MBTA Quarterly Safety Report

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Holly Durso, Director of Transportation Safety

January 14, 2019
Overview

- Regulatory Updates
  - Public Transportation Agency Safety Plan
- Workplace Safety Improvement Initiative
  - Accomplishments & In Progress
  - GM Safety Awards
- Safety Data Review
  - Employee Injuries & Assaults
  - Derailments
  - Bus Collisions
  - Subway & Bus Fatalities
  - Commuter Rail Trespasser Strikes
Regulatory Updates

- FTA Final Rule 49 CFR 673 – Public Transportation Agency Safety Plan (PTASP)
  - Requires development of an agency safety plan that establishes processes and procedures to support implementing Safety Management Systems (SMS)
  - Supersedes System Safety Program Plan requirements of 49 CFR 659
  - Effective Date:
    - July 19, 2019 – One year from publication of rule per 220 CMR 151.03
  - Applies to:
    - Transit Rail
    - Bus
    - Para-transit
  - Exempt:
    - Commuter Rail – Overseen by FRA
    - Ferry Service – Overseen by US Coast Guard
Regulatory Updates

• PTASP General Requirements
  • Document SMS Implementation Processes and Activities
  • Establish an Employee Safety Reporting System that allows employees to report safety conditions to senior management
  • Set Safety Performance Targets
  • Signed by the agency’s Accountable Executive and approved by the Board of Directors
  • Reviewed and approved by the DPU (sections related to transit rail)
  • Updated annually

• Benefits of SMS
  • Creates top-down accountability for safety performance throughout the agency
  • Improves safety risk analysis and control
  • Creates clear lines for safety communication
  • Empowers employees through their role in the Employee Safety Reporting System
  • Allows for earlier detection of safety problems through improved communication
  • Formalizes safety risk assessment and risk acceptance processes
Workplace Safety Improvement Initiative

• Accomplished:
  • Occupational Health & Safety (OHS) Plan
    • In November, MBTA Safety completed the safety bulletin creation process
      • A total of 26 bulletins were developed and released.
      • The bulletins will serve as interim guidance documents during the OHS Rollout process.
      • The creation process was completed 7 weeks ahead of schedule.
      • The process now moves into the integration, promotion, and implementation phases.
    • MBTA Safety will distribute Job Hazard Analysis Survey Questionnaires to departments.
    • Facility Inspections: Round 2 inspections were completed in December
      • Inspection results are being compiled into a report for the General Manager.
Workplace Safety Improvement Initiative

- Department of Labor Standards (DLS) OHS oversight becomes effective February 1, 2019.
- Since October, the final 13 safety bulletins were released covering the following topics:
  - Office Safety
  - Working Conditions – Fitness for Duty
  - Cranes & Derricks
  - Demolition
  - Excavations
  - Concrete & Masonry Construction
  - Motor Vehicles, Mechanized Equipment, and Marine Operations
  - Machine Guarding
  - Industrial Trucks
  - Hearing Conservation
  - Tools – Hand and Power
  - Materials Handling and Storage
  - Bloodborne Pathogens
  - Chemical Hazard Communication
Workplace Safety Improvement Initiative

• General Manager Safety Excellence Awards
  • Award ceremony to recognize employees that demonstrated safety excellence or provided safety input to effect a positive change in 2018.
  • Management across the MBTA submitted nominees.
  • From the nominations, 34 employees were selected for commendation with an additional 21 honorable mentions.
  • Award ceremony to be held on January 22, 2019.

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Employee Injuries

Most Commonly Treated Body Part Injury in Quarter 4 – 2018

- Shoulder* 10%
- Knee 12%
- Hand/Wrist 12%
- Back* 10%

Most Commonly Treated Injury Types in Quarter 4 - 2018

<table>
<thead>
<tr>
<th>Injury Type</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprains / Strains</td>
<td>25</td>
<td>30%</td>
</tr>
<tr>
<td>Contusion / Bruise</td>
<td>15</td>
<td>18%</td>
</tr>
<tr>
<td>Cut / Laceration</td>
<td>11</td>
<td>13%</td>
</tr>
</tbody>
</table>

*Area of focus for reduction.

Quarter 4 data is pending final verification with reporting departments and Worker’s Comp.
Employee Injuries

- MBTA OSHA Recordable Incident Rate for Calendar Year 2017 was **7.45**.
  - Rate is based on the number of employees involved in a recordable injury or illness per 100 full time employees.
  - Rate for Calendar Year 2018 will be calculated once injury data is finalized.
- The Bureau of Labor Statistics 2017 average rate for urban transit systems was **5.0**.
- MBTA is working to reduce rates through:
  - Implementation of safety programs starting with safety bulletins.
  - Improved injury reporting and investigation including the release of Safety Bulletin SB18-002 “Employee Injury Reporting.”
  - Regular facility inspections.
- MBTA Safety will continue to monitor with regular progress updates to management.
Assaults on Employees

<table>
<thead>
<tr>
<th>Year</th>
<th>Physical Assault</th>
<th>Verbal/Threat</th>
<th>Total Assaults</th>
<th>With Time Lost</th>
<th>Rolling Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-Q1</td>
<td>45</td>
<td>33</td>
<td>78</td>
<td>3</td>
<td>80.8</td>
</tr>
<tr>
<td>2016-Q2</td>
<td>40</td>
<td>34</td>
<td>74</td>
<td>7</td>
<td>79.5</td>
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<tr>
<td>2016-Q3</td>
<td>44</td>
<td>32</td>
<td>76</td>
<td>9</td>
<td>78.5</td>
</tr>
<tr>
<td>2016-Q4</td>
<td>33</td>
<td>25</td>
<td>58</td>
<td>8</td>
<td>71.5</td>
</tr>
<tr>
<td>2017-Q1</td>
<td>43</td>
<td>26</td>
<td>69</td>
<td>8</td>
<td>69.3</td>
</tr>
<tr>
<td>2017-Q2</td>
<td>23</td>
<td>47</td>
<td>70</td>
<td>7</td>
<td>68.3</td>
</tr>
<tr>
<td>2017-Q3</td>
<td>37</td>
<td>44</td>
<td>81</td>
<td>6</td>
<td>69.5</td>
</tr>
<tr>
<td>2017-Q4</td>
<td>27</td>
<td>46</td>
<td>73</td>
<td>4</td>
<td>73.3</td>
</tr>
<tr>
<td>2018-Q1</td>
<td>30</td>
<td>37</td>
<td>67</td>
<td>3</td>
<td>72.8</td>
</tr>
<tr>
<td>2018-Q2</td>
<td>38</td>
<td>29</td>
<td>67</td>
<td>8</td>
<td>72.0</td>
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<tr>
<td>2018-Q3</td>
<td>36</td>
<td>31</td>
<td>67</td>
<td>8</td>
<td>68.5</td>
</tr>
<tr>
<td>2018-Q4</td>
<td>35</td>
<td>10</td>
<td>45</td>
<td>2</td>
<td>61.5</td>
</tr>
</tbody>
</table>
Assaults on Employees

- Central focus is on reducing bus operator assaults.
- Initial 2018 numbers indicate a 16% decrease in employee assaults when compared to 2017.
- Majority of reduction was in verbal assaults, physical assaults remain unchanged.
- MBTA is continuing to install driver barriers on board buses to protect operators and reduce physical assaults.
- New York’s MTA reported a 35% reduction in operator assaults in the first year after barriers were installed across their bus fleet.
- MBTA Safety is currently developing metrics to measure effectiveness of program.
Main Line Derailments 1999-2018

MBTA Safety has coordinated with Transportation Management to improve Investigation processes & procedures.
Derailments – Data Review

Yard Derailments 2008-2018

Derailment numbers above the Safety Performance Indicator goal signify a need for greater focus on the examination of causal factors and mitigations.
Derailment

- In 2018 there were a total of 10 transit derailments, compared to 13 in 2017.
- Mainline derailments increased while yard derailments decreased.
- Most recent derailment occurred on Dec. 8 at Blandford Siding on the Green Line.
  - Non-revenue trolley derailed while moving off the siding and onto the mainline.
  - No injuries reported.
  - Collaborative investigation by Safety, Light Rail Vehicle Maintenance and Transportation is currently ongoing.
- Overall focus is on reducing human factor derailments.
  - Human factors identified as probable cause in 45% of 2017 derailments and 50% of 2018 derailments.
- Common issues include:
  - Improperly setting switches
  - Failing to ensure switches are properly aligned
  - Violating a red signal aspect
- MBTA Safety issued a Safety Directive to examine the issue and determine strategies to reduce human factor derailments.
- MBTA Safety audited Light Rail Transportation as part of the 2018 Internal Safety Review.
Bus Collisions

Total Bus Collisions include all incidents where there is reported or alleged contact with a MBTA bus regardless of the collision severity.

*Totals based on a review of Operations Logs and incident reports submitted to MBTA Safety.

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Reportable bus collisions are collisions with a person requiring transport to a medical facility, involving three or more transports for medical treatment, or result in property damage ≥ $50,000.
Bus Collisions

- The Bus Accident Reduction Committee continues to meet monthly to review accident and incident trending.
- MBTA Safety and Training have been conducting outreach with bus operators focused on reducing collisions and injuries.
- Bus Accident Reduction Committee has also been researching the installation of a Video Based Safety System onboard buses.
  - The system uses onboard data, video, and analytics to actively assess bus operator performance and create personalized driver profiles.
  - Properties that have adopted similar systems report collision reductions up to 50%.
Bus & Subway Fatalities – 2014-2018

Bus and Subway Fatalities 2014-2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Bus</th>
<th>Subway</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2015</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2016</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2017</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2018</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Totals are organized by Calendar Year
Bus & Subway Fatalities – 2014-2018

• Except for a spike in 2015, the number of subway fatalities have remained consistent over the past 5 years.

• 2018 Fatalities:
  • May 13 - Bus collision in Saugus
    • An auto struck a parked vehicle and then crossed into the bus's travel lane resulting in a head-on collision.
    • The automobile operator succumbed to injuries sustained in the collision.
  • August 18 – Orange Line trespasser fatality near Green Street Station
    • Trespasser entered ROW and made contact to the 3rd Rail.
  • September 9 – Red Line trespasser strike at Porter Square Station
    • Trespasser was struck by a train after climbing into the pit area and walking into the station tunnel.
  • October 25 – Orange Line trespasser strike at Green Street Station
    • Trespasser jumped into ROW and was struck by a train entering the station
Commuter Rail Trespasser Strikes

Commuter Rail Trespasser Strikes

- Fatal
- Non-Fatal
- Trend Line - Fatal
- Trend Line - Non-Fatal

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal</th>
<th>Non-Fatal</th>
<th>Total # of Trespasser Strikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>2014</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>2015</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>2016</td>
<td>12</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>2017</td>
<td>27</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>2018</td>
<td>19</td>
<td>3</td>
<td>22</td>
</tr>
</tbody>
</table>

Totals based on a review of Commuter Rail incident and Safety Summary Reports
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Commuter Rail Trespasser Strikes

- Trespasser strikes increased significantly in 2017 and remained elevated in 2018.
- The increase in commuter rail fatalities parallels a reported nationwide increase in trespasser strikes.
- FRA data comparing CY2016 and 2017 indicate a 22% increase in trespasser strike fatalities nationally.
- MBTA has created a Commuter Rail Collision Reduction Committee, with stakeholders and subject matter experts on the national, state, and local level working collaboratively to study the issue.
- Partners include MBTA, MassDOT, Keolis, the Massachusetts Department of Health, the Federal Railroad Administration, Samaritans Inc., and Operation Life Saver.
- The committee continues to meet regularly and focuses on public education, identification of pattern locations, and implementation of mitigation strategies.