of applying intelligence to optimize the system. Through improving system efficiency you can often delay capacity investments and see some really significant savings.

## TYLER DUVALL

*Associate Principal, McKinsey and Company*

McKinsey & Co. does a lot of work with major companies to position them for innovation. Mr. Duvall believes that like anything else, you must be strategic about innovation. There is a market—and supply and demand—that you need to organize in order to produce innovation. He proposed to discuss the guiding principles that McKinsey & Co. follows. Mr. Duvall emphasized the central principle that guides McKinsey & Co.’s approach to innovation: innovation is something you have to plan for.

Mr. Duvall then described some key elements drawn from McKinsey’s work in this area.

1. **Leadership.** Leadership is the most critical element for mobilizing innovation. Leaders have many challenges beyond innovation but directing leadership energy toward innovation is a critical and necessary component.
2. **Focus.** Focus is also necessary – innovation is driven by constraints and benefits from some tracking and accountability. The most innovative companies approach innovation with discipline though there is a creative balance here.
3. **Flexibility.** Organizational models must be flexible. Often idea generation and implementation are conflated. This is a mistake. Idea generation needs to be separate and apart from implementation.
4. **Openness.** Open organizations outperform their peers. In both public and private sectors, organizations that have substantially increased openness have achieved extremely impressive outcomes. There is a lot of opportunity here for DOTs to share and to benefit from shared knowledge as more and more organizations globally are opening up.
5. **Talent.** There is a virtuous circle around attracting talent for innovation. High performers want to work with other high performers.

Mr. Duvall explained that McKinsey identifies four critical areas that world-class organizations can leverage when organizing for innovation: leadership, talent, organizational design, and external networks.

Mr. Duvall summarized a survey published in 2007 in the McKinsey Quarterly. The survey assessed the greatest inhibitors of innovation. It found that C-level leaders had a slightly different picture than other professionals. The C-level leaders believed that the culture in their organizations was essentially sound—the biggest inhibitor to maximizing innovation was not having the right people for the types of innovation they were interested in. In contrast, other professionals believed that the people were there but the organizational culture was the significant problem.

For another perspective on this topic, Mr. Duvall presented some lessons learned from leading organizations.

He first described some examples of organizational processes and tools from 3M, Google, IBM, and Cisco. Cisco, for example, has “Races for impact,” where internal and external teams compete to solve problems. Mr. Duvall noted that these competitive processes can be very effective.

Mr. Duvall then explained how Mattel, Clorox, and P&G are having success creating new roles for their veteran leaders. For example, P&G brings these veteran leaders to a new location for 10 weeks to create breakthrough initiatives. Some of the biggest most successful companies in the US and

around the world have had success keeping this very valuable human capital engaged in specific innovation initiatives. In Mr. Duvall's view, this is key for DOTs—they may be experiencing this challenge more than anyone else, with a huge amount of human capital ready to walk out the door.

Mr. Duvall then provided examples of how IDEO, Cisco, and IBM are leveraging external resources. For example, IBM's innovation hub is designed to take advantage of the fact that IBM's customers and IBM outsiders generate many of the best, most innovative ideas. He sees this approach as a huge untapped area for DOTs. While McKinsey previously avoided publishing research and findings, an engagement with NCDOT changed their view. As a firm, McKinsey has turned 180 degrees and accepted that the data is what it is, the findings are what they are and efforts to hide information just raise the stakes.

Citing DARPA, P&G, and The Lockheed Martin Skunk Works, Mr. Duvall described some practices around managing leaders and talent. DARPA brings in program managers from the industry for terms capped at four years with the goal of integrating new ideas. Mr. Duvall observed that there is now a notable presence of young attendees at TRB, but this has not been systematically organized to contribute ideas for transportation innovation. He sees great potential there.

Some firms such as P&G, Google, and Amazon.com create spin-off innovation hubs. For example, Google has the GoogleX brand, pursuing top-secret initiatives. Mr. Duvall acknowledged that this is a little bit harder to do in government, but the idea of having a dedicated team is not unrealistic.

Finally, Mr. Duvall provided an example of innovation in approach. He explained that as a firm McKinsey has recently done a lot of work around road fatalities. This work highlights innovation as both a strategy and an approach to solving problems.

In 2006 McKinsey put out a study documenting the abatement potential of all the various CO<sub>2</sub> mitigation strategies, answering the question: which strategies make the most economic sense? The firm produced cost curves that were very popular. It was not a unique principle but the presentation format is unbelievably powerful.

The same principle can be applied to road fatalities. There is always an emotional debate over behavior vs. infrastructure in this area. McKinsey attempted to take a look without introducing emotion. With stakeholder involvement, the approach was to generate specific crash profiles to support the identification of root causes. Next, McKinsey developed a structured library of suitable countermeasures. Countermeasures were selected and prioritized through a workshopping process which finally fed into the cost curve showing of unit net cost of various options.

It is worth noting that a lot of the heavy safety investments baked into projects are not justified by the safety benefits. However, the data to make that case are not readily available. Mr. Duvall explained that once you create the cost curve, you can see the net social benefit of different approaches to safety. While it may be somewhat contentious to reach agreement on the data to be used, there was broad embrace of the process once the data were set.

**The takeaway:** Mr. Duvall is aware that some believe there is a magic formula for innovation. However, he doesn't see a single magical organizational model. The key takeaway is that innovation is something you have to plan for.

## **PATRICK McGOWAN**

*President, Telvent Transportation North America*

Mr. McGowan began by describing Telvent's expertise from energy and smart grid, to smart building, to water, to transportation. In transportation, Telvent is involved across the board, though Mr. McGowan explained that he would focus his talk on how Telvent is making infrastructure more intelligent.

Mr. McGowan argued that when money is plentiful it allows one to keep doing the same things that aren't working. As bad as the economic crisis is, it has forced us to focus on new approaches. Particularly on operating more efficiently. Not just transportation; energy, water, and many other sectors are facing this situation of less money, more demand, and the inability to build infrastructure the way they would like to. We all just have to find ways to do things more efficiently than before.

Mr. McGowan believes this means looking at changing business models. When external conditions change, you have to change how you do business or you are out of business. These external changes include population, quality of life, CO<sub>2</sub>, aging infrastructure, and lack of financial resources. If you look at the key mobility drivers, resources are the biggest among the list. The current environment is no longer one where the agency can simply build a whole lot of infrastructure and just let everybody use it the way they'd like. The situation today is that the infrastructure is limited and it's just not going to grow at the rate we'd like. So we really need some automation to come in and to operate the system more efficiently.

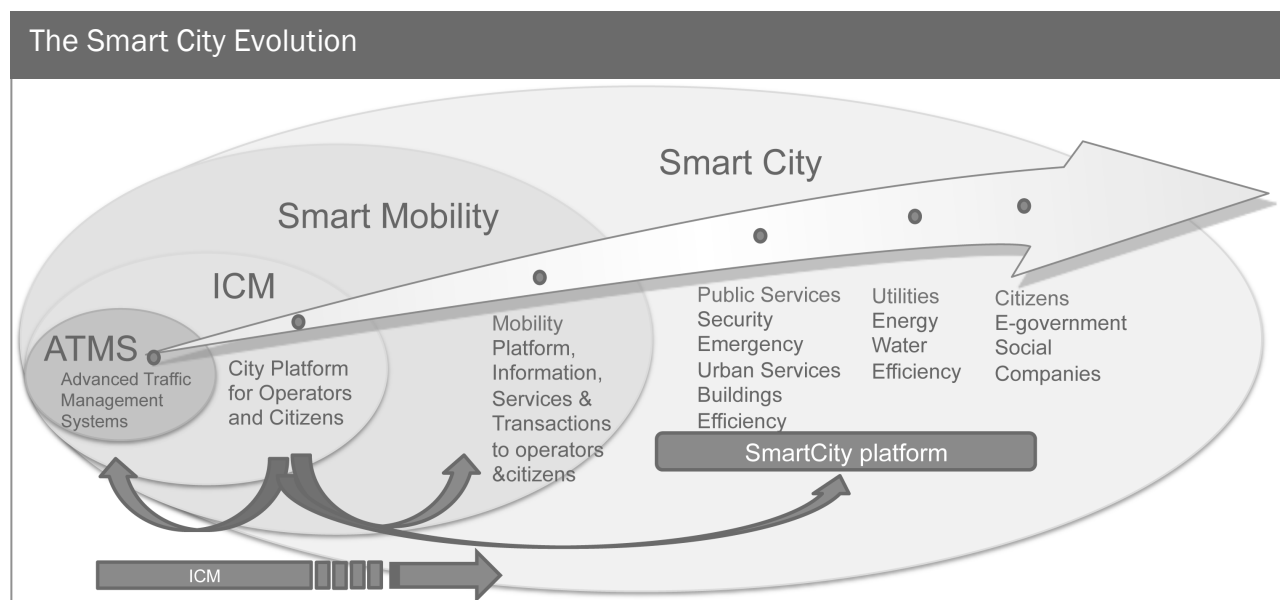
In transportation, smarter mobility really means changing your business model—and making the change without additional investments in infrastructure. Mr. McGowan offered an example: a tunnel fire with the potential to cause region-wide gridlock. He described a scenario where all the signals going into the tunnel automatically turn red and additional capacity is given to adjacent corridors. The freeway system automatically diverts traffic away from the tunnel to alternative routes and notifications may stretch back to an adjacent state. The rail system is notified that additional cars or additional trains are needed. The tolling systems based on business rules to allow them to go up or down dramatically. Additional buses are routed to provide additional capacity, and the holistic, smarter mobility approach allows all of this to happen in minutes. Mr. McGowan noted that if an equivalent major incident occurred today, it would be hours or days to put this response in place. And if the status quo represents where we're headed, the amount and cost of delay is just going to be astronomical. In a city, things fall apart quickly.

The smart mobility concept is to have a more holistic approach, where you can push traveller information out, through the web, phone, all channels. Mr. McGowan explained that intelligent transportation systems do not represent a new concept. It's an idea that has been around for a long time and has been part of a long evolution. In the past, many states built traffic management centers trying to take more active control of traffic, trying to divert people to where there is more capacity, trying to warn people quickly when an accident or congestion occurs, trying to get people to their destination quicker than in the past. Smart mobility means achieving a holistic approach, where you can push traveller information out, through the web, phone, and all available channels. The smarter cities concept means integrating all the resources together within cities. The idea is not to look at it as a tool, but as a concept and a vision of trying to do everything more efficient in everything that we do.

Mr. McGowan presented some examples of these themes in order to give a sense of the opportunities.

1. 20 years ago traffic controllers were filled with electromagnetic controllers. Now the controls are electronic and the cabinets are basically empty. Are these large cabinets where we want to invest our money? If you look at the city of NY, they've reduced the size of these. You need to look at new alternatives. We don't change standards fast enough.
2. Telvent put an ATMS system in place 20 years ago, with incredible cameras, but they were huge and weighed about 35 pounds, required a huge pole to support it. Now in very the same spot, the camera is a tiny digital camera and it weights five pounds and the pole is the same. At the end of the day that camera pole costs \$15,000. You could buy a cheaper pole to do the exact same thing for \$5,000. The whole point is that technology changes but we never step back and assess.
3. One DOT has issued an RFP because there are five different operations centers that are all being managed differently, they have five different maintenance contracts, nine different maintenance groups that maintain the ITS equipment, and groups developing software. They are looking for synergies of having one contractor come in and mange all those maintenance centers - significant cost savings and greater consistency. At the end of the day, the DOT wants a service provider to come in at a cheaper level than they are at right now at a higher level of reliability. Standards should be based on higher level of reliability.

When really thinking about efficiency and reducing cost, you have to look outside your industry. Right now there is a program that is being developed quickly – efficiency in building energy management. Companies can come in and offer these services at no cost, simply splitting the savings. If you are looking at a portfolio of buildings you can make good a business case for providing automation. DOTs are one of the biggest users of power in a metro region. Traffic signal lights, high mast lights, signals, buildings, etc. With good data coming in DOTs should ask questions about whether foot candle of lighting can be reduced based on the weather, the moon, clouds, etc. Can one adjust when there are no vehicles on the road? This is information that is collected already today. Can it be used?



Finally, Mr. McGowan presented what he described as a potential long term solution. He asked: If you ran a tolling agency and heard there was leakage in revenues, what would you do? McGowan believes this would be seen as a significant problem in need of an immediate solution. He then pointed out that DOTs already know they have a ton of leakage. EVs and hybrids are here, CAFE standards are up, if DOTs don't do something about it, just imagine what it will be like five to ten years from now. It may be the majority of all vehicles. Although we keep talking about VMT, VMT needs to be on everyone's agenda right now with pilots looking at different ways of collecting revenues.

**The takeaway:** Mr. McGowan believes that the challenges we face today should not be a surprise. Years ago, it was clear we were never going to build our way out of congestion. And we can't expect to be bailed out by Congress. He believes the people in this room are going to have to develop the solution.

## DAVID BOGHOSSIAN

*Founder and principal, Strategy Execution Partners*

Mr. Boghossian's focus was on new potentially lower-cost approaches to innovation, not so much in transportation, but from other industries.

He began by playing a crowd-sourced Super Bowl ad for Doritos. He explained that Frito-Lay ran a contest in which they solicited submissions for Super Bowl ads from the public. The prizes were \$25,000 for the top five winners, so it cost perhaps a few hundred thousand dollars to run the contest. In addition, the creator of the top ad got a \$1 million bonus if their ad was one of the top-rated Superbowl ads, as reported by USA Today.

He noted that two Doritos' crowd-sourced ads were in the top five for the 2012 Super Bowl. So for two very successful ads, the total cost was essentially \$2-3 million. In contrast, for Budweiser's Super Bowl ad they hired five agencies to produce 80 candidate ads at a cost of many millions of dollars each before deciding on the best concept.

Mr. Boghossian sees Doritos' strategy as the clear winner. Not only did Doritos get a great ad, they also got volumes of focus group data as 500 thousand people looked at the ads ahead of time to tell them which ones they liked. Doritos got all of the thousand submissions to choose from as well. They got millions in free media, and they got it shown at the AASHTO workshop!

So does this have anything to do with transportation? Mike Noblett had an interesting example to share:

**Mike Noblett:** IBM is looking at many opportunities to leverage existing data streams (essentially crowd-sourced data) to augment traffic operations. One demonstration applied this with various data sources like safety cameras, loop detectors, incident response mechanisms, etc. He explained that the time to respond to an incident has an exponential, not a linear, impact on congestion. So the time it takes to find a problem and respond to it has a great impact on your network.

In this example, IBM simply added one additional data element: Twitter. The idea was: Who do you think will report the incident first? The CCT camera? The frustrated driver who calls 511? Or the 15 year old in the back seat of her mom's car on Twitter? Twitter proved to make a big difference; there was a dramatic impact on closure time. Mr. Noblett suspects that before this presentation not many attendees had considered adding Twitter as a data feed to their TMCs. But there are many such feeds and IBM uses crowd sourcing for many things. IBM monitors crowd sourcing for safety and security offerings, leveraging it for transportation just makes sense.

Mr. Boghossian added that if you throw in a bonus to the first tow truck to arrive at the scene, you have a system that just grew out of nothing and could well be more effective than existing systems.

Case in point: Crowdsourcing solutions often allow us to include voices and talent we've never heard before. One such "game," Fold It, allows any individual to work with sequencing amino acids to figure out how that protein is going to fold. This particular work is very important to research and medicine, and is usually conducted by scientists with PhDs. But when Fold It studied who was the best protein folder in the world, it wasn't someone they "expected" to see. Instead, it was someone who is an executive assistant by day — a woman — and is the world's best scientific protein folder at night. This individual, driven by her own skills and passions, is not being assigned the work, nor being vetted to do the work, but is simply doing the work.

Mr. Boghossian then proposed creating a regional model of a transportation system—a game like SimCity. He suggested modeling the network and turning people loose on it to experiment and play with it. Although some might consider it crazy, he suggested it could be very valuable. Not only might you get an interesting answer to certain questions, if you had 100 thousand people play the game it could work as an educational or training tool.

Mr. Boghossian acknowledged that it can be hard to make the case for innovation. He described the situation where leaders may tell their teams: “Each of you has to be innovative, I want a brand new idea—but I also want three examples of where it was applied and how it works.” Mr. Boghossian has seen this dynamic many times as he has participated in innovation for many years, both as a practitioner and as an entrepreneur.

Mr. Boghossian believes that innovation could not be more important. The half-life of innovation-based advantage has gone in our lifetime from 10 or 20 years to months or, in some industries, days. There are many types of innovation, adapted to many different business models. Limited resources are just a fact of life, but innovation allows us to escape Malthusian limitations.

**The takeaway:** Mr. Boghossian explained that if an organization is looking strictly at existing customers and existing products, it innovates by improving processes. Many of the issues and challenges discussed in previous workshop sessions were targeted here. He noted that it is also possible to innovate in the products you deliver to existing customers or to target new customers. Since nearly everyone is a consumer of transportation systems, departments of transportation should likely focus on creating new products for and new behaviors in existing customers. He concluded with the observation that new things are not about going new places, they’re about new ways of seeing.



# Closing Speaker

---

## **JACK BASSO**

*Director of Program Finance and Management, AASHTO*

Mr. Basso began by thanking the attendees for the opportunity to share some observations on the external environment, specifically the federal context surrounding transportation. In his view, transportation is at a crossroads more so than at any time in last 50 years.

Mr. Basso observed that the federal budget and revenue are the driving force behind everything going on in Washington, transportation in particular. The national needs are massive and the politics are about the worst Mr. Basso has seen in 47 years. As a result, the highway trust fund, the thing we've counted on as being the most stable and predictable—the financial backbone of federal highway and transit programs—remains in critical condition. He noted that the House and Senate were making progress on reauthorization; the intrigue is very high but they were making progress.

Mr. Basso framed the critical question as: how will the federal government and, in particular, the states generate the required revenue for investment? He noted that while the federal role in surface transportation has been very active for over 50 years, that may not be the case in the future.

Mr. Basso cited numerous studies showing that, nationally, we are meeting only about 1/3 of the needs to maintain and improve the system each year. This proportion has held for about 20 years. Similarly, at the federal level, we are also meeting only about 1/3 of the needs. Under current policies and revenues, we are looking at a \$400 billion federal funding gap over next 6 years.

Mr. Basso expects to continue on the present cycle of short term reauthorization. In any event, the current authorization will not be allowed to expire in March of 2012, as nobody could stand the results - losing the ability to collect taxes and to operate the program. The administration outlined long term reauthorization a year ago, a \$550M program without clarity as to the funding options. The President has called for the passage of a jobs bill with major investment in infrastructure and has done more to talk about infrastructure than any other president. But with no support for increasing fuel taxes or other user fees, we are left in same dilemma, without clear understanding of where the money is going to come from.

Mr. Basso provided information as to the progress of the MAP-21 bill in the Senate, characterizing it as a continuation of current funding and some significant policy changes that are by and large things that AASHTO has said are desirable.

With respect to the 5 year bill in the House, Mr. Basso noted that there was some major restructuring of the status quo, both of funding and policy. While the policy changes are largely items that AASHTO members have asked for, the funding issue is very volatile and would change the Highway Trust Fund dramatically. The critical feature is the discontinuation of any gas tax user fees for the transit program in favor of general funding. AASHTO has opposed this and sent a letter to the House Ways and Means Committee on the issue. But the road ahead is unclear to say the least.

Mr. Basso then presented a series of charts characterizing three major trends affecting transportation funding.

1. Highway Trust Fund. Mr. Basso observed that in every year but one since 2004, we have been spending more out of the Highway Trust Fund than we have been taking in. The trust fund was actually bankrupt about three years ago, we're just pulling in money from the general fund.

2. VMT. Mr. Basso described the importance of VMT as a proxy for revenue. VMT provides a very important warning of what is ahead. Up until 2007, VMT increased at an average growth rate of 2-3% a year. It then declined dramatically, the first decline in 40-50 years. Although it ticked back up, it is once again declining.
3. Purchasing power of motor fuel taxes. Mr. Basso explained that inflation has caused a decline in the purchasing power of Motor Fuel Taxes. This decline is such that by 2015 it will be reduced by about 80% relative to 1993 levels. The impact of inflation is very dramatic.

The HWY trust fund can't run deficits. If none of this gets fixed we go forward to fiscal 2013 facing a cut in the program of about \$26B, just for federal aid highway. The reality is that that would be a massive loss for the program, massive job losses and economic losses. Mr. Basso acknowledged that general taxes are being used. However, he views this as fraught with problems as it limits, or takes away, the great benefit of being able to make long-term commitments. If the system keeps heading in this direction it will become the purview of the annual appropriations process and the difficulties with that are enormous.

Presenting a chart showing a number of possible revenue sources, Mr. Basso explained that the chart illustrated the potential for over a trillion dollars in new revenue - but only if the political will is there.

Some possible revenue sources:

1. Mr. Basso sees PPPs playing more and more of an effective role. At the same time, a number of issues related to tolling now coming into play. AASHTO is also providing information on TRIP bonds.
2. Mr. Basso described the national infrastructure bank and other debt ideas that are playing out in Washington. He sees little interest in the national infrastructure bank at the moment. Once TIFIA gets going, state infrastructure banks would get a big boost.
3. Private activity bonds are something new and have been helpful. AASHTO has been engaged with efforts on loans loan guarantees, lines of credit, seed grants, and GARVEE bonds. However, Mr. Basso cautioned that all of these have one thing in common: the need for new revenue streams. None of these is a free good.
4. On future revenue—Mr. Basso views VMT collection systems at the forefront of options to consider. There is money for VMT pilot programs included in the UPW senate bill.

The bottom line, as Mr. Basso sees it, is that the current system will cease to function. The gas tax, served well but it just will not continue to serve well. As a revenue source it is declining due to VMT flattening, and increased fuel efficiency. Indexing may have value but it is not the solution. Indexing is not a bad idea but it takes a long time for gestation. Mr. Basso sees three choices. We can raise the gas tax, accept a \$12B program, or get the money from somewhere else.

In this, AASHTO is seeking to:

1. Maintain the current federal and state shares for highway and transit capital programs.
2. Eliminate or drastically limit earmarking in federal transportation programs.
3. Develop policies that support maximum flexibility to allow for use of both conventional and innovative funding and financing tools.

In order to achieve this we would have to find an offset to pay for a two-year bill at current levels and find acceptable sources of funding to pay for a well-funded six-year bill. We would also need to adopt policies that are in keeping with a flexible, and adoptable, bill.

Ultimately, we are really facing three possibilities:

1. We could actually get something done by this fiscal year
2. We could do an extension to end of the fiscal year and then likely do another; we would still have to find \$10 billion just to get through the fiscal year
3. We could let it all crash down — if this happened there would be dramatic consequences for the folks who let it all fall apart

**The takeaway:** At the end of the day we are truly at a crossroads. Congress and the administration do face difficult choices, which Mr. Basso does not want to minimize. The impact of these choices will be felt strongly by all state DOTs. The nation can benefit from this or be very badly affected.

## JOHN HORSLEY

*Executive Director, AASHTO*

Mr. Horsley opened with the observation that just two years ago—as we heard from Matt Rose—we thought we were going to go from a \$300 billion program to a \$500 billion program. All the signals from the house and the senate were in line with that and everything was sunny until the 2010 election and then all that collapsed.

The good news is that we are dramatically better off this year than last year. Last year the house passed a budget that would have cut us  $\frac{1}{3}$  for 15 years. The situation this year is leadership in the House and Senate are both looking to sustain current levels of investment.

But as Jack Basso showed us, just getting back to solvency of the trust fund will require a 5-7 cent gas tax increase in the near term. The best we can count on in the next 5-10 years is to get the trust fund solvent again but at 1993 funding levels. So, when we gave the title of this workshop lean times, that was in part because we don't see any chance of any congress raising the fuel tax 25-40 cents.

Mr. Horsley asked: if that's the current situation how do DOTs possibly deliver what the public expects? What we heard in this workshop provides part of the answer. We will be stuck with lean times for as long as the workshop attendees are in office. AASHTO's challenge now is working with TRB and others. We have tested the technique of inviting companies to help AASHTO support small working groups for 5 states or so to address targeted issues. This event has been very successful but it is just the beginning.



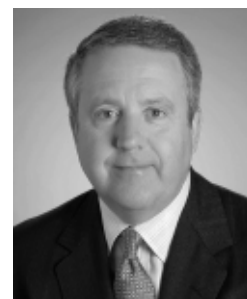
# Appendix A: Workshop Speakers and Panelists

---

## KEYNOTE SPEAKER

# Matthew Rose

---



## CHAIRMAN AND CHIEF EXECUTIVE OFFICER, BNSF RAILWAY

Since 2000, Matthew Rose has been Chief Executive Officer of BNSF Railway Company, which became a Berkshire Hathaway-owned company in 2010. He has also held the position of Chairman since 2000.

In June of 1999, he was made President and Chief Operating Officer. For almost two years prior to that, he served as Senior Vice President and Chief Operations Officer. He joined Burlington Northern Railroad (BN) in 1993 and held several positions in the Merchandise Business Unit. Prior to that, he held several positions in the trucking industry.

Rose holds a Bachelor of Science degree from the University of Missouri, where he majored in marketing and minored in logistics. He is a member of the Board of Directors of AMR Corporation; a member of the Board of

Directors of AT&T Inc.; a member of the Board of Directors of the Association of American Railroads; a member of the President's Council on Jobs and Competitiveness; a member of the Board of Directors of the U.S. Chamber of Commerce; a member of Business Roundtable; a member of The Business Council; a member of the Board of Trustees of Texas Christian University; and Vice President of the Boy Scouts of America National Executive Board. He was also a member of the National Surface Transportation Policy and Revenue Study Commission.



## PANELIST

# Faisal Alam

---



### **BUSINESS SALES AND DELIVERY EXECUTIVE, PUBLIC SECTOR ENTERPRISE APPLICATIONS, IBM**

Faisal is a key leader in IBM's Oracle ERP practice area, with a dual focus on service delivery and business development efforts for large public sector clients. Faisal has successfully led large complex Integration initiatives that have involved multiple lines of IBM business, subcontractors, and Global resources.

Over the last several years, Faisal has led IBM's EA work at key transportation clients including the United States Department of Transportation, Federal Aviation Administration, the Metropolitan Washington Airports Authority; and State and Local clients including the State of Indiana. He has managed programs over \$200M and led teams of over 110+ staff, while successfully directing all aspects of delivery. He has developed account plans, solutions, and proposals for some of IBM's most complex capture efforts, which have included first of a kind solution components. He assumes full responsibility for engagements including profit and loss (P&L), staffing and recruiting, account development, staff utilization, contracts, marketing, sales, proposals, client relations, staff retention, and strategic planning. He provides career guidance, counseling, and mentoring for direct reports and upcoming leaders in the practice.

Faisal was originally hired into PricewaterhouseCoopers as a Principal Consultant focused on planning and delivering complex ERP engagements. During the acquisition of PwC Consulting by IBM in 2002, Mr. Alam was a key member of the team that successfully integrated PwC's Public Sector Oracle practice into IBM. Prior to joining PwC, Faisal worked for a variety of other companies, including Nextel, where he led the design, and successful implementation of a mission-critical Web-based order entry system, through which 70% of Nextel's revenue flowed.

Faisal earned his MBA in IT/Finance from George Mason University, where he graduated with honors. He earned a BS in Medical Technology also from George Mason University, where he graduated with honors.

## CLOSING SPEAKER

# Jack Basso



## DIRECTOR OF PROGRAM FINANCE AND MANAGEMENT, AASHTO

Peter J. "Jack" Basso joined AASHTO as Chief Operating Officer and Business Development Director in March of 2001, responsible for the management of a \$60 million nonprofit organization representing the interests of State Departments of Transportation. Basso works closely with Congressional staff and other associations who have mutual interests in Transportation financing issues. He is a nationally recognized expert on transportation finance.

Prior to joining AASHTO, Basso served as Assistant Secretary for Budget and Programs and as Chief Financial Officer of the U.S. Department of Transportation. In that capacity, he oversaw the development of a \$60 billion budget and interacted with senior officials, members of Congress, their staff, and key industry officials on a wide variety of transportation matters. Prior to his appointment by President Clinton to this position, he served as Deputy Assistant Secretary for Budget and Programs.

Basso's thirty six years of service as a career official included assignments such as Assistant Director for General Management of the Office of Management and Budget, Deputy Chair for Management of the National Endowment for the Arts, and Director of Fiscal Services for the Federal Highway Administration. He has held numerous positions in administration and management with the Federal Highway Administration.

Basso has served as a board member and Chair of numerous councils, including five years as a member of the President's Council on Management Improvement representing the independent agencies of the Executive Branch, and serving five years as Chair of the Small Agency Council. He also served as a

member of the Consolidated Administrative Support Units Board of Directors. Basso currently serves as a board member of the Maryland Transportation Authority.

Basso earned a Bachelor of Science degree in Business Administration from the University of Maryland at College Park and continued graduate study in General Administration at the university from 1980 to 1981.

Basso has been recognized through numerous awards in his career, which include: the Presidential Rank Award of Meritorious Executive in 1989 and 1997; Senior Executive Service Bonus Awards 1991 through 1996; the President's Council on Management Improvement, Special Recognition Award, 1990; Executive Achievement Award, 1988; Senior Executives Association, Distinguished Service Award 1987; National Endowment for the Arts, Faculty Excellence Award; USDA Graduate School, 1987; SES Performance Awards, 1985 through 1988; and the Administrator's Award for Superior Achievement (Bronze Metal), 1980.

## PANELIST

# David Boghossian



## FOUNDER AND PRINCIPAL, STRATEGY EXECUTION PARTNERS

David Boghossian is the founder and principal of Strategy Execution Partners, a Cambridge MA consulting firm focused on driving strategy and change in large organizations and an extension of his background as a founder of PowerSteering Software, Inc, an enterprise software company focused on cross-enterprise performance improvement and program management. Both SEP and PowerSteering provide senior managers and their teams the information and tools they need to deliver results and ROI from portfolios of corporate projects and initiatives. Mr. Boghossian has over 25 years of experience helping major global organizations such as Sanofi-Aventis, TD Bank, Raytheon, the US Army, Textron, EMC, Tyco, Heinz, and Brunswick Corporation drive and optimize large scale initiatives in Six Sigma, Business Process Improvement, Merger Integration, IT Program Management and other business execution challenges.

Throughout his career, Mr. Boghossian has focused on using innovative tools to drive improved business results, accelerate innovation, and deliver more focused strategic information to decision makers.

He has authored numerous pieces on these and other related topics including a contribution to the new book “Business Driven PPM” edited by Mark Price, occasional commentary for Bloomberg News, and frequent speaking engagements for the ISSSP, Balanced Scorecard Collaborative, Internet World, Project World, and other national conferences. As the co-founder of PowerSteering in 1998, he was responsible for the product vision and the company’s early leadership in the emerging Software as a Service and Program and Portfolio Management categories. Mr. Boghossian has worked with leading companies worldwide, helping them drive strategy and accelerate results by closing the loop between high level corporate performance targets and scorecards

with actions and objectives on the front-lines. Today, much of his work focuses on “Driving the Growth Edge”, a unique approach to managing innovation and growth in large organizations.

Prior to starting PowerSteering Software, Mr. Boghossian co-founded Story Street Partners, a successful start-up focused on building integrated strategic information resources on corporate Intranets. His work for Story Street won the Internet Commerce Exposition award for the "Best in Class" Financial Services application.

As a management consultant, Mr. Boghossian pioneered the use of Lean Manufacturing, Hoshin Kanri, and Strategy Deployment tools for the rapid execution of corporate strategy. In turn, Hoshin methods became one of the core tenets of the PowerSteering product line. He also developed and implemented one of the first on-line distance learning programs to

teach quality and strategy concepts to front-line managers.

Mr. Boghossian holds AB and MPA degrees from Harvard University. He also held a year-long appointment as a Lucius Littauer Fellow at Harvard's Kennedy School of Government, focused on business/government relations.

## PANELIST

# Tyler Duvall



## ASSOCIATE PRINCIPAL, MCKINSEY AND COMPANY

Tyler Duvall is an Associate Principal with McKinsey and Company based out of Washington, DC. In his time with McKinsey, Tyler has helped develop the infrastructure and public sector practices.

Tyler's work with McKinsey includes:

- Assisting a major North American transit operator reduce costs
- Conducting asset due diligence for infrastructure investors
- Assisting a U.S. state to develop a portfolio strategy for transportation investments
- Helping a Latin American country develop an economic growth strategy with a major infrastructure focus
- Working with a Middle Eastern government to develop an aviation policy framework
- Helping a federal agency project demand for credit assistance
- Assisting a federal agency's efforts to consolidate IT infrastructure
- Presenting transportation trends and issues to a variety of private sector client workshops
- Speaking regularly on infrastructure trends and opportunities

Prior to his time with McKinsey, Tyler was both the Under Secretary (Acting) and Assistant Secretary for Transportation Policy at the U.S. Department of Transportation following his nomination by the President and confirmation by the U.S. Senate in 2006. Some highlights of that experience include:

- Served in various leadership roles helping shape the U.S. Department of

Transportation and U.S. transportation policy

- Head of USDOT efforts to develop and advance public-private infrastructure partnerships, including direct involvement in many of the largest PPP transactions in the U.S.
- Oversight responsibility for significant regulatory proposals for all modes of transportation (road, rail, air, bus, pipeline, etc.)
- Helped oversee multi-billion dollar Federal credit programs for roads, transit systems and freight railroads
- Administered the private activity bond program that oversees the allocation of \$15 billion of Federal tax-exempt borrowing authority for privately financed infrastructure projects
- Responsibility for strategic plan development
- Led development and implementation of national congestion reduction initiative working closely with municipalities across the U.S.
- Member of Intelligent Transportation System Management Council that oversaw an array of transportation technology investments
- Led the development and implementation of a broad range of policies related to infrastructure finance and system

performance, safety, energy security and environmental requirements

- Delivered a wide array of transportation policy speeches in the U.S. and abroad, testified in front of Congress and State legislatures on a variety of transportation related topics, and appeared on television and radio to discuss the Administration's transportation policy priorities
- Worked closely with the President's senior policy advisors to develop aviation congestion and infrastructure policies

Prior to joining the US Department of Transportation, Tyler worked for Hogan & Hartson LLP (now Hogan Lovells) as a business and finance lawyer focused on mergers and acquisitions. He has a Juris Doctor from University of Virginia Law School and graduated with a BA in Economics from Washington & Lee University.

## PANELIST

# Howard “Butch” Eley



## CEO/FOUNDER, INFRASTRUCTURE CORPORATION OF AMERICA

Mr. Eley is the founder and Chief Executive Officer of Infrastructure Corporation of America (ICA) which was formed in 1998.

ICA, headquartered in Nashville Tennessee, has a mission of preserving our nation's transportation network by offering governmental agencies a performance-based asset management approach to maintenance that extends the life of highways and bridges while experiencing proven savings. The company has comprehensive asset management contracts with state DOT's throughout the country. For example, in Florida it currently inspects and maintains over 3000 bridges and structures; provides fence-to-fence maintenance on over 3,000 miles of Interstate and toll ways, including the total maintenance and upkeep of all mainline and ramp plazas associated with the Orlando/Orange County Expressway System. ICA also provides maintenance services for the Texas Department of Transportation working not only on roadways but a large portion of their Rest Areas as well. In addition, ICA holds several contracts with the VDOT, which now outsources the maintenance of the entire Virginia interstate system.

Prior to founding ICA, Mr. Eley devoted much of his career creating positive change for communities through political and governmental venues at all three levels of government. Eley began his career as a congressional assistant where one of his responsibilities was working with the U.S. House of Representatives Public Works and Transportation Committee. He later served as

Chief of Staff in the Metropolitan Nashville Mayor's Office. He left the government sector in 1990 to start his own consulting firm, which specialized in helping companies do business with government. He later merged his company with The Ingram Group and became President of The Ingram Group in 1993.

Mr. Eley currently serves as the Chair of the legislative committee for the Association for the Management and Operations of Infrastructure Assets (AMOTIA). He recently was Chief Meeting Organizer for the IBTTA (International Bridge Tunnel and Turnpike Association) Maintenance and Operations Conference. Mr. Eley earned both his Bachelors of Business Administration and M.B.A. from Belmont University.

ICA's most high profile project entails providing complete asset management maintenance and inspection services on the Sunshine Skyway Bridge spanning the Tampa Bay. Soaring 190' above the water and at over 29,000' in total length, the Skyway is one of the world's longest concrete cable stayed bridge and truly one of the engineering wonders of the world. ICA's six-year all encompassing multi-million dollar contract is for one of Florida's most high profile assets.

## **SPEAKER**

# **John Horsley**

---



## **EXECUTIVE DIRECTOR, AASHTO**

John Horsley is Executive Director of the American Association of State Highway and Transportation Officials (AASHTO). He has spent more than two decades analyzing solutions to many of the nation's toughest transportation challenges.

From 1993 to 1999 he served at the U.S. Department of Transportation. As Associate Deputy Secretary, he was an advocate for intermodal policies, quality of life initiatives, and liaison to State and Local Governments, U.S. Congress, and transportation constituencies.

A native of the Northwest, Horsley was elected to five terms as County Commissioner in Kitsap County, a community just west of Seattle. He is a graduate of Harvard, an Army veteran, a former Peace Corps volunteer and Congressional aide, and did graduate study at Georgetown. He is Past President of the National Association of Counties, and was founding Chairman of the Rebuild America Coalition.



## PANELIST

# Patrick McGowan

---



## **PRESIDENT, TELVENT TRANSPORTATION NORTH AMERICA**

Patrick McGowan, P.E. is President of Telvent Transportation North America and brings over two decades of progressively responsible experience in all aspects of Intelligent Transportation Systems. McGowan is responsible for creating and consolidating the necessary structure of Telvent transportation solutions, including Intelligent Transportation Systems (ITS), tolling and transit, to achieve significant growth and ensure Telvent's position as a market leader.

He has been the project-manager of noteworthy ITS deployments including the \$151 million TransGuide system for the Texas Department of Transportation, which included planning, design, integration, deployment, operations and maintenance. Patrick managed Telvent Farradyne's Atlantic Region, comprised of Pennsylvania, Maryland, Delaware, Virginia, Washington, D.C., Ohio, Kentucky, Michigan, Tennessee, North Carolina, South Carolina, West Virginia, and the city of Chicago.

McGowan has complete responsibility for all aspects of the company's project performance, client satisfaction, business development, and financial performance. He is currently serving on several technical committees through ITS America, ITS World Congress, the Federal Highway Administration and the Transportation Research Board.

## PANELIST

# Michael Noblett

---



## **ASSOCIATE PARTNER AND BUSINESS SOLUTIONS PROFESSIONAL, IBM GLOBAL BUSINESS SERVICES**

Michael Noblett is an Associate Partner and Business Solutions Professional, for IBM Global Business Services. Mr. Noblett is internationally recognized as an expert in automotive electronics, wireless communications and is a leader in the Intelligent Transport Systems (ITS) industry, having helped pioneer multinational activities to advance vehicle technology and transportation safety.

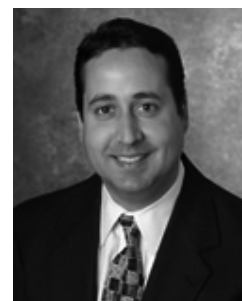
Mr. Noblett is responsible for advancing business development, automotive industry partnerships, and international standards to further the development of Smarter Transportation systems in support of IBM's Smarter Cities initiative. He served formerly with Connexis LLC as VP of Business Development and spent nearly 20 years with General Motors Corporation and its subsidiary OnStar and he served as Program Manager for the Automotive Multimedia Interface Collaboration (AMI-C).

Mr. Noblett is Chair of ISO/TC 204, the international standards committee for ITS, Chair of the FISITA/PIARC Joint Task Force, member of the ITS World Congress BOD, and was General Chair for the 15th Annual World Congress on ITS held in New York City 2008.

## PANELIST

# Miguel Quiñones

---



### **O. PAUL CORLEY DISTINGUISHED CHAIR OF ORGANIZATIONAL BEHAVIOR, SMU COX SCHOOL OF BUSINESS**

Dr. Miguel (Mickey) Quiñones is O. Paul Corley Distinguished Chair in the department of Management and Organizations in the Cox School of Business at Southern Methodist University. He is an internationally recognized expert and well-published author in the areas of individual and organizational development as well as the strategic management of human capital. Dr. Quiñones received his B.S. in psychology from Texas A&M University and his M.A. and Ph.D. in industrial and organizational psychology from Michigan State University.

Prior to joining the Cox School, Dr. Quiñones served on the faculties of the University of Arizona and Rice University. He also served as a U.S. Fulbright Scholar and Visiting Professor at the Pontificia Universidad Catolica in Santiago, Chile and was a visiting professor at Singapore Management University. He has been the recipient of numerous teaching awards in recognition of his success in the classroom.

Dr. Quiñones is a Fellow of the Society for Industrial and Organizational Psychology (SIOP) and the American Psychological Association as well as a member of the Academy of Management. He has served as the North American Editor for the International Journal of Selection and Assessment and Associate Editor of the Journal of Management as well as The Business Journal of Hispanic Research. He is currently on the editorial boards of the Journal of Management and Personnel Psychology.

## PANELIST

# Pete Rahn



## SENIOR VICE PRESIDENT, LEADER OF NATIONAL TRANSPORTATION PRACTICE, HNTB

“The very nature of highway and transit construction means you need a long-term stream of revenues to provide certainty for planning and multi-year construction. States simply can’t rely on the existing financing of the Federal Highway Trust Fund, which is being kept alive by a series of short-term extensions and general fund transfers.”

As leader of HNTB’s national transportation practice group, Pete Rahn develops and directs strategies that enhance HNTB’s service to state departments of transportation across the country.

Rahn joined HNTB in 2010 from the Missouri Department of Transportation, where as director, he led more than 6,000 employees responsible for providing a safe and efficient transportation system in Missouri. From 1995 to 2002, he was cabinet secretary over the New Mexico State Highway and Transportation Department, making Rahn one of only a handful of people who have led a DOT in two states.

Rahn shares insights from DOTs nationwide as well as knowledge of federal legislation and policy gained from his tenure as president of the American Association of State Highway and Transportation Officials, an organization that represents all state DOTs.

Additionally, he can speak on a wide variety of issues directly affecting the nation’s and states’ transportation systems, including:

- **Accountability in government agencies is critical to earning trust and gaining resources.** Using performance-driven criteria, agencies can drive down project costs, speed timetables and be more

customer-focused when responding to citizens.

- **Transportation is critical to our nation’s commerce.** As more attention is paid to “liveability,” we must not lose sight of the vital role roads, highways and bridges play in the movement of goods and delivery of services. The liveability efforts are to be applauded, as part of a multi-modal approach to improving our transportation system.
- **Transportation changes are coming down the road.** As a country, we have to decide how we’re going to pay for transportation. The gas tax is not sufficient for maintaining our existing infrastructure, and doesn’t allow for future growth. There is no one-size-fits-all solution, but vehicle-miles-traveled fees, tolling and managed lanes are among the alternatives.
- **What are the biggest challenges to financing transportation projects?** Raising taxes is very difficult during these tough economic times. Fortunately, there are other options available for funding projects crucial to a region’s transportation system, including public-private partnerships and tolling.

## **SPEAKER**

# **Kirk Steudle**

---



## **STATE TRANSPORTATION DIRECTOR, MICHIGAN DOT PRESIDENT, AASHTO**

Kirk T. Steudle began his career with the Michigan Department of Transportation (MDOT) in 1987 as an engineer trainee. He is a registered professional engineer, and rose through the ranks of the department to his current position. On Jan. 1, 2011, Governor Rick Snyder appointed Steudle as the State Transportation Director. Steudle also served as State Transportation Director from 2006 – 2010.

Steudle oversees MDOT's more than three billion dollar budget and is responsible for the construction, maintenance and operation of nearly 10,000 miles of state highways and more than 4000 bridges. He also oversees administration of a wide range of multi-modal transportation programs statewide.

Steudle is the 2011-12 president of the American Association of State Highway and Transportation Officials (AASHTO), and serves on the AASHTO Executive Committee. In 2010, he received the prestigious Thomas H. MacDonald award from AASHTO, recognizing him nationally for his continuous outstanding service and exceptional contribution to highway engineering. In 2011, he was awarded the P.D. McLean Award from the Road Gang for excellence in highway transportation.

In 2004, Steudle participated in Federal Highway Administration's National Asset Management Delegation, where he helped conduct a Transportation Asset Management Seminar in Riga, Latvia, for the countries of Estonia, Latvia, and Lithuania. In 2005, he was a member of the FHWA/AASHTO International Scan and had a first-hand opportunity to study the asset management practices of four countries.

Steudle also is a national leader in the development of Connected Vehicle Technologies, working with a partnership of governments and auto manufacturers to further high-tech highway operations and at the same time, improve Michigan's economy. Connected Vehicle Technology allows vehicles to communicate with each other and the road to improve safety and mobility. Steudle is on the board of directors of the Intelligent Transportation Society of America (ITS America) and the Engineering Society of Detroit, the largest engineering society in the country. He also chairs the Strategic Highway Research Program (SHRP) II oversight committee and the implementation report to the U.S. Congress.

In the past, Steudle has served as MDOT's Chief Deputy Director, Bay Region Engineer, and Deputy Region Engineer for the Metro Detroit Region. He also was president of the 2009 Mississippi Valley Conference and has been a member of the AASHTO Board of Directors since 2006.

Steudle is a graduate of Lawrence Technological University, where he earned a Bachelor of Science Degree in Construction Engineering. He also served on the Essexville City Council from 1995 to 1999.

## PANELIST

# Stephen Van Beek

---



## EXECUTIVE DIRECTOR OF POLICY AND STRATEGY, LEIGHFISHER

Stephen Van Beek is Executive Director of Policy and Strategy for LeighFisher with over two decades of management, transportation industry, and academic experience. In this capacity, Stephen advises airport and transport clients and coordinates policy and business strategy across the consulting firm's lines of business. He is involved in a variety of client services including strategic planning and policy analysis, multimodal planning, transportation funding, and finance, as well as federal laws/regulations/policy.

Previously, Stephen served as the President and CEO of the Eno Transportation Foundation, a non-profit specializing in developing transportation leaders while also devising innovative solutions for the transportation industry and government. At Eno, Stephen led a number of consulting assignments and policy forums on the state of the surface transportation and aviation trust funds, sustainability, strategic planning, and workforce development.

Stephen was Executive Vice President of Policy for Airports Council International, North America where he represented U.S. and

Canadian airports on a variety of issues including funding, congestion, and delay, as well as security. Prior to that engagement, he served as Associate Deputy Secretary and Director of the Office of Intermodalism for the U.S. Department of Transportation.

In addition to his LeighFisher work, Stephen serves as a member of the FAA Management Advisory Council, as a senior advisor to the North Atlantic Treaty Organization in Brussels, and sits on university boards devoted to intermodalism, transportation policy and operations, and marine highways..

## **FACILITATOR**

# **Janet D'Ignazio**

---



## **VICE PRESIDENT, ICF INTERNATIONAL**

Janet D'Ignazio has corporate and programmatic responsibility for providing superior products and services and maintaining client satisfaction for all projects within a diverse portfolio of transportation research, technical assistance, and mission support contracts. With 30 years of experience working with state and local transportation agencies, she has served in executive positions at two state departments of transportation (DOT). She has nationally recognized expertise in context-sensitive solutions, integrated planning, environmental stewardship and streamlining, and state DOT change management. She has 10 years' experience as a planner and transit systems manager at the local level and 7 years of management responsibility for \$200-million state multimodal capital, operating, and regulatory programs.

## **FACILITATOR**

# **Hyun-A Park**

---



## **PRESIDENT, SPY POND PARTNERS, LLC**

Hyun-A Park has spent her 25 year career working to strengthen strategic management processes for transportation and other public sector capital assets. She has worked with many organizations at the federal, state, and local levels, providing her unique skills in the areas of strategic planning, program and project management, managing information technology (IT) tools development, and facilitating organizational change to meet new objectives and improve processes.

Prior to co-founding Spy Pond Partners, Ms. Park was Vice President at Cambridge Systematics, Inc. with responsibility for the Asset Management business line. She also served as Deputy Director of the Massachusetts Division of Capital Planning and Operations. Ms. Park chairs the Transportation Research Board's Management and Leadership Section. She has Bachelors and Masters Degrees in Urban Studies and Planning from MIT. She was a term member of the MIT Corporation from 2001-06





## Appendix B: Attendees

---

# Attendee Directory

---

## STATE DOTs

### Delaware DOT

**Shailen P. Bhatt**, Secretary of Transportation

**Natalie Barnhart**, Chief Engineer/Director,  
Transportation Solutions

**Nicole Majeski**, Deputy Chief of Staff

### Florida DOT

**Brian Blanchard**, Assistant Secretary  
for Engineering and Operations

**Thomas Byron**, Chief Engineer

### Illinois DOT

**Marsha N. Campos**, Division of  
Highways – Deputy Director

### Indiana DOT

**Michael B. Cline**, Commissioner

**Troy Woodruff**, Deputy Commissioner –  
Operations

**Brandye L. Hendrickson**, District Deputy  
Commissioner

**Jason S. Wasson**, Director – Research &  
Development

### Kansas DOT

**Barb Rankin**, Acting Secretary

### Kentucky Transportation Cabinet

**Kevin Damron**, Executive Director, Office  
of Project Development

### Michigan DOT

**Kirk Todd Steudle**, State Transportation  
Director  
President, AASHTO

**Randy Van Portfliet**, Director – Bureau of  
Field Services

**David Wresinski**, Director – Bureau of  
Transportation Planning

### New Hampshire DOT

**Christopher Clement**, Commissioner

### North Carolina DOT

**Mark L. Foster**, Chief Financial Officer

### Rhode Island DOT

**Frank Corrao**, Deputy Chief Engineer –  
Construction Management

**Phillip Kydd**, Deputy Director

### Tennessee DOT

**John Schroer**, Commissioner

**Lyndsay Botts**, Chief of Staff

**Joe Galbato**, Deputy Commissioner/  
Chief Financial Officer

### Washington State DOT

**Paula J. Hammond**, Secretary of  
Transportation

**David Dye**, Deputy Secretary

**John Nisbet**, Director of Traffic  
Operations/State Traffic Engineer

### Wisconsin DOT

**Mark Gottlieb**, Secretary

**Michael J. Berg**, Deputy Secretary

## **SPEAKERS AND INVITED GUESTS**

### **BNSF Railway**

**Matthew Rose**

*Keynote Speaker*

Chairman and Chief Executive Officer

### **AASHTO**

**Jack Basso**, Director of Program Finance and Management

**Lloyd Brown**, Director of Communications

**John Horsley**, Executive Director

**Joung Lee**, Associate Director for Finance and Business Development

**Jim McDonnell, P.E.**, Program Director, Engineering

### **HNTB**

**Pete Rahn**, Senior Vice President, Leader of National Transportation Practice

### **IBM**

**Faisal Alam**, Business Sales and Delivery Executive, Public Sector Enterprise Applications

**Michael Noblett**, Associate Partner and Business Solutions Professional, IBM Global Business Services

### **Infrastructure Corporation of America**

**Howard “Butch” Eley**, Chief Executive Officer

### **LeighFisher**

**Stephen Van Beek**, Executive Director of Policy and Strategy

### **McKinsey & Company**

**Tyler Duvall**, Associate Principal

**Samuel Magid**, Associate Principal

**Robert Palter**, Director

### **SMU Cox School of Business**

**Miguel Quiñones**, O. Paul Corley Distinguished Chair of Organizational Behavior

### **Strategy Execution Partners**

**David Boghossian**, Founder and principal

### **Telvent**

**Patrick McGowan**, President, Telvent Transportation North America

### **TRB**

**Andy Lemer**, Senior Program Officer

**Mark Norman**, Director, Technical Activities Division

## **WORKSHOP CONSULTANT TEAM**

### **Spy Pond Partners**

**Hyun-A Park**, President

**Perry Lubin**, Analyst

### **ICF International**

**Janet D’Ignazio**, Vice President

