

## COMPONENT 6

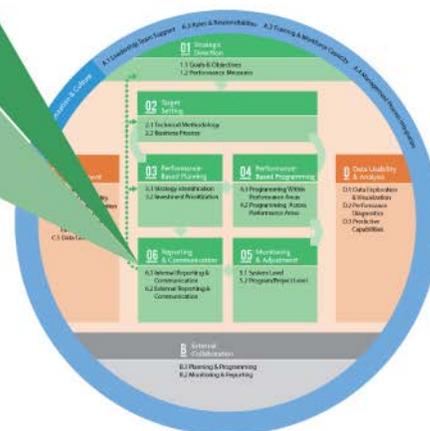
# REPORTING & COMMUNICATION

This chapter provides assistance to transportation agencies with the “Reporting and Communication” component of Transportation Performance Management (TPM). It discusses where reporting occurs within the TPM Framework, describes how it interrelates with the other nine components, presents definitions for associated terminology, provides links to regulatory resources, and includes an action plan exercise. Key implementation steps are the focus of the chapter. Guidebook users should take the TPM Capability Maturity Self-Assessment (located in the TPM Toolbox at [www.tpmtools.org](http://www.tpmtools.org)) as a starting point for enhancing TPM activities. It is important to note that federal regulations for reporting and communication may differ from what is included in this chapter.

## 06 Reporting & Communication

### 6.1 Internal Reporting & Communication 6.2 External Reporting & Communication

**Reporting and Communication** is comprised of the products, techniques, and processes used to communicate performance information to different audiences for maximum impact. Reporting is an important element for increasing accountability and transparency to external stakeholders and for explaining internally how transportation performance management is driving a data-driven approach to decision making.



## INTRODUCTION

Reporting and Communication is a key component of transportation performance management. Whether the agency is advancing toward attaining its strategic goals, falling behind or somewhere in between – TPM demands a rigorous reporting and communications practice to promote transparency and accountability. In addition, the sharing of performance information fuels the feedback loop to the strategic direction (Component 01), the setting of targets (Component 02), the identification and evaluation of strategies (Component 03), and the programming decisions (Component 04). Information included in reporting is an output of monitoring and adjustment processes (Component 05).

### The Reporting and Communication process benefits an agency by:

- Promoting an open atmosphere through the sharing of performance results
- Enabling reevaluation of measures, targets, and strategies
- Facilitating a refocusing on goals/objectives
- Providing the opportunity to build internal and external support
- Sharing of results/attainment and non-attainment of targets

### Reporting and Communication products should be:

- **Tailored to the audience:** To be effective, reporting products must be specifically designed for a particular audience.
- **Linked to funding:** In an era of budget constraints and significant need, agencies must use reports and communication strategies to convey how funding levels impact results.
- **Telling a story:** Simply reporting numbers and data is not effective; reporting should provide necessary context to ensure the agency controls the message and the user understands it.

## SUBCOMPONENTS AND IMPLEMENTATION STEPS

Well-crafted communications products, whether a website filled with data or a printed banner highlighting a recent performance success, are vital tools for informing and involving both internal and external audiences in TPM. Such products are also an opportunity to articulate the connection between agency strategies and outcomes achieved. Linking decisions to results builds support among internal staff and external partners, as well as demonstrates the impact of increased or decreased funding.<sup>1</sup>

“Measuring performance is of no value unless results are reported to the appropriate audiences in a way that makes the information readily understandable.”

Source: NCHRP Report 446: A Guidebook for Performance-Based Transportation Planning

Communications products should build context and continuity so that the audience easily understands key takeaways regardless of prior familiarity. To this end, it is helpful to repeat or review prior performance before reporting new information.<sup>2</sup> In addition, it is important to explain how reporting fits within the overall transportation performance management process.

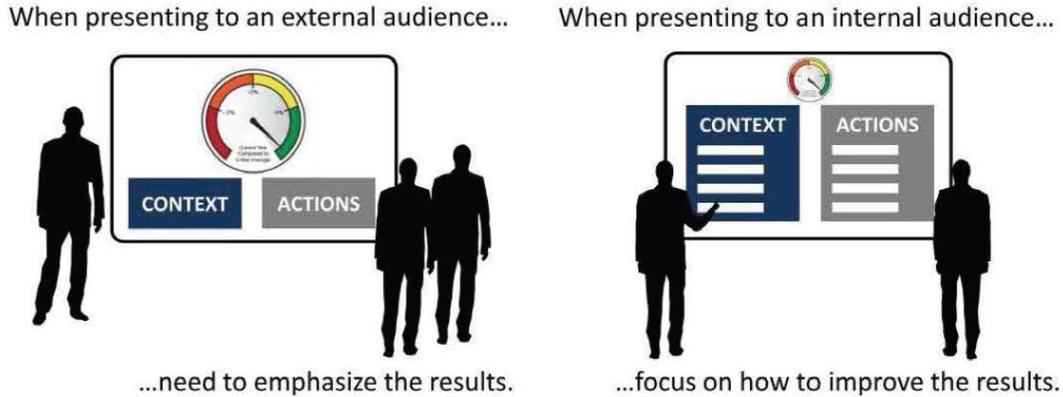
<sup>1</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>2</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

Information must be shared in ways that are appropriate to the intended audience, which means that internal and external reporting and communication practices will differ,<sup>3</sup> as demonstrated by Figure 6-1.

**Figure 6-1: Tailoring Reporting by Audience**

Source: US Department of Transportation<sup>4</sup>



AASHTO performed a research project focusing on strategies used to make a case for transportation projects, resulting in “The New Language of Mobility.”<sup>5</sup> This research found that the public reacts more favorably to transportation efforts requiring increased revenue when certain words are used (green light language) to illustrate benefit, while other words should be avoided (red light language). Figure 6-2 below highlights examples of such language:

**Figure 6-2: AASHTO Effective Communication Language**

Source: AASHTO<sup>6</sup>

Green Light Language	Red Light Language
Accountability, responsibility	Maintenance, fixing
Choice	Public spending, spending money
Comprehensive strategy	Washington
Economy	
Efficient traffic	
Long-term plan	
State and local controlled	
Sustainable mobility	

<sup>3</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press. FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>4</sup> US Department of Transportation, Federal Highway Administration, Office of Infrastructure. (2013). *FHWA Performance Reporting, Part Two of Two, Final Report* (Publication No. FHWA-HIF-13-044). Washington, DC.

<sup>5</sup> AASHTO. (2011). *The New Language of Mobility*. <http://downloads.transportation.org/ANewWayToTalkAboutTransportation/NewLanguageofMobility.pdf>

<sup>6</sup> American Association of State Highway and Transportation Officials. 2016. Washington, DC.

**Because of the dual nature of reporting and communicating, this chapter has two subcomponents:**

- **Internal Reporting and Communication:** products, techniques, and processes used to communicate performance information to internal audiences.
- **External Reporting and Communication:** products, techniques, and processes used to communicate performance information to customers, partner agencies, elected officials, and other stakeholders.

Internal communications target a wide variety of audiences, including the Board of Directors, department managers, and maintenance staff. While these reports will present information differently and with varying levels of detail, they will likely be used for at least some of the items in Table 6-1.<sup>7</sup>

**Table 6-1: Uses of Internal and External Reporting and Communication**

Source: Federal Highway Administration

Internal	External
Clarify how individual employees contribute to the performance results	Clarify outcomes achieved
Integrate TPM process into agency functions	Coordinate with the work of regional partners
Communicate the value of TPM to the agency and recognize achievements	Track attainment and non-attainment of goals
Connect current results to future actions	Communicate the interconnections between multiple goals
Track achievement of targets	Make the case for additional funding
Establish feedback loop to adjust performance measures, targets, and strategies	Build rapport with external groups, including receiving feedback on desired improvements

External communication is an opportunity to explain the TPM process to external stakeholders and how performance information is used in agency decision making. Reporting and communication embody the tenets of TPM: accountability and transparency. Goals, measures, and targets established in TPM Component 01 and 02 should be prominent in external reporting. Agencies should describe the performance-based decisions made and expected results in terms that external stakeholders will readily understand and avoid using jargon and technical language.<sup>8</sup> Based on audience and research feedback, FHWA’s Performance Reporting Final Report<sup>9</sup> identifies five of the most significant problems when communicating results, and aligns them with solutions, as depicted below.

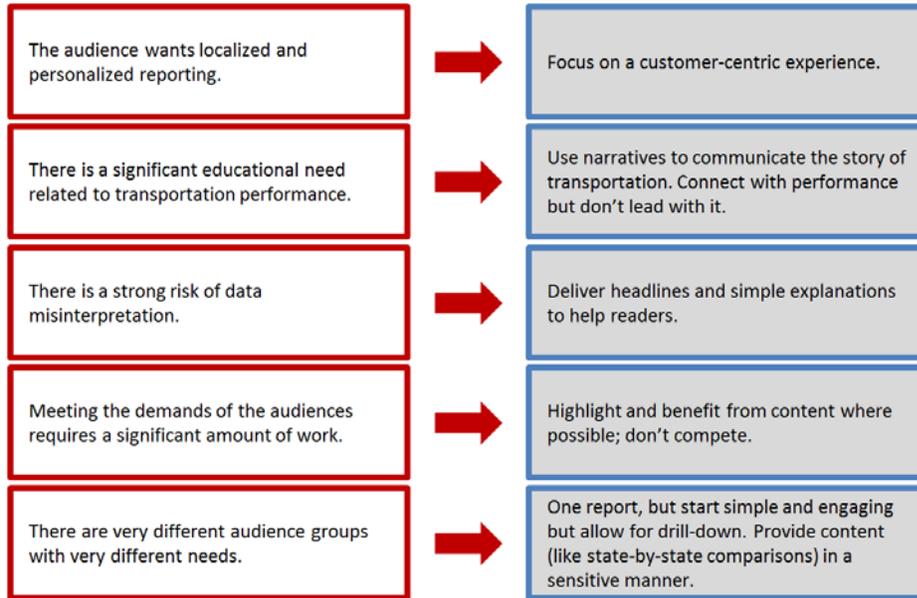
<sup>7</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press.

<sup>8</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press. FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>9</sup> US Department of Transportation, Federal Highway Administration, Office of Infrastructure. (2013). *FHWA Performance Reporting, Part One of Two, Final Report* (Publication No. FHWA-HIF-13-044). Washington, DC. <http://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf>

**Figure 6-3: Performance Reporting Framework**

Source: US Department of Transportation<sup>10</sup>



As stewards of the public’s investment in transportation, the agency is accountable for using funds prudently. As illustrated in Figure 6-3, effective reporting shows customers that the agency is meeting this expectation, but also presents an opportunity to manage expectations by explaining challenges, discussing targets and clarifying accomplishments. Context should be provided when targets are exceeded or missed and when results differ from peer agencies or national trends.<sup>11</sup>

Figure 6-4 highlights research that found “telling a story” is imperative when trying to persuade an audience. Developing a narrative not only educates, but can serve to engage an audience and illustrate how transportation impacts one’s life. FHWA’s Performance Reporting Final Report highlights three central narratives and how these might align to tell a story, as shown below.

**Figure 6-4: Developing Effective Narratives**

Source: US Department of Transportation<sup>12</sup>

Central Narratives	Stories to Support the Narratives
Our Economic Well-Being	<ul style="list-style-type: none"> <li>• The Cost of Congestion</li> <li>• Getting Your Stuff</li> <li>• Business Depends on it</li> </ul>
Our Transportation Investment	<ul style="list-style-type: none"> <li>• Keeping Us Moving</li> <li>• Taking Responsibility for Our Assets</li> <li>• Looking to Tomorrow</li> </ul>
Our Mobile Lifestyle	<ul style="list-style-type: none"> <li>• Expanding Your World</li> <li>• Keeping You Safe</li> <li>• Enhancing Community</li> </ul>

<sup>10</sup> US Department of Transportation, Federal Highway Administration, Office of Infrastructure. (2013). *FHWA Performance Reporting, Part One of Two, Final Report* (Publication No. FHWA-HIF-13-044). Washington, DC. <http://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf>

<sup>11</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>12</sup> US Department of Transportation, Federal Highway Administration, Office of Infrastructure. (2013). *FHWA Performance Reporting, Part One of Two, Final Report* (Publication No. FHWA-HIF-13-044). Washington, DC. <http://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf>

Table 6-2 provides examples of how communications to different audiences will have different purposes in addition to differing levels of detail and focus. As a result, even though the same basic material is used and in many cases the same staff develops both external and internal reporting, the types of products can differ in terms of their approach and content.<sup>13</sup>

**Table 6-2: Audience and Potential Purpose of Communication**

Source: Federal Highway Administration

Audience	Potential Purpose
Internal Staff	Motivate productivity and efficiency
External Partners	Leverage greater investment and collaboration
Leadership (i.e., Governor)	Drive policy relating to a given goal
Regulatory	Meet legislative requirements

Table 6-3 presents the implementation steps for Reporting and Communication that will be discussed in depth in this chapter.

**Table 6-3: Reporting and Communication Implementation Steps**

Source: Federal Highway Administration

Internal	External
1. Clarify purpose of the report	1. Clarify purpose of the report
2. Define roles and responsibilities	2. Define roles and responsibilities
3. Develop reporting parameters	3. Coordinate with external partners
4. Refine, automate, and document	4. Develop reporting parameters
	5. Refine, automate, and document

## CLARIFYING TERMINOLOGY

Table 6-4 presents definitions for reporting terms used in this guidebook. A full list of common TPM terminology and definitions is included in Appendix C: Glossary.

**Table 6-4: Reporting and Communication: Defining Common TPM Terminology**

Source: Federal Highway Administration<sup>14</sup>

Common Terms	Definition	Example
Goal	A broad statement of a desired end condition or outcome; a unique piece of the agency’s vision	A safe transportation system.

<sup>13</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press.

<sup>14</sup> Vision and mission examples from: Minnesota Department of Transportation. <http://www.dot.state.mn.us/vision/>

Common Terms	Definition	Example
Mission	Statement that reflects the core functional purpose of an agency.	Plan, build, operate and maintain a safe, accessible, efficient and reliable multimodal transportation system that connects people to destinations and markets throughout the state, regionally and around the world. <sup>15</sup>
Objective	A specific, measurable statement that supports achievement of a goal.	Reduce the number of motor vehicle fatalities.
Outcome	Results or impacts of a particular activity that are of most interest to system users. Focus of subcomponent 5.1 System Level Monitoring and Adjustment.	Transit travel time reliability, fatality rate, percent of assets within useful life.
Output	Quantity of activity delivered through a project or program. Focus of subcomponent 5.2 Program/Project Level Monitoring and Adjustment.	Miles of pavement repaved, miles of new guardrail put into place, the number of bridges rehabilitated, the number of new buses purchased.
Performance Measure	Performances measures are based on a metric that is used to track progress toward goals, objectives, and achievement of established targets. They should be manageable, sustainable, and based on collaboration with partners. Measures provide an effective basis for evaluating strategies for performance improvement.	Transit passenger trips per revenue hour.
Target	Level of performance that is desired to be achieved within a specific time frame	Two % reduction in fatality rate in the next calendar year.
Transportation Performance Management	A strategic approach that uses system information to make investment and policy decisions to achieve performance goals.	Determining what results are to be pursued and using information from past performance levels and forecasted conditions to guide investments.
Vision Statement	An overarching statement of desired outcomes that is concisely written, but broad in scope; a vision statement is intended to be compelling and inspiring.	Minnesota’s multimodal transportation system maximizes the health of people, the environment, and our economy.

<sup>15</sup> Vision and mission examples from: Minnesota Department of Transportation. <http://www.dot.state.mn.us/vision/>

## RELATIONSHIP TO TPM COMPONENTS

The ten TPM components are interconnected and often interdependent. Table 6-5 summarizes how each of the nine other components relate to the reporting and communication component.

**Table 6-5: Reporting and Communication Relationship to TPM Components**

Source: Federal Highway Administration

Component	Summary Definition	Relationship to Reporting and Communication
<b>01. Strategic Direction</b>	The establishment of an agency’s focus through well-defined goals/objectives and a set of aligned performance measures.	The Strategic Direction provides the context surrounding performance reporting.
<b>02. Target Setting</b>	The use of baseline data, information on possible strategies, resource constraints and forecasting tools to collaboratively establish targets.	Reports use targets as references; performance results inform the achievability of targets.
<b>03. Performance-Based Planning</b>	Use of a strategic direction to drive development and documentation of agency strategies and priorities in the long-range transportation plan and other plans.	Reporting of performance levels informs adjustment of agency strategies and the prioritization of strategies to drive target attainment.
<b>04. Performance-Based Programming</b>	Allocation of resources to projects to achieve strategic goals, objectives and performance targets. Clear linkages established between investments made and their expected performance outputs and outcomes.	Reporting compares expected to actual outputs and outcomes, enabling adjustment of programming to refocus on goals, objectives and performance targets.
<b>05. Monitoring and Adjustment</b>	Processes to monitor and assess actions taken and outcomes achieved. Establishes a feedback loop to adjust programming, planning, and benchmarking/target setting decisions. Provides key insight into the efficacy of investments.	Monitoring provides the information to be reported, and communication of monitoring results drives adjustment of agency processes.
<b>A. TPM Organization and Culture</b>	Institutionalization of a TPM culture within the organization, as evidenced by leadership support, employee buy-in, and embedded organizational structures and processes that support TPM.	Reporting addresses each group within the agency, building knowledge of and focus on transportation performance management by all staff while connecting multiple TPM processes.
<b>B. External Collaboration and Coordination</b>	Established processes to collaborate and coordinate with agency partners and stakeholders on planning/ visioning, target setting, programming, data sharing, and reporting.	External reporting establishes trust and encourages transparency and dialogue with external partners and other stakeholders.
<b>C. Data Management</b>	Established processes to ensure data quality and accessibility, and to maximize efficiency of data acquisition and integration for TPM.	Developed data management processes streamline the reporting process by making information readily accessible and useful.

Component	Summary Definition	Relationship to Reporting and Communication
<b>D. Data Usability and Analysis</b>	Existence of useful and valuable data sets and analysis capabilities, provided in usable, convenient forms to support TPM.	Mature data usability and analysis capabilities enable tracking of agency outputs and outcomes to be reported.

## REGULATORY RESOURCES

This Guidebook is intended to assist agencies with implementing transportation performance management in a general sense and not to provide guidance on compliance and fulfillment of Federal regulations. However, it is important to consider legislative requirements and regulations when using the Guidebook. In many cases, use of this Guidebook will bring an agency in alignment with Federal requirements; however, the following sources should be considered the authority on such requirements:

### Federal Highway Administration

- Transportation Performance Management: [http://www.fhwa.dot.gov/tpm/links\\_fhwa.cfm](http://www.fhwa.dot.gov/tpm/links_fhwa.cfm)
- Fact Sheets on Fixing America’s Surface Transportation (FAST) Act: <https://www.fhwa.dot.gov/fastact/factsheets/>
- Fact Sheets on Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21): <https://www.fhwa.dot.gov/map21/factsheets/>
- Resources on MAP-21 Rulemaking: <https://www.fhwa.dot.gov/tpm/rule.cfm>

### Federal Transit Administration

- Fact Sheets on FAST Act: <https://www.transit.dot.gov/funding/grants/fta-program-fact-sheets-under-fast-act>
- Resources on MAP-21: <https://www.transit.dot.gov/regulations-and-guidance/legislation/map-21/map-21-program-fact-sheets>

IMPLEMENTATION STEPS

6.1 INTERNAL REPORTING AND COMMUNICATION

The following steps will enable effective internal reporting of transportation performance management information:

1. Clarify purpose of the report
2. Define roles and responsibilities
3. Develop reporting parameters
4. Refine, automate, and document

“Reporting performance data [promotes an] understanding of the impacts of investment decisions...on the state of the transportation system, [providing] the key inputs that should be used to establish priorities during subsequent strategic planning phases and to measure progress on previous strategic goals.”

Source: NCHRP Report 660: Transportation Performance Management: Insight from Practitioners

**STEP 6.1.1** Clarify purpose of the report

**Description**

This step highlights the need for clarity in report intent. Before starting to create a report, it is important to initiate a discussion among a range of potential users of the report to determine how the report will be used internally. The report may be intended to influence change within the agency, or it may connect implemented changes to operational results. The group of users will determine its purpose, setting the stage for creating a valuable and useful report.

To target the appropriate level of staff, reports will be written with varying degrees of detail. For executives, data may be more high-level with the option to drill down; operational staff will be more interested in details, especially if the purpose of the report is to effect change in operational strategies. If performance has fallen short of targets, the report should demonstrate this in a sensitive way. This should be carefully considered to ensure a positive and proactive response from report users.

Different staff has varying levels of understanding as well; it will be important to provide context as necessary for full comprehension by the intended audience. Context can be established by recalling state or federal law or noting examples in other states where measures were used to achieve desired outcomes.

**Table 6-6: Identifying Stakeholders and Understanding Roles**

Source: Federal Highway Administration

Audience	Potential Purpose
Secretary/General Manager	Prepare for meetings with elected officials
Executive managers	Hold department heads accountable for performance results
Department heads	Identify areas in need of attention
Operational staff	Link daily work activities to performance results

The agency should determine whether the specified audience is high enough in the organization to influence change vs. operationally connected to implement those changes. Without custom tailoring for the audience, the report will contain excess measures and

<b>STEP 6.1.1</b>	<b>Clarify purpose of the report</b>
	<p>documentation which will distract from the main message. Users may tune out or become frustrated.</p> <p><b>Items to keep in mind:</b></p> <ul style="list-style-type: none"> <li>• Connect TPM to existing business processes</li> <li>• Define the TPM process and why it is beneficial</li> <li>• Specify how the report will be used</li> <li>• Tailor to the audience</li> <li>• Consider user reaction to falling short of targets</li> <li>• Report on most critical items for internal management needs</li> </ul>

<b>Examples</b>	<p><b>Targeted Performance Reporting<sup>16</sup></b></p> <p>The diagram below clearly shows how various reporting products can be used by which staff and how those reports vary in level of detail and focus. Dashboards can provide high-level information to the public and elected officials in an easy to understand format, while annual performance reports can include more detail while still maintaining an overall perspective. Reports to the Secretary or Director will often be to prepare that individual for meetings with department heads or elected officials and should be tailored to this purpose. Department business plans can be used to maintain focus on actions that will produce positive performance outcomes by guiding discussions during department or office meetings. Specific tracking of performance within particular areas is more relevant to frontline works and office heads and should be reflected in reports at this level.</p> <p><b>Figure 6-5: Hierarchy of Reporting Methods and Tools</b>          Source: Washington Metropolitan Area Transportation Authority<sup>17</sup></p>
-----------------	--

<b>Linkages to Other TPM Components</b>	<p>Component A: Organization and Culture <span style="float: right;">(See TPM Framework)</span></p>
---	---

<sup>16</sup> FHWA. (2012). Performance-Based Planning and Programming. (FHWA Publication FHWA-HEP-12-042). Washington, DC.

<sup>17</sup> Washington Metropolitan Area Transit Authority. (May 15, 2014). Moving Towards Performance-Based Management. Washington, DC.

<p><b>STEP 6.1.2</b></p>	<p><b>Define roles and responsibilities</b></p>
<p><b>Description</b></p>	<p>This step entails specifying staff to deliver the report. Once the purpose of a particular report is identified, staff within the agency must be assigned to gather information, write, and design the report. Because every part of the organization contributes to performance results, every part of the agency will also need to report either separately or contribute to an overall agency report.</p> <p>Ideally department staff will undertake this important aspect of transportation performance management, but some agencies engage a transportation performance management office to assist. When departments take responsibility for reporting their own results, staff has ownership over the process, which in turn encourages involvement throughout each of the components in the TPM framework.</p> <p>Staff responsibility for particular performance areas should be clear. Because TPM is a process with each component interrelated, reported information will eventually be used to adjust agency strategies, goals, and targets. Without clearly-defined staff member responsibilities, adjustment and improvement is less likely to occur.</p> <p><b>An agency should:</b></p> <ul style="list-style-type: none"> <li>• Ensure management and executive support and reinforcement</li> <li>• Assign staff to seek feedback on past reporting efforts, and to improve subsequent reports for use in decision-making</li> <li>• Identify who within the departments or performance office will actually do the writing, feedback solicitation, etc.</li> <li>• Link to existing processes that require reporting as much as possible to reduce duplicative work</li> </ul>
<p><b>Examples</b></p>	<p><b>The Gray Notebook Award: Rewarding Employees</b></p> <p>The Washington State DOT has a performance trophy called the Gray Notebook Award, which is given out to an employee who goes above and beyond in contributing to reporting efforts. The award is given out quarterly, coinciding with the agency’s release of its quarterly performance report, The Gray Notebook. Award winner keeps the trophy for the quarter and their name is engraved on the plaque. The award is one way WSDOT is able to continually produce such an impressive reporting piece.</p> <div data-bbox="1003 1266 1438 1577" data-label="Image"> </div> <div data-bbox="1003 1581 1438 1675" data-label="Image"> </div> <p><b>Figure 6-6: Staff Award at WSDOT</b>  Source: WSDOT<sup>18</sup></p>

<sup>18</sup> Washington State Department of Transportation. (2015). Olympia, WA.

STEP 6.1.2	Define roles and responsibilities
	<p><b>TriMet: Portland, OR</b></p> <p>The agency posted a map at garages showing the location of bus collisions along routes in an attempt to highlight areas of low performance to bus operators. Unfortunately, because of limited staff time and resources, the map data was not updated regularly enough to be useful to operators. TriMet had a great idea for reporting performance internally, but the challenges faced in maintaining this internal reporting demonstrates how important it is to have staff capacity for reporting roles, and to clearly define responsibilities for staff to complete reporting tasks on an ongoing basis.</p>
Linkages to Other TPM Components	<p>Component A: Organization and Culture <span style="float: right;">(See TPM Framework)</span></p>

STEP 6.1.3	Develop reporting parameters
Description	<p>This step addresses the need to define how the report will look visually, and what data is included. The <b>reporting format</b> chosen will be impacted by the purpose of the report determined in step 6.1.1. To produce a useful report, the reporting parameters should reflect the needs of the intended audience and enable the reported information to be easily digestible. Decisions can range from simple (web v. hard copy) to more difficult (infographic v. graph v. interactive data display). Take into account how much detail and added context is necessary in the report and how this may impact the format. Above all, the most important information should be presented prominently and in a comprehensible manner.</p> <p><b>Other items to consider when developing reporting parameters include:</b></p> <ul style="list-style-type: none"> <li>• <b>Frequency:</b> If a report will be produced frequently, the format should be simple to reduce effort required. It is also important to consider whether agency investments might produce results in the short or long term. By reporting quarterly results for a measure that will not be affected by investments for a number of years, it will appear that agency strategies are not effective. Because reporting will affect these strategies, reporting must be done thoughtfully to avoid unnecessary or potentially counterproductive adjustments. In addition, high-level reporting should coincide with decision cycles and be infrequent.<sup>19</sup></li> <li>• <b>Data sources:</b> Determine where performance data will be derived from and when they will be available for use. Avoid committing to monthly reports if data will only be available quarterly. Data must also be accurate.</li> <li>• <b>Alignment to TPM framework:</b> Reporting should be undertaken with the knowledge that it will influence other TPM components (e.g., goals, measures, targets, plans).</li> <li>• <b>Inclusion of actionable information:</b> Without this, reporting serves little purpose</li> </ul> <div style="border: 1px solid #add8e6; padding: 10px; margin-top: 20px;"> <p>“Too much data becomes not enough information – focus on the most important data and present it in a way that can be understood.”</p> <p>- Eric Hesse, TriMet</p> </div>

<sup>19</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press.

**STEP 6.1.3**      **Develop reporting parameters**

within the transportation performance management framework; agency approaches must be adjusted based on reported information to ensure that desired outcomes (goals) are being achieved. Often, internal reporting focuses on output measures because they more directly relate to agency activities.<sup>20</sup>

- **Mandates:** Does reporting meet federal or state legislative or regulatory requirements? Does it help explain the impact of current and future investment levels?
- **Internal evaluations:** Will information be used for individual or department evaluations? Is there a reward or recognition structure associated with any measures? Should an employee be able to link their job to these measures?

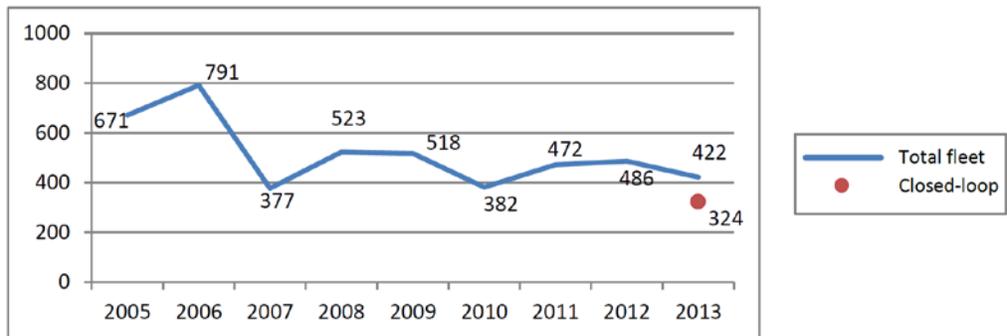
**Examples**

**Reporting to Adjust**

The Rhode Island DOT Maintenance Division, responsible for winter roadway maintenance, adopted performance measures to assess salt, brine, and sand usage. To reduce winter maintenance costs, the DOT installed closed-loop controllers on a portion of the maintenance vehicle fleet. These controllers provide more uniform salt and sand application compared to standard systems, and also allow computerized data tracking of application. By installing these devices on only a portion of the fleet, the DOT could compare usage and costs between standard and closed-loop vehicles. The new technology achieved a 20-30 reduction in material usage, as shown in the graph below. Reporting using easy to read graphs enables staff to quickly understand important information that will allow the DOT to more efficiently use resources.

**Figure 6-7: Average Pounds of Salt Per Lane Mile**

Source: Moving a DOT to Excellence with Performance Measures<sup>21</sup>



**Linkages to Other TPM Components**

- Component 01: Strategic Direction
  - Component 02: Target Setting
  - Component 03: Performance-Based Planning
  - Component C: Data Management
  - Component D: Data Usability and Analysis
- (See TPM Framework)

<sup>20</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press.

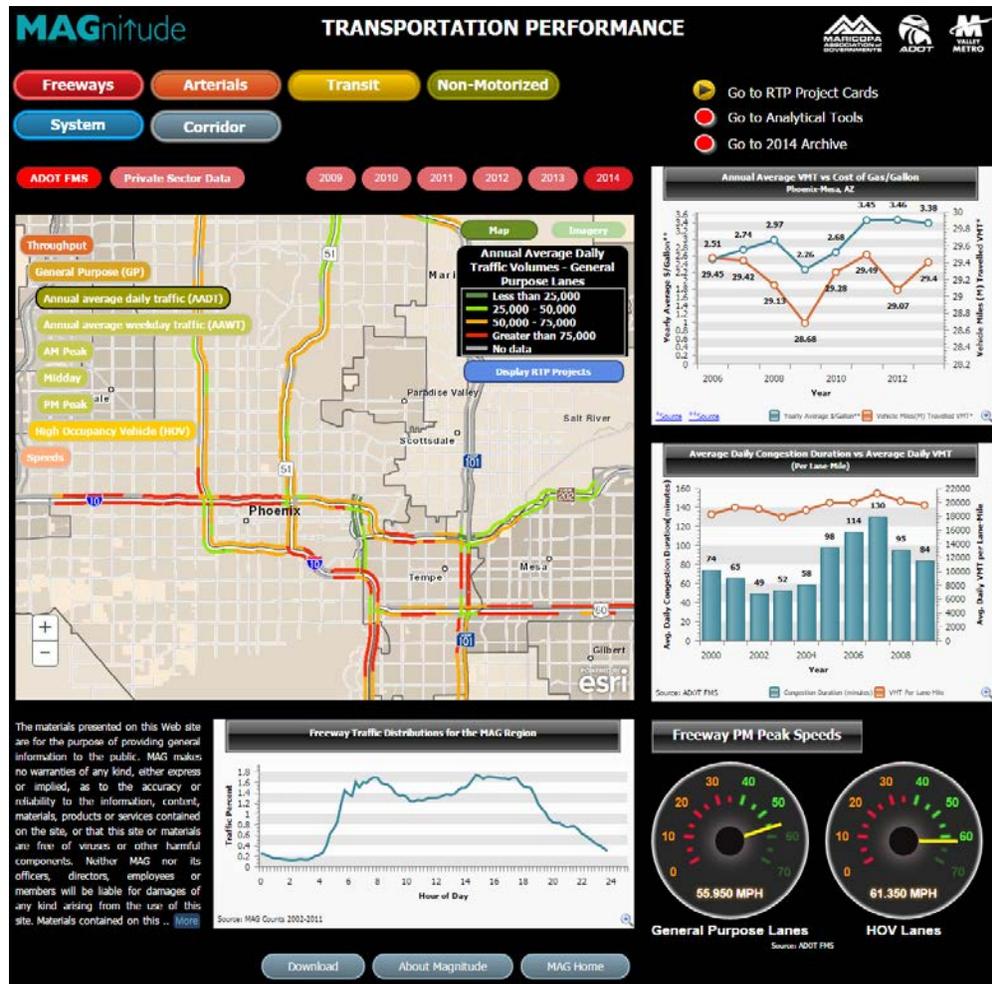
<sup>21</sup> Moving a DOT to Excellence with Performance Measures. Presentation by Christos Xenophontos, June 2, 2015. <http://onlinepubs.trb.org/onlinepubs/conferences/2015/performance/measurements/Xenophontos-4PS.pdf>

STEP 6.1.4	Refine, automate, and document	
<p><b>Description</b></p>	<p>Reports should be continuously refined based on user feedback. Each subsequent report should be improved to ensure the agency is telling its story in the most effective manner. Encourage report users to identify where improvements can be made, and ensure that a range of users are solicited for their feedback to avoid tailoring too finely for only a small subset of the intended audience. A staff member assigned to obtain feedback under step 6.1.2 should fulfill this responsibility for both internal and external reports. With feedback in hand, staff should return to step 6.1.3 to refine things such as frequency and format. Each round of reporting should build on the previous one to improve usability and value for addressing performance challenges. Reporting is not a rote exercise; the feedback and refinement process is a critical one because of the impact reporting will have on agency strategies and subsequent results.</p> <p>As much as possible, gather data automatically. This will reduce time required for staff to assemble and produce the report. For example, existing communication templates can be auto-populated with new data for the quarter, year, or other performance period being used. However, be cautious with automation. If data quality issues exist, even partially automated reports are likely to communicate inaccurate information.</p> <p>Ensure the process of data gathering, calculation, writing, publication and solicitation of feedback is documented. Include data sources, individuals who fulfilled particular roles, intended audience, user feedback, etc. Most reports will be produced on a regular basis and documentation will streamline the process in the future and protect against loss of institutional knowledge if a key member of the team changes positions.</p>	<p>“We’re constantly reevaluating our reports, thinking tactically, strategically, about relevance.”</p> <p>- Daniela Bremmer, WSDOT</p>
<p><b>Examples</b></p>	<p><b>Maricopa Association of Governments (MAG)</b></p> <p>The Performance Management Program at MAG was initiated as a result of 2004 state legislation that mandated a performance-based Regional Transportation Plan (RTP) subject to a performance audit starting in 2010 and every five years thereafter. Passage of Proposition 400 in Maricopa County authorized a half-cent sales tax for 20 years to fund transportation projects. As part of the shift towards transportation performance management and to report on the projects funded by the sales tax, MAG created two robust reporting tools: MAGnitude—a web-based transportation performance dashboard, and a web based RTP Project Card portal.</p>	

STEP 6.1.4 Refine, automate, and document

Figure 6-8: MAG Web-Based Transportation Performance User Interface

Source: MAGnitude Transportation Performance<sup>22</sup>



**Refining:** Since launching the interactive website, MAGnitude has reached many audiences and received constructive feedback from users; as a result of many requests for data from past years, the site now includes archived data from 2009 through 2014. While the process for obtaining feedback is not formalized, such feedback information is still being used to refine reporting and communication tools for future use.

**Automating:** Staff understand the limits of automation in reporting; it is cost prohibitive to automate data processing to the point where it is accurate enough for simultaneous use by internal technical staff, member agency staff and the consulting community. MAG has developed automated data analytics, processing and quality control steps and routines with a built-in final visual check before publication on MAGnitude.

**Documenting:** MAG has created a technical manual that describes processing steps to make raw data usable for incorporation into the MAGnitude reporting site. This is a great example of

<sup>22</sup> Maricopa Association of Governments. MAGnitude - Transportation Performance. June 2, 2016. <http://performance.azmag.gov/About.aspx>

STEP 6.1.4	<p><b>Refine, automate, and document</b></p> <p>documentation ensuring that institutional memory and noteworthy practices are not lost as a result of staff turnover.</p>
<p><b>Linkages to Other TPM Components</b></p>	<p>Component A: Organization and Culture (See TPM Framework)</p> <p>Component C: Data Management</p>

## 6.2 EXTERNAL REPORTING AND COMMUNICATION

The following steps will assist an agency in implementing an effective external reporting process to communicate transportation performance management information:

1. Clarify purpose of the report
2. Define roles and responsibilities
3. Coordinate with external partners
4. Develop reporting parameters
5. Refine, automate, and document

“An overarching goal of performance management is to increase transparency and accountability of decision-making. Translating the analysis conducted as part of performance management into usable reports for legislators, stakeholders, and the public is an important component to overall success.”

Source: NCHRP Report 660: Transportation Performance Management: Insight from Practitioners

STEP 6.2.1	Clarify purpose of the report
<p><b>Description</b></p>	<p>This step highlights the importance of clarity of report intent. Because external audiences will be less familiar with transportation performance management terminology and processes, it is important to clearly explain this information and why it is beneficial. To resonate with external audiences, the agency should connect activities to outcomes that are visible and relatable. Reporting to the public should focus mainly on outcome measures that resonate with the public.<sup>23</sup></p> <p>Providing context concerning legislative and regulatory requirements can be useful, but only if written in a way that focuses on aspects that the audience cares about. External audiences will not be concerned with minutiae of laws or internal agency prioritization processes, but do expect that agency resources were used effectively to address problems like congestion that are experienced by external individuals on a regular basis.</p> <p>Most importantly, external reporting should effectively communicate agency goals, how and why resources were allocated in a particular way, and what results were achieved from those allocation decisions. This is critical; the public expects the agency to be an effective steward of the public money entrusted to it. The public also may not understand tradeoffs across performance areas. Agency staff should clearly communicate the budget constraints that exist and how focusing on particular areas of performance necessitates a reduced focus in other areas. This will help build support among the public for other processes, including performance-based planning (Component 03) and performance-based programming (Component 04).</p> <p>Communicating to elected officials can be the most critical task for an agency, especially when making the case for additional funding.</p> <p><b>Some approaches that may be effective include:</b></p> <ul style="list-style-type: none"> <li>• Demonstrate what the agency gets in terms of performance results with different levels of funding<sup>24</sup></li> </ul>

<sup>23</sup> National Cooperative Highway Research Program. (2000). *A Guidebook for Performance-Based Transportation Planning* (NCHRP Report 446). Washington, DC: National Academy Press.

<sup>24</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

STEP 6.2.1	Clarify purpose of the report
	<ul style="list-style-type: none"> <li>• Give historical information like the effect of inflation on a fixed amount of funding<sup>25</sup></li> <li>• Show savings by completing maintenance now instead of putting it off until a major expensive repair or replacement is necessary<sup>26</sup></li> <li>• Provide counterfactual info to demonstrate agency impact despite worsening conditions – congestion is increasing, but investments slowed the increase<sup>27</sup></li> </ul>

Examples	<p><b>Oregon DOT: Communicating to a Lay Audience<sup>28</sup></b></p> <p>The overview page below demonstrates how the Oregon Department of Transportation seeks to communicate important information in a way that a general audience can understand. A graph shows the data so the user can get a quick sense of the trend, while the surrounding text explains agency strategy, how the target has changed over time, and benchmarks performance with peer agencies. It also includes information about what other factors might influence results to provide greater context to the agency’s activities to reduce derailment incidents. Not shown are data source, reporting frequency, and a contact person for further information. All of this information will be important to document in step 6.2.5.</p> <p><b>Figure 6-9: Oregon DOT Derailment Reporting</b> Source: Oregon Department of Transportation<sup>29</sup></p> <div style="text-align: right; margin-bottom: 10px;"> <p><b>Derailment incidents: Number of train derailments caused by human error, track, or equipment</b></p> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>Our strategy</b> We want to have the safest infrastructure possible. <b>Safe infrastructure</b> mitigates structural safety risks on Oregon’s transportation system. Working with the Federal Railroad Administration, we use a combination of inspections, enforcement actions and industry education to improve railroad safety and reduce the incidence of derailments and the potential for release of hazardous materials.</p> <p><b>About the target</b> The number of derailments has steadily decreased to a level below the target. For 2014 and 2015 we’ve lowered the target to 25. Even as rail traffic increases, this trend</p> </div> <div style="width: 30%;"> <p>indicates significant improvement.</p> <p><b>How we are doing and how we compare</b> In 2014, there were 23 derailment incidents, an increase from the 20 derailments in 2013. From 2006 to 2014, derailments have decreased 53 percent from 49 to 23. According to FRA’s 2013 – 2014 data for Oregon and its neighboring states, derailments increased in Oregon, decreased in Idaho and California and remained the same Washington and Nevada. The rail systems differ among the states in terms of track miles and the number of carloads, e.g.... California and Washington have much larger systems than Oregon while Idaho and</p> </div> <div style="width: 30%;"> <p>Nevada have much smaller systems. A comparison of derailments per track mile (miles of track in each state) for 12 months ending December 31, 2014, shows Oregon with .0096 incidents per track mile, Washington with .0063, Nevada with .0059, Idaho with .0056 and California with .0096.</p> <p><b>Factors affecting results and what needs to be done</b> From 2013 to 2014, Oregon showed a 15 percent increase in derailments. This can be attributed to an increase in rail traffic, an increase in derailments caused by human error and an increase in track caused yard derailments. During the same time,</p> </div> </div> <div style="text-align: center; margin: 10px 0;"> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th></th> <th>2006</th> <th>2007</th> <th>2008</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Actual</td> <td>49</td> <td>36</td> <td>23</td> <td>16</td> <td>23</td> <td>16</td> <td>10</td> <td>20</td> <td>23</td> <td></td> </tr> <tr> <td>Goal</td> <td>42</td> <td>42</td> <td>42</td> <td>42</td> <td>42</td> <td>42</td> <td>42</td> <td>42</td> <td>25</td> <td>25</td> </tr> </tbody> </table> </div> <div style="text-align: right; margin-top: 10px;"> <div style="border: 1px solid #ccc; border-radius: 15px; padding: 10px; background-color: #f0f0f0;"> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">Fact</p> <p>From 2006 to 2014, derailments have decreased 53 percent from 49 to 23.</p> </div> </div>		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Actual	49	36	23	16	23	16	10	20	23		Goal	42	42	42	42	42	42	42	42	25	25
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015																								
Actual	49	36	23	16	23	16	10	20	23																									
Goal	42	42	42	42	42	42	42	42	25	25																								

<sup>25</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>26</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>27</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>28</sup> <http://www.oregon.gov/ODOT/CS/PERFORMANCE/OnePagers/Derailment%20Incidents%20One%20pager.pdf>

<sup>29</sup> Oregon Department of Transportation. (2016). Derailment Incidents. Salem, OR.

<http://www.oregon.gov/ODOT/CS/PERFORMANCE/OnePagers/Derailment%20Incidents%20One%20pager.pdf>

STEP 6.2.1

Clarify purpose of the report

**weMove Massachusetts: Communicating the Impact of Funding on Performance<sup>30</sup>**

As part of the first multimodal LRTP, MassDOT used an analytical tool to understand asset level performance over time. The document compared projected performance results under two funding scenarios—historical, and current funding levels that reflected an increase in state funding. This tool helped to justify funding decisions by allowing decision makers and the public to understand that, in a constrained funding environment, tradeoffs exist when funding certain areas over others. By funding certain projects, impacts on asset performance can be improved. For many of the assets, the tool demonstrated that performance would deteriorate from current conditions even with funding higher than historical levels due to the nature of asset age and deterioration curves. With further refinement and a potential web interface, this tool is intended to be effective both internally—in making funding decisions—and externally in communicating such decisions to officials and the public at large.

**Figure 6-10: MassDOT Funding Scenarios and Performance Outcomes through 2023**

Source: *weMove Massachusetts: Planning for Performance*<sup>31</sup>

	2012		Historical Funding		Current Funding	
	Division Funding (Annual \$ in Millions)	Today's Performance	Scenario Funding (Annual \$ in Millions)	2023 Performance	Scenario Funding Annual \$ (millions)	2023 Performance
<b>Highway Division</b>						
Pavement (% state of good repair) <sup>a</sup>	\$137	88%	\$267	71%	\$544	79%
Bridges (average health index) <sup>b</sup>	\$620	89%	\$353	72%	\$447	76%
Mobility (delay hours/1000 VMT) <sup>c</sup>	\$147	4.8	\$65	6.3	\$386	5.4
Safety (intersections or segments improved)	\$49	TBD <sup>d</sup>	\$26	528	\$65	1,304
Bicycle Facilities (% of Bay State Greenway completed)	\$25	31%	\$26	87%	\$26	86%
<b>Highway Subtotal</b>	<b>\$977</b>		<b>\$738</b>		<b>\$1,468</b>	
<b>Rail and Transit Division</b>						
MBTA Bridges (% state of good repair)	\$41	65%	\$34	47%	\$34	47%
MBTA Subway Elevators/Escalators (% state of good repair)	\$13	60%	\$11	56%	\$11	56%
MBTA Accessibility	\$22	72%	\$18	79%	\$18	79%
MBTA Rolling Stock (% state of good repair)	\$209	58%	\$173	46%	\$341	61%
MBTA Track (daily hours of delay)	\$18	16.0	\$15	23.7	\$40	21.0
MBTA Signal (signal failures)	\$22	1,900	\$18	2,485	\$43	2,025
MBTA Add Rapid Transit/Rail Access (households walking distance to station) <sup>f</sup>	\$0	0	\$0	0	\$319	88,867

**Figure 6-11: MassDOT Funding Scenarios and Performance Outcomes through 2040**

Source: *weMove Massachusetts: Planning for Performance*<sup>32</sup>

	2012		Historical Funding		Current Funding	
	Division Funding (Annual \$ in Millions)	Today's Performance	Scenario Funding (Annual \$ in Millions)	2040 Performance	Scenario Funding Annual \$ (millions)	2040 Performance
<b>Highway Division</b>						
Pavement (% state of good repair) <sup>a</sup>	\$137	88%	\$267	30%	\$544	60%
Bridges (average health index) <sup>b</sup>	\$620	89%	\$353	61%	\$447	69%
Mobility (delay hours/1000 VMT) <sup>c</sup>	\$147	4.8	\$65	8.9	\$386	6.9
Safety (intersections or segments improved)	\$49	TBD <sup>d</sup>	\$26	1,426	\$65	3,524
Bicycle Facilities (% of Bay State Greenway completed)	\$25	31%	\$26	100%	\$26	100%
<b>Highway Subtotal</b>	<b>\$977</b>		<b>\$738</b>		<b>\$1,468</b>	
<b>Rail and Transit Division</b>						
MBTA Bridges (% state of good repair)	\$41	65%	\$34	19%	\$34	19%
MBTA Subway Elevators/Escalators (% state of good repair)	\$13	60%	\$11	49%	\$11	49%
MBTA Accessibility	\$22	72%	\$18	89%	\$18	89%
MBTA Rolling Stock (% state of good repair)	\$209	58%	\$173	42%	\$341	70%
MBTA Track (daily hours of delay)	\$18	16.0	\$15	57.7	\$40	35.2
MBTA Signal (signal failures)	\$22	1,900	\$18	3,880	\$43	2,207
MBTA Add Rapid Transit/Rail Access (households walking distance to station) <sup>f</sup>	\$0	0	\$0	0	\$319	88,867

A detailed section provides information about the measures used, customer impacts, and the performance value for the years 2023 and 2040, which correspond to separate investment

<sup>30</sup> Massachusetts Department of Transportation. (2014). *weMove Massachusetts: Planning for Performance*. Boston, MA.

[http://www.massdot.state.ma.us/Portals/22/Docs/WMM\\_Planning\\_for\\_Performance.pdf](http://www.massdot.state.ma.us/Portals/22/Docs/WMM_Planning_for_Performance.pdf)

<sup>31</sup> Massachusetts Department of Transportation. (2014). *weMove Massachusetts: Planning for Performance*. Boston, MA.

[http://www.massdot.state.ma.us/Portals/22/Docs/WMM\\_Planning\\_for\\_Performance.pdf](http://www.massdot.state.ma.us/Portals/22/Docs/WMM_Planning_for_Performance.pdf)

<sup>32</sup> Massachusetts Department of Transportation. (2014). *weMove Massachusetts: Planning for Performance*. Boston, MA.

[http://www.massdot.state.ma.us/Portals/22/Docs/WMM\\_Planning\\_for\\_Performance.pdf](http://www.massdot.state.ma.us/Portals/22/Docs/WMM_Planning_for_Performance.pdf)

STEP 6.2.1 Clarify purpose of the report

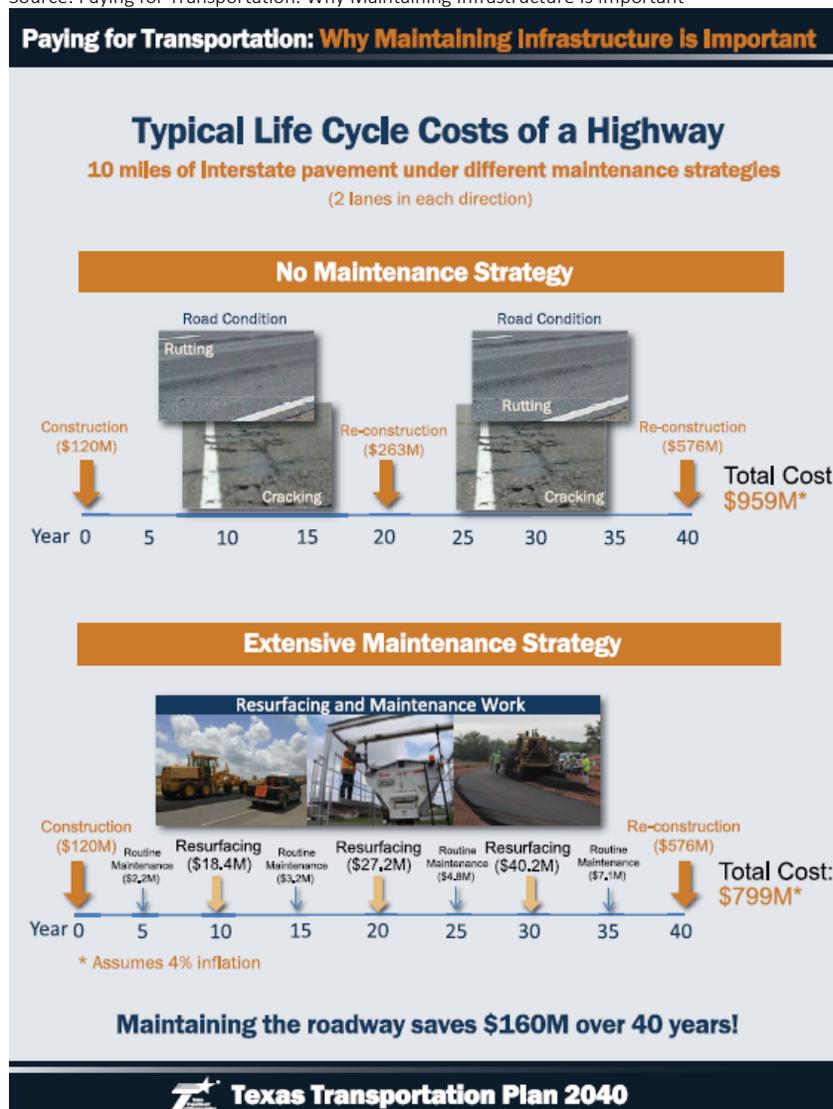
plan target data and the weMove planning horizon, respectively. Following this are tables (shown) summarizing and comparing performance levels currently and in the future under varying funding scenarios.

**TxDOT: Communicating Maintenance Cost Savings<sup>33</sup>**

The Texas Department of Transportation’s LRTP, Texas Transportation Plan 2040, includes a one-page graphical representation of the life-cycle cost savings stemming from a regular maintenance program for Interstate pavement. The comparison clearly demonstrates the importance of proactive maintenance to those not closely involved in such activities.

**Figure 6-12: TxDOT LRTP Comparative Maintenance Cost Analysis**

Source: Paying for Transportation: Why Maintaining Infrastructure Is Important<sup>34</sup>



<sup>33</sup> <http://ftp.dot.state.tx.us/pub/txdot-info/tpp/2040/life-cycle-costs-of-a-highway.pdf>

<sup>34</sup> Texas Department of Transportation. (2015). Paying for Transportation: Why Maintaining Infrastructure Is Important. Austin, TX. [ftp://ftp.dot.state.tx.us/pub/txdot-info/tpp/2040/life-cycle-costs-of-a-highway.pdf](http://ftp.dot.state.tx.us/pub/txdot-info/tpp/2040/life-cycle-costs-of-a-highway.pdf)

STEP 6.2.1	Clarify purpose of the report
<b>Linkages to Other TPM Components</b>	Component A: Organization and Culture (See TPM Framework)
STEP 6.2.2	Define roles and responsibilities
<b>Description</b>	<p>Internal staff will need to be assigned to complete external reporting work. In many cases, the same staff will do both internal and external reporting because of the significant overlap. However, it is important to pay attention to the variations.</p> <p>One important variation in this step pertains to use of reporting in stakeholder groups. Management and executive staff should be consistent in how they are speaking about performance among external groups, using the same data and context (or performance story). Some agencies establish a communications plan that lays out presentation methods, formats, and approaches to ensure messaging is consistent, unified, and cohesive across communications products. This is particularly important when reporting to decision makers, the public and other stakeholders. Internally, managers should discuss this to reduce confusion over inconsistent communication to external audiences.</p> <p><b>Internal discussions should address:</b></p> <ul style="list-style-type: none"> <li>• The effect of missing or exceeding targets and how this will be received by stakeholders, especially by those in control of funds</li> <li>• How to build trust, including by reporting both good and bad performance results</li> <li>• Ways to make reporting interactive</li> <li>• Which staff member will track feedback over time</li> </ul>
<b>Examples</b>	<p><b>MnDOT: Reporting the Bad, Too<sup>35</sup></b></p> <p>The Annual Performance Report tracks achievement relative to six objectives laid out in the Minnesota GO Statewide Multimodal Transportation Plan 2013-2032. It includes a scorecard with 17 measures the agency uses to track performance, calculate investment levels, and guide decision making. In the introduction of the report, “Highlights,” also mentions an increase in traffic fatalities and serious injuries, as well as little progress towards reducing historically high congestion in the Twin Cities area. Additionally, the list of 2012 “Challenges” is almost twice as long as the list of “Performance Gains.” MnDOT staff has chosen to be open and forthcoming with agency results, both positive and negative.</p> <p>This type of report illustrates the breadth of roles required to compile the data. In the scorecard below, it is clear that distinct areas across the organization contribute to the report, including asset management, operations, and safety.</p>

<sup>35</sup> Minnesota Department of Transportation. (2012). *Annual Transportation Performance Report*. St. Paul, MN. <http://www.dot.state.mn.us/measures/pdf/2012ReportBooklowrez4-15.pdf>

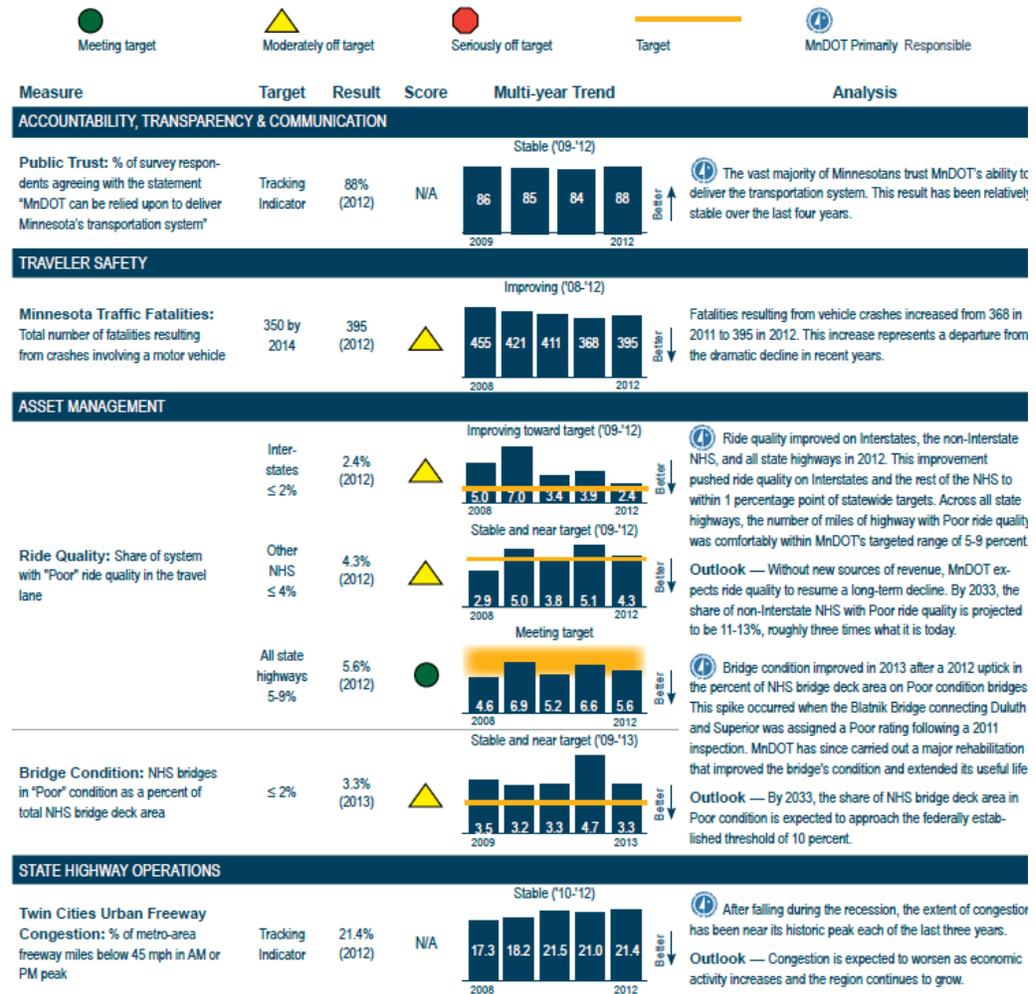
STEP 6.2.2

Define roles and responsibilities

Figure 6-13: Maintaining Accountability through Transparent Reporting at MnDOT

Source: Annual Transportation Performance Report<sup>36</sup>

### Minnesota 2012 Transportation Results Scorecard



**WisDOT: Interactive Reporting<sup>37</sup>**

The Wisconsin Department of Transportation reports performance information quarterly using an interactive web tool coupled with a static Performance Scorecard. Users can quickly see information displayed graphically for different measures and by clicking About Measure, can link to the particular Scorecard section that provides details including target, importance, data frequency, agency Division, how the measure is calculated, influencing factors, and progress made towards attainment.

<sup>36</sup> Minnesota Department of Transportation. (2012). Annual Transportation Performance Report. St. Paul, MN. <http://www.dot.state.mn.us/measures/pdf/2012ReportBookLowrez4-15.pdf>

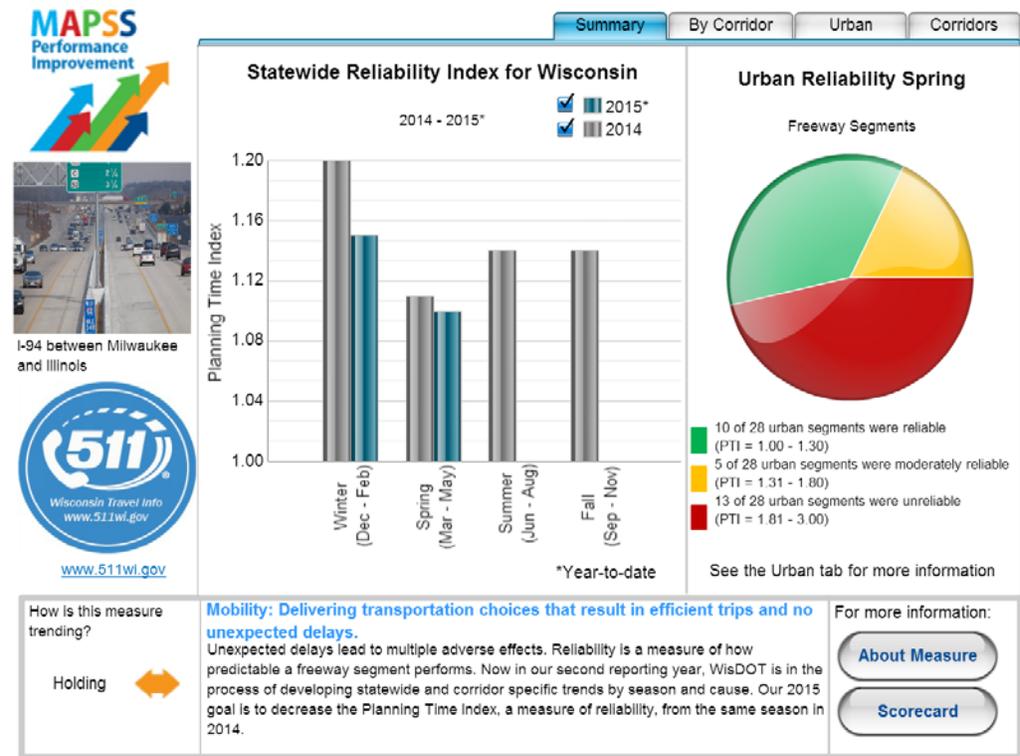
<sup>37</sup> Wisconsin Department of Transportation. (2015). *MAPSS Performance Improvement: Reliability (planning time index)*. Madison, WI. <http://wisconsin-dot.gov/Pages/about-wisdot/performance/mapss/measures/mobility/reliability.aspx>

STEP 6.2.2

Define roles and responsibilities

**Figure 6-14: WisDOT Interactive Reporting for Public Use**

Source: *MAPSS Performance Improvement: Reliability (planning time index)*<sup>38</sup>



**Linkages to Other TPM Components**

Component A: Organization and Culture

(See TPM Framework)

STEP 6.2.3

Coordinate with external partners

**Description**

This step refers to the need for coordination with external stakeholders. Coordination speaks to the need to organize various elements within a complex environment. To appropriately tailor reporting to an external audience, the agency should coordinate with such partners. MPOs, rural transportation planning organizations, and others closely related to agency activities and outcomes will be impacted by the agency’s performance. Exceeding, attaining, or missing a target will have an effect on these groups, and this should be discussed in formation of the report. The agency should also consider how external organizations impact agency performance—do these groups help or hinder target attainment?

Alignment across stakeholders can assist agencies in target attainment, and the following general steps can promote effective coordination:

<sup>38</sup> Wisconsin Department of Transportation. (2015). *MAPSS Performance Improvement: Reliability (planning time index)*. Madison, WI. <http://wisconsindot.gov/Pages/about-wisdot/performance/mapss/measures/mobility/reliability.aspx>

<p>STEP 6.2.3</p>	<p><b>Coordinate with external partners</b></p>
	<ul style="list-style-type: none"> <li>• Embrace a vision</li> <li>• Set common goals</li> <li>• Know the team</li> <li>• Define roles and responsibilities</li> <li>• Plan</li> <li>• Communicate</li> </ul> <p>Advocacy groups may react negatively if not consulted before final release of a report, especially if performance has not been trending in the expected or desired direction. Consultation benefits the agency by potentially reducing negative attention stemming from poor performance. However, negative attention should not be avoided by providing incomplete information, or by hiding negative results; doing so will only damage the agency’s relationship with external groups.</p> <p>Because external audiences are less likely to understand intricate performance information (as discussed in step 6.2.1), it is particularly important to tell an effective performance story. Presenting data to support claims is important, but should be supplemented by narrative information that will resonate with external partners. Engagement, discussion, and communication with external stakeholders provide insight and knowledge that will position staff to best provide reporting that will be useful and actionable.</p> <p>Another consideration is reporting schedule. While this will be addressed mainly in the next step 6.2.4, it is important to coordinate with reporting by partners. It might make sense to report together by bundling publications, or at least release reports at similar times.</p>
<p><b>Examples</b></p>	<p><b>Engage with the Media</b></p> <p>The Washington State Department of Transportation (WSDOT) tried a new approach to engaging with media when releasing its 2015 Corridor Capacity Report. This report is the agency’s congestion report and includes statewide analysis of multimodal capacity and system performance. Instead of releasing the report to the media and the public at large, the agency decided to provide an embargoed copy to selected media in advance. This approach was well received, and enabled WSDOT to better control the story to ensure the public got the right information in an effective way. It also provided an opportunity to identify which questions the agency couldn’t currently answer, and should consider finding answers for in the next reporting round. Such a relationship with the media brings significant benefits to an agency, both in public relations and in refining future reporting.</p> <p>A resulting Seattle Times article provides context surrounding the additional congestion seen since the recession, including information about lower gas prices, a recovering economy, and how the results may have influenced state legislators to support a 12-cent gas tax increase.<sup>39</sup></p>

<sup>39</sup> Lindblom, M. October 26, 2015. State: More drivers, more gridlock, more delays. *The Seattle Times*. <http://www.seattletimes.com/seattle-news/transportation/state-report-more-drivers-more-gridlock-more-delays/>

**STEP 6.2.3** Coordinate with external partners

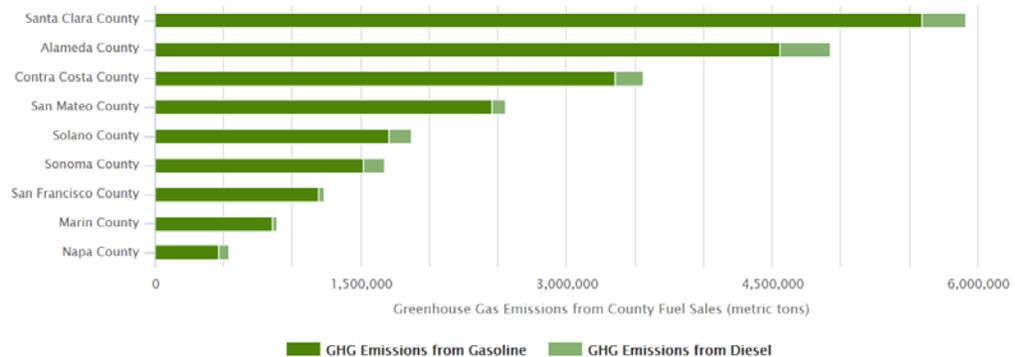
**Vital Signs Report: Coordinated Reporting Across Partners<sup>40</sup>**

The Metropolitan Transportation Commission, the MPO for the San Francisco Bay Area, collaborated with the Association of Bay Area Governments to write PlanBayArea, a comprehensive housing, transportation, and land use strategy document that includes the 2040 RTP. Beyond being a logical combination of integrated issues, the work was prompted by SB 375, the California Sustainable Communities and Climate Protection Act of 2008. This required that every metropolitan area draft a Sustainable Communities Strategy to reduce greenhouse gas emissions from vehicles in part by promoting compact, mixed-use development near transit. PlanBayArea is the Bay Area’s Strategy.

PlanBayArea contains a number of regional performance measures which are presented to the public via the Vital Signs portal, a user-friendly and interactive website. The format of the website gives the public a clear understanding of what the performance measures are, what they mean, and how they link to community concerns. It integrates measures from MTC, the Association of Bay Area Governments, the Bay Area Air Quality Management District, and the San Francisco Conservation and Development Commission, enabling external audiences a one-stop shop for these organizations’ reporting.

**Figure 6-15: S.F. Bay Area MPO 2012 Greenhouse Gas Emissions from Fuel Sales by County**

Source: Vital Signs<sup>41</sup>



**Linkages to Other TPM Components**

Component B: External Collaboration and Coordination

(See TPM Framework)

**STEP 6.2.4** Develop reporting parameters

**Description**

Many of the same considerations discussed in step 6.1.3 for internal reporting apply for external reporting as well:

- Reporting format
- Level of detail and context

<sup>40</sup> Metropolitan Transportation Commission. *Vital Signs*. <http://www.vitalsigns.mtc.ca.gov/>

<sup>41</sup> Metropolitan Transportation Commission. *Vital Signs - Greenhouse Gas Emissions*. June 2, 2016. <http://www.vitalsigns.mtc.ca.gov/greenhouse-gas-emissions>

STEP 6.2.4	<p><b>Develop reporting parameters</b></p> <ul style="list-style-type: none"> <li>• Frequency</li> <li>• Data sources</li> <li>• Alignment to TPM framework</li> <li>• Mandates</li> </ul> <p>External reporting does not need to include information regarding the use of the report for internal evaluations. Additionally, external reporting should not include actionable information unless being used to coordinate operations with partners. Typically actionable information would only be useful to internal staff. At a transit agency for example, information on late departures from the bus depot for each driver allows management to work with particular drivers to address late departures and improve overall on-time performance. However, this information has little value to riders; they are more likely to understand and to care about overall on-time performance because it better reflects their riding experience.</p> <p>Many agencies use dashboards to present data to an external audience in a way that is easy to understand. However, there is a risk of oversimplifying information by using this format, which leaves important agency reporting open to misinterpretation.<sup>42</sup> To prevent this problem, agencies can tell a performance story (step 6.2.3) in conjunction with a dashboard. Highlight anomalies or contextual information that may explain why a target was not attained: a particularly harsh winter, legalization of marijuana significantly increasing congestion stemming from out-of-state visitors, etc. This will help external groups understand the greater context involved. When selecting a format to use, review other reports the agency has made to external groups. If there is a format that is already familiar to these audiences, it may make sense to continue using the same format for ease of use and consistency.</p> <p>Some agencies push to have complete reports ready for the beginning of the legislative session as a way to make the case for additional funding. This approach can be effective if performance has been improving due to past funding increases, or if performance has declined and the agency can connect lack of funding to poor performance results.</p> <p><b>Consider how performance data will be presented:</b></p> <ul style="list-style-type: none"> <li>• Actual v. Competitor Actual</li> <li>• Actual v. Target</li> <li>• Actual v. Plan</li> <li>• Actual v. Prior Month</li> <li>• Actual v. Prior Quarter</li> <li>• Actual v. Prior Year (particularly for long-term targets)</li> <li>• Actual v. Same Month Last Year</li> <li>• Actual v. Same Quarter Last Year</li> </ul>
<p><b>Examples</b></p>	<p><b>WSDOT: The Gray Notebook<sup>43</sup></b></p> <p>The Washington State Department of Transportation produces a quarterly performance report called The Gray Notebook that serves as an excellent example of external reporting.</p>

<sup>42</sup> FHWA. (2013). *Performance-Based Planning and Programming Guidebook* (FHWA Publication FHWA-HEP-13-041). Washington, DC.

<sup>43</sup> <http://www.wsdot.wa.gov/Accountability/GrayNotebook/>

STEP 6.2.4 Develop reporting parameters

Figure 6-16: WSDOT Gray Notebook

Source: The Gray Notebook Volume 58<sup>44</sup>

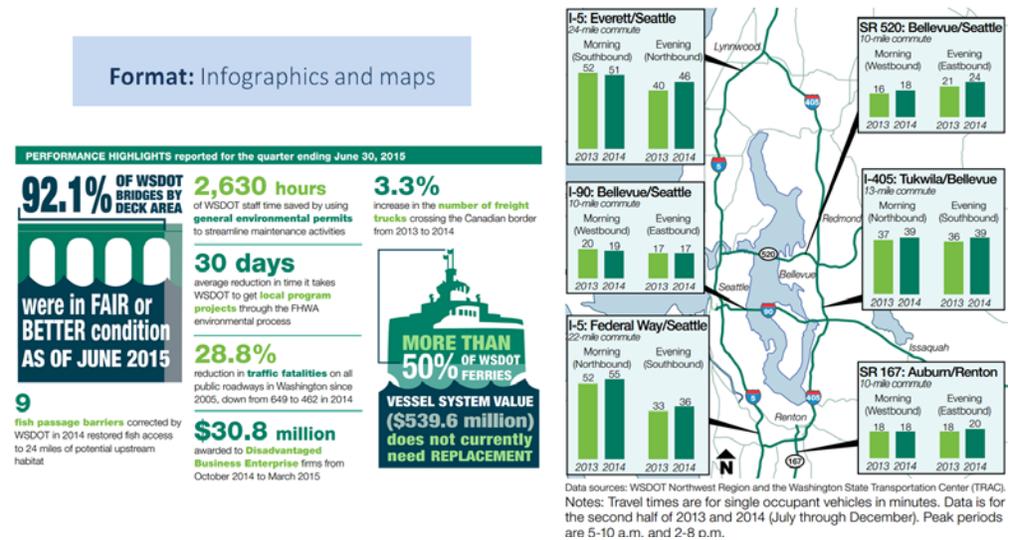
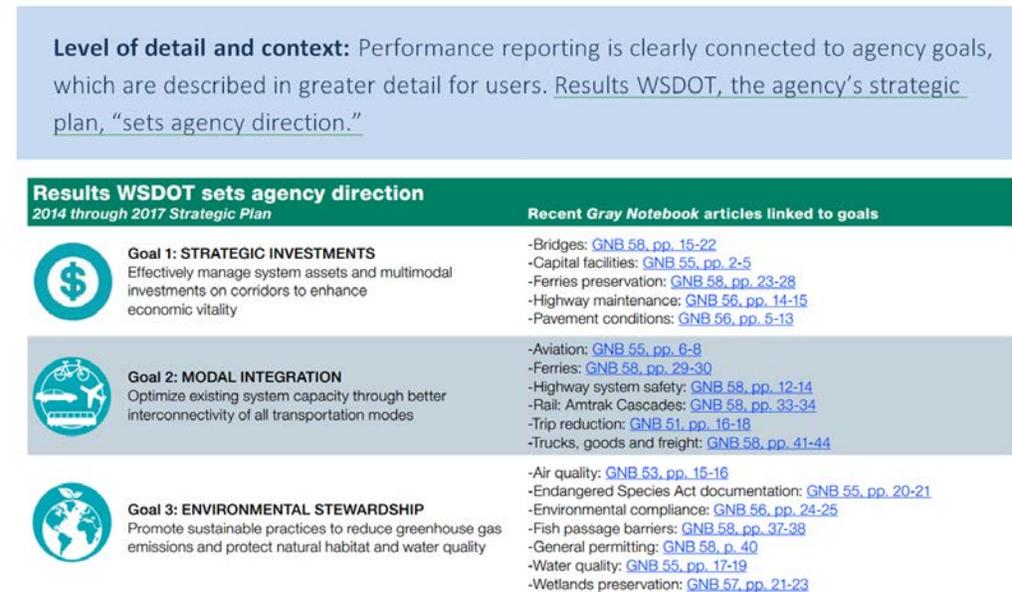


Figure 6-17: WSDOT Gray Notebook

Source: The Gray Notebook Volume 58<sup>45</sup>



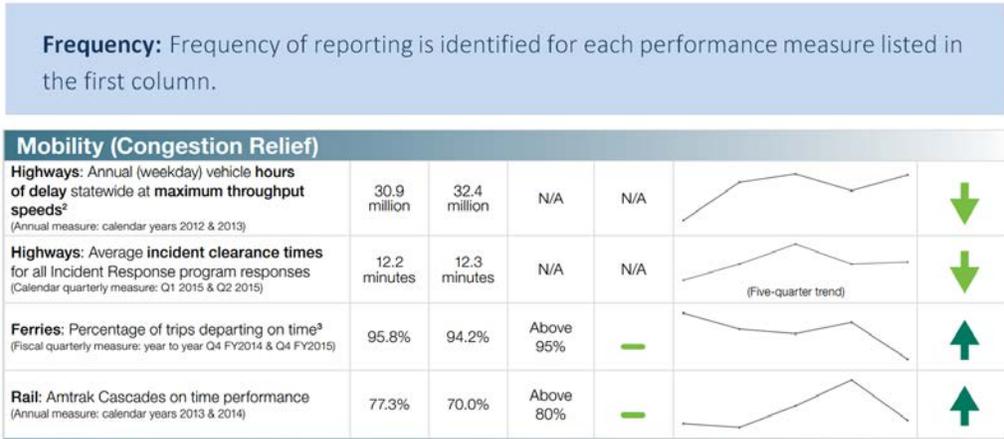
<sup>44</sup> Washington State Department of Transportation. (2015). The Gray Notebook: WSDOT's Quarterly Performance Report on Transportation Systems, Programs, and Department Management (June 30, 2015). Olympia, WA. <http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun15.pdf>

<sup>45</sup> Washington State Department of Transportation. (2015). The Gray Notebook: WSDOT's Quarterly Performance Report on Transportation Systems, Programs, and Department Management (June 30, 2015). Olympia, WA. <http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun15.pdf>

STEP 6.2.4 Develop reporting parameters

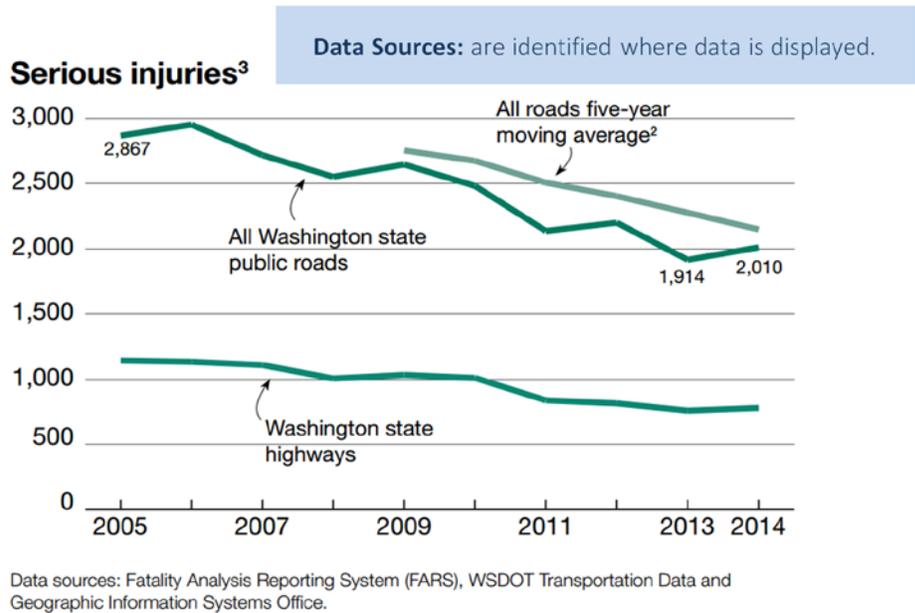
**Figure 6-18: WSDOT Gray Notebook**

Source: The Gray Notebook Volume 58<sup>46</sup>



**Figure 6-19: WSDOT Gray Notebook**

Source: The Gray Notebook Volume 58<sup>47</sup>



<sup>46</sup>Washington State Department of Transportation. (2015). The Gray Notebook: WSDOT's Quarterly Performance Report on Transportation Systems, Programs, and Department Management (June 30, 2015). Olympia, WA. <http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun15.pdf>

<sup>47</sup> Washington State Department of Transportation. (2015). The Gray Notebook: WSDOT's Quarterly Performance Report on Transportation Systems, Programs, and Department Management (June 30, 2015). Olympia, WA. <http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun15.pdf>

STEP 6.2.4

Develop reporting parameters

Figure 6-20: WSDOT Gray Notebook

Source: The Gray Notebook Volume 58<sup>48</sup>

**WSDOT adopting Sustainable Safety for highways**

fatalities, and intersection-related factors contributed to approximately 21 percent of the fatalities.

**Fatalities, serious injuries decreasing for Priority Level One factors overall**

For Priority Level One factors, traffic fatalities decreased on average 7 percent for each factor from 2010 to 2014. From 2013 to 2014, impaired driver-involved, distracted driver-involved and intersection-related fatalities increased slightly while the remaining factors decreased. For impaired driver-involved only, drinking- and alcohol-related fatalities decreased, while drug- and marijuana-related fatalities increased 19 and 56 percent, respectively.

Serious injuries decreased 2 percent on average for each Priority Level One factor from 2010 to 2014. An analysis of the contributing factors shows long-term decreases except for distracted driver-involved, which increased 98 percent between 2010 and 2014. This increase may be partially due to a modification to distracted driver-involved reporting and coding in 2013.

**WSDOT addresses highway safety with new strategies**

WSDOT has revised its safety program by instituting the Sustainable Highway Safety Program (Sustainable Safety), a more integrated and analytic multimodal approach. Sustainable Safety continues to evolve from a reactive approach, where safety enhancements are applied to areas with a history of crashes, to a more proactive risk-based approach in which WSDOT predicts and analyzes crash locations by evaluating the factors contributing to crashes. Sustainable Safety is an engineering approach to develop highway safety projects focused on reducing crashes and the efficient use of resources. In line with its commitment to practical design, which focuses on projects providing the most benefit to the larger transportation system, WSDOT is implementing Sustainable Safety by:

- Managing the Highway Safety Program as a single collaborative unit.
- Identifying crash risks using the "5th E" (Evaluation for risk) approach.
- Developing solutions based on a location's unique characteristics, instead of using predetermined criteria.
- Selecting safety measures based on predicted outcomes and cost-benefit ratios, and.

**Alignment to TPM framework: Reporting linked to goals and strategies.**

**WSDOT's "5th E" of safety**

Highway system safety programs usually look at the "4 E's" (Engineering, Enforcement, Education and Emergency medical services) in addressing safety performance. WSDOT has defined a "5th E" as the Evaluation, analysis and diagnosis of crashes and their contributing factors. This approach allows WSDOT to better target "root causes" to lower crash potential, moving beyond standard solutions based on predetermined design criteria such as traffic volume and roadway type. By targeting contributing factors, WSDOT is able to better direct decision making and produce more focused and cost-effective solutions.

- Using low-cost measures when possible, and put the greatest reduction in crashes with the lowest cost.

With a combination of engineering expertise and advanced analytical tools, WSDOT can focus on the contributing factors of crashes and generate targeted solutions.

**WSDOT's transportation safety effort focus on multimodal integration**

In alignment with Healthy WSDOT, the agency's strategic plan, WSDOT is also integrating all modes of transportation, ranging from ferries and rail to aviation to a comprehensive, collaborative effort to enhance and reduce risk. In March 2015, WSDOT created a Multimodal Safety Executive Committee to identify multimodal risks, prioritize agency resources, manage safety and improve systemic, statewide risk reduction strategies. This committee's work expands the agency's safety to include both individual travel modes, such as a car driving to work, and the intersection between modes. For example, a commuter who takes a bus stop at a train station to work. By taking an all-inclusive safety approach, WSDOT is able to exchange ideas, and technical expertise across the different modes of transportation.

**Strategic Plan Goal 2: MODAL INTEGRATION**  
Strategy 2.1 (Multimodal Safety): Align multimodal safety policy-making across the agency.

In support of this strategy, WSDOT created a Modal Safety Executive Committee tasked with integrating safety and risk reduction into all modes of transportation.

Figure 6-21: WSDOT Gray Notebook

Source: The Gray Notebook Volume 58<sup>49</sup>

**58 Moving Ahead for Progress in the 21st Century (MAP-21)**

**MAP-21 federal performance reporting requirements**

MAP-21 goals by program area	Federal threshold/benchmark <sup>1</sup>	MAP-21 target <sup>2</sup>	WSDOT penalty <sup>3</sup> Yes/No	Date draft rule was released	Existing WSDOT program area
<b>Highway Safety Improvement Program</b>					
Rate of traffic fatalities per 100 million vehicle miles traveled (VMT) on all public roads	No	TBD <sup>4</sup>	Yes	3/11/14	Traffic fatality rates using the NHTSA methodology, see <a href="#">Gray Notebook 58, p. 12</a>
Rate of serious traffic injuries per 100 VMT on all public roads	No	TBD	Yes	3/11/14	Serious injury rates using the NHTSA methodology, see <a href="#">Gray Notebook 58, p. 12</a>
Number of traffic fatalities on all public roads	No	TBD	Yes	3/11/14	Traffic fatalities using the NHTSA methodology, see <a href="#">Gray Notebook 58, p. 12</a>

**Mandates: Fulfilling requirements for MAP-21, Results Washington, and GASB.**

**Bridge condition reporting requirements**  
Condition targets by performance reporting system

Performance reporting system	Target	Which bridges are included?
Moving Ahead for Progress in the 21st Century (MAP-21) (see <a href="#">p. 6</a> )	≤10% of deck area on structurally deficient (poor condition) bridges	All NHS bridges (state- and locally-owned)
Results Washington (see <a href="#">p. 22</a> )	≤10% of deck area on structurally deficient (poor condition) bridges	All NHS bridges (state- and locally-owned)
Governmental Accounting Standards Board (GASB)	≥90% of bridge deck area in fair or better condition	All state-owned bridges (NHS and non-NHS)

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.  
Note: NHS = National Highway System.

<sup>48</sup> Washington State Department of Transportation. (2015). The Gray Notebook: WSDOT's Quarterly Performance Report on Transportation Systems, Programs, and Department Management (June 30, 2015). Olympia, WA. <http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun15.pdf>

<sup>49</sup> Washington State Department of Transportation. (2015). The Gray Notebook: WSDOT's Quarterly Performance Report on Transportation Systems, Programs, and Department Management (June 30, 2015). Olympia, WA. <http://wsdot.wa.gov/publications/fulltext/graynotebook/Jun15.pdf>

STEP 6.2.4

Develop reporting parameters

**Michigan DOT: Communicating Context<sup>50</sup>**

To provide greater context around agency performance, the Michigan DOT created a website called Transportation Reality Check, which identifies commonly-held myths concerning the transportation system and presents factual information to demonstrate the actual situation and why it exists. Each myth is debunked with a short video and a one-page fact sheet which provide information in an easily-digestible manner. Myth #6 pertains to state taxes on gasoline and what they fund, making it clear that poor road conditions experienced by users stem from too little funding.

**Figure 6-22: Michigan DOT Transportation Reality Check Public Education Initiative**

Source: Transportation Reality Check<sup>51</sup>



**Linkages to Other TPM Components**

Component B: External Collaboration and Coordination  
 Component C: Data Management  
 Component D: Data Usability and Analysis

(See TPM Framework)

<sup>50</sup> Michigan Department of Transportation. (2015). *Transportation Reality Check*. [http://www.michigan.gov/mdot/0,4616,7-151-9620\\_67533---,00.html](http://www.michigan.gov/mdot/0,4616,7-151-9620_67533---,00.html)

<sup>51</sup> Michigan Department of Transportation. (2016). *Transportation Reality Check: Myth #6*. Lansing, MI. [http://www.michigan.gov/documents/mdot/RealityCheckMyth6\\_473561\\_7.pdf](http://www.michigan.gov/documents/mdot/RealityCheckMyth6_473561_7.pdf)

<p><b>STEP 6.2.5</b></p>	<p><b>Refine, automate, and document</b></p>
<p><b>Description</b></p>	<p>Similar to step 6.1.4 for internal reporting, documentation will streamline the reporting process in the future, reducing demands on staff time.</p> <p><b>Record things like:</b></p> <ul style="list-style-type: none"> <li>• Frequency</li> <li>• Data source</li> <li>• Format</li> <li>• Who fulfilled roles and responsibilities outlined in step 6.2.2</li> <li>• Which external audience the report intended to reach</li> </ul> <p>To refine external reporting efforts, feedback should be gathered from recipients across a broad range of external groups engaged by the agency. This includes the public at large, which may access performance information through the agency website. Record all feedback where staff can access it in the future. Methods, approaches, and staff assumptions should be reevaluated after each reporting round.</p> <p>For external reporting, it is particularly important to explain how and why certain measures and targets were chosen. Without a clear and logical explanation, the reporting document will fail to gain credibility among external audiences. Reports should tell a performance story rather than simply reporting data.</p>
<p><b>Examples</b></p>	<p><b>Missouri DOT: Effective Documentation</b></p> <div style="display: flex; align-items: flex-start;"> <div style="width: 30%; padding-right: 10px;"> <div style="background-color: #e6f2ff; padding: 5px; margin-bottom: 5px;"> <p><b>RESULT DRIVER:</b> Dennis Heckman, State Bridge Engineer</p> </div> <div style="background-color: #e6ffe6; padding: 5px; margin-bottom: 5px;"> <p><b>MEASUREMENT DRIVER:</b> David Koenig Bridge Management Engineer</p> </div> <div style="background-color: #fff9c4; padding: 5px; margin-bottom: 5px;"> <p><b>PURPOSE OF THE MEASURE:</b> This measure tracks the percent of structurally deficient deck area for bridges on the National Highway System.</p> </div> <div style="background-color: #e6f2ff; padding: 5px;"> <p><b>MEASUREMENT AND DATA COLLECTION:</b> The NHS is defined by federal law and consists of all</p> </div> </div> <div> <p>The Missouri Tracker report<sup>52</sup> clearly documents a wealth of information, including:</p> <ul style="list-style-type: none"> <li>• Frequency of reporting, by measure</li> <li>• Staff members responsible for measure (result driver, measurement driver)</li> <li>• Purpose of the measure</li> <li>• How data is collected</li> </ul> <p>All measures used within the agency are summarized at the beginning of the report, which also serves as a table of contents to guide users to detail pages produced for each measure. Detail pages include the side panel pictured here, as well as trend graphs, narrative description, and data source.</p> <p><b>Figure 6-23: Missouri Tracker Documentation</b> Source: Tracker: Measures of Departmental Performance<sup>53</sup></p> </div> </div>

<sup>52</sup> Missouri Department of Transportation. (2016). Tracker: Measures of Departmental Performance. Jefferson City, MO. <http://www.modot.org/about/documents/April2016Tracker.pdf>

<sup>53</sup> Missouri Department of Transportation. (2016). Tracker: Measures of Departmental Performance. Jefferson City, MO. <http://www.modot.org/about/documents/April2016Tracker.pdf>

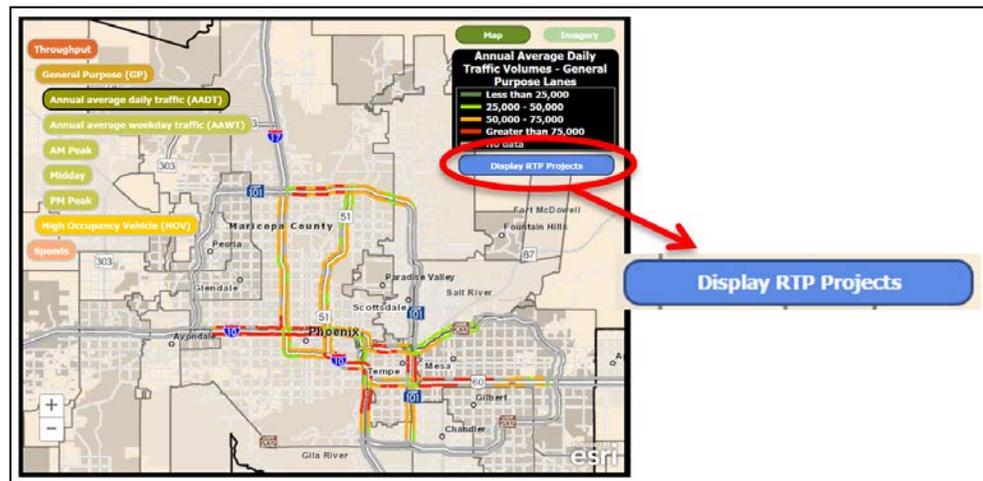
STEP 6.2.5 Refine, automate, and document

**Maricopa Association of Governments**

The MAGitude reporting site discussed earlier has been refined not only based on internal feedback, but from external feedback as well. Member agencies and consultants routinely requested additional information about how projects from the Regional Transportation Plan relate to performance results. MAG staff fulfilled their request by incorporating project information into the interactive map on the site.<sup>54</sup>

**Figure 6-24: Tracking Public Investment in Transportation Infrastructure at MAG**

Source: MAG Performance Measurement<sup>55</sup>



**Your CDOT Dollar: Explaining Measures<sup>56</sup>**

In addition to graphically displaying performance and grading results on a letter scale, the Colorado DOT provides information about how a measure is calculated. For transit ridership, the description informs the user that a trip is counted each time a passenger boards a vehicle. Because measures are often calculated differently across different agencies, this is critical information to have to fully understand the performance results being displayed.

<sup>54</sup> <http://performance.azmag.gov/About.aspx>

<sup>55</sup> Maricopa Association of Governments. MAGitude- Performance Measurement. June 2, 2016. <http://performance.azmag.gov/About.aspx>

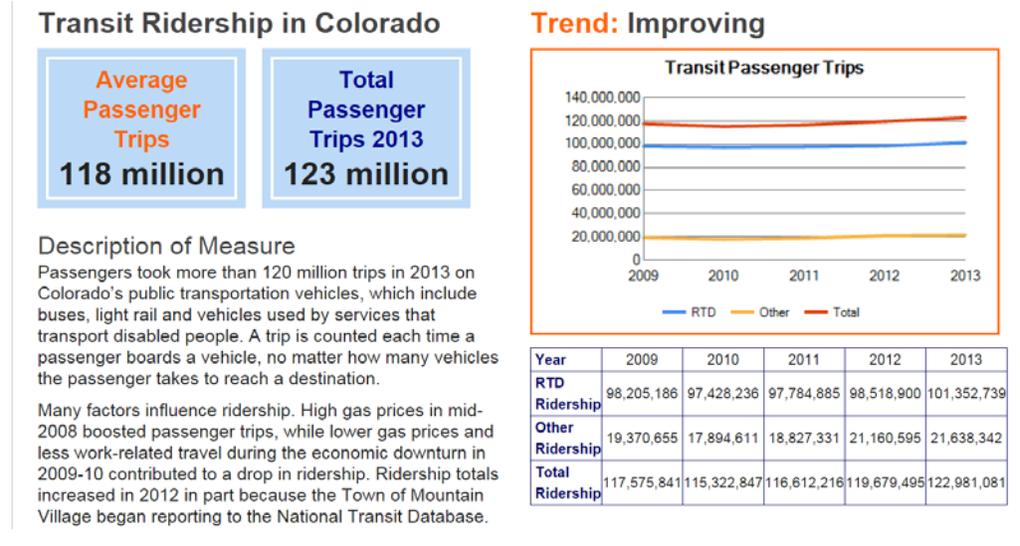
<sup>56</sup> Colorado Department of Transportation. *Your CDOT Dollar*. <http://dtdapps.coloradodot.info/otis/YCD/Roads#highways-tab>

STEP 6.2.5

Refine, automate, and document

**Figure 6-25: Public Transportation Ridership Reporting at CDOT**

Source: Your CDOT Dollar<sup>57</sup>



**Linkages to Other TPM Components**

Component A: Organization and Culture

(See TPM Framework)

Component B: External Collaboration and Coordination

<sup>57</sup> Colorado Department of Transportation. *Your CDOT Dollar*. June 2, 2016. <http://dtdapps.coloradodot.info/otis/YCD/Mobility#transit-tab>

RESOURCES

Resource	Year	Link
<i>TPM Toolbox</i>	2016	<a href="http://www.tpmtools.org">www.tpmtools.org</a>
<i>Communicating Performance</i>	2015	<a href="http://communicatingperformance.com/">http://communicatingperformance.com/</a>
<i>Performance-Based Planning and Programming Guidebook</i>	2013	<a href="http://www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook/">http://www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook/</a>
<i>FHWA Performance Reporting: Part one of two Final Report</i>	2013	<a href="http://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf">http://www.fhwa.dot.gov/tpm/resources/docs/hif13043.pdf</a>
<i>The New Language of Mobility</i>	2011	<a href="http://downloads.transportation.org/ANewWayToTalkAboutTransportation/NewLanguageofMobility.pdf">http://downloads.transportation.org/ANewWayToTalkAboutTransportation/NewLanguageofMobility.pdf</a>
<i>A Guidebook for Performance-Based Transportation Planning (NCHRP Report 446)</i>	2000	<a href="http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_report_446.pdf">http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_report_446.pdf</a>

**ACTION PLAN**

1. Of the TPM subcomponents discussed in this chapter, which one would you like to work on?

6.1 Internal Reporting and Communication

6.2 External Reporting and Communication

2. What aspect of the TPM process listed above do you want to change?

3. What “steps” discussed in this chapter do you think could help you address the challenge noted above?

**Internal Reporting**

- Clarify purpose of the report
- Define roles and responsibilities
- Develop reporting parameters
- Refine, automate, and document

**External Reporting**

- Clarify purpose of the report
- Define roles and responsibilities
- Coordinate with external partners
- Develop reporting parameters
- Refine, automate, and document

4. To implement the “step” identified above, what actions are necessary, who will lead the effort and what interrelationships exist?

Action(s)	Lead Staff	Interrelationships

5. What are some potential barriers to success?

6. Who is someone (internal and/or external) I will collaborate with to implement this action plan?

7. How will I know if I have made progress (milestones/timeframe/measures)?

**FIGURE INDEX**

Figure 6-1: Tailoring Reporting by Audience ..... 3

Figure 6-2: AASHTO Effective Communication Language ..... 3

Figure 6-3: Performance Reporting Framework..... 5

Figure 6-4: Developing Effective Narratives ..... 5

Figure 6-5: Hierarchy of Reporting Methods and Tools..... 11

Figure 6-6: Staff Award at WSDOT ..... 12

Figure 6-7: Average Pounds of Salt Per Lane Mile ..... 14

Figure 6-8: MAG Web-Based Transportation Performance User Interface..... 16

Figure 6-9: Oregon DOT Derailment Reporting ..... 19

Figure 6-10: MassDOT Funding Scenarios and Performance Outcomes through 2023 ..... 20

Figure 6-11: MassDOT Funding Scenarios and Performance Outcomes through 2040 ..... 20

Figure 6-12: TxDOT LRTP Comparative Maintenance Cost Analysis ..... 21

Figure 6-13: Maintaining Accountability through Transparent Reporting at MnDOT ..... 23

Figure 6-14: WisDOT Interactive Reporting for Public Use..... 24

Figure 6-15: S.F. Bay Area MPO 2012 Greenhouse Gas Emissions from Fuel Sales by County ..... 26

Figure 6-16: WSDOT Gray Notebook ..... 28

Figure 6-17: WSDOT Gray Notebook ..... 28

Figure 6-18: WSDOT Gray Notebook ..... 29

Figure 6-19: WSDOT Gray Notebook ..... 29

Figure 6-20: WSDOT Gray Notebook ..... 30

Figure 6-21: WSDOT Gray Notebook ..... 30

Figure 6-22: Michigan DOT Transportation Reality Check Public Education Initiative..... 31

Figure 6-23: Missouri Tracker Documentation..... 32

Figure 6-24: Tracking Public Investment in Transportation Infrastructure at MAG..... 33

Figure 6-25: Public Transportation Ridership Reporting at CDOT ..... 34

**TABLE INDEX**

Table 6-1: Uses of Internal and External Reporting and Communication..... 4

Table 6-2: Audience and Potential Purpose of Communication ..... 6

Table 6-3: Reporting and Communication Implementation Steps..... 6

Table 6-4: Reporting and Communication: Defining Common TPM Terminology ..... 6

Table 6-5: Reporting and Communication Relationship to TPM Components..... 8

Table 6-6: Identifying Stakeholders and Understanding Roles..... 10