

Washington Metropolitan Area Transit Authority
Board Action/Information Summary

Action Information

MEAD Number:
200560

Resolution:
 Yes No

TITLE:

Fatigue Risk Management System (FRMS) Update

PRESENTATION SUMMARY:

This presentation provides an update of the Fatigue Risk Management System (FRMS) program and its key elements.

PURPOSE:

The purpose of this presentation is to update the Safety and Security Committee on the FRMS program progress, including program elements to be implemented as part of the program.

DESCRIPTION:

Historically, the risk associated with fatigue was largely managed by limiting the number of hours worked. However, there is increasing understanding that hours-of-service limitations by themselves may not achieve the objective of managing risk from fatigue. This together with the restrictive impact on operations has led industry and regulators to move away from using rules based solely on hours of work, and instead adopt a more comprehensive approach to fatigue risk management using Fatigue Risk Management Systems (FRMS).

Key Highlights:

WMATA has made progress in implementing the FRMS program, including establishing the FRMS Policy Instruction which provides overall guidance on implementation of the program elements. The HOS policy is based on results from the bio-mathematical scientific fatigue models. HOS guidelines set standards for rail and bus operators with plans to develop full guidelines for other safety sensitive work. Program elements underway include gathering of additional field data, an improved incident investigation protocol for fatigue-related factors, an FRMS Dashboard and a secondary employment policy.

Background and History:

Well-rested, alert employees are critical to safe and productive operations. Excessive fatigue while working is an important condition that can increase safety risk. Because of its potential impact on health and safety, an organization in which individuals work extended hours or hours during which people typically sleep can benefit by directly addressing fatigue in the workplace. This is especially true for a safety sensitive/safety

critical function.

Discussion:

The FRMS project has four building blocks: Organization and Personnel, Training and Publicity, Tools and Method and Policies and Procedures. These building blocks are now being developed and implemented throughout WMATA. Once constructed, the FRMS will allow us to regularly monitor key fatigue risk parameters to assist in minimizing worker fatigue.

FRMS Organization and Personnel

The first objective for the organization was to set up processes within WMATA that give the FRMS a home and ensure that it is relevant to our workplace. This was established through the creation of a Charter which outlines the roles of the FRMS committees. The Charter strengthens WMATA's commitment to the FRMS by placing ownership of the processes on its personnel, specifically management, supervisors and employees. This commitment requires organizational resources and support for its continuous improvement.

- The FRMS Operational and Executive Steering Committees continue to meet on a regular basis providing oversight and direction for the FRMS policy. The composition of the committees reflects the shared responsibility of individuals from top management on-down; including the safety department, operations and maintenance, our labor unions and the medical services staff.
- Inviting labor unions 689 and 922 into the process has been a top priority. We have met with both organizations and their representatives are members of the FRMS Operational Committee.

FRMS Training and Publicity

Maintaining an awareness of the FRMS is a continuing process and the Authority has committed to make it part of its annual work plan. Serving as a framework is the 2013 Employee Safety Communications/Fatigue Tactics Task calendar, which outlines a number of initiatives for employee awareness and fatigue prevention. Among the initiatives that have been completed or are currently under way:

- In early February 2013, a Safety Calendar featuring a fatigue management tip of the month was distributed Authority-wide.
- The General Manager has discussed the topic of fatigue and fatigue management in his Town Hall meetings.
- Sleep tips and fatigue countermeasures have been included in select weekly *Messages from the General Manager & Chief Executive Officer*.
- Fatigue risk management and countermeasures articles have been published in the Metro Weekly on several occasions.
- Beginning April 2013, a Fatigue management tip was included each week in the Station Manager Direct publication.
- The Institute of Behavior Resources (IBR), under contract to assist in the development of the Fatigue Risk Management System, has conducted briefings for middle management at various WMATA facilities.

- In May 2013, IBR conducted a train-the-trainer session for all of the SAFE staff on the topic to be cascaded down to Local Safety Committee meetings and discussions in the field.
- In July 2013, the Metro Weekly covered the activity logbook survey.
- In September 2013, fatigue management information was distributed at the Bus Rodeo.
- In November 2013, the Metro Weekly lead article described the new Policy/Instruction on Fatigue Risk Management and its components.

FRMS Tools and Methods

FRMS will utilize bio-mathematical models to evaluate the fatigue associated with individuals working in safety sensitive and safety critical positions and provide information for work schedules. Data will be collected for the model through Phase I and II.

- To calibrate the fatigue risk model to actual WMATA work schedules, a field data collection survey using a logbook study and questionnaire began in late June-July 2013. The goal of the survey was to obtain rest, work and commuting times over a two-week period. While 52 forms from bus operators, bus mechanics, train operators, track equipment operators and ATC technicians were returned, it is not enough data to change the working assumptions in the general fatigue risk bio-mathematical model.
- Relying on pre-selected employees, data will now be collected through use of the actigraphy along with activity logbooks for TIES employees. The actigraph is a watch-like device that will be worn continuously by approximately 100 individuals who are at a greater risk of fatigue. Through the use of an accelerometer which monitors activity levels during sleep and wake times, additional data will be collected to confirm the validity of subjective sleep estimates given in logbooks. This data will assist in the customization of the general fatigue risk model to WMATA work schedules for TIES.
- Through integration with PeopleSoft and Trapeze, the SAFTE-FAST model can process thousands of work schedules and provide an overall assessment of an employee's risk, with minimal manual entry of data. Managers will have this tool at hand to support adherence to hours of service policies, staffing needs and scheduling.

FRMS Policies and Procedures

- Data received from actigraph survey will allow IBR to confirm the Hours of Service recommendations specifically for WMATA based on the work group.
- Sleep disorders like sleep apnea, if untreated, can impair alertness and undermine health. The process for identifying individuals at risk of a sleep disorder will be standardized.

Other policy recommendations that are currently underway include incident investigation methodology, a secondary employment policy, a review of the current rest policy, a fatigue reporting tool for employees and further use of the bio-mathematical model to determine TIES scheduling and time off.

FUNDING IMPACT:

Project Manager:	James Dougherty
Project Department/Office:	SAFE

TIMELINE:

Previous Actions	<ul style="list-style-type: none"> • Previous Committee update on FRMS - June 2013 • FRMS Policy/Instruction issued - November 2013 • Hours of Service (HOS) guidance issued for MetroBus and MetroRail operators - December 2013
Anticipated actions after presentation	<ul style="list-style-type: none"> • Plans for HOS guidance to other safety critical jobs - June 2014 • Roll out of FRMS dashboard for Supervisors - May 2014

RECOMMENDATION:

To inform the Board's Safety and Security Committee of the status of implementing the Fatigue Risk Management System within the Authority.



WMATA Fatigue Risk Management System (FRMS) Update

Safety and Security Committee

January 9, 2014



FRMS Update

- Completed Actions
 - WMATA FRMS Policy
November 14, 2013
 - Hours of Service (HOS)
December 19, 2013

 Washington Metropolitan Area Transit Authority					
POLICY/INSTRUCTION: 10.6			FATIGUE RISK MANAGEMENT POLICY		
SUPERSEDES: N/A			APPLICABLE TO: All employees and contractors		

1.00 PURPOSE

The Washington Metropolitan Area Transit Authority (Metro) will work to prevent and mitigate fatigue and promote optimal alertness and vigilance by establishing and maintaining a Fatigue Risk Management System (FRMS), acting within the framework of the Metro System Safety Program with special focus on safety-sensitive and safety-critical Metro and contractor personnel.

2.00 SCOPE

The Metro FRMS will apply to all employees, especially safety-sensitive and safety-critical employees and contractors, including employees serving as train and bus operators.

3.00 DEFINITIONS

3.01 Body clock (or "circadian" clock) – the part of the brain that coordinates the body's internal functions with the 24-hour day.

3.02 Circadian rhythm – any of the body's functions synchronized to the 24-hour day. For example, the circadian rhythm of alertness is at its lowest during the night and at its highest in the late afternoon.

3.03 Fatigue – a physiological state characterized by a lack of alertness and reduced mental and physical performance that is often accompanied by sleepiness.

3.04 Fatigue Risk Management System (FRMS) – a program to measure and manage fatigue-related risk to the safety of operations. The FRMS is driven by science and data that can measure and address fatigue risk. Components of a FRMS typically include multiple approaches for reducing fatigue-related risk, including employee education and training; data collection and analysis; review of employee work schedules and specific policies and guidance materials.

3.05 FRMS Steering Committees

(a) FRMS Operational Committee – receives and evaluates fatigue metrics, deliberates on fatigue risk mitigation in the operational setting and issues recommendations for the FRMS Executive Committee. It is also responsible for the review and renewal of each of the FRMS program elements.

(b) FRMS Executive Committee – recommends management action items intended to mitigate fatigue risk. Its recommendations take into consideration the evaluation of fatigue risk as reviewed by the FRMS Operational Committee.

A P P R O V E D <small>By General Manager and Chief Executive Officer Richard B. Soffe</small>	DATE APPROVED	CLASS	LEAD	DATE OF LAST REVIEW	PAGE
	11/14/2013	SAFE	SAFE	11/14/2013	1 of 4

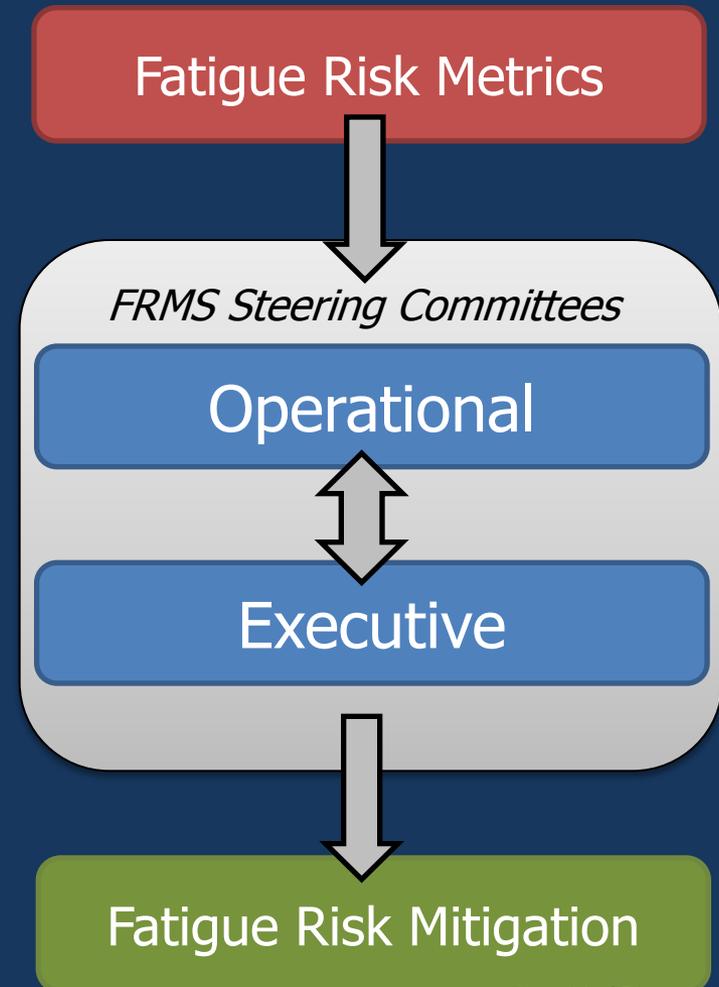


Selected FRMS Elements

- Hours of Service (HOS)
- Incident Investigation
- Field Data collection
- FRMS Dashboard
- Secondary Employment Policy

FRMS Committee's Recent Actions

- FRMS Operational Committee: Developing incident investigation framework
- FRMS Executive Committee: Policy Instruction and HOS





Hours of Service (HOS)

- Policy based on sleep science
 - Validated bio-mathematical model
 - 30 day work histories
 - Sleep assumptions from prior data collections
 - Estimated effectiveness scores



Hours of Service (HOS)

Policy based on:

- Peer-reviewed workplace studies
- Benchmarking from transportation industry
 - Rail; Regulated Motor Carriers
- Attention to employee personal needs



Hours of Service (HOS)

Points of emphasis:

- HOS limits set **outside boundaries**
- HOS limits are **NOT** coincident with work schedules
- Most WMATA transportation workers on “normal” schedule



Hours of Service - Background

- APTA recommended standard for rail operators goes into effect in January 2014
- Beginning in April 2012, certain safety-critical WMATA functions used **14/14/10**



WMATA Hours of Service (HOS)

Rail and bus operators HOS

- Staffing to address night work challenges
- Verification through feedback metrics



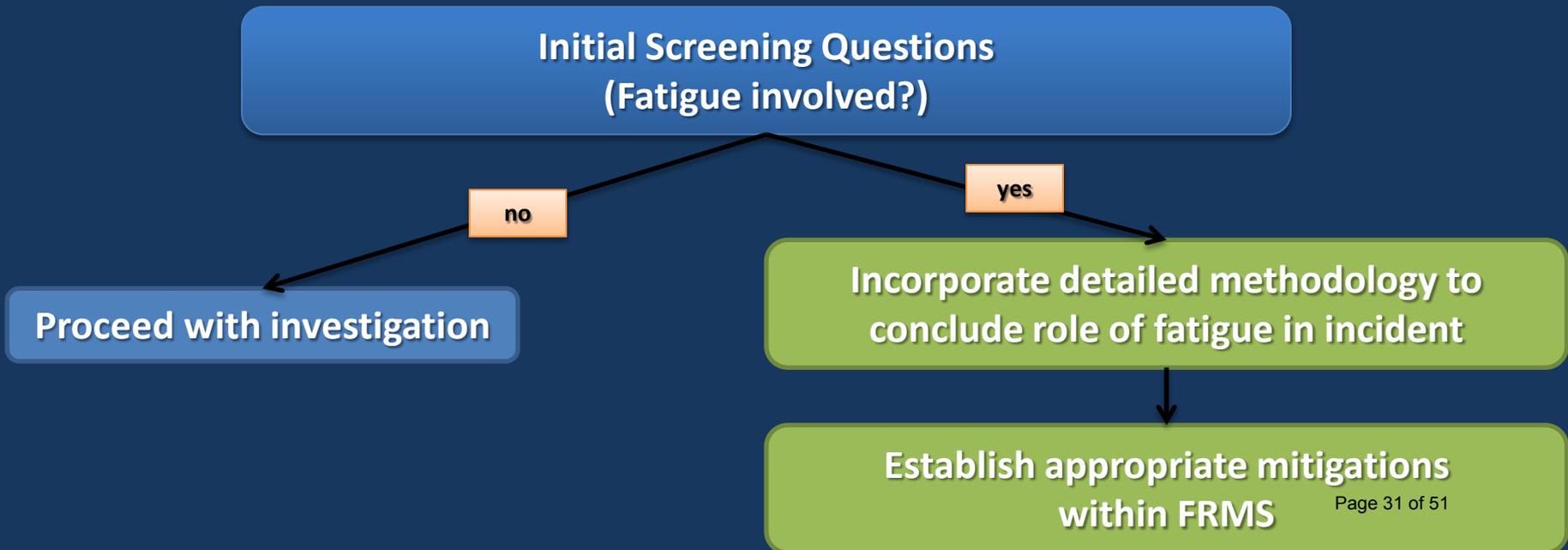
WMATA Hours of Service (HOS)

Non-transportation

- Need additional work hour data
- Deriving HOS practices from management-driven log studies
- Evaluating current and future work patterns
- Target July 2014 for HOS policy

Incident Investigation Plan

- Incident Investigation: role of fatigue



- Actigraphy survey
- Collection of behavioral data on fatigue risk





FRMS - Dashboard

**% with more
than
65h/week**

Excess Service

**Weekend
duration**

**Duty time >
90%**

**Duty time
<70%**

**Current
Fatigue
Training**

**Pending
Medical
Certification**

**Fatigue
Related
Incidents**



FRMS – Secondary Employment

- Foundation of training that some outside activities can compromise sleep opportunities
- Discussion of issues in FRMS Operational Committee
- Management team reviewing options



FRMS Next Steps

- Implementation of HOS
- Refine key program elements
- Increase Employee Awareness and Training
- Set Non-Transportation HOS