

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

☐ Action ☒ Information

MEAD
Number:
202166

Resolution:
☐ Yes ☒ No

TITLE:

Rail Safety Initiatives

PRESENTATION SUMMARY:

The Department of Safety (SAFE) in collaboration with the Office of the Chief Operating Officer (COO) will provide a status of efforts to reduce customer and employee injuries with a focus on Rail Services.

PURPOSE:

Staff will inform the Board of recent initiatives designed to improve safety utilizing a holistic hazard management approach. Initiatives are focused on station modernization, escalator signage, and rail station manager assault reduction strategies.

DESCRIPTION:

SAFE and COO often collaborate to improve rail services by using data, promoting accountability and solving problems strategically to reduce customer and employee injuries.

The following companies are contractors associated with Phase 2 of the Station Rehabilitation Project.

- **Ace Co LLC**
- **Apex Environmental LLC**
- **Arch Aluminum & Glass Holding Corp.**
- **Architecture Incorporated**
- **Atlantic Concrete Co. Inc.**
- **Blastech Enterprises Inc.**
- **Continental Fire Sprinkler Co.**
- **Dulles Drywall Inc.**
- **EMC2 Inc.**
- **Fingles Metalworks Inc.**

- GML LLC
- HP Environmental Inc.
- Industrial TurnAround Corporation
- International Bird Control Systems
- Jacobs Engineering Group Inc.
- JK Tile Co. Inc.
- Kim Engineering Inc.
- Limbach Company LLC
- Long Fence Company Inc.
- Marcia
- Mass Electric Construction Co.
- Old Line Glass & Mirror LLC
- Oldcastle Building Envelope Inc.
- Orion
- Penhall Company
- Power Component Systems Inc.
- Ques Incorporated
- R. Bratti Associates Inc.
- Rath Enterprises Inc.
- Regional Contracting Services Inc.
- Ribeiro Construction Co. Inc.
- Schindler Elevator Corp.
- Seismic Surveys Inc.
- Stillwater Construction Group LLC
- VIKA Virginia LLC
- William P Gelberg Inc.
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Key Highlights:

- Initiatives to reduce station manager operator assaults mirror the successful bus operator assault reduction training programs.
- Station modernization will be implemented later this summer in an effort to improve the station infrastructure which will improve employee and customer safety.
- Station escalators are the primary locations for customer slips and falls; several efforts designed to garner customers' attention to prevent incidence occurrence.

Background and History:

The four main metrics used to gauge rail safety performance are National Transit Database (NTD) collision rate, NTD derailment rate, NTD customer injury rate, and the Occupational Safety and Health Administration (OSHA) recordable employee injury rate.

Rail collisions include any contact between two rail transit vehicles or any collision that causes substantial damage to Class I or Class II vehicles. There were 10 NTD-reportable rail collisions in both CY18 and CY19. The majority of incidents involved maintenance equipment in yards or traveling to and from work zones. When compared to our peers (Chicago Transit Authority, Southeastern Pennsylvania Transportation Authority, Metropolitan Atlanta Rapid Transit Authority, and Massachusetts Bay Transportation Authority), Metro is in the middle with 1.1 rail collisions per million revenue miles.

Derailments declined by four incidents, from nine in CY18 to five in CY19. Improvements were the result of instituting stringent requirements for hi-rail equipment. There were no revenue train derailments in CY19. When compared to our peers, Metro is the second highest with 0.5 derailments per million revenue miles.

The NTD customer injury rate was 1.3 customer injuries per million passenger trips in CY19 compared to 1.4 in CY18, a 6% decrease. Ninety-one percent of injuries were slips/trips/falls. Caught in train doors decreased 54% to six injuries in CY19 while struck by fare gate injuries were nine for both years. When compared to our peers, Metro is the lowest with 1.4 injures per million unlinked trips.

The OSHA rail employee injury rate decreased by 14% from 3.8 injuries per 100 employees in CY18 to 3.3 in CY19, for a total of 197 injuries in CY19. The Rail Transportation group had the most injuries with 88 in CY19 a 4% decrease. Maintenance/Support injuries decreased by 18% with 108 injuries in CY19. Stress, pushing/pulling, and assault-related injuries decreased for Rail Transportation while the Maintenance/Support groups had fewer slip/trip/fall and lifting/lowering injuries. When compared to the most recent Bureau of Labor Statistics (BLS) industry benchmark, Metro is 13% percent lower than those agencies reporting to the BLS.

Discussion:

Past Initiatives

Many of the piloted safety initiatives from the last Board Rail Safety Initiatives brief have started. Some initiatives resulted in incident

decreases. By using this data driven approach, full implementation was justified depending on the results.

The first initiative focused on escalator injuries, where customers slip and fall while walking on escalators. Automated safety announcement devices that reminded customers to hold on to the handrail were installed at the Gallery Place/Chinatown, National Airport and Capitol South escalators. There was a small decrease in slip/trip/fall injuries when initially installed, but the decrease was not substantial to warrant full implementation. The devices will remain active.

The next initiative focuses on reducing employee head strike injuries by using a new hard hat. Since one third of traumatic brain injury fatalities are from falls from the same level, Metro looked for additional protection to prevent these types of injuries, especially as slips/trips/falls is one of the leading injury types. The new hard hat provides for lateral impact protection, including impacts from front, top, side and rear of the helmet. The helmet also remains in place during tumbling and multi-impacts, due to a strap system similar to a bike helmet. There were approximately 100 pilot participants that provided positive reviews, and no injuries were reported in that group. There were recent head injuries that would have been prevented if the hard hats were in use. It is now Metro policy that all track walkers wear the new helmet.

The final initiative is the insulating mat program. This program was aimed to prevent personnel from unintentional contact to the third rail while working in close proximity. In addition to having third rail power de-energized, personnel are to drape a large insulated mat over the third rail in case of unexpected re-energization. There have been zero third rail shock incidents since these protective measures have been instituted.

Current Initiatives – Station Modernization Improvements

The Metro system has 45 outdoor rail stations constructed with concrete platforms. These platforms were designed and built over four decades ago to safely accommodate customers waiting for trains and boarding Metro railcars. Over the years, many of the platforms have begun to deteriorate due to routine wear and tear combined with exposure to weather and de-icing agents. Metro identified 20 additional stations in need of platform reconstruction, with the first six stations completed in Summer 2019 (Braddock Rd, King St-Old Town, Eisenhower Ave, Huntington, Van Dorn St and Franconia-Springfield).

In Summer 2020, Metro will repair and reconstruct platforms at four

Orange Line stations: Vienna, Dunn Loring, West Falls Church and East Falls Church.

As the station platforms are reconstructed, Metro is using the shutdown time to make improvements that enhance the customer experience with a higher level of safety, convenience and communication. The following are a few of the high priority areas that will be addressed:

Slip-resistant tile - Stations will feature new eight-inch hexagonal tiles that are slip-resistant and match the original station tile design. New tiles are being placed throughout the stations – on the platforms and inside the mezzanines. The tiles are produced through a process called wire-cutting, which gives each tile texture and provides better traction in wet conditions.

Improved lighting - New lighting will be installed at each station, greatly increasing the brightness at each station. The new lights are being placed in the same locations and match the type of the existing lights to preserve the original station design, but the use of new LED technology will reduce energy consumption and maintenance costs. In addition, all existing stair handrails are being replaced with LED-illuminated handrails.

Upgraded platform shelters - Stainless-steel platform shelters, similar to those at Silver Line stations, equipped with USB charging ports are also being installed. Each shelter will have 55-inch digital displays and new windscreens to provide protection from the elements. The digital displays will replace static maps and have the capability to display dynamic content such as service alerts, important messages and emergency information, if needed.

New Passenger Information Displays (PIDS) - The screens on the platforms (known as PIDS) that scroll through next arriving trains, service alerts and other announcements are being upgraded to digital screens. There will also be twice as many screens on each platform, making them more visible from more areas on the platform. Additionally, the information on the screens will be split, so that you can always view the train arrival times, while service alerts and other important messages will scroll along the bottom.

Station improvements also include new surveillance systems (CCTV), clearer speakers for important announcements, and safety call buttons with direct contact to station managers and the operations control center.

Current Initiatives – Escalator Floor Warnings

Since the majority of slip/trip/fall injuries occur on or near escalators, Metro will be piloting floor mats that remind customers to hold the handrail, among other safety messages. The mats will be custom wet area mats which may reduce slip hazards. Dupont Circle and Potomac Ave have the highest slip incident counts and will be the first locations piloted.

Current Initiatives – Station Manager Training

Based on the successes seen with bus operator de-escalation training, Metro Transit Police Department (MTPD) will be providing similar training to station managers. During the training, cues are discussed that indicate an assault is imminent, including muscle rigidity and conspicuous ignoring. Station managers are also taught to control reactions and relative positioning so they maintain control of the arc of movement. Station managers are also taught to use the station surveillance systems to maximize their personal safety.

FUNDING IMPACT:

The costs of these initiatives are covered in the current budget	
Project Manager:	Theresa Impastato and Joseph Leader
Project Department/Office:	Departments of Safety and Chief Operating Officer

TIMELINE:

Previous Actions	April 2018 – Safety & Service Delivery Committee (Rail Safety Initiatives Briefing)
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Metrorail Safety Initiatives

Safety and Operations Committee
April 2, 2020

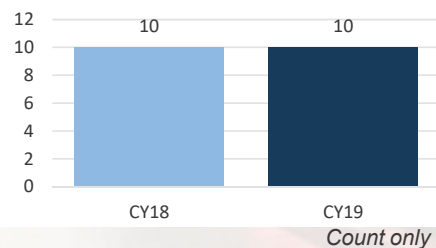


Purpose

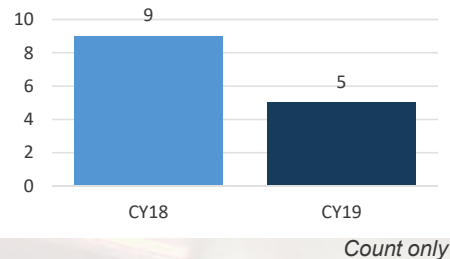
- Provide an update on recent hazard mitigation strategies to improve customer and employee safety

Rail Performance & Benchmarking

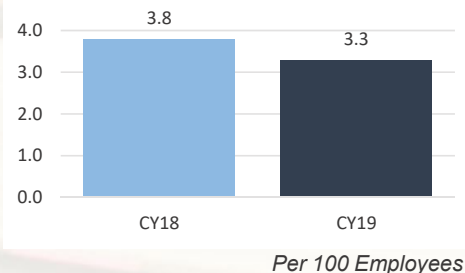
Collisions



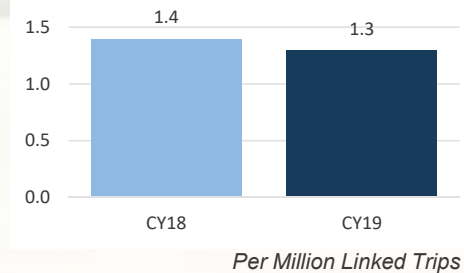
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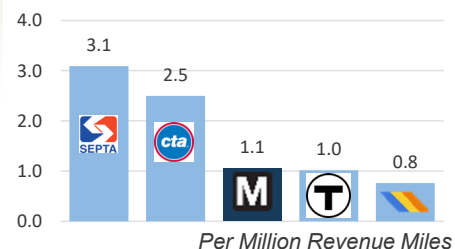
OSHA Employee Injury Rate



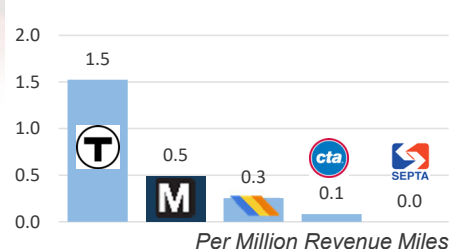
NTD Customer Injury Rate



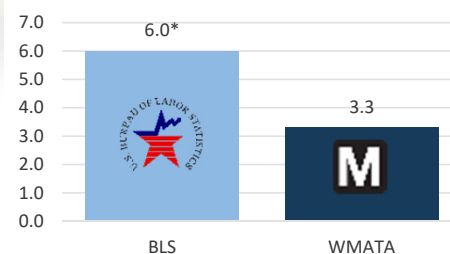
NTD Collision Rate*



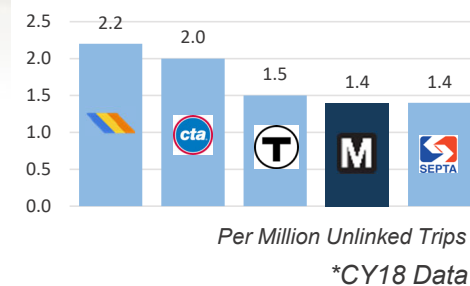
Derailment Rate*



Employee Injury Rate



NTD Customer Injury Rate*



*CY18 Data

Past Rail Initiatives

- Escalator Announcements
 - Piloted at Gallery Place, Nat'l Airport, Capitol South
 - Negligible difference in incidents
- New Helmet Protection
 - Provides coverage for lateral impact protection
 - No head injuries within piloted group
- Third Rail Mat Program
 - Protects against incidental contact with the third rail
 - Zero third rail shock incidents since inception



WARCO BILTRITE ASTM SWITCHBOARD RUBBER MATTING
ASTM D178/ANSI TYPE 1 CLASS 2

Station Modernization Improvements

- New slip-resistant tiles
- Brighter energy-efficient LED lighting
- Larger digital display screens
- New stainless-steel platform shelters with charging ports
- New surveillance systems



Escalator Floor Warnings

- Large warning at egress points
- Pilot at highest incident count stations
 - Dupont and Potomac Ave
- Custom wet mat which may reduce slip hazards



Station Manager Training

- Based on the successful Bus Operator training
- De-escalation and conflict resolution training offered to all Station Managers

Summary

- Safety Management System provides a systematic way to control risk and assurance that controls are effective
- Safety Risk Management controls through hazard identification
- Initiatives are examples of data driven risk management strategies that support the Safety Risk Management

