



Safety and Operations Committee

Board Information Item III-A

April 8, 2021

**Metrobus and MetroAccess
Safety Initiatives**

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

☐ Action ☒ Information

MEAD Number:
202257

Resolution:
☐ Yes ☒ No

TITLE:

Metrobus & MetroAccess 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 specific focus on Bus Services and MetroAccess.

PURPOSE:

Staff will inform the Board of recent initiatives designed to improve safety utilizing a proactive risk management approach based on the principles of Safety Management Systems (SMS).

DESCRIPTION:

SAFE and COO often collaborate to improve bus and MetroAccess services by using data, promoting accountability, and problem solving to systematically reduce customer and employee injuries as well as operational incidents.

Interested Parties:

Mobile Eye (collision avoidance) and **ZICLA** (pending, for floating bus stops), **Lytx/DriveCam**, and **Willis Towers Watson** (occupational therapists) are private companies that Metro is partnering with for the programs discussed below.

Key Highlights:

- Nine safety initiatives have been in place over the last year.
- Three of those initiatives have proven successful over the last year and have been incorporated throughout the Metrobus fleet:
 - pedestrian strobe lights
 - deceleration/service lights
 - mirror adjustments
- Five initiatives are ongoing and continue to be refined:
 - Bus operator assaults
 - De-escalation training
 - Floating Bus Stops
 - Collision avoidance technology
 - MetroAccess DriveCam upgrades

- In addition to the past and ongoing initiatives, a series of initiatives have been implemented targeting COVID-19 to include the piloting of two new air filter technologies.

Background and History:

The four main metrics used to gauge bus safety performance are National Transit Database (NTD) pedestrian strikes, NTD collision rate, employee injury rate, and NTD customer injury rate.

The NTD pedestrian strike metric (i.e., pedestrians transported from the scene for medical care) has decreased calendar year over year. There were 23 strikes in CY19 compared to eight in CY20. The rate of pedestrian strikes within crosswalks also decreased year over year, meaning the majority of strikes occurred outside of traffic control devices. In CY2019 (the latest rates available from NTD), when compared to our peers (Chicago Transit Authority, Southeastern Pennsylvania Transportation Authority, Metropolitan Atlanta Rapid Transit Authority, and Massachusetts Bay Transportation Authority) Metro had the third-highest pedestrian strike rate of 0.5 strikes per million revenue miles.

The NTD bus collision rate decreased 31 percent year over year, with a rate of 2.8 NTD collisions per million miles (i.e., revenue and nonrevenue). The majority of the collisions were rated as non-preventable, which includes cases where the bus was struck in the rear or an adverse vehicle runs a stop sign or red light and strikes the bus. When compared to our peers, Metro experienced the highest collision rate with 5.5 collisions per million revenue miles (note: internal metrics use all miles; NTD uses revenue miles).

The employee injury rate decreased 30 percent year over year, with a rate of 8.1 injuries per hundred employees in CY 2020. Injury categories that saw the largest decreases included stress/assaults, collision-related, and ergonomic injuries. However, when compared to the most recent, comparable Bureau of Labor Statistics (BLS) industry benchmark (2019), Metro was 77 percent higher for the same time period.

The NTD customer injury rate had a 19 percent year over year decrease, with a rate of 2.2 customer injuries per million linked trips in CY2020. Injuries related to both preventable and non-preventable collisions saw significant decreases in their contribution to the overall injury rate. When comparing all sources of customer injuries with our peers, Metro is in the middle with 2.8 customer injuries per million unlinked trips (note: internal metrics use linked trips).

The two metrics used to gauge MetroAccess safety performance are the collision rate and NTD customer injury rate.

The overall MetroAccess collision rate had a 38 percent year over year decrease, with a rate of 1.5 collisions per million miles (i.e., revenue and nonrevenue). The majority of collisions were the result of a non-preventable action, such as when the MetroAccess vehicle was rear-ended while stopped. When compared to our peers, Metro was the lowest agency with 0.9 major collisions per million revenue miles (note: internal metrics use all miles; NTD uses revenue miles).

The NTD customer injury rate decreased 57 percent year over year, with a rate of 1.0 customer injuries per one hundred thousand linked trips in CY2020. Injuries were primarily related to slip/trip/falls during boarding/alighting. When comparing all sources of customer injuries to our peers, Metro was the highest with 2.3 customer injuries per one hundred thousand trips in CY2019.

Discussion:

Successful Past Initiatives

The piloted initiatives that were presented in March 2020 have been fully implemented throughout the fleet. The pedestrian strobe light initiative has reduced pedestrian strikes, attributable to more attentive pedestrians in crosswalks. The incident rate for 'hit in rear' has decreased eight percent since full implementation of deceleration lights.

All new buses now come standard with the mirror retrofit, which moved high-mounted mirrors to a lower position. This move was not only beneficial for a potential decrease in mirror strikes, but also improved the operator's ability to adjust the mirror and potentially removed related operator blind spots.

Current Initiatives – Bus Operator Assaults

Efforts to protect employees continue, including Tactical Operations Division targeted deployments, a continuation of "Respect Your Ride" youth campaign, bus operator de-escalation and conflict resolution training, and continued use of the bus silent alarm and protective shields. Shields have been installed in the entire bus fleet.

Research and field observations revealed that assaults often come from an escalated conflict, Metro Transit Police has facilitated the development of de-escalation training for bus operators. Each four-hour training session consists of interactive role playing developed through Metro Operator focus groups. Running three times per week since October 2020, 370 operators have been trained to date. An additional 600 operators are expected to complete the training by the end of April 2021.

Additionally, Bus has instituted a Performance Behavior Analysis Program also aimed at assisting operators who have exhibited risky driver behaviors. This program aims to reduce collisions and injuries by emphasizing consistent monitoring and the standardization of the usage of DriveCam.

Beginning February 2021, a Coaching Manual is used to focus on providing best practices for effectively coaching Operators from DriveCam events. The Coaching Manual encourages coaching with Emotional Intelligence, providing feedback and balanced communications and creating action plans in collaboration with the Operator to improve their performance. Effective coaching can be a positive influence by empowering employees to improve those behaviors that lead to improved safety outcomes.

Current Initiatives – Floating Bus Stops

Having completed the original pilot floating bus stop near 14th and N Streets, additional temporary floating bus stops will be piloted in several identified hotspots throughout DC to reduce pedestrian strikes and collisions. These locations will be at:

- 11th St @ G St NW (Northbound)
- 11th St @ H Street NW (Northbound)
- 11th St @ H St NW (Southbound)
- 11th St @ F St NW (Southbound)
- 4th St @ Aspen NW (Northbound)
- Georgia Ave @ Missouri NW (Northbound)

Current Initiatives – Bus Collision Avoidance System

Metro was awarded a Virginia Department of Transportation grant to test the effectiveness of the Mobile Eye Shield+ Collision Avoidance system on transit buses. In October 2019, the system was installed in five buses operating out of the Four Mile Run bus garage. Operators using these buses have been trained on the variety of warnings the system will alert them to and what actions they can take to avoid an impending collision, reducing near miss collisions 25 percent. The initial pilot ran for six months. Phase two of the pilot will expand to more buses across the region.

Current Initiatives – MetroAccess DriveCam Expansion

MetroAccess has expanded its use of the DriveCam system. The previous system was only triggered by g-force events (e.g., hard breaking, collision). Effective January 2021, new MetroAccess units provide for 24-hour recording and has a search and save capability. This will aid in identifying incident root causes and enhance claim investigation capabilities.

Incident analysis has influenced a new safety campaign: “Safety is Not an Accident!”

Safety messages reinforce best practices. Following these practices reduces incidents, injuries and costs associated with claims.

Current Initiatives – Occupational Therapist

MetroAccess continues to engage an Occupational Therapist to address assistance-related injuries. An emphasis on assisting customers using sedans is in development as there are different methods used for assistance entering/exiting sedans versus boarding and alighting a van.

FUNDING IMPACT:

There is no impact on funding for presenting this information. Initiatives discussed are included in the operating budget.	
Project Manager:	Theresa Impastato
Project Department/Office:	Safety and Environmental Management (SAFE)

TIMELINE:

Previous Actions	March 2020 – Safety and Operations Committee presentation
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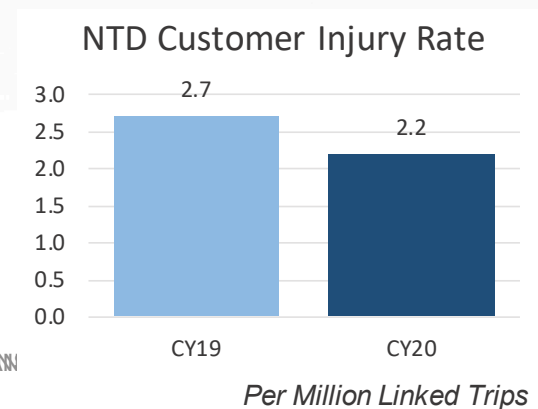
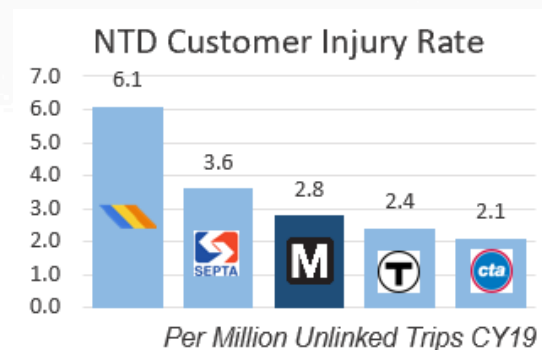
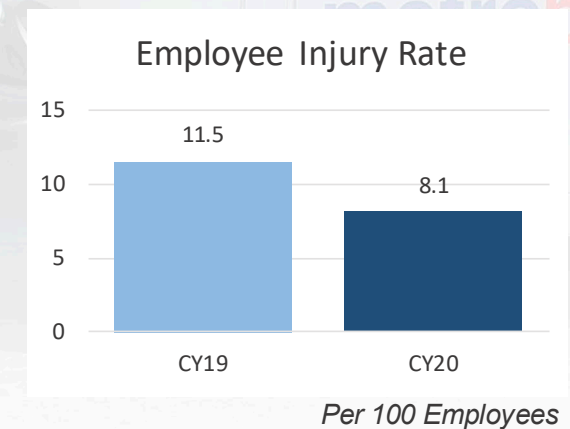
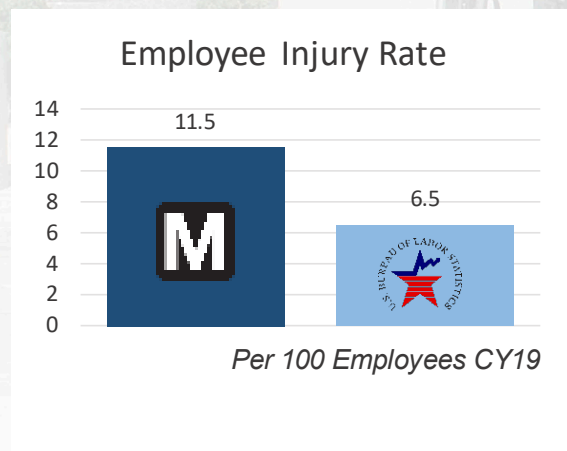
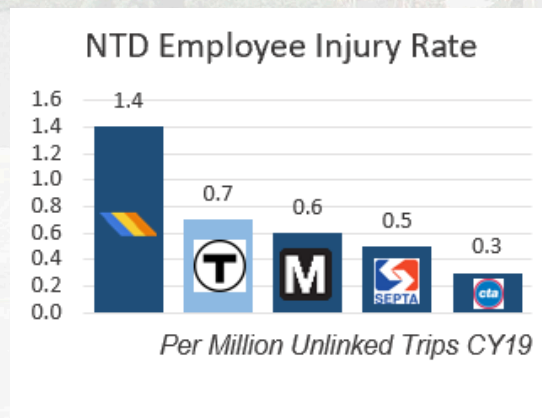
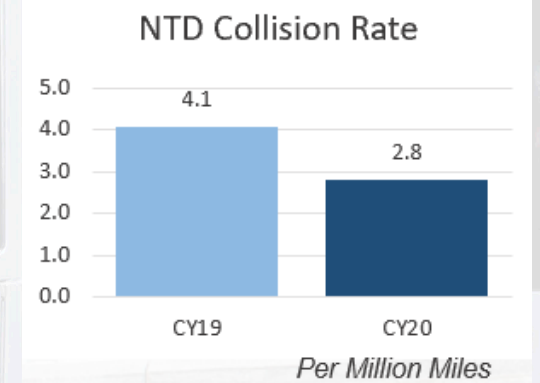
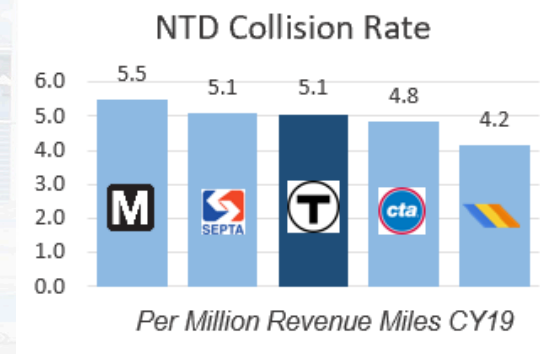
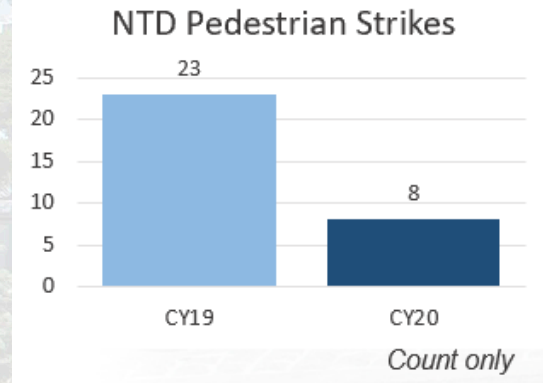
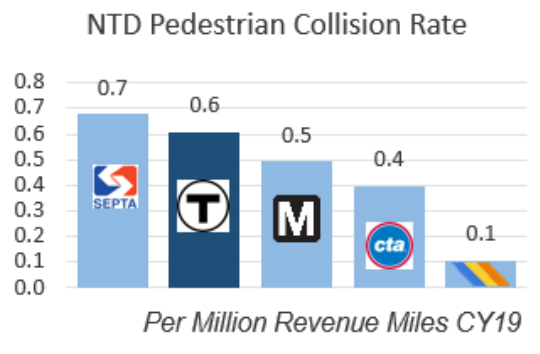
Metrobus & MetroAccess Safety Initiatives

Safety and Operations Committee
April 8, 2021



Purpose

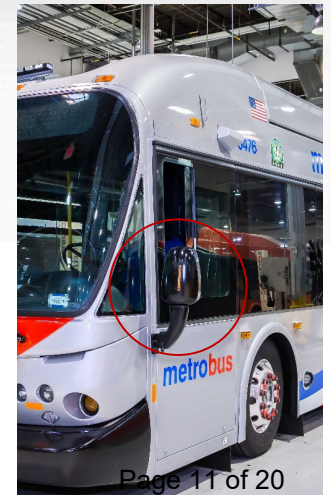
- Provide an update on recent hazard mitigation strategies that improve customer and employee safety



Successful Past Initiatives

Elements now standard equipment on buses

- Pedestrian strobe lights
 - Continuous flashing on top of bus
- Deceleration/servicing lights
 - Flashing lights while decelerating
- Mirror adjustment
 - Retrofit from high mounted mirrors



Bus Operator Assaults

- Strategies to improve bus safety and security
 - Tactical Operations Division targeted deployments
 - Continuation of “Respect Your Ride” youth campaign
 - Bus operator de-escalation & conflict resolution training
 - Bus silent alarm & protective shields
- Reduction in numbers
 - Reported assaults down 9%
 - 21% reduction in assault-related injuries



De-escalation Training

- Goal: to reduce Operator victimization
 - Victimization often occurs after escalating conflict
- Training facilitated by MTPD
 - Four-hour sessions with interactive role-playing
 - Training conducted 3x/week
 - Began October 2020
 - 370 Operators trained to date
 - 600 expected to be trained by April 2021



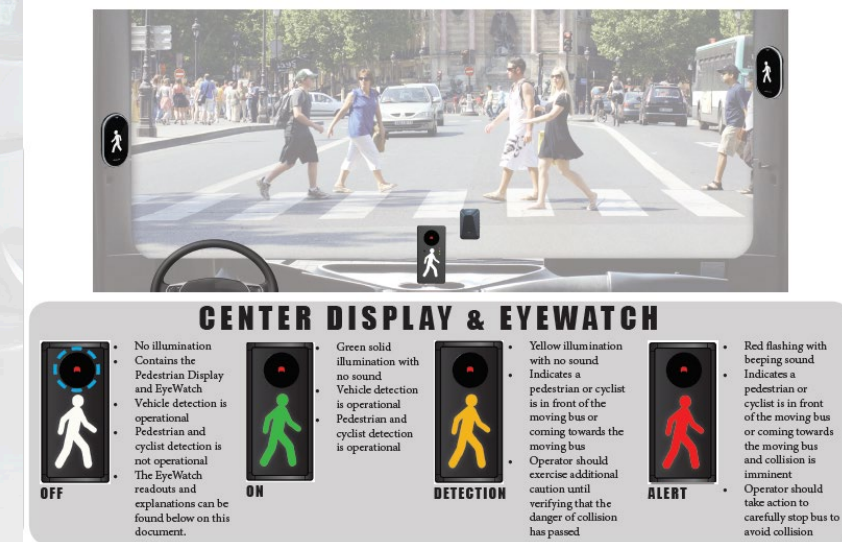
Pilot – Floating Bus Stops

- Original pilot near 14th and N Streets
- Funding allocated for FY22 - \$250K
 - Installation to be completed by DC and funded by Metro
- Six Installation Locations
 - 11th St @ G St NW (Northbound)
 - 11th St @ H Street NW (Northbound)
 - 11th St @ H St NW (Southbound)
 - 11th St @ F St NW (Southbound)
 - 4th St @ Aspen NW (Northbound)
 - Georgia Ave @ Missouri NW (Northbound)



Phase 2 Pilot – Collision Avoidance System

- Small scale five-bus test at Four Mile Run (VA) garage very positive
 - Virginia Department of Transportation Grant
 - 25% reduction in near miss collisions
- System warns bus operators of impending collisions
- Procurement underway to increase size of pilot
 - Includes option to expand throughout the bus fleet



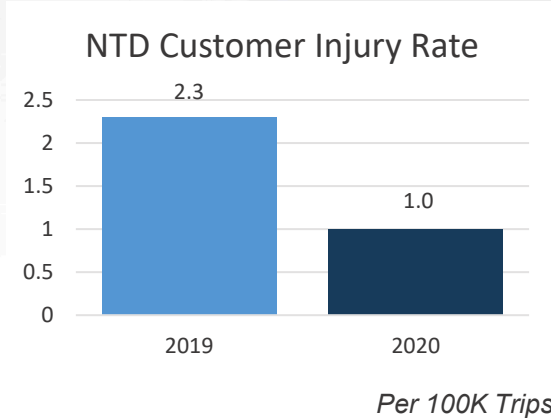
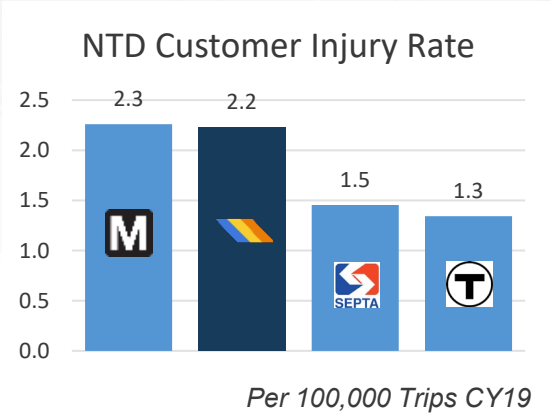
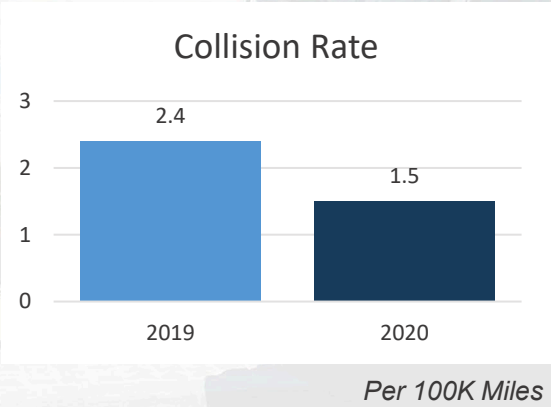
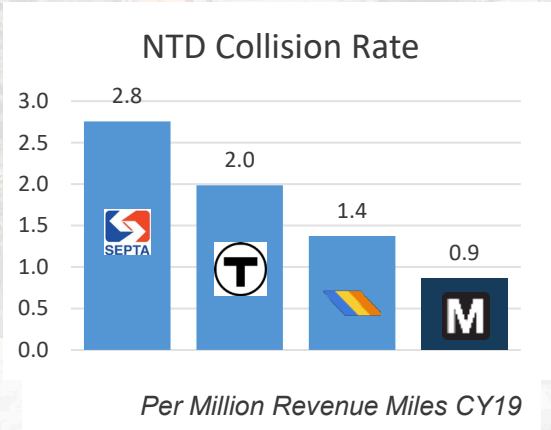
Metrobus COVID-19 Response

- Customer behavior – real time crowding, communication, PPE
- Operator barriers
- Twice daily surface disinfecting
- Interior filters upgraded to MERV-7*
 - Piloting two technologies
 - Puradigm® Air & Surface Purification System
 - RGF Environmental Air & Surface Purification
- Evaluating active air purification systems



* MERV = Minimum Efficiency Reporting Values, which measures the filter's "ability to capture larger particles between 0.3 and 10 microns." U.S. Environmental Protection Agency, <https://www.epa.gov/indoor-air-quality-iaq/what-merv-rating-1>

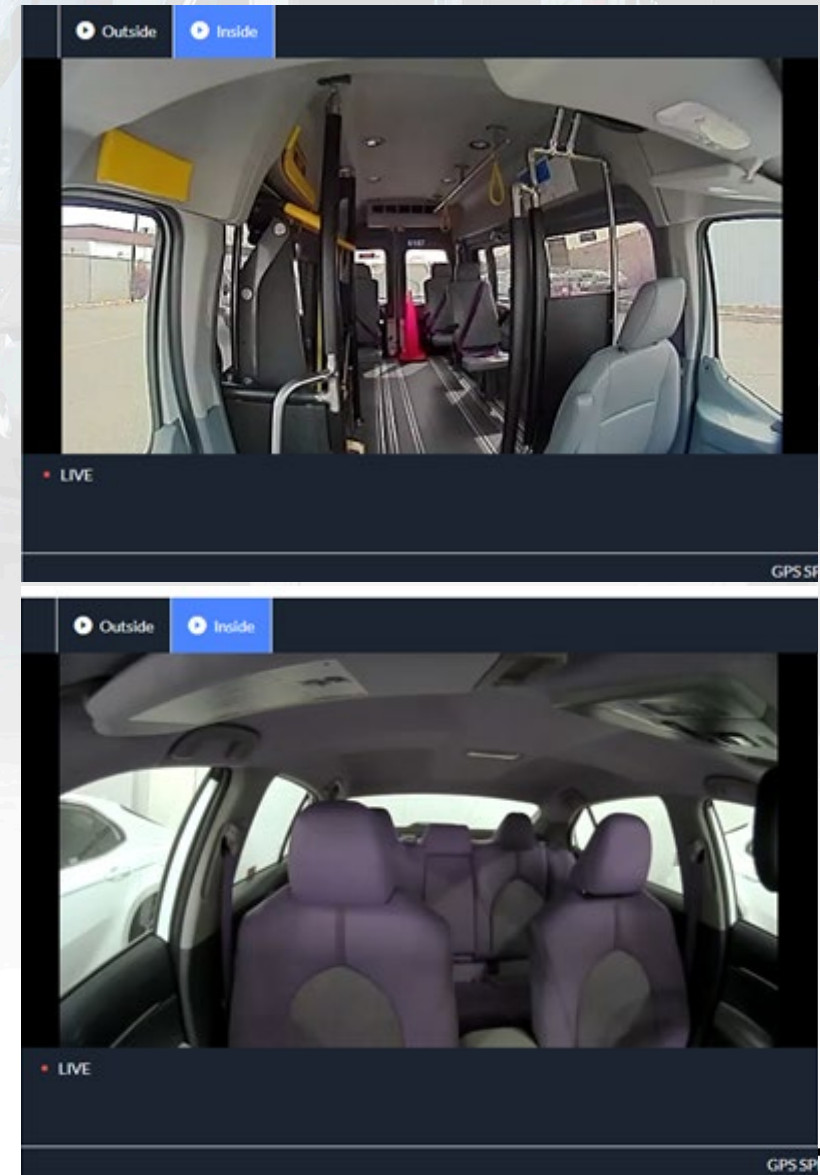
MetroAccess Performance & Benchmarking



Past Initiatives – MetroAccess

- DriveCam Upgrade
 - Installed fleet-wide*
 - Expanded root cause analysis and claim investigation capability
- COVID 19 Safety Messaging
 - Detailed messaging on operator mask use
 - Enhanced communications methods

* Vehicles not slated for imminent retirement



Pilot – Training & Safety Messaging

- Assistance Training Revisions
 - Continued collaboration with Occupational Therapist and RISK
 - Detailed customer assistance training for sedan customers
- Safety Campaign: Safety is not an Accident!
 - Safety messages reinforce best practices
 - Reduce incidents, injuries, and costs associated with corresponding claims



Summary

- Safety Management System systematically reduces risk by driving action before incidents occur
- Safety Risk Management uses data and assurance methods to identify, assess, and mitigate proactively
- Initiatives are examples of data driven risk management strategies that support the Safety Risk Management

