



National Fleet Metrics

2013 Northeast/Midwest Region Joint Equipment Management Meeting

Sonja J. Scheurer, Administrator
D. Scott Ratterree, Manager
Daniel E. Smith, Fleet Specialist
Andrew W. Bannasch, Analyst

National Fleet Performance Metrics

- Timeline
- Proposed/Approved Resolutions
- Definitions
- Methodology
- Vehicle/Metric Groupings
- Parameters/Stoplight Charts
- Reporting Requirements
- EMTSP Web Site
- Questions/Discussion

Timeline

- 06/2012: National Fleet Conference
 - Recommend Biennial Regional & National Meetings
 - Endorsement of four key fleet performance metrics
 - Initiation of team meetings w/representation from all regions
- 07/2012: Developed resolutions
 - #12-03 Equipment Fleet Management Performance Metrics
 - #12-04 Biennial Regional & National AASHTO EMTSP Meetings
- 08/2012: Team Conference Call (13 States)
- 09/2012: AASHTO SCOM approval of resolutions
- 10/2012: Team Conference Call (11 States)
- 11/2012: AASHTO SCOH approval of resolutions
- 11/2012: Team Conference Call (13 States & Canada)
- 12/2012: Team Conference Call (9 States & Canada)
- 05/2013: Team Conference Call (9 States & Canada)

AASHTO Resolution #12-03

NOW, THEREFORE, BE IT RESOLVED that the AASHTO Subcommittee on Maintenance expresses their endorsement of the use of the key performance metrics for the equipment fleet of utilization, preventive maintenance, retention, and availability/downtime...

Resolution #12-03 - Utilization

WHEREAS, The performance metric of utilization recognizes that tracking and reporting the use of the equipment fleet is necessary to ensure effective and efficient use of State DOT vehicles and equipment. Accurate tracking of utilization allows for informed assessment and assignments of the equipment fleet to meet operational needs...

Resolution #12-03 – Preventive Maintenance

WHEREAS, The performance metric of preventive maintenance is a fundamental, planned maintenance activity designed to prolong equipment fleet life and aids in preventing unplanned maintenance and repairs, and preventive maintenance is the foundation of a properly managed equipment fleet and a significant component contributing to all maintenance strategies...

Resolution #12-03 - Retention

WHEREAS, The performance metric of retention recognizes that current economic times have resulted in lower levels of funding, and the cost of replacement fleet equipment has been escalating and resulted in a significant decrease in buying power, which have resulted in an immediate and extended impact on the equipment fleet and its life cycles, and it is imperative to sustain the high level of readiness and reliability, which is directly related to the age of fleet equipment, and accordingly the development and implementation of a nationally recognized metric for retention relating to fleet life cycles is essential to maintaining a healthy, economical, and operational equipment fleet...

Resolution #12-03 – Availability/Downtime

WHEREAS, The performance metric of availability/downtime recognizes the importance of assessing the readiness equipment fleet to perform and respond to routine and reactive/emergency response activities, and availability/downtime also reflects an organization's ability to properly staff personnel and supply resources to accomplish the mission, which can also be reflective of a fleet's age, utilization, and units beyond established retention periods...

Resolution #12-03 – National Metrics

WHEREAS, *State DOT Comparative Performance Measurement: A Progress Report* produced by NCHRP Project 20-24 (37)L states that AASHTO and FHWA have been working over the past eight years to identify a set of common transportation performance measures that could be adopted by all states, that these common measures would provide a basis for individual states to view their own performance relative to peer states, and common measures also make it possible to combine information across states to provide a national picture of performance...

Definition: Utilization

A MEASUREMENT TYPICALLY IN HOURS OR MILEAGE TO INDICATE HOW FREQUENTLY A VEHICLE OR PIECE OF EQUIPMENT IS USED WITHIN A GIVEN TIME PERIOD (I.E. MONTH, QUARTER, OR YEAR).

Definition: Preventive Maintenance

A FUNDAMENTAL, PLANNED MAINTENANCE ACTIVITY (I.E. OIL AND FILTER CHANGE) DESIGNED TO IMPROVE LIFE AND AVOID ANY UNPLANNED MAINTENANCE ACTIVITY/BREAKDOWN INVOLVING A VEHICLE OR PIECE OF EQUIPMENT (TYPICALLY PERFORMED ON A CALENDAR/HOUR/MILEAGE INTERVAL).

Definition: Retention

A MEASUREMENT TO COMPARE WHETHER AN INDIVIDUAL VEHICLE(S) OR PIECE(S) OF EQUIPMENT ARE WITHIN OR EXCEED ESTABLISHED CRITERIA (TYPICALLY IN MONTHS OR YEARS OF AGE AND USAGE IN MILES OR ENGINE HOURS) FOR THE EXPECTED LIFE CYCLE OR USEFUL LIFE.

RETENTION SCHEDULES ARE DEVELOPED (OFTEN USING EMPIRICAL DATA ANALYSIS) BY ORGANIZATIONS TO DETERMINE WHEN IT IS THE MOST COST EFFECTIVE TO REPLACE A VEHICLE/PIECE OF EQUIPMENT.

Definition: Availability/Downtime

AVAILABILITY: WHEN A UNIT IS “IN SERVICE’ AND CAPABLE OF PERFORMING, AT A MINIMUM, ITS PRIMARY FUNCTION. TO CALCULATE AVAILABILITY, DOWNTIME MUST BE KNOWN.

DOWNTIME: WHEN A UNIT IS UNAVAILABLE AND UNABLE TO PERFORM ITS PRIMARY FUNCTION DUE TO A MAINTENANCE ISSUE SCHEDULED OR UNSCHEDULED (I.E. A PREVENTIVE MAINTENANCE INSPECTION OR ROAD BREAKDOWN) VERSUS NON-UTILIZATION DURING SEASONAL TIMEFRAMES.

Reporting Methodology

- ❑ National Parameters versus Statewide Criteria
- ❑ Use Statewide criteria and report in accordance with agreed upon national parameters
- ❑ “Pass/Fail” results
- ❑ NAFA Codes for Vehicle/Equipment Groupings
- ❑ Focus on collaboration among states to improve and share best practices

Vehicle/Metric Groupings: Utilization

NAFA Codes



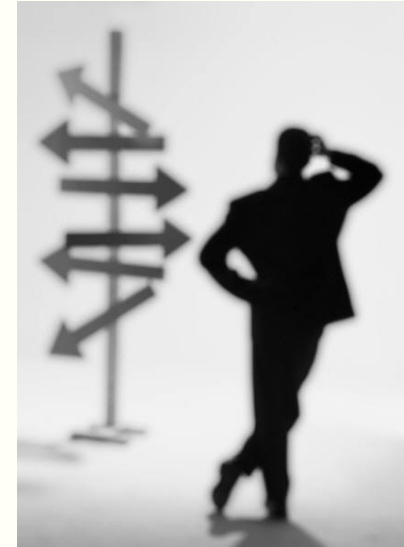
Microsoft Excel
97-2003 Worksheet

1-2 Light Vehicles under 10,000 GVW

3-6 Medium Vehicles 10,000 – 26,000 GVW

7-8 Heavy Vehicles Over 26,000

9 (Off-road & construction) Equipment



Vehicle/Metric Groupings: Preventive Maintenance

NAFA Codes



Microsoft Excel
97-2003 Worksheet

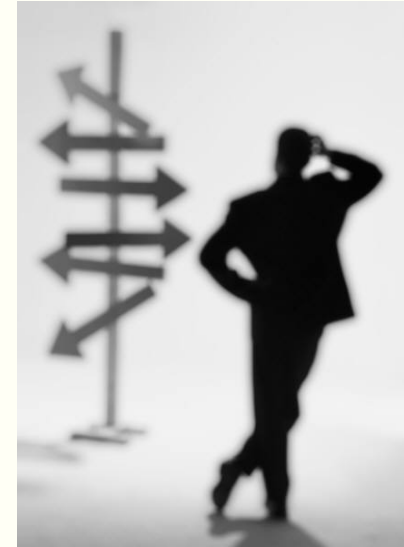
1-2 Light Vehicles under 10,000 GVW

3-6 Medium Vehicles 10,000 – 26,000 GVW

7-8 Heavy Vehicles Over 26,000

0 (Non-self propelled)

9 (Off-road & construction) Equipment



Vehicle/Metric Groupings: Retention

NAFA Codes



Microsoft Excel
97-2003 Worksheet

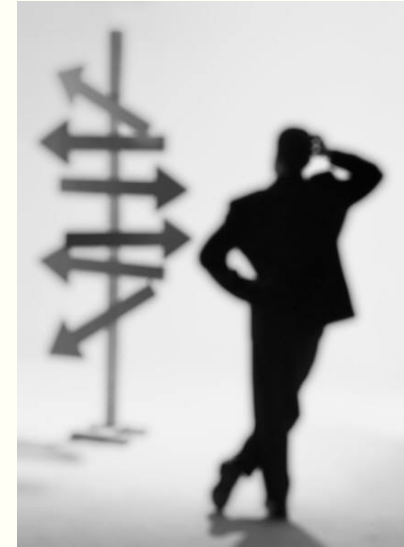
1-2 Light Vehicles under 10,000 GVW

3-6 Medium Vehicles 10,000 – 26,000 GVW

7-8 Heavy Vehicles Over 26,000

0 (Non-self propelled)

9 (Off-road & construction) Equipment



Vehicle/Metric Groupings: Availability/Downtime

NAFA Codes



Microsoft Excel
97-2003 Worksheet

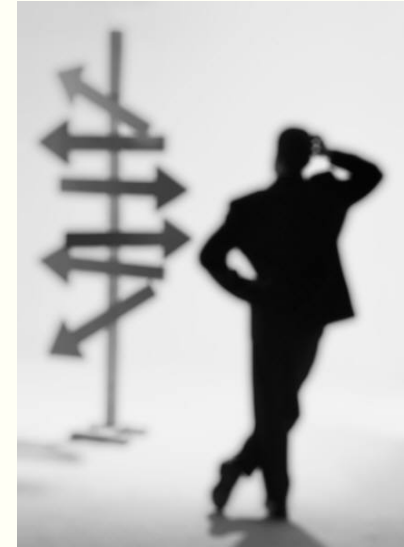
1-2 Light Vehicles under 10,000 GVW

3-6 Medium Vehicles 10,000 – 26,000 GVW

7-8 Heavy Vehicles Over 26,000

0 (Non-self propelled)

9 (Off-road & construction) Equipment



Parameters: Utilization

- ❑ Slightly broader parameters than other metrics
- ❑ Affected by less utilized seasonal/contingency units
- ❑ May be impacted by operations/geography
- ❑ Impacted by lack of commercial availability of mission critical assets

Parameters/Stoplight Charts: Utilization

Light Vehicles



54%

NAFA 1 & 2

Medium Vehicles



53%

NAFA 3 & 6

Greater Than 84% = **Green**

70% - 84% = **Yellow**

Less Than 70% = **Red**

Heavy Vehicles



56%

NAFA 7 & 8

Equipment



49%

NAFA 9

Overall



54%

NAFA All

Parameters: Preventive Maintenance

- ❑ Fleet Management Core Competency
- ❑ Ensures good health of fleet & enhances availability
- ❑ Extends fleet life and reduces long-term costs
- ❑ Standards should be high!

Parameters/Stoplight Charts: Preventive Maintenance

Light Vehicles



93%

NAFA 1 & 2

Medium Vehicles



93%

NAFA 3 & 6

Greater Than 90% = **Green**

80% - 89% = **Yellow**

Less Than 80% = **Red**

Heavy Vehicles



96%

NAFA 7 & 8

Non-Self Propelled



89%

NAFA 0

Equipment



89%

NAFA 9

Overall



92%

NAFA All

Parameters: Retention

- ❑ Same parameters as PM Compliance
- ❑ Regardless of budget, manage fleet wisely
- ❑ Highlight replacement needs to upper management
- ❑ Okay to not replace older seasonal/contingency units on schedule

Parameters/Stoplight Charts: Retention

Light Vehicles



49%

NAFA 1 & 2

Medium Vehicles



51%

NAFA 3 & 6

Greater Than 90% = Green

80% - 89% = Yellow

Less Than 80% = Red

Heavy Vehicles



58%

NAFA 7 & 8

Non-Self Propelled



50%

NAFA 0

Equipment



39%

NAFA 9

Overall



49%

NAFA All

Parameters: Availability/Downtime

- ❑ Same parameters as PM Compliance & Retention
- ❑ Important management tool regarding health & condition of fleet assets and ability to meet mission requirements
- ❑ Will encourage timely reporting/repair of assets
- ❑ Could potentially foster support for additional resources (i.e. parts, people, and funding)

Parameters/Stoplight Charts: Availability/Downtime

Light Vehicles



97%

NAFA 1 & 2

Medium Vehicles



97%

NAFA 3 & 6

Greater Than 90% = **Green**

80% - 89% = **Yellow**

Less Than 80% = **Red**

Heavy Vehicles



92%

NAFA 7 & 8

Non-Self Propelled



98%

NAFA 0

Equipment



96%

NAFA 9

Overall



97%

NAFA All

Reporting Requirements

- Twice a year to EMTSP--No later than January 10 & July 10
- Complete standard form and e-mail to ncpp@egr.msu.edu
- EMTSP will post to web site prior to end of month
- It is okay to report incremental progress



Adobe Acrobat
Document

EMTSP Web Site

- ❑ Individual metrics by region/state
- ❑ State folders for supporting documentation
- ❑ Access/updates
- ❑ Demonstration/link - <http://www.emtsp.org/>
- ❑ Next Steps

Questions

Discussion - Next Steps

- Report metrics information by 07/10/2013
- Continue periodic teleconferences (quarterly)
- Collaborate to assist States not reporting/or not able to report (Regions work with member States)
- Suggestions to improve/enhance metrics web site
- Reassess parameters as necessary
- Recommendations for future metrics

2011 Survey Results

What are the top three fleet metrics recommended for measurement and comparison at the national level?

- Downtime (8 – 19.0%)
- Utilization (7 – 16.6%)
- PM Compliance (7 – 16.6%)
- Retention (6 – 14.2%)
- Technician Productivity (2 – 4.7%)
- Scheduled Vs. Non-Scheduled Repairs (2 – 4.7%)
- Average Repair Costs (2 – 4.7%)
- Maintenance Dollars Per Hour (1 – 2.3%)
- Rework Percentage (1 – 2.3%)
- Fleet Management Method (1 – 2.3%)
- Cost Per Usage (1 – 2.3%)
- Fuel Efficiency (1 – 2.3%)
- Unit Idle Time (1 – 2.3%)
- Equipment Justification (1 – 2.3%)
- Overall Condition (1 – 2.3%)

Discussion

Final Thoughts/Comments?