

## 1. Introduction

When it was signed into law in July 2012, [Moving Ahead for Progress in the 21st Century Act](#) (MAP-21) created a surface transportation program with significant emphasis on performance-based measures. MAP-21 calls for states and metropolitan planning organizations to establish performance goals, and then to report to the Federal Highway Administration on progress towards meeting them.

FHWA also completed a project in June 2013 to study how states could work together to use performance management elements to improve corridor performance in the MAP-21 goal areas of safety, infrastructure condition, freight movement and economic vitality, and congestion reduction and system reliability. The project was called, "[How to Improve Performance on Corridors of National Significance](#)." A key goal of the project was to incorporate current information on performance management along with corridor-level planning, management and operational practices. North/West Passage is included in a summary of noteworthy practices among selected coalitions for several activities, including the corridor's [ITS Integrated Strategic Plan](#) and subsequent annual [work plans](#).

***The recent emphasis on performance management and national corridors prompted this North/West Passage project to explore if, and to what extent, performance measures can and should be established for the I-90/I-94 corridor.*** This summary highlights information from research about performance management in general, corridor specific performance management and practices among other corridor groups. It also presents potential performance measures for the North/West Passage to further consider in their overall decision the extent to which they pursue corridor specific performance management.

## 2. Performance Management in General

Performance management at its most basic is defined as an assessment of an employee, process, equipment or other factor to gauge progress toward predetermined goals.<sup>1</sup> FHWA further defines Transportation Performance Management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals.<sup>2</sup>

These basic definitions are illustrated in Figure 1 as a simple, continuous process that begins with planning and setting goals. Once goals are identified, specific measures and relevant targets can be established, and then activities can be aligned and executed. As activities are executed, data is collected and analyzed to measure progress toward targets. Results from the analysis are then reported and used in decision-making to adjust planning and overall goals as needed – starting the process over again.

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<sup>1</sup> BusinessDictionary.com ([www.businessdictionary.com/definition/performance-management.html](http://www.businessdictionary.com/definition/performance-management.html)), accessed April 22, 2015.

<sup>2</sup> US Department of Transportation, Federal Highway Administration, Transportation Performance Management ([www.fhwa.dot.gov/tpm/about/tpm.cfm](http://www.fhwa.dot.gov/tpm/about/tpm.cfm)), accessed April 22, 2015.

Figure 1 Performance Management Process



Based on these definitions, North/West Passage has been following a somewhat informal process of performance management since 2007 when the ITS Integrated Corridor Strategic Plan was developed and since 2013 when progress toward the goals identified in that plan were assessed ([Project 7.1 Goal Assessment and Planning for ITS Corridor Deployment](#)). North/West Passage also aligns projects from each annual work plan with the established program goals to maintain overall focus on developing effective methods for sharing, coordinating, and integrating traveler information and operational activities across state and provincial borders. This process is the noteworthy practice highlighted in the “How to Improve Performance on Corridors of National Significance” report by FHWA.

### 2.1. MAP-21

As noted above, MAP-21 emphasizes performance management practices among state transportation agencies and metropolitan planning organizations. The legislation also established national goals in the following areas.

- Safety – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- Infrastructure Condition – To maintain the highway infrastructure asset system in a state of good repair
- *Congestion Reduction – To achieve a significant reduction in congestion on the National Highway System*
- *System Reliability – To improve the efficiency of the surface transportation system*
- *Freight Movement and Economic Vitality – 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 – 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.<sup>3</sup>

It is suggested that the italicized national goal areas are those most likely to impact performance at the multistate corridor level and be of most interest to the North/West Passage. Although national performance goals were identified in MAP-21, no specific measures or targets were established in the legislation. The federal rule-making process is being used to further define these and other details associated with the national goals. Notices of proposed rulemaking (NPRM) directly and indirectly related to performance measures have been issued by USDOT with details for several areas, including:

- February 20, 2015: Asset Management Plan Development Process
- January 5, 2015: Pavement and Bridge Condition Performance Measures
- June 2, 2014: Planning
- March 28, 2014: Highway Safety Improvement Program (HSIP)
- March 11, 2014: Safety Performance Measures and HSIP

According to the MAP-21 implementation schedule<sup>4</sup> established by FHWA, the next NPRM release will occur in 2015 and it will address system performance. It is expected to define performance of the interstate system, non-interstate national highway system, and freight movement on the interstate system. It is also expected to finalize an interpretation of scope of CMAQ performance requirements, including congestion and on-road mobile source emissions. If FHWA intends to establish specific performance management parameters around multistate corridors, this NPRM is most likely to address them. FHWA was contacted during the course of this research to request additional insight on multistate corridor performance management but staff was unable to comment due to the ongoing NPRM process.<sup>5</sup>

## 2.2. National Performance Management Research Data Set

In addition to the performance measure requirements established by MAP-21 and the specific parameters that are being developed through the federal rulemaking process, the FHWA Office of Operations has made a national data set available to all states and metropolitan planning organizations. The [National Performance Management Research Data Set](#) (NPMRDS) was initially conceived of to support the Freight Performance Measures and Urban Congestion Report programs.<sup>6</sup> FHWA prepared a request for proposals to acquire the data set from a private sector probe data provider.

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<sup>3</sup> US Department of Transportation, Federal Highway Administration, Transportation Performance Management ([www.fhwa.dot.gov/tpm/about/tpm.cfm](http://www.fhwa.dot.gov/tpm/about/tpm.cfm)), accessed April 22, 2015.

<sup>4</sup> US Department of Transportation, Federal Highway Administration, Transportation Performance Management (<http://www.fhwa.dot.gov/tpm/about/action.pdf#page=2>), accessed April 22, 2015

<sup>5</sup> Email exchange between Ginny Crowson, Athey Creek Consultants, and Susanna Hughes Reck, FHWA, on December 9, 2014 and December 11, 2014.

<sup>6</sup> US Department of Transportation, Federal Highway Administration, Office of Operations ([http://ops.fhwa.dot.gov/perf\\_measurement/index.htm](http://ops.fhwa.dot.gov/perf_measurement/index.htm)), accessed April 22, 2015.

When MAP-21 passed, they expanded their request to make the data set available to states and metropolitan planning organizations for performance management. The data contain real actual, observed measurements only. There are no estimates or historical data substitutions. It provides average travel times in five minute increments, 24 hours a day, seven days a week for the National Highway System (NHS). The data is not real-time; it is a historical data set that is delivered monthly. Data is provided in three distinct average travel times for each five minute bin – freight, passenger and all traffic. When downloaded, data is provided in a CSV format as either a TMC static file or a monthly average travel time data file. Depending on the file type, each bin includes data in the following categories:

#### TMC Static File

- TMC Code<sup>7</sup>
- Country
- State
- County
- Distance (length of TMC in miles)
- Road Number and Local Name
- Latitude/Longitude
- Road Direction (northbound, southbound, eastbound, westbound)

#### Monthly Average Travel Time Data File

- TMC Code
- Date (MMDDYYYY)
- EPOCH (five-minute increments, 0-287)<sup>8</sup>
- Travel Time-All Vehicles (seconds)
- Travel Time-Passenger Vehicles (seconds)
- Travel Time-Freight Vehicles (seconds)

The data download also includes an NHS map extract with TMC codes in a shape file. The compilation of data began with July 2013 and was made available in October 2013. Monthly data sets are broken out by state and bundled into four regional files. Access is managed by HERE, formerly Nokia/Navteq. Agencies access the data by submitting a licensing agreement, obtaining login credentials and then accessing an electronic data delivery site. Although access is restricted to state agencies and metropolitan planning organizations, credentials may be granted to contractors allowing them to use data for work performed for the agency. The data set may also only be used for specific purposes, one of which includes performance management. Some of the performance management uses of the data may include:

- Measure travel time reliability
- Measure travel time on road segments, routes and corridors
- Identify travel patterns through days, weeks, months, seasons
- Identify peak travel times and duration
- Compare travel times across passenger and freight travel
- Analyze urban vs. rural travel

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<sup>7</sup> TMC, or traffic message channel, is a standardized location referencing code.

<sup>8</sup> EPOCH is an identifier for each specific five-minute increment, numbered 0-287 beginning at midnight each day.

- Analyze incidents, events, weather
- Identify congested areas

The NPMRDS provides a consistent data set that could potentially be used for multistate corridor performance measures. The Great Lakes Regional Transportation Operations Coalitions (GLRTOC) is exploring the data set for the potential to establish performance measures for freight and passenger traffic in the region. As the availability of probe-based data continues to expand, this data set and others like it have the potential to evolve in the depth and breadth of detail offered.

### 3. Corridor Specific Performance Management and Practices

After exploring performance management in general, corridor specific performance management and practices associated with it were researched to determine if there are any precedent-setting practices among other corridor groups that North/West Passage should consider.

#### 3.1. How to Improve Performance on Corridors of National Significance

Soon after the release of MAP-21, FHWA commissioned a study in 2013 to explore how performance on corridors of national significance could be improved. The study focused on exploring how states can work together to use performance management elements to improve corridor performance in the national goal areas identified by MAP-21. It identified noteworthy practices in corridor performance management, defined a capability maturity model, and presented an implementation plan to assist organizations with advancing their maturity according to the model.

Corridors throughout the United States were identified and then selected for noteworthy practices in performance management. Selection was influenced by geographic diversity, data availability, corridor institutions, goals associated with corridor activities, and multimodalism. Practices in the following areas were then identified as noteworthy practices:

- Performance management processes as they relate to goal setting, performance measures, and decision-making;
- Technology and tools associated with corridor management, daily operations, modeling, information dissemination; and
- Institutional and governing practices to establish and maintain corridor partners, provide oversight, collaborate with modal and planning partners, and fund corridor activities.

Figure 2 is an illustration taken from the study report showing the corridors that were selected for their noteworthy practices.<sup>9</sup> North/West Passage is highlighted for several practices. As previously noted, the 2007 ITS Integrated Strategic Plan and subsequent work plans have identified goals for the corridor program and then aligned projects in each work plan with those goals. This is specifically noted as a key aspect of performance management demonstrating the importance of setting goals that can be used to help make decisions and allocate resources within a corridor.

Also highlighted is the custom benefit/cost tool that was developed by North/West Passage to provide a quantitative analysis of select ITS devices based on standard costs and benefits, as well as agency cost-

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<sup>9</sup> How to Improve Corridors of National Significance

(<http://www.fhwa.dot.gov/tpm/resources/corridor/hif13058.pdf>), Cambridge Systematics, Inc. for the US Department of Transportation, Federal Highway Administration, Washington, DC, June 2013.

savings as a benefit. The benefit/cost tool is highlighted as a noteworthy tool for helping agencies analyze data and understand deficiencies. Another noteworthy technology/tool highlighted in the study is the North/West Passage traveler information web site ([www.i90i94travelinfo.com](http://www.i90i94travelinfo.com)). The web site provides high-level information about the corridor and links to each of the states' more detailed traveler information. It is noted as an important tool for disseminating information to corridor users.

Figure 2 Corridors with Noteworthy Practices



Source: Cambridge Systematics, Inc.

Finally, North/West Passage is highlighted in the study for its establishment as a formal Transportation Pooled Fund which requires an annual solicitation for funding that is used to support program administration and work plans. This approach demonstrates how specialized federal programs can be used to support institutional and governing practices for a corridor.

After describing noteworthy practices among the corridors, the study defined a maturity model around performance management, technology/tools, and institutional/governance characteristics for a corridor. The model identifies six levels of maturity for each characteristic that range from none or limited maturity to optimized maturity. At the optimized level of maturity, all corridor planning and operational activities are unified, monitored and improved. Figure 3 shows an excerpt of the maturity model to illustrate the levels of maturity for characteristics associated with performance management processes.

Figure 3 Excerpt from Performance Management Maturity Model

			Level 1: None/Limited	Level 2	Level 3	Level 4	Level 5	Level 6: Optimized
Performance Management Processes	Goals/ Objectives	Safety	No goals/objectives defined	Goals/objectives defined for portions of corridor	Goals/objectives defined across full corridor	Policies in place across jurisdictions established to achieve goals/objectives	Policies in place across jurisdictions established to achieve goals/objectives; progress toward achieving goal area tracked	Policies to achieve goals/objectives established and successful; new goals/objectives continually established after previous goals/objectives met
		Reliability						
		Freight						
		Economic Development						
		Infrastructure Conditions						
	Performance Measures	Safety	No performance measures considered or selected	Defined metrics (by mode, if applicable); performance measures applied in portion of corridor.	Limited integration of performance measurement across organizational silos	Performance measures applied for some modes across entire corridor, or for all modes in portion of corridor; some data integration among partner agencies	Shared, multimodal, corridor-wide performance metrics	Real-time data collection and corridor-wide performance management across all modes
		Reliability						
		Freight						
		Economic Development						
		Infrastructure Conditions						
	Target Setting	Safety	No performance management framework or targets established	Factors influencing target-setting examined	Appropriate approaches for target-setting selected	Methods for achieving targets established	Progress toward targets tracked	Targets adjusted over time
		Reliability						
		Freight						
		Economic Development						
		Infrastructure Conditions						

The report concludes with two case studies illustrating the application of the maturity model and a series of recommendations for agencies to advance maturity. A self-assessment tool was also developed as part of this overall study to support corridors with applying the maturity model to themselves. Through a series of simple questions, the tool will indicate a corridor organization’s current level of maturity and it will provide high-level recommendations for advancing maturity.

### 3.2. I-95 Corridor

In addition to the information featured about the I-95 Corridor in the previous document, George Schoener, executive director for the coalition, was interviewed.<sup>10</sup> The interview covered whether measures have been established for the full corridor, whether the coalition uses performance in key areas to identify future projects, how corridor measures align with other measures established individually among the states, and how the coalition views its role for corridor performance.

Many of the coalition members have well-established performance management practices. For example, the New Jersey Department of Transportation generates monthly performance reports regarding incidents and incident management. Other members work collaboratively on performance management activities. The Mid-Atlantic States, for example, have worked together to establish common measures throughout their region.

Although members have individually established performance management programs and, in some cases, regionally collaborated on such efforts, the I-95 Corridor Coalition itself has avoided quantitative, corridor oriented measures or targets. The coalition was used as a case study for the maturity model described in

<sup>10</sup> George Schoener, Executive Director, I-95 Corridor Coalition, interviewed by Ginny Crowson, Athey Creek Consultants, conducted January 22, 2015.

the previous section of this report. For most characteristics associated with technology/tools and institutional/governance areas, the coalition was rated at levels 4-5. However, the coalition was rated at level 3 for the characteristics associated with goals/objectives, performance measures and target setting under performance management processes. The lower level of maturity in these areas is largely because planning and operational decisions are managed by the states individually. The coalition has instead focused its efforts on exchanging information about and developing resources to support members' performance management experiences and practices. For example, the coalition is widely known for its corridor-wide procurement of third party probe data for its members. The [Vehicle Probe Project](#) began in 2008 and in addition to providing data, the effort has also conducted extensive review and validation of the data.<sup>11</sup> Both real-time and historical data are available, in addition to a suite of tools to support performance management through operations and planning.

#### **4. Potential Performance Measures for North/West Passage**

The previous sections of this summary presented a recap of performance management in general and a brief review of performance management activity among corridors throughout the United States. This section presents a series of potential measures that North/West Passage could consider exploring more deeply if there is a decision to pursue a more formal performance management process for the corridor. Three sources are referenced here for the potential measures they offer. These sources were selected because of their direct association with the North/West Passage or their national significance.

##### **4.1. GLRTOC**

GLRTOC was briefly noted earlier in this summary for their exploration of performance measures and the NPMRDS. Based on work for the Wisconsin Department of Transportation, the University of Wisconsin-Madison Traffic Operations and Safety Laboratory (TOPS Lab) has developed a process to download and an interface to view data from the NPMRDS for the Great Lakes Region, as well as other areas of the country, including the North/West Passage Corridor. Figure 4 presents a view of the TOPS Lab interface. The NPMRDS 2013 data that are used in this figure represent a Planning Time Index (PTI) which is a measure of travel time reliability. It represents a ratio of congested travel time to travel time under free flow conditions. The closer the value is to 1, the less likely that segment is to be impacted by traffic congestion.<sup>12</sup> The NPMRDS provides data in five-minute bins according to freight, passenger and all traffic. As such, PTI in the TOPS Lab interface is presented for freight traffic and for passenger traffic. The 2013 data indicate several points along I-90/I-94 where PTI is greater than 1.43 for both freight and passenger traffic. These points are located in primarily urban areas and the Rocky Mountains in the western end of the corridor. It also appears that freight traffic experienced less congested travel time in 2013 than passenger traffic.

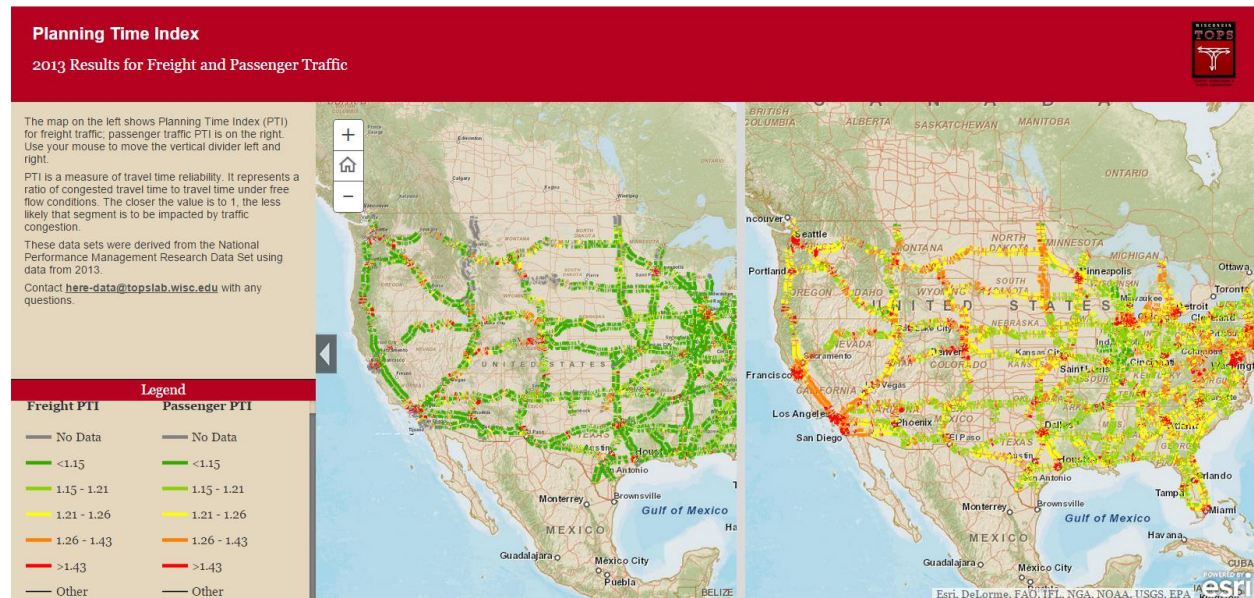
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<sup>11</sup> I-95 Corridor Coalition, Vehicle Probe Project (<http://www.i95coalition.org/projects/vehicle-probe-project/>), accessed May 1, 2015.

<sup>12</sup> University of Wisconsin-Madison, TOPS Laboratory, (<http://www.glrto.org/map/npmrds/pti2013/>), accessed April 22, 2015.



Figure 4 University of Wisconsin-Madison TOPS Lab Interface for NPMRDS



The TOPS Lab is also exploring use of the NPMRDS to explore the impact of major incidents. Because NPMRDS data is available on a monthly basis it is possible the data could be used to evaluate duration, impact and clearance for major incidents in the corridor. This information could be applied to incident management oriented performance measures, if such measures were further considered for North/West Passage.

#### 4.2. AASHTO Standing Committee on Performance Management (SCOPM)

SCOPM created a Task Force on Performance Measure Development, Coordination and Reporting charged with developing a limited number of national performance measures that could be shared with USDOT and help prepare AASHTO members to meet new Federal performance management requirements. Their report presents a series of recommended performance measures for six areas noted in MAP-21 legislation. The performance measures that the task force recommended for freight and system performance are likely the most viable for application to multistate corridor performance. The SCOPM task force report proposed the following measures for system performance and freight.<sup>13</sup>

- Annual hours of delay (system performance) – Travel time above a congestion threshold (defined by State DOTs and MPOs) in units of vehicle-hours of delay on Interstate and NHS corridors.
- Reliability index (system performance) – The Reliability Index is defined as the ratio of the 80th percentile travel time to the agency-determined threshold travel time.
- Annual hours of truck delay (freight) – Travel time above the congestion threshold in units of vehicle-hours for trucks on the Interstate Highway System; amount of extra time spent by each truck on an Interstate corridor based upon a state-determined threshold of what constitutes congestion and/or other factors for trucks.

<sup>13</sup> SCOPM Task Force Findings on National-Level Performance Measures

([http://scopm.transportation.org/Documents/SCOPM%20Task%20Force%20Findings%20on%20National%20Level%20Measures%20FINAL%20\(11-9-2012\).pdf](http://scopm.transportation.org/Documents/SCOPM%20Task%20Force%20Findings%20on%20National%20Level%20Measures%20FINAL%20(11-9-2012).pdf)), American Association of State Highway and Transportation Officials, Washington, DC, November 2012.

- Truck reliability index (freight) – The RI is defined as the ratio of the total truck travel time needed to ensure on-time arrival to the agency-determined threshold travel time (e.g., observed travel time or preferred travel time).

For all of the recommended measures, the report provides additional detail on stakeholder input, maintainability and adaptability, methodology, target setting, reporting, progress assessment, and additional considerations including stakeholder input, maintainability and adaptability, application to decision-making, trend analysis, data availability, calculation methodology, target setting and reporting. For annual hours of delay, for example, the report notes that the measure is well-tested, widely used, robust and scalable. It is also easily understood by most audiences and the most agreed upon metric used by agencies for measuring congestion. The report also provides a set of recommended input data and methodology for calculating and analyzing the data. Guidance is also provided for setting agency-specified speed thresholds against which the data will be measured. Suggestions for target getting and reporting are also provided for this and the other measures recommended in the report.

#### 4.3. Traffic Incident Management (TIM) Handbook

Compared to the two previous sources, this one is much more focused on a specific aspect of corridor performance – incident management. The TIM Handbook was selected as a reference for potential measures because of the recently stronger focus that North/West Passage has had on operations, particularly during major incidents (events). Updated in 2010, the handbook presents a series of performance measures based on input gathered from agencies recognized for their leadership in TIM. The measures align with overarching TIM objectives to manage incident notification, clearance and recovery times. Consequently, many of the recommended performance measures tend to be more locally (and urban) oriented. For example, time needed for responders to arrive on-scene after notification would not necessarily be relevant for broader corridor application since most agency coordination is limited to operations staff versus on-scene responders. There are, however, some measures that could be translated into a corridor orientation and they are noted below.

- Degree of familiarity with North/West Passage incident management goals and objectives supporting procedures by all stakeholders.
- Timeliness and accuracy of traveler information provided to motoring public during major incidents.

#### 4.4. Potential Measures Summary

Potential measures were chosen first from these sources *based on the goals and objectives for North/West Passage* which are listed in Table 1 for reference.

Table 1 North/West Passage Goals and Objectives

<b>Goal 1: Integrate state traveler information to provide corridor-wide information appropriate to the location and need of the traveler.</b>
Objective 1: Understand the common and unique information needs of the corridor's diverse travelers. This includes the type of information, as well as the mechanism for delivering the information.
Objective 2: Provide integrated traveler information along the entire corridor.
Objective 3: Provide integrated traveler information systems where appropriate and technically feasible.

<b>Goal 2: Develop and promote cross-border jurisdictional cooperation and coordination in the deployment, operations and maintenance of ITS.</b>
Objective 1: Maintain awareness and understanding of coordination tools and best practices among the North/West Passage states.
Objective 2: Establish and maintain shared procedures for coordinating traveler information and operations among the states.
<b>Goal 3. Coordinate the planning and deployment of ITS projects for the North/West Passage Corridor into the state, regional, and local planning and programming processes.</b>
Objective 1: Develop a one to three-year list of key ITS deployments for the corridor.
Objective 2: Document and share lessons learned from integration of ITS projects into state, regional, and local planning and programming processes.

Measures were next chosen based on the *likelihood of them being suggested in relation to the upcoming NPRM on system reliability*. Likelihood was primarily inferred from recommendations made by the AASHTO Standing Committee on Performance Management. Finally, measures were chosen based on the *likely availability of data to support it within the NPMRDS*, the national probe-based data set referenced earlier in this summary. Table 2 summarizes the potential measures for further consideration by North/West Passage, noting which of the three criteria for selection apply.

Table 2 Summary of Potential Performance Measures for North/West Passage Consideration

Potential Performance Measure	North/West Passage Goals/Objectives	System Reliability NPRM	NPMRDS Data Availability
1. Planning Time Index (PTI) – Ratio of congested travel time to travel time under free flow conditions.	X	X	X
2. Annual Hours of Delay – Travel time above a congestion threshold (defined by State DOTs and MPOs) in units of vehicle-hours of delay.	X	X	X
3. Reliability Index – Ratio of the 80th percentile travel time to the agency-determined threshold travel time.	X	X	X
4. Annual Hours of Truck Delay – Travel time above the congestion threshold in units of vehicle-hours for trucks.	X	X	X
5. Truck Reliability Index – Ratio of the total truck travel time needed to ensure on-time arrival to the agency-determined threshold travel time.	X	X	X
6. Degree of familiarity with North/West Passage incident management goals and objectives supporting procedures by all stakeholders	X		
7. Timeliness and accuracy of traveler information provided to motoring public during major incidents	X		

## 5. Conclusion

“Performance measurement should be regarded as a potential activity for corridor organizations, however there are currently few instances of corridor organizations using performance measures to guide funding or project decisions,” was cited as a key lesson in the report, How to Improvement Corridors of National Significance. This is an important observation for North/West Passage to keep in mind as performance measures are further considered for the corridor.

Another important consideration for North/West Passage will be the details contained in the notice of proposed rulemaking that will be issued later in 2015 for system reliability. It is possible, particularly based on the measures recommended by SCOPM, that this rule could also set the stage for future corridor performance management.

Should North/West Passage choose to further explore performance measures for the corridor, the detail associated with potential measures will be developed through a project proposed for the next work plan. The project would outline a performance management process – from data gathering to decision-making – that would be developed for North/West Passage.

Finally, the SCOPM report also offered wise advice regarding the selection of national performance measures that North/West Passage should also heed as multistate, corridor-oriented performance measures are further considered. The principles offered by SCOPM included:

- There is a Difference – National-level performance measures are not necessarily the same performance measures State DOTs will use for planning and programming of transportation projects and funding.
- Specificity and Simplicity – National-level performance measures should follow the SMART (Specific, Measurable, Attainable, Realistic, Timely) and KISS (Keep it Short and Simple) principles
- Possession is 9/10ths of the Law – National level performance measures should focus on areas and assets that States DOTs have control over.
- Reduce and Re-use – The initial set of national-level performance measures should build upon existing performance measures, management practices, data sets and reporting processes.
- Ever Forward – National level measures should be forward thinking to allow continued improvement over time.
- Communicate, Communicate, Communicate – Messaging the impact and meaning of the national-level measures to the public and other audiences is vital to the success of this initiative.