



Facilitated Identification of KYTC Performance Measures

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Kentucky Transportation Center
College of Engineering, University of Kentucky, Lexington, Kentucky

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Commonwealth of Kentucky

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KTC Research Report
KTC-24-15

Facilitated Identification of KYTC Performance Measures

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August 2023

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1. Introduction

Federal and state government agencies are embracing performance management as a means to (1) justify the use of tax dollars and (2) monitor and report program accomplishments. The Kentucky Transportation Cabinet's (KYTC) efforts to fold Transportation Performance Management (TPM) into its business processes and workplace culture required training that would educate personnel about TPM's benefits, objectives, and activities.

After reviewing training resources on performance management from FHWA, NHI, AASHTO, and state DOTs, Cabinet leadership concluded that their emphasis on federal requirements was not exactly what KYTC was looking for in a training program. Instead, KYTC wanted a training program that explained "what performance measures are" while also meeting their goal of building a culture focused on the internal and external benefits of performance management. Although the Cabinet must comply with TPM-related federal requirements, leadership wanted a training that went beyond the federal measures, one that would establish metrics that benefit transportation stakeholders across Kentucky. They decided the best option was to develop a KYTC-specific training that reviewed performance management and allowed participants to help develop their own performance measures, thereby allowing for the development of a participatory performance management program.

KYTC retained Kentucky Transportation Center (KTC) researchers to provide technical assistance. Researchers were tasked with the following:

- Develop KYTC-specific training material for TPM
- Conduct training for KYTC program areas as identified by the Study Advisory Committee (SAC)
- Facilitate identification of process performance goals within each program area

As part of this effort, KTC convened 15 facilitated sessions with KYTC Central Office staff. The purpose of these sessions was to identify performance goals for each program area in the Division of Highways, Office of Safety, and Office of Highway Safety. Researchers also conducted eight workshops at the District level focused on areas that overlapped with District functions. These workshops also reviewed and developed additional performance measures.

2. Methodology

Developing performance measures for a large and elementally diverse organization like KYTC requires a methodology capable of detecting the nuances of agency operations. At the project's outset, Cabinet leadership stated they did not want researchers to take a top-down approach. Based on conversations with KYTC leadership and staff, KTC researchers designed a three-hour workshop that included four different interactive methods. When designing the workshops, researchers assumed that most participants would not be experts in performance management. This demanded that the workshops condense complex ideas into short learning sessions. After learning about key concepts, participants would develop performance measures that KYTC leadership could use to track division performance.

Researchers divided workshops into three segments:

1. Facilitated session during which participants identified their primary job-related activities
2. Interactive presentation on performance management
3. Facilitated brainstorming session during which participants used information from Segments 1 and 2 to develop performance metrics

Workshop Segment 1

Workshops began with a facilitated consensus segment that asked employees to brainstorm all the activities they are responsible for. Researchers used several prompts to elicit responses:

- What do you do on a daily basis?
- What takes a lot of your time?
- What state or federal requirements is your division responsible for providing information on?
- What reports do you prepare for leadership?

The goal of brainstorming using this format was to ensure everyone in the room contributed, so that in less than one hour divisions could produce a representative list of responsibilities and activities. Once brainstorming concluded, researchers had participants group activities into thematically similar clusters. Figure 1 captures the output of the grouping activity from a workshop. Organizing ideas into groups prepared participants to develop performance measures later on in the workshop.

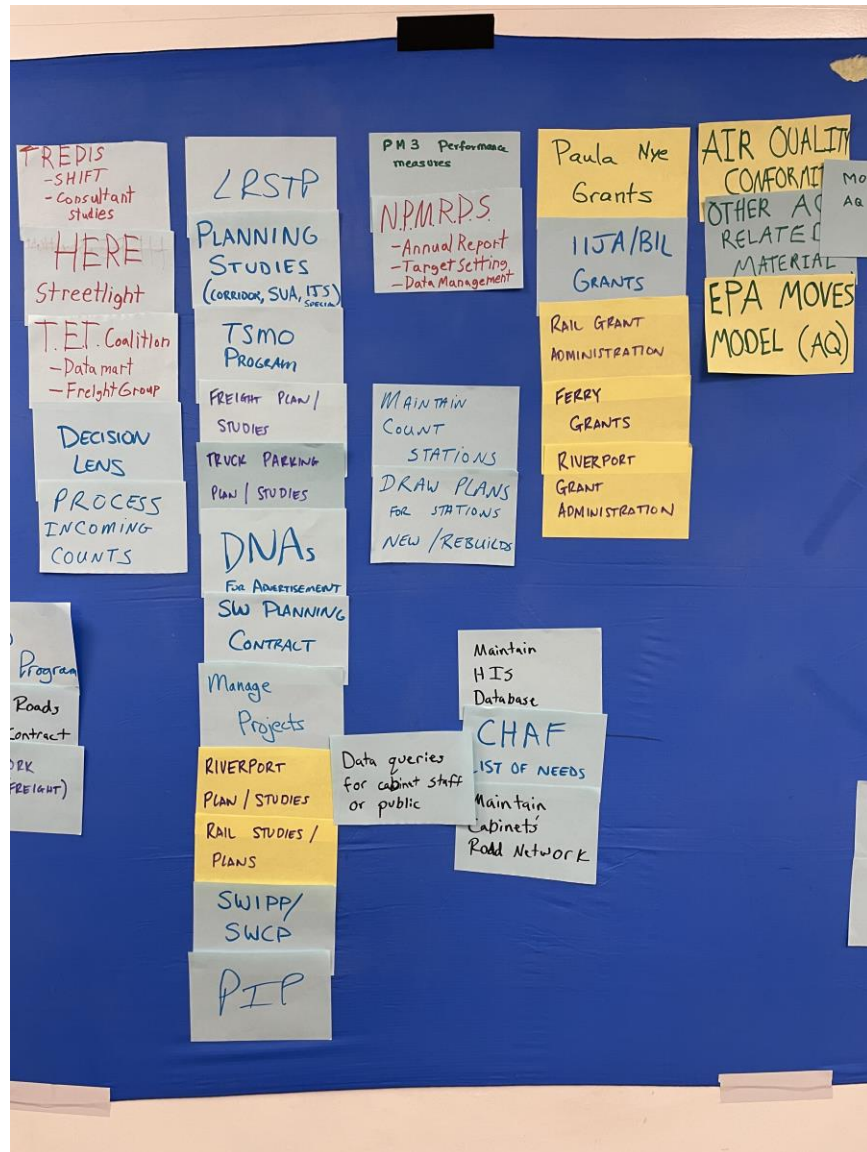


Figure 1 Facilitation Activity Board With Participant-Grouped Activities

Workshop Segment 2

This segment consisted of an interactive presentation on performance measures that emphasized KYTC would not view performance management as a mere exercise in compliance to satisfy federal requirements outlined in MAP-21 and the FAST Act. Rather, performance management is to become integral to all decision making at the Cabinet. The main goal of this segment was to ensure that staff had a proficient understanding of performance management and how it fits in at KYTC. A second goal was to underscore that performance measures need to be developed by individuals with a broad range of perspectives rather than leadership dictating which performance measures should be used.

This segment lasted 35-45 minutes and:

- Defined performance management
- Gave real-world examples of performance management

- Described the benefits of performance management and how it fits within
- Explained performance measures

Appendix A contains the PowerPoint presentation used during this segment.

Workshop Segment 3

During this segment participants developed performance measures for their divisions. Using activity groupings from the first session, participants worked individually and then in small groups to develop a performance measure for an activity they believed Cabinet leadership should measure and understand. Participants shared their draft metrics and the full group refined each to meet the standards of a performance measure.

To illustrate, in one workshop a group wanted to measure the cost-effectiveness of leased vehicles. But they needed additional guidance from the facilitators and other participants to develop a performance measure. By the end of the discussion, participants determined that they wanted to measure the *Cost Per Mile* for each type of vehicle (rented, leased, or bought). Figure 2 provides an example of the refined performance measures for this example.

During the last part of the workshop participants reviewed each performance measure to determine its value and the difficulty in acquiring necessary data for measurability. Participants rated the value of each performance measure as low, medium, or high. For instance, a low-value measure does not accurately reflect the activity it tries to measure and would not contribute significantly to the Cabinet's overall mission. Participants used a 1 -5 rating scale to evaluate the difficulty of acquiring data needed to measure an activity:

- 1 — A report is already produced and/or the data are compiled in an easily accessible database.
- 3 — The measure could be created by reading through emails and/or similar documents.
- 5 — Participants had no ideas about how to measure an activity or where they could acquire the data.

Metrics whose value were rated highly by participants, and which received a score of 3 or 4 for data accessibility were evaluated by Cabinet leadership to brainstorm how data could be collected. Metrics with high value and which received a 1 or 2 for data accessibility were more easily integrated into the Performance Management database for analysis.

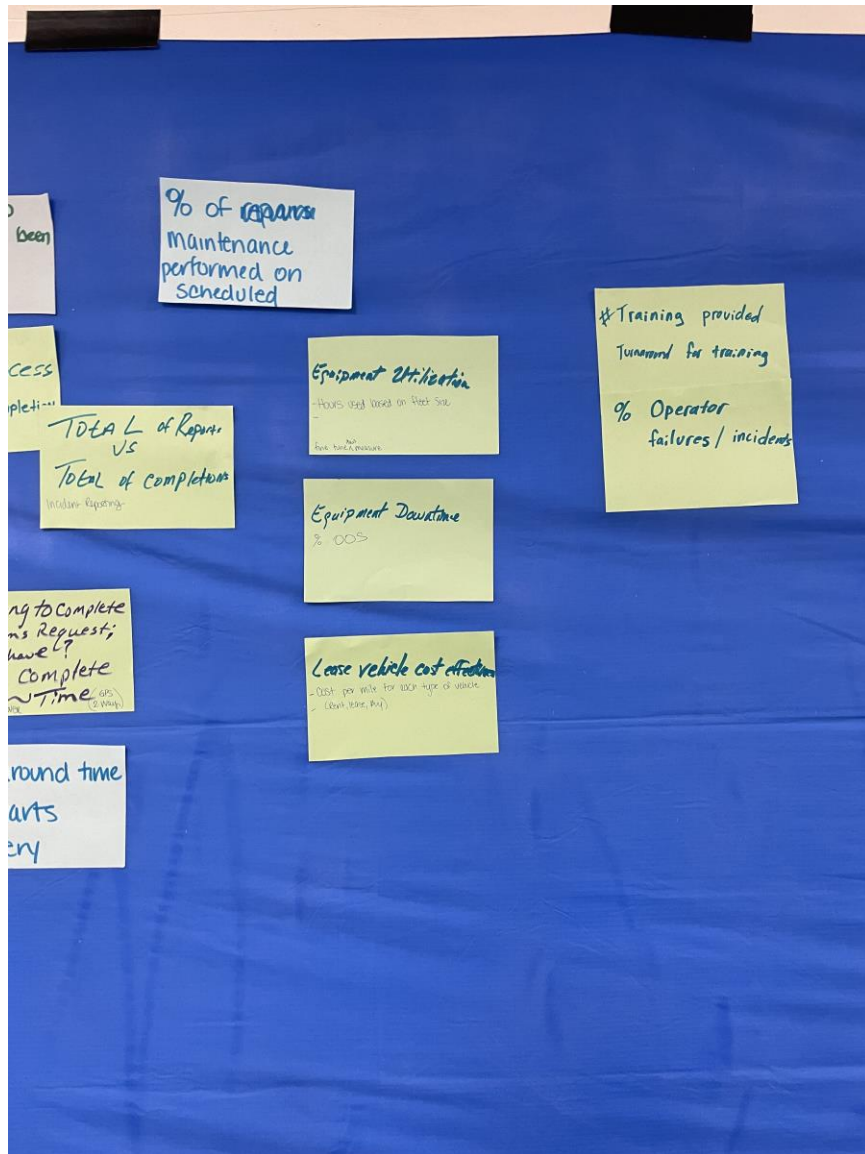


Figure 2 Facilitation Activity Board with Refined Performance Measures

Researchers conducted facilitated workshops for 15 divisions in KYTC’s Central Office. Table 1 lists divisions which participated at the Central Office and District levels.

Table 1 List Workshops Held at the Central Office and District Levels

Central Office Division	District Workshop
Maintenance	Y
Traffic Operations	Y
Materials	Y
Planning	Y
Equipment	Y
Environmental Analysis	Y
Construction	Y

Central Office Division	District Workshop
Highway Design	Y
Right of Way & Utilities	Y
Professional Services	N
Structural Design	N
Construction Procurement	N
Program Management	N
Office of Highway Safety	N
Office of Safety	N

3. District Workshops

After collecting data from Central Office staff, researchers visited with District offices. Logistically, it was not feasible to bring representatives from all 12 Districts to participate in workshops for every division. As such, researchers combined Districts into topical areas where participants had the most expertise.

At these workshops, participants first reviewed performance metrics developed by their colleagues in the Central Office to determine if they were applicable to Districts. Next, participants developed District-appropriate performance measures. District participants also had the opportunity to refine performance measures developed by Central Office staff, which resulted in more precise metrics. By the end of the workshops, 530 performance measures had been developed.

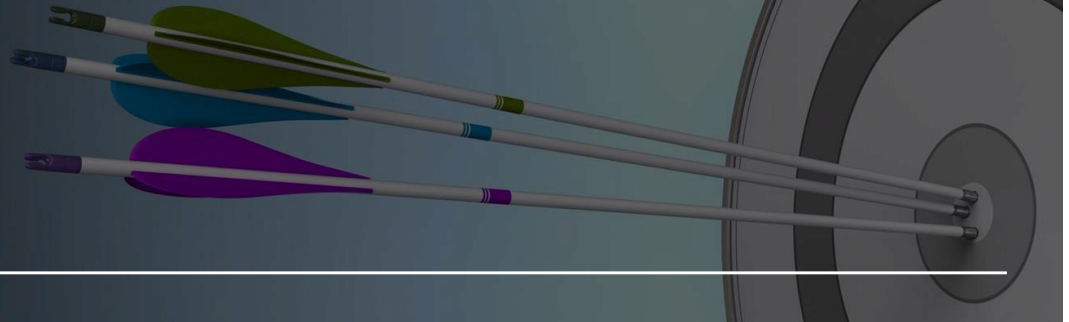
Building a Participatory Performance Management Database

Based on the value assessments and the difficulty of obtaining data, KYTC leadership will select measures to begin building a participatory performance management database and reporting system. The performance management system is not intended as either a report card or a method to squeeze more productivity from an underfunded and overburdened workforce. Four goals underwrite development of the performance management system:

- Allow employees to highlight work they do well
- Allow employees to flag areas in which additional resources could make a significant difference in delivering the Cabinet’s mission
- Locate where bottlenecks exist in the bureaucracy
- Build a more transparent reporting system for both internal and external stakeholders

Appendix A Performance Management Presentation

Performance Management



What We'll Cover



What is Performance Management?



Why is it important?



How do we implement it?

Topics We'll Avoid (mostly)



Federal Requirements



Reporting Deadlines



Anything resembling box-checking



Activity Facilitation

What are the major activities of your Division?

Performance Management

A systematic process for improving organizational performance by developing the performance of individuals and teams.

Armstrong and Baron. (1998). Performance Management.

A strategic approach that uses performance data to support decisions to help achieve a desired performance outcome.

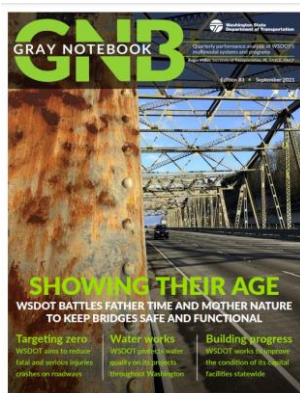
FHWA Performance Based Planning and Programming Guidebook.

Transportation Performance Management (TPM)

A strategic approach that uses system information to make investment and policy decisions to achieve national performance goals.

FHWA TPM Website <https://www.fhwa.dot.gov/tpm/>

Washington State Gray Notebook



84 STATEWIDE TRANSPORTATION POLICY GOALS DASHBOARD

Statewide policy goal/ WSDOT performance measure	Previous period	Current period	Goal	Goal met	Five-year trend (unless noted)	Desired trend
Safety						
Rate of traffic fatalities per 100 million vehicle miles traveled statewide ¹ (Annual measure: calendar years 2019 & 2020)	0.86	1.04	<1.00	—		↓
Rate of recordable incidents for every 100 full-time WSDOT workers (Annual measure: calendar years 2019 & 2020)	4.7	4.4	<5.0	✓		↓
Preservation						
Percentage of state highway pavement in fair or better condition by lane miles (Annual measure: calendar years 2019 & 2020)	92.9% ²	93.0% ²	≥ 90%	✓		↑
Percentage of state bridges in fair or better condition by bridge deck area (Annual measure: fiscal years 2020 & 2021)	93.8%	93.2%	≥ 90%	✓		↑
Mobility² (congestion relief)						
Highways: Vehicle Miles Traveled (VMT) on state highways (Annual measure: calendar years 2019 & 2020)	35.4 billion	30.0 billion	*	N/A		Not applicable
Highways: Average incident clearance times for all Incident Response program responses (Calendar quarterly measure: Q4 2020 & Q4 2021)	15.8 minutes	17.4 minutes	*	N/A		↓
Ferries: Percentage of trips departing on time ³ (Fiscal quarterly measure: Q2 FY2021 & Q2 FY2022)	88.2%	88.6%	≥ 95%	—		↑
Rail: Amtrak Cascades on-time performance ⁴ (Annual measure: calendar years 2019 & 2020) ⁵	58%	62%	≥ 88%	—		↑

Why is Performance Management Important?



CONNECTS
PROGRAMS TO
MISSION



MAXIMIZES THE
IMPACT OF
INVESTMENTS



SETS STRATEGIC
DIRECTION



CREATES
INVESTMENT
PLANS



EVALUATES
PROGRESS



COMMUNICATES
TO STAKEHOLDERS

Strategic Direction (Goals)

```
graph TD; SD[Strategic Direction (Goals)] --> C[Communication]; SD --> PM[Performance Measures]; SD --> PP[Performance Planning]; SD --> P[Programming]; SD --> IA[Investment Analysis]; C --- Q1[How do we tell our story?]; PM --- Q2[What will we monitor to determine if we're making progress?]; PP --- Q3[What resources or strategies do we need to use to improve our measures?]; P --- Q4[How will we invest our resources? What projects will we carry out?]; IA --- Q5[How effective are our investments? What uncertainties exist that effect our progress?];
```

How do we tell our story?

Communication

What will we monitor to determine if we're making progress?

Performance Measures

How effective are our investments? What uncertainties exist that effect our progress?

Investment Analysis

What resources or strategies do we need to use to improve our measures?

Performance Planning

Programming

How will we invest our resources? What projects will we carry out?

Goal

A broad statement describing the desired end state.
What do we want to achieve?

Example: Significantly Reduce Serious Injury Crashes.

National TPM Goal Categories

Safety

Infrastructure Condition

Congestion Reduction

System Reliability

Freight Movement and Economic Vitality

Environmental Sustainability

Reduced Project Delivery Delays

Safety Goal

To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

Infrastructure Condition Goal

To maintain the highway infrastructure asset system in a state of good repair.

Congestion Reduction Goal

To achieve a significant reduction in congestion on the National Highway System.

System Reliability Goal

To improve the efficiency of the surface transportation system.

Freight Movement and Economic Vitality Goal

To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

Environmental Sustainability

To enhance the performance of the transportation system while protecting and enhancing the natural environment.

Reduced Project Delivery Delays Goal

To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Outputs Vs. Outcomes

Outcomes

- Measure of effectiveness toward meeting an objective
- Can occur independently of activities
- Important to customer

Example: "Percentage of pavement in good or fair condition."

Outputs

- The quantity of an activity delivered through a project or program
- Product or service delivered

Example: "Number of miles of pavement treated in a given year".

Limitations of Performance Management

- Important data may be unavailable or unreliable
 - Competing stakeholder interests
 - Resource limitations
 - Unintended Consequences
-

Measure

A numeric expression used to assess progress toward an objective or goal.
What do we need to monitor?

Example: Number of Serious Injury Crashes.

Leading Phrases

Number of _____

Turnaround time for _____

% of _____ passing



Performance Measure Facilitation

How can we measure progress for the activities we identified?

Wrap-Up

- Questions/Discussion
 - Follow-up Summary of Measures and Goals
 - Survey
-