Minnesota Statewide Freight System Plan

Performance Measures Working Group
Meeting #3
February 20, 2015

We all have a stake in A to B

Agenda

- Freight Performance Measures Working Group – Progress To-Date
- Recommended Minnesota DOT Performance Measures
  - Discuss each measure
  - Discuss data availability
  - Discuss how/if measure will be applied during this Plan
- Other Freight-related Performance Measures for Future Consideration *(longer-term implementation)*
- Concurrence on Performance Measures

Performance Measures Working Group

Performance Measures Work Plan

- Three Working Group meetings
- Collaborate to develop freight performance measure recommendations
  - Consultant team will apply as part of Task 4, assessing the condition and performance of the freight system
- Next Steps (not part of this Plan)
  - MnDOT staff to continue exploring measures with state and local partners
  - MnDOT to coordinate target setting with state and local partners
  - Incorporate into future Annual Performance Reports

Meeting #1 – Base Understanding

- Reviewed Federal freight performance measure guidance *(preliminary)*
- Reviewed current MnDOT freight performance measures
- Discussed what elements of freight performance are most critical to measure from Working Group perspectives, and why
- Discussed gaps between existing state measures, required Federal measures, and desired measures

Meeting #2 – Data

- Discussed adaptation of current non-freight performance measures *(e.g., safety to focus on truck safety)*
- Discussed available data on early slate of freight performance measures from Meeting #1
- Discussed the strengths and weaknesses of available data and tools

Meeting #3 (Today)

- Discuss the recommended measures
- Discuss the ability of MnDOT to track as part of annual report card or the ability to forecast the data to aid in decision-making
- Focus on whether measures are more appropriately tracked at the statewide, network or modal level
- Provide input on recommendations

Recommended Minnesota DOT Performance Measures

National Performance Goals

For Federal Highway Programs

- Freight Movement and Economic Vitality
- Safety
- Infrastructure Condition
- Congestion Reduction
- System Reliability
- Environmental Sustainability
- Reduced Project Delivery Delays

Recommended Performance Measures–Freight (MN)

- Annual Hours of Truck Delay (AHTD)
- Truck Reliability Index (RI80)
- FAF-Based Shipment Statistics
- Heavy Commercial Average Annual Daily Traffic (HCAADT), by corridor
- Annual Rail Shipments in Minnesota
- Annual Container Lifts in Twin Cities
- Annual Minnesota Port Tonnage

1) Annual Hours of Truck Delay (AHTD)

Measure Purpose/Definition

- Travel time above the congestion threshold in units of vehicle-hours for Trucks on the Interstate Highway System

Measure Data Collection

- NPMRDS (HERE) Vehicle probe dataset collected and maintained by FHWA

Data Owner

- Subscription-based, currently available to performance management office

2) Truck Reliability Index (RI_{80})

Measure Purpose/Definition

- 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).

Measure Data Collection

- NPMRDS (HERE) Vehicle probe dataset collected and maintained by FHWA

Data Owner

- Subscription-based, currently available to performance management office

3) FAF-Based Shipment Statistics

Measure Purpose/Definition

- Identifies total Shipments to, from, and within Minnesota; Freight Mode Share (by tonnage and value) in Minnesota

Measure Data Collection

- Collected and maintained by the FHWA, typically updated annually, and re-calibrated at 5 year intervals

Data Owner

- Freight Analysis Framework (FAF)-based data supplied by the MnDOT Office of Freight and Commercial Vehicle and currently reported to Performance Management

4) Heavy Commercial Average Annual Daily Traffic (HCAADT), by corridor

Measure Purpose/Definition

- Identifies commercial vehicle miles traveled on the Minnesota State Highway System (in billions).

Measure Data Collection

- HCAADT is a product of automatic traffic recorder (ATRs), and used with other traffic statistics for road cost user studies.

Data Owner

- Maintained by the Transportation Data & Analysis Office, and currently reported to Performance Management

5) Annual Rail Shipments in Minnesota

Measure Purpose/Definition

- Identifies annual rail shipments in Minnesota, by tons

Measure Data Collection

- Currently collected and maintained by the Association of American Railroads (AAR)

Data Owner

- Identified and reported by Office of Freight and Commercial Vehicle Operations–Railroad Office and reported to Performance Management

6) Annual Container Lifts in Twin Cities

Measure Purpose/Definition

- Identifies container volumes in Metro Area railroad intermodal yards

Measure Data Collection

- Currently a primary data source, and is collected by MnDOT Rail Office staff in conversations with terminal operators

Data Owner

- Collected annually by the Office of Freight and Commercial Vehicle Operations–Railroad Office and reported to Performance Management

7) Annual Minnesota Port Tonnage

Measure Purpose/Definition

- Identifies container volumes in Metro Area railroad intermodal yards

Measure Data Collection

- Currently a primary data source, and is collected by MnDOT Rail Office staff in conversations with terminal operators

Data Owner

- Collected annually by the Office of Freight and Commercial Vehicle Operations–Railroad Office and reported to Performance Management

Potential Performance Measures–Freight (MN)

- Discuss list from handout

Recommended Performance Measures – Safety (MN)

- Number of Fatalities
- Fatality Rate
- Number of Serious Injuries
- Serious Injury Rate
- Severe Crashes Involving Trucks
- Incidents at Highway/Railroad Crossings

8) Fatalities and Fatality Rate

Measure Purpose/Definition

- Five-year moving average of the count of the number of fatalities on all public roads for a calendar year.
- Five-year moving average of the Number of Fatalities divided by the Vehicle Miles Traveled (VMT) for a calendar year.

Measure Data Collection

- Data is based on crash reports filed by law enforcement, and queried from the MnDOT crash database

Data Owner

- MnDOT Office of Safety Analysis, reported to Performance Management

9) Number of Serious Injuries and Serious Injury Rate

Measure Purpose/Definition

- Five-year moving average of the count of the number of serious injuries on all public roads for a calendar year.
- Five-year moving average of the Number of Serious Injuries divided by the Vehicle Miles Traveled (VMT) for a calendar year.

Measure Data Collection

- Data is based on crash reports filed by law enforcement, and queried from the MnDOT crash database

Data Owner

- MnDOT Office of Safety Analysis, reported to Performance Management

10) Severe Crashes Involving Trucks

Measure Purpose/Definition

- Identify severe crashes on Minnesota roadways involving commercial vehicles

Measure Data Collection

- Data is based on crash reports filed by law enforcement, and would require a query from the MnDOT crash database

Data Owner

- Office of Traffic, Safety and Technology, not currently reported or maintained

11) Incidents at Highway/Railroad Crossings

Measure Purpose/Definition

- Identify incidents between trucks and passenger vehicles at highway/railroad crossings

Measure Data Collection

- The Federal Railroad Administration (FRA) maintains a national crossing database

Data Owner

- MnDOT Office of Safety Analysis, reported to Performance Management

Potential Performance Measures–Safety (MN)

- Discuss list from handout

Recommended Performance Measures – Pavement Condition

- Interstate Pavement in Good, Fair and Poor Condition based on the International Roughness Index (IRI)
- Non-Interstate NHS Pavement in Good, Fair and Poor Condition based on the International Roughness Index (IRI)
- Pavement Structural Heath Index

12) Pavement in Good, Fair and Poor Condition based on the International Roughness Index (IRI)

Measure Purpose/Definition

- Interstate and Non-Interstate NHS Pavement:
- Identify percentage of 0.1 mile segments of Interstate pavement mileage in good, fair and poor condition based on the following criteria: good if IRI<95, fair if IRI is between 95 and 170, and poor if IRI is greater than 170

Measure Data Collection

- Collected and maintained by the MnDOT Office of Materials & Road Research, MnDOT uses “Ride Quality”, a calculation of IRI

Data Owner

- MnDOT Office of Materials & Road Research, reported to Performance Management

13) Pavement Structural Heath Index

Measure Purpose/Definition

- Identify percent of highway percentage of pavement which meet minimum criteria for pavement faulting, rutting and cracking.

Measure Data Collection

- MnDOT currently measures ride quality on the Interstate system, the non-Interstate National Highway System and on all state highways, and tracks percentage of highways with poor ride quality.

Data Owner

- MnDOT Office of Materials & Road Research, reported to Performance Management

Potential Performance Measures–Pavement

- Discuss list from handout

Recommended Performance Measures – Bridges

- Percent of Deck Area on Structurally Deficient Bridges
- NHS Bridges in Good, Fair and Poor Condition based on Deck Area

14) Percent of Deck Area on Structurally Deficient Bridges

Measure Purpose/Definition

- NHS bridge deck area on structurally deficient bridges as a percentage of total NHS bridge deck area.

Measure Data Collection

- MnDOT currently measures Bridge condition is calculated from the results of inspections performed at least every two years on all state highway bridges.

Data Owner

- MnDOT Bridge Office, reported to Performance Management

15) NHS Bridges in Good, Fair and Poor Condition based on Deck Area

Measure Purpose/Definition

- Percentage of National Highway System bridges in good, fair and poor condition, weighted by deck area.

Measure Data Collection

- MnDOT currently measures Bridge condition is calculated from the results of inspections performed at least every two years on all state highway bridges.

Data Owner

- MnDOT Bridge Office, reported to Performance Management

Potential Performance Measures–Bridges

- Discuss list from handout

Concurrence on Performance Measures