Performance Measures Correlating Investment In Transportation With Economic Vitality

Prepared by Ken Winter, July 2007

KEY SEARCH TERMS:

Performance Measurement
Performance Measures
Economic Indicators
Economic Efficiency

Research Synthesis Bibliography No. 10

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**Adequacy of Freight Connectors to Interregional Corridors and Major Highways**

ABSTRACT: The study objective was to make available to the Minnesota Department of Transportation (Mn/DOT) districts, planning agencies, and the freight industry the resources for improving freight productivity and, ultimately, for increasing economic activity in the state. The study addresses roadway connections between major freight facilities and generators in the state and Interregional Corridors. Additionally, it looks at connections between freight facilities and the regional highway system in the Twin Cities Metropolitan Area. The study developed an initial measure of freight connector adequacy. Note: Description: Appendices(2); Maps; Photos; Tables; URLs: Document: ACCESS: http://www.dot.state.mn.us/ofrw/PDF/Adequacy%20of%20Freight%20Connector%20Report.pdf


ABSTRACT: The Oregon Department of Transportation is committed to deliver programs effectively and to continually improve efficiencies and accountability. The department reports to the Legislature on 22 Key Performance Measures submitted to and approved by the 2003 session as part of the budget request. These measures (see table) directly support department goals and the wide range of measures acknowledge the multimodal nature of the department. The measures affect all modes of transportation, from pedestrian and bicycle, to rail, commercial, and noncommercial travel. The agency’s focus on customer service is highlighted, as are measures that affect Oregonians’ livability and the state’s environment. All divisions play a role in achieving ODOT’s mission: “To provide a safe, efficient transportation system that supports economic opportunity and livable communities for Oregonians.”. ACCESS: http://www.oregon.gov/DAS/OPB/docs/APPR04/Transportation_APPR04.pdf

**An Application Of The Balanced Scorecard To Public Transit System Performance Assessment**


ABSTRACT: This paper describes how the "balanced scorecard" method of assessing performance, originally developed for use in the private sector, could be used to derive valid assessments of public transit agencies' performance. The article looks at the balanced scorecard concept and how it could be applied to transit operations. It develops a comprehensive list of constructs and measures for public transit performance assessment and develops a "shopping list" of measures for managers to choose from in constructing their own scorecard. The original four metrics for for-profit assessments, financial, internal business, customer, and innovation and learning, are adjusted to fit the unique requirements of a non-profit, public service. The balanced scorecard would consider three perspectives: efficiency, "are we doing things right?", effectiveness, "are we doing the right things?", and impact, "are we producing the externalities we intend?" The article then details the elements that go into each of the three perspectives and creates constructs for each. Tables illustrate the components of the three elements and sources for information on how to measure them. ACCESS: Available through InterLibrary Loan.

**Application of Transit Performance Indicators**


ABSTRACT: Decreasing transit ridership and increasing operating and capital costs have resulted in a situation whereby the Urban Mass Transportation Administration (UMTA) is
requiring transit operators to develop comprehensive data reporting schemes. Transit operators are realizing the need for measurement of transit system productivity, efficiency, and effectiveness, in order to make decisions on where to add, modify, or delete service. The research provides an internal route-specific, performance monitoring tool, and aimed at bus transit performance. The research was devised to yield a specific product, which is a comprehensive decision framework for applying transit performance indicators. Two performance indicators were selected for use in the research, namely, passengers per bus mile and passengers per bus hour. These indicators are used primarily because the data are relatively easy to obtain. The application methodology is general, however, in that it can also be used for other route-specific indicators. The decision framework is based upon the statistical decision-making techniques which are used in other fields such as quality control. Two case studies were used in this framework to apply indicators to the measurement of performance of the bus transit systems of the Regional Transportation District of Denver, Colorado, and the Utah Transit Authority of the Salt Lake City, Utah region. Guidelines are given to assist transit operator programs.

ACCESS: Available through InterLibrary Loan.

**Best Practices in Transportation Department Performance Measurement Structures**

ABSTRACT: This survey and summarization by Tennessee’s DOT identified 25 trends towards performance measurement. It examines performance measurement trends and identifies 13 best practice categories and specific implementation suggestions. NOTE: This paper has been moved by the publisher but is now available through the link below. A “free” registration is apparently required to retrieve the paper.


**Connecting the DOT’s: Minnesota’s Regional Trade Centers And Interregional Corridors**


ABSTRACT: Travel trends in Minnesota emphasize the need to ensure that travel on highway corridors linking economic centers around the state is safe, reliable, and efficient. The Minnesota Statewide Transportation Plan includes a policy to enhance safety and access in important interregional corridors that serve interregional freight and passenger needs by connecting Regional Trade Centers. In 1999, the Minnesota Department of Transportation (Mn/DOT) initiated a study to define a system of interregional corridors that connect these important Regional Trade Centers. The Interregional Corridor Study began by identifying a hierarchy of Regional Trade Centers. The method used to develop the hierarchy of places was based on population and the number and diversity of local businesses in each center. The Regional Trade Center concept provided a way to focus on the Minnesota’s economy and the relationship to a strong transportation system to maintain the economic vitality of the centers. Major state highways connecting these centers were analyzed using technical criteria. The results were refined through extensive public and agency involvement. The outcome was identification of a priority system of interregional corridors providing statewide and interstate transportation services. Using performance measures and performance targets, mobility risk corridors performing below target speed or having a risk of signal proliferation were identified. Funding improvements for these corridors became a key component of Mn/DOT’s ten-year transportation investment strategy. During the 2000 Minnesota State Legislative session, Mn/DOT was successful in receiving funding for improving these interregional corridors. Results from Mn/DOT’s interregional corridors study were used to gather Legislative support.
for the passage of a major transportation funding bill. Mn/DOT implemented results of the
interregional corridor study by developing smart-growth principles and policies to guide
planning and investment decisions in the corridors. Corridor management plans use these
policies to direct development of Minnesota’s interregional corridor system.
ACCESS: Available through InterLibrary Loan.

Considerations In The Development Of Procedures For Prioritizing Transportation
Improvement Projects In Virginia
CITATION: Miller, John S. Turochy, Rod E. Lambert, James H., Virginia, Dept. of
ABSTRACT: The transportation programming process is undergoing a fundamental change akin
to that which transpired with the advent of the Intermodal Surface Transportation Efficiency
Act in 1991. Some stakeholders have expressed a desire that the programming process be
transparent, and some have expressed an interest in using data-driven performance
measures. Although there is widespread agreement concerning broad criteria, stakeholders
may disagree over specific performance measures. Thus, transportation agencies have
become interested in methods for selecting projects based on their merits rather than the
more traditional approach of "first in first out." Accordingly, the Virginia Department of
Transportation (VDOT) requested that the Virginia Transportation Research Council develop a
template that VDOT could use to prioritize capital improvement projects. The role of the
template is to help VDOT decide which project should be undertaken first. The scope of the
template is limited to projects that are already being programmed. A template based on 14 of
75 performance measures examined was developed and applied to two projects. The template
is oriented toward projects relating to the interstate and primary systems, but it is flexible
enough that key policy choices can be made in its framework. These include controversial
issues, such as access management and land use configurations, and more tedious but critical
considerations, such as the relative importance of crash risk, infrastructure maintenance,
economic development, and congestion relief. A promising benefit of the template is that it
provides an opportunity to manage the debate as to the approach for deciding the order in
which projects are programmed. The template will not eliminate disagreement, but it can
foster discussion when parties have legitimate and differing opinions as to how projects should
be prioritized. To that end, the template may be used as a discussion instrument between
VDOT and some of its key stakeholders, including metropolitan planning organizations,
planning district commissions, the Commonwealth Transportation Board, and advocacy groups
who influence transportation infrastructure decisions. Note: Note(s): "March 2002."/ Includes
bibliographical references (p. 27-28)/ Funding: Performed for Virginia Dept. of Transportation
and the Federal Highway Administration under contract no./ Contract No: UPC 00057868-
March 2002.; Responsibility: John S. Miller, Rod E. Turochy, James H. Lambert.; Date of
Entry: 20020412; Update: 20050523.

Developing a Consistent, Flexible, and Defensible Methodology for State and
Regional Transportation Planning
CITATION: Kresich Dianne, Decker Stephen. Conference Title: Transportation Research Board
ABSTRACT: A decade ago, long-range transportation planning in Arizona was an unstructured
process that was often inconsistent and dependent on parochial interests and political
influence. That era ended in 2000 when the State Legislature enacted legislation requiring that
long-range planning be guided by specific performance measures. The Arizona Department of Transportation (ADOT) was assigned responsibility for applying these measures to the planning process. In 2001, the effort began on MoveAZ, the Arizona long-range transportation plan that succeeded in creating tools with which ADOT could evaluate and prioritize transportation improvements over a 20-year timeframe. While the MoveAZ plan was notable for advancing transportation planning in Arizona into an era of performance-based planning, the opportunity to improve upon its methodology became apparent as ADOT embarked on the plan's update. ADOT is presently launching the update to MoveAZ through a series of twelve Regional Transportation Profiles that will, unlike the earlier plan, address every segment of the state highway system. To ensure consistency in the identification and evaluation of potential highway improvements across a wide variety of conditions throughout the state, the Profiles will each adhere to performance-based planning techniques outlined in detail by the Regional Transportation Profile Guidelines. The Guidelines, which employ a version of the Highway Economic Requirements System - State (HERS-ST) that has been uniquely adapted to reflect data specific to Arizona, form the foundation of the analysis of needs and deficiencies, as well as the identification of project improvements.

ACCESS: Available through the VDOT Research Library, call number: CD-ROM TA 1005 .N38


Note: Note(s): Cover title./ "August 21, 2000."; Other Titles: Task 3.2.2 report; At head of title:; I-69 Evansville-to-Indianapolis study, Tier 1 environmental impact statement.
ACCESS: Available through InterLibrary Loan.

**Facilitating Transportation Agency Management through Performance Measurement: the NYsdot Experience with the "Management Performance Indicators" Report**

ABSTRACT: Performance measurement is a powerful management tool to help an organization accomplish its mission and build a more productive work environment. This paper describes steps undertaken by the New York State Department of Transportation (NYSDOT) to develop an executive-level performance measurement system--the "Management Performance Indicators" report (MPI). It was developed to meet executive management information needs, but over time has evolved into a tool for monitoring and assessing departmental performance. Its development and evolution are explored, as well as benefits derived from its use.
Components of the MPI are surveyed, as well as lessons learned in its use and its future within the agency. The MPI is a management resource for NYSDOT, providing early warning of potential problems and allowing modification of processes to improve performance. Longevity and continued success of the MPI are based on its flexibility, ability to hold the interest of top management, and the atmosphere of cooperation it encourages among program areas. Executive focus on program areas identified by the MPI has improved the department's productivity in numerous program areas. Its introduction has also fostered development of more reliable data and a team spirit among managers to address potential areas of concern. A performance measurement system benefits all levels and all functions of an organization. Usefulness of an executive-level MPI can be expanded through extension of performance measurement into all NYSDOT areas.

ACCESS: Available through the VDOT Research Library, call number: TA 1001.5 .T71 no. 1498
Florida Department of Transportation 2004-2005 Short Range Component and Annual Performance Report

CITATION: Florida Department of Transportation.

ABSTRACT: This Short-Range Component and Annual Performance Report is prepared pursuant to section 339.155, Florida Statutes. This report is organized by the Department’s strategic goals, focus areas, and associated short-range objectives. By establishing the strategic goals, short-range objectives and strategies identified in the Short-Range Component — and by encouraging our Partners to join us in pursuing the long-range goals and objectives in the Florida Transportation Plan – the Department has taken the lead in setting the course for Florida’s 21st century transportation system. The goals, associated objectives and achievements in implementing the Short-Range Component include these strategic goals: System preservation and efficiency, Economic competitiveness, quality of life and safety, and Organizational excellence.

ACCESS: http://www.dot.state.fl.us/planning/policy/pdfs/src.pdf

Implementing Performance Measurement In Transportation Agencies

CITATION: H. Kassoff.

ABSTRACT: This conference resource paper begins with a discussion of the change that is happening in transportation organizations and the profound impact it is having on the way they do business. There is a move toward greater accountability in government, and clearly, performance measurement is not a fleeting trend. Increased customer expectation and accountability in the public sector have helped to focus attention on performance measurement as one of the essential tools at our disposal. The paper then focuses on implementing performance measures, discussing the common ingredients, issues, and challenges which transportation organizations face.


ACCESS: Available through the VDOT Research Library, call number: TA 1001.5 .P74 no.26

Intermodal Transportation: Challenges to and Potential Strategies for Developing Improved Intermodal Capabilities. Testimony


ABSTRACT: Mobility—that is, the movement of passengers and goods through the transportation system—is critical to the nation's economic vitality and the quality of life of its citizens. However, increasing passenger travel and freight movement has led to growing congestion in the nation's transportation system, and projections suggest that this trend is likely to continue. Increased congestion can have a number of negative economic and social effects, including wasting travelers’ time and money, impeding efficient movement of freight, and degrading air quality. U.S. transportation policy has generally addressed these negative economic and social effects from the standpoint of individual transportation modes and local government involvement. However, there has been an increased focus on the development of intermodal transportation. Intermodal transportation refers to a system that connects the separate transportation modes—such as mass transit systems, roads, aviation, maritime, and railroads—and allows a passenger to complete a journey using more than one mode. The testimony today is based on the Government Accountability Office’s (GAO’s) prior work on intermodal transportation, especially intermodal ground connections to airports, and addresses (1) the challenges associated with developing and using intermodal capabilities and (2) potential strategies that could help public decision makers improve intermodal capabilities. A number of financing, planning, and other challenges play significant roles in shaping transportation investment decisions and the development of intermodal capabilities.
Significant challenges to the development of intermodal capabilities are the lack of specific national goals and funding programs. Federal funding is often tied to a single transportation mode; as a result it may be difficult to finance projects, such as intermodal projects, that do not have a source of dedicated funding. In addition, federally funded transportation projects, including intermodal projects, face a number of planning challenges. These challenges include limits on the uses of federal funds, ensuring that widespread public participation is reflected in decisions, physical and geographic land constraints, and the difficulty coordinating among multiple jurisdictions in transportation corridors. Finally, intermodal capabilities, while offering benefits to mobility, may need to develop a demand over time.

Two general strategies developed from GAO’s prior work would help public decision makers improve intermodal capabilities. Both strategies are based on a systematic framework that includes identifying national goals, defining the federal role, determining funding approaches, and evaluating performance. The first strategy would increase the flexibility of current federal transportation programs to encourage a more systemwide approach to transportation planning and development, but would leave project selection with state and local decision makers. The second strategy is a fundamental shift in federal transportation policy's focus on local decision making by increasing the role of the federal government in order to develop more integrated transportation networks. While the first strategy would most likely lead to a continued focus on locally determined and developed transportation projects, the second strategy could develop more integrated transportation networks, either nationwide or along particularly congested corridors. The second strategy could be costly, and high benefits, which may be difficult to achieve, would be needed to justify this investment.

ACCESS: Available through InterLibrary Loan.

**Interregional Corridors: Prioritizing and Managing Critical Connections Between Minnesota’s Economic Centers**

CITATION: Zemotel, L M Montebello, D.K., Transportation Research Record, No. 1817, p. 79-87

ABSTRACT: Growth trends in Minnesota emphasize the need to ensure that travel on highway corridors linking regional trade centers in the state is safe, reliable, and efficient. In 1999, the Minnesota Department of Transportation initiated an interregional corridor study to define a system of interregional corridors that connect important regional trade centers. Minnesota's effort to develop the interregional corridor system, performance expectations, and principles and policies for managing and guiding development along these corridors is described. The interregional corridor system and the corresponding management principles and policies were developed in several phases: (a) definition of regional trade centers, (b) identification of the interregional corridor system, (c) development of interregional corridor principles and policies, and (d) development of a corridor management plan guide. The study developed performance measures and performance targets to identify mobility risk corridors, which are corridors that perform below target speed or have a risk of signal proliferation. Methods used at a sketch-planning level to identify priority routes and performance levels are described. The study developed a more uniform process for developing corridor management plans.

ACCESS: Available to VDOT employees through TRR Online, at http://trb.metapress.com/content/r9836106094525gv/fulltext.pdf

ACCESS: Available through the VDOT Research Library, call number: TA 1001.5 .T71 no. 1817

**Kansas Department of Transportation Perspective**

CITATION: Julie Lorenz. Transportation Research E-Circular No. E-C115; p 42

ABSTRACT: The Kansas Department of Transportation (KDOT) initiated the performance
measures process more than a year ago and has used a very inclusive process to develop
draft measures. KDOT is currently presenting the draft measures to the review board (made
up of the executive staff) for adoption in a year or so and is in the process of presenting them
to senior management for adoption. Measures are being developed in each of six strategic
areas including: pavement preservation and maintenance; safety; program and project
delivery; economic impact; system modernization; and workforce priorities.

**Maximizing Urban Transport Economic Benefits: Urban Performance Indicators**
CITATION: Wendell Cox. , Conference Proceedings: Competition and Ownership in Land
Passenger Transport. 9th International Conference Pg. 231-246.
ABSTRACT: This paper describes how large metropolitan areas have developed throughout the
world as transport technologies have facilitated greater mobility and as people have left the
poverty and lower income of rural areas seeking better lives in the city. Research has shown
greater access to larger employment markets increases the potential for higher incomes, while
generally improving metropolitan economic performance. Nonetheless, current planning and
statistical methods in urban transport planning have generally not been directed towards the
design of urban transport systems that maximize labor market mobility. A series of indicators
are proposed in this paper that would provide officials and citizens with detailed information on
labor market mobility both at the metropolitan area and sub-metropolitan area levels.
ACCESS: Available through InterLibrary Loan.

**Measures To Improve The Performance Of The Existing Road Network**
CITATION: H. Savenije Luikens RPAC. , ITE 2001 Annual Meeting and Exhibit, Description: 8p;
Report Number: CD-013;
ABSTRACT: In The Netherlands' Second National Traffic and Transport Plan, that was issued in
1990 the dominant policy was to influence the demand for transport and to change the modal
split towards more use of public transport and a slower growth of the use of the private car.
Almost ten years later they had to conclude that this policy was not enough, despite all
measures taken. The use of the private car has grown more than they had wanted and,
although the use of public transport has also grown (especially the use of the train) that had
little or not effect on the growth of congestion on the main road system in The Netherlands. At
this moment economic losses as a consequence of congestion are calculated at almost 2 billion
Dutch guilders (approximately 0.8 billion US dollars). In the recently issued national plan, the
Dutch government decided to change their national policy towards a more market oriented
approach. No dominant emphasis anymore on just the negative effects of mobility, but
mobility is considered to be a crucial part of their modern society. 'Mobility is allowed', but the
user has to pay the (market) price to use the system. A pricing policy is an important theme in
that policy. Investments in infrastructure have to be based on sound analysis of costs and
benefits. In such a market oriented approach, improving the efficiency of the existing
infrastructure network is an essential element. Note: Description: 8p; Report Number: CD-
013; TRIS Files: UMTRIS; HRIS.
ACCESS: Available through the VDOT Research Library, call number: CD ROM TA 1005 .I53

**Measuring That Which Cannot Be Measured--At Least According To Conventional
Wisdom**
CITATION: M. Meyer. , Journal Title: CONFERENCE PROCEEDINGS 26; Description: p. 105-
125;
ABSTRACT: The purpose of this conference resource paper is to examine the role of
performance measurement in transportation systems and agency operations. The paper begins by examining briefly the experience in three important fields of study: water resources; ecology and sustainability, and economics. It then looks at transportation systems, using five case studies to illustrate different attempts to incorporate a much broader perspective of system performance into transportation planning and decision making. The cases are specific to the context in which the performance-based planning approach was developed. The paper concludes with a discussion of the key characteristics that performance-based transportation planning should exhibit.


Ontario Highways As An Investment
CITATION: Anonymous, Proceedings of the xiiith world meeting of the international road federation, Toronto, Ontario, June 16 to 20, 1997
ABSTRACT: Similar to the current situation in many developed countries in the world, the magnitude of the current provincial deficit has required the government of Ontario to make major expenditure reductions. Consequently, the Ontario Ministry of Transportation is under continuing pressure to reduce its expenditures on the highway system and to maximize the value for every public tax dollar invested. At the same time, Ontario has a thriving economy that depends on highway transportation for continued growth and prosperity. The Provincial Auditor recently noted that over the past ten years the physical condition of the provincial highways has been steadily deteriorating. Highway investment needs can best be put into perspective by looking at the economic dimensions of highways within the Ontario economy. Highway transportation represents a major area of daily expenditure by residents and businesses alike and a key underpinning of the whole provincial economy. The highways already generate substantial revenues through fuel taxes alone. The Ministry of Transportation is beginning to use a number of techniques to identify the best investments to be made in roads and bridges: strategic network analysis, life cycle analysis, and benefit/cost analysis. Benefit/cost analysis is useful to demonstrate the marginal benefits (particularly the user benefits) of an investment, and to fine tune a solution to make it even more cost effective. It also generates a wide range of performance measures including the value per dollar invested (benefit/cost ratio), net present value, overall return on investment and return on investment specific to the investing agency cost and revenue streams. A combination of techniques is being used to identify different levels of investment in highways and bridges and the consequences of investing at those levels - for example, the expenditure required each year to counteract one year's worth of physical deterioration of highway infrastructure. The development of investment analysis is valuable for discussing annual capital budget requirements with the central government funding agencies. The techniques are also useful for exploring options for public/private partnerships regarding future investment in highways.

ACCESS: Available through InterLibrary Loan.

Performance Goals - Mobility and Economic Growth
CITATION: U.S. Department of Transportation Web Site
ABSTRACT: Performance measurement is dependent on the availability of useful data. This section of the Performance Plan/Performance Report provides information on how DOT reports on performance, verifies and validates data, assesses limitations of the data, and plans for improving its data.

**Performance Indicator in Urban Transport: The Texas Governor’s Business Council Process**

CITATION: Wendell Cox, Conference Proceedings: Competition and Ownership in Land Passenger Transport. 8th International Conference, Pg. 709-738.

ABSTRACT: This chapter proposes the method used in the Governor’s Business Council (GBC) report as a model for urban transport planning in other urban areas. The basic thesis is that transport and urban planning must become more objective in approach and less focused on particular projects. It must also be more based upon long-term transport improvement objects. While the GBC report was limited to roadway improvements, the same process could be applied to all modes of urban transportation, allowing public resources to be allocated to those strategies that most effectively contribute to the achievement of adopted long-term transport objectives.

ACCESS: Available through InterLibrary Loan.

**Performance Measures Library (Washington State)**

CITATION: Anonymous, 2005. WSDOT Web site

ABSTRACT: WSDOT recently completed a best practices inventory of performance measurement practices in other state departments of transportation. This Performance Measures Library is a resource for researching these practices. It also includes links to national and international efforts and other notable performance reporting by city, county, and regional entities. Other useful documents listed here, such as strategic and long-range system plans, or an interesting web page may not necessarily include performance measures.

The library also contains links to information about important emerging measurement topics, such as congestion and asset management.


**Performance Measures to Improve Transportation Planning Practice: A Peer Exchange, Charleston, South Carolina, May 6, 2004**

CITATION: Rachael Barolsky, Journal Title: Conference Proceedings 26; Description: 227 p.; Pg. 15. Transportation Research E-Circular No. E-C073

ABSTRACT: This report summarizes the results of a peer review on the use of performance measures to improve transportation planning and its relationship to project programming. The review was coordinated through the Transportation Planning Capacity Building (TPCB) program, which is sponsored jointly by the Federal Highway Administration and the Federal Transit Administration. The American Association of State Highway and Transportation Officials Standing Committee on Planning hosted the event as part of its annual meeting. The one-day peer review focused on how state departments of transportation (DOTs) are using performance measures to improve planning practices. Representatives of 13 DOTs shared their approaches and discussed the successes and challenges experienced in programming and planning. The agencies presented diverse approaches to performance measurement and demonstrated that states can tailor the implementation of performance measures to their own particular transportation context and needs.


**Quantitative Research Regarding Performance Measures For Intermodal Freight Transportation**


NOTES: The primary objective of this study is to provide information relative to the
development of a set of performance measures for intermodal freight transportation. Cover title./ Project no. 9564./ "Prepared for: Minnesota Department of Transportation, Division of Transportation Research and Investment Management."/ "October 1995.".

ACCESS: Available through InterLibrary Loan.

Results Act : Information On Performance Goals And Measures Contained In The Department Of Transportation's Fiscal Year 2000 Performance Plan
Note: Note(s): Title from subject line./ "November 15, 1999"--P. [1]./ "GAO/RCED-00-13R"--P. [1]./ "B-283922"--P. [1]./ Includes bibliographical references./ Report: GAO/RCED-00-13R/B-283922; Other Titles: Information on performance goals and measures contained in the Department of Transportation's fiscal year 2000 performance plan.
ACCESS: Available through InterLibrary Loan.

Results in Government With Performance Measurement
CITATION: L. R. Wipper, , Transportation Research Circular, No. 447, p. 52-57
ABSTRACT: A pilot project was developed in July 1989 to implement Performance Measurement (PM) at the Oregon Department of Transportation (ODOT). This program quantifies measures of efficiency and effectiveness for management teams and work teams, and the Department as a whole, and equates these data on a common scale. PM represents a change in philosophy. Rather than monitoring individual activities, the program focuses on results. Key factors in the accomplishment of results are tracked and the outcomes are communicated on a regular basis. Efficiency measures gauge the volume of production and the cost, while effectiveness measures track quality and customer satisfaction. This new focus has seen increasing success as the 27 ODOT Highway Division work crews (7% of the total work force) participating in the pilot steadily improved productivity, culminating in savings of more than $3.5 million. The success of the pilot has lead to not only full implementation of the program at ODOT, but caught the eye of Oregon's Department of Administrative Services who mandated the program for all state agencies. PM has become a requirement for federal agencies with President Clinton signing legislation in 1993.
ACCESS: Available through the VOT Research Library, Call Number: TA 1001.5 .T68 no.447

Strategic Planning, Total Quality and Performance Measurement: a Quality Director's View
ABSTRACT: In this paper the Wisconsin Department of Transportation Division of Highways' journey from strategic planning to total quality and performance measurement is described. The journey and reflections are presented from a quality director's point of view. The lessons learned in the journey are summarized. The focus is on improving the organization's performance--lowering costs, improving service, and increasing customer satisfaction. The private sector bottom-line focus is emphasized while transforming a governmental organization to total quality.
ACCESS: Available through the VDOT Research Library, call number: TA 1001.5 .T71 no. 1498.

A Study Of System Performance Measures For Intermodal Transportation
ABSTRACT: In the current literature and practice, no systematic and user-oriented
performance measures are available to evaluate intermodal transportation and facilitate mode-choice decision-making. Most existing transportation measures are defined for one specific mode and are not consistent with each other. This research establishes a systematic and user-oriented performance measurement system for intermodal transportation. Five major categories of performance measures are identified: mobility and reliability, safety, environmental impact, long term transportation cost efficiency, and economic impact. For each category, several quantitative measures are given to capture the features of the system and evaluate how well transportation systems can meet the needs of their users, who are investors (including government agents and stakeholders), individuals, industries, and the society (or the public). The proposed measures are scalable so that they can be used to compare systems with different sizes. Since none of them is mode specific, no matter how many modes and what kinds of modes are involved, a transportation system can be evaluated by the measure set. This research tries to avoid any overlap or omission among the measures and distinguish performance measures from factors. A transportation system can be improved through changing some factors, like capacity, but project priority should be decided based on measures rather than factors. The proposed measures are also verified by a survey conducted by this research and some industrial practices. In the thesis, a case study on the State of Mississippi is conducted based on the identified performance measures. The measures with the case study can help to promote transportation intermodalism in the U.S. and quantitatively demonstrate the benefits of intermodal transportation. The proposed measures differ in many aspects from traditional measures. The proposed set of performance measurement system can have a significant impact on development of U.S. transportation system.

ACCESS: Available through InterLibrary Loan.

System Performance Measures For Intermodal Transportation With A Case Study and Industrial Application
CITATION: M. Wang Jin H. , Technical Report provided to National Center for Intermodal Transportation. 89 p
ABSTRACT: In the current literature and practice, no systematic and user-oriented performance measures are available to evaluate intermodal transportation and facilitate mode-choice decision making. Most existing transportation measures are defined for one specific mode and are not consistent with each other. This research establishes a systematic and user-oriented performance measurement system for intermodal transportation. Five major categories of performance measures are identified: mobility and reliability, safety, environmental impact, long term transportation cost efficiency, and economic impact. For each category, several quantitative measures are given to capture the features of the system and evaluate how well transportation systems can meet the needs of their users. The term "users" refers to investors (including government agents and stakeholders, individuals, industries, and the society or the public). The proposed performance measures have two distinguishing features from the literature and current practice: using geographic distance rather than travel distance as mileage and defining mobility as total travel time over required mileages rather than average speed. The proposed measures are scalable so that they can be used to compare transportation systems of different sizes. Since none of the measures are mode specific, no matter how many modes and what kinds of modes are involved, a transportation system can be evaluated by the measure set. Furthermore, this research tries to avoid any overlap or omissions among the measures and distinguishes performance measures from factors. A transportation system can be improved through changing some factors, like capacity, but project priority should be decided based on measures rather than factors. The proposed measures are also verified by a survey conducted by this research and some industrial
practices. The measures can help to promote intermodalism in the U.S. and quantitatively demonstrate the benefits of intermodal transportation.

ACCESS: Available through InterLibrary Loan.

**Transportation Data and Performance Measurement**
CITATION: Dalton, D Nestler, J Nordbo, J St Clair, B Wittwer,E.Wolfgram, M. , : CONFERENCE PROCEEDINGS 26; Description: p. 75-87
ABSTRACT: Transportation agencies have a wealth of data available related to the services they provide and the infrastructure they maintain. The challenge facing managers is to gather and analyze data in a way that provides timely information on whether they are consistently meeting their strategic goals. Whenever the goals are not being met, management must use information to identify changes. This conference resource paper describes how to develop a performance measures program; how to identify the customers and their needs; and how to identify, collect, and analyze the necessary data.

**Transportation Planning Performance Measures**
CITATION: Bud Gregor Reiff Brian. , Pg. 220.
ABSTRACT: Oregon transportation plans, including the statewide Oregon Transportation Plan, and current regional transportation plans for the Portland, Salem, Eugene, and Medford metropolitan areas, contain some policy areas that are not adequately addressed by performance measures. These include policies related to the following: balance and adaptability; economic vitality; safety and security; environmental justice; land use compatibility; and quality of life. This research, while acknowledging the importance of assessing current system performance, focuses on performance measures that can also employ model forecast data for evaluating future plan alternatives. To address some of the deficiencies and to better address other plan policies, this research developed and tested six performance measures. The Urban Mobility Measures and Freight Delay Costs used performance measures developed by others and extended them for use in Oregon plans. The Transportation Cost Index represents a novel approach to measuring accessibility and to address, in part, issues related to balance, environmental justice, land use compatibility, and quality of life. The Percent of Market Basket Accessible by Non-auto Modes and the Auto Dependence Index measures are designed to address issues related to automobile reliance in the Oregon Transportation Planning Rule. The Road Network Concentration Index represents a novel approach to measuring transportation system security and efficiency. Other potential performance measures were considered but dropped because current models do not generate the appropriate data. The results of testing and analysis indicate that the Urban Mobility Measures and the Freight Delay Costs could be implemented immediately in Oregon. The others could be implemented soon following further refinement. Further research is recommended into policies related to the following: balance, particularly regarding transportation investments; safety, focusing on the influence of long range planning decisions; reliability; and other aspects of economic vitality.

**Transportation System Performance Measures Sustainability: Definition Report**
CITATION: California Department of Transportation, Pg. 10.
ABSTRACT: Sustainability is one of nine original outcomes in a performance measurement initiative being led by the California Department of Transportation (Caltrans). While proof-of-
concept testing was already conducted based on an original definition and candidate measure, the definition and indicator did not satisfy the concept of sustainability. This led to the original sustainability outcome being separated into two outcomes: Sustainability and System Preservation. System Preservation is discussed in a separate report. A new definition for Sustainability is presented as: "A sustainable transportation system meets the basic mobility and accessibility needs of current and future generations." Proof-of-concept testing is currently underway for selecting the appropriate indicators to measure sustainability. This report discusses the current status of the Sustainability outcome, providing background information on how this new definition for sustainability was developed.

ACCESS: [http://www.dot.ca.gov/hq/tsip/tspm/tspmpdf/pm10_01susdefrpt.pdf](http://www.dot.ca.gov/hq/tsip/tspm/tspmpdf/pm10_01susdefrpt.pdf)

**Update to the California Transportation Plan 2025: Strategic Growth Plan: GoCalifornia - Mobility Action Plan**

CITATION: California Department of Transportation, Division of Transportation Planning, 1130 K Street, Sacramento, CA, 95807, USA., 2006.

ABSTRACT: The California Transportation Plan 2025 (CTP) presents a blueprint for meeting the state's future mobility needs. It examines some of the future trends and challenges that face the state, and presents strategies to improve mobility. This is a long-range transportation policy plan exploring the social, economic, and technological trends and demographic changes that are expected during the next 20 years and their potential influence on travel behavior. The CTP provides a vision for California's future transportation system by defining goals, policies, and strategies to achieve the vision.

ACCESS: Available through InterLibrary Loan.

**Use Of Performance Measures In Transportation Decision Making**

CITATION: S. Neumann Pickrell L., Conference Proceedings 26; Description: p. 17-33

ABSTRACT: Many transportation agencies have begun to introduce explicit transportation system performance measures into their policy, planning, and programming activities. Performance measurement is being applied widely in many transportation agencies and often extends well beyond the performance of the transportation system itself. The first section of this conference resource paper is a definition of the elements of the process necessary to use performance measures to influence decisions and a summary of why agencies are increasingly interested in the use of system performance measures as a decision-making tool. Subsequent sections define several decision-making contexts with which performance measures may be applied and present some general lessons learned in working with a broad range of agencies that have begun to implement some aspect of performance-based planning and decision-making processes. Finally, some case study examples are provided to illustrate particular findings, and overall conclusions are presented.