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MESSAGE FROM THE NEW CHAIR

— BY DANIELA BREMMER BremmeD@wsdot.wa.gov - WASHINGTON STATE DOT

When I was first asked to consider chairing the committee, I was honored but also worried about measuring up to expectations and the high bar that has been set by Lance Neumann. The committee's membership and friends list reads like Who is Who in performance measurement and Lance has led the committee so successfully for many years.

My thanks to the many committee members and friends, the TRB staff and especially Lance who encouraged me to step up to the task and I am ready to apply my commitment, enthusiasm, ideas and passion for our work. I am honored to be working with all of you on the challenges that are emerging for performance management. This includes the next reauthorization and a possible performance based federal aid program; the unique measurement challenges associated with emission reduction initiatives; the enhanced accountability and investment selection requirements that come with ever shrinking resources and increased system needs and the opportunity to share and learn from global initiatives. My thanks to Joe Zietsman who agreed to serve as the new secretary; Connie Yew who chairs the communication subcommittee; Mara Campbell and Amy van Doren who co-chair the newly created session planning subcommittee; Jeff Price and Greg Marsden who co-chair the research subcommittee; Randy Halverson and Paresh Tailor who co-chair the international activities committee, and Ramkumar Venkatanarayana who leads our paper review. Thank you all for taking on these important leadership roles.

As I began my tenure in mid-April, I quickly faced the imminent deadlines for TRB's Joint Summer Meeting in Baltimore. Thanks to session moderators Lance Neumann and Ed Strocko, ABC30 organized two excellent panel sessions. One session looked at the pressures to stay competitive in the expanding global markets and how organizations use performance management to stay on the cutting edge. The panel included the City of Baltimore's CitiStat program, the Maryland Port Administration, the Maryland Aviation Administration and the Council of State

Governments. The other session examined Performance-Based Federal-Aid Program potentials and the associated implications and opportunities in light of the National Surface Transportation Policy and Revenue Study Commission's Report. This will play a key role in the SAFETEA-LU reauthorization and the panel provided insightful perspectives by a member of the study commission, AASHTO, a DOT and an MPO. The information was very timely and is being considered for a possible annual meeting session.

In addition to the federal aid program topic, other topics being considered for 2009 annual meeting sessions sponsored or co-sponsored by ABC30 include: available data (or lack thereof) drives policies, such as the recent focus on VMT reduction in Global Warming initiatives that drives strategies but what else should be and can be measured to assure balance; how to measure and quantify the energy efficiency and impacts on emissions from optimizing vehicle throughput through congestion strategies including pricing. We are asking friends and members who are interested in these or other topics to work with our session planning subcommittee.

My first two whirlwind months as new committee chair gave me a sense of the challenges ahead, but they also affirmed the amazing opportunities I have in collaborating and working with all of you in advancing the practice, research and application of performance measurement. A committee is only as successful and productive as the sum of its active members and friends. While chairs serve a leadership role and have many administrative tasks, the primary task is focused on bringing the many talents together that reflect the strengths of members and friends. I look forward to your active participation and the important contributions by all members and friends. Feel free to contact me any time to discuss your ideas and suggestions. Again, thank you for your confidence and support. I will do my best to measure up to it and continue the committee's significant legacy and success.

REFLECTIONS FROM THE FORMER CHAIR

— BY LANCE NEUMANN lneumann@camsys.com - CAMBRIDGE SYSTEMATICS

It was a little over ten years ago when the topic of performance measurement seemed to be generating enough interest to establish a joint subcommittee of the Committee on Programming, Planning and System Evaluation and the Committee on Statewide Multimodal Planning. While the initial focus of the subcommittee was on the use of performance measures in long range planning and programming, it wasn't long before we had lively discussions about the application of performance measurement to all aspects of the transportation business. Our initial interest in measuring the performance of the transportation system broadened to include the performance of transportation agencies as well. The subcommittee sponsored the first national conference on performance measurement in November 2000. The agenda for this first conference emphasized explaining and promoting the basic concepts of performance measurement and the conference proceedings identified a wide range of potential research, training and technology transfer activities to support and strengthen the use of performance measurement in transportation.

The success of that first conference and the strong interest in the subcommittee's activities led to the creation of the Standing Committee on Performance Measurement in May, 2002. In creating the standing committee, it was recognized that no one committee could or should "own" the topic of performance measurement within TRB given its relevance and importance to so many aspects of transportation. However, creating a committee that could provide a focal point for the topic, be a catalyst for research and other activities and be a sponsor of a wide range of interdisciplinary (i.e. cross-Committee) efforts was clearly valuable. Over the past six years the Committee has served that function. During this time, the interest in performance measurement has continued to grow and a wide range of research projects and implementation experience has advanced the state-of-the-practice dramatically. The second national conference focused heavily on the implementation experience of early adopters and the third conference, just last year, emphasized using performance measurement as a practical management tool applicable to planning, programming and budgeting, operations and maintenance, program delivery and all aspects of an organization's business.

As we look to the future, effective performance management is widely recognized as one key to addressing the challenges facing our industry and restoring the accountability and credibility we need to deliver the transportation system and services that are essential to economic competitiveness and quality of life. The SAFETEA-LU Commission report stressed the importance of performance management in the federal transportation program in the U.S. and many other countries have made performance management a key element of their transportation strategies. As the recognition of the importance and value of performance management continues to grow, the Committee can, and will, continue to make a strong contribution to the discipline of performance management.

They say time flies when you are having fun and its been a real privilege, and a lot of fun as well, to chair the Performance Measurement Committee over the past 6 years. I appreciate the time, energy and efforts of all members, friends and others who have contributed so much to the success of the Committee, and more importantly, to the advancement of the use of performance management. I am also thrilled that Daniela Bremmer has agreed to chair the Committee, that Joe Zietsman has agreed to be the new secretary and that Martine Micozzi will continue provide her valuable support and guidance. We are in good hands and I look forward to continuing to be involved in committee activities.

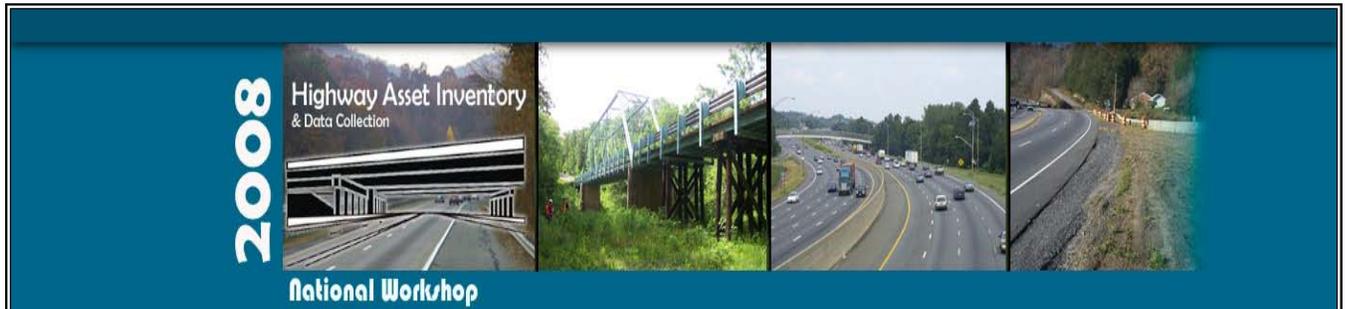
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<p>Committee Information</p> <p>Committee Chair: Daniela Bremmer Washington State DOT, bremmed@wsdot.wa.gov Secretary: Joe Zietsman Texas Transportation Institute, zietsman@tamu.edu</p>	<p>ABC30 PMC Newsletter Information</p> <p>Editor: Connie Yew Federal Highway Administration, connie.yew@dot.gov Editor: Joe Zietsman Texas Transportation Institute, zietsman@tamu.edu</p>
<p>Subcommittees and Chairs/Co-Chairs:</p> <p><u>Research</u> Jeff Price, jeff.price@vdot.virginia.gov Greg Marsden, g.r.marsden@its.leeds.ac.uk</p> <p><u>Communications</u> Connie Yew, connie.yew@dot.gov</p> <p><u>International Activities</u> Randy Halvorson, rhalvorson@camsys.com Paresh Tailor, paresh.tailor@highways.gsi.gov.uk</p> <p><u>Session Planning</u> Mara Campbell, mara.campbell@modot.mo.gov Amy Van Doren, avandoren@co.marin.ca.us</p> <p><u>Paper Review Lead</u> Ramkumar Venkatanarayana, ramkumar@virginia.edu</p>	<p>Submissions:</p> <p>All article submissions should be made in word-formatted e-documents, 500 words or less and electronically sent to: connie.yew@dot.gov.</p> <p>Disclaimer:</p> <p>The PMC Newsletter is sponsored by contributors submitting Performance Measurement related articles to the editor and do not reflect the views of the Performance Measurement Committee.</p>
<p>The Committee invites all members and friends to participate in subcommittee activities--please contact Stephanie Stoddard at: stoddast@wsdot.wa.gov or a committee chair/co-chair to indicate your interest.</p> <p>- Visit the Committee website for more information at http://www.trb-performancemeasurement.org/</p>	

**Notes from Performance Measurement Committee Meeting in Baltimore
June 2008**

The 2008 TRB Joint Summer Meeting in Baltimore was very productive for the Performance Measurement Committee. In addition to the committee meeting, two very successful panel sessions were held. Daniela Bremmer chaired her first Performance Measurement Committee Meeting and everyone in attendance agreed that she did a great job. During the committee meeting a broad range of topics were discussed. Two research statements proposed by this committee have been selected by the NCHRP, and RFPs will be issued. The subcommittees on communications, research, and paper review have all been actively working and reported on their activities. Additional subcommittees on international activities and session planning are also being formalized. A task force will be formed to update the committee's triennial strategic plan. The committee meeting included an overview of ongoing research efforts, and a discussion of ideas for future workshops and sessions at the TRB annual meeting. The draft meeting minutes are available on the committee's website, <http://www.trb-performancemeasurement.org/>, under the "publications" tab.



National Workshop on Highway Asset Inventory and Data Collection

TRB, AASHTO, FHWA, North Carolina Department of Transportation and North Carolina State University are hosting the National Workshop on Highway Asset Inventory and Data Collection, September 24-26, 2008 in Raleigh, North Carolina. The event will showcase state-of-the-art technologies for condition assessment of highway assets, provide a forum for learning how an accurate inventory of assets and their condition enable an agency to make informed investment decisions, and afford an opportunity for states from across the nation to share their challenges and successes relating to transportation asset management. The areas of interest are pavements, roadside appurtenances, geotech and drainage, and bridges.

For more information on the event, please go to our web link at <http://www.itre.ncsu.edu/NCassetMgmtConf/index.html>

NEW AASHTO STANDING COMMITTEE TO DRIVE PERFORMANCE MANAGEMENT ISSUES

A new AASHTO standing committee was approved at the group's annual meeting in May. The new committee will focus on organizational management, systems performance, as well as federal policy, regulations and programs. The Standing Committee on Performance Management will center around helping DOTs create a results oriented environment to maximize the performance of both transportation systems and internal operations.

"Performance management has become such a critical piece in improving individual organizations," said Rahn. "This new committee will allow us to build on those local successes at the national level to drive the entire transportation industry." Membership on the committee will be the chief executive officer and two non-voting members from each member department. Rahn is expected to name committee officers in the coming months.

For more information, contact Mara Campbell at 573-526-2908.



FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) PERFORMANCE MEASURES FRAMEWORK

– BY BRIAN WATTS, FDOT

The Florida Department of Transportation has a long history of focusing on performance measures and has been regarded as a national leader in this area for several years. FDOT is primarily responsible for 12,000 centerline miles carrying 2/3 of all traffic including 6,200 bridges. Ensuring the safety, efficient mobility, and economic impact of these facilities are paramount to the mission of the Department. To achieve this, Florida has developed an asset management process that is:

- Policy-Driven
 - Strong statutory policy framework
 - Preservation/capacity program tradeoffs made at the policy level
- Supported by Data
 - Management Systems
 - Performance-Based programming and budgeting
- Systematic Approach to Decision Making
 - Continuous cycle approach including evaluation and feedback

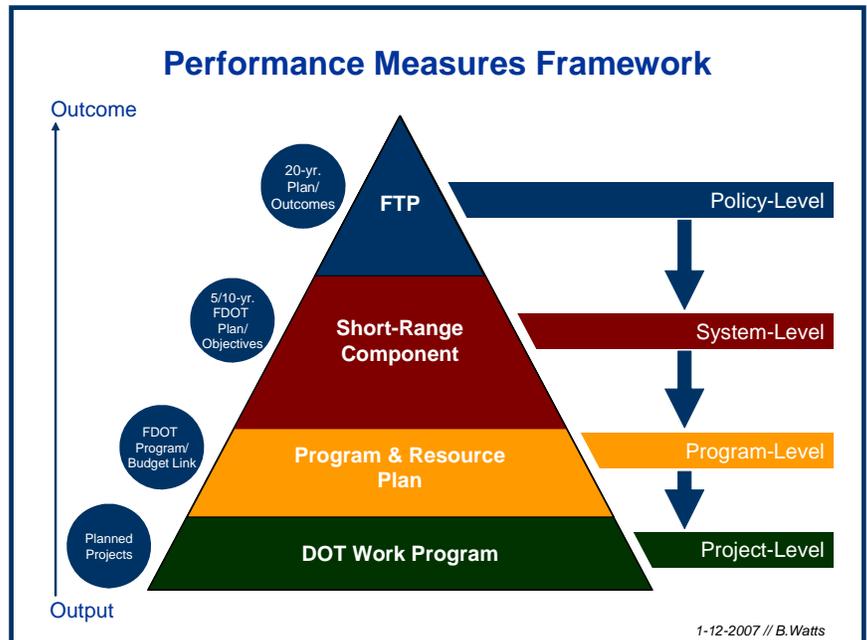
The accompanying graphic illustrates the Performance Measures Framework in which the Department operates. The 2025 Florida Transportation Plan (FTP) sets the long-range goals and objectives to guide decisions in Florida over the next twenty years. It provides the policy framework and desired outcomes for Florida’s transportation system. To achieve these goals and objectives, it is essential that transportation agencies measure the performance of their transportation systems.

Within this Performance Measures Framework, performance of Florida’s transportation system and the Florida Department of Transportation is monitored in three dimensions as follows:

How We Report On What We Are Accomplishing

The Department has developed quantifiable objectives for meeting its responsibilities for implementing the 2025 Florida Transportation Plan, beginning with the 2006 *Short-Range Component of the Florida Transportation Plan*. The Short Range Component is updated annually and serves as the FDOT’s annual performance report. It documents the department’s short-term objectives and strategies to implement the goals and long-term objectives of the Florida Transportation Plan. Additionally, it specifies how those objectives are being measured by summarizing FDOT program initiatives and activities, and provides the policy framework for the department’s budget and work program.

Each year, the Department also develops a Program and Resource Plan to establish financial and production targets for state transportation programs. It guides program and funding decisions to carry out the goals and objectives of both the Florida Transportation Plan and the Short-Range Component. This plan essentially links the Department’s transportation planning process to the Department’s budget and Work Program. The Work Program is a 5-year listing of all transportation projects planned for each fiscal year, adjusted for the legislatively approved budget for the first year.



FDOT PERFORMANCE MEASURES FRAMEWORK CONTINUED ...

How We Are Being Measured By Others

The Florida Transportation Commission is an independent oversight entity that provides leadership and policy guidance to maintain public accountability for the Department. The Florida Transportation Commission issued its 16th Annual Performance and Production Review of the Department of Transportation on September 27, 2007 (available at www.ftc.state.fl.us). The report included the statement, “Based on the results of this Review, the Florida Transportation Commission remains confident the Department is managing its operations in an efficient and effective manner and is committed to meeting the needs of the traveling public and the business community.”

The fiscal year 2006/07 accomplishments by the FDOT as summarized in the report were as follows:

- 14 of 21 primary measures were met or exceeded
- Construction began on 334 lane miles on the State Highway System
- 3,710 miles were let to contract for resurfacing
- 132 bridge repair contracts were let
- 7 bridge replacement projects were let
- 394 construction projects valued at \$1.605 billion were closed out

How We Measure Ourselves On An Ongoing Basis

Key Performance Measures are monitored on a monthly basis by the Department’s Executive Board. New measures are established when needed and existing measures are periodically validated. Program offices are responsible for establishing the key performance measures and sub measures used to achieve organizational improvements.

The current key performance measures fall into five categories:

- Transportation System Safety
- Customer and Market Focus
- Production Performance
- Transportation System Performance
- Organizational Performance

Additionally, each office/program within the Department has developed performance measures and monitors performance on an on-going and continuous basis utilizing a performance measurement database, the PBviews Performance Measurement System. All Department performance measures and data are available for viewing and analysis using this internal system.

“The goal is to provide information and basic analysis for management at all levels to use in monitoring and tracking the key measures of the Department.”

The system displays monthly, quarterly and annual information about the selected measures in a variety of ways. From raw data for each input item, to trend charts and graphs showing actual versus target measures or year-to-year comparisons, the system can show the “big picture” or the smallest detail about any selected measure. The goal is to provide information and basic analysis for management at all levels to use in monitoring and tracking the key measures of the Department.

###

FDOT PERFORMANCE MEASURES FRAMEWORK CONTINUED ...**Appendix C: 2007 Short-Range Objectives****Goal: A Safer and More Secure Transportation System**

- 1.1 By 2015, reduce, annually, the highway fatality rate per 100 million vehicle miles traveled to a level within 5% of the national average.
- 1.2 By 2015, reduce the bicyclist fatality and serious injury rate to or below 4.8 fatalities and serious injuries per 100,000 population.
- 1.3 By 2015, reduce the pedestrian fatality and serious injury rate to or below 12.0 fatalities and serious injuries per 100,000 population.
- 1.4 By 2015, reduce the motorcyclist fatality and serious injury rate to or below 5.5 fatalities and serious injuries per 1,000 registered motorcycles.

Goal: Enriched Quality of Life and Responsible Environmental Stewardship

Ensure that transportation decisions enhance the livability and support the vision of Florida's communities.

Goal: Adequate and Cost-Efficient Maintenance and Preservation of Transportation Assets

- 3.1 Through 2015, ensure that 80 percent of pavement on the State Highway System meets Department standards.
- 3.2 Through 2015, ensure that 90 percent of FDOT-maintained bridges meet Department standards while keeping all FDOT-maintained bridges open to the public safe.
- 3.3 Through 2015, achieve 100 percent of the acceptable maintenance standard on the State Highway System.

Goal: A Stronger Economy Through Enhanced Mobility For People and Freight**Mobility between Regions, States, and Nations**

- 4.1 Through 2015, maintain the average growth rate in person-hours of delay on the Florida Intrastate Highway System (FIHS) at or below 5 percent.

Mobility within Regions

- 4.2 By 2010, 100 percent of Florida's counties will have entered into regional partnerships to compete for Transportation Regional Incentive Program (TRIP) funds.
- 4.3 Through 2015, improve safety and traffic flow by reducing the number of commercial vehicle crashes on the State Highway System to or below 7.7 per 100 million vehicle miles traveled.
- 4.4 Through 2015, improve system efficiency by deploying Intelligent Transportation Systems (ITS) technology on critical state corridors.

Mobility within Communities

- 4.5 Through 2015, increase transit ridership at twice the average rate of population growth.

Goal: Sustainable Transportation Investments For Florida's Future

- 5.1 By 2015, program 75 percent of discretionary capacity funds to the Strategic Intermodal System (SIS).

FEDERAL TRANSIT ADMINISTRATION'S (FTA) INITIATIVE TO LINK AGENCY ACTIVITIES TO INCREASED RIDERSHIP

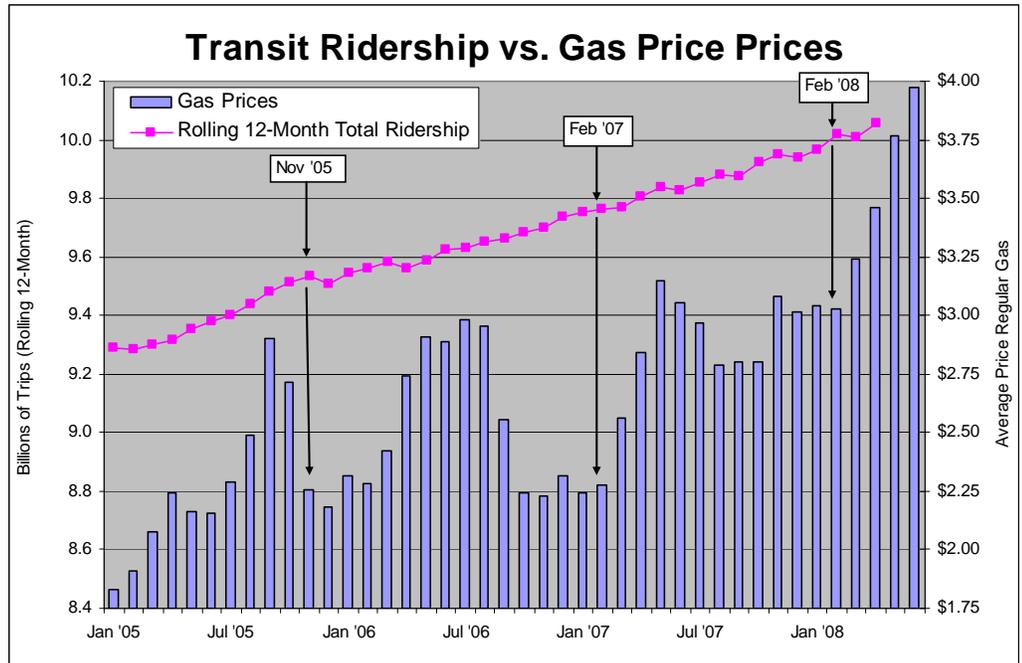
— BY ANN CIHON AND JOHN GIORGIS, FTA



The Federal Transit Administration's vision is to make public transportation the mode of choice for the country. To support this goal, FTA promotes transit ridership through investments, initiatives, and the sharing of information and best practices with transit agencies. Ridership is the leading performance measure for the agency, and FTA's senior management has an annual performance plan goal of increasing ridership 1.5% in the top 150 transit agencies in the country over the previous 12 month period. FTA reports ridership in the DOT Performance and Accountability Report (PAR) as well. Ridership is difficult to attribute a single variable that FTA can control, so the agency has started analyzing trends and measuring longer-term relationship between

different types of data. A wide variety of factors contribute to ridership, ranging from weather to unemployment rates to gas prices. FTA has recently begun tracking is the relationship between gas prices and ridership to see if there is a correlation or a price point where people will chose transit over driving.

FTA measures monthly ridership rates through the National Transit Database (NTD). For April, the most recent month of full data available in NTD, the national ridership rate shows a 2.3% increase over April 2007. The factor that we think caused this change is the price of gas. We cannot declare a definite relationship yet, because until February 2008, the national average gas price was steady around \$3.00 per gallon. The price rose to \$3.50 per gallon in April, which is the current month of data available in NTD. FTA will continue to closely monitor this relationship, to find long-term trends, and will hopefully be able to more actively influence ridership rates in the future.



Jan '05 - Nov '05 (10 Months)

- Ridership: 3.2% average annual growth rate.
- Gas Prices: From \$1.83 to peak of \$2.90 (58%) and settle at @\$2.25 (23%).
- Employment: 1.7% average annual growth rate.

Nov '05 - Feb '07 (15 Months)

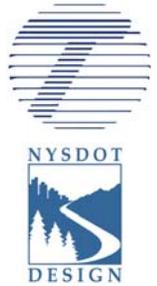
- Ridership: 1.8% average annual growth rate.
- Gas Prices: From @\$2.25 to peak of \$2.98 (32%), but return to the @\$2.25 level.
- Employment: 1.7% average annual growth rate.

Feb '07 - Feb '08 (12 Months)

- Ridership: 2.5% average annual growth rate.
- Gas Prices: From @\$2.25 to peak of \$3.15 (40%), and back to \$2.80.
- Currently at \$3.03 (33%).
- Employment: 1.0% average annual growth rate.
- Total employment has been essentially flat.

PERFORMANCE MANAGEMENT IN NEW YORK STATE DEPARTMENT OF TRANSPORTATION'S OFFICE OF DESIGN

— BY PHILIP BELL, NYSDOT



New York State Department of Transportation

The New York State Department of Transportation (NYSDOT), as it is currently known, was formed in 1967. Today, New York State's transportation network includes:

- A state and local highway system that encompasses more than 113,000 highway miles and nearly 17,000 bridges.
- 4,600-mile rail network.
- 513 public and private aviation facilities.
- Over 130 public transit operators.
- 12 major public and private ports.
- Being ranked 4th among State Departments of Transportation in capital program size.

The Office of Design

NYSDOT's Office of Design (Regional Design Groups and the Main Office) produces and manages transportation project designs and develops policies, standards and guidance necessary to most effectively produce those designs. The Office also provides and manages quality assurance processes and manages consultant contracts for Regions and other Department units.

As of March 2008, approximately 1,150 Regional and 170 Main Office design staff were involved in the development and delivery of a \$1.80B Capital Program. In the past ten years, the program has remained relatively constant while staff size has decreased nearly 25 percent.

Strategic Direction

The Office places considerable value on strategic planning and goal setting as a fundamental and vital business practice.

Strategic planning provides clear direction, establishes important linkages between actions and desired results and communicates expectations.

Based on its fundamental mission and the principles of performance management, the Office of Design's strategic direction and priorities are:

- Project Development and Production
- Perform Quality Assurance
- Provide and Maintain Knowledge and Skills
- Provide and Maintain Tools
- Provide and Manage Resources

Strategic Goal

The Office of Design has a highly skilled and proficient workforce which provides maximum value and quality in the development and delivery of capital projects.

Performance Management

Performance management is also a fundamental business process. The Office developed and implemented its performance management program to quantitatively and qualitatively measure and manage performance relative to the Office's strategic goals and objectives.

Performance management objectives for the Office include:

- Ensuring the Office best serves its customers;
- Achieving optimum results;
- Managing resources most effectively;
- Being fully accountable.

PERFORMANCE MANAGEMENT IN NYSDOT CONTINUED ...

Performance Improvement Model and Customer Chain of Value

In 2004, a strategy team within NYSDOT was charged with developing a model as a road map for performance management. The Performance Improvement Model (PIM) was developed as an overarching framework designed to continuously improve performance, define desired results that best meet customer expectations, and help institutionalize performance management principles (figure 1).

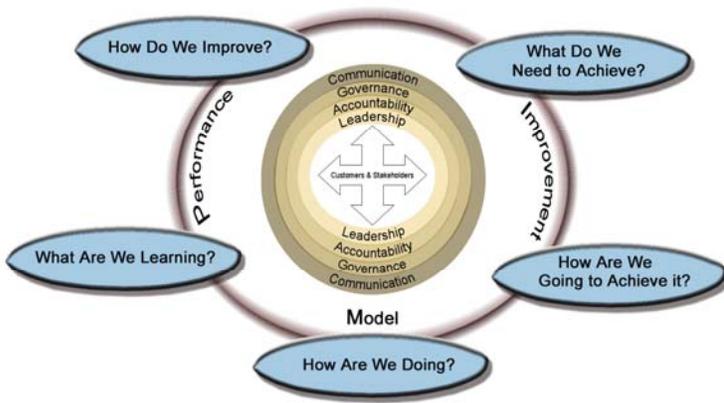


Figure 1

A fundamental precept of the PIM is the ‘**Customer Chain of Value**’. The Customer Chain of Value is based on the premise that internal customers and suppliers are integrally connected in a chain where each link adds value to the final product and results. Knowing customer expectations is imperative.

Balanced Scorecard Methodology

Building off of the PIM model, the Office of Design’s performance management methodology is based on strategy mapping using the Balanced Scorecard [‘*The Balanced Scorecard: Measures That Drive Performance*’, Kaplan and Norton, Harvard Business Review, 1992]. The Balanced Scorecard provides an effective methodology to identify, develop and align key performance indicators and measures with strategic direction. Figure 2 illustrates the Office’s four perspectives: Business/Financial; Customer; Internal Processes; and Learning & Growth.

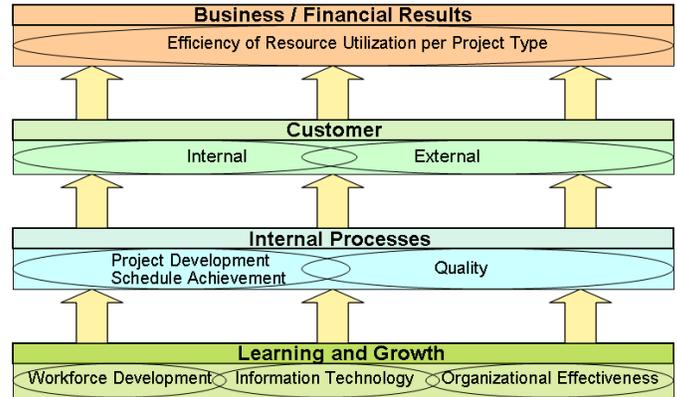


Figure 2

Key Indicators and Measures

Performance indicators are primary attributes that best represent what is being analyzed. Indicators were selected that best represent each perspective. Specific measures are then derived for each indicator. Figure 3 illustrates the direct relationship among perspectives, key indicators and associated measures.

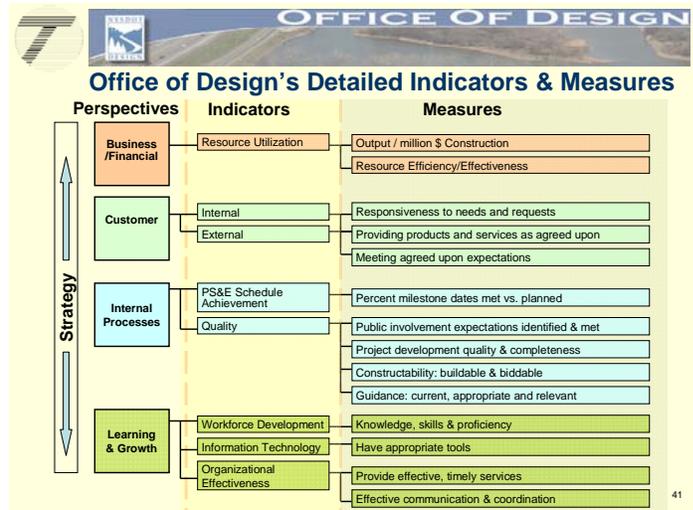


Figure 3

Learning and Knowledge Management

Organizing, managing and communicating information effectively leads to increased knowledge about results. Knowledge gained over time is reinvested into planned improvements. When learning and knowledge are systematically directed activities (not just a by-product of production) greater improvement is achieved in shorter periods of time [‘*Measuring and Managing Technical Knowledge*’, R.E. Bohn, Sloan Management Review, MIT, 1994].

PERFORMANCE MANAGEMENT IN NYSDOT CONTINUED ...

Measurement, Assessment, and Benchmarking

Data collection, measurement and analysis are ongoing activities. Figures 4 through 7 illustrate performance information to provide insight into how well the Office is achieving its goals relative to each key indicator. Quarterly reports are provided to communicate and share results. The following represent a few selected examples of the Office's four perspectives, eight key indicators and fourteen primary measures which provide a snapshot of current performance.

Resource Utilization

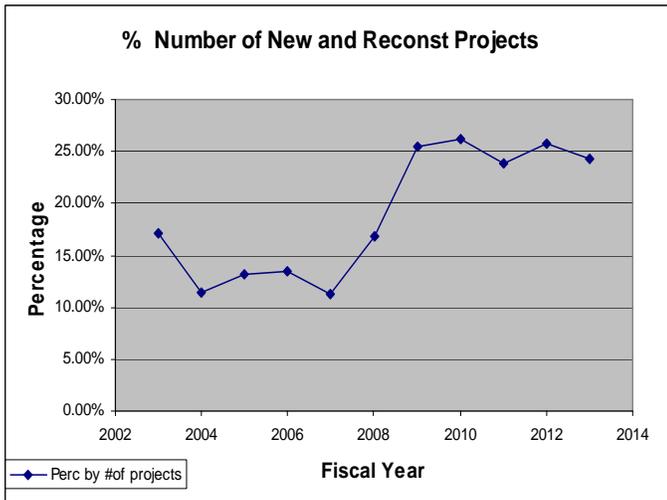


Figure 4

Customer



Figure 5

Internal

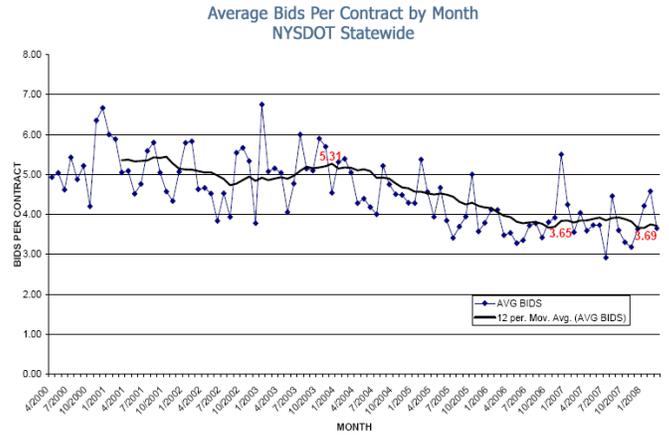


Figure 6

Learning and Growth

Workforce Development Goal Achievement
(As of June 19)

Location	Orientation / Presentation Provided	Completion of Competency Assessment	Gap Analysis Complete	Gaps Closed
Region 1	●	●	○	○
Region 2	●	●	○	○
Region 3	●	●	○	○
Region 4	●	●	○	○
Region 5	●	●	○	○
Region 6	●	●	○	○
Region 7	●	●	○	○
Region 8	●	●	○	○
Region 9	●	●	○	○
Region 10	●	●	○	○
Region 11	●	●	○	○
Main Office	●	●	○	○

Key:

- Design staff have received the orientation and/or 66% - 100% of staff have completed the workforce development / WADI assessment
- Orientation is scheduled to occur and/or 34% - 65% of design staff have completed the workforce development / WADI assessment; or
- No design staff have received the orientation and/or 0% - 33% of staff have completed the workforce development / WADI assessment
- No data available nor expected at this time

Figure 7

PERFORMANCE MANAGEMENT IN NYSDOT CONTINUED ...

Workforce Development

Workforce development is a high priority strategic focus area, fundamental to the Office’s success. Design, at its core, is a people-oriented business. It is incumbent upon the Department and the Office to provide our people with the latest skills and knowledge in order to maintain peak performance.

Workforce development focuses on knowledge, skills and proficiency which drive performance. The program strategically centers on three primary workforce job family groups:

Squad/Team Member

Squad/Team Leader

Consultant Job Manager

Core competencies were identified which include a combination of technical, business and leadership areas. Proficiency levels range from: basic; to experienced; to expert.

A specialized information system called WADI (figure 8) was developed in-house to assist staff with data capture, gap

Achieving Results

Detailed work plans for each indicator define targets, facilitate best practices and identify improvement opportunities. Knowledge gained from the process is reinvested as capital back into strategic planning and goal setting activities. The results demonstrate that systematic improvements, though challenging and demanding, are being achieved.

The Office of Design’s Performance Management Quarterly Reports are available for State FY 2007-2008. Figure 9 illustrates a typical quarterly report cover. For more information about the Office of Design’s Performance Management Program please contact Philip Bell at 518/485-8219 or pbell@dot.state.ny.us

Workforce Abilities Development Inventory (WADI)

Employee Name:

Geometric Design [Cancel] [Done]

	Desired Proficiency	Demonstrated Proficiency
6.1 Design Criteria	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.2 Basic Geometric Design	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.3 Interchange Design	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.4 Intersection Geometry / AutoTrack	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.5 Roadside Design - Clear Zone	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.6 Roadside Design - Guide Rail	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.7 Roundabout Design	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.8 Pavement Design	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
6.9 Resurfacing, Restoration & Rehabilitation (1R, 2R, 3R) Process	<input type="radio"/> NA <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input checked="" type="radio"/> 4	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3

Figure 8

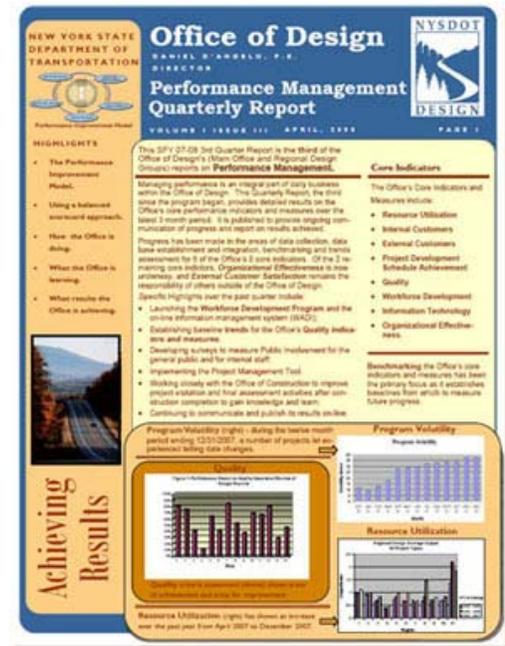


Figure 9

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NORTH CAROLINA DOT'S TRANSFORMATION

— BY EHREN D. MEISTER, NCDOT

In 2007 the North Carolina Department of Transportation began an internal transformation process of changing its management culture to a new results-based, accountable, performance organization.

To lead this “transformation” effort, Transportation Secretary Lyndo Tippet appointed a Transformation Management Team (TMT), along with the consultation services of McKinsey & Company, to begin this multi year process. He asked 19 NCDOT employees to work full time on this project, with the task of designing and implementing a “transformed” NCDOT based on McKinsey’s recommendations and guidance.

To ensure a successful outcome, the TMT is strategically analyzing the data it collected from all aspects of the department. Various methods of delivering projects, developing performance metrics, and preparing NCDOT for the 21st Century are being evaluated to ensure the most beneficial outcome and smoothest transformation to a results-based organization.

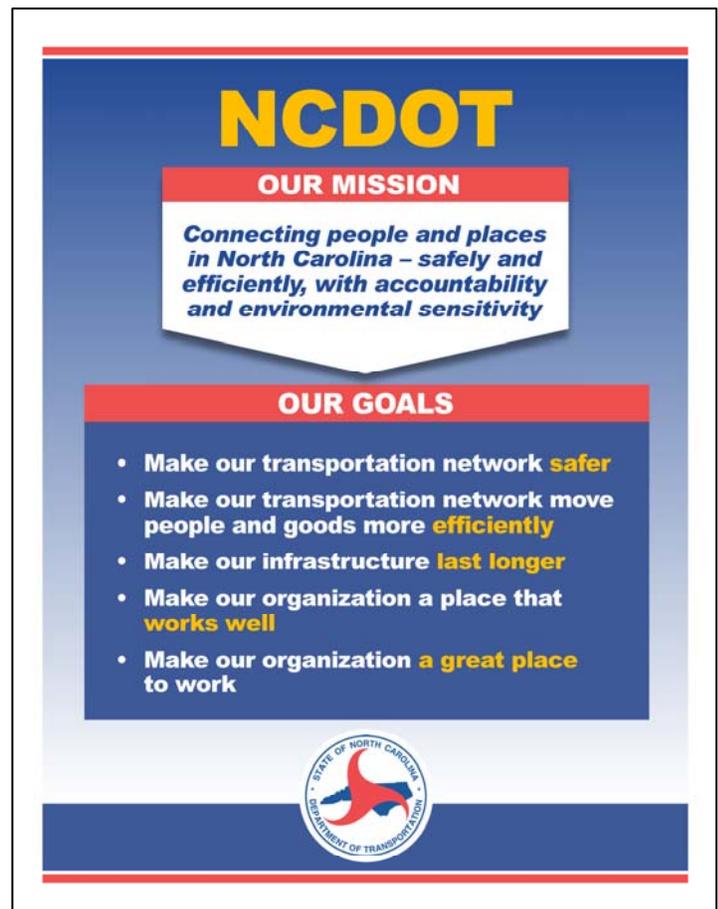
The transformation effort is focused on the following areas:

Performance Accountability: NCDOT has instilled performance accountability through a public facing “Performance Dashboard” that tracks departmental progress toward five goals. The dashboard is located on NCDOT’s web site at www.ncdot.org. The Team has also linked top managers’ individual performance assessments to these same goals and developed a system of “metrics” or performance measurements for the top-level managers in the department. This allows managers to measure each business unit’s contributions to meeting the mission and goals.

Strategic Direction: The TMT developed a strategic

direction for the department by creating new mission and goal statements and identifying strategic leadership roles. The team initiated an in-depth look at the efficiency and effectiveness of internal services, and the mission and products of all departmental business units.

Planning and Prioritization: The TMT developed a new conceptual strategic planning and prioritization process and has engaged external partners in discussions to determine the feasibility of the new processes. The TMT also initiated hiring a director of a new business unit, the Strategic Planning Office of Transportation.



NCDOT

OUR MISSION

Connecting people and places in North Carolina – safely and efficiently, with accountability and environmental sensitivity

OUR GOALS

- Make our transportation network **safer**
- Make our transportation network move people and goods more **efficiently**
- Make our infrastructure **last longer**
- Make our organization a place that **works well**
- Make our organization a **great place to work**





NCDOT'S TRANSFORMATION CONTINUED ...

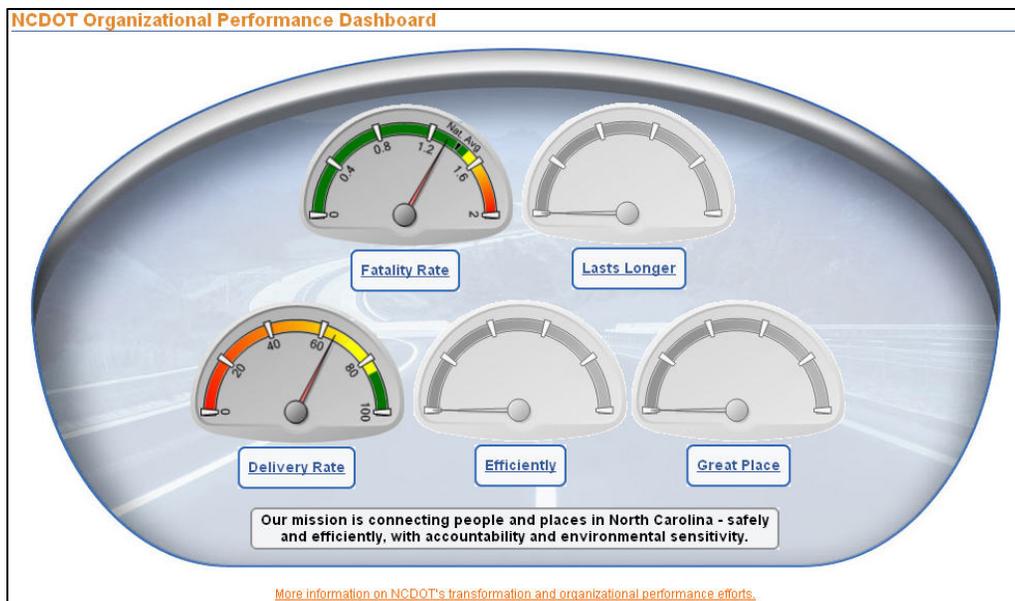
Program and Project Delivery: The TMT explored how it could streamline program and project delivery by recommending process improvements to deliver projects in the statewide Transportation Improvement Program more quickly and efficiently, improve the condition of North Carolina's bridges, and more strategically address mobility issues throughout the state.

Talent Management: The term "talent management" refers to the way the department recruits, retains and develops its employees. Based on results of a diagnostic survey and many subsequent interviews with DOT managers and employees, the TMT has recommended and implemented changes in these areas. The team also created NCDOT Core Values, the behavior standards to which all employees will be held accountable in their individual performance evaluations. Additionally, a new employee performance management system has been implemented, called a "Personal Dashboard and Appraisal," which will be rolled out to managers and all employees this year.

"The team also created NCDOT Core Values, the behavior standards to which all employees will be held accountable in their individual performance evaluations."

NCDOT and the TMT are currently in its twelfth month of transforming to a results based performance organization. Although the transformation has been challenging, NCDOT will be more prepared for the 21st Century to "connect people and places in North Carolina - safely and efficiently, with accountability and environmental sensitivity."

####



INCREMENTAL CONSTRUCTION OF GIS DATABASE — A STRATEGY FOR DEVELOPING AN ENTERPRISE GEOSPATIAL RESOURCE

— BY DENNIS SCOFIELD, ODOT; BILL RYAN, ODOT; AND ROBERT KIRKMAN,
ODOT



Geospatial data is extremely useful and versatile in transportation operations. However, large data collection projects are expensive and difficult to authorize. Moreover, once generated, they require upkeep and maintenance.

Ironically, the data that staff members need is usually purchased by agencies, as contractors commonly collect natural resource geospatial information to generate reports such as environmental assessments and biological opinions. Frequently, the geospatial data itself generally goes unorganized or even uncollected. It is the report—not the data—that is considered the deliverable.

As part of its work on the \$1.3 billion OTIA III State Bridge Delivery Program, the Oregon Department of Transportation and its private-sector program management firm, Oregon Bridge Delivery Partners, set out to address this situation with a system that would make data the deliverable.

Building a database incrementally

The new model is a Web-accessible set of information useful to a broad range of groups, from contractors to federal environmental agencies. It works by approaching contractor-generated GIS data as a contract deliverable, working with established GPS and GIS standards, and enlisting the bridge program GIS team as a services group. The first application of this was environmental baseline reports.

Before the design and construction phases of the bridge program, ODOT generated environmental baseline reports for 418 bridge sites to help project design teams avoid or minimize environmental impacts of bridge construction. The GIS team took advantage of this rare initial investment, using it as the foundation for data collection and information system development.

Next, the data was a deliverable in all contracts. Contractors were required to submit any new or modified GIS data as part of their work. This was a significant change in contracting for both the contractor and agency.

To ensure incremental data accrual will be effective, it must take place according to clearly established standards. For the bridge program, the GIS database, keyed to the environmental baseline process, became the standard to which future data additions were matched. A GPS application with a preset setting enforced ODOT's new GPS standards, facilitating the transition.

GIS staff members also helped contractors through the new process, offering a free tool built around standard practices employed by the contractors; application and manuals downloadable through the bridge program Web site; and technical staff members available for support.

Cost and benefits

The development costs were primarily in the contract management practices, requiring mostly a new mindset. The benefits are straightforward. Wide-area data is maintained rather than going stale through lack of updating. With this information, the bridge program quickly measures its outcomes against environmental performance measures, in streamlining permitting and regulatory compliance, and in monitoring the cumulative impacts of transportation projects statewide. ODOT can track not only the volume of the impacts associated with the bridge program, but also where they are concentrated—by type, activity and even by contractor. And the database is already finding new uses in generating rapid, location-specific reports for state and federal agencies.

###



DALLAS/FORT WORTH INTERNATIONAL AIRPORT

DFW AIRPORT INTEGRATES KEY AIRPORT PERFORMANCE MEASURES INTO NEW STRATEGIC PLAN

— BY TOMAS RIVERA, DFW

Given the amount of change DFW Airport and the entire industry has experienced in the first eight years of the 21st century, it was necessary to revisit DFW's strategic plan. DFW Airport developed a new strategic plan which recognizes the realities of today and outlines an approach for taking DFW to great heights tomorrow.

DFW Airport's strategic plan is a simple yet critical document that captures the Airport's mission, goals, and lays out broad approaches for achieving them over time. Along with the vision and mission the plan includes the primary business goal of Growing the Core Business and four key Drivers/Results - Cost Competitive; Customer Satisfaction; Employee Engagement; and Operational Excellence

Through a collaborative planning process involving all levels of management DFW developed a set of key initiatives designed to achieve the primary business goal and key results. The strategic initiatives and their corresponding measures operate on three levels. CEO Initiatives are designated as "Level 1". Level 1 initiatives are the most important initiatives. When an initiative is identified as a critical component to meet a CEO priority, it is designated Level 1 status. Key Airport Measures (KAMs) are integrated into Level 1 initiatives. Each key airport measure includes a definition of the KAM; a description of the level of control the airport can exert over the indicator; a benchmark reference where available; a five year trending of actual results for the KAM (where available) and management's projection for future time periods.

Other critical initiatives at the executive management level are designated Level 2. Leading key performance indicators (KPIs) are integrated into Level 2 initiatives. Department level initiatives are designated as Level 3. Process level metrics are associated with Level 3 initiatives. The table below illustrates the strategic initiatives structure.

A representative example for the Level 1 primary business goal of "Grow the Core Business" is as follows.

Key Airport Measure (KAM): Cargo Landed Weights

Definition: The total landed weight for cargo operations is based on FAA certified landed weights for each aircraft.

DFW Control: MEDIUM – DFW is centrally located in the United States and North America and has an abundance of land to grow cargo and logistics businesses. Thus, with good marketing and sales efforts, DFW can develop a solid business case for attracting new cargo entrants into the DFW market.

Benchmarks: Reliable comparative information is difficult to obtain from reliable sources. However, DFW's cargo landed weights grew from 3.02 to 3.56 billion from FY-03 through FY-07.

For this example, supporting Level 2 leading indicators include a quarterly cargo facility metric that tracks tenant occupancy versus available square footage. This leading measure is useful for critical space planning initiatives geared toward gaining new entrants or expanding incumbent carriers. DFW can exercise control of this metric which also lends itself reasonably well to benchmarking.

Several types of DFW-controllable Level 3 process-level metrics have been developed to gauge continuous improvement initiatives. Some relate to quantifiable facility development and improvements efforts. Other Level 3 metrics are used on a monthly basis to track and trend activities geared to attracting and retaining tenants. Still other Level 3 metrics such as operating cost per square foot of cargo facilities relate to operational excellence drivers. While process-level measures do not generally lend themselves to benchmarking they are the most directly controllable by DFW Airport.

In this manner performance measurement at all levels of the organization collectively supports DFW's strategic plan and are central to the accomplishment of DFW's strategic objectives.

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Level	Organization	Priorities	KPIs
Level 1	Board/CEO	CEO's Initiatives	Key Airport Measures
Level 2	Executive Mgmt	Other Critical Initiatives	Leading Indicators (KPIs)
Level 3	Departments	Continuous Improvement Initiatives	Process Level Metrics

MORE EFFECTIVE INDICATOR SELECTION AND USE TO PROMOTE SUSTAINABLE TRANSPORT – 3 SHORT GUIDES FOR PRACTITIONERS

– BY GREGORY MARSDEN, ITS—UNIVERSITY OF LEEDS



A four year UK research council funded project studying the way in which indicators are selected and used in the transport and land-use sectors has recently been completed. The findings have been condensed down into three short guides for practitioners – the philosophy in developing the guides was to make them readable in an hour (at a maximum) and to develop principles which are illustrated with short case studies. The case studies are UK based but, from my experiences of TRB and the Performance Management Committee the issues are very similar to US and other international contexts. They are of relevance for anyone involved in developing indicator sets and applying them at various governmental levels.

The three guides are:

1) Designing a monitoring strategy to support effective delivery of sustainable transport goals

This guide provides a method for selecting and prioritizing which indicators to measure for which purposes. The product would primarily be used by practitioners to decide how to develop a monitoring strategy that supports their objectives, allows them to assess the on-going implementation success and to communicate this to the public and elected members. <http://www.distillate.ac.uk/outputs/Designing%20a%20Monitoring%20Strategy.pdf>

2) Advice on selecting indicators for sustainable transport

New indicators are often introduced but lack many of the properties of a good indicator which lead to a loss of credibility, retrenching or withdrawal. Such experiments can be costly both financially and politically. This guide describes the properties of a good indicator, develops an audit process for new indicators and provides case study examples to demonstrate how the approach can be used. [http://www.distillate.ac.uk/outputs/C2%20Selecting%20Indicators%20Report%20\(09-04-08\).pdf](http://www.distillate.ac.uk/outputs/C2%20Selecting%20Indicators%20Report%20(09-04-08).pdf)

3) Monitoring across sectors and spatial levels for sustainable transport: a good practice guide

Sustainable transport planning cuts across many more issues than might have traditionally been captured by a transportation department including links to health (obesity), environment (air quality) and the economy (productivity and access to employment). This guide which summarizes the key findings of four practice based case studies. It looks at monitoring across government layers and looks at what makes for effective and ineffective communication across government tiers. It also covers monitoring across policy sectors looks at the issues surrounding integrating transport into a more complex policy environment. Of the three guides this is more oriented to the UK policy arena but issues such as integration between governmental tiers are transferable. <http://www.distillate.ac.uk/outputs/Monitoring%20across%20sectors%20and%20spatial%20levels.pdf>

If anyone is interested in further information on the research on which the guides are based then this is at: <http://www.distillate.ac.uk/outputs/reports#reportsC>.

I'd be happy to discuss the work further with any interested parties.

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University of Leeds
G.R.Marsden@its.leeds.ac.uk;
www.its.leeds.ac.uk

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“The findings have been condensed down into three short guides for practitioners – the philosophy in developing the guides was to make them readable in an hour (at a maximum) and to develop principles which are illustrated with short case studies.”

WORKING TOGETHER FOR SMOOTHER ROADS

— BY LEONARD EVANS, P.E., OHIO DOT



Performance measures have been effectively used to manage transportation projects from inception through construction. These measures of quality, timeliness and efficiency help to improve the internal processes necessary to construct and maintain our transportation systems. Once the resulting projects are put into service, the process continues as additional measures are used to monitor and report on the safety, reliability and adequacy of the resulting network. Most of the knowledge gained from these monitoring efforts is consumed within the respected agencies as they work independently to further improve their highway networks...until now.

A growing venture of interstate cooperation has been underway as part of a series of comparative performance projects sponsored by AASHTO and its various committees focused on management, quality, and asset management. The initial effort, *Comparing State DOTs' Construction Project Cost and Schedule Performance*, looked into comparing volunteer transportation agencies on construction project cost and schedule performance. The participants were kept anonymous to facilitate collaboration and the top performers were interviewed to share effective practices. The effort resulted in the identification of 28 best practices among the nine participating states and paved the way for a follow up study to compare pavement smoothness.

Effective Agency Practices:

- Strong performance management orientation
- Smoothness specifications and incentives
- Effective working relationships
- Integration of customer input
- Pavement management practices

Effective Contractor Practices:

- Materials, placement and finishing techniques
- Equipment deployed
- Daily testing and adjustments
- A focus on quality

The recently completed National Cooperative Research Program project 20-24(37B), *Comparative Performance Measurement: Pavement Smoothness*, compared pavement smoothness performance as measured by thirty two cooperating states. As in previous comparative performance efforts, the participating states were kept anonymous, but each was required to submit pavement smoothness data in the same manner for highways and bridges on the interstate network. Spy Pond Partners and their consulting team assisted the states as they complied with data standards agreed upon among the participants. To assist in the comparison of results, Spy Pond utilized the climate zones established by the Long Term Pavement Performance (LTPP) study as a basis for identifying top performers. Five states were identified for detailed interviews as well as seven additional states that responded to a shortened written survey.

It was clear from the data that performance varied among states and that it was not simply the result of differences in climate. The highlighted states had emphasis placed on the paving result, not just on the paving process. In turn, the results oriented focus has encouraged further process improvements to achieve smooth pavements. A combination of effective agency and contractor practices were identified from the five leading agencies. The report, soon to be published by TRB and AASHTO, includes these findings as well as overall recommendations for further improvements in data collection, analysis and deployment of effective practices among state agencies.

“These measures of quality, timeliness and efficiency help to improve the internal processes necessary to construct and maintain our transportation systems.”

###

PERFORMANCE MEASURES FOR TRANSPORTATION DATA PROGRAMS

– BY JACK STICKEL, ALASKA DOT&PF



The Alaska Department of Transportation and Public Facilities (ADOT&PF) recently developed a suite of performance measures for eight core data programs as part of the Department’s Data Business Plan. These core data programs (accident reporting, bridge management, maintenance management, pavement management, road weather information systems, seasonal weight restrictions, traffic, and traveler information) represent business areas where planning plays a significant data stewardship role. In addition to the Data Business Plan *User Needs and Concept of Operation*, ADOT&PF developed (through Cambridge Systematics, Inc) the *System Requirements, Architectural Description, and High Level System Design* documentation.

The performance measure program followed the intelligent transportation system (ITS) life-cycle systems engineering approach. The measures are tied closely to the Department’s and Program Development Division’s missions to align the data management programs. ADOT&PF plans on deploying 12 of the 65 performance measures using COGNOS Inc. performance management software early this summer. ADOT&PF plans on completing a full data business plan over the next two years.

For further information and documents please contact Jack Stickel @ (907) 465-6998 or jack.stickel@alaska.gov.

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Type of Measure	Performance Measure	Definition
Accident Reporting	Report Input	Number of reportable accident reports received from DMV each week
	Keypunch Contractor	Number of days it takes for key punch contractor to complete each batch of accident reports (50/batch)
	Accident Staff Throughput	Number of reports with completed desk edits and sent to keypunch each week
	HSIP Run Capability	Number of days past January 1 st for the previous year’s reports to be entered in database and validated for duplicate reports and non-reportable crashes
Data Inventory	Inventory Staff	Percent of inventoried roads that have been updated for road network and feature data in transportation database
	Bridge Inventory	Percent of NBIS bridges that have been inventoried and updated in transportation database
	IRI Inventory	Percent of roads in transportation database that have updated IRI information
	Locally Classed Roads - Centerline Inventory	For locally classed roads, percent of centerline miles that are tracked in transportation database
	Locally Classed Roads - Database Update	For locally classed roads, percent of centerline miles that have been inventoried and have road network and feature data updated in the transportation database
Road Weather Information System	System Usage	Number of web site visits per day
Traffic	Traffic Program	Number of days past January 1 st to produce AADT data for all traffic links in the previous year – by region & statewide
	Traffic Staff - Regional	Number of days for regions to verify month permanent traffic counts

AAA FOUNDATION'S UNITED STATES ROAD ASSESSMENT PROGRAM EXPANDS

– BY FAIRLEY MAHLUM, AAA



WASHINGTON, D.C. – The AAA Foundation for Traffic Safety's United States Road Assessment Program (usRAP) announced plans to expand its pilot program into Illinois, Kentucky, New Mexico, and Utah. The usRAP program maps the relative risk of road segments based on available crash using a unique protocol first tested in Europe's EuroRAP program. These risk maps are then used by state and local road agencies to guide strategic investments in highway infrastructure and the allocation of enforcement resources, as well as benchmark progress over time. Designed to foster collaboration, usRAP is now active in eight states. The long-term plan envisions expanding the pilot into a fully operational program across the country, which will lead to fewer deaths and serious-injury crashes on our nation's road network.

"We are delighted to be collaborating with these state departments of transportation to enhance their road safety efforts," said Peter Kissinger, President and CEO of the AAA Foundation. "Working together we can make a difference and reduce the risks to the motoring public." In the recently completed usRAP pilots in Florida and New Jersey, both state Departments of Transportation pilot tested usRAP to enhance ongoing safety management programs, which included confirming the location of high crash road segments and identifying road segments for comprehensive engineering studies. Those pilots also provided guidance for state police to better target enforcement strategies, as well as the enhancement of federally-required state reports to identify the five percent of public roads that have the most serious traffic safety needs.

The usRAP program is very timely as recent Federal mandates have placed new emphasis on evidence-based safety management and transparency of the decision-making process on all public roads. "These tools will be invaluable for state, county, and local engineers across the country looking to maximize the safety benefits from their limited resources," said Roger Wentz, President and CEO, American Traffic Safety Services Association. "We think that usRAP is such a valuable tool that we recommend it as the data standard for planning the effective use of Highway Safety Improvement Program funds."

Pilot programs have already been completed Florida, Iowa, Michigan, and New Jersey. Similar mapping already exists throughout much of Europe and Australia.

usRAP is a program of the AAA Foundation for Traffic Safety and is affiliated with iRAP, the International Road Assessment Program, along with EuroRAP, the European Road Assessment Program, and AusRAP, the Australian Road Assessment Program.

Established in 1947 by AAA, the AAA Foundation for Traffic Safety is an independent, publicly funded, 501(c)(3) charitable research and educational organization. The AAA Foundation's mission is to prevent traffic deaths and injuries by conducting research into their causes and by educating the public about strategies to prevent crashes and reduce injuries when they do occur. The usRAP Phase I and Phase II reports are available online at www.usRAP.us.

###

"Working together we can make a difference and reduce the risks to the motoring public."

**Featured
Research**
(starting on page 22)

**Project [NCHRP 25-25](#)
(Task 23)**

Environmental Performance Measurements Related to
Transportation Project Planning, Design, Construction,
Maintenance and Operations

Project [NCHRP 15-32](#)

Context Sensitive Solutions: Qualification of the Benefits
in Transportation

Project [NCHRP 20-24 \(58\)](#)

Toward Developing Performance Based Federal-Aid High-
way Programs

NCHRP 25-25 (TASK 23) [ACTIVE]

ENVIRONMENTAL PERFORMANCE MEASUREMENTS RELATED TO TRANSPORTATION PROJECT PLANNING, DESIGN, CONSTRUCTION, MAINTENANCE AND OPERATIONS

Funds:	\$85,000
Staff Responsibility:	Christopher J. Hedges
Research Agency:	Cambridge Systematics
Principal Investigator:	John Suhrbier
Effective Date:	10/7/2005
Completion Date:	7/1/2008

BACKGROUND

Transportation agencies increasingly are utilizing performance-based management approaches to guide their planning, design, maintenance, operations, and contracting practices. These include the adoption of goals and objectives, performance standards, and monitoring of actual performance. Typically performance measures have been limited to a set of measures directly under the agency's control, such as capacity and pavement quality. Today's transportation decisions, though, are being made in a much broader and more collaborative context in which water quality, air quality, ecology, economic development, historic preservation, community quality of life, and other environmental considerations are being given increased importance. While transportation may have an important influence on outcomes in these areas, a variety of other factors also affect the degree to which these desired other objectives are achieved. Not only do these outcomes require more complex measures, but they also often overlap with efforts being undertaken by other agencies such as departments of natural resources. None-theless, transportation agencies are concluding that it is important to incorporate these broader indicators in their performance-based strategic management processes.

OBJECTIVE

The objective of this project was to establish guidelines for the development and implementation of environmental performance measurements for state departments of transportation (DOT). Through an analysis of existing literature, practices, and research, practical procedures to integrate environmental measurements into agency practices and decision-making are identified and described. The research examines the interface between two important characteristics of DOT professional practice: an increasing attention to environmental stewardship and performance-based strategic management.

TASKS

Task 1: Literature Review

The purpose of this task was to conduct a critical analysis of domestic as well as international literature, research in progress, and current practice with an emphasis on assessing the applicability, conclusiveness of the findings, and usefulness for the analytical needs defined by AASHTO for this project. Attention was given to identifying the state of the practice within the transportation community, determining how non-transportation organizations are using environmental performance measurements, and determining the direction in which environmental performance measurement practices are evolving.

Task 2: Internet-Based Survey

A survey of state DOT environmental performance measurement practices was accomplished by conducting an Internet-based survey of the environmental and planning groups within state DOTs.

Task 3: Interviews

Interviews were conducted with selected state DOTs, metropolitan planning organizations (MPO), and environmental resource agencies identified in the literature review, the survey, or otherwise known to be actively measuring and tracking environmental performance to evaluate trends and achieve established goals.

Task 4: Synthesis

The final portion of the project used the base of literature, survey, and interview information, together with previous work performed for NCHRP regarding the implementation of performance-based management approaches, to produce guidelines that could be used by state DOTs for the development and implementation of environmental-specific performance measurements.

STATUS

Draft of final report is currently under review.

NCHRP 15-32 [ACTIVE]

CONTEXT SENSITIVE SOLUTIONS: QUANTIFICATION OF THE BENEFITS IN TRANSPORTATION

[HTTP://WWW.TRB.ORG/TRBNET/PROJECTDISPLAY.ASP?PROJECTID=412](http://www.trb.org/trbnet/projectdisplay.asp?projectid=412)

Funds:	\$450,000
Staff Responsibility:	Edward T. Harrigan
Research Agency:	Kentucky Transportation Center--University of Kentucky
Principal Investigator:	Nikiforos Stamatiadis
Effective Date:	5/25/2006
Completion Date:	2/28/2009

BACKGROUND

As more organizations apply the principles of context sensitive solutions (CSS), evidence is increasing that measurable benefits result from a more broadly informed and flexible approach to all phases of transportation decision making. There is a widely shared belief that involving stakeholders in decision making results in solutions that balance environmental, engineering, community, mobility, funding, and safety needs with minimum delay and controversy. If this is true, there should be significant quantifiable benefits from the strategic and appropriate application of CSS principles.

Evaluation of the benefits of transportation programs is often limited to the cost savings accrued from reduced travel times, emissions, environmental impacts, and operations. These evaluations continue to produce an abundance of data that often address a particular mode such as transit or highways and specific aspects that are easily quantified such as ridership, noise levels, wetland impacts, and arterial capacity. Data on less readily quantifiable aspects have been lacking. The economic impacts of CSS, in terms of achieving value-added benefits and reducing costs and delays, have not been well documented.

Quantification of benefits and cost savings realized through application of CSS in transportation should be of great value to agencies and stakeholders working to deliver projects and will advance CSS implementation nationally.

OBJECTIVE

The objective of this project is to quantify the benefits of strategic and appropriate application of the principles of context sensitive solutions in transportation planning, programming, project development, and operations.

Accomplishment of the project objective will require the following tasks.

TASKS

PHASE I

(1.) Compile and review information and data from research projects and transportation studies relevant to quantification of benefits of CSS in transportation planning, programming, project development, and operations. Survey the states and major municipalities to identify examples where the benefits and outcomes, both positive and negative, of CSS can be or have been quantified. (2.) Prepare an updated, detailed work plan to quantify the benefits, in terms of value added, cost savings, or avoidance of unnecessary costs or time delays, of the application of CSS in a range of examples selected from those identified in Task 1. In the detailed work plan, (1) provide a logical justification for the inclusion of each selected example and (2) specify the benefits that will be addressed for each example, including, but not limited to the following: (a) expedited acceptance by stakeholders; (b) decreased costs or time for project delivery; (c) decreased construction costs or time; (d) value added with or without commensurate cost or time consequences; (e) increased opportunities for partnering or sharing funds or in-kind resources; (f) increased or improved opportunities for joint use and development;

CONTEXT SENSITIVE SOLUTIONS CONTINUED ...

(g) sustainable decisions and investments; and (h) increased stakeholder satisfaction, ownership, and trust. (3.) Submit, within 4 months of the effective date of the contract, an interim report on the findings of Tasks 1 and 2, including a synthesis of the information gathered in Task 1 and the detailed work plan developed in Task 2. The research agency will be required to meet with the project panel, approximately 1 month later, to obtain NCHRP approval of an updated Phase II work plan before beginning Task 4.

PHASE II

(4.) Carry out the work plan approved by NCHRP in Task 3. Analyze the results to (1) provide a representative range of value added or cost and time savings for each benefit and (2) identify similarities and differences in benefits among examples from across the United States, including a full range of major and minor projects in urban, suburban, and rural environments. Summarize in tabular and graphical format the benefits and cost saving realized through the application of CSS. Based on these results and findings, recommend potential performance measures for the application of CSS principles. (5.) Using the results and findings of Task 4, develop recommended practices with illustrative examples for quantifying the benefits of applying CSS principles in transportation planning, programming, project development, and operations. Identify reliable performance measures associated with the recommended practices. Provide supporting commentary for state and municipal transportation agencies to use in quantifying the benefits of applying CSS in transportation planning, programming, project development, and operations. Prepare suggested materials for training agency personnel to quantify the benefits of applying the principles of CSS for specific projects or programs. Present the findings to NCHRP before proceeding with Task 6. (6.) Prepare a final report summarizing the results, findings, and conclusions of the research, including (1) a comprehensive executive summary and (2) the Task 5 recommended practices, performance measures, commentary, and training materials on CD-ROM. Submit a documented database in electronic format with the data and analytical results of Phases I and II.

STATUS

Phase II is underway.

PRODUCT AVAILABILITY

The Phase I interim report is available for loan on request to NCHRP.

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NCHRP 20-24 (58) [ACTIVE]

TOWARD DEVELOPING PERFORMANCE BASED FEDERAL-AID HIGHWAY PROGRAMS

[HTTP://WWW.TRB.ORG/TRBNET/PROJECTDISPLAY.ASP?PROJECTID=2112](http://www.trb.org/trbnet/projectdisplay.asp?projectid=2112)

Funds: \$150,000
Staff Responsibility: Andrew C. Lemer
Research Agency: Cambridge Systematics, Inc.
Principal Investigator: Randall Halvorson
Effective Date: 3/3/2008
Completion Date: 3/2/2009

BACKGROUND AND OBJECTIVE

The United States Congress and the National Surface Transportation Policy and Revenue Study Commission (established under federal SAFETEA-LU legislation) have sought to examine how well today's Federal-aid transportation programs meet certain performance goals. Some state departments of transportation (DOTs) have developed sophisticated management tools and procedures for setting performance targets and using performance-based management in their planning, programming, and other decision making. These tools and procedures may not be well known to other DOTs and the Congress. Research is needed to present best current DOT practices for performance-based management of federal-aid transportation programs and to support the work of AASHTO's leadership in further dissemination and development of such practices. The objective of this research is to work with the AASHTO to (a) describe the current state of practice in performance-based management of federal-aid programs, (b) assess how apportionment formulas and the distribution of federal funding among programs can influence overall performance of federal assistance for which an agency is responsible, and (c) assess how federal-aid programs may be better organized to enable agencies to manage for higher performance.

TASKS

Task 1. Review current literature on federal agency, DOT, and other transportation agency practices in performance-based budgeting, planning, and management of highway transportation programs. Review current literature on such practices as they are applied to other federal-aid transportation programs, to the extent that these practices may offer lessons for highway-program budgeting, planning, and management. Prepare a synthesis of these current practices.

Task 2. Work with AASHTO leadership, building primarily on recent AASHTO publications, to develop and refine descriptions of the current state of practice in performance-based budgeting, planning, and management of highway transportation programs.

Task 3. Assess the impact of alternate federal-aid program mixes and apportionment formulas on transportation agencies' ability to achieve specific performance goals.

Task 4. Work with AASHTO leadership to develop alternatives for federal-aid program management to improve agencies' ability to achieve specific performance goals. Provide logistical support and participate in a 2- to 3-day workshop with AASHTO leadership to define these alternatives.

Task 5. Prepare a final report documenting all work in the project. Revise the draft final report based on comments from AASHTO leadership.

PM Research Archive Matrix

<p>Project 20-7 (Task 202), FY 2004 Guide to Benchmarking Operations Performance Measures</p>	<p>Project 8-36 Task 47 Effective Organization of Performance Measurement</p>	<p>Project 7-15 FY 2004 Cost-Effective Measures and Planning Procedures for Travel Time, Delay and Reliability</p>	<p>Project 20-63, FY 2004 Performance Measurement Tool Box and Reporting System for Research Programs and Projects</p>
<p>PROJECT 20-24 (20), FY 2003 USING PERFORMANCE MEASURES TO MANAGE CHANGE IN STATE DEPARTMENTS OF TRANSPORTATION</p>	<p>Project 3-68 FY 2003 Guide to Effective Freeway Performance Measurement</p>	<p>Project 17-26, FY 2003 Methodology to Predict the Safety Performance of Urban and Suburban Arterials</p>	<p>Project 20-24 (30), FY 2003 Performance Measurement in Context Sensitive Design</p>
<p>PROJECT 20-60, FY 2003 Performance Measures and Targets for Transportation Asset Management</p>	<p>Project 8-43 FY 2002 Methods for Forecasting Statewide Freight Movements and Related Performance Measures</p>	<p>PROJECT 20-57, FY 2002 Analytic Tools to Support Transportation Asset Management</p>	<p>PROJECT 20-24 (14), FY 2001 Managing Change in State Departments of Transportation</p>
<p>Project 6-14, FY 2000 Feasibility of Using Friction Indicators to Improve Winter Maintenance Operations and Mobility</p>	<p>Project 8-32 (2)A, FY 2000 A guidebook for Performance-Based Transportation Planning</p>	<p>Project 2-22, FY 1999 Case Studies on Communicating the Economic Benefits of Transportation Investments</p>	<p>Project 2-19, FY 1997 Guidance on Using Existing Analytic Tools for Evaluating Transportation Investments</p>
<p>Project 2-22, FY 1997 Needs in Communicating the Economic Impacts of Transportation Investment</p>	<p>Project 1-33 FY 1995 Methodology to Improve Pavement Investment Decisions</p>	<p>Project 3-55, FY 1995 Performance Measures and Levels of Service in the Year 2000 Highway Capacity Manual</p>	<p>Project 8-32 (2), FY 1994 Multimodal Transportation: Development of a Performance-Based Planning Process</p>
<p>Project 20-24, FY 1994 Customer Based Quality in Transportation</p>	<p>Project 2-17, FY 1991 Measuring the Relationship Between Freight Transportation Services and Industry Productivity</p>	<p>Project 20-24 (06), FY 1991 Performance Measures for State Highway and Transportation Agencies</p>	<p>Project 2-17(3), FY 1993 Macroeconomic Analysis of the Linkages Between Transportation Investments and Economic Performance</p>
<p>Project 3-55 (4), FY 1995 Performance Measures and Levels of Service in the Year 2000 Highway Capacity Manual</p>	<p>Project 2-17(3)A, FY 1994 Update and Enhancement of Dataset for Macroeconomic Analysis of Transportation Investments and Economic Performance</p>	<p>Project TCRP E-03A, FY 1997 Applications for Improved Inventory Management for Public Transit Systems</p>	<p>Project TCRP G-06, FY 2003 A Guidebook for Developing a Transit Performance-System</p>
<p>Project TCRP B-11, FY 1998 Customer Defined Transit Service Quality</p>	<p>Project TCRP F-03, FY 1992 Total Quality Management in Public Transportation</p>	<p>Project NCHRP 311, FY 2003 Performance Measures of Operational Effectiveness for Highway Segments and Systems</p>	<p>Project NCHRP 300, FY 2001 Performance Measures for Research, Development and Technology Programs</p>
<p>Project TCRP SG-10, FY 003 Use of Performance-Based Measures in Allocating Transit Funding</p>	<p>Project TCRP 40, FY 2001 A Challenged Employment System: Hiring, Training, Performance Evaluation, and Retention of Bus Operators</p>	<p>Project TCRP 22, FY 2001 Monitoring Bus Maintenance Performance</p>	<p>Project TCRP 7, FY 2001 The Role of Performance Based Measures in Allocating Funding for Transit Operations</p>
<p>Project 8-32, FY1995 Multimodal Transportation: Development of a Performance-Based Planning Process</p>	<p>Project 20-60, FY 2003 Performance Measures and Targets for Transportation Asset Management</p>	<p>Project 3-79 FY 2004 Measuring and Predicting the Performance of Automobile Traffic on Urban Streets</p>	<p>Project 6-17, FY 2005 Performance Measures for Snow and Ice Control Operations</p>
<p>Project TCRP E-03A, FY 2006 Applications for Improved Inventory Management for Public Transit Systems</p>	<p>Project NCHRP 20-5, FY 1967 Synthesis of Information Related to Highway Problems</p>	<p>Project TCRP 88, FY 2006 A Guidebook for Performance-Based Transportation Planning</p>	<p>Project NCHRP 8-32(2)A, FY 2000 Development of a Performance-Based Planning Process</p>

PM Research Archive Matrix continued. . .

<p>Project NCHRP 551 FY 2006 Performance Measures and Targets for Transportation Asset Management</p>	<p>Project 8-36 Task 61 Monetary Valuation Per Dollar of Investment in Different Performance Measures</p>	<p>Project 14-13 FY 1999 Customer-Driven Benchmarking for Highway Maintenance Activities</p>	<p>Project NCHRP 08-36 Task 47 Effective Organization of Performance Measurement</p>
<p>Project NCHRP 08-62 Transportation Performance Management Programs—Insight from Practitioners</p>	<p>Project NCHRP 20-36 Highway Research and Technology—International Information Sharing</p>	<p>Project NCHRP 09-19 Superpave Support and Performance Models Management</p>	<p>Project NCHRP 15-34 Performance-Based Analysis of Geometric Design of Highways and Streets</p>
<p>Project NCHRP 08-36 Task 32 Tools, Techniques, and Methods in Rural Transportation Planning</p>	<p>Project NCHRP 03-70 Multimodal Level of Service Analysis For Urban Streets</p>	<p>Project TCRP B-31 Guidebook for Measuring, Assessing, and Improving Performance of Demand-Response Transportation</p>	<p>Project NCHRP 25-25 Task 23 Environmental Performance Measurements Related to Transportation Project Planning, Design, Construction, Maintenance and Operations</p>
<p>Project NCHRP 15-32 Context Sensitive Solutions: Qualification of the Benefits in Transportation</p>	<p>Project NCHRP 20-24 (58) Toward Developing Performance Based Federal-Aid Highway Programs</p>	<p>Project NCHRP 02-15 Identifying, Measuring, and Evaluating the Benefits of Safety Roadside Rest Areas</p>	