

# Report on a National Forum on Performance-Based Transportation Planning and Programming



*prepared for*

**National Cooperative Highway Research Program**

*prepared by*

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## **Disclaimer**

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*summary report*

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# Executive Summary

A national forum on performance-based planning and programming was held in Dallas, Texas on September 13-15, 2010. The forum was organized by the American Association of State Highway and Transportation Officials (AASHTO), the Association of Metropolitan Planning Organizations (AMPO), the American Public Transit Association (APTA), and the National Association of Development Organizations (NADO) with support from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Participants in the forum were equally divided among state departments of transportation (DOTs), metropolitan planning organizations (MPOs), and transit operators with a number of representatives from rural planning agencies as well.

The forum sponsors readily agreed that the objective of a performance-based planning and programming process is to provide the guidance required for resource allocation decisions that deliver the best system performance results possible given performance goals and objectives and the resources available. However, they recognized that perspectives on performance-based planning and programming, both within and across different types of agencies, would vary. Taking this variance into account, the overall intent of the forum was to define practical approaches to performance-based resource allocation.

Performance-based resource allocation should occur within an agency's planning and programming process. Long-range planning helps to define key goals and objectives and to analyze and evaluate strategies and scenarios for meeting goals. It is a logical place to connect performance measures to goals and objectives and to define intended performance results. Long-range plans also provide broad guidance to resource allocation decisions. The programming and budgeting process then provides an opportunity to directly link goals and performance measures from long-range planning to specific programs, projects, and operations. However, it was noted that even though performance-based approaches can improve accountability and the use of resources, performance-based planning and programming is not a panacea. Without adequate and predictable funding levels, system performance will degrade.

## OBJECTIVES OF THE FORUM

The organizers had four primary objectives for the forum:

- Identify the elements of a performance-based planning and programming process and define the next steps for implementation;
- Identify the challenges in developing performance-based planning and programming processes and strategies for agencies to implement such processes;

- Draw on agencies' experience to provide practical guidance for implementing performance-based planning and programming; and
- Identify capacity-building actions that reflect the needs of a diverse set of agencies.

Experience indicates that performance-based planning and programming approaches will vary by type of agency (state DOT, MPO, transit, rural planning), the nature and complexity of institutional arrangements, the scale of application (e.g., statewide, regional, urban or rural, corridor, or project), and agency goals, objectives, priorities, and resources. Nevertheless, comparing experience across agencies can yield common themes and broadly applicable lessons for how transportation planning and programming may be undertaken to improve system performance results.

## ORGANIZATION OF THE FORUM

The forum was organized around a number of plenary sessions followed by small group breakout sessions. The plenary sessions focused on the opportunities and challenges associated with implementing performance-based planning and programming processes, the domestic and international state of the practice, and resource allocation and accountability. The breakout sessions focused on a number of case studies as well as specific issues such as setting goals and selecting measures, setting targets and tracking results, priority setting/tradeoff analysis, implications for long-range plans and programs, and encompassing broader performance areas such as livability and sustainability. For most of the breakout sessions, participants were divided equally by type of agency represented. While opinions on all topics varied and discussion was spirited, several key themes and issues emerged that future efforts can build upon. A summary of these themes is provided below.

## KEY THEMES AND ISSUES

*Support for performance-based planning and programming:* Many forum participants agreed that performance-based planning and programming offer great promise for improving the relationship between investment decisions and enhanced transportation system performance. While differences among agencies and their constituencies preclude identifying any single approach to implementing performance-based planning and programming, experience presented by forum participants offered guidance and many transferable lessons for overcoming obstacles. Among these lessons was the importance of continuous communication with stakeholders, directly linking fund allocation to actions that will enhance performance, cross-agency collaboration, agreement on specific measures (and, where appropriate, performance targets as well), consistent use of measures and targets throughout the planning and

programming process, and accurate, reliable data to support performance measurement and forecasting performance results.

*Improved communication with stakeholders* was seen as a very positive aspect of performance-based approaches, providing an opportunity for more informed discussions and helping to set realistic expectations consistent with resource constraints. Performance-based approaches also provide a tool to educate stakeholders on the costs and potential performance results of different strategies and scenarios. It also can help lead to more realistic priority setting and a better understanding of the key tradeoffs involved in allocating resources across multiple performance goals. It was acknowledged that agencies need to strengthen and improve their communication efforts since they are dealing with a more informed public that is increasingly using the Internet and social media to stay informed. Finally, it was acknowledged that effective engagement with elected officials is important to address the potential tension between performance-based decision-making and political/equity-based decision-making.

*Linking performance to funding* and the use of performance-based planning and programming to help “make the case” for more funding was cited as a benefit by a number of participants. Explaining the performance consequences of different funding levels, setting expectations, and making the implications of declining revenue clear were specific examples raised. However, some participants cautioned that using a performance-based approach to help make the case for additional funding would require a long-term strategy. A performance-based approach typically needs to be implemented and used to build trust and confidence over time before it has an impact on a funding debate. In addition, while a focus on overall system performance is preferred, many successful revenue initiatives are still tied to specific projects.

*Collaboration* was a topic that received a lot of attention at the forum given the diverse set of participants involved. The forum itself was viewed very positively as an opportunity for cross-agency discussion and sharing experience. More importantly, it was recognized that integrating national, statewide, and regional goals and objectives, supported by performance measures and results, will require a new level of collaboration and cooperation across agencies. Strategic planning efforts to define common goals and measures, where appropriate, will require sustained collaboration and efforts to break down institutional barriers. In addition, while a lot of the national performance management discussion has focused on metropolitan areas and statewide issues, it is clear that stronger collaboration with rural agencies also will be important.

*Planning and programming* processes and the steps required to make them more performance-based was a key issue throughout the forum. Many participants observed that there is still a lack of connection between long-range plans and programs in many areas and a very wide variation in state DOT, MPO, transit, and rural agency relationships from place to place. In general, there was agreement that it is easier to gain consensus on goals and performance objectives

in a long-range planning process than to develop truly performance-based programs. At the program level, local priorities and concern for geographic “fair share” allocations still dominate in many areas and represent a real challenge to a more system performance perspective.

*Specific performance measures*, while not a key focus of the forum, still received attention and comment. In general, participants felt that reasonable measures were available for safety, asset preservation, and some aspects of mobility. Opinions varied about the desirability and practicality of mode-neutral or multimodal measures, but most agreed that such measures were not currently available for implementation. Similarly, concerns were raised about measures focused on vehicles versus people or freight. It was acknowledged that several important performance areas still need work to develop a full set of appropriate measures, including environment, freight, and economic development. Finally, it was recognized that measures appropriate for statewide or metropolitan system performance might not be appropriate for at least some aspects of rural system performance.

*Data* concerns and particularly the need for consistent and high-quality data to support any performance-based approach was recognized as a critical issue to address. The cost and effort to develop and maintain data will be a challenge to many agencies, and the need to maximize and leverage available data from national databases and through data sharing arrangements was noted. Visualization tools were recognized as a way to more effectively use and display data and performance results.

*Performance targets* as one part of a performance-based planning and programming approach received a lot of attention and debate. Opinions varied widely about the usefulness and practicality of establishing performance targets and the consequences of meeting or not meeting targets. There was consensus, however, that if targets are going to be set, they need to be consistent with the resources available and not establish unrealistic expectations. It also was recognized that an agency’s comfort with setting targets, and the degree of difficulty in achieving targets, might vary by performance area. Performance areas where agencies have the most control over performance (e.g., asset preservation) are likely to be the easiest for setting targets.

*Tradeoff analysis* and how it can be applied to look at tradeoffs across different performance goals and objectives was another area that was discussed. Some participants described approaches for performing this type of analysis even across modes in some cases. However, it was recognized that doing tradeoff analysis across performance areas, modes, agencies, or geographic regions represents a challenge for most agencies and improved analysis tools would be helpful. This was an area that participants felt U.S. DOT might be very helpful in addressing and providing support.

## **CHALLENGES**

The forum represented a collaboration among representatives from state DOTs, MPOs, transit agencies, and rural development organizations. Forum participants were enthusiastic about the value of such collaboration and the opportunity to work together in developing effective performance-based planning and programming processes. By facilitating the sharing of perspectives on the institutional and technical challenges facing various types of agencies, the forum both helped the participants to frame the challenges and to set the stage for the continuation of collaborative efforts to meet these challenges. Specific institutional issues identified include current financial constraints and restrictions on the use of funds, the need to develop collaborative processes that deal with multiple goals and multiple agencies, a resistance to change that confronts any innovation, and the need for sustained leadership and staff buy-in. On the technical side, in addition to the data and tools issues mentioned in the summary of themes, there was real concern in many agencies about the staff capacity and capability to develop and manage a performance-based approach. Finally, the shift from a political/equity-based programming process to one more focused on performance and need was recognized as a significant challenge in many areas.

## **NEXT STEPS**

The last session at the forum focused on the participants' views on logical next steps to continue toward developing performance-based planning and programming processes. A wide range of suggestions were developed for additional peer exchanges, capacity building, technical support, training, research on new tools and defining appropriate measures in some difficult to measure performance areas, and pilot studies to demonstrate key concepts. Perhaps the strongest message to the sponsors was to look for ways to continue the collaboration that occurred at the forum and that all the participants recognized will be a key foundation for helping to move the industry toward performance-based management.



# 1.0 Introduction

This report summarizes the events of the National Forum on Performance-Based Planning and Programming held September 13-15, 2010 in Dallas, Texas. The forum, sponsored by Federal Highway Administration (FHWA), Federal Transit Administration (FTA), American Association of State Highway and Transportation Officials (AASHTO), American Public Transit Association (APTA), Association of Metropolitan Planning Organizations (AMPO), and National Association of Development Organizations (NADO), brought together transportation leaders from state departments of transportation (DOT), metropolitan planning organizations (MPO), transit agencies, and rural transportation planning organizations from across the country. Leveraging the diverse perspectives and potentially differing opinions from among the forum's participants, the forum sought to achieve several key objectives:

- Develop a common understanding of performance-based planning and define next steps;
- Identify challenges and recommend strategies to deal with them;
- Develop practical guidance and agency-specific implementation strategies (for agencies wishing to take a next step); and
- Provide recommendations for a capacity-building action plan, including activities to help coordinate activities across the various sponsoring agencies and organizations.

Within the context of these objectives, the forum organizers outlined several guiding principles for the three-day conference:

- The focus will be on practical approaches and methods for performance-based planning and programming. The forum will provide an opportunity for agencies to discuss ways to improve and strengthen their existing performance-based processes. The meeting will not focus on the potential impact of Federal reauthorization legislation per se, though it is understood that the reauthorization may encourage or require performance-based planning and programming.
- The conference will identify the critical issues that agencies are likely to face in evolving the existing transportation planning and programming process to become more performance-based. Several issues may broaden and change the planning process over time, including livability, sustainability, climate change, and energy. Similarly, transportation plans may need to become more integrated with land use, housing, economic development, and environmental plans in the future. As these types of changes occur, they will influence various aspects of a performance-based planning and programming process (e.g., goal areas, specific performance measures, etc.).

- The conference objective is not to define one standard approach to performance-based planning and programming. Rather, the forum will recognize that approaches will vary depending on many factors, including geographic/agency focus (state, regional, transit, etc.), institutional structure, and complexity, urban/rural, etc.
- The conference will identify both opportunities where performance-based planning and programming may improve decision-making as well as barriers and challenges that may need to be overcome in order for performance-based planning and programming to add value. A key issue is developing an approach to evaluating the success of a performance-based process.
- There are potential benefits from a performance-based planning and programming process helping to guide resource allocation decisions even in a very constrained funding environment. However, it is recognized that a performance-based process alone, without sufficient resources, will not drive better performance results over the long term. It also is recognized that implementing a performance-based approach itself may take additional organizational resources or at least a redistribution of existing resources devoted to planning and programming activities.

The following sections reflect the flow of the forum agenda (included in Appendix A) and are organized as follows:

- **Section 2.0, Performance-Based Planning: Opportunities and Challenges**, summarizes the opening panel's presentation from Plenary Session 1;
- **Section 3.0, Performance Management State of the Practice**, provides domestic case studies highlighting the current state of the practice from state, regional, and transit agency perspectives presented during Plenary Session 2, as well as the findings from a recent international scan on linking performance measurement and accountability;
- **Section 4.0, Breakout Sessions 1 and 2: Regional and Statewide Context Case Studies**, identifies the key themes from the breakout Session 1 and 2 discussions as summarized during Plenary Session 3;
- **Section 5.0, Resource Allocation and Accountability**, summarizes the two panel discussions during Plenary Session 4 focusing on establishing greater accountability for resource allocation and budget decisions through a performance-based planning and programming process;
- **Section 6.0, Breakout Sessions 3 and 4: Topic Discussions**, summarizes breakout group discussions on a range of topics related to different elements of a performance-based planning and programming process, as summarized during Plenary Session 5; and

- **Section 7.0, Breakout Session 5: Action Plan for Moving Forward**, presents a high-level summary of strategies for advancing the state of practice by agency type (state DOT, MPO, transit, and rural planning), as summarized during Plenary Session 6.

To accompany this report, all forum materials and PowerPoint presentations are available for download from the AASHTO web site:

(<http://planning.transportation.org/Pages/NationalForumonPerformance-basedPlanningandProgramming.aspx>).



## 2.0 Performance-Based Planning: Opportunities and Challenges

The forum began with a plenary session to provide an overview of performance-based planning, to define key terms, and to hear views on potential opportunities and challenges from a range of perspectives. This section summarizes the Plenary Session 1 presentations.

### Plenary Session 1 Highlights

- The objective of performance-based planning and programming is to inform resource allocation decisions to deliver the best transportation performance with the resources available.
- While approaches will vary by agency type, size, goals, priorities, resources, and institutional arrangements, common themes and lessons learned provide value.
- Improved cross-agency collaboration will be key as transportation agencies work toward common goals and objectives.

## 2.1 OVERVIEW OF PERFORMANCE-BASED PLANNING

Lance Neumann, president of Cambridge Systematics, Inc., opened the forum by providing an overview of performance management. He explained that the purpose of performance-based planning is to drive better results to deliver better transportation performance with the resources available. The performance management framework, shown in Figure 2.1, links an agency's goals and objectives to resources and results. Reflected in the framework's six fundamental elements, the planning and programming process is key to establishing strong performance management. Long-range plans define goals, objectives, strategies and provide broad guidance to resource allocation, while programming and budgeting provide a direct linkage from goals to specific projects, programs, and operations. Public involvement also is important to informing the planning and programming processes.

The purpose of measuring is not just to know how a business is performing, but to enable it to perform better. Measurement should not be an end in itself, but part of an integrated system for enhancing business performance.

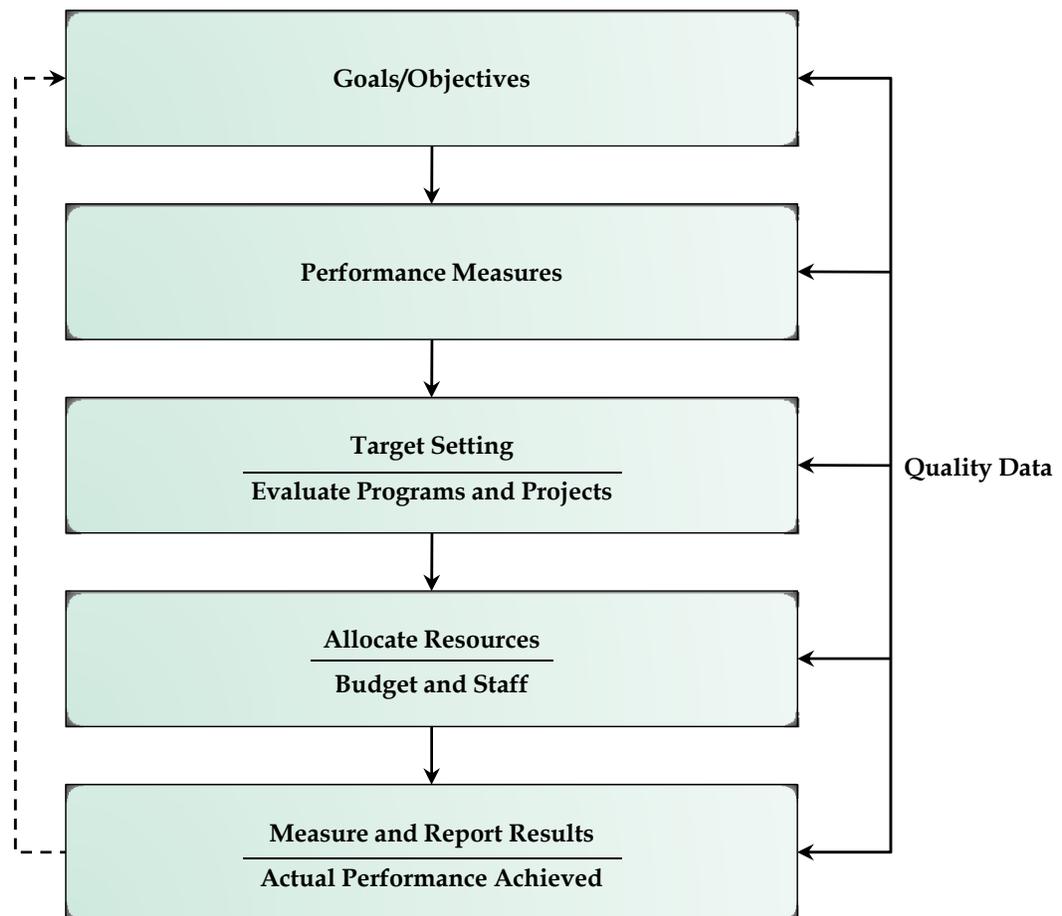
Mr. Neumann acknowledged that opinions may vary on the merits of performance-based planning and programming and the best ways to achieve it. Likewise, performance-based planning and programming approaches will vary depending on a variety of factors:

- Type of agency (state DOT, MPO, transit, rural planning);
- Agency size, history, organizational structure, and governing rules;

- Interagency relationships and complexity;
- Scale of application (statewide, region or subregion, corridor, project); and
- Agency goals/objectives, priorities, and resources.

He recognized that while performance-based approaches can improve accountability and the use of resources, performance-based planning and programming is not a panacea. Without adequate and predictable funding levels, system performance will degrade.

Figure 2.1 Performance Management Framework



In addition, there are a number of challenges that must be addressed in developing effective performance-based planning and programming processes:

- **Setting Performance Targets** - Target-setting requires appropriate data and tools to forecast performance. Setting targets for performance factors under agency control is easiest, although targets must relate to resources available.
- **Benchmarking and Peer Comparisons** - Comparative performance measurement has historically been a sensitive area because every agency

perceives itself to be unique. However, good progress has been made in this area by recognizing variations among agencies and defining appropriate peer groups.

- **Accounting for External Influences** - Performance is often affected by forces beyond an agency's direct control, such as funding availability, behavioral factors affecting safety, and the impact of growth and development on mobility.
- **Avoiding Unintended Consequences** - Performance measures focus an agency's attention on a few select areas; therefore they need to be selected carefully to avoid unintended consequences.
- **Developing Mode-Neutral and Crosscutting Measures** - Identifying appropriate performance measures that can be applied across modes, applied at different scales, etc., and their associated data requirements.
- **Integrating Livability and Sustainability** - Understanding the implications of a broader planning process encompassing livability and sustainability on performance-based planning and programming.

Mr. Neumann reiterated that the forum provides the opportunity for DOTs, MPOs, transit agencies, and rural planning agencies to advance the state of practice by addressing these challenges and to help shape the direction of performance-based planning without waiting for new Federal initiatives or mandates.

## 2.2 PERSPECTIVES ON PERFORMANCE MANAGEMENT AND PLANNING

A panel of speakers presented four unique perspectives on the opportunities and challenges associated with performance management and planning. The following is a summary of each speaker's remarks.

### **A State Perspective on Performance Management and Planning**

*Deb Miller, Kansas Department of Transportation*

Deb Miller, Kansas Secretary of Transportation and chair of AASHTO's Standing Committee on Planning, highlighted some of the recent activities of the performance-based planning and programming team within the Standing Committee on Performance Management (SCOPM).<sup>1</sup> Within the last year, the

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<sup>1</sup> Within SCOPM, AASHTO established eight task forces (safety, preservation, congestion, environment, system operations, freight/economic development, comparative performance measurement, and performance-based planning and

*Footnote continued*

team has hosted two events. In October 2009, FHWA sponsored an Executive Roundtable on Performance-Based Planning and Programming for members of AASHTO's Standing Committee on Planning to begin defining how system performance relates to the transportation planning process. The roundtable was followed by a peer workshop in June 2010 that focused on data needs and considerations related to a national performance-based planning process.

As a result of these and other recent activities, AASHTO believes that it is appropriate for state and local agencies to measure results and that agencies should be proactive in advocating for a national approach to performance-based

"While the Federal government may set national transportation system goals and measures, state and local agencies must have a strong role in setting performance targets" – Deb Miller, Kansas DOT

planning that will accommodate state and local interests. While the Federal government may set national transportation system goals and measures, state and local agencies must have a strong role in setting performance targets. This, in turn, will lead to more effective measures and to stronger local buy-in. Performance measures should be used to report progress towards national goals, and measures at state and local agencies should roll up to the national level.

Recognizing that state and local politics must be accommodated, there must be a balance between qualitative and quantitative decision-making. While data is important, there are qualitative issues that need to be considered as well, even if there is no perfect way to model and measure qualitative considerations. In addition, any performance-based planning process must be able to accommodate the existing pipeline of projects.

While the two recent planning and programming AASHTO events focused primarily on state DOTs, the participants agreed that performance-based transportation planning, programming, and project selection cannot be successful without the additional support of MPOs, transit agencies, and other transportation partners who are responsible for planning and delivering transportation projects. Although it may take a few authorization cycles to get it right, Federal, state, and local agencies should collaborate to define and support a consistent performance-based planning process that leads to better decisions.

## **Performance-Based Planning: A Federal Perspective**

*Gloria Shepherd, FHWA*

Gloria Shepherd, FHWA's Associate Administrator for Planning, Environment and Realty, provided a perspective on the potential Federal role of supporting and providing oversight for performance-based planning. She stressed that the role of the U.S. DOT in administering performance-based planning will be

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programming process) to advance the practice of performance management within the industry.

defined in legislation that is written by Congress. In this role, FHWA would prefer oversight of planning to focus more on the outcomes of the planning process, rather than the steps of the process itself. Likewise, a performance-based process also would shift emphasis from individual facility or project performance to overall system performance.

Developed in consultation with AASHTO and APTA, FHWA has identified five logical national goal areas:

- Safety;
- State of good repair;
- Mobility and congestion;
- Environment; and
- Freight.

Metropolitan and statewide plans would contain goals, objectives, performance metrics, and timeframes

that lead to strategies that directly support the identified national goal areas. Ms. Shepherd indicated that as long as local and state targets roll up to the national goals, U.S. DOT is amenable to local target-setting. Although state transportation improvement programs (STIP) and metropolitan transportation improvement programs (TIP) will still be project-based, agencies will be required to show how the program of projects supports the goals and objectives of the plan.

To transition to a performance-based planning approach, Ms. Shepherd suggested that agencies focus on a limited set of goals and performance measures to start. The goals and associated measures should be based on data that is established, accessible, and reliable. While the transition to performance-based planning may be difficult, the Federal government and state and local agencies will need to work together to ensure that changes to the planning process result in system performance improvements.

#### The Role of National Performance Goals

During the question and answer period, it was noted that some transportation system performance goals, such as greenhouse gases and freight system connectivity, require a multi-state/national perspective. Given that national goals require considerations beyond a state or local focus, accomplishing national goals will require collaboration across state borders. Achieving an effective level of multi-state collaboration, however, may require national leadership to unite state and local agencies.

## Transportation in Transition: Performance-Based Planning

*Ann Flemer, Metropolitan Transportation Commission*

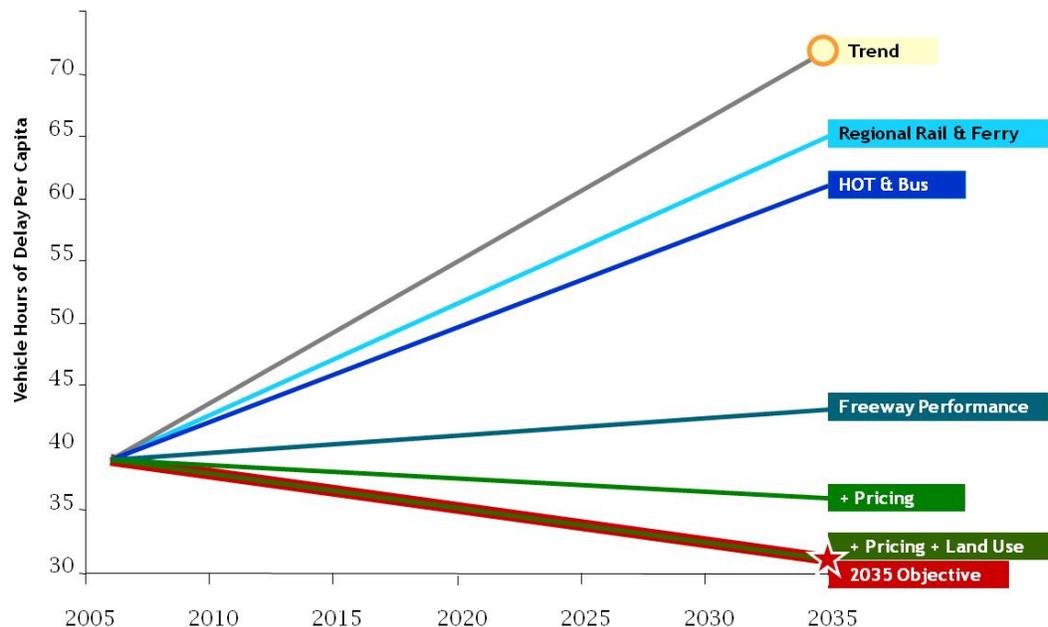
Ann Flemer, Metropolitan Transportation Commission's (MTC) Deputy Executive Director for Policy, described the performance-based planning process that went into the development of the MTC's Long-Range Plan for 2009-2035. The objectives of MTC's long-range planning efforts were to predict the region's ability to achieve specific desired outcomes, compare investment choices against those desired outcomes, and measure results to determine if a change in direction is necessary.

The MTC defined goal areas and set specific quantifiable targets in those areas. To map out how they would achieve each goal, MTC planners modeled different investment strategies and forecast the performance of those strategies, as shown in Figure 2.2. This process allowed MTC to communicate to the public and elected officials how each strategy (transit, demand management, pricing, etc.) relates to a specific target. For some goals, this process demonstrated that even if MTC implements all of the strategies, they may still fall short of the target.

To further guide decision-making, the MTC used performance measures to compare investment choices. They compared the benefits and costs of various strategies with the number of defined goals each strategy would achieve. They found that to achieve their goals they needed to focus on the use of technology, system management, pricing, and land use strategies and to be more strategic about their capacity investments.

To prepare for the next long-range plan, the MTC is investing in a new activity-based travel model, visualization, and data collection tools. MTC is working closely with public agency partners to collect and analyze data on nontraditional transportation issues such as housing, energy, and air quality and is examining the potential to meet additional data needs through partnerships with the private sector.

**Figure 2.2 Modeling Desired Outcomes in the Bay Area**  
*Congestion: Vehicle Hours of Delay*



Source: Metropolitan Transportation Commission

### Communicating the Importance of Long-Term Projects

It was noted during the question and answer period that many transportation projects require not only a long lead time for planning and implementation, but also for monitoring and communicating the project's impact. While elected officials want to see their projects move quickly, transportation agencies have responsibilities to both short-term project implementation and long-term planning. For long-term projects, the panelists suggested that agencies rely on good data and predictive performance, such as travel demand outputs, to estimate potential impacts. They also recognized that some projects may require complementary investment (such as development around a transit station, for example) to meet ridership and performance goals. In the interim, the panelists suggested celebrating the small successes and communicating the outcomes of smaller, shorter term projects that lead up to the larger goals.

### A Transit Perspective

*Susan Borinsky, Federal Transit Administration*

Susan Borinsky, Associate Administrator for Planning and Environment for the FTA, described the FTA's evolving perspective on the use of performance measures. Traditionally, transit agencies have used performance measures to track operational performance (on time service, accidents, ridership, etc.). Given the Administration's emphasis on sustainability and livability goals, however, the FTA is examining ways to expand the use of performance measures to achieve these broader goals. There is consensus at FTA that performance-based planning is the right direction for establishing accountability for transit investments.

### Reconciling Performance Reporting Requirements Across Modes

During the question and answer period, participants representing multimodal agencies noted some disparities in the performance data and reporting requirements by mode at the Federal level. They indicated that FTA's stringent requirements make it difficult to qualify for transit funding, while highway funding from FHWA is more easily acquired. In response, the panelists suggested that when moving toward a more performance-based Federal transportation program, Federal agencies would set general performance-based planning guidelines. States and MPOs would be responsible for collaborating and using good judgment when setting fair reporting and performance requirements across modes.

Ms. Borinsky described how the New Starts grants program is working to define performance measures for the evaluation of new transit projects. Through this process, the FTA has learned a few important lessons:

- A performance-based evaluation process should be clear, simple, and easily understood by a broad audience;
- The process should not be onerous (costly and time-intensive) and should rely on existing data collection sources when and where they are available; and

- The unintended consequences of goals and measures must be considered, as slight changes in evaluation criteria can lead to large differences in the allocation of resources.

Ms. Borinsky concluded that the forum provides an opportunity to take performance-based planning to the next level and expressed the U.S. DOT's eagerness in helping DOTs, MPOs, transit agencies, and the public arrive at a performance-based, data-driven, outcome-oriented process.

## 3.0 Performance Management State of the Practice

Plenary Session 2, Performance Management State of the Practice, focused on domestic case studies. Speakers presented the current state of the practice from state, regional, and transit agency perspectives. A lunch presentation highlighted the findings of a recent international scan on linking performance measurement and accountability. The following is a summary of these domestic and international presentations.

### Plenary Session 2 Highlights

- Performance-based planning provides transparency and accountability to transportation programs, while also allowing flexibility to meet local needs.
- Implementing a customer-based approach to performance management has proven successful for establishing goals, defining expectations, and prioritizing needs.
- Establishing performance measure owners or developing individual performance measures helps to achieve continuous improvement within an agency.

### 3.1 DOMESTIC CASE STUDIES

#### **Performance Management: Just Do It!**

*Mara Campbell, Missouri Department of Transportation*

Mara Campbell, Missouri DOT's (MoDOT) Director of Organizational Results, discussed Missouri's journey to develop a performance-based process and lessons learned, as well as its participation in AASHTO's recent comparative performance efforts.

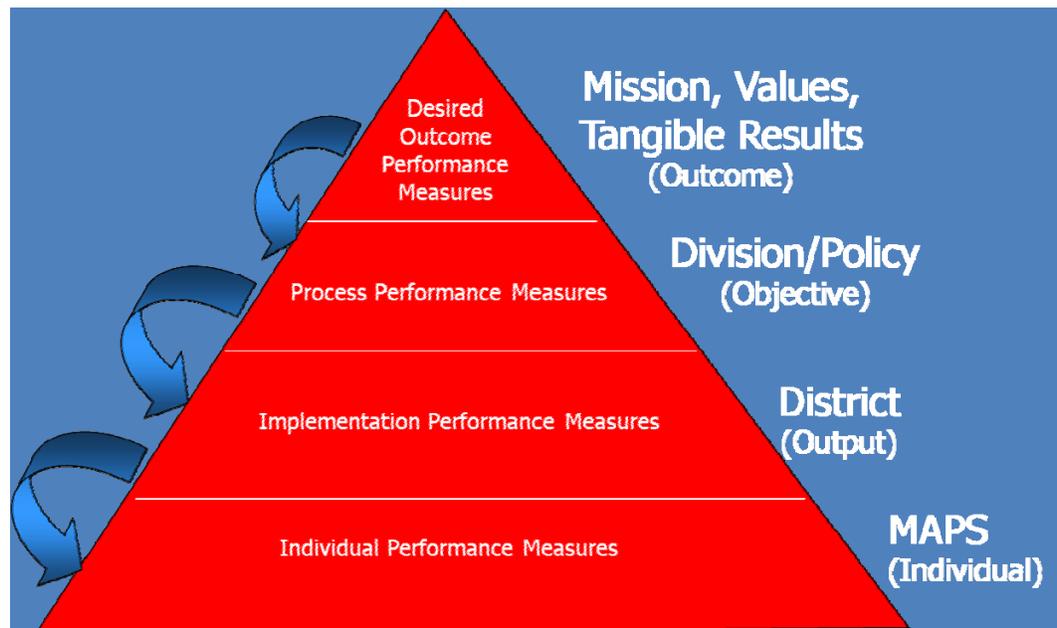
MoDOT used a customer-based approach to define expectations and to deliver tangible results that aligned with what customers wanted. For example, the DOT used a "smooth roads" initiative where customers were driven on the roads and asked to explain from their perspective what a smooth road meant. The findings of this initiative demonstrated a significant difference in definition between engineers and customers. Through this and similar processes, 100 measures centered around 18 "tangible results" were developed, which are monitored in MoDOT's Tracker.

MoDOT also embarked on a change in culture at the organization to reflect greater accountability through an inclusive performance measurement process. They hold regular meetings to track performance of each division and to compare the performance across the divisions. By cascading measures down to the division level, more members within the organization were involved in the

performance measurement process. Every member understands his/her role, how it fits into the organization, and how it affects agency performance (Figure 3.1). At quarterly review meetings with the Executive Director, accountability and action as a result of reported performance are paramount.

Overall, this performance-based process has helped MoDOT to allocate resources to projects and between districts. It has helped to make informed, defensible decisions in tough economic times.

Figure 3.1 MoDOT’s Performance Management System



Source: Missouri Department of Transportation

Ms. Campbell emphasized the significance of strong leadership and a willingness to get started and not wait until the “perfect” measure or performance process is in place. Any agency can adjust it over time.

Finally, she indicated the benefits of benchmarks and comparatives, though practitioners should be mindful of differences in data collection between states that could cause a particularly good or poor result.

## Regional Transportation Commission of Southern Nevada – Performance Measurements

*Tina Quigley, Regional Transportation Commission of Southern Nevada*

Tina Quigley, Deputy General Manager of the Regional Transportation Commission of Southern Nevada (RTC), described some of the nuances of performance reporting, focusing on the necessity of understanding the drivers behind good or poor performance within a certain metric. For example, the unique layout and tourist market of the Las Vegas Strip positively impacts the RTC’s performance within many required FTA performance areas. When revenue dropped after opening a new bus rapid transit (BRT) line, the RTC talked to riders and gathered more data to understand the causes.

Another unique feature in Las Vegas is the role the gaming industry plays in the economy, and therefore the role they play as stakeholders in the transportation planning process. The RTC worked with them to develop a prioritization process supported by simple performance measures. The process resulted in a similar set of prioritized needs as had previously been developed by the RTC, but with stakeholder support.

In addition to transit, the RTC manages traffic management systems and roadways. It uses data collected through ITS to monitor highway performance, and these data have been used to measure the impacts of express lane implementation.

### Measuring Success

Data alone may not tell the full story – it is also important to understand the “why” behind the numbers. Based on data from the National Transit Database, the RTC system is the most efficient system in the nation (based on cost per passenger trip), has the most profitable transit route in the country, and boasts one of the highest farebox recovery ratios in the U.S. However, the linear layout of the Las Vegas Strip, captive audience, and ability to charge “resort area” fares are some of the underlying factors that contribute to the system’s impressive performance.

## Public Transit Performance Measurement: Measure What Really Matters

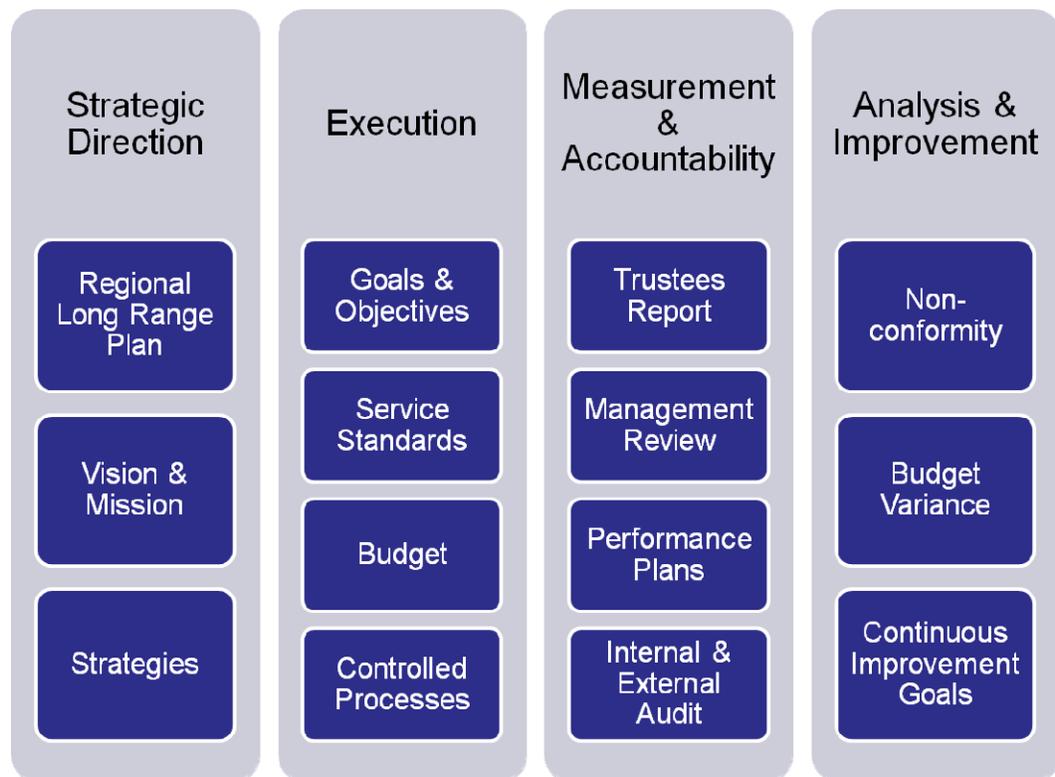
*Jerry Benson, Utah Transit Authority*

Jerry Benson, Chief Operating Officer for the Utah Transit Authority (UTA), discussed his agency’s involvement in a broad-based, citizen-driven process for Utah’s preferred future. He framed the process around a simple question for the agency: “How is the world different because we exist?” This perspective helped to establish a broader vision and then to understand how the agency helps to achieve that vision. The issues that mattered to the community included economic health, environmental protection, and other community-building factors. In order to address these broader needs, a coalition around Utah’s future was formed to develop a long-range plan for the State. Working towards these

goals and measuring progress requires close collaboration with many other local, regional, and state agencies.

Currently, UTA uses an ISO certified Quality and Performance Management System to evaluate its strategic direction and execution of its identified goals (Figure 3.2). This system is rolled into performance plans for continuous improvement. Every process has an owner, and all processes are expected to achieve continuous improvement.

Figure 3.2 Utah Transit Authority's Quality and Performance Management System (QPMS)



Source: Utah Transit Authority

Mr. Benson identified several challenges in the process for the UTA:

- No regional land use plan or authority;
- Multiple MPOs;
- No regional outcome goals;
- Unregulated, private parking; and
- An air quality conformity process that does not enable flexibility or creativity.

## **North Country Council – Bethlehem, New Hampshire**

*Michael King, North Country Council*

Michael King, Executive Director of the North Country Council, emphasized the unique challenges rural agencies face in performance measurement. The North Country Council collects input from local officials and communities, provides technical assistance, develops regional priorities, coordinates with local land use and economic development plans, and conducts traffic studies, among other duties.

Mr. King indicated that the state long-range transportation plan (LRTP) encompasses broader elements such as quality of life, focuses on integrating planning and investment decision-making across modes, and is very “customer-driven.” He also discussed other state initiatives, such as those related to climate and sustainability. For both state-level initiatives and regional ones, Mr. King stressed the importance of coordination between agencies and stakeholders and developing relationships. This is a particularly important role of the rural planning agency.

Some of the key priorities for a rural agency are economic development, housing, and quality of life. As a result, it is important that there are clear measures for these types of areas relative to transportation measures.

## **3.2 INTERNATIONAL EXPERIENCE**

During lunch on the first day of the forum, Jane Hayse, Transportation Planning Division Chief of the Atlanta Regional Commission, presented a summary of a recent international scan on linking performance measurement and accountability. For two weeks in July and August 2009, a scan team from the United States visited international transportation agencies with mature performance management systems to study how these organizations demonstrate accountability to elected officials and the public. In addition, the team examined how these transportation agencies use goal setting and performance measures to manage, explain, deliver, and adjust their transportation budgets and internal activities.

As documented in the international study team's final report, *Linking Transportation Performance and Accountability*, the scan provided considerable insight into the evolution of performance management among nations that have practiced it for at least a decade.<sup>2</sup> Their systems have matured and evolved in ways that provide lessons for the United States. The scan also validated the use of performance management as an effective means to translate broad government goals into meaningful agency practice. The performance management systems observed abroad provided transparency and accountability to transportation programs, while also allowing flexibility to meet local needs. The officials offered the scan team advice in several key areas of performance management. The following outlines their advice and the scan team's conclusions:

"Indicator development is an evolutionary and fluid process – there is never one right way and it requires continuous dialogue" – New South Wales Roads and Traffic Authority.

1. Articulate a limited number of high-level national transportation policy goals that are linked to a clear set of measures and targets.
2. Negotiate intergovernmental agreements on how state, regional, and local agencies will achieve the national goals while translating them into state, regional, or local context and priorities.
3. Evaluate performance by tracking the measures and reporting them in clear language appropriate for the audience.
4. Collaborate with state, regional, and local agencies to achieve the targets by emphasizing incentives, training, and support – instead of penalties – as the preferred way to advance performance.
5. Perpetuate long-term improvement by understanding that the real value of performance management is an improved decision-making and investment process, not the achievement of many arbitrary, short-term targets.
6. Improve the use of benefit/cost analysis and risk management practices to demonstrate value for money. Consider major project post-construction evaluations to assess whether benefits included in the original benefit/cost assessments were realized.
7. Recognize that major national visions, not achievement of narrow targets, tend to generate new investment.
8. Convert long-term deferred maintenance needs into a long-term future liability calculation. This would clearly link the budget to long-term system sustainability.

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<sup>2</sup> Federal Highway Administration and American Association of State Highway and Transportation Officials, *Linking Transportation Performance and Accountability*, April 2010. [http://www.international.fhwa.dot.gov/links/pub\\_details.cfm?id=659](http://www.international.fhwa.dot.gov/links/pub_details.cfm?id=659).

9. Demonstrate accountability by producing annual performance reports on agency achievements.
10. Instead of using technical jargon, report results with language meaningful to the public, such as “the journey home” or “support for the journey.” Detailed technical terms should be used for internal reporting, but should be translated into understandable language for the public.
11. Collaborate frequently with other cabinet agencies, including conducting periodic meetings with top leadership on crosscutting issues such as economic development, public health, highway safety, and climate change.
12. Have a strong safety focus and document the results of safety measures, in addition to the usual measures of infrastructure condition, internal operations, transit, and rail on time performance.
13. Focus on desired outcomes for travel time reliability that lead to expanded strategies for highway operations.
14. Learn from international examples of addressing climate change that rely on improving vehicles, fuels, and modal choice, but do not mandate reductions in travel or mobility.
15. Provide resources to enable high-quality data tracking, analysis, and reporting capabilities that allow for the use of performance data in decision-making.
16. Recognize that performance management is not a black box or simplistic solution. It is a culture to grow in the agency as an important consideration in the decision-making and investment process.



## 4.0 Breakout Sessions 1 and 2: Regional and Statewide Context Case Studies

During the afternoon of Day 1, the participants were divided into five breakout groups, each with representatives of state DOTs, MPOs, transit, and rural planning agencies, to discuss two case studies. The first case study, provided in Appendix D, focused on performance-based planning and programming in a regional context. The second case study (Appendix E) considered issues and challenges from a statewide perspective. Following the breakout sessions, the conference organizers, breakout facilitators, and breakout recorders compiled a summary of the key themes and issues that emerged from the breakout discussions. During Plenary Session 3 the following morning, Lance Neumann provided an overview of the breakout discussion themes.

### Plenary Session 3 Highlights

- Participants expressed general enthusiasm that performance-based planning and programming offer great promise for improving the relationship between investment decisions and enhanced transportation system performance.
- While performance-based planning provides an opportunity to improve communication with stakeholders, to strengthen collaboration with partner agencies, and to link funding with performance, agencies face the challenge of dealing with multiple goals and agendas across modes and functional areas as well as resistance to change when shifting away from a decision-making process driven by political concerns or equity issues.
- Now is the time to build on the considerable amount of past work and define practical next steps for moving forward.

Mr. Neumann reported that, overall, the facilitators noted a positive energy about performance-based planning and programming from all of the participants. This was voiced across both the five breakout groups and the various types of agencies represented. As a note of caution, there was a discussion about the institutional and political impediments that agencies face in moving towards a more performance-based planning model. However, there was a general agreement that rather than dwelling on the barriers, we need to focus on constructive next steps toward implementation. The general themes voiced by the breakout groups were categorized into the following key topics:

- **Education and Communication** – The use of a performance-based planning process provides an opportunity to improve communication between the agencies and their various stakeholders. This includes both the public as well as elected officials. Performance-based planning can be helpful by providing

better information to the public that can lead to more informed discussions. It also can help with better defining expectations with the public for what types of programs and projects can be funded and delineating the likely system performance that can be achieved.

- **Connecting Performance to Funding** - Performance management is a useful tool both in identifying existing and future needs as well as in projecting the likely system performance results of various funding scenarios to address the identified needs. It is important to realize that the incorporation of performance management into the planning process is a long-term strategy and that its use over time can help build public trust.
- **Collaboration** - It is important to recognize the need for stronger collaboration with both traditional and nontraditional partners. This is true for both urban as well as rural settings. While it may be possible to identify a common set of goals, the establishment of measures to address the goals will vary depending upon the location (urban or rural, state, or region) as well as the mode. Finally, the process needs to be continuous and subject to reevaluation.
- **Planning and Programming** - It was noted during the discussions that there can be a disconnect between long-range transportation plans and programmed projects. With the long-range plan, it can be easier to come to agreement on a broad set of goals. However, once an agency moves towards the programming phase, it can be more difficult as topics such as funding equity and local needs are emphasized versus system performance. Across the country, there is no one model for the relationship among state DOTs, regional transportation planning agencies, and transit agencies when dealing with planning and programming issues.
- **Measures** - There is a broad sense that the agencies have a well-developed set of measures for understanding preservation, state of good repair, and mobility. However, there is a range of opinion on how to deal with issues dealing with multimodal and mode-neutral issues. This includes the shift in focus on people versus vehicles. It is important to capture examples of these experiences and share them within the transportation community. Future efforts to better define measures should focus on those topics that are more difficult to quantify easily, including the environment, livability, freight issues, and economic development as well as rural connectivity.
- **Data** - Data is the backbone of performance-based planning and programming. Data collection and analysis, however, remains a concern to many agencies, especially given current funding limitations. Steps could be taken to assure that each specific performance measure is underpinned with accurate, consistent, and timely data. This process begins with assessing the adequacy of current databases such as FHWA's Highway Performance Monitoring System (HPMS) and FTA's National Transit Database (NTD). Many agencies are more concerned about data availability, quality, and

affordability than data quantity. Having too much data is not only expensive, but also potentially confusing and unwieldy. Suggestions to improve performance measurement data collection include building on information and tools already available, collecting only data that is actually used to make decisions, and planning for smooth transitions as legacy systems are replaced.

- **Performance Targets** – Performance measure targets help to connect agency goals with investments. They represent a quantifiable point in time against which progress towards achieving a goal can be assessed. While it is relatively common for agencies to have targets for more traditional goal areas such as bridge and pavement preservation, safety, and transit operations, it is less common in the so-called nontraditional areas such as environment, freight/economics, and livability. While practices for setting performance targets vary among agencies, common factors considered include funding, timeframe, stakeholder expectations, and organization span of control.
- **Tradeoff Analysis** – There are many types of tradeoffs across modes and functional areas. Some agencies are looking across functional areas as they make their funding decisions. We should better understand what these agencies are doing and identify those practices that may be transferable. There are new tools and data available, but there is a need to recognize that there are costs associated with adopting new technologies and tools. There may be a useful role for the U.S. DOT to play in overseeing the development of these new tools.
- **Challenges** – An agency faces a number of challenges as it implements performance-based planning. At the institutional level, challenges include lacking the financial capacity to fund needed investments, dealing with multiple goals and agendas across an agency, and resistance to change within an agency. Successfully overcoming these challenges will require a strong relationship over time among the various actors as well as the need to obtain staff buy-in. There also are challenges due to the differences in the technical capacity of agencies. Finally, there is the challenge in trying to shift away from a decision-making process driven by political concerns or equity issues to one that is driven more by performance data.
- **Next Steps** – Based on the Breakout Session 1 and 2 discussions, there is support for moving towards more performance-based planning. Now is the time to focus on practical next steps. These include acknowledging that there are variations in the practice of performance management and that the agencies will face different challenges depending upon their composition. Now is the time to build on the considerable amount of past work and define specific actions for moving forward.



## 5.0 Resource Allocation and Accountability

Plenary Session 4 focused on the topic of using a performance-based planning and programming process to establish greater accountability for resource allocation and budget decisions. There were two separate panel discussions: one panel focused on resource allocation, while the second panel discussed accountability.

### Plenary Session 4 Highlights

- Interactive prioritization processes that bring together diverse stakeholder perspectives have helped several agencies reach agreement on where to allocate limited funding.
- Incentives, rather than a punitive approach, were discussed as being more effective for driving performance and accountability.
- While agencies can use performance-based planning to demonstrate accountability, participants cautioned against being held accountable for factors out of their control.

### 5.1 RESOURCE ALLOCATION

The first panel of speakers focused on how to integrate performance management and measures into the programming and budgeting process. The following is a summary of the speakers' remarks.

#### **Resource Allocation in Pennsylvania**

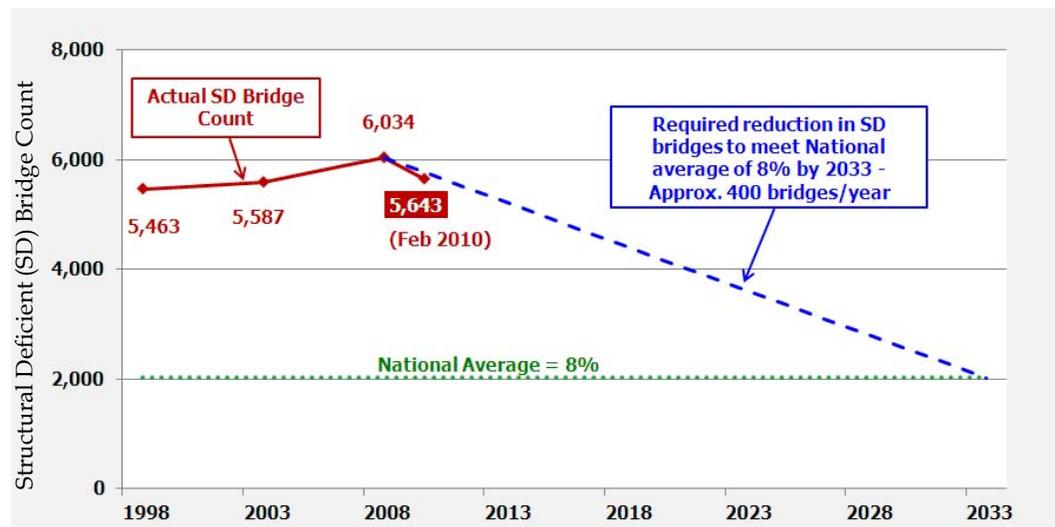
*Jim Ritzman, Pennsylvania Department of Transportation*

Jim Ritzman, Deputy Secretary for Planning at the Pennsylvania Department of Transportation (PennDOT), discussed the performance management process currently used by the agency. Responsible for over 40,000 state-owned roads and 25,000 bridges, PennDOT must work closely with a range of stakeholders throughout its planning efforts. It organizes a financial guidance working group to update its four-year STIP, using this collaborative process as a way to discuss all expected sources of funding with MPOs and regional planning organizations (RPOs). The financial guidance working group meets every two years and evaluates the formulas by which funds are distributed between individual MPOs and RPOs. The intent of this working group is to ensure that funding decisions are needs-based, but not rewarding bad behavior (or poor asset management decisions). The guidance resulting from the financial working group allows PennDOT to hold an annual planning meeting where there is an almost unanimous consensus on funding allocation between the state, MPOs, and FHWA.

To illustrate how a performance-based resource allocation process could work, Mr. Ritzman discussed an example related to the State’s large number of structurally deficient bridges. The PennDOT analysis shown in Figure 5.1 demonstrates that reducing the State’s number of structurally deficient bridges to reach the national average would require a long-term sustained investment.

“With respect to bridge condition, PennDOT is in catch up mode. We’ve drastically cut capacity projects so that we can allocate the money necessary to reach our bridge condition goal.” – Jim Ritzman, PennDOT

Figure 5.1 PennDOT Structurally Deficient Bridge Sustained Program Needs



Source: Pennsylvania Department of Transportation.

*Amy Kessler, North Central Pennsylvania Regional Planning Commission*

As Director of Community Development and Regional Planning for the North Central Pennsylvania Regional Planning and Development Commission, a regional development organization that collaborates closely with PennDOT, Amy Kessler discussed North Central’s participation in resource allocation and financial guidance. Throughout the transportation planning process, the RPO used a software tool (Decision Lens) to streamline the decision-making process. This tool helps develop, compare, and establish project prioritization criteria; allocate resources; and evaluate projects. North Central develops a project list from a broader perspective that includes an understanding of the political landscape, development patterns, and other items, while PennDOT tends to focus on asset management data in evaluating its projects. The decision-making tool helps pull together and factor in criteria from both the local and state perspective to compare and ultimately prioritize projects. This enables the region to reach an agreement on where to direct funding and resources where the region gains the greatest return on investment. In summary, the planning

community was able to evaluate projects against agreed upon weighted criteria and to allocate resources based on a cost/benefit method.

### **Resource Allocation in the Houston-Galveston Area**

*Alan Clark, Houston-Galveston Area Council*

Alan Clark, Houston-Galveston Area Council's (H-GAC) Manager of the Transportation and Air Quality programs, discussed how H-GAC developed its long-range plan. The council used a scenario-based process that involved significant public and community engagement. This resulted in identifying common values and goals within the community, including preserving open space and bringing where people work and live closer together. There were major challenges to developing the long-range plan because of the fiscally constrained environment. In addition, elected officials are not always aware of project needs and may not see how their projects are prioritized. H-GAC uses measures that are not necessarily performance-based, but are broader and more flexible. Some stakeholders believed that traditional performance-based measures might limit the competitiveness of certain types of projects, such as bicycle and pedestrian projects. Mr. Clark also highlighted several areas where he would welcome more discussion, including flexibility in project pipelines, allocation of funding, and project development.

### **Informing Resource Allocation: Role of Performance Measures**

*Patricia Hendren, Washington Metropolitan Area Transportation Authority*

Ms. Hendren, Director of the Office of Performance at the Washington Metropolitan Area Transit Authority (WMATA), discussed recent efforts to link capital project selection to agency strategic goals. Facing over \$11 billion in capital needs from FY 2011 to FY 2020 and daunting funding constraints, WMATA staff established a strategic process to identify what "needs to get fixed first." To accomplish this, a cross-agency group of subject matter experts, the Capital Planning and Advisory Committee-Technical (CPAC-T), evaluated the contribution of each capital project towards achieving WMATA's five strategic goals and 12 related objectives. Each CPAC-T member would advocate and vote on behalf of its needs, in addition to being able to hear and vote on the needs across other departments. This open evaluation forum established a transparent and collaborative approach to evaluating capital programs, built consensus, and linked decisions to WMATA's strategic goals. The process was piloted to allocate WMATA's \$202 million American Recovery and Reinvestment Act (ARRA) funds. As a result, over 70 percent of the funded ARRA projects were selected through the new strategic prioritization process. When the prioritization process approach was applied to WMATA's \$11 billion in capital needs, the adoption of CPAC-T recommendations by management was not as effective. Nevertheless, the capital prioritization process resulted in a robust, strategically prioritized inventory of needs.

To further strengthen the linkage between strategic goals, measures, and decision-making, WMATA created an Office of Performance. The purpose of the office is to use performance information to guide actions, to promote Metro's benefits in the region, and to unify employees to accomplish agency goals. Simply put: inform, promote, unify.

Ms. Hendren concluded her presentation with the following recommendations to further link performance measures and programming:

- Develop transit asset management tools;
- Form a U.S.-based transit benchmarking organization;
- Increase collaboration across state DOTs, MPOs, and transit agencies on strategies to reach common transportation goals;
- Increase Federal coordination (e.g., FTA and FHWA); and
- Assess the National Transit Database.

## 5.2 ACCOUNTABILITY

The second panel of speakers focused on how they have used performance measures to demonstrate accountability and discuss benefits and risks.

### **Michigan Department of Transportation**

*Susan Mortel*

Susan Mortel, Director of the Bureau of Transportation Planning at the Michigan Department of Transportation (MDOT), discussed the benefits and risks of performance management. She noted how performance measurement could improve credibility through accountability, used as another way to communicate with the public and offer a way to discuss what is achievable with the funding available. It also can inform overall project delivery and be used as a powerful management tool to make midcourse corrections.

In discussing risks, however, Ms. Mortel pointed to the American Recovery and Reinvestment Act of 2009 (ARRA) process. Experience with ARRA demonstrated that lack of agreement on goals, misalignment of expectations with results, and no agreement on what to measure in terms of success could lead to ineffective performance management. While ARRA included significant data collection, we have yet to see where and how the data will be used. Other risks in performance measurement include a disconnect between technical and perceived condition and subjectivity in measurement. For example, it remains unclear how one measures sustainability and environment. Also, data is available but not used appropriately enough to effectively drive investments. Finally, there is a significant risk and concern regarding a gap between legacy and new projects. If a legacy project does not match with existing or new performance management system, what is the appropriate outcome?

## **National Capital Region Transportation Planning Board**

*Ron Kirby, Metropolitan Washington Council of Governments*

Ron Kirby, Director of Transportation Planning for the National Capital Region Transportation Planning Board at the Metropolitan Washington Council of Governments, discussed the need to pay attention to lessons learned regarding the performance management process. He pointed to a recent conference proceedings on performance-based Federal surface transportation policy, where they highlighted how a punitive approach to not meeting performance measures was ineffective.<sup>3</sup> There is a general consensus within the performance management community that states, MPOs, and other entities did not want to be held accountable for factors out of their control. Mr. Kirby stressed this issue by presenting air quality conformity requirements as an example. These requirements represent “hard targets” that an MPO does not have direct control over, but are tied to funding. As a result, the “hard targets” or absolute numbers end up being a punitive measure. Mr. Kirby expressed the need to evaluate this issue critically and to identify whether these types of measures actually drive better performance. On the contrary, the TIGER (Transportation Investment Generating Economic Recovery Act) process was cited as an approach that created the right incentives because of its comprehensive cost/benefit analysis tool. Its concept was clear to elected officials and developed scenarios based on aspirations, not hard targets.

## **Rochester Genesee Regional Transportation Authority**

*Mark Aesch*

Mark Aesch, CEO of the Rochester Genesee Regional Transportation Authority (RGRTA), discussed the performance measurement strategies used by the agency. He highlighted several key themes, including the importance of a vision statement, the need for clearly articulated goals, and the importance of incentives. The RGRTA developed specific measures in multiple areas such as finance, customer service, and productivity. They set targets for these measurements and developed a point system to evaluate employee’s progress toward specific targets. Targets were achievable and not impossible. Providing incentive compensation to employees for meeting targets was a critical tool for driving performance. The lessons learned here was to pay incentives on a more frequent basis and to allocate enough funds for it. Lastly, Mr. Aesch discussed the need for courage in decision-making. With a proper performance measurement system, there may be “sad” decisions to make, but not necessarily “tough” decisions.

“With a proper performance measurement system, you will not have to make too many tough decisions. There may be ‘sad’ decisions to make, but not necessarily tough decisions.” – Mark Aesch, RGRTA

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<sup>3</sup> Bipartisan Policy Center, *Transitioning to a Performance-Based Federal Surface Transportation Policy – Workshop Summary Report*, June 2010. <http://bipartisanpolicy.org/sites/default/files/NTTP%20Workshop%20Summary%20Report.pdf>.



## 6.0 Breakout Sessions 3 and 4: Topic Discussions

Breakout Sessions 3 and 4 focused on five different topics, from which participants selected and attended two:

- Setting goals and selecting appropriate performance measures;
- Setting performance targets and tracking performance results;
- Project priority setting and tradeoff analysis;
- Implications of performance-based planning for LRTPs and TIPs; and
- Implications of a broader planning process encompassing livability, sustainability, etc., on performance-based planning and programming.

Given that participants selected topics based on their interests, each session generally had a diverse group of participants, including representatives from state DOTs, MPOs, U.S. DOT, transit, and rural transportation professionals.

This section summarizes the key issues and themes identified in the two breakout sessions by topic, as summarized by the breakout group facilitators during Plenary Session 5.

### Plenary Session 5 Highlights

- Setting goals and performance measures is commonplace for many agencies, but not all strategic goals are easily measureable.
- Target-setting helps agencies establish resource allocation priorities and interface with the public, but setting the wrong targets could have unintended consequences.
- While participants provided examples of how their agencies are using performance-based tradeoff analysis and priority setting to allocate funding across programs, geographic areas, and/or projects, accounting for the existing pipeline of projects remains a challenge.
- In general, state, regional, and local agencies welcome stronger Federal participation in the LRTP and TIP planning processes as long as it is a partnership, not punitive, role.
- Incorporating livability and sustainability into the planning process would require significantly more collaboration among state DOTs, MPOs, and transit agencies and would need to be adapted to reflect each region's unique needs.

## 6.1 SETTING GOALS AND SELECTING PERFORMANCE MEASURES

Joe Crossett, a Partner with High Street Consulting Group, summarized the discussions of two breakout groups that examined how to set goals and select performance measures. His key observations about the discussions included:

- **Setting Goals and Performance Measures is “Business as Usual” for Many Agencies** – Participants in the breakout groups were generally comfortable with the concept of setting goals and measures for their own agencies. Based on the sampling of participants in the breakout groups, this practice appears commonplace at many transportation agencies. Some participants in the breakout groups even expressed skepticism about the need to “revisit” what is now perceived by many as a basic topic.

Goal areas highlighted by breakout group members included economic vitality, connectivity, asset management, safety, air quality, community livability, travel reliability, transportation security, climate change and energy independence, systems operations, and sustainability. Some participants noted, however, that better links are needed between goals and appropriate measures.

- **Processes Agencies use to Set Goals and Measures are Often Alike** – At the first breakout session, participants each had an opportunity to describe their own processes for setting goals and selecting performance measures. Participants described similar processes that often emerge via strategic or long-range planning activities and focus on development of a small number of high-level goals and measures.
- **Not all Strategic Goals are Easily Measurable** – Despite general endorsement by the breakout groups of the need for goals and measures, participants pointed out that some goal areas are more difficult to select measures for than others. In particular, “economic development” and “livability” were cited as “difficult to measure” examples but important issues.
- **Goals and Measures that Fit Rural Needs are a Challenge** – Some participants pointed out that while much progress has been made on developing urban-focused goals and measures, an increased emphasis on rural-specific goals and measures is needed.

- **State and Regional Transportation Agencies Can Align their Goals –** Anecdotally, several of the “pairs” of regional and state transportation agencies that participated in the breakout sessions expressed optimism about their current abilities to work together, particularly to establish shared transportation goals (although shared measures do not appear to be common). While the agendas for state and regional transportation agencies need not align precisely, participants described collaboration on important goals as a matter of routine practicality. They also noted that coordination is not legislated or mandated, but occurs naturally where needed.

#### Competing Goals

While optimistic about the potential for aligning goals across multiple transportation agencies in a region, the breakout groups recognized that competing goals may arise. As an example in Maryland, a roadway expansion project and a proposed transit connection are in competition for funding and approval. Aligning goals can also be difficult when transportation agency goals come in conflict with non-transportation agencies, such as environmental or economic development agencies. Coordination among the region’s partner agencies is needed to reach consensus on strategic goals.

- **Potential Framework for National Performance Goals and Measures –** While participants could not agree on many shared national goals and were averse to prescriptive mandates, they did agree that Federal agencies should work to set broad national priorities and to provide guidance and support to agencies on how to interpret those priorities in their own regions. Areas of opportunity identified by the breakout groups for establishing national goals and measures include asset preservation, economic development, and connectivity in urban and rural areas. Measures, such as those evaluating pavement condition, could be established for the National Highway System. Areas of concern included creation of unfunded mandates, lack of recognition about rural-focused issues, and how measurement results will be used.

Mr. Crossett outlined several next steps identified by the discussants in the two breakout sessions. Similar to groups in other sessions, they identified the need to coordinate, not only among the groups present, but also with nontransportation partners to set strategic goals. Participants felt that the Federal government should provide guidance by starting the discussion with ideas for performance areas and application, and that pilot studies should then be conducted.

## 6.2 SETTING PERFORMANCE TARGETS AND TRACKING RESULTS

Randy Halvorson, Senior Associate of Cambridge Systematics, summarized the discussion that occurred at the breakout groups focused on the topic of setting performance targets and tracking results. He began each session by defining a

target as “a quantifiable point in time against which progress towards achieving a goal can be assessed.” He then asked the question: why set performance targets? In response, the participants in the two groups generated a list of reasons for setting targets (pro) and a list of reasons for not setting them (con).

The Pros and Cons of Setting Targets	
The breakout group participants identified the value and potential pitfalls of setting performance targets:	
PROs	CONs
Frames expectations/sets the bar	Lack of control over some issues
Provides focus and direction	Competing targets
Sets priorities for resource allocation and decision-making	Sets false expectations, too high/low
Provides measures of success	False sense of progress/failure
Establishes credibility	Fear of failure
Provides public communication tool	Some outcomes difficult to measure

Several individuals indicated that their agency set performance targets and used the targets in their resource allocation process. They thought this procedure enriched decision-making by “setting a visible bar” or performance expectation for which key staff was accountable. The targets were set with input from a broad array of stakeholders including other units of government, the public, and elected officials. Agreements among the parties were sometimes formally captured in documents such as the service agreements used in Texas between the DOT and MPOs.

Service agreements used in Texas between the DOT and MPOs were identified as useful tools for target setting and performance management.

Though there was evidence of successful target setting practices, some members of the group remained skeptical by citing the following issues:

- Achievement of targets could be affected by factors beyond an agency’s control. This can work both positively and negatively for an agency, and also could result in a lack of understanding of the causality between agency actions and actual impacts. Examples included reaching safety, congestion, emissions, and fuel consumption targets in recent years due to reduced travel because of the economic downturn.
- There is often a lack of public understanding of a target, how it was set, what it means, and what it takes to achieve it. Sometimes this results from a poorly defined target, perhaps due to lack of reliable data and tools; sometimes it results from not communicating the resources and money necessary to achieve the target. Within the context of a national program, target-setting could become more challenging due to differences in priorities among states and regions, as well as differences in data sources, requiring flexibility between states within the process.

- While setting targets can help to “set the bar,” setting the scale too low may actually prevent an agency from reaching its potential within a goal area, and setting the wrong targets could have unintended consequences.

The participants who advocated use of targets in resource allocation noted that targets were ultimately more suitable for some measures than for others and that different types of targets were warranted for different measures. For example, targets could be defined by a specific quantity, range, moving average, trend, or incremental improvement. They could also vary over different time periods – short-term and/or long-term. Targets do not have to remain static. In some jurisdictions, targets are updated on a regular basis (e.g., annually).

Both groups were genuinely interested in continuing the discussion on target setting. Through these discussions best practices could emerge which would provide guidance to those jurisdictions that want to use targets as part of their resource allocation process. The types of discussions that could occur include peer exchanges, webinars focusing on recent research studies, and special sessions at the annual meetings of the forum sponsors. Issues to be addressed at the national level include the use of common databases such as HPMS and NTD and the adequacy of those databases.

## 6.3 PROJECT PRIORITY SETTING AND TRADEOFF ANALYSIS

Joe Guerre, a Principal of Cambridge Systematics, summarized the discussions of the breakout groups focused on project priority setting and tradeoff analysis. He indicated that the initial discussions in these two sessions began with the participants talking about three types of resource allocation decisions:

- **Allocation across program areas** (e.g., bridge versus pavement versus capacity expansion) – There was a general consensus among the two groups that performance measures can play a key role in informing these types of decisions. A few agencies offered examples of this type of allocation process, but there were fewer examples in this area than in the other two areas described below. Given that the desire to better inform these types of decisions surpassed the state of practice, many participants flagged this as an area in which more guidance and/or examples would be helpful.
- **Allocation across geographic areas** (e.g., distribution of funds across districts) – In some cases, funds are allocated to program areas and then to geographic areas. In others, funds are allocated to geographic areas and then to program areas. Regardless of the approach, the participants agreed that performance measures can inform the process and that the basic challenges described below are the same.
- **Allocation to projects** – The participants described several examples of project prioritization methodologies. The methodologies were agency-

specific and typically combined elements of quantitative project-level performance measures, qualitative assessments of expected project impacts, and benefit/cost analysis. Despite the number of examples offered, there was less agreement on the extent to which measures should or could influence project decisions given the inherent role of political considerations in the planning and programming process.

Mr. Guerre then summarized the two groups' discussions on the main challenges of priority setting and tradeoff analysis and identified several options for furthering the state of practice in these areas.

- **Lack of funding flexibility** – Several agencies described state and Federal laws that limit the types of activities that can be performed with certain portions of their budget. These types of requirements limit the use of performance measures to drive allocation decisions. The participants discussed two strategies for addressing this issue. The first was to use performance-based planning and programming to maximize performance within these funding constraints. For example, if a set portion of the overall budget must be spent on pavement preservation, use a performance-based process to define which pavement projects should be done within that program. The second strategy was to use performance-based analysis to make the case for increasing funding flexibility. For example, an agency could show how improved flexibility could lead to improved performance over time.
- **Dealing with the existing pipeline of projects** – Given the programming cycle and the amount of time it takes for projects to move through the project development process, all agencies have an existing backlog of projects that are “in the pipeline.” Having multiple years worth of projects that already have been prioritized hinders the application of performance-based project prioritization methodologies. Strategies discussed for addressing this issue include: 1) emptying the pipeline before implementing a performance-based process; 2) phasing in the performance-based process by looking critically at out-year projects in the pipeline to determine what should be reevaluated; or 3) reevaluating all projects in the pipeline and making adjustments at one time. In all instances, agencies must communicate the performance implications/consequences of maintaining the pipeline of projects versus identifying new priorities.
- **Institutional and organizational difficulties** – Examples of these types of challenges include the role of politics in resource allocation decisions, resistance to moving from a more qualitative prioritization approach to a more quantitative one, and difficulty addressing the relationship between regional goals and priorities and local decision-making authority. One strategy for addressing these challenges includes strong direction and support for performance-based planning and programming from agency leadership. Participants also discussed framing potential Federal

requirements related to performance management as an opportunity to deal with institutional and organizational difficulties.

- **Lack of measures and analytical approaches outside of the preservation program areas** – The examples of current allocation practices provided by the participants strengthened the general impression that analytical capabilities quickly fell off for areas such as safety, capacity, economic development, etc. One approach to dealing with this challenge is to accept that agencies do not have to measure everything – well-defined, repeatable, qualitative approaches are valid until technical capabilities improve. Participants also discussed the need for decision frameworks that would enable them to conduct tradeoffs across modes and program areas within existing technology constraints.

#### Tradeoff Analysis

“What can we afford to sacrifice and what are the consequences?” When conducting tradeoff analysis, the breakout group participants cited the need for a refinement of tools that compare performance across programs.

## 6.4 IMPLICATIONS OF PERFORMANCE-BASED PLANNING FOR LRTPs AND TIPS

Kyle Schneweis, Senior Consultant with High Street Consulting Group, summarized the discussions of the breakout groups focused on the implications of performance-based planning for LRTPs and TIPS. He explained that participants gave multiple reasons for choosing to participate in this topic, including:

- A need for updating a LRTP;
- Current involvement in TIP development;
- A desire to understand the Federal perspective; and
- A general interest in wanting to measure success.

Throughout the discussion, the group identified concerns on incorporating performance measures into the planning process as well as specific next steps for advancing it. One of the key concerns was regarding the need for defining and promoting broad national goals around performance-based planning. Group members believed that a clear national vision was necessary to provide a framework that could guide state DOTs, MPOs, and agencies on prioritizing their projects and resources. There was a general consensus that stronger Federal participation in the planning process was welcome as long as the Federal government was in a partnership, rather than punitive, role. Mr. Schneweis indicated that there was some concern that having national performance measures too narrowly defined could hinder funding of projects that do not meet new criteria. Developing national goals, however, would require changing the

existing culture and mindset within the transportation community to reflect greater collaboration.

Mr. Schneweis explained that another issue was the challenge of balancing the need for fiscal constraint in project planning with the need to exclude fiscal constraint in broader policy planning. It is difficult to achieve the appropriate balance, especially as transportation plans are developed along different time horizons. Certain group members suggested that fiscal constraint should remain at the TIP level where the focus is shorter-term, whereas fiscal constraint should be removed for policy planning reserved for longer-term timeframes. The group also discussed the need for greater consistency among performance measures, which could be achieved partly through agreed upon definitions and data collection methods. Although performance measures can vary significantly between states, a common standard or set of measures could be useful – especially in areas where measures are ambiguous and/or regional, such as emissions and livability. By creating comparative measures consistent at the state, local, and Federal levels, some participants believed that measures could feasibly be “rolled up” to represent national goals.

Overall, Mr. Schneweis concluded that it was important to continue the dialogue on performance-based planning and programming. Rural agencies in particular were interested in remaining involved in future dialogue on this topic because of their unique needs. They tend to have less technical capacity and resources than other nonrural organizations, which should be acknowledged.

Mr. Schneweis summarized several next steps or action items that were suggested by the group:

- **Conduct a Pilot Planning Process** – The groups recommended using a pilot to evaluate performance-based planning in developing a long-range transportation plan. A small number of state DOTs, MPOs, and transit agencies could test select performance measures for use throughout their planning process. This exercise could provide information on how their pipeline of projects is impacted, if at all.
- **Research Relationships and Feasible Organizational Structures** – Since performance-based planning will require a cultural or “mindset” change, there should be a better understanding of strategies for overcoming these institutional barriers. Some group members believed that although there was a grasp of policies, there was still no knowledge on how to organize themselves (the transportation planning community) around these policies. Researching organizational models and relationship processes could represent a first step for addressing this issue.
- **Continue Comparative Measure Effort** – Consistent performance measures allows for effective comparisons between states. There was group consensus that developing guidance to assist agencies in defining and producing accurate measures was important. Promoting consistency could even be part of a larger role for the Federal government.

## 6.5 IMPLICATIONS OF A BROADER PLANNING PROCESS ENCOMPASSING LIVABILITY, SUSTAINABILITY, ETC.

Paul Bay, a transportation consultant, summarized the discussions of the breakout groups focused on the implications of a broader planning process encompassing relatively new outcome areas such as sustainability and livability. He indicated that the conversations during both breakout sessions on livability and sustainability were lively and difficult to easily structure, and the two differed in tone. However, he indicated that the summary points below fairly represent the major points made in the two sessions.

Among the participants, there was some skepticism to the very idea of trying to measure “livability,” and doubt about any value it might have for rural states. Some participants felt livability was not definable. On the other hand, others felt that using goals for sustainability and livability offered a tremendous opportunity for transportation agencies of all kinds to make a case for transportation decisions that would not only improve the quality of life, but would gain stronger public support. There was general agreement that goals and measures for livability and sustainability should be at the regional scale – not project scale or modal scale – and would require significantly more collaboration by state DOTs with MPOs and transit agencies. The breakout group participants suggested that MPOs should lead in setting goals.

When discussing the definitions of livability and sustainability, Mr. Bay explained that the Federal definitions of livability – statements by the DOT Secretary, the definition on the FHWA web site, and the definition provided by the DOT-EPA-HUD Partnership – were accepted by most. However, some participants

### DOT-EPA-HUD Partnership Livability Principles

- Provide more transportation choices;
- Promote equitable, affordable housing;
- Enhance economic competitiveness;
- Support existing communities;
- Coordinate and leverage Federal policies and investment; and
- Value communities and neighborhoods.

were skeptical of those definitions, and felt that there should be different definitions of livability for urban, suburban, and rural environments. There was general agreement that “sustainability” is a better and more universal concept, and that livability could be considered as a part of it. It was suggested that the commonly used breakdown of sustainability into three aspects was appropriate:

- Economic/fiscal sustainability;
- Environmental sustainability; and
- Social sustainability (livability would be mostly a part of this aspect).

With respect to establishing goals, Mr. Bay indicated that there were divided views about whether Federal goals were necessary, but an almost universal view that regions should take the lead in determining what goals are desirable in its own communities. There was some support for the simplicity in the concept cited from San Francisco of using just two general sustainability goals:

- Conservation of energy and carbon usage; and
- Demand management – optimize use of existing transportation assets and make strategic capacity increases only as necessary (this allows a tie-in to system preservation and consideration of pricing).

However, other goals also were suggested:

- Community determination of levels of access and mode choice;
- Economic competitiveness (including freight movement);
- Enhancing the environment; and
- Sustainability in transportation funding (offers important opportunity to develop better strategies for long-term funding).

In terms of defining measures, again there were divided views about whether good quantitative measures were even possible. However, Mr. Bay indicated that the groups suggested some interesting qualitative measures of livability:

- You can walk your dog in the park at midnight and feel safe;
- A mom can take her kids with her on a bike ride and feel safe;
- An 80-year-old can cross the street without a Boy Scout to help;
- FedEx can easily deliver a package to your home;
- Your region is attractive to smart, young workers; and
- Systems and networks in your region are not crumbling, but in a state of good repair (applies to transportation, communication, water, sewer, utilities, etc.).

Some quantitative measures also were proposed, and many felt others are possible. Those proposed included:

- Mode share;
- Travel time/reliability;
- Combined average household costs for transportation and housing; and
- Regional share of GDP, unemployment levels, relationship between jobs created and regional growth.

Mr. Bay concluded by summarizing the groups' discussions related to next steps. Rather than waiting for Federal guidance, participants indicated that regions should start collaborative efforts themselves to establish sustainability/livability goals and identify useful measures for those goals that are appropriate in their own communities. The groups discussed the need for far more collaboration among MPOs, state DOTs, and transit agencies, as well as between rural planning agencies and DOTs in rural areas.

## **6.6 PLENARY SESSION 5 – THEMES FROM DAY 2 BREAKOUTS**

Plenary Session 5 concluded with a group discussion on the five presentations highlighted previously. Following the summary presentations by the five breakout session facilitators, Steve Etcher, Executive Director of Boonslick Regional Planning Commission, moderated the subsequent discussion among participants that primarily revolved around the role of the Federal government in performance management, and the interaction between Federal, state, and local governments in the resource allocation process.

Several participants in this session indicated a general fear of mandates from the Federal government. The discussion led to an understanding that the Federal role is one of defining a process, identifying goals of national importance, providing guidance, and perhaps certification, but that it is the role of the state and local governments to define the specifics, such as targets. Agencies are looking to do more with what they have and are enthusiastic to embrace best practices, but carrots – not sticks – are needed to incentivize improvements in performance.

One participant indicated that performance measures tend to be biased towards the status quo, reinforcing what an agency already is doing. Therefore, it is necessary to start with a vision from which to build. Improperly constructed performance measures could prevent an agency from achieving its vision. The process can be seen as a “nested set,” starting from the top.



## 7.0 Breakout Session 5: Action Plan for Moving Forward

During Breakout Session 5, each of the types of agencies participating (i.e., state DOTs, MPOs, transit, and rural planning) formed a breakout group to develop an action plan for moving forward with performance-based planning and programming. The purpose of Breakout Session 5 was for each group to:

- Identify implementation challenges and opportunities;
- Develop a capacity-building action plan for research, training, technical assistance, and other items; and
- Develop strategies for an agency to move forward.

The following summarizes the discussions and action steps identified by each group. During Plenary Session 6, a representative from each agency type presented on behalf of the group.

### Plenary Session 6 Highlights

- At the national level, participants saw opportunities to improve the coordination and consistency of performance-based practices with supportive Federal guidance.
- Additional peer exchanges, case studies, and/or joint task forces would provide value in helping to advance the practice.
- When establishing cross-agency collaboration, there is a need to recognize the unique role and perspectives of each agency type (Federal, state, rural, local, and transit).

## 7.1 STATE DOTs

Mary Meyland, Director of the Office of Strategic Policy and Performance Management at the Texas DOT, summarized the breakout group's discussion on behalf of the state DOT participants. She noted the state DOT discussion centered on three main themes within the context of establishing a capacity-building action plan:

- Communication and synthesis of existing practice, literature, and research and policy efforts;
- Peer exchanges for more challenging, less developed goal areas; and
- Integration and coordination of different governing entities into a cohesive performance management process.

The state DOT representatives first identified a need for additional communication and synthesis among them of ongoing performance

management-related efforts. There is a nearly continuous flow of new research studies on the topic, newsletters, workshops, webinars, AASHTO committee meetings, AASHTO task force work, and AASHTO efforts towards recommending a national performance management structure. This plethora of information can be daunting.

One suggestion is the development of a matrix showing what states are doing in performance management currently. An AASHTO or other web site displaying a synthesis, road map, or list of “key items” also was suggested.

The discussants agreed on the necessity of a communication plan, identifying:

- What to communicate;
- To whom to communicate it;
- How to communicate; and
- How to update information effectively as the process evolves.

The existing Standing Committee on Performance Management (SCOPM) task forces were identified as potential leaders in the process of summarizing, synthesizing, and reporting. Their meetings at the Chicago workshop on October 5 and 6, 2010 and at the AASHTO Annual Meeting were identified as opportunities to continue the discussion. The AASHTO Annual Meeting Performance Management Workshop also was identified as an opportunity for educating a broader DOT audience about recent relevant activities and research.

Ms. Meyland noted that all state DOTs have struggled with how to define goals, performance measures, and targets for freight, economic development, livability, system efficiency and operations, and connectivity in rural areas. Participants indicated the need to work together among states, AASHTO, FHWA, and others to share best practices and develop options in these areas. One idea was a peer exchange process for each goal area, building off what states and others already are doing and lessons they have learned. Items of key concern to be learned include:

- Easily understood measures;
- Measures that help make decisions;
- Measures that are relatively low cost to implement;
- Bringing private sector data holders to the table; and
- Understanding the differences in rural perspectives for freight and economic development.

State DOT participants considered how to align efforts between them, MPOs, transit agencies, and rural agencies. While there are many commonalities in goals between these different levels of government, participants also recognized potentially different measures, targets, and priorities. Ms. Meyland identified two action items suggested by the state DOT participants:

- Conduct another forum on national goals, led by organizations such as APTA, AMPO, AASHTO, and NADO; and
- Initiate a pilot effort of an integrated performance management process within a region, incorporating a state DOT, MPO, transit agency, and rural government.

## **7.2 MPOs**

Alan Clark, Manager of the Transportation and Air Quality programs for H-GAC, summarized the breakout group discussion on behalf of the MPO participants. He noted that the MPO session began with a discussion of the characteristics of MPOs that necessitate a different perspective on performance-based planning and programming than other types of transportation agencies. For example:

- MPOs typically do not own or operate assets. One of their focuses is on developing transportation plans and programs. Therefore they tend to maintain a system-level, longer-term perspective of transportation performance.
- MPOs are most interested in predictive performance measures that can support the planning process.
- MPOs tend to have fewer and less mature data and IT resources available to them than DOTs who collect their own asset data.
- MPOs are well positioned to bring partners outside of transportation (land use, economic development, etc.) into the regional planning process.
- MPOs are responsible for reconciling differences between the goals and priorities of their members (cities, counties, transit agencies, DOTs) and regional priorities.

The discussion then shifted towards key challenges and opportunities associated with further implementing performance-based planning and programming within the MPO context. The challenges were organized into two categories: technical and institutional. In general, there was agreement that addressing the technical areas would be easier than the institutional issues because the transportation community has a history of responding to new trends in technical analysis.

Mr. Clark suggested that potential next steps related to the technical challenges should focus on building capacity in a number of areas through peer exchanges, MPO-specific training materials, case studies, coordination with the academic community, and pooled research. Looking beyond these traditional approaches, he indicated that there also was agreement that pilot studies could be an effective way for developing practical performance-based techniques and illustrating their

implementation in a real world environment. Specific areas targeted for these types of efforts include:

- Developing measures and analytical approaches outside of the preservation and mobility area, including economic development and livability.
- Developing frameworks for structuring program-level tradeoff decisions (e.g., allocation of funds between preservation and expansion).
- Capacity building in the use of national data sets such as the HPMS and the National Bridge Inventory (NBI), and the tools that can be used to analyze them such as the Highway Economic Requirements System – State Version (HERS-ST) and the National Bridge Investment Analysis System (NBIAS).
- Defining the roll of customers’ desires and perceptions in establishing performance targets and making investment decisions.
- Assessing the increasing role of the EPA in water quality issues and the implication of these changes for planning and programming.
- Leveraging potential nontraditional and local funding sources in order to expand the amount of money available for performance-based allocation.

As presented by Mr. Clark, potential next steps related to institutional areas include the following.

- There is a desire to understand better the implications on and limitations of performance-based planning related to an institutional/regulatory environment that limits the decision-making authority of MPOs. For example, MPOs typically do not have authority to make land use, zoning, and ordinance changes that could directly impact the achievement of many societal goals often addressed during the transportation planning process.
- There is a perception that existing Federal requirements often hamper the performance outcomes that otherwise could be achieved in a region. There is a desire for case studies to identify concrete examples of where this dynamic is occurring. Participants also discussed the potential for a certification process in which state and local requirements could satisfy and/or substitute for Federal requirements.
- MPOs are well positioned to coordinate between the various transportation agencies in a region. The participants noted that the benefits of performance-based planning and programming could be enhanced if the priorities of these individual agencies were aligned at some level. There is a need for peer reviews and/or case studies that explore the institutional relationships between planning partners and existing models for regional performance-based planning.
- In response to challenges associated with reconciling regional plans with the priorities of implementing agencies, there is a desire to reevaluate the current balance between discretionary versus formula allocation of resources

throughout a region. Increased discretionary allocation could enable regions to improve performance in the long term.

- Participants agreed strongly that the MPO community needs to remain an active participant in the discussions regarding a national performance measure program and any potential performance requirements that may be included in the next Federal transportation reauthorization. This will ensure that any national programs and/or requirements address the specific needs and desires of the MPO community.

## **7.3 TRANSIT**

Alan Lehto, director of project planning for the Tri-County Metropolitan Transportation District of Oregon (TriMet), summarized the group breakout discussion of the transit participants. He noted that participants in the transit planning group expressed great interest in long-term efforts to improve the framework for joint highway and transit measures of progress toward broader goals of public health, air quality, climate change, and livability. Towards that end, the discussion focused on pragmatic measures for building capacity to implement performance-based planning among transit agencies.

At the national level, participants saw opportunities to improve the coordination and consistency of performance-based planning practices and supportive Federal guidance. Specifically, the transit participants recommended that:

- A joint task force should be formed between AASHTO and APTA, with FTA and FHWA support, with the aim of identifying and aligning common goals, measures, and data requirements;
- AASHTO and APTA should consider placing members on each other's respective performance measurement committees, or find some similar method of monitoring the work each is doing;
- System Preservation (asset management) should be used as a pilot topic for joint work in developing multimodal national goals and measures; and
- FTA should work with transit agencies to improve NTD data requirements, building upon upcoming changes related to the 2010 Census, and focus on data that will support national performance goals and measures.

At the local level, to build capacity among individual transit agencies, the transit session participants felt that FTA should host peer exchanges on the development and use of asset management tracking tools by transit agencies, approaches to interagency regional visioning processes, and implementation of more performance-based decision-making in transit agencies. In addition, the Transportation Research Board (TRB), APTA, and FTA should continue to work to collect and disseminate best practices and develop guides on performance management practices. This could be most helpful if it included an easy-to-follow, but relatively comprehensive guide with links to best practices. This

could include establishment of an on-line repository for best practices and building on work done in Transit Cooperative Research Program (TCRP) 88 and TCRP 141.

## 7.4 RURAL

Michael Parks, Assistant Executive Director for the Brazos Valley Council of Governments, summarized the rural planning group's discussion on the challenges and opportunities in incorporating performance management into the rural planning process.<sup>4</sup> The discussion encompassed four themes:

- Recognition of rural transportation planning organizations (RTPO);
- Recognition of the different needs of RTPOs;
- Need for capacity building in RTPOs; and
- Need for identified funding for RTPOs.

Rural planning group participants agreed that there is a need to recognize within Federal legislation the role that RTPOs play in the transportation planning and programming process and to establish RTPOs on equal footing with MPOs. This could start by providing a more clear definition of an RTPO's roles and responsibilities. Some states require RTPOs while in others they operate voluntarily. However in most cases, rural planning organizations perform multimodal planning functions, as well as planning for economic development, senior services, housing, workforce, and other areas. Rather than viewing the urban-rural relationship between MPOs and RTPOs as a competitive process, the rural participants agreed that both types of agencies should work together collaboratively. The same process to reach consensus in the urban areas (i.e., the MPO planning process) is being used successfully in regions across the country outside traditional MPOs.

Recognizing that the characteristics of rural planning areas differ from those of urban areas, such as geographical coverage and land use, the rural planning group participants stressed that a set of national performance measures should not embrace a one-size-fits-all approach. While functions of MPOs and RTPOs are the same, a performance-based process must be adaptable to rural areas. Similar to the distinction made in the Highway Capacity Manual between urban arterials and rural arterials, for example, the same metrics could be applied in many cases but must allow different thresholds for urban and rural areas, such as average daily traffic, miles traveled to work, or accident rates. However, the characteristics of the rural system are usually not as well documented as the urban system. Given that the type of infrastructure and operations are different

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<sup>4</sup> Sometimes referred to as "regional" instead of rural, though it varies by state. For this discussion, "rural" refers to an area outside the MPO boundary.

in rural areas, there needs to be sensitivity to how the adoption of certain performance measures will impact rural areas. For example, when considering air quality transport issues, a rural nonattainment area may never be able to meet the NO<sub>x</sub> reductions necessary to register clean air if situated downwind of an urban area. It is conceivable that there simply would not be enough mobile sources to mitigate in a rural area that would correct the problem created upwind.

The rural planning participants, according to Mr. Parks, indicated a need for capacity building within RTPOs. While RTPOs deal with the same issues as MPOs and sometimes deal with larger geographical areas, the staff size is usually smaller and usually has not had as much technical training focused specifically on transportation planning. While this is not to say that regional planning organizations lack skilled planners, these entities often have a variety of staff versed in many different areas such as housing, economic development, workforce, and land use planning. As a result, any incorporation of performance management into the planning process will require additional Federal or state support for data collection and technical training of RTPO staffs.

Mr. Parks indicated that the rural participants identified funding for RTPOs as a need. At present, some RTPOs that conduct transportation planning voluntarily leverage funding from a variety of sources outside of transportation. These may include (but are not limited to) economic development grants, housing grants, land use planning funds, Workforce Investment Act, and the Older Americans Act. While none of these sources will directly fund core transportation planning activities, these funds share some of the same goals as those achieved by the transportation planning process. The participants indicated that about half of the states provide core transportation funding for RTPOs; however, participants expressed a need for a consistent source of RTPO funding.

## **7.5 ACTION PLAN SUMMARY**

Throughout the two and a half-day forum, participants identified numerous next steps, implementation strategies, and capacity-building suggestions to advance the practice of performance-based planning and programming. From these suggestions, several common themes for next step action items emerged:

- Synthesize existing practice, literature, institutional relationships, and other research/policy efforts by creating an on-line repository for best practices;
- Increase coordination among governing entities to establish a cohesive performance management process;
- Provide Federal guidance to facilitate the necessary coordination, input, and collaboration among agencies;

- Increase collaboration across Federal agencies, state DOTs, MPO, transit agencies, and nontransportation partners on strategies to reach common transportation goals;
- Continue the comparative measure effort to allow for effective comparisons across agencies, including the formation of a U.S.-based transit benchmarking organization;
- Initiate a pilot study that incorporates a state DOT, MPO, transit agency, and rural organization to illustrate a regional implementation of an integrated performance management process and explore the institutional relationships between planning partners;
- Conduct additional capacity-building peer exchanges to continue the discussion among organizations; and
- Improve and expand the use of national data sets, such as HPMS, NBI, and NTD, and their associated management tools to inform performance-based planning and programming.

# Appendices

*Appendix A – Agenda*

*Appendix B – Forum Participants*

*Appendix C – Performance-Based Planning:  
A State-of-the-Practice Summary*

*Appendix D – Case Study #1: A Regional Context*

*Appendix E – Case Study #2: A Statewide Context*



# **A. Agenda**

# AGENDA

## National Forum on Performance-Based Planning and Programming

September 13 - 15, 2010

*Fairmont Hotel  
Dallas, Texas*



*Sponsored by:*

**Federal Highway Administration**

**Federal Transit Administration**

**American Association of State Highway and Transportation Officials**

**American Public Transit Association**

**Association of Metropolitan Planning Organizations**

**National Association of Development Organizations**

## Guiding Principles

The focus will be on practical approaches and methods for performance-based planning and programming. The forum will provide an opportunity for agencies to discuss ways to improve and strengthen their existing performance-based processes. The meeting will not focus on the potential impact of Federal reauthorization legislation per se, though it is understood that the reauthorization may encourage or require performance-based planning and programming.

The conference will identify the critical issues that agencies are likely to face in evolving the existing transportation planning and programming process to become more performance-based. Several issues may broaden and change the planning process over time, including livability, sustainability, climate change, and energy. Similarly, transportation plans may need to become more integrated with land use, housing, economic development, and environmental plans in the future. As these types of changes occur, they will influence various aspects of a performance-based planning and programming process (e.g., goal areas, specific performance measures, etc.).

The conference objective is not to define one standard approach to performance-based planning and programming. Rather, the forum will recognize that approaches will vary depending on many factors, including geographic/agency focus (state, regional, transit, etc.), institutional structure and complexity, urban/rural, etc.

The conference will identify both opportunities where performance-based planning and programming may improve decision-making as well as barriers and challenges that may need to be overcome in order for performance-based planning and programming to add value. A key issue is developing an approach to evaluating the success of a performance-based process.

There are potential benefits from a performance-based planning and programming process helping to guide resource allocation decisions even in a very constrained funding environment. However, it is recognized that a performance-based process alone, without sufficient resources, will not drive better performance results over the long term. It also is recognized that implementing a performance-based approach itself may take additional organizational resources or at least a redistribution of existing resources devoted to planning and programming activities.

## Conference Outcomes/Products

The key products of the conference will include:

- A summary of the current state of the practice across state, regional, and transit agencies, developed as a resource prior to the forum, will be updated as a result of forum presentations and discussions and included as part of the conference proceedings.
- Characteristics of a performance-based planning and programming process and the variations that may occur in implementing such a process in different agency, regional, and institutional settings.
- Agency-specific implementation strategies (for agencies wishing to take a next step), including practical challenges and opportunities; and
- Capacity Building Action Plan – Challenges/issues and how to address them, including workshops, peer exchanges, technical assistance, training, and research. The action plan would help coordinate activities across the various sponsoring agencies and organizations.



## Sunday, September 12, 2010

**3:00 p.m. to 7:00 p.m.**

### **Participant Check-in**

Please stop by the check-in desk to pick up name tag and sign up for breakout sessions.

**7:00 p.m. to 8:00 p.m.**

### **Conference Planning Committee and Moderators, Facilitators, Recorders (Green Room)**

Pre-conference meeting

Sunday, September 12, 2010



# Monday, September 13, 2010

7:30 a.m.

**Breakfast (Fountain Room)**

7:30 a.m. to 8:30 a.m.

**Participant Check-in**

8:30 a.m. to 10:15 a.m.

**Plenary Session 1: Performance-Based Planning: Opportunities and Challenges (Pavilion Room)**

*Moderator:* Lance A. Neumann, Cambridge Systematics

**Conference Goals and Objectives**

**Overview of Performance-Based Planning**

**Perspectives on Performance Management and Planning**

*Speakers:*

Deb Miller, Kansas Department of Transportation

Gloria Shepherd, Federal Highway Administration

Anne Flemer, Metropolitan Transportation Commission

Susan Borinsky, Federal Transit Administration

**Q/A Session**

10:15 a.m. to 10:30 a.m.

**Break**

10:30 a.m. to 12:15 p.m.

**Plenary Session 2: Performance Management State of the Practice (Pavilion Room)**

*Moderator:* Steve Gayle, Binghamton MTS

**Domestic Case Studies**

Case studies on the current state of the practice from state, regional, and transit agency perspectives.

*Speakers:*

Mara Campbell, Missouri Department of Transportation

Tina Quigley, Regional Transportation Commission of Southern Nevada

Jerry Benson, Utah Transit Authority

Michael King, North Country Council

**Q&A**



**12:30 p.m. to 1:30 p.m.**

**Lunch (Fountain Room)**

**International Experience**

Summary of recent international scan on linking performance measurement and accountability

*Speaker:* Jane Hayes, Atlanta Regional Commission

**1:30 p.m. to 3:00 p.m.**

**Breakout Session 1**

**Case Study 1 - Regional Context:** Each breakout group will discuss the first case study and the questions posed. Case study 1 will be distributed in advance of the conference. Each breakout group will include representatives of state DOT, MPO, transit, and rural planning agencies. Participants will be asked to sign up for a breakout group at registration.

**3:30 p.m. to 5:00 p.m.**

**Breakout Session 2**

**Case Study 2 - Statewide Context:** The same breakout groups will reconvene to discuss the second case study. Case study 2 will be distributed in advance of the conference.

**5:30 p.m.**

Conference organizers, breakout facilitators, and breakout recorders will meet to summarize key themes and issues that emerged from the breakout discussions.

**7:00 p.m.**

**Dinner (Pavilion Room)**

Participants will be assigned to dinner tables and a designated discussion leader will lead a discussion on a few selected topics.

**Monday, September 13, 2010**



**7:30 a.m.**

**Breakfast (Fountain Room)**

**8:30 a.m. to 9:30a.m.**

**Plenary Session 3 – Themes from Day 1 Breakouts (Pavilion Room)**

*Moderator:* Brian Smith, Washington Department of Transportation

- Presentation of key themes/issues from breakout sessions.
- Plenary discussion

**9:30 a.m. to 12:00 p.m.**

**Plenary Session 4 – Resource Allocation and Accountability (Pavilion Room)**

*Moderator:* Barry Barker, Transit Authority of River City

Two panel discussions focusing on establishing greater accountability for resource allocation and budget decisions through a performance-based planning and programming process.

**9:30 a.m. to 10:45 a.m.**

**Panel 1 – Resource Allocation**

Speakers will focus on how to integrate performance management and measures into the programming and budgeting process.

*Speakers:*

Jim Ritzman, Pennsylvania Department of Transportation  
Amy Kessler, North Central Pennsylvania Regional Planning Commission  
Alan Clark, Houston Galveston Area Council  
Trish Hendren, Washington Metropolitan Area Transportation Authority

**Q&A**

**10:45 a.m. to 11:00 a.m.**

**Break**

**11:00 a.m. to 12:00 p.m.**

**Panel 2 – Accountability**

Speakers will focus on how they have used performance measures to demonstrate accountability and discuss benefits and risks.

*Speakers:*

Susan Mortel, Michigan Department of Transportation  
Ron Kirby, National Capital Region Transportation Planning Board  
Mark Aesch, Rochester Genesee Regional Transportation Authority

**Q&A**



**12:00 p.m. to 1:00 p.m.**

**Lunch (Fountain Room)**

**Data Needs**

Summary of recent peer exchange on data needs for performance management.

*Speaker:* Tim Henkel, Minnesota Department of Transportation

**1:30 p.m. to 3:00 p.m.**

**Breakout Session 3**

Each breakout session will focus on a different topic. The same topics will be addressed in both Breakouts 3 and 4 giving each participant the opportunity to discuss two different topics. At registration, participants will be able to choose which breakout topics they will attend in Breakouts 3 and 4. There will be a need to distribute participants roughly equally across the sessions. Breakout topics include:

- Setting goals and selecting appropriate performance measures (output/outcome, different scales, data requirements, ability to forecast, customer orientation);
- Setting performance targets and tracking performance results;
- Project priority setting and tradeoff analysis;
- Implications of performance-based planning for LRTPs and TIPs; and
- Implications of a broader planning process encompassing livability, sustainability, etc., on performance-based planning and programming.

**3:30 p.m. to 5:00 p.m.**

**Breakout Session 4**

Same topics as Breakout 3 will be repeated.

**5:30 p.m.**

Conference organizers, breakout facilitators, and recorders will meet to summarize key issues and themes identified in the breakout sessions.

**7:00 p.m.**

**Dinner (Pavilion Room)**



## Wednesday, September 15, 2010

**7:00 a.m.**

**Breakfast (Fountain Room)**

**8:00 a.m. to 9:00 a.m.**

**Plenary Session 5 - Themes from Day 2 Breakouts (Pavilion Room)**

*Moderator:* Steve Etcher, Boonslick Regional Planning Commission

- Summary of key themes from Day 2 breakouts
- Plenary discussion
- Direction for final breakout session

**9:00 a.m. to 10:30 a.m.**

**Breakout Session 5**

Four breakout groups will be formed, one for each of the types of agencies participating (i.e., state DOTs, MPOs, transit and rural planning). Product is an action plan for moving forward. Each breakout group will be asked to spend the last 15 minutes or so to develop a high-level summary for presentation at the last session.

- Implementation challenges and opportunities;
- Capacity building action plan - research, training, technical assistance, etc.; and
- Strategies for an agency to move forward.

**10:30 a.m. to 12:00 p.m.**

**Plenary Session 6 - Final Summary of Results (Pavilion Room)**

*Moderator:* Deb Miller, Kansas Department of Transportation

Each breakout group will summarize results for the lead topic assigned.

**Conclusions and Next Steps**

**12:00 p.m. to 1:00 p.m.**

**Boxed lunches available for those who request them at check in.**

Wednesday, September 15, 2010





## B. Forum Participants

Last Name	First Name	Agency
Aesch	Mark	Rochester Genesee Regional Transportation Authority
Ahern	Kelsey	Cambridge Systematics
Alexander	Angela	Georgia DOT
Argabright	Van	North Carolina DOT
Aris	Regina	Baltimore Regional Transportation Board
Bains	Rabinder	FHWA
Bair	Annette	Southwestern Regional Development Commission
Barker	Barry	Transit Authority of River City
Bashaw	Robert	Deep East Texas Council of Governments
Bay	Paul	Paul N. Bay, P.E. Transportation Consultant
Beaudoin	Kathleen	Maine DOT
Benson	Jerry	Utah Transit Authority
Bini	Robert	FHWA
Blair	Jerry	East-West Gateway Council of Governments
Borinsky	Susan	FTA
Campbell	Mara	Missouri DOT
Cazenas	Patricia	FHWA
Cempel	Erik	Cambridge Systematics
Cheatham	James	FHWA
Chiao	Kuo-Ann	New York Metropolitan Transportation Council
Clark	Alan	Houston-Galveston Area Council
Clegg	Elaine	Community Planning Association of Southwest Idaho
Covington	RoseMary	Sacramento Regional Transit District
Crossett	Joe	High Street Consulting Group
Davies	John	FHWA Office of Environment
Decker	John	New York City Transit
Denbow	Richard	AMPO
Dluger	Angela	FTA
Ellis	Kim	Oregon Metro
Epstein	Ron	New York State DOT
Etcher	Steve	Boonslick Regional Planning Commission

Last Name	First Name	Agency
Evilia	Chris	Waco MPO
Fiol	Marsha	Virginia DOT
Flemer	Ann	Metropolitan Transportation Commission
Gallucci	Grace	Chicago Regional Transit Authority
Gayle	Steve	Binghamton Metropolitan Transportation Study
Gee	King	FHWA
Goodman	Charles	FTA
Guerre	Joe	Cambridge Systematics
Gustave	Mirna	Volpe
Halvorson	Randall	Cambridge Systematics
Hardy	DeLania	AMPO
Hardy	Matt	AASHTO
Hayse	Jane	Atlanta Regional Commission
Hemingson	Todd	Capital Metropolitan Transportation Authority
Hendren	Patricia	Washington Metropolitan Area Transportation Authority
Henkel	Tim	Minnesota DOT
Hesse	Eric	Tri-Met (Tri-County Metropolitan Transportation District, Oregon)
Hurley	Kevin	Metropolitan Atlanta Rapid Transit Authority
Jacobson	James	King County Metro Transit
Jette	Aaron	Volpe
Johnson	Ashby	Houston-Galveston Area Council
Kane	Tony	AASHTO
Kessler	Amy	North Central Pennsylvania Regional Planning Commission
Kim	Anita	Volpe
King	Michael	North Country Council
Kirby	Ron	National Capital Region Transportation Planning Board
Kissel	Carrie	NADO
Kohrs	Sandra	Colorado DOT
Kopec	Don	Chicago Metropolitan Agency for Planning
Kuipers	Robert	Northwest New Mexico Council of Governments
Lee	Aimee	Chicago Regional Transportation Authority
Lee	David	Florida DOT
Lehto	Alan Tyler	Tri-Met (Tri-County Metropolitan Transportation District, Oregon)
Leister	Bill	Central Arizona Association of Governments

<b>Last Name</b>	<b>First Name</b>	<b>Agency</b>
Marchese	April	FHWA
McKenzie	Jim	Metroplan
Meyer	Tyler	Greensboro Urban Area MPO
Meyland	Mary	Texas DOT
Miller	Deb	Kansas DOT
Miller	Harlan	FHWA
Mohler	David	Massachusetts DOT
Mortel	Susan	Michigan DOT
Neumann	Lance	Cambridge Systematics
Oakley	Janet	AASHTO
Orsbon	Ben	South Dakota DOT
Ottesen	Jeffery	Alaska DOT
Padgette	Robert	APTA
Papandreou	Timothy	San Francisco Municipal Transportation Agency
Parker	Martin	District of Columbia DOT
Parks	Michael	Brazos Valley Council of Governments
Perrin	Rich	Genesee Transportation Council
Petty	Karla	FHWA
Petty	Ken	FHWA
Quigley	Tina	Regional Transportation Commission of Southern Nevada
Regan	Terry	Volpe
Renek	Naomi	Metropolitan Transportation Authority of New York City
Ritzman	James	Pennsylvania DOT
Romeo	Robbin	Louisiana DOT
Ryan	Jennifer	Puget Sound Regional Council
Safgren	Mary	Minnesota DOT
Schneweis	Kyle	High Street Consulting Group
Schulze	Thomas	New Jersey Transit
Shepherd	Gloria	FHWA
Simmons	Doug	Maryland DOT
Skinner	Jim	Montana DOT
Smith	Brian	Washington State DOT
Solomon	Gerald	FHWA
Stauton	Maria	AMPO

<b>Last Name</b>	<b>First Name</b>	<b>Agency</b>
Thomas	John	Utah DOT
Tischer	Mary Lynn	FHWA
Weaver	Richard	APTA
Williams	Stephen	Thomas Jefferson Planning District Commission
Wolfgram	Mark	Wisconsin DOT
Wyrick	Lon	Thurston Regional Planning Council
Yew	Connie	FHWA
Zerrillo	Robert	New York State DOT

# **C. Performance-Based Planning: A State-of-the-Practice Summary**



# **Performance-Based Planning: A State-of-the-Practice Summary**

*National Forum on Performance-Based Planning  
September 13-15, 2010*

*prepared for*

National Cooperative Highway Research Program

*prepared by*

Cambridge Systematics, Inc.  
115 South LaSalle Street, Suite 2200  
Chicago, IL 60603

*with*

High Street Consulting Group

Paul N. Bay, P.E., Transportation Consultant

*date*

September 1, 2010



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# Executive Summary

While there has been a steady increase in the use of performance data to inform transportation decision-making over the last 15 years, the state of the practice among transportation agencies varies considerably. This paper summarizes current practice related to performance-based planning in state departments of transportation (DOT), metropolitan planning organizations (MPO), and transit agencies and is intended to provide background information and foster discussion throughout the National Forum on Performance-Based Planning. The summary is organized around the six fundamental performance-based planning elements that are common among transportation agencies as they transition to a more performance-driven and outcome-based decision process.

## Setting Goals and Objectives

- Almost all DOTs share common themes for strategic goals and objectives, regardless of how closely they are linked to performance measures or resource allocation processes. Importantly, however, states' priorities among these goals vary, as do their desired levels of performance among goals.
- Many MPOs create goal statements that align with the eight planning factors defined in current transportation funding legislation, SAFETEA-LU. As a result, a common goal framework has emerged within much of the MPO community.
- In spite of the great differences in technical capacity between the largest transit agencies and the smallest, for many years there has been quite a high level of consistency among most transit agencies in their choice of strategic goals and objectives.

## Selecting Performance Measures

- Among DOTs, the state of practice differs significantly between goal areas. Performance-based planning is most advanced in the areas of safety and preservation as most DOTs have very similar capabilities for tracking performance measures related to safety and the condition of pavements and bridges.
- Rather than using performance measures to assess the effectiveness of implemented projects or the actual performance of a particular investment, it is more common for MPOs to use performance measures as a way to estimate the impacts of potential projects under a set of assumed future conditions.
- Transit agencies receiving Federal funds from Federal Transit Administration (FTA) must collect and report certain basic performance data to the National Transit Database (NTD). As a result, the availability of a standardized set of

high-level data has enabled transit agencies to select some common operations performance measures to monitor their own system's performance over time and compare themselves with peer agencies.

### **Setting Performance Targets**

- Practices of establishing performance targets vary considerably among state transportation agencies and among goal areas. According to a survey conducted for the 2009 AASHTO CEO Leadership Forum, 19 of the 23 responding states have targets for preservation and safety. However, over half of the responding states do not have targets for goal areas related to freight/economics, congestion, system operations, and environment.
- Target-setting is still not a common element within the MPO process, largely because of the financial and staffing resource constraints and policy considerations associated with setting performance targets. Specific target-setting is only documented in a few recent MPO case studies.
- Most medium and large transit agencies have set operational performance targets related to efficiency and effectiveness for a few key goal areas of greatest current interest to transit managers and policy boards. Targets are most commonly set for measures of ridership, cost, reliability, safety, customer satisfaction and work force utilization. In general, smaller transit agencies, with smaller staffs and less sophistication in data management, have been less likely to establish performance targets.

### **Allocating Resources**

- Performance-driven resource allocation is one of the most fundamental uses of performance measurement, though it is often the last element of an agency's performance-based process to mature. In addition to using a performance-based process to inform budgeting and financial investments for transportation projects, several state DOTs use performance results to evaluate staff performance and other department activities.
- Despite the evolution of more sophisticated performance-based processes within the MPO community, actual programming of transportation dollars is largely influenced by other nonperformance-based factors. This challenge is not unique to MPOs, however. The ability of many public agencies to directly link the decision-making process to a largely objective and quantitative performance-based process is limited, in that many of the factors they are required to address are policy-oriented, socially motivated, and difficult to actually measure.
- Transit agencies have long used performance measures related to efficiency and effectiveness to optimize allocations of operating funds to specific transit routes and schedules. However, Federal requirements and local desires for public outreach on service changes mean that actual changes must reflect qualitative as well as quantitative goals.

## **Measuring and Reporting Results**

- Many state DOTs recognize the importance of regular reporting frequency, though reporting mechanisms may vary. Performance reporting provides the ability to articulate both unmet needs and what was accomplished with existing tax dollars.
- Many metropolitan agencies – typically the larger ones – currently produce high-level assessments of regional performance or plan implementation. In addition, the Congestion Management Process (Federally required for metropolitan areas with populations exceeding 200,000) provides a systematic approach for identifying congestion management strategies and monitoring the impact of projects and programs implemented throughout the region.
- Most transit agencies monitor individual routes and regularly adjust schedules and headways to achieve improved cost-effectiveness. Underperforming routes are identified, triggering a review and actions to eliminate or adjust those services. Also, many agencies routinely report performance results to their governing boards, funding agencies, the press, and the public, and use them to help in advocacy efforts for funding or to justify service changes.

## **Data and Analysis Tools**

- Many state transportation agencies decentralize the basic responsibility of collecting performance data to individual “performance measure owners.” The individuals responsible for managing the data collection efforts understand how the data is used and have greater incentive to promote data accuracy. Other agencies rely on sophisticated data management systems, while others are taking steps to automate fully data collection and performance measure reporting.
- Collecting quality data is consistently cited by MPOs as a barrier to implementing a more robust performance-based planning and programming process. Data collection and tool development is resource and time-intensive, which is an issue for many MPOs and small agencies in particular. Technical evaluations currently are driven largely by the MPO’s travel demand modeling tools, although capabilities vary greatly amongst MPOs depending on financial and staffing resources available.
- Transit industry interest in performance measurement has grown and evolved steadily since the adoption of the NTD reporting requirements made the collection of data mandatory. In recent years, the NTD has required more information on safety, security, rural, and paratransit operations.



# 1.0 Introduction

Recent political and social trends have placed greater emphasis on public-sector accountability for more effective performance. In response to these trends, a number of transportation agencies have been transitioning to a decision process which is more performance-driven and outcome-based. While the details of each agency's approach may differ, the overall goals of these efforts are consistent:

- Improve the performance of the transportation system;
- Provide for greater accountability in the decision-making process;
- Make the best use of limited resources; and
- Improve public support through greater transparency.

While there has been a steady increase in the use of performance data to inform transportation decision-making over the last 15 years, the state of the practice among transportation agencies varies considerably. Continued collaboration efforts to share best practices and lessons learned will help to identify common building blocks among the spectrum of transportation agencies and collectively strengthen performance-based programs nationwide.

This paper summarizes the current state of the practice related to performance-based planning in state departments of transportation (DOT), metropolitan planning organizations (MPO), and transit agencies. Intended to provide background information and foster discussion throughout the National Forum on Performance-Based Planning, the paper is organized as follows:

- **Section 2.0, Performance Management Framework**, describes the key elements of a performance-based process and references the large body of work from the last 10 years dedicated to advancing transportation performance management;
- **Section 3.0, A Summary of Performance-Based Planning in Practice**, summarizes the state of the practice at state DOTs, MPOs, and transit agencies as well as the experience among international agencies, emphasizing the variability by which agencies currently apply a performance-based approach;
- **Section 4.0, Bibliography**, provides a comprehensive list of recent literature related to performance-based planning as a resource for forum participants.

This summary will be updated as a result of forum presentations and discussions and included as part of the conference proceedings.



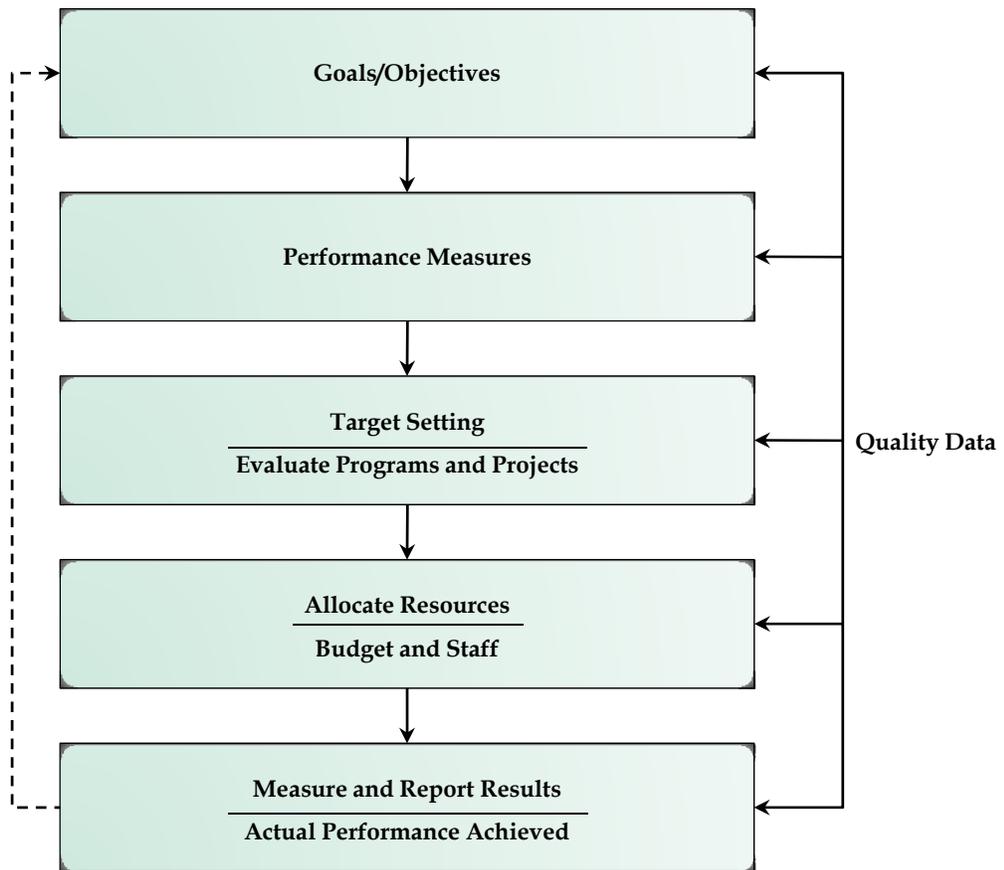
## 2.0 Performance Management Framework

Transportation agencies that are transitioning to a more performance-driven and outcome-based decision process have adopted a practice called “performance management” as a way of doing business. A comprehensive performance management process is commonly comprised of six fundamental elements, illustrated in Figure 2.1:

- **Setting Goals and Objectives.** An organization’s policy goals and objectives define agency priorities and provide the foundation for performance-based planning and management decisions;
- **Selecting Performance Measures.** Performance measures establish a set of metrics to help organizations monitor progress toward achieving a goal or objective;
- **Setting Performance Targets.** Establishing quantifiable targets for each performance measure allows agencies to gauge specific, numerical progress over time relative to a desired goal;
- **Allocating Resources.** An organization builds upon the preceding steps by allocating resources such as time and money through budgeting processes to achieve specific performance targets;
- **Measuring and Reporting Results.** Monitoring and reporting progress to decision-makers and other stakeholders allows organizations to identify key factors influencing performance and necessary actions to improve results; and
- **Data and Analysis Tools.** Effective decision-making through each element of the performance measurement framework requires a solid foundation of accurate, timely, and appropriate data.

This framework is referenced in a number of recent reports.<sup>1</sup> While an agency may not have all elements of a comprehensive performance management process in place, most transportation agencies have incorporated at least one of the performance-based elements into their planning process.

Figure 2.1 Performance Management Framework



## 3.0 A Summary of Performance-Based Planning in Practice

### 3.1 STATE DOTs

Over the last 15 years within state DOTs, there has been a steady increase in the use of performance information to plan, prioritize, track, and improve the effectiveness of nearly all DOT functions. However, while all state DOTs track asset condition and safety data in accordance with Federal requirements, interest levels, capabilities, and degree of permeation related to other performance-based planning applications vary considerably among DOTs.

Although state performance-driven programs and applications vary, there continues to be significant collaboration among DOTs to advance performance-based processes through information exchanges and the sharing of best practices. As a result of several recent efforts, the DOTs' performance management skill sets seem to be growing closer together. Numerous publications highlight the ongoing progress and collaboration toward instituting performance-based programs at state transportation agencies across the country.<sup>2</sup> A scan of the recent literature reveals several overarching themes related to existing performance management practices among state DOTs. Most agencies set similar performance goals, track approximately the same performance measures and rely on similar data sets within certain goal areas, and are at least starting to use that data to inform their decisions. The following provides a summary of these key themes related to performance-based planning at state DOTs.

#### **Setting Strategic Goals and Objectives**

Almost all DOTs share similar sets of strategic goals and objectives, regardless of how closely they are linked to performance measures or resource allocation processes. Common goals are often based on themes of safety, infrastructure preservation, mobility and congestion, economic development, environmental stewardship, and organizational effectiveness. Importantly, however, states' priorities among these goals vary, as do their desired levels of performance among goals.

These common themes are reflected in a set of emerging national transportation goal areas that may be considered for the next Federal surface transportation authorization. For example, AASHTO's recently adopted Authorization Policy suggests six key mode-neutral objectives that define the national interest in transportation from the perspective of the state DOTs:

- **Preservation and renewal** – Preserve and renew the system and maintain urban and rural accessibility and connectivity;
- **Interstate commerce** – Enhance economic competitiveness, interstate commerce and national defense through an enhanced freight system;
- **Safety** – Improve transportation safety to reduce traffic fatalities, serious injuries, and property loss;
- **Congestion reduction and connectivity** – Reduce congestion and improve urban and rural accessibility and connectivity using multimodal solutions;
- **System operations** – Support system reliability, national security, and national disaster response through enhanced system operation and management; and
- **Environment** – Enhance the environment and community quality of life.<sup>3</sup>

Other national efforts, such as the National Surface Transportation Policy and Revenue Study Commission and the Bipartisan Policy Center, have recommended essentially the same national transportation goal areas. Overall, general agreement about the set of high-level goals is creating a solid foundation on which to build a performance-based transportation planning process at both the state and national levels.<sup>4,5</sup>

## Selecting Performance Measures

While discussions regarding performance-based transportation programs have largely been organized around the goal areas described above, performance measures and analysis capabilities differ significantly between the goal areas. Performance-based planning is most advanced in the areas of safety and preservation as most DOTs have very similar capabilities for tracking performance measures related to safety and the condition of pavements and bridges. For example, the Federal requirement for all states to prepare a Strategic Highway Safety Plan (SHSP) containing goals and performance measures related to safety has helped to transition all DOTs toward a performance-based approach in this area. Similarly, all DOTs collect and report annually on the condition of their state's pavements and bridges using consistent performance measures, though measurement techniques may vary.

In the areas of congestion and system operations, DOTs are developing more sophisticated processes for measuring mobility, reliability, and accessibility. For each of these areas, however, states have varying definitions, standards on what is acceptable, and motivations for improving or not improving performance levels. As a result, building consensus among DOTs on performance-based processes in these areas remains a challenge.

Economic development and environmental stewardship remain important strategic goal areas that lack meaningful or well-developed measures at most DOTs. While the extent to which state DOTs consider livability, energy

efficiency, climate change, and other economic and environmental factors in planning and policy decisions has grown in recent years, there is no uniformity among state transportation agencies for measuring and quantifying improvements in these areas. Complicated by multimodal and multi-owner considerations, many of these performance measures remain in the developmental stage.

Recognizing the broad range of performance management practice, in 2006 AASHTO began testing comparative performance efforts between states, leading to the NCHRP 20-24 (37) series. This series has produced studies in the areas of Project Delivery (On Time/On Budget), Smooth Pavements, and Safety, with studies on bridge preservation and incident management nearing completion. Each of these projects has involved the compilation of detailed performance data from multiple DOTs, calculation of performance measures for each agency, composition of peer groups for comparative analysis, identification of the top tier of agencies with respect to the selected measures, and interviews to determine practices that may be related to exemplary performance.<sup>6,7</sup>

### **Setting Performance Targets**

Quantifiable targets for each performance measure allow agencies to gauge progress over time relative to a desired goal. However, practices of establishing performance targets vary considerably among state transportation agencies. The states that have developed more refined methods tend to view target-setting as a multidimensional process, involving:

- Financial considerations (reflecting a realistic projection of available funding levels);
- Technical considerations (targets should be achievable based on current and forecasted conditions or performance and the resources available);
- Policy considerations (reflecting existing policies and priorities, customer and public involvement, and executive and legislative input); and
- Economic considerations (minimizing life-cycle costs and maximizing benefits relative to investments).

According to a survey conducted for the 2009 CEO Leadership Forum, 19 of the 23 responding states have targets for preservation, and 19 also have targets for safety (Table 3.1). However, some goal areas are not as well developed in terms of performance measurement. For example, only one responding state has targets for freight/economics; 16 have no measures at all in that area.

**Table 3.1 State DOT Use of Measures and Targets by Goal Area  
Among 23 Respondents**

Goal Area	Measures Only	Measures and Targets	Neither
Preservation	3	19	1
Freight/Economics	6	1	16
Safety	4	19	0
Congestion	8	10	5
System Operations	7	9	7
Environment	5	7	11

Source: Cambridge Systematics, Inc., *Performance-Based Management: State-of-the-Practice White Paper*, prepared for the University of Minnesota Center for Transportation Studies for the 2009 AASHTO CEO Leadership Forum, April 19-21, 2009, Minneapolis, Minnesota, May 2009.

NCHRP Project 8-70, *Target-Setting Methods and Data Management to Support Performance-Based Resource Allocation by Transportation Agencies*, developed a comprehensive set of steps for target-setting:

- **Step 1 – Establish a Performance Management Framework.** Establish a framework that links organizational goals to specific investments through the use of performance measures and their attendant targets.
- **Step 2 – Evaluate the Factors Influencing Target-Setting.** Internal and external factors include political/legislative influence, customer and stakeholder perspective, agency experience in using performance measures and targets, commitment to regular communicating and reporting, span of agency control, financial resources, and timeframe.
- **Step 3 – Select the Appropriate Approaches for Target-Setting.** While approaches for setting targets range from unilateral executive edicts based primarily on experience to collaborative senior staff decisions guided by relatively sophisticated modeling techniques available for some measures, most agencies use a hybrid approach in which they not only use different approaches for different measures, but also multiple approaches for a single measure.
- **Step 4 – Establish Methods for Achieving Targets.** Specific methods to achieve targets include integrating performance measurement into daily agency activities, establishing funding allocation incentives, and incorporating performance target attainments into personnel performance appraisals.
- **Step 5 – Track Progress Towards Targets.** While virtually all agencies that employ performance management track the impact of their investments in achieving specific targets, techniques vary. Some use a Balanced Scorecard in which numerous measures are evaluated and tracked in terms of multiple

perspectives (customer, finance, internal processes, learning, and growth) and simplified into tables of information providing “warning lights” for areas in need of improvement. Other organizations prepare periodic performance measure “snapshots” in which red, yellow, and green colored shapes represent annual progress relative to targets by geographic area. Other agencies publish annual attainment reports.

- **Step 6 – Adjust Targets Over Time.** States reevaluate and periodically adjust their targets based on financial and political realities, ease or difficulty of achieving targets, and increasing experience in performance-based resource allocation.<sup>8</sup>

### **Allocating Resources**

Performance-driven resource allocation is one of the most fundamental uses of performance measurement, though it is often the last element of an agency’s performance-based process to mature. The process is not limited to budgeting and financial investments for transportation projects. Rather, several agencies use performance results to evaluate staff performance and other department activities as shown in Table 3.2. However, practitioners emphasize that investment decisions cannot be solely driven by performance data through purely analytical, quantitative methods. Performance measures are not intended to replace the current transportation project prioritization and selection processes, but rather serve as a valuable input into the process. Other factors, such as equity, need to be considered in the final analysis. States are generally trying to adopt a performance management process that is analytical and stakeholder driven, yet allows for professional judgment and consideration of qualitative factors in the decision-making process.

**Table 3.2 Resource Allocation Examples from Select Agencies**

Agency	Examples of “Action” Based on Performance
Arizona DOT	Prioritization of capacity expanding projects outside of urban areas
California DOT	Allocation of resources for State Highway Operations and Protection Program
Florida DOT	Prioritization of program funding levels
Minnesota DOT	Capital budgeting decisions at the District level Funding allocation across Districts Adjust types of investment in program
Montana DOT	Capital funding allocations to Districts, Systems, and work types; and project programming consistency.
Ohio DOT	Assessment of staff performance Allocation of funding across Districts “Face-to-face” meetings to develop action plans to address performance deficiencies
Pennsylvania DOT	Identification of actions in District and Bureau annual business plans to improve performance Quarterly “face-to-face” meetings between District Engineers and Deputy Secretary for Highway Administration to review performance and identify actions to meet targets Similar face to face meetings between Bureaus and Deputy Secretaries
Virginia DOT	Staff accountability Monthly video conference with Commissioner to review project status for major projects (based on “Dashboard”)
Washington DOT	Quarterly meeting to review performance with 25 to 30 senior staff.

Source: NCHRP Report 8-36(47).

## Measuring and Reporting Results

Measuring and reporting performance results provides agencies with clear accountability and feedback for both impacts and effectiveness. As exemplified in Table 3.3, many state DOTs recognize the importance of regular reporting frequency, though reporting mechanisms may vary.

Performance reporting provides the ability to articulate both unmet needs and what was accomplished with existing tax dollars. Among the 23 state agencies surveyed for the 2009 CEO Leadership Forum, 16 DOTs have linked performance management outcomes to requests for funding. In some instances, performance measures and budget requests are included in the same document. The successful use of performance reporting and linking to funding requests is reflected in the passage of transportation funding packages in both Minnesota and Washington.

**Table 3.3 Reporting Approaches for Sample State Agencies**

Agency	Reporting Frequency	Reporting Mechanism
Arizona DOT	Varies – ADOT’s measures used to support Long-Range Plan development	Part of Arizona DOT’s Long-Range Plan
Minnesota DOT	Senior executive staff meeting reports quarterly on a rotating cycle. Infrastructure measures reported annually. Some operations measures reported monthly or quarterly.	Face-to-face meetings with Minnesota DOT executive staff, with combination of Dashboards, PowerPoint slides, reports, etc., to support discussion
Missouri DOT	Quarterly	Missouri Tracker – Print and electronic formats available. Document geared toward public/external stakeholder audience.
Montana DOT	Director’s Report – Program delivery measures – Quarterly P3 – Project programming tool – Annually	Director’s Report P3 – Performance-based capital allocations are taken as formal Transportation Commission actions
Ohio DOT	Monthly/Quarterly	In-house web database and report generator/selected measures as part of annual external reports
Oregon DOT	Annually	Performance Report – Print and electronic formats available. Document geared toward public/external stakeholder audience.
Pennsylvania DOT	Quarterly	Agencywide executive-level Scorecard Bureau/Division-level Dashboards for senior management
Virginia DOT	Daily	Web-based Dashboard updated daily
Washington DOT	Quarterly	Gray Notebook – Print and electronic formats available. Document geared toward public/external stakeholder audience.

Source: NCHRP 8-36(47).

### Data and Analysis Tools

High-quality, consistent data are critical to successful performance management. Complex, system-level transportation decisions require timely, understandable, and standardized data. Conversely, data that are uncertain or inaccurate reduce the management value of the performance measures they inform.

State DOTs are more concerned about data availability, quality, and affordability than data quantity. Having too much data is not only expensive, but also potentially confusing and unwieldy. As summarized in the 2009 CEO Leadership Forum white paper, suggestions to improve performance measurement data collection include:

- Build on information and tools already in use at different levels of the organization;
- Collect data that will be used to make decisions, not simply the data that is available;
- Identify data gaps in terms of accuracy, precision, timeliness, and consistency;
- Collect information on both outputs and outcomes and identify trends when possible;
- Manage data collection by assigning schedules for collection, quality control/quality assurance procedures, and accessibility and adjust procedures over time as necessary;
- Plan for smooth transitions as legacy systems are replaced; and
- Develop a data business plan to address issues systematically.<sup>9</sup>

Many agencies decentralize the basic responsibility of collecting performance data to individual “performance measure owners.” The individuals responsible for managing the data collection efforts understand how the data is used and have greater incentive to promote data accuracy. Other agencies rely on sophisticated data management systems, while others are taking steps to fully automate data collection and performance measure reporting.

### **Summary**

While most states have adopted a variety of performance measures, only a few have developed formal performance-driven decision-making processes. At one end of the spectrum are agencies that have limited data mining and reporting capabilities or practices beyond those needed to meet Federal requirements. At the other end are a handful of agencies with well-developed performance management programs that help drive every aspect of the organization, including budgeting and project selection processes. In between are the rest of the state DOTs with some level of commitment to using performance data to inform decision-makers, increase accountability to customers, and/or maximize transportation system performance within current investment programs but with only some elements of a comprehensive performance management system in place. Leveraging the expertise of agencies with more advanced performance management capabilities will be necessary to raise the baseline of performance-driven activities across all DOTs.

## **3.2 MPOs**

While a majority of the performance-based literature produced over the last 10 years has focused on state DOT application of performance measurement and management systems, several recent publications have addressed performance management implementation within the MPO community.<sup>10</sup> These publications

have cited an increasingly proactive and progressive move towards implementation of performance-based processes within metropolitan planning agencies.

MPOs across the country vary widely in terms of planning boundary size, staff size and organizational structure, and range of access to data and other technical resources. Some MPOs are housed within Councils of Government (COG) or serve as Regional Development Centers which may have separate planning mandates such as land use or workforce planning that provide for additional staff and technical resources that can support the transportation planning process required of the MPO.

However, despite the wide ranging size and sophistication among MPOs, there are some consistencies. For example, MPOs must produce fiscally constrained long-range Metropolitan Transportation Plans (MTP). As a result, the significant funding shortfalls that have occurred over the last five years have forced many areas to significantly cut back in transportation investment in their transportation plans in order to meet fiscal constraint planning requirements. This has served to quickly advance the development of more structured and transparent decision-making processes within the MPO community, as project selection and plan development has become much more heavily scrutinized by both the public and MPO planning partners in light of increased competition for funds.

As with state DOTs, MPOs establish transportation-related goals and objectives to define agency priorities and key emphasis areas for transportation plan development. For MPOs moving towards performance-based planning processes, these goals and objectives serve as the basis for establishing discrete performance measures that are used to evaluate proposed investment strategies, and ultimately support subsequent steps of the performance-based process, such as setting performance targets. Key themes summarizing the state of practice are discussed below.

### **Setting Strategic Goals and Objectives**

The case studies for NCHRP 8-70 found that the majority of MPOs reviewed have developed transportation goals and performance measures that align with the eight planning factors defined in current transportation funding legislation, SAFETEA-LU (Table 3.4). Doing so provides a direct mechanism for MPOs to ensure they are meeting Federal requirements as part of the regional transportation planning process. With many MPOs creating goal statements that align with the same Federal planning factors, a common goal framework, while not required by Federal regulations, has emerged within much of the MPO community. This defines a common baseline for many MPOs, enables a peer comparison of how MPOs are working to achieve similar goals, and encourages a sharing of best practices and lessons learned to advance the practice of performance-based planning. These commonalities have allowed the MPO community to become increasingly more advanced in implementing performance-based processes over the last several years.

**Table 3.4 SAFETEA-LU Planning Factors**

Factor	SAFETEA-LU Planning Factor
1	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2	Increase the safety of the transportation system for motorized and nonmotorized users.
3	Increase the security of the transportation system for motorized and nonmotorized users.
4	Increase accessibility and mobility of people and freight.
5	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
6	Enhance the integration and connectivity of the transportation system across and between modes, people and freight.
7	Promote efficient system management and operation.
8	Emphasize the preservation of the existing transportation system.

As with state DOTs, the process of setting goals and objectives for MPOs is very important to focus development of performance management activities within a manageable number of planning emphasis areas, and ultimately to support subsequent steps of the performance-based process.

### Selecting Performance Measures

In the MPO transportation planning arena, the terms “performance measures” and “evaluation criteria” are often used interchangeably. Rather than using performance measures to assess the effectiveness of implemented projects or the actual performance of a particular investment, it is more common for MPOs to use performance measures as a way to estimate the impacts of potential projects under a set of assumed future conditions. Performance data are often outputs of a region’s travel demand model and used to evaluate, select, and prioritize projects and programs. However, the application of performance measures varies widely within the MPO community and may include:

- Both qualitative (positive/negative, up/down, yes/no) or quantitative (absolute value) indicators of impact to support project evaluation;
- Project-level measures to support the identification of which projects and programs will be funded as part of the MTP and Transportation Improvement Program (TIP) or systems-level measures to communicate the benefits and impacts of the planned transportation system as a whole (Table 3.5); and
- Assessment of projects in relation to one another or in relation to a particular predefined threshold.

Currently, many MPO performance measurement systems involve each of these three variables to some extent.

**Table 3.5 MPO/Regional Efforts Using System-Level Performance Measures**

Project Name Agency or Partnership Application	Project Name Agency or Partnership Application	Project Name Agency or Partnership Application
Capital District Transportation Committee (CDTC)	CDTC	Multimodal Assessment/Interagency Planning Partnerships
Metropolitan Council Transportation Policy Plan, Congestion Management Process, and Transportation Audit	Metropolitan Council and Minnesota DOT	Multimodal Assessment/Interagency Planning Partnerships; Annual Report/Scorecard
Sacramento Area Council of Governments	SACOG	Multimodal Assessment/Interagency Planning Partnerships
San Francisco Bay Area Project Performance Assessment for Transportation	Metropolitan Transportation Commission	Benefit/Cost
SANDAG: Congestion Management Strategies	San Diego Association of Governments	Multimodal Assessment/Interagency Planning Partnerships; Tolling/ITS/TDM
Puget Sound Regional Council Vision 2030	PSRC	Tolling/ITS/TDM
Transportation Metropolitan Atlanta Performance Initiative	Georgia Regional Transportation Authority	Annual Report/Scorecard

Source: NCHRP 8-67.

### **Setting Performance Targets**

As evidenced by the case study research in NCHRP 8-70, the use of target-setting as an element of the performance-based planning process within the MPO community is still somewhat limited. For many MPOs reviewed, the performance-based resource allocation process involves allocating resources based on how well each potential investment performs in relation to other potential investments, or in a more general sense, whether it provides a positive or negative impact in relation to one or more evaluation criteria. Target-setting is still not a common element within the MPO process, largely because of the financial and staffing resource constraints and policy considerations associated with setting performance targets, such as:

- The ability to collect the data needed to track progress towards meeting targets;
- The ability to develop new technical tools to project future performance as a function of varying levels of investment; and
- The need to avoid setting and communicating to the public and transportation stakeholders unattainable targets, in light of significant financial constraints.

When targets are included in the process, the robustness of the target-setting approach is largely dependent on the following:

- The method used to develop targets (internally developed by agency staff or developed via stakeholder outreach/planning team consensus process);
- Amount of time available for planning a comprehensive performance-based approach (the more time available, the greater chance an agency has to think through each of the six steps); and
- Support by management for agency staff to conduct the exercise and analyses needed to support a well thought out performance-based approach.

Specific target-setting as an element of performance-based resource allocation is only documented in a few of the MPO case studies. For example, Atlanta has a systemwide travel time index performance target of 1.35; Broome County, New York has a program-oriented target to reduce the number of deficient bridges by 10 percent; and Portland, Oregon has clear benchmarks that have been in place for the last two RTP cycles.

### **Allocating Resources**

Despite the evolution of more sophisticated performance-based processes within the MPO community, actual programming of transportation dollars is largely influenced by other nonperformance-based factors. MPOs serve as intergovernmental coordination agencies tasked with developing consensus on transportation investment priorities among multiple jurisdictions, elected officials, state DOTs, and other key stakeholders. As such, MPOs – like state DOTs – must evaluate investment decisions in the context of multiple, often competing, objectives within a framework of broader societal goals. Their ability to directly link the decision-making process to a largely objective and quantitative performance-based process is limited, in that many of the factors they are required to address are policy-oriented, socially motivated, and difficult to actually measure. As documented in NCHRP 8-70, nonperformance-based factors that play a large role in project selection and plan development include the following:

- The need for equitable distribution of funds across the planning region by geography and demography;
- The tradeoff between short-term transportation fixes that may yield smaller, but more immediate benefit, and long-term investment decisions that require more time and money to implement, but may yield larger regional benefits;
- Financial contribution of project sponsor (i.e., local match) above the standard 20 percent needed to match Federal dollars; and
- Project deliverability, as determined by political/public support (or lack thereof), initial environmental screening, or available financing.

As a result, priority order of projects as determined through a technical evaluation of project performance is rarely strictly followed. Performance-based evaluation is instead used to support the decision-making process.

Few agencies have systematically used the results of their economic models and management systems for tradeoff analysis. However, as a pioneering example, the Detroit metropolitan area's Southeastern Michigan Council of Governments (SEMCOG) brings together analysis results from multiple decision-support tools (e.g., pavement and bridge management systems) to develop relationships between investment levels and performance measures for a wide range of programs.<sup>11</sup> It then graphically presents the results in a manner which would allow decision-makers to address the tradeoffs between investments that achieve alternative levels of performance across different performance goal areas. This process provides a quick-response "what-if" analysis tool for testing different investment options and performance targets.

### **Measuring and Reporting Results**

Many metropolitan agencies - typically the larger ones - currently produce high-level assessments of regional performance or plan implementation. The North Central Texas Council of Governments (NCTCOG), for example, produces an annual transportation "State of the Region Report" that highlights key performance indicators, such as transit ridership, crash statistics, air quality, and congestion. Similarly, the Portland region's MPO, Metro, produces a biennial performance indicators report. Benchmarks are established for monitoring RTP implementation over time; benchmarks address the relative performance of the system and the degree to which various RTP projects are being implemented. The Atlanta Regional Commission (ARC) develops a yearly Breaking Ground report that reports the rate of on-time project implementation to improve project delivery as part of each plan and program update.

The Congestion Management Process (CMP), Federally required for metropolitan areas (Transportation Management Areas) with populations exceeding 200,000, provides a systematic approach for identifying congested locations, determining the causes of congestion, developing and evaluating alternative strategies to mitigate congestion, and measure the impact of previously implemented congestion management strategies. When integrated into an MPOs MTP, the CMP also can assist in the monitoring and evaluation of projects and programs implemented throughout the region.<sup>12</sup>

### **Data and Analysis Tools**

Data is the backbone of performance-based planning. As stated in NCHRP 8-70 and reinforced in NCHRP 8-67, *Integrating Individual Transportation System-Level Performance Programs to Determine Network Performance*, data access is a key determinant to the level of sophistication of an MPOs performance-based processes.<sup>13</sup> Technical evaluations currently are driven largely by the MPOs travel demand modeling tools. These models are needed to produce many of the variables required for performance measurement (e.g., vehicle-miles traveled, travel speeds, level of service). Without quality data, more refined technical evaluations and tool development is limited as well.

However, data collection and analysis remain a weakness for many agencies, especially given current funding limitations. Collecting quality data is consistently cited by MPOs as a barrier to implementing a more robust performance-based planning and programming process. Data collection and tool development is resource and time-intensive, which is an issue for many MPOs and small agencies in particular. Travel demand modeling capabilities vary greatly amongst MPOs, depending on financial and staffing resources available. The number of technical staff needed to support effective performance-based evaluation also varies significantly depending on the size and complexity of each MPO.

While MPOs are responsible for multiagency coordination throughout the regional planning process, much data is collected unilaterally to support individual regional or local initiatives and used for a single primary application. In an effort to change this practice, FHWA's "Planning for Operations" initiative is promoting ways to improve data sharing between a region's planning and operations agencies. The Planning for Operations web site provides resources to assist MPOs in using operations data to develop more effective performance measures.<sup>14</sup>

### **Summary**

While many metropolitan planning agencies have embraced performance-based planning as a tool to help them meet their fiscal planning requirements, there remains a wide range of abilities among MPOs. Recognizing the varying size and sophistication of MPOs across the country, whose regions' populations range from 50,000 at the smallest to 19 million and growing, performance-based planning applications vary accordingly. However, the basic principles of the performance management framework can be applied to assist decision-making related to multidimensional and often competing regional goals in agencies of any size.

## **3.3 TRANSIT AGENCIES**

Transit agencies have an extensive history in using performance measures. Performance measures are used to manage agency operations, conduct route planning, optimize fleet maintenance, track reliability of daily operations, monitor and manage the performance of operations contractors, achieve cost recovery ratio targets (in some cases targets established by law), and report results to transit agency governing boards. Much of this focus is relatively short-term in nature. The exception is the "New Starts" process which uses performance measures to prioritize funding among applicants across the country.

The selection of performance measures by different transit agencies tends to be based upon individual agency goals, but has been greatly influenced by Federal requirements to annually submit certain prescribed data for the National Transit

Database (NTD) and by requirements in some states for periodic outside audits and evaluations of operational and fiscal performance of transit agencies. The most commonly used operational performance measures have been related to *efficiency* – the cost per unit of service provided – and *effectiveness* – the riders carried per unit of service provided, along with mean distance between failures. Most transit agencies constantly strive to achieve balance amongst the services provided, the cost of those services, and ridership on those services. That balance is the critical issue in most operational performance analyses.

Transit agencies use those operational performance measures not only to evaluate overall system performance but the performance of individual routes, of equipment types, of groups of drivers and mechanics, and of contracted operations services. Many agencies routinely report performance results to their governing boards, to funding agencies, and to the press and the public, and use them to help in advocacy efforts for funding or to justify service changes.

Some use also is made of performance measures to evaluate potential capital investments and to set capital investment priorities. This is particularly true for agencies seeking Federal transit funds for “New Starts” projects, but also for such investment decisions as purchase or rehabilitation of buses and rail rolling stock and the rehabilitation of stations, maintenance garages, and other transit facilities. The use of performance measurements by transit agencies for overall asset management is much less common, but is increasing especially among the larger agencies; and the degree and complexity of performance measurement in asset management varies widely.

While most transit agency use of performance measures has been focused on operations, during the past few years, some transit industry leaders have started to look at broader measures of performance, based upon broader national and regional goals, as discussed below. However, the use of such outcome-based measures of performance is still in the embryonic stage.

Among individual transit agencies, there is a wide range in sophistication and technical capacity in the application of performance measurements to management decisions. That is as one might expect, with more than 660 independent transit agencies in the United States large enough to report NTD data, ranging from the New York MTA with its six separate operating companies, down to small municipal transit agencies operating only a few buses.

### **Setting Strategic Goals and Objectives**

In spite of the great differences in technical capacity between the largest transit agencies and the smallest, for many years there has been quite a high level of consistency among most transit agencies in their choice of strategic goals and objectives. The most common goals and objectives typically pursued by transit agencies include:

- Safety and security for passengers and employees;

- Ridership increases;
- Efficiency in service costs;
- Reliability of, and improvements in, travel time;
- Customer service and satisfaction; and
- Workforce development and employee motivation.<sup>15</sup>

In recent years, some broader goals have begun to be adopted by some transit agencies in the larger urban areas. These include “sustainability” goals such as carbon reduction, energy efficiency and system maintenance/preservation; “equity” or “community connection” goals such as help in corridor congestion management, greater choice of mode, reduction in average combined household cost of housing and transportation; and improved walk/bike access to transit stops.

Strongly prompted by recent actions of the Federal Transit Administration<sup>16</sup> (FTA), some work is now being done in these goal areas by individual transit agencies and by the American Public Transportation Association (APTA).<sup>17</sup> However, that work is just beginning, and there is not yet anything near universal agreement on these broader goals, on the appropriate performance measures for them, or on how best to use them in planning and decision-making.

### **Selecting Performance Measures**

Currently, transit agency performance measures generally flow from the established goals of each individual transit agency, but with the precise measures chosen tending to reflect that agency’s individual needs and circumstances. Transit industry interest in performance measurement has grown and evolved steadily since the adoption of the Section 15 National Transit Database (NTD) reporting requirements made the collection of data mandatory.

In 2002, APTA, with funding support from FTA, developed a Transit Performance Monitoring System (TPMS) to standardize the collection of data and provide a basic and comprehensive analysis of the performance and benefits of transit service.<sup>18</sup> Shortly after, TCRP Report 88 provided a guidebook to help transit agencies develop a performance measurement system, including an eight-step approach for developing and applying such a program.<sup>19</sup> The just-completed TCRP Project G-11<sup>20</sup> developed a methodology for performance measurement that is intended to permit broad-based, reasonable, and fair comparisons of certain performance characteristics among similar or peer agencies. However, none of these tools have yet found extensive use among transit agencies.

In December 2008, APTA sponsored a Performance Management Workshop with a broad agenda illustrating the wide-ranging applications of performance measurement in transit, both in North America and abroad. APTA has further undertaken a Quality Service Initiative to help transit agencies define, measure

and monitor their service quality, using not only performance measures, but also such tools as peer reviews, benchmarking, quality standards, and ISO certifications.

### *National Transit Database (NTD)*

Because all 660 transit agencies receiving Federal funds from FTA must collect and report certain basic performance data to the NTD, a standardized set of high-level data is available. That data availability has enabled transit agencies to select and monitor some common operations performance measures, including:

- **Operational characteristics** - Vehicle revenue hours and miles, unlinked passenger trips and passenger miles;
- **Service characteristics** - Reliability and safety;
- **Capital Revenues and Assets** - Sources and uses of capital, fleet size and age, and fixed guideway mileage; and
- **Financial Operating Statistics** - Revenues from Federal, state and local sources; and operating costs.

In recent years, the NTD has required more information on safety, security, rural and paratransit operations. A small number of performance measures based on the NTD data about operating characteristics are used by FTA to apportion a significant share of Federal transit funds to urbanized areas. They also are used by many transit agencies to monitor their own system's performance over time and to compare themselves with peer agencies.

Some states and transit agencies have built upon the NTD, and developed more complete, robust, or fine-tuned performance measurement systems. For example, the Florida DOT's Public Transit Office and the Lehman Center of Transportation Research at Florida International University have developed an integrated database called the Florida Transit Information System (FTIS), which draws upon not only the NTD, but information from the U.S. Census.<sup>21</sup> The FTIS software has been made available to others and has many users across the country.

### *Broader Performance Measures – A Challenge for the Future*

In a few areas of the country, some transit agencies have recently begun to develop outcome-based performance measures that reflect broader societal goals related to energy, climate change, housing affordability, "livability," and economic vitality.

In California, the requirements of AB 32 and SB 325 for measurement of regional greenhouse gas emissions have resulted in a lot of attention by MPOs and transit agencies trying to define appropriate measures.

An APTA Climate Change Working Group has provided assistance to the national Climate Registry in a report just issued, *Performance Metrics for Transit*

*Agencies*, focusing on the carbon efficiency of transit operations. Further work is needed on measuring the overall carbon efficiency of transportation in a region, considering the roles played both by transit operations and by highway operations.

The Brookings Institution and the Center for Neighborhood Technology have done significant work on developing standard measures of combined transportation and housing affordability, with data developed for all of the larger urban areas of the U.S.

In general, transit agencies and highway agencies use very different performance measures, each reflecting their differing goals and objectives. However, there is an increasing awareness among transit agencies that some combined measures can be important to both. For example, measures of highway congestion have long been of great importance to highway agencies, but were of interest to transit agencies only insofar as they provided information about the impact of congestion on bus operating schedules. In recent years, however, some transit and highway agencies have begun to recognize the role that transit can play in managing highway congestion, and are seeking performance measures that can assess the level of that transit role.

### **Setting Performance Targets**

Most medium and large transit agencies have set operational performance targets related to efficiency and effectiveness for a few key goal areas of greatest current interest to transit managers and policy boards, and regularly report results to the policy board and public. Targets are most commonly set for measures of ridership, cost, reliability, safety, customer satisfaction and work force utilization. Some common examples of performance targets are listed in Table C.6.

Some transit agencies also have set performance targets for capital development, related to maintenance of project budgets and schedules and control of “soft costs.” Also, some transit agencies also have chosen to achieve ISO 14001 certification for environmental management, and a few have achieved ISO 9001 certification for quality control, accepting regular audits required to maintain those certifications, and the reporting that goes with those audits.

In general, smaller transit agencies, with smaller staffs and less sophistication in data management, have been less likely to establish performance targets.

**Table 3.6 Examples of Common Transit Performance Measures Targets**

Goal Area	Performance Measure Target
Ridership	Percent growth in annual riders
Cost	Investment (subsidy) per rider; fare recovery ratio
Reliability	Mean miles between road calls (breakdown)
Safety	Accidents per vehicle-mile
Customer satisfaction	Complaints per thousand riders
Workforce utilization	Absenteeism and extra-board rates

## **Allocating Resources**

### *Allocation of Operating Funds*

Transit agencies have long used performance measures related to efficiency and effectiveness to optimize allocations of operating funds to specific transit routes and schedules. Many transit agencies conduct periodic systemwide assessments of their route structure and utilization, or comprehensive operational analyses to make systemic service adjustments that reflect current travel demands, route ridership and costs. Most agencies monitor individual routes and regularly adjust schedules and headways to achieve improved cost-effectiveness. Underperforming routes are identified, triggering a review and actions to eliminate or adjust those services.

However, Federal requirements and local desires for public outreach on service changes mean that actual changes must reflect qualitative as well as quantitative goals. For example, the elusive goal of “equity” may often mean that even though a given route is producing less ridership than other routes of similar cost, the need to provide service to all areas will result in a continuation of some underperforming routes.

### *Allocation of Capital Funds*

#### **Major Capital Investments**

For transit agencies to obtain Federal funds from FTA under its discretionary (and very competitive) New Starts and Small Starts programs, proposed projects must undergo a rigorous development of projected capital costs, operations costs, and ridership for the proposed investment; and then compare those proposed projects with a “baseline” or less capital-intensive development. FTA uses this essentially centralized performance measure-based system to make project decisions and allocate Federal funds, drawing upon a mix of Federal and local goals. The primary goals and performance measures used are those related to mobility (travel time savings), operating efficiency, and cost-effectiveness (cost per hour of user benefit), with some qualitative evaluations of land use,

economic development, and environmental benefits. This stands in stark contrast to Federal highway funding, which undertakes no national comparative evaluation of alternative projects. However, the New Starts process has been criticized as too narrow in focus and sometimes paying too little attention to some broader local goals.

### **System Maintenance and Preservation**

As noted above, FTA considers NTD statistics about agency operating characteristics (e.g., number of stations, route miles, revenue-vehicle miles) to distribute the bulk of transit agency formula funds for system preservation projects. In addition, many transit agencies use some limited performance measures for other capital projects, including fleet purchases, repair and replacement; and replacement or rehabilitation of administrative and maintenance facilities. However, there is a widely varying level of sophistication in the use of such performance measures among agencies.

However, outside of fleet management and vehicle replacement, the transit industry has lagged behind state DOTs in terms of quantifying asset conditions. This is partly because the wide variation in transit assets in use make developing a consistent system for evaluation more complex. Transit agency focus has primarily been upon fleet management and vehicle replacement, with some lesser attention to maintenance of other capital facilities. Recently, FTA has begun developing requirements for asset management systems and attention to “state of good repair” for all aspects of transit capital assets, especially including safety-related facilities such as signals and train control systems, traction power systems, tunnel ventilation systems and stations, and other administrative, and maintenance facilities. Measures of transit performance in maintaining the system in a state of good repair are still being developed, led by work in the larger agencies, including the New York MTA, Boston’s MBTA and Chicago’s RTA.

### **Summary**

Transit agencies have long used performance measures for evaluation of daily operations, and the NTD database has provided a good data resource for such performance measures. However, increased use of performance measures in the development of capital programs and assessment of asset conditions will allow agencies to better tie resource allocation to goals and objectives. Along with state DOTs and MPOs, transit agencies jointly face the challenge of using long-term, outcome-based performance measures to monitor progress in achieving broader societal goals related to energy, climate change, economic competitiveness, land use, and equity of access.

### 3.4 INTERNATIONAL EXPERIENCE

For two weeks in July and August 2009, a scan team from the United States visited international transportation agencies with mature performance management systems to study how these organizations demonstrate accountability to elected officials and the public. In addition, the team examined how these transportation agencies use goal setting and performance measures to manage, explain, deliver, and adjust their transportation budgets and internal activities.

As documented in the international study team's final report, *Linking Transportation Performance and Accountability*, the scan provided considerable insight into the evolution of performance management among nations that have practiced it for at least a decade.<sup>22</sup> Their systems have matured and evolved in ways that provide lessons for the United States. The scan also validated the use of performance management as an effective means to translate broad government goals into meaningful agency practice. The performance management systems observed abroad provided transparency and accountability to transportation programs, while also allowing flexibility to meet local needs. The officials offered the scan team advice in several key areas of performance management. The following outlines their advice and the scan team's conclusions:

1. Articulate a limited number of high-level national transportation policy goals that are linked to a clear set of measures and targets.
2. Negotiate intergovernmental agreements on how state, regional, and local agencies will achieve the national goals while translating them into state, regional, or local context and priorities.
3. Evaluate performance by tracking the measures and reporting them in clear language appropriate for the audience.
4. Collaborate with state, regional, and local agencies to achieve the targets by emphasizing incentives, training, and support - instead of penalties - as the preferred way to advance performance.
5. Perpetuate long-term improvement by understanding that the real value of performance management is an improved decision-making and investment process, not the achievement of many arbitrary, short-term targets.
6. Improve the use of benefit/cost analysis and risk management practices to demonstrate value for money. Consider major project post-construction evaluations to assess whether benefits included in the original benefit/cost assessments were realized.
7. Recognize that major national visions, not achievement of narrow targets, tend to generate new investment.

8. Convert long-term deferred maintenance needs into a long-term future liability calculation. This would clearly link the budget to long-term system sustainability.
9. Demonstrate accountability by producing annual performance reports on agency achievements.
10. Instead of using technical jargon, report results with language meaningful to the public, such as “the journey home” or “support for the journey.” Detailed technical terms should be used for internal reporting, but should be translated into understandable language for the public.
11. Collaborate frequently with other cabinet agencies, including conducting periodic meetings with top leadership on cross-cutting issues such as economic development, public health, highway safety, and climate change.
12. Have a strong safety focus and document the results of safety measures, in addition to the usual measures of infrastructure condition, internal operations, transit, and rail on-time performance.
13. Focus on desired outcomes for travel time reliability that lead to expanded strategies for highway operations.
14. Learn from international examples of addressing climate change that rely on improving vehicles, fuels, and modal choice, but do not mandate reductions in travel or mobility.
15. Provide resources to enable high-quality data tracking, analysis, and reporting capabilities that allow for the use of performance data in decision-making.
16. Recognize that performance management is not a black box or simplistic solution. It is a culture to grow in the agency as an important consideration in the decision-making and investment process.

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<sup>2</sup> A recent guidebook from the National Cooperative Highway Research Program (NCHRP), *Transportation Performance Management: Insight from Practitioners*, summarizes best practices from select DOTs who are successfully integrating transportation performance management programs into a range of key decision-making processes in order to improve their effectiveness and transparency. Similarly, two publications from the American Association of Highway and Transportation Officials (AASHTO), *State DOT Performance Management Programs: Select Examples* and *A Primer on Performance-Based Highway Program Management: Examples from Select States*, illustrate the use of performance management systems, outcomes, and measurement techniques from a sample set of state DOTs. An earlier AASHTO publication entitled *Measuring Performance Among State DOTs* described the potential opportunities and barriers for implementing comparative performance measurement among DOTs. In 2003, NCHRP Project 20-24(20), *Using Performance Measures to Manage Change in State Departments of Transportation*, produced a handbook for CEOs and executives at state DOTs for developing strategic performance measures and applying them in a way that transcends merely tracking progress.<sup>1</sup> NCHRP Synthesis 326, *Strategic Planning and Decision-Making in State Departments of Transportation: A Synthesis of Highway Practice*, examines the linkages between strategic planning at state DOTs to other decision-making processes. Full references for these publications are included in the bibliography (Section 4.0).

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- <sup>15</sup> Most transit agency web sites provide links to annual budgets and other documents providing stated agency goals and objectives.
- <sup>16</sup> Partnership for Sustainable Communities formed by HUD, DOT and EPA in June 2009 defined six "livability principles" that are now being cited by FTA as needed to justify grant applications for many FTA funds.
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# D. Case Study #1: A Regional Context

## D.1 Introduction

Jennifer Kestner started a new position as deputy director for transportation for an MPO just a month ago. Now, in just her third week on the job she was preparing a presentation for the governor.

Late the previous week, the director of the MPO explained to Jennifer that the governor has noticed an increased interest in transportation performance measurement among his peers. He has asked the state DOT to become more performance-driven, and pressing other key transportation agencies throughout the state, including the MPO, to do the same. One of Jennifer's first assignments is to develop a presentation for the governor. The presentation needs to address opportunities for applying a performance management system within the MPO, and recommendations for immediate next steps.

Since Jennifer is new to the agency, she began by reviewing the MPO's current situation in an effort to identify its biggest technical, institutional, and political challenges.

## D.2 Overview of the Region

The MPO represents an eight-county region with a population of nearly 4 million. The region is anchored by the state capital, which has a population of 1.5 million.

The region experienced dramatic population and economic expansion in the 90s. As a consequence, traffic volumes have increased dramatically. A recent highway expansion program was designed to keep up with this increase in demand. However, congestion levels continue to rise and development and land costs are starting to constrain opportunities for additional expansion. Because of the recent expansion program and a lack of harsh winters, the MPO believes that on average the roadway network in the region is in better condition than in other more mature population centers around the United States.

The region has a substantial transit system that consists of bus, commuter rail, and light rail components. Although ridership continues to increase modestly each year, recent economic pressures have led to modest cuts in bus routes. Also, it has been noted that the light rail system is approaching the end of its first

useful life cycle, and major rehabilitation and replacement work will be needed in the near future.

### **D.3 Political and Funding Environment**

The governor recently won a second term on a platform of efficient and effective government. As part of his new accountability program, he requires all state agencies to develop annual strategic plans, and to report progress quarterly.

Eight years ago, the region voted on a one percent sales tax that has been used to fund the region's highway and transit programs. There is flexibility built into the tax so it has been used for highway expansion, transit expansion and transit repair. The tax sunsets in two years, and there's concern that voters may not extend it. This would be a significant blow to the region's transportation budget. Transportation agencies in the region have two years to demonstrate more effectively that voters are getting value for the dollars spent. Historically, the MPO has played a lead role in coordinating resource allocation decisions between the various agencies, and therefore is taking the lead on the overall effort to extend the sales tax.

Even with the one percent sales tax, the MPO and transit agency have significantly more proposed projects than funds to implement them. Management at both agencies are beginning to frame resource allocation discussions with their boards as a tradeoff among preserving existing assets, maintaining current levels of operations, continuing investments in new service/capacity, and improving safety. Many board members appear to inherently understand the need for these types of tradeoffs, but no formal approach or method has been presented or discussed.

### **D.4 Existing Performance Efforts**

The counties and cities in the region play a significant role in the MPO's planning and programming processes. The most significant tension between the partners is caused by competing needs and priorities between the core urban counties and the surrounding rural counties. Over the past 10 years, the MPO has succeeded in positioning itself as a neutral party in the planning and programming process. Increasingly, the MPO's technical and policy committees take their cues from the MPO staff.

The MPO is scheduled to begin a major update of its LRTP in six months. Jennifer sees this as an excellent opportunity for the MPO to implement her recommendations. The MPO spent a significant portion of the last LRTP update process negotiating project lists with its planning partners, who proposed their own priority lists often without any analytical backing. Historically, funds are allocated between jurisdictions based on historic precedent. After reviewing the existing LRTP, Jennifer felt it lacked a true regional perspective and instead came across as a compilation of unrelated policies and projects.

In the area of performance measures, the MPO has the most experience with mobility-related metrics that it analyzes with its regional travel model. The current long-range plan includes predicted values for a no-build and an all-build scenario for the following measures: highway level of service, average speed, vehicle hours traveled, and vehicle miles traveled on the core regional highway system. Several other measures were reported for existing conditions only, based on data from the state DOT (e.g., hours of delay on the interstate system, fatalities, and bridge condition). Looking ahead, the MPO would like to streamline and strengthen the use of its congestion measures, and then focus on developing its own measures in the areas of preservation and safety that can be forecasted based on different project and program investments. It plans to focus on these areas before moving on to its other goal areas such as the environment and economic development.

**Table D.1 MPO’s Current Measures**

Measures	Source	Notes
Level of Service	Regional travel demand model	Forecasted
Average speed		
VHT and VMT on core system		
Hours of delay on interstate system	State DOT annual mobility report	Existing conditions only
Fatalities	State DOT database	Existing conditions only
Bridge condition	National Bridge Inventory (NBI)	Existing conditions only

The state DOT maintains the vast majority of highway facilities in the region. The perception within the DOT and the MPO is that each agency tends to conduct its policy, planning, and programming efforts with minimal coordination. Often, the most intensive discussions occur after the planning and programming processes are largely complete and the agencies are trying to reconcile the results.

The DOT’s performance management efforts have largely been focused on complying with the governor’s accountability program. They track and report quarterly on a series of measures, most of which relate to internal operations and delivery – e.g., on time, on budget for capital project delivery, etc. Recently, the DOT began to expand the program to address the condition and performance of the state-owned transportation network. The DOT director has aspirations of eventually allocating funds to the various programs and DOT districts based on performance targets. The current focus however is on establishing a standard set of system performance measures that can be calculated with existing data and are easily understood by the legislature and the public. To this end, the DOT has just published its inaugural annual statewide performance report organized as follows:

**Table D.2 DOT Performance Summary**

Goal Area	Overall Performance
Safety and security	B
System preservation	C
Mobility, Connectivity and Accessibility	C
Environmental Stewardship	C
Program Delivery	A

For each area, the report lists a series of measures used to establish the overall performance grade. For example:

- The system preservation section includes two measures – percent of interstate pavements in good or fair condition, and percent of bridges in fair or good location.
- The environmental stewardship section includes a single measure of air pollutants developed by the statewide travel model.
- The mobility, connectivity, and accessibility section is the least streamlined, and includes 10 measures such as hours of delay on highways in a couple urban areas based on speed detector data, and HOV usage along two high-profile corridors based on manual count data.

The transit agency owns and operates all transit assets in the region. Historically, transit and highway planning and programming efforts are performed independently, with the MPO simply incorporating the transit plans and programs as provided by the transit agency directly into the LRTP and TIP.

The transit agency’s performance efforts have focused heavily on operations measures related to daily operations. For example, its biennial transit plan includes a series of measures such as annual boardings, percent change in boardings, cost per revenue vehicle mile, on-time performance, and miles between mechanical schedule loss. The MPO has not been heavily focused on these types of measures, focusing instead on measures that are more long-term and oriented to overall system performance. However, emerging concern about the age and condition of transit system assets may provide an opportunity for closer coordination.

**Table D.3 Current Transit Measures**

Agency Reporting the Measure	Measure	Notes
Transit Agency	Annual boardings	These measures are reported separately for bus and rail
	Percent change in annual boardings	
	Cost per revenue vehicle mile	
	On-time performance	
	Miles between mechanical schedule loss	
MPO	Vehicle count	Based on National Transit Database (NTD)
	Vehicle age	

## D.5 Questions

As Jennifer reviewed her notes from the previous week, she started to form an outline for her presentation and jotted down a series of questions:

17. How could the following challenges facing the region be helped by performance-based planning and programming?
  - a. Making the case for retaining the sales tax.
  - b. Developing a multimodal preservation program reflecting long-term needs to keep all systems in state of good repair.
  - c. Moving the project priority/selection setting process from a local negotiation based on everyone getting a slice to focusing a bit more on overall regional needs.
18. If the MPO moves forward with its performance initiative, what interagency issues is it likely to face? What specific steps could it take early in the process to help alleviate these issues? What role can the state DOT and transit agency play in the process, and how should the MPO coordinate with them?
19. What should my next steps be?



## **E. Case Study #2: A Statewide Context**

### **E.1 Part 1 – Defining Performance-Based Planning “Nirvana”**

#### **Catalyst for Change – Troubled Times for Transportation in the State of Nirvana**

Nirvana is a state with two major metro areas that are home to a large share of the state’s population and economic activity as well as a globally significant port. Several major Interstate corridors and Class I railroads cross the state. Each of Nirvana’s two major and frequently congested cities has historically supported effective light rail and bus public transit systems run by independent transit agencies with autonomous sales tax-based funding sources and the state DOT shares responsibility in urban areas for setting transportation planning and program development priorities and budgets with its transit and MPO partners. In more rural areas of the state, several smaller MPOs have transportation planning responsibility for selected midsize communities and the state DOT coordinates state and Federal funding of rural transit service.

In January 2011, the transportation chief for the State of Nirvana – newly appointed Secretary Smith – inherited an agency and transportation program viewed by many stakeholders as marginally successful at best. The outgoing secretary had laid some groundwork for change by developing a strategic plan and some performance measures, but many challenges remained.

Secretary Smith came to the DOT after a successful career at a global freight logistics firm, where performance measures had been a critical part of the organizational culture and drove both company operations and decision-making. While initially enthused to find that the DOT already had a performance measurement system, she quickly determined that measures were only being used to track and monitor performance and did not influence decision-making. She found that:

- Staff at all levels across the agency were at best unclear about their role vis-à-vis performance measures and sometimes oblivious to their existence or opposed to them;
- Planning and programming decisions were still driven by political expediency, historical funding precedents, and a fragmented and confusing program structure that did not reflect current transportation priorities;

- Performance measures were primarily used for tracking and reporting results. They were backward looking, sometimes arcane, and poorly understood by stakeholders, elected officials, and the public;
- Performance targets for key issues such as asset preservation, safety, congestion, environment, freight and economic growth, and maintenance were not grounded by consideration of needs versus revenues, or practical tradeoffs among priorities;
- The cost to meet all the DOT's performance targets was disastrously unobtainable. As a result, agency performance relative to the targets was slipping in nearly all areas;
- The public and lawmakers were growing increasingly frustrated by crumbling infrastructure, worsening congestion and limited multimodal options;
- Stakeholders – such as business associations, advocacy organizations, local governments, transit agencies, regional planning organizations and others – had never been consulted on what should be measured or how; and
- Partners in the state's surface transportation community, including local public works agencies, MPOs, economic development organizations, transit agencies and advocacy groups were not united by a cohesive vision for statewide transportation performance goals and how to measure progress towards them.

As a result, the DOT had not received a funding increase in several years despite large needs across all travel modes. In fact, the state legislature had begun to siphon off revenues from the state transportation trust fund to pay for other nontransportation priorities. For the funding that was available, legislators and other decision-makers were reluctant to give the DOT and its partners flexibility to spend money as they saw fit.

### **Seeking a New Dawn for Transportation – Nirvana DOT's Proposed Performance-Based Planning System**

To address her concerns, Secretary Smith set out to make a series of significant agencywide planning reforms that she hopes will enable the Nirvana DOT to turn around the state's transportation fortunes via adoption of a truly performance-based transportation planning and programming process. Over the next five years, Secretary Smith seeks to achieve the following goals:

- **Create a Strong Link Between Planning and Programming** – The new “Sustrans 2033” 20-year long-range transportation plan (LRTP) is an important foundation for Secretary Smith's initiative and it will be developed in close collaboration with MPOs, transit agencies and other stakeholders. The new LRTP will establish clear goals and associated performance measures for the state's transportation system. It also will establish relative priorities among goals and set targets for allocation of funds to different

types of investment. These relative priorities and target allocations will serve as a starting point for development of transportation improvement programs in metropolitan areas of the state and the statewide transportation improvement program. Selection of projects will be heavily influenced by their contribution toward achievement of plan goals and improved system performance. The DOT will report progress towards the performance targets annually. Targets will be adjusted as conditions and expectations change.

- **Measures Will be Used to Help Predict Performance and Support Decisions** – The performance measures the DOT is now beginning to use are much more dynamic, robust and integrated into decision-making: In many goal areas, such as system preservation, capacity/congestion mitigation, economic development, safety, and the environment, the measures can be used to both identify needs and predict the future outcomes that should result from different levels of investment.
- **Performance Measures Will be Clear and Relevant** – The DOT is working to develop measures and a reporting format that resonates with the public by providing information that is honest, interesting, digestible, and relevant.
- **Funding Allocations Will Match Performance-Based Needs** – The DOT is moving away from an allocation approach that was driven by a combination of legacy distributions, arcane funding “buckets,” and statutory requirements. In the future, decisions about how much funding is spent on functions such as capacity expansion, system preservation, freight, and multimodal improvements will largely be based on tradeoff analysis of the contribution different allocations will make towards achieving planning goals and objectives.
- **Achieve the Right Balance Between Politics and Analytics in Decision-Making** – In the past, project selection decisions were viewed as a merit versus politics contest. A key part of Secretary Smith’s initiative is to establish decision-making processes that will integrate and balance the influence of technical and nontechnical consideration on planning and programming activities.
- **Agency Culture Will Embrace Performance Management** – The DOT has a proud history and strong organizational culture, but one that has been somewhat insular and that emphasized engineering and construction. In the past, there was inconsistent support for performance management, and building new bridges and roads was all that mattered. In the future, the culture of both agency management and rank and file staff must evolve to the point where efficient system operations, customer service, and accountability are core values.

Plans for the new performance-based planning process are summarized in Figure E.1 at the end of the case study. Ultimately, Secretary Smith hopes her reforms will help curtail siphoning of transportation funding to other uses and that the legislature will adopt the DOT’s Sustrans vision via a new multiyear,

funding package for transportation that boosts revenues and is tied to agency achievement of selected performance targets.

**Discussion Questions – Part 1**

1. Are these the right issues that must be addressed when an agency considers moving towards performance-based planning and programming? What other major issues or challenges do agencies face that could be addressed through performance-based planning and programming?
2. Do the proposed solutions deal effectively with the issues? What must happen for each solution to be implemented?

## **E.2 Part 2 – How Secretary Smith Can Get to Performance-Based Planning “Nirvana”**

### **Three-Pronged Strategy for Implementing Performance-Based Planning**

Upon her appointment in 2011, Ms. Smith immediately worked with the Governor and the Legislature to appoint a prominent “blue ribbon” transportation performance commission made up of key external stakeholders including representatives from local governments, MPOs, elected officials, economic development organizations, transportation user groups, business leaders, and environmental advocacy nonprofits.

The commission was charged with conducting a six-month assessment of critical transportation priorities and how the agency made decisions about them. At the close of the commission’s study, it produced a set of recommendations for how the DOT could become more performance-driven. The commission’s recommendations led to development by Secretary Smith of a three-part strategy for developing a performance-based transportation planning and programming system:

- **Serious DOT Investment in Performance Management Infrastructure –** Secretary Smith is empowering staff with resources and leadership direction to create the performance measurement tools and data assets the DOT needs to support effective stakeholder engagement and tradeoff analysis on critical priorities during planning and programming.

Investments will focus on filling data gaps, developing new analytic tools to provide predictive performance capabilities; improving visual display of information; investing in partnerships with private sector data entities; and hiring staff to handle performance responsibilities.

These investments will take time and they may not generate perfect solutions, but they will vastly increase the DOT’s technical capacity to measure past performance, to predict future performance and to present complex information in ways that made it relevant to decision-makers and

stakeholders. Development of performance measurement infrastructure is a living project at Nirvana DOT.

- **Create a Performance-Based Planning Analysis Tradeoff System** – As the new performance management infrastructure emerges, Secretary Smith and her staff are beginning to use their new performance management tools and data to create tradeoff analysis capabilities for evaluating program and project-level choices.

The purpose of the tradeoff analysis system is to allow agency staff to visualize and demonstrate the potential performance impact of different agencywide investment scenarios for priorities such as infrastructure condition, safety, congestion, economic growth, and the environment. The tradeoff system, nicknamed “PAT,” consists of a series of models for pavement, bridges, congestion and economic development that rely on historical performance data to predict future performance under different funding scenarios. The system is well suited to choosing AMONG projects within a program area such as high versus low priorities for meeting preservation needs. The system lacks sophistication in its ability to support analysis of tradeoffs BETWEEN needs, e.g., preservation versus capacity or highways versus transit.

It is not lost on Secretary Smith that all models have flaws. She emphasizes that PAT should not be seen as a way to just automate the decision-making process. By allowing DOT staff to create and analyze alternate investment scenarios, PAT provides new data and analysis to help inform decisions and a way to demonstrate the complex and connected nature of transportation investment decisions to stakeholders and the public.

- **Full-On Engagement with Stakeholders and the Public on Performance** – PAT is being developed in tandem with “Sustrans 2033,” which is a two-year integrated public engagement/planning process that will be used to develop the state’s new policy-level long-range transportation plan and subsequent transportation program of projects.

To ensure stakeholders are engaged throughout the process, the Transportation Nirvana 2033 process will be guided by a modified version of the blue ribbon commission. DOT staff will work with the panel to identify strategic priorities, and to use PAT to examine investment scenarios and to set targets.

A special effort is being made to tie performance targets to public expectations through surveys and “road rallies” and concepts are being translated into simple language that is suitable for public consumption.

Stakeholder groups will have multiple opportunities to weigh in on project selection process via social media and traditional outlets. Regional forums will be held that require participants to step out of their parochial interests and think about what was important as a region.

Secretary Smith's performance-based planning and programming approach is characterized by a healthy balance in decision-making between the influence of politics and analytics that is being achieved via a combination of clear agreement on priorities; continuous, meaningful and open public engagement; and use of practical, credible analytic tools. The result looks like it will lead to a cohesive vision for statewide transportation performance that unites partners in the state's surface transportation community, including local public works agencies, MPOs, economic development organizations, transit agencies, and advocacy groups.

**Discussion Questions – Part 2**

1. What components of this implementation strategy would work well in your organization? Are there components that would not work?
2. Are there other elements needed to implement a performance-based approach that are not addressed in this implementation strategy?

### **E.3 Part 3 – Challenges to Reaching and Maintaining Performance-Based Planning “Nirvana”**

Despite the success of Secretary Smith's reforms, DOT staff recognizes that many tough challenges remain going forward:

- **Conflicting Planning Priorities Still Emerging Across Institutions and Jurisdictions** – On the one hand, for example, a new livability index – developed in part by the DOT – has helped the MPO for the state's largest urban area prioritize projects that support livability (with rising fuel costs, livability is riding a wave of popularity among urban dwellers). However, in 2016, the state DOT is suddenly facing a “dangerous bridges” crisis that took full force when back-to-back 100-year storm surges wiped out several state highway bridges, necessitating tens of millions of dollars in emergency repairs and replacement work. The state legislature is likely to mandate a “bridges first” policy that wipes out money for the urban livability projects.
- **Expectations are Proving Difficult to Manage** – For example, part of the success of the Sustrans initiative was based on a commitment to measure and deliver congestion relief. But, the economy around the state's largest metro area has benefited from a surge of exports to the Far East following Chinese currency revaluation. This means trucks and commuters continue to frequently sit in a giant tangle at some of the state's busiest urban freeway interchanges.

- **Tradeoff Models are Complex to Develop** – Despite an intensive effort to create predictive models for different focus areas (e.g., pavement, safety, economy, etc.) that offer insights into the future based on alternate planning scenarios and to use those models to analyze tradeoffs, Secretary Smith and her staff found it difficult to fully incorporate such quantitative tools into the planning process. Constant challenges included getting stakeholders over the “black box” hurdle, scenario “analysis paralysis,” and underlying model algorithms that fail to fully reflect the complexity of real world conditions.
- **Not Enough Money to Meet Needs** – In combination, a worsening Federal funding picture and construction cost inflation making it harder and harder to show reasonable progress on key performance metrics as transportation budgets are stretched thin.

**Discussion Questions – Part 3**

1. Do these issues reflect the challenges faced in your agencies for implementing performance-based decision-making? How can they be overcome?

Figure E.1 Nirvana’s Performance-Based Planning Process



### 1. Develop Strategic Plan

A long-range planning process should translate various interests into a transportation vision and should establish general goals and priorities.

Considerations:



Data and Engineering



Stakeholders (MPOs, Transit Agencies, Railroads, etc)



Public Input



Politics



### 2. Establish Performance Measures

Choosing the appropriate categories to measure and what the actual measures should be is essential to integrating them into the decision making process.

Considerations:



Available data



Measures must resonate with the public and politicians



### 3. Establish Performance Targets

Once the appropriate measures have been identified, realistic targets can be set to demonstrate the desired outcomes of future investment.

Considerations:



Strategic Plan should guide the targets



Public, Stakeholder, and Political Expectations



System Condition and Funding Constraints



### 4. Perform Trade-off Analysis

Various investment scenarios should be analyzed both among and within categories. By analyzing various scenarios for how they affect performance related to established targets, a balance can be struck between politics and analytics.

Considerations:



Each alternative should analyzed for its effect on future performance



Revenue Estimates



Stakeholders should be involved and informed of the alternatives



### 5. Project Selection

Integrating the project selection process leads to a program that achieves the established goals and is well supported.

Considerations:



Projects should align with strategic priorities and investment strategy



Projects should achieve progress towards performance targets



Political realities and stakeholder priorities play a role



### 6. Monitor and Report Results

After the capital program has been adopted, regular reports should be completed to monitor performance.

Considerations:



The report should use the established measures to monitor progress towards performance targets



The report should be clear and concise and digestible by politicians and the public