

October 7, 2011

MEMORANDUM

To: TRAC Members

From: Wendy Wallach and Ann Rajewski

Subject: Framework for Transit Performance Measures

As we discussed at our last meeting in Steamboat Springs, we are about to begin the process of developing a framework for transit-related performance measures. We believe that performance-based planning will be a meaningful approach to guide the Division of Transit and Rail into the future by helping with the development of planning documents and with making investment decisions.

To be successful in this effort, we believe the following guiding principles should be recognized:

- Create a structured, simplified system that organizes performance measures in a manner that improves the understanding and the usefulness of the measures.
- Recognize the Vision and the Vision Values already established by the TRAC.
- Be specific to the needs of DTR, but be broad enough to be consistent with performance measures used in other parts of CDOT.

The basic conceptual structure for establishing the framework is illustrated by the attached graphic. It begins with the identification of broadly acceptable goal categories, which provide the base of a hierarchical structure. Related to these categories, then come values that define individual aspects of the performance of the system. Finally, individual alternative performance measures can be identified as they relate to each value. This structured process not only focuses the developers of the framework to rationally think through a comprehensive and practical set of performance measures, but it also organizes the measures in a way that enhances their understanding.

At our upcoming meeting on 10/14 we will begin this process with an exercise in which we will ask the TRAC, as a group, to associate the Vision Values (which you approved on 6/10/11) with a specific category. We will start with a set of eight categories which have been recommended through a national research study, *NCHRP Report 446, A Guidebook for Performance-Based Transportation Planning*.

We hope that this exercise will stimulate discussion regarding the appropriateness of these eight categories and clarification of the values. Through these discussions should come a better understanding of the process and the common language or terminology to be used as we move forward.

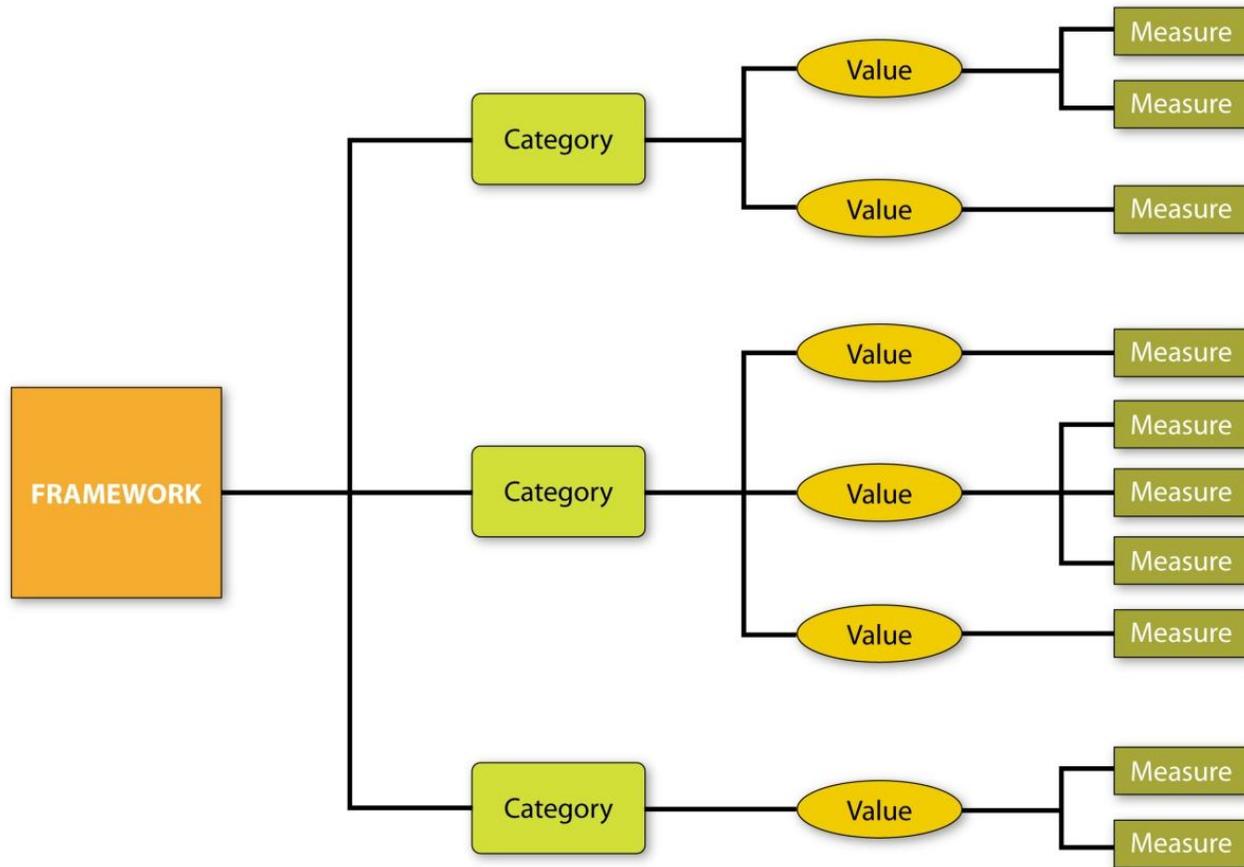
To help prepare you for this exercise, we have attached the following materials for your review prior to the meeting:

- Category Definitions
- Vision and Values (as previously approved by TRAC)
- Glossary of Terms

Following this exercise, the consultant and DTR staff will conduct further research and will draft a preliminary framework for your consideration. In December, we anticipate a workshop with the TRAC to review and revise the framework as appropriate.

Thank you for your review of these materials in advance of our meeting. We look forward to our discussions on this important planning tool.

Attachments



CONCEPTUAL FRAMEWORK for PERFORMANCE MEASURES

Transit Performance Measures Framework – Category Definitions

Accessibility
Providing accessibility to jobs, recreation, shopping, intermodal transfer points, and other land uses is one of the primary purposes of any transportation system. Measures of accessibility should reflect the ability of people and goods to access services, use different modes, and reach different destinations. Measures of accessibility also often capture the density of transportation service or land uses within a given area.
Mobility
Providing mobility is another fundamental function of transportation systems. Unlike accessibility, which reflects the ability of people or goods to reach destinations, mobility incorporates the relative ease or difficulty with which the trip is made. For example, a location may be accessible by transit but, if service is infrequent, transit-dependent travelers may still face restricted mobility. Likewise, congestion often impedes the mobility of private vehicle users; however, these users still enjoy excellent accessibility. Measures of mobility are often concerned with travel times, speeds, system usage, and system capacities.
Economic Development
Economic development is frequently viewed as the underlying reason for providing transportation infrastructure. While the relationships between transportation investment and economic growth and productivity are complex, transportation systems are an unquestionable prerequisite for economic activity. Economic development measures are typically divided into those that measure the transportation system’s direct economic impacts (e.g., congestion costs) and those that measure the economic health and vitality that transportation supports (e.g., number of businesses with good transportation service).
Quality of Life
Quality of life is closely related to the enjoyment of accessibility, mobility, and economic prosperity, but is associated with those attributes that are more difficult to measure in economic terms. These attributes may include things such as aesthetics, a sense of community, and people’s general sense of satisfaction. The measures are categorized by the aspect of life quality they affect (e.g., security, land use, and noise).
Environmental and Resource Conservation
The conservation of environmental resources is a desired byproduct of transportation systems. Society wishes to foster mobility, accessibility, economic development, and quality of life through transportation but, at the same time, wishes to minimize undue damage to the environment. Measures of environmental and resource conservation may be given in terms of resources saved (e.g., gallons of fuel conserved) or in terms of resources expended (e.g., tons of pollutants emitted).
Safety
Safety is similar to environmental conservation in that it is a state that we wish to enjoy while attaining other goals. Society wishes to remain safe while attaining mobility, productivity, and so forth. The safety measures are categorized by type of infrastructure (e.g., safety at rail crossings, safety in parking areas, and transit safety).
Operational Efficiency
Operational efficiency refers to the efficiency with which resources are used to produce a given level of transportation output. There are families of measures that reflect, for example, labor productivity or the operating efficiency of transit systems. Measures of operational efficiency are typically the concern of transportation system suppliers and are associated with system efficiency.
System Preservation
System preservation refers to the physical condition of transportation infrastructure and equipment. System preservation measures the condition of the system itself (e.g., age of transit fleet, cost to maintain railways).

Transit Performance Measures Framework – **Vision and Values**

Vision Statement:

To preserve and enhance in an environmentally and economically sensitive manner the efficient mobility of people and goods throughout and beyond Colorado through the development of safe, reliable transit and rail networks.

Vision Values (within the context of the vision statement):

- To serve the entire state, recognizing mode will change
- Create passenger-friendly environment
- Provide transit opportunities for all populations
- Thoughtful passenger and freight intermodalism
- Seamless connectivity
- Economic and energy efficiency
- Safe and reliable
- Marketing consideration
- Preserving potential intermodal hubs and right-of-way
- State-wide and nation-wide passenger and freight connections
- Economic development and vitality
- Community access (local) improvement
- Reduce auto dependency
- Preserving existing infrastructure
- Travel-time \$ frequency competitiveness and reliability
- Prepare and protect future infrastructure
- Include and expand freight rail
- Leverage work from other states
- Incremental approaches
- Integrate regional connectivity in all transportation projects
- Incorporate financial, engineering, political realities
- Incorporate financial overlay and marketing strategies

Transit Performance Measures Framework – Glossary of Terms

Performance-Based Planning: Performance-based planning includes identifying goals and quantifiable objectives, defining measures that relate to these goals and objectives, identifying the analytical methods and data required to generate the performance measures, and applying the measures in a process of alternatives evaluation, decision support, and ongoing monitoring.

Category: Categories provide a hierarchy within the Performance Measures Framework. As presented within *NCRHRP Report 446 A Guidebook for Performance-Based Transportation Planning*, eight categories of values have been identified and found to provide a solid, broad basis for a performance-based planning process. These categories serve as the primary tenets of the Performance Measures Framework, and include: accessibility, mobility, economic development, quality of life, environmental and resource conservation, safety, operational efficiency, system preservation.

Value: A value is a general statement of a desired state or ideal function of a transportation system. For example: “Promote economic development”, “Improve the safety of at-grade rail crossings”, or “Protect the public’s investment in transportation”. Values define individual aspects of performance measure categories within the Performance Measures Framework. Values define what aspect of a category will be addressed by individual performance measures, and may be defined by a single or many performance measures.

Performance Measure: Performance measures demonstrate how well the transportation system is doing its job of meeting public goals and expectations of the transportation network. Measuring performance is a way to gauge the impacts of the decision-making process on the transportation system. Performance measures aim to answer questions about whether the performance of the transportation system is getting better or worse over time; and whether transportation investments are correlated or linked to stated goals and outcomes.

Performance Index: Performance indexes are measures that combine and distill various measures, potentially covering multiple dimensions or goal areas, into a single measure. Performance indexes are of interest to planners and decision makers because such indexes can be used to reduce the complexity and volume of performance-related data that must be regularly monitored or factored into a specific decision.