TITLE:
Safety Report

PURPOSE:
To present to the Safety and Security Committee a report on the state of safety within Metro, including safety statistics, current actions, action plans on recommendations to audits, policies and other safety related information so the Committee may be kept up to date and informed.

DESCRIPTION:
To ensure that safety is the priority within Metro and that necessary actions and policies are implemented to enhance the safety of our employees and customers.

FUNDING IMPACT:
None

RECOMMENDATION:
To present the Safety Report.
Purpose

• Provide the Committee updated information on Metro’s safety progress relative to:
  
  • Fatigue Risk Management System Update
  
  • Safety Statistics
    • CY2012 through May
Building WMATA’s Fatigue Risk Management System
Background

• With benefit of the TOC/WMATA report, build a Fatigue Risk Management System (FRMS)
  – Initial focus: Safety-critical occupations within bus, rail, MetroAccess
  – Second phase: Other safety-sensitive occupations within bus, rail and MetroAccess, and Metro Transit Police

• Work in progress:
  – Complete studies, similar in form to the TOC/WMATA Fatigue study, for MetroBus and MetroAccess
  – Develop and implement model and ongoing program
TOC/WMATA Joint Fatigue Management Study for Metrorail on Nov. 17, 2011:

- Absence of hours of service limitations
- Training available, but not utilized by employees
- Data showed most work completed within 40-hour week, but significant outliers
- Some overtime work add to commuting time
- Vacancies add to overtime demands
- Secondary employment policy seems unenforceable
Metrobus Fatigue Study

- **Bus Transportation** highlights:
  - Some operators work "swing shifts"—i.e., shifts that are divided between the morning and afternoon rush hours, and separated by several hours off duty.
  - Total time between reporting for morning and afternoon/evening assignments can exceed 14 hours, and be as much as 16 hours.
  - Some employees' commute can equal two hours a day.
  - Most Metrobus facilities do not have rest or "quiet" rooms.
  - Even without overtime, opportunity for adequate sleep can be impeded by preparing to drive, driving, awaiting the next segment of their shift, and commuting to and from home.
Metrobus Fatigue Study

– Bus Transportation highlights (cont’d):

• Most hourly employees worked 5-day weeks

  – For a workforce of approximately 2,500 bus operators, in the study month of July 2011, there were only 31 occurrences of employees working six or more days consecutively

• Out of 67,200 individual shifts worked in July 2011, 8% exceeded 12 hours

• 146 occurrences of work from 16.25 hours to 20 hours; 50 occurrences of work in excess of 20 hours without 8 hours off

• Some exempt employees also experienced long work days, high cumulative hours per week (including some over 80 hrs.), and/or occurrences of more than 5 consecutive days worked (up to 10 days)
Metrobus Fatigue Study

- Bus **Maintenance** highlights:
  - Work generally scheduled in 8-hour shifts, with up to 12 consecutive hours worked when overtime is necessary.
  - During the study period, there were 265 occurrences when work hours exceeded 12 (1.8% of total).
  - “Midnight shift” presents inherent challenges.
  - Secondary employment can introduce additional risk.
  - Facilities could benefit from additional lighting to maintain alertness and aid housekeeping.
MetroAccess highlights:

- Approach similar to rail and bus studies
- Interviews complete and data analysis underway
Interim Actions

– Continue to extend Certifying Medical Examinations to all safety-sensitive employees (not just CDL holders) and applicants (ongoing, bus and rail)
  • Key step in identifying and managing sleep disorders

– Begin to limit hours worked in functions with safety-critical duties (Metrorail)
  • Automatic Train Control (14/10 effective April 2012)
  • Electric Power (Jan. 2013)
  • On-track equipment operators (Jan. 2013)

– Fill vacancies at an accelerated pace (bus and rail) and hire in anticipation of Silver Lines requirements (rail).
Fatigue Risk Management System

Building Blocks

- HOS Policy
- Accident Analysis Methodology
- Sleep Disorders Policy
- Fatigue Countermeasures

Data Collection (Pre & Post intervention)

- Biomathematical modeling
  - Accident Analysis
  - Existing schedules
  - Dashboard
  - Auto-sleep customization
- Fatigue reporting & root cause analysis

Building Blocks of an FRMS

- Policies and Procedures
- Organization and Personnel
- Tools and Methods
- Training and Publicity

- Computer based training
- Education on new policies
  - HOS
  - Sleep Disorders Treatment
  - Fatigue countermeasures
- Publicity regarding FRMS program

WMATA personnel
- FRMS organization and linkages to other departments
- FRMS roles and responsibilities
Part 1: Policies and Procedures

- Review methodology, data & conclusions of TOC fatigue survey and ongoing internal fatigue surveys
- Examine HOS Policies and recommend revisions
  - Matrix of fatigue metrics includes: hours worked per week, time off, overtime, consecutive days worked
  - Use biomathematical modeling of work schedules to include limitations on daily & cycle/weekly limitations
- Review Sleep Disorders Policies
- Perform a Fatigue Hazard Assessment
Fatigue exposure is initially assessed with biomathematical modeling of actual work schedules using **SAFTE-FAST™**.

Work schedule data will be extracted from Trapeze and other sources and reformatted for **SAFTE-FAST**.

Analysis will define the amount of time at fatigue risk.
Part 3: Training

- **Education**
  - Assessment of WMATA's computer-based fatigue awareness training.
  - Inclusion of new FRMS-related policies
  - Fatigue countermeasures

- **Fatigue reporting information**
- **Sleep Disorders Education**
- **Fatigue Risk Management System Publicity**
Part 4: Organization

- Define FRMS organization & relationships within WMATA
- Fatigue Countermeasures
  - Scientifically-validated fatigue mitigations
- Define organizational implementation of fatigue modeling
  - Functional sample widget to be integrated into the Safety Dashboard
- Define the WMATA Continuous Improvement Process
Involves all stakeholders at each stage: management, labor, aided by science.

**Measure**
- Define the situation
- Schedule evaluation
- Actigraph recordings

**Model & Analyze**
- Model the fatigue problem
- Analyze sources and Fatigue factors

**Manage**
- Collaborate for solutions
- Obtain commitment to solve problem

**Modify/Mitigate**
- Shared Responsibility
  - Operating practices
  - Labor agreements
  - Individual “life style”

**Monitor**
- Assess operational indicators
- Individual self-evaluation
- Feedback to process

**Enablers**
- Employee training
- Medical screening
- Economic analysis
- Technology aids

Continuous Improvement Process
Continuous Improvement

• Data will inform mitigations and policies
• Identification of groups with elevated fatigue risk
• Development of methodology and instruments
• Study design and implementation
• Analyses
Investments

- Education and training for managers, safety-sensitive employees, and schedulers
- Tools for schedulers to optimize appropriate use of personnel within work hour restrictions
- Improved information systems to track FRMS metrics
- Facilities improvements to support alertness
Benefits

- Improved safety, both directly and through strengthening WMATA’s safety culture
- Improved health, supporting greater availability and containment of health care costs for WMATA and individuals
- Fewer mistakes, supporting higher productivity, better service reliability
- Better retention of employees
Baseline Assessment

- Protocol Development (June-August 2012)
- Data collection – Phase I (October – November 2012)
- Data collection – Phase II (October – November 2013)

FRMS Development

- HOS Policy based on initial hazard assessment
- Initial fatigue modeling
- November 2012

- Policy: Expand and refine HOS and sleep disorders policies for other work groups
- Education: Updated Fatigue Education and Training
- Organization: Refine FRMS Organization, Personnel, and Functions

Data Collection

- Protocol Development (June-August 2012)
- Data collection – Phase I (October – November 2012)
- Data collection – Phase II (October – November 2013)

- Bi-weekly reports on data collection, as needed
- Interim reports Dec 2012, June 2013, Dec 2013
- Final report: May 2014

Reporting

May 2012

May 2013

May 2014
CY 2012 through May Performance Indicators
KPI: Employee Injury Rate

Why Performance Changed?

- 21 more injuries compared to April 2012, a 42% increase
- Work hour increase was negligible at 0.7%
- Strains are the number one source of injuries
  - Followed by injuries from slips/trips/falls and motor vehicle accidents

Actions

- Additional training is being scheduled and held in the field in an effort to make training more accessible
- SAFE’s SMS Hazard Management Module will soon be deployed and implemented to better track, rate, and mitigate programmatic hazards that contribute to employee injuries.
KPI: Customer Injury Rate

Why Performance Changed?

- 35 more customer injuries than April 2012, a 69% increase
- Passenger trips increased by 2%
- Slips/trips/falls are the leading cause of customer injuries followed by Bus collision related incidents

Actions

- Safety inspections at all Rail stations continues to occur on a regular basis
- The SAFE Department has increased its presence during the weekend shutdowns and has included reviewing passenger / pedestrian safety patterns outside the station to its inspection criteria
Corrective Action Plans

- 2011: 192 (125 Closed, 66 Open)
- 2010: 1 (Closed)
- 2009: 29 (28 Closed, 1 Open)
- 2008: 24 (21 Closed, 3 Open)
- 2007: 69 (66 Closed, 3 Open)
- 2006: 47 (49 Closed)
- 2005: 27 (27 Closed)
- 2004: 55 (53 Closed, 2 Open)
# Hazard Resolution Matrix of Open Corrective Action Plans

<table>
<thead>
<tr>
<th>Frequency of Occurrence</th>
<th>Hazard Categories</th>
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<tbody>
<tr>
<td></td>
<td>Catastrophic 1</td>
</tr>
<tr>
<td>A = Frequent</td>
<td>0 1A</td>
</tr>
<tr>
<td>B = Probable</td>
<td>1 1B</td>
</tr>
<tr>
<td>C = Occasional</td>
<td>1 1C</td>
</tr>
<tr>
<td>D = Remote</td>
<td>23 1D</td>
</tr>
<tr>
<td>E = Improbable</td>
<td>0 1E</td>
</tr>
</tbody>
</table>

1A, 1B, 1C, 2A, 2B, 3A: Unacceptable – Executive Leadership with Chief Safety Officer
1D, 2C, 2D, 3B, 3C: Undesirable - Executive Safety Committee decision required
1E, 2E, 3D, 3E, 4A, 4B: Acceptable with review by Executive Safety Committee
4C, 4D, 4E: Acceptable without review