TITLE

Department of Safety & Environmental Management Quarterly Report

PRESENTATION SUMMARY

The Department of Safety & Environmental Management (SAFE) Quarterly Report publicly communicates safety-related information and statistics.

PURPOSE

The Metro SAFE Quarterly Report informs the Safety and Security Committee regarding the ongoing safety culture in the Metro system and indicates performance measurement in accordance with Authority goals. Further, the public report increases communication to enhance safety of our employees, customers and surrounding Washington metropolitan area community. The Quarterly Safety Report will provide data for the period of July-September 2013, with the same period of time in 2012 and against the 2013 target in addition to summary status of Corrective Action Plans (CAPs). In addition, a briefing will be provided on the status of the Safety and Security Certification for the Dulles Corridor Metrorail Project (Silver Line).

DESCRIPTION

Two key measures of a safety culture are the customer and employee injury rates, which are part of Metro’s Strategic Plan. The 2013 targets have been established for both, with the Customer Injury Rate (CIR) at less than 1.8 injuries per million Passenger Trips and the Employee Injury Rate (EIR) at less than 5.0 injuries per 200,000 work hours.
Safety and Security Certification is a key component of ensuring a safe and reliable system for federally funded transit projects, such as the Silver Line and is required by the FTA, TOC Program Plan and our own adopted System Safety Program Plan (SSPP).

**Key Highlights:**

- **Customer Injury Rate (CIR)** – The CIR was 1.89 for the Quarter, below the previous Quarter’s rate of 2.15. The YTD CIR is 1.93, exceeding the target of <1.8. The following table summarizes the CIRs for the respective modes:

<table>
<thead>
<tr>
<th>Customer Injury Rate Mode Comparison</th>
<th>by Quarter and CYTD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode</strong></td>
<td><strong>QTR</strong> 2012 2013</td>
</tr>
<tr>
<td>Rail</td>
<td>1.13 1.23</td>
</tr>
<tr>
<td>Bus</td>
<td>1.14 2.62</td>
</tr>
<tr>
<td>Metro Access</td>
<td>27.79 18.56</td>
</tr>
</tbody>
</table>

The top two injury types for the Quarter are Slips/Trips/Falls (55%) and Metrobus Collision-related injuries (35%), both of which continue to trend up in number of occurrences. For the latter category, the number of incidents resulting from multiple injuries also continues to trend up. The actions developed to reduce injuries to meet the Authority’s target are listed further in this document.

- **Employee Injury Rate (EIR)** – The Quarterly and YTD EIR was 5.44 and 5.43 respectively. Both exceed the target of <5.0. The top two employee injury types for the quarter are Slips/Trips/Falls (27%) and Struck By/Against (22%). The number of Collision-related and Slip/Trip/Fall injuries has remained steady for most of the year. Struck by/Against injuries have increased, but are spread across most departments and do not necessarily have a common causal factor. Stress and Assault-related injuries have also remained high throughout the year, when compared to last year.

- **After performing well in the beginning of the year, Bus Transportation trended up mid-year and has plateaued with an overall EIR of 9.65. Bus Maintenance had an increase in EIR mid-year, but has been steadily trending downward since July, resulting in an EIR of 2.83. Both contribute to an**
overall Bus EIR of 7.73. Eighteen Bus departments have higher rates than last year; 16 are lower than last CY or have remained at zero this CY. Within Rail Operations, the EIR is 1% lower when compared to the same time period last year, with an overall EIR of 4.10. Forty-eight of the seventy-one departments are lower than last year or have remained at zero this CY. The Transit Police, after a low July and August, had the third highest number of injuries thus far this CY in September at six. The EIR is 41% higher than last year, at 10.18.

- NTSB has closed 7 additional recommendations as of October 23rd bringing the total “closed” to twenty out of a total twenty-nine NTSB recommendations. Of the nine remaining, one corrective action is from the 2006 DuPont/Eisenhower Avenue Incidents (Wayside Worker Warning System) and eight remain from the 2009 Fort Totten Incident.

- Corrective Action Plans (CAPs) - January of this year through October 23rd, 80 CAPs have been closed with 85 remaining open and in-progress, of which two are rated by WMATA as “unacceptable” based on Metro’s hazard management rating and stem from the Fort Totten accident. Both of the “unacceptable” CAPs are long term items related to the safety analysis of automatic train control and the design changes.

- SAFE continues to work closely with Metropolitan Washington Airport Authority (MWAA) and Dulles Transit Partners (DTP) to perform a review of MWAA Verification efforts to ensure that Safety and Security Certification has been achieved.

- A reduction of Smoke and Fire Incidents (Table 7 attachment) on Rail has been realized for eight consecutive months (February through September 2013) due to concerted effort of Operations.

**Background and History:**

*Key Performance Indicators (KPIs)*

The Department of Safety & Environmental Management utilizes two KPIs, the CIR and EIR, as overall indicators of safety among employees and the riding public. Daily review of incidents, systematic inspections of facilities, and employee/contractor training help ensure a safer workplace and riding environment. The EIR measures are based on the OSHA Recordable Injury
Criteria and the CIR measures are based on National Transit Database (NTD) Reporting Criteria. The attachment data represent the two KPIs.

**Safety & Security Certification Plan (SSCP)**

The goal of safety and security certification is to ensure that Metrorail extensions, new and rehabilitated facilities and vehicles; and new and rehabilitated Metrobus facilities and equipment are operationally safe and secure for customers, employees, and the general public. FTA Circular 5800.1, Safety and Security Management Guidance for Major Capital Projects requires the development of an SSCP for major capital projects covered by 49 CFR Part 633.

The following were some of the documents used in the preparation of the Dulles Metrorail Corridor Project’s Safety and Security Certification:

- WMATA, System Safety Program Plan
- WMATA, Safety Rules and Procedures Handbook
- Tri-State Oversight Committee Program Standard for State Safety Oversight of the WMATA Metrorail System

**Discussion:**

**KPI - EIR**

Bus Operators and Train Operators are the top two employee groups reporting injuries. The leading causal factors for all injuries include: inattentive actions where the employee was distracted, pre-occupied, or unfocused on their surroundings; prescribed techniques and procedures were not followed; and involvement in a collision-related incident.

Steps to mitigate these factors and prevent future injuries include:

- Improvement of injury investigation procedures to consistently include root cause analysis;
- Defensive driving classes for applicable employees;
- Safety Blitzes at collision hot spots for improved visibility and communication with bus operators;
• Implementation of Safety Observations with applicable staff by management and Safety Officers;
• Bus operator shields are being explored in high risk areas for protection;
• Facility inspections have also increased to focus on issues that historically contribute to employee injuries (e.g., slippery floors contribute to slip/trip/fall injuries). The inspection findings are assigned to the respective responsible parties and are followed up by Safety Officers; and
• Metro is adding additional “hi-vis” graphics or lights to rear of vehicles, including Metro buses, to combat collision-related injuries.

**KPI - CIR**

The number of escalator, rail-on board, and bus collision-related injuries has increased when compared to last year, where Rail-facility injuries have decreased.

Steps to mitigate these factors and prevent future injuries include:

• DriveCam Incident Videos are reviewed to identify safety incident hotspots where accident prevention measures can be implemented. Once hotspots are verified, staff is deployed to the locations to reinforce safe behavior not only to our passengers and operators, but to also ensure the areas are clear and free of any debris or unsafe conditions.
• Installation of reflective chevrons and deceleration lights will be piloted in high risk areas to reduce rear end collisions, the leading causal factor for the CIR increase.
• Station announcements and posters via the customer communication campaign will educate customers on safe behaviors while using the system.
• Station inspections will continue to identify unsafe and hazardous conditions throughout the system.
• Metro Access Operators will be retrained on customer assistance and focus on mitigating injuries that occur on-board and assisting the customer to the vehicle.

**SSCP**
MWAA (FTA grantee for the Dulles Corridor Metrorail Project), has contracted with the Dulles Transit Partners - DTP to design and construct all facilities and systems for the project.

WMATA has a formal cooperative agreement with MWAA that outlines specific activities to be completed prior to WMATA’s acceptance of the extension for operational readiness testing. Among those requirements is the satisfactory execution of a Safety and Security Program for the Project.

A Safety and Security Certification Plan was developed and implemented by MWAA. The plan sets forth the safety and security activities for the control of safety hazards and security vulnerabilities for the project. WMATA provides additional oversight, as specified in the MWAA-WMATA Cooperative Agreement. A requirement of the MWAA SSCP is the development of a System Safety/Security Certification Plan by DTP. The Contractor has prepared and implemented a Project SSCP, with support from MWAA. The SSCP addresses the requirements of the WMATA Safety and Security Program Plan (SSPP), WMATA Safety and Security Certification Plan and the Federal Transit Administration (FTA) Handbook for Transit Safety and Security Certification. Each phase of the safety and security certification program (Design, Construction, Start-up and Pre-Revenue Operation) will be periodically reviewed by the WMATA SAFE project representatives through Design Conformance Checklist (DCC), Construction Conformance Checklist (CCC) and Startup and Integrated Testing Conformance Certification (SITCC) reviews to assure that the SSCP is being properly implemented and effective.

**FUNDING IMPACT**

None

**TIMELINE:**

<table>
<thead>
<tr>
<th>Previous actions</th>
<th>• Briefed Safety &amp; Security Committee on Safety Report status in June 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipated actions after presentation</td>
<td>• Continue to be proactive in mitigating and alleviating employee and customer hazards that may lead to</td>
</tr>
</tbody>
</table>
RECOMMENDATION:

To inform the Board’s Safety and Security Committee of the ongoing, positive safety culture within Metro including information on the Safety and Security Certification Plan relative to Phase I of the Dulles Silver Line.
Table 3: MetroAccess Passenger Injury Rates

Table 4: Bus Collision Rates
Table 5: MetroAccess Collision Rates

Table 6: Bus Pedestrian/Cyclist Incidents
(NTD Criteria - Transported From Scene)
Table 7: Smoke and Fire Incidents - Rail

Table 8: Suicides
Purpose

• Brief the Committee on quarterly safety progress and safety and security certification process
**Statistical Review**

**Employee Injury Rate** - *per 100 Employees*

<table>
<thead>
<tr>
<th></th>
<th>JULY</th>
<th>AUG</th>
<th>SEPT</th>
<th>CYTD</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.09</td>
<td>5.16</td>
<td>6.13</td>
<td>5.43</td>
<td>&lt;5.0</td>
</tr>
</tbody>
</table>

**Injury Types**

- **Slip/Trip/Fall**: 27%
- **Collision-related**: 19%
- **Struck By/Against**: 18%
- **Pushing/Pulling**: 8%
- **Lifting/Lowering**: 7%
- **Assault**: 5%
- **Pursuit/Arrest**: 3%
- **Caught In/By**: 3%
- **Exposure**: 5%
- **Stress**: 5%
- **Pursuit/Arrest**: 3%
- **Caught In/By**: 3%
- **Slip/Trip/Fall**: 27%
- **Collision-related**: 19%

**Trend**

- 2012
- 2013
- Trend - 2013
Statistical Review
Customer Injury Rate - *per million trips*

### Injury Types CYTD

- **Slip/Trip/Fall**: 59%
- **Collision-related**: 32%
- **Striking/Struck by**: 6%
- **Caught in/by**: 3%
- **Exposure**: < 1%
- **Patron on Roadway**: < 1%

<table>
<thead>
<tr>
<th></th>
<th>JULY</th>
<th>AUG</th>
<th>SEPT</th>
<th>CYTD</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.46</td>
<td>1.98</td>
<td>2.23</td>
<td><strong>1.93</strong></td>
<td>&lt;1.8</td>
</tr>
</tbody>
</table>
# Hazard Resolution Matrix of Open Corrective Action Plans

## Frequency of Occurrence Hazard Categories

<table>
<thead>
<tr>
<th>Frequency of Occurrence</th>
<th>Hazard Categories</th>
</tr>
</thead>
<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>8 1D</td>
</tr>
<tr>
<td>E = Improbable</td>
<td>0 1E</td>
</tr>
</tbody>
</table>

### Decision Matrix

- **Unacceptable** - Executive Leadership with Chief Safety Officer
- **Undesirable** - Executive Safety Committee decision required
- **Acceptable with review** by Executive Safety Committee
- **Acceptable without review**

### Decision Criteria

- **1A, 1B, 1C, 2A, 2B, 3A**: 2
- **1D, 2C, 2D, 3B, 3C**: 44
- **1E, 2E, 3D, 3E, 4A, 4B**: 34
- **4C, 4D, 4E**: 11
Safety and Security Certification Plan (SSCP)
SSCP: Why Certification?

- Regulatory Requirements
- Federal Transit Administration
- Tri-State Oversight Committee
- Good Business
SSCP: Goal

Acceptable level of risk:

- Systematic approach
- Compliance
- Criteria adherence and specification compliance
- Verification
Understanding SSCP

- **NOT** contractual acceptance
- Contractual acceptance **is NOT** SSC
SSCP: Certification Steps

**Design Phase:**
- Identify Certifiable Elements
- Develop safety and security design criteria
- Develop and complete design criteria conformance checklist

**Construction Phase:**
- Perform construction specification conformance

**Testing Phase:**
- Identify additional safety and security test requirements
SSCP: Hazards and Vulnerabilities

Functional Period

- Planning Phase: 20 Years
- Preliminary Engineering (PE): 3 Years
- Final Design: 1-2 Years
- Construction: 1-2 Years
- Pre-Revenue Testing: 2-3 Years
- Revenue Service: < 1 Year
SSCP: Certification Summary

- Rooted in system safety and the identification and mitigation of hazards, threats and vulnerabilities
- Milestones identified and tracked
- Should not delay design and construction
- Critical for revenue service when there are delays in the:
  - Project schedule and completion
  - Safety and security submittals
  - Resident engineering approval
  - Non mitigated safety hazards
  - Operational needs are not in place
# Dulles Phase 1 SSCP

<table>
<thead>
<tr>
<th>Agencies</th>
<th>Design Conformance Checklist</th>
<th>Construction Conformance Checklist</th>
<th>System Integration Testing Conformance Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTP Signed</td>
<td>5,042</td>
<td>4,566</td>
<td>923</td>
</tr>
<tr>
<td>Airports Authority</td>
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<td>3,784</td>
<td>404</td>
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<tr>
<td>Accepted</td>
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<td>3,138</td>
<td>256</td>
</tr>
<tr>
<td>WMATA Audited</td>
<td>5,042</td>
<td>3,138</td>
<td>256</td>
</tr>
</tbody>
</table>

As of October 24, 2013
Dulles Phase 1 SSCP: Security

- Threat and Vulnerability Assessment (TVA)
- Closed Circuit Television (CCTV)
- Radio Testing/Evaluating
- New Hires Completed Training
  - MTPD
  - OEM
  - SPO
  - DVR
  - ADMIN
- Training of First Responders
Dulles Phase 1 SSCP: Next Steps

- Continuing review of certification items and continue working with TOC for operational readiness