

# Linking Transportation Performance and Accountability

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U.S. Department of Transportation  
Federal Highway Administration

## In cooperation with

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National Cooperative Highway  
Research Program

# Executive Summary

January 2010

# Introduction

**F**or 2 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. The elements the scan sought to examine were the following:

- ▶ Examples of how national, State, or provincial strategic goals are translated into meaningful performance measures for the transportation agency
- ▶ Ways to establish effective and achievable performance levels based on input from the public, elected officials, and the business community
- ▶ Examples of linking performance and transparency to national, State, regional, and metropolitan plans and budgets
- ▶ Ways transportation agencies can demonstrate good governance and accountability in meeting or exceeding performance expectations
- ▶ Advice on what works and what does not when performance measures are applied to Federal or multiregional transportation programs

The scan team visited the following agencies:

- ▶ Swedish Road Administration in Stockholm, Sweden
- ▶ United Kingdom (U.K.) Department for Transport and Highways Agency in London, England
- ▶ New South Wales Roads and Traffic Authority and Austroads in Sydney, Australia
- ▶ Victoria Department of Transport and VicRoads in Melbourne, Australia
- ▶ Queensland Department of Transport and Main Roads in Brisbane, Australia
- ▶ New Zealand Transport Agency in Wellington, New Zealand

The scan occurred under the auspices of the International Technology Scanning Program, which is conducted by the

Federal Highway Administration (FHWA) in cooperation with the American Association of State Highway and Transportation Officials (AASHTO) and the National Cooperative Highway Research Program (NCHRP.) The scan team was co-chaired by Carlos Braceras, Deputy Director of the Utah Department of Transportation (DOT), and Robert Tally, Indiana Division Administrator for FHWA. They were accompanied by a diverse and multidisciplinary scan team:

- ▶ Daniela Bremmer, Director of Strategic Assessment, Washington State DOT
- ▶ Leon E. Hank, Chief Administrative Officer, Michigan DOT
- ▶ Jane Hayse, Chief, Transportation Planning Division, Atlanta Regional Commission
- ▶ Dr. Anthony (Tony) R. Kane, Director of Engineering and Technical Services, AASHTO
- ▶ Dr. Kristine L. Leiphart, Deputy Associate Administrator for Budget and Policy, Federal Transit Administration



**Figure 1.** Scan cochair Robert Tally presents in Stockholm, Sweden.

- ▶ James (Jim) March, Team Leader, Office of Policy and Governmental Affairs, FHWA
- ▶ Steven M. Pickrell, Senior Vice President, Cambridge Systematics, Inc.
- ▶ Dr. J. Woody Stanley, Team Leader, Strategic Initiatives Team, Office of Policy and Governmental Affairs, FHWA
- ▶ Jenne Van der Velde, Strategic Advisor, Dutch Ministry of Transport, Public Works, and Water Management (Rijkswaterstaat)
- ▶ Connie P. Yew, Team Leader, Stewardship/Oversight Team, Office of Infrastructure, FHWA
- ▶ Gordon Proctor, Gordon Proctor & Associates, Inc., Report Facilitator

The scanning study was conducted against a backdrop of three major U.S. transportation needs:

- ▶ Reauthorizing the Federal legislation for transportation programs
- ▶ Stabilizing the financially drained Highway Trust Fund that supports highway and transit programs
- ▶ Ensuring greater accountability from State, regional, and local recipients of Federal transportation aid

Those issues made the scan particularly timely and important.

The countries and transportation agencies were chosen because they have mature performance management systems that they use to manage large, complex, industrialized transportation networks. All were parliamentary democracies, which may influence the degree to which their governments can rapidly change policy for the central transportation agencies. Otherwise, the visited agencies had many similarities to U.S. transportation agencies. One strong similarity was that many of the agencies visited not only needed to carry out direct goals set by the central government, but they also needed to cascade those goals to many local agencies. As in the United States, many transportation services were provided by local governments or private contractors.

The following describes major characteristics of the agencies:

**Swedish Road Administration**—The Swedish Road Administration is the highway agency for the Swedish national government. Sweden has the world's 15th largest highway network. Of that, the Swedish Road Administration is responsible for 94,000 kilometers (km) (58,400 miles (mi)) of State roads. Municipalities manage 41,000 km (25,300 mi) of local routes, and private companies manage 76,100 km (47,000 mi) of private roads, mainly logging routes. The highway network spans a country the size of California, but

Sweden has 9 million people compared to California's 36 million. It stretches from the Baltic Sea on the south to well above the Arctic Circle to the north. In addition to managing highways, the Swedish Road Administration interacts frequently with bus and rail passenger services offered in major cities such as metropolitan Stockholm.

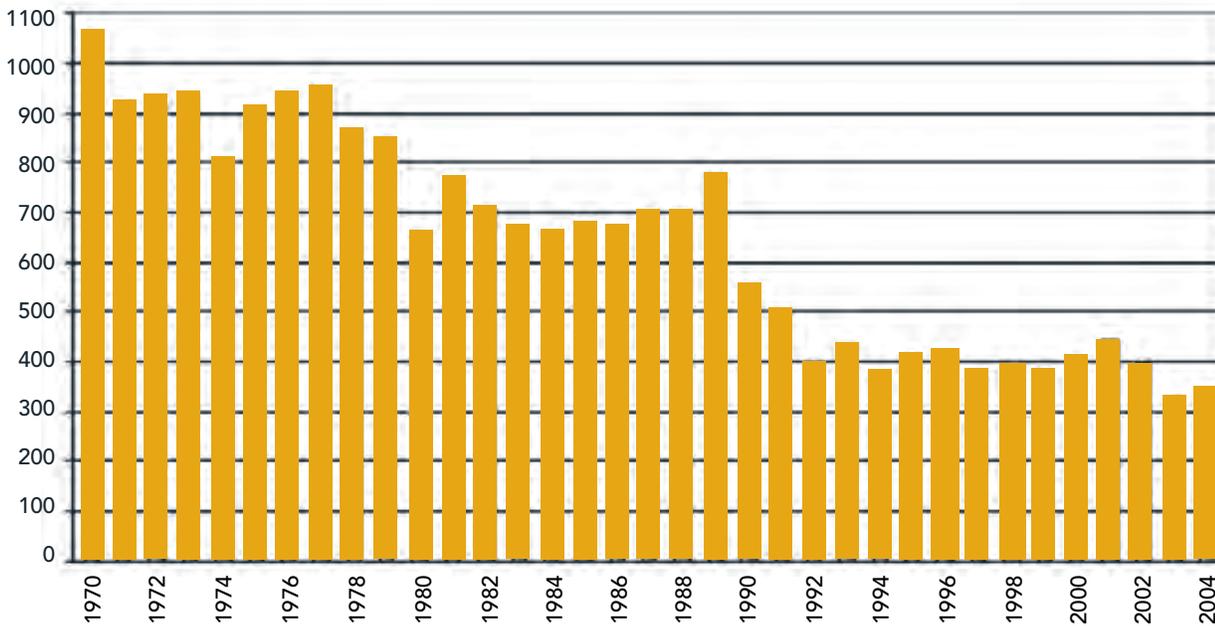
**U.K. Department for Transport and Highways Agency**—The main British transportation agency is the Department for Transport, which oversees the Highways Agency and monitors the private contractors that operate the country's rail passenger system. The agency manages transportation policy for the 51 million people in England, who live in a 50,000-square-mile (129,499-square-kilometer) country about the size of Alabama. The Department for Transport manages policy and funding for a transportation system that includes 80,000 buses, 17 train operators, and about 4,500 mi (7,242 km) of the country's 245,000 mi (394,289 km) of roads.

**New South Wales Roads and Traffic Authority**—The Australian State of New South Wales has more than 7 million people in a sprawling landscape 15 percent larger than Texas. Its major city is Sydney, with its iconic bridge and opera house and a rapidly growing population of 4.1 million. The Roads and Traffic Authority manages 17,932 km (11,069 mi) of roads, while local governments manage another 2,946 km (1,818 mi).

**Victoria Department of Transport and VicRoads**—Victoria is Australia's smallest State geographically, but it is the most densely populated with 5.2 million people. Despite its size in relation to other Australian States, it is nearly as large as Montana and includes the city of Melbourne with 3.4 million people. VicRoads manages 22,250 km (13,734 mi) of public roads, or about 14 percent of the State's total, but those routes carry 82 percent of the State's highway travel. The Department of Transport is a policy and funding agency that not only manages VicRoads, but also sets policy, planning, and funding direction for the privately provided transit and rail services.

**Queensland Department of Transport and Main Roads**—This newly consolidated agency combined the former Department of Transport and Queensland Department of Main Roads. Both the former agencies and the combined new one displayed a well-articulated strategic management framework. Queensland is Australia's fastest growing State, with a population of 4.2 million spread across a huge landmass twice the size of Texas. Queensland is a diverse State that includes the upscale Miami Beach-like Gold

## Annual Road Fatalities in Victoria, 1970-2004



**Figure 2.** A long-term focus on safety has dramatically reduced fatalities in Victoria, Australia. This type of ongoing and transparent reporting of trends and performance was found throughout the scan of international best practices in linking transportation performance to budget expenditures.

Coast, the Great Barrier Reef, and thousands of square miles of sparsely populated interior. The agency has 34,000 km (21,000 mi) of highways under its control out of 188,000 km (116,000 mi) in the State. It also coordinates, sets policy for, and funds several transit agencies.

**New Zealand Ministry of Transport and New Zealand Transport Agency**—New Zealand is a country of only 4.2 million spread over two major islands that combined are the size of Great Britain. With its diverse terrain and relatively small population, New Zealand faces significant transportation challenges, both in sustaining its internal transportation network and shipping exports to international markets. The New Zealand Transport Agency, the main transportation agency, was created in 2008 by merging the predecessor highway and transit agencies. Despite its small size, the country has been cited frequently in international studies of best practices in asset management and safety. It has 93,576 km (57,762 mi) of roads, of which the New Zealand Transport Agency manages 10,895 km (6,725 miles).

### Definitions

For the purpose of the scan, the following definitions were used:

**Performance measurement.** The U.S. Government Accountability Office (U.S. GAO) definition of performance measurement is “the ongoing monitoring and reporting of program accomplishments, particularly progress toward preestablished goals.” U.S. GAO defines a program as “any activity, project, function, or policy that has an identifiable purpose or set of objectives.” FHWA defines a performance measure as “a qualitative or quantitative measure of outcomes, outputs, efficiency, or cost-effectiveness. In general, measures should be related to an organization’s mission and programs, and should not merely measure one-time or short-term activities.”

**Performance management.** AASHTO defines performance management as an ongoing process that translates strategic goals into relevant and detailed measures and targets which, along with resources, are continuously monitored to ensure achievement of published institutional goals. Comprehensive performance management uses that definition in all key functions of a transport agency, including policy development and long-range planning; programming and budgeting; program, project, and service delivery; system operation; and monitoring and reporting of results in a variety of forms and to a variety of audiences.





# Executive Summary

**A**t a time when the United States is working to define a Federal-State-regional-local framework for transportation performance management, the international examples examined in this scan hold many lessons. The performance management systems of the studied agencies demonstrated clear linkage between government expenditures and transportation agency results. Long-term government goals were incorporated into transportation agency actions—and the results of those actions could be clearly documented to demonstrate what the public received for its transportation investment.

The officials visited offered the scan team invaluable advice from their past decade—in some cases more—of performance management. The systems they developed applied to diverse settings, from the complex and densely populated Great Britain to the rural and isolated New Zealand islands. Despite the diversity of their applications, the performance management systems included five universal concepts. From Sweden to New Zealand, the scan team found the following concepts being deployed:

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 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 the development of an improved decisionmaking and investment process, not the achievement of many short-term targets.

The Federal-State relationships found abroad were more akin to coach-player relationships than to umpire-player relationships. It was common to find different levels of government jointly setting a target, then collaborating on ways to achieve it. It was not common to find one level of government setting a target, then penalizing another for missing it.

The scan team found that the true value of performance management was in achieving steady, long-term progress, as shown in figure 3 (see next page). It emphasizes that, over time, impressive improvement in core performance such as crash reduction is possible. Many officials stressed that another important benefit of their performance management systems was the transparency they created. The transparency improved understanding about transportation issues and led to greater degrees of trust. Striving for long-term accomplishment created collaboration among levels of government, not contention.

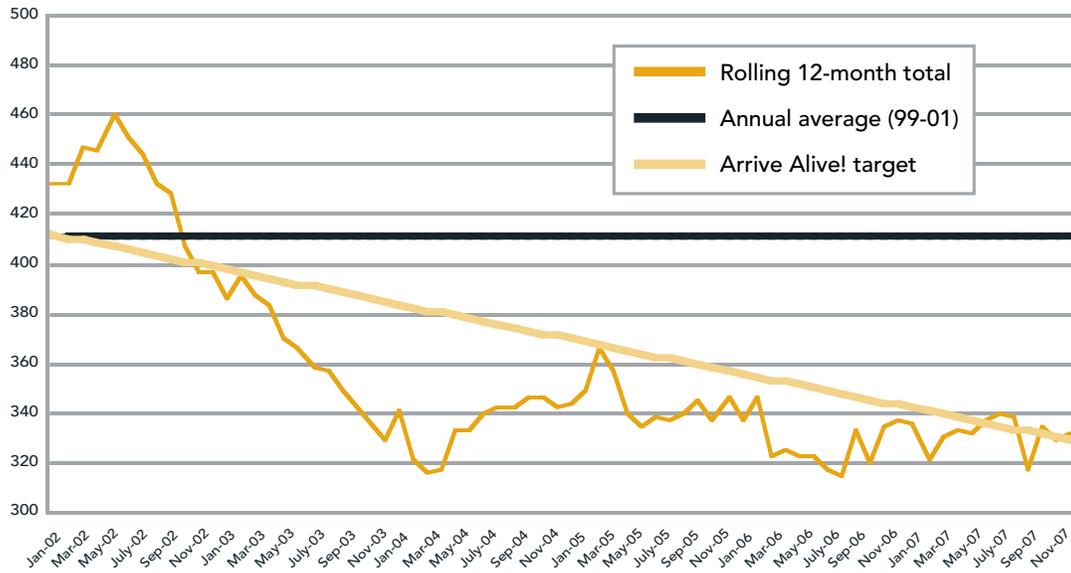
## Broad Policy Goals and Collaboration

Despite the greater linkage of national goals to agency activities found in the visited countries, the central governments set few explicit and quantitative national transportation targets for the transportation agencies. The two exceptions were in the areas of safety and climate change in the two European countries. The central government articulated broad policy goals, and the transportation agency translated those goals into specific performance measures or targets in collaboration with the Federal or State government. This collaborative target-setting practice appeared to exist between both national and State governments and State and regional/local governments.

The scanning team seldom found that one level of government mandated the performance of another. Rather, service level agreements or other negotiated documents between the central government and the transportation agency were used to define performance measures and targets for which the transportation agency was held accountable. The service

## Victorian Fatalities

Rolling 12-Month Totals—January 2002 to December 2007



**Figure 3.** Continuous tracking of performance occurs with safety and other key performance measures in the Victoria, Australia, performance management system. Although performance metrics are tracked monthly, the biggest benefit of performance management comes from evaluating long-term trends, said officials from the visited agencies.

level agreements communicated priorities and clarified outcomes while allowing each State or region to negotiate measures and priorities important to its unique circumstances. These negotiations were supported by extensive data collection that showed trends in systemwide performance. Negotiations between the agencies and their central governments were fluid and continuous. Flexibility was particularly evident with major cities, where unique transportation needs and solutions were recognized.

The combination of national goals cascading into State or regional performance measures appeared to create a strong focus on outcomes instead of process. Not evident abroad were the highly detailed and procedural, fiscally constrained, long-range plans and short-term transportation improvement programs found in the United States. Instead, the negotiated service agreements served to clarify desired outcomes over the next 1- to 5-year period.

### Performance-Driven Funding Allocations: A Difficult Goal

The agencies the scan team visited clearly documented system and organizational performance, often in detailed

trends over a number of years. The richness of reporting was usually quite sophisticated. The agencies demonstrated improved customer satisfaction, higher reliability in transit and highway travel times, reduced environmental impacts, and greater efficiencies. Their performance management systems naturally dovetailed with asset management systems. The agencies demonstrated a keen knowledge of system conditions and trends and a finely calibrated understanding of system investment needs, often by asset type and region. Clearly, the agencies benefitted from managing their performance to maximize their resources, optimize assets, and earn credibility from legislators and budgeting agencies.

Despite those benefits to legislatures and agencies, budget appropriations were for the most part not driven by the resources required to achieve the performance targets. In short, performance management appeared to be less of an influence on budgeting than other factors. Performance management demonstrated how funds were spent and to what end, but the systems did not appear to include a feedback loop that triggered legislative appropriation decisions. The team saw little evidence that legislatures or executive branch financial agencies established asset investment levels based on data from performance management systems.

One British official noted there was no easy linkage between transportation program goals and the budget set by legislators or treasury officials.

Performance results, however, were considered important in budget discussions. The performance results demonstrated how effectively the agency spent its budget, but the performance targets did not strongly influence the budget level. Discussions indicated that this was because of overall funding constraints in competing public sectors, such as education and health care. It was not because of an ineffective performance management program or agency performance. Most agencies did not have a dedicated road user fund; agencies competed for funding with all other government programs. One agency stated that while its performance management did not garner a budget increase, elected officials viewed it as so effective that it was able to sustain its budget when others were cut.

In three of the six cases, agencies reported discouragement that they could not convince legislators to invest more in system preservation despite their sophisticated documentation. Further discussion noted that identifying large maintenance funding gaps was a longstanding concern. Similar to the United States, the countries had difficulty expressing the impact of changes in pavement and bridge condition at the political level.

Central government decisions on agency operating budgets tend to remain incremental. System preservation increases were modest and based on increases from past budgets. Budget increases depended on whether the government had any residual revenue left once other priorities were met.

## **Ambitious Goals and Visions Drive Investment**

Ambitious new national visions and broad goals, as opposed to a need to meet specific performance targets, tended to generate new investments in transportation. When the governments articulated a new transportation vision, adopted new transportation goals, or sought to use transportation investment to achieve other ends (e.g., economic stimulus), the likelihood of new investment increased.

The following are examples of recent budget increases that were provided to expand the transportation system or carry out new economic stimulus programs:

- ▶ In 2009, the Australian “Nation Building” program funded a record \$22.1 billion road and rail construction program.

- ▶ Sweden has been undertaking significant investments for nationally important corridors and bridges. A cordon pricing system will be used to pay for a new outer belt for Stockholm.
- ▶ New Zealand’s new government has been pursuing a national road network similar to the U.S. National Highway System.
- ▶ Great Britain has been using tolling and long-term design-build-finance-and-operate contracts for a \$10.2 billion upgrade and long-term maintenance of the M25 highway.

## **Demonstrating Return on Investment: Value for Money**

“Value for money” was a common theme observed during the scanning study. The agencies frequently used benefit-cost analyses to evaluate projects and programs and demonstrate the effectiveness of their investments.

- ▶ In several of the agencies visited, every project received a benefit-cost analysis. The benefit-cost ratio was a common measure for discussing project selection within the agency and with the public, other ministries, and legislatures.
- ▶ The use of benefit-cost analysis and a value-for-money approach appeared to give the agencies a common language to demonstrate the value of their projects and programs.
- ▶ Many major projects were selected based on political and broader policy priorities, not just benefit-cost ratios.
- ▶ One agency official cautioned that the use of a benefit-cost analysis may erroneously exclude an investment that may yield a greater unexpected benefit in the future.
- ▶ Some agencies indicated that they evaluate impacts of some major projects after they are completed (e.g., before-and-after analysis) to assess whether benefits included in the original benefit-cost analysis were actually realized.
- ▶ Another way to demonstrate value for money was by using risk management. Several agencies appeared to make tradeoffs based on formal risk management. Risk was used to differentiate between types of bridge investments, set appropriate speed limits, and support safety improvements.
- ▶ Queensland developed a sophisticated means of demonstrating long-term financial risk by calculating the unfunded liabilities caused by underinvestment in maintenance. It uses asset inventories, management systems, and overall asset management approaches to

convert asset maintenance needs into a balance-sheet calculation. The process was similar to the Governmental Accounting Standards Board 34 (GASB 34) process required in the United States. Sweden, the United Kingdom, and New Zealand used variations of this approach to summarize all asset management financial need into one comprehensive calculation that documented the future infrastructure liability the government faces.

## Accountability Is Transparent

The agencies the scan team visited clearly embraced performance management as the system for delivering results and documenting accountability.

- ▶ The agencies produced detailed, ongoing measures illustrating their achievement of agency goals and management of public resources.
- ▶ It was common for the agencies to regularly review performance with agency managers and to produce monthly, quarterly, and annual performance summaries.
- ▶ Continual two-way dialogue occurred at the ministerial and executive levels, as well as with the parliamentary committees in most of the agencies visited.
- ▶ Polished, high-level annual reports detailing goals,

outcomes, and expenditures were common, and at least one was also used for recruiting purposes.

- ▶ Dashboards and extensive reporting, mostly internal and between governments, clearly expressed what the agencies achieved, at what cost, and for whom.
- ▶ Regular reporting was viewed as a key mechanism for achieving accountability.
- ▶ In general, performance measures were used to support budget requests and to demonstrate the agencies' use of resources.

## Limited Number of High-Level Measures

The scan team found that in general, national governments have steadily reduced the number of measures and targets required of transportation agencies and moved toward fewer, broader, more policy-oriented goals.

- ▶ The most dramatic example was in Great Britain. Since 1998, the number of central government-imposed measures on the transportation agency has shrunk from 600 to 30.
- ▶ Likewise in 1998, local governments were required to report more than 2,000 performance measures covering all aspects of local governance, including transportation. The

## Policy Delivery: Trajectories

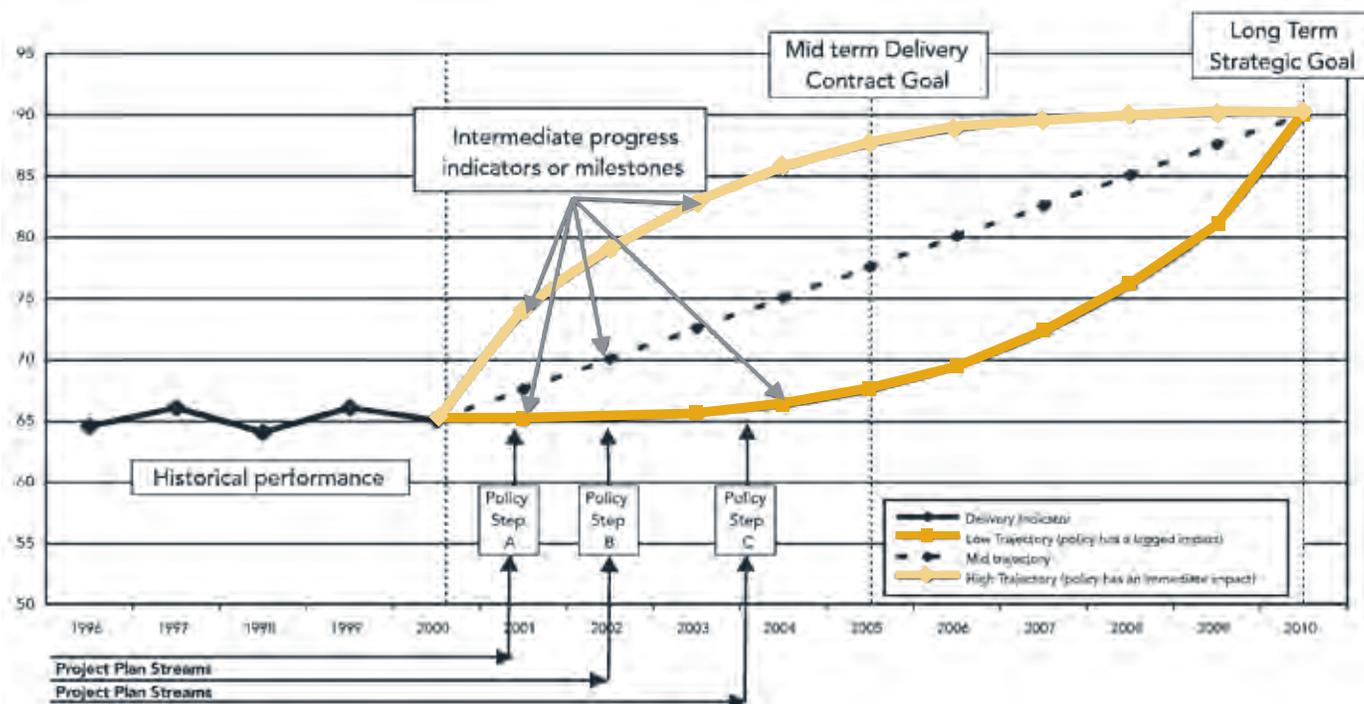


Figure 4. Helping regional and local governments track and meet targets was recommended in lieu of penalties.

large number of measures was rescinded in the face of broad criticism and replaced with 188 measures. Of those, local governments must set targets for only 35, which they chose based on local priorities. They report the remaining measures as long-term indicators for trend line analysis.

- ▶ The United Kingdom has different performance standards for local governments than for the central Department for Transport or its Highways Agency. The local performance standards are articulated through Local Agency Agreements.

## “Do It With People, Not To Them”

“Do it with people, not to them” was both a direct quote and a common sentiment heard from transportation officials during the scan. From Sweden to New Zealand, transportation officials advised that carrots versus sticks, incentives versus penalties, and dialogue versus dictates were preferred in the intergovernmental management of performance.

- ▶ In most of the agencies examined, officials at one level of government required performance reporting of lower levels of government.
- ▶ Universally, State and national officials said they did not impose penalties on local or State agencies that failed to meet performance targets. In fact, few actual targets had to be achieved.
- ▶ Goals and measures were used to track performance and identify areas for improvement. When improvement was needed, it was achieved through training, benchmarking, peer exchanges, and local agency staff development.

Typical was the Swedish example, in which the central government expressed several broad goals for the transportation department. From those, the Swedish Road Administration negotiated a comprehensive set of about 300 performance measures it developed for both internal and external reporting. Hard targets for those measures were negotiated between the agency and the ministry. For instance, its target to reduce traffic fatalities by another 20 in 2009 was a short-term milestone toward a national vision of zero fatalities. It also targeted a department reduction in greenhouse gas emissions of 70,000 tons in 2009 as a short-term milestone toward reducing national carbon emissions. If the agency fails to achieve the targets, the performance is noted and a determination is made on what different tactics need to be used to achieve the goal.

In short, the measures are benchmarks for continuous improvement and dialogue, rather than milestones for penalty.

## Outcomes Relate to the Public in Personal Terms

The transportation agencies tended to speak to the public in broad, outcome-based terms, such as “the journey home” or “support for the journey,” instead of technical terms.

- ▶ Transportation was translated into the topics important to people, instead of technical engineering, financial, or operational terms.
- ▶ Agencies produced voluminous technical support data, but they were often summarized in general categories important to stakeholders.
- ▶ Concern about moving people rather than vehicles was a significant manifestation of this focus on person-centric outcomes. The agencies appeared to focus on reducing personal travel time and vehicle delay and offering more choice in transportation modes.
- ▶ The personal focus appeared to increase the emphasis on bicycling, walking, and other forms of active travel.
- ▶ The Swedish Road Administration spoke of its mission as evolving from being highway builders to community builders.

In many cases, the data are packaged for a lay reader. Rather than providing extensive technical and financial data, public reporting focuses on outcomes of more immediate relevance and clarity to the typical user.

## Performance Management Takes Time and Resources

Many officials in the countries visited noted that successful performance management systems are long-term, iterative processes that require a commitment of funding and staff resources. All of the agencies had dedicated staff to collect and report performance data. All reported that measures evolve and often take significant effort to develop. The British spent two years refining their reliability measure and already are exploring a next generation of measure that is more understandable to the public.

## Outcomes Are Difficult to Measure

Important outcomes that are difficult to measure in the United States were equally elusive in the agencies studied. Such measures as transportation’s effect on the economy, travel time reliability, or transportation’s effect on the environment were not easily captured by the visited agencies. All of the agencies expressed a desire for continued evaluation of ways to measure transportation’s effects in these areas, particularly the economy.

## Short-Term Results Can Be Overemphasized

All of the agencies support performance management, but they also spoke of a tendency of elected officials to emphasize short-term accomplishments in lieu of long-term trends. Several agency officials cautioned that while frequent budget reporting of results achieved short-term transparency, they feared that emphasis on “bean counting” skewed performance toward easily measured, short-term accomplishments. They advised that a better system would be one that tracked accomplishment of long-term goals, which may be more ambiguous to measure but more important overall. Important issues such as the public’s satisfaction with the journey, transportation’s support of economic development, or transportation’s link to environmental sustainability may be vitally important but difficult to measure in monthly increments.

## Candid, Confidential Reporting Has Its Place

Several agencies cited examples in which their performance reporting was used to criticize the agency, either in the media or in political debates. Several acknowledged that such criticism creates a desire to set easily achievable targets, hide or downplay problems, or play “metric games,” which undermine the transparency and accountability of performance management.

Although they had public reporting processes, all of the agencies also had some form of candid, confidential reporting of results to central ministries. Britain used the Prime Minister’s Delivery Unit delivery assessment, an uncompromising, truthful assessment conducted every 6 months as a confidential tool. It drove the agency’s actions for the next 6 months. These confidential reporting processes allowed for candid discussions with central governments about agency performance.

## Reorganization and Refocus: From Building Highways to Moving People

The six agencies visited were in a state of transition—both organizationally and in terms of their basic mission.

They were in the process of reorganizing to merge the highway with State or regional transit agencies. The merger was driven by a national government desire to move away from a traditional highway-centric focus to a broader, more inclusive approach to surface transportation planning in highly congested urban areas.

“We are moving people, we are serving business, and we are moving freight. We are no longer in the business of moving cars,” said a New South Wales official. “We are no longer in the business of counting cars. It is about allocating road space.”

“We are a travel agency. That is what we are involved with. It is not just the road,” said a Swedish Road Administration official. “We are community builders.”

“(We) had to do a cultural realignment to recognize that we are part of the solution for public transport,” said a New South Wales highway official.

“The most important message was that we are the road authority, but we manage the transport network as one network that includes roads, buses, and trains. More and more, we are doing integration,” said a VicRoads official in Melbourne. “From a road authority perspective, we can’t build enough roads. If we did, it would not be a city anyone wants to live in. We need to manage the demand in travel.”

The cause and effect of the agencies’ performance management systems and their shift to holistic transportation agencies were not entirely clear. It appeared that the agencies’ forecast of continuing degradation in travel time reliability pushed them beyond strategies of only expanding highways. The examined agencies placed great emphasis on transit service, rail passenger service, land use integration, and moving people and freight as well as vehicles.

## Highway Corridors Remain Important

While the agencies displayed a strong commitment to transit, passenger rail, and urban land use integration, they also had ambitious highway corridor programs. All of the agencies retained a strong commitment to rural connectivity that relied heavily on highways. The Swedish and New Zealand governments emphasized their environmental commitments, but they also had programs to improve national highway corridors. The Australian States all maintained rural connectivity as a basic goal of their transportation programs. Although the urban systems emphasized ambitious transit and rail programs, the agencies also retained a strong highway component, particularly as it relates to national corridors and rural access.

## Sustainability With Mobility

The agencies displayed a strong commitment to addressing climate change and sustainability. However, none of the

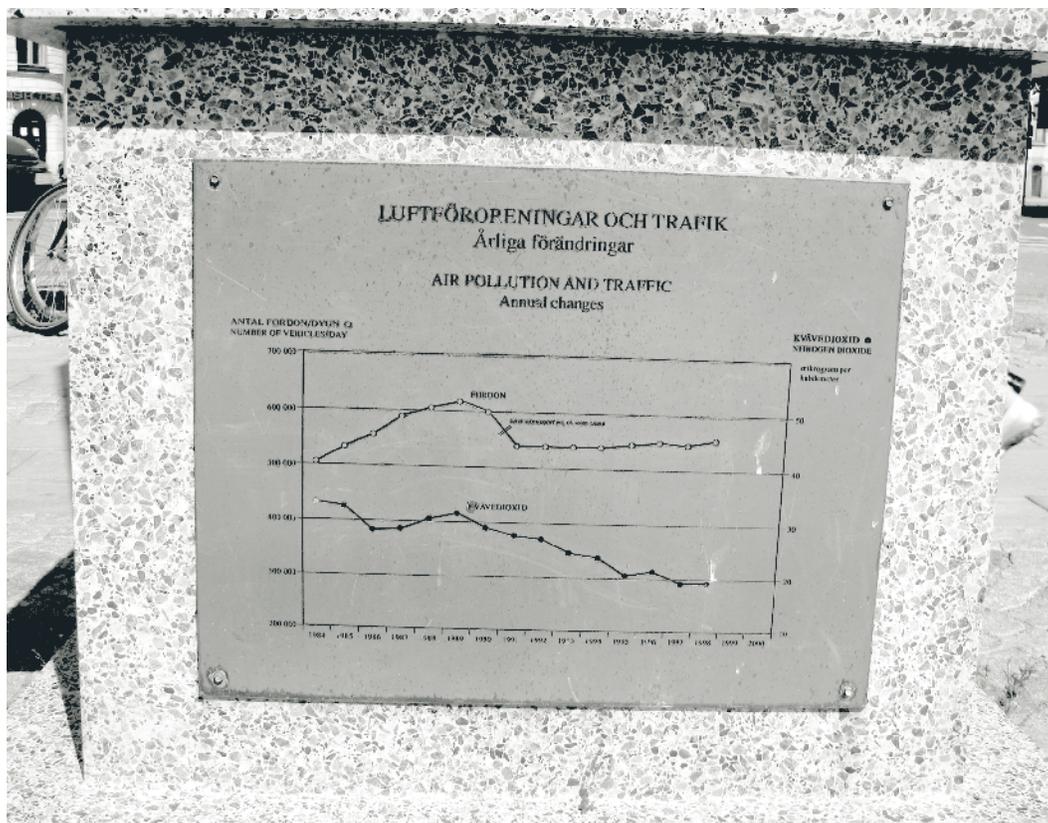
agencies visited had adopted, nor had imposed on them, requirements to reduce vehicle miles of travel.

- ▶ Their transportation-related climate change strategies relied on other tactics, such as improving vehicular fuel efficiency, reducing the use of electricity in lighting and buildings, and encouraging nonautomobile passenger travel.
- ▶ The agencies were developing refined methods for calculating their greenhouse gas emissions.
- ▶ All of the agencies examined acknowledged that they lack the strategies to achieve the ambitious long-term carbon-reduction goals their nations have established.
- ▶ As governments adopted goals related to new environmental issues, agencies were exploring how to reflect these emerging priorities in their programs and in the measures and targets in their performance management systems.
- ▶ Transportation agencies appeared to work more frequently with other cabinet agencies on cross-cutting issues such as economic development, public health, or climate change. In part, this appeared to be the result of multiple agencies sharing responsibility for cross-cutting policy goals, such as climate change or economic development.

## Safety Focus Is Emphatic

The agencies were emphatic about documenting safety results.

- ▶ The Swedish and Australian agencies, in particular, achieved significant safety reductions by applying performance management tactics to reduce the number of crashes.
- ▶ In addition to targeting “black spot,” or high-crash, locations, they applied programmatic treatments such as extensive cable barriers and skid-resistant pavements.
- ▶ They also relied heavily on increased police surveillance, using automated speed enforcement and random alcohol breath tests to reduce speed and crashes.
- ▶ The New Zealand agency conducted a benefit-cost analysis and calculated that adding 138,000 additional police hours at areas of consistent speeding would produce a crash-reduction result with a 28-to-1 benefit-cost ratio.
- ▶ The New South Wales Roads and Traffic Authority broke its black spot areas down into great detail. In the process, it learned that roadway departure crashes were most common on curves where the radius was sufficiently tight to cause handling maneuvering difficulty, but not tight enough to cause drivers to slow down



**Figure 5.** Sweden’s strong environmental focus was evident in this public monument seen on a Stockholm street that illustrates traffic growth trends and air emissions.

appreciably. By homing in on curves with this specific problem, they targeted limited safety funds and effectively reduced roadway departure crashes.

## Measures Drive Operations Innovation

Several agencies displayed a progressive attitude toward highway operations, spurred by their efforts to meet reliability goals. The British, in particular, had invested considerable effort in measuring reliability on high-volume national routes. All of the agencies reported that their reliability measures were still evolving and they were not entirely satisfied with their measurement tools. However, it was clear that the more urbanized agencies in the United Kingdom, Australia, and Sweden were investing considerable effort in measuring real-time highway, transit, and rail operations to improve travel time reliability, enhance transportation choices, and reduce greenhouse gas emissions.

- ▶ In Great Britain, Department for Transport officials said they changed their entire approach to relieving congestion on major national routes when tight revenues prevented the widening of highways while national performance goals required improvement in travel reliability. The department had been downsizing for three decades, but reversed that policy by hiring 1,500 additional traffic officers as a strategy to improve highway operations by preventing crashes and clearing them quickly. The department fundamentally shifted to operations-based strategies in which it significantly increased the number of traffic cameras, automated speed enforcement, and incident response efforts, as well as adopted widespread use of hard

shoulder running. Regions were allocated funds specifically for intelligent transportation systems deployment and operation in addition to preservation and maintenance funds. As a result, the department documented small increases in travel time reliability after years of steady decreases.

- ▶ In Melbourne, Australia, the Victoria Department of Transport fundamentally altered its approach to integrating land use and transportation when forecasts showed it could not meet its long-term reliability goals in the face of rising population growth. It identified five regional central business districts in which land use development will be encouraged to capitalize on excess transportation capacity.
- ▶ In Sydney, Melbourne, and Brisbane, the States integrated management of local traffic signals and provided signal priority for bus fleets, which all have Global Positioning System and geographic information system real-time monitoring. In addition, transport officials targeted efforts to increase low-cost walking and cycling in highly congested urban corridors.

A consistent finding throughout the study was that although hard-and-fast performance targets were waning, the steady, long-term practice of benchmarking to broad government goals tended to spur innovative solutions to major transportation issues, such as improving operations and travel time reliability.



**Figure 6.** Britain's use of hard shoulder running resulted from its focus on using low-cost strategies to improve travel times.



# Key Lessons Learned

## *Implications for U.S. Performance Management*

**T**he scan provided considerable insight into the evolution of performance management in nations that have practiced it for at least a decade. 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 the development of an improved decisionmaking and investment process, not the achievement of many short-term targets.
6. Improve the use of benefit-cost analysis and risk management practices to demonstrate value for money. Consider major project postconstruction 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 clearly links 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 that is meaningful to the public, such as “the journey home” or “support for the journey.” Detailed, technical terms should be used for internal reporting, but 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 ontime rail 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 decisionmaking.
16. Recognize that performance management is not a black box or simplistic solution; it is a culture to grow within the agency as an important consideration in the decisionmaking and investment process.

**Office of International Programs  
FHWA/US DOT (HPIP)**

1200 New Jersey Ave., SE • Washington, DC 20590

Tel: (202) 366-9636 • Fax: (202) 366-9626

[international@fhwa.dot.gov](mailto:international@fhwa.dot.gov) • [www.international.fhwa.dot.gov](http://www.international.fhwa.dot.gov)

**Publication No. FHWA-PL-10-009  
HPIP/1-10(3.5)EW**

