



The Massachusetts Bay Transportation Authority

FTA-VSC-22-001

Corrective Action Plan (CAP)

BACKGROUND

Overview: The FTA issued Special Directive 22-5 that required the Massachusetts Bay Transportation Authority (MBTA) to address ongoing safety concerns at MBTA and interim findings uncovered during FTA's Safety Management Inspection (SMI) that was initiated in April 2022.

This Special Directive mandated that MBTA take three (3) required actions in three distinct categories related to movement of equipment within yard limits with known or suspected defective brakes or propulsion equipment.

PURPOSE

This Corrective Action Plan has been developed to address **Special Directive 22-5 Category 1: Vehicle Securement Policies, Procedures and Compliance** and its Required Action **FTA-Special Directive FTA-VSC-22-001**

FTA Finding

- MBTA does not have or use specific procedures for yard movements of rail vehicles with known or suspected defective brakes or propulsion equipment.

FTA Required Action

- **FTA-VSC-22-001:** MBTA must develop and implement specific written procedures for yard movements of rail vehicles with known or suspected defective brakes or propulsion equipment.

ANALYSIS AND RECOMMENDATIONS

Analysis

- The MBTA created a Safety Management Working Group (SMWG) which includes Vehicle Maintenance, Transportation, Operations Control Center, Training and Safety departments. The SMWG conducted a deep dive analysis on the root cause of why personnel failed to properly prepare trains with defective brakes or propulsion systems to move in yards and maintenance facilities.
- **Reviewed all documents:** Operations rule book, ensure in-person face-to-face safety briefings are conducted for every move into / out of the carhouse between yard staff and vehicle maintenance forepersons
 - Specify all known defects with the equipment to yard staff
 - Develop a clear plan to move defective equipment including checking track area within the car house
 - Special Orders, existing documentation within Vehicle maintenance department on securing disabled vehicles in various scenarios, configuration management on couplers
- **Conducted investigations** into specific incidents 5/28, 5/30, 5/31, 6/1, and 6/8
- **Engaged frontline staff and frontline management** in all the relevant facilities and associated yards
- The SMWG concluded that the MBTA does not have clear consistent written procedures for yard moves of rail vehicles with known or suspected defective brakes or propulsion equipment within yard limits.

Recommendations

- **Develop clear and consistent written procedures** for yard moves of rail vehicles with known or suspected defective brakes or propulsion equipment within yard limits for heavy and light rail.
 - MBTA will review rule book for Heavy Rail and Light Rail movement of equipment within the yard limits and into/out of the car house and make updates as necessary
 - MBTA will develop and release a special order for Light Rail movement of equipment within the yard limits and into/out of the car house
- **Ensure robust communication** for movement plans to ensure that all relevant staff have required information
- **Implement a version of the FRA's blue flag/blue signal procedures**
- **Integrate with training and audit CAPs** (FTA-VSC-22-002, FTA-VSC-22-003)



• **The MBTA has already completed several immediate actions:**

- Updated and issued memos & special orders for Heavy Rail yard and car house moves for brake cutouts, uncoupling vehicles.
 - The MBTA also created and issued new procedure for vehicle maintenance re-rail listed action items.
 - The goal of these quick strike actions was to improve communications and planning between yard staff and forepersons for all moves
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ACTION PLAN

Description: The MBTA will develop and implement a special order for yard movements of rail vehicles with known or suspected defective brakes or propulsion. The MBTA will develop special orders for Heavy Rail and for Light Rail. We will train all affected personnel which includes Training Staff, Operations Control Center staff, Yard Masters, Yard Motor Persons, Vehicle Maintenance Forepersons and Supervisors.

PLAN STRUCTURE

#	Actionable Items	Description	Responsible Party ¹	Est Start ²	Est End ³
1	Investigations: Transportation held fact finding on yard incidents from 5/28, 5/30, 5/31, 6/1, and 6/8	Completed deep dive assessment to understand root cause of why the incidents took place.	Transportation Dept (Andrea Gordon)		Fact findings were held on 6/2, 6/3, 6/7, 6/10 for these 5 incidents
1a	Investigations: Transportation held fact finding on July 25 th incident	Update with any fact finding and lessons learned from the July 25, 2022 unintended train movement and the safety standdown	Transportation Dept (Andrea Gordon)		Fact finding was held on 7/28
1b	Investigations: Lessons learned from July 25, 2022 event and from safety standdown	Conduct a round-table lessons learned debrief with the various relevant operations personnel	Transportation Dept (Andrea Gordon)		9/2/22
2	Frontline engagement: Vehicle Maintenance senior staff spoke with all forepersons	Reviewed proper release of vehicles from the car house to the Yardmaster based on vehicle condition, proper communication and email follow up to Yardmaster on vehicles with brake or propulsion issues	Vehicle Maintenance (Stephens Hicks)		6/2-6/5/22
3	Frontline engagement: Transportation senior staff spoke with all yard personnel	Discussed proper shifting of vehicles based on vehicle condition, proper communication and sent email follow up to yard staff	Transportation Dept (Andrea Gordon)		6/9 – 6/21/22
4	Updated Procedures: Transportation memo issued regarding uncoupling vehicles	Updated actions required of Transportation and Vehicle Maintenance staff if an uncouple attempt is unsuccessful.	Transportation Dept (Andrea Gordon)		6/5/22
5	Updated Procedures: Issued uncoupling special order	Formalized a Special Order for uncoupling procedure	Transportation Dept (Andrea Gordon)		6/22/22
6	Update Procedures: Developed procedure for pin hitching for all service rail vehicle types	Develop procedures on how to pin hitch using a pin for the Red Line #1, #2, and #3 cars. This will include direction to MBTA personnel regarding what should be done if the pins cannot be inserted into the coupler, or the procedure cannot be implemented for some other reason.	Vehicle Maintenance (Stephens Hicks)	4/30/22	12/15/22
6a	Update Procedures: Developed procedure for pin hitching for all service rail vehicle types	Provide MBTA's plan for designing and procuring new pins to support the pin hitch procedure	Vehicle Maintenance (Stephens Hicks)		10/15/22

¹ In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

² Est Start – Estimated Start Date

³ Est End Estimated Completion Date



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6b	Developed procedure for pin hitching for all service rail vehicle types	Provide incremental schedule showing completion dates for pin hitching procedures and pin procurement for the Red, Orange, Blue, and Green Line fleets through December 1, 2022.	Vehicle Maintenance (Stephens Hicks)		RL-9/15/22 OL-10/1/22 BL-11/1/2022 GL- 12/1/22
6c	Developed procedure for pin hitching for all service rail vehicle types	Provide FTA with documentation on the number of successful pin hitch procedure tests conducted with new pins and schedule another demonstration for FTA.	Vehicle Maintenance (Stephens Hicks)		RL-9/15/22 OL-10/1/22 BL-11/1/2022 GL- 12/1/22
6d	Developed procedure for pin hitching for all service rail vehicle types	Update training to reflect changes in procedure for pin hitch.	Vehicle Maintenance (Stephens Hicks)		RL-10/1/22 OL-10/15/22 BL-11/15/22 GL- 12/15/22
7	Updated Procedures: Issued rerail list of required action items for Vehicle Maintenance	Implemented a new checklist for derailment actions	Vehicle Maintenance (Stephens Hicks)		6/15/22
8	Updated Procedures: Carhouse moves	Rail Transportation & Vehicle Maintenance updated procedures on Carhouse moves mandating a face-to-face meeting with foreperson and yard master prior to movement of equipment into/out of the car house to discuss all aspects of move.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks)		6/22/22
9	Update Procedures: Develop Heavy Rail Special Order which provides clear direction on procedure to move equipment within yard limits and into/out of the car houses and provides clear direction for moving equipment with brake or propulsion issues	Will provide clear direction on procedure to move equipment within yard limits and into/out of the car houses utilizing a version of blue flag/blue signal procedures and provides clear direction for moving equipment with brake or propulsion issues	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)	6/22/22	8/1/22
9a	Update Procedures: Develop and implement into procedures, training, and compliance the checklists for coupling/uncoupling and vehicle safety inspection	Incorporate a checklist for coupling/uncoupling and vehicle safety inspection, as required in FTA's immediate action letter into procedures, training and compliance requirements associated with actions for these CAP's.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)		Issued on 8/8/22 Training & compliance 10/15/22
9b	Update Procedures: Develop and implement into procedures, training, and compliance the checklists for car house circle checks	Include circle checks as required in FTA's immediate action letter into procedures, training and compliance requirements associated with actions for these CAP's.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)		Issue on 9/2/22 Training & compliance 11/15/22
9c	Update Procedures: Develop and implement into procedures, training, and compliance the checklists for pre-trip inspections	Incorporate a checklists for pre-trip inspections, as required in FTA's immediate action letter into procedures, training and compliance requirements associated with actions for these CAP's.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)		Issued on 8/8/22 Training & compliance 10/15/22



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10	Update Procedures: Develop Light Rail Special Order which provides clear direction on procedure to move equipment within yard limits and into/out of the car and provides clear direction for moving equipment with brake or propulsion issues	Will provide clear direction on procedure to move equipment within yard limits and into/out of the car houses utilizing a version of blue flag/blue signal procedures and provides clear direction for moving equipment with brake or propulsion issues	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)	7/22/22	9/1/22
10a	Update Procedures: Develop and implement into procedures, training, and compliance the checklists for coupling/uncoupling and vehicle safety inspection	Incorporate a checklist for coupling/uncoupling and vehicle safety inspection, as required in FTA's immediate action letter into procedures, training and compliance requirements associated with actions for these CAP's.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)		Issued 8/8/22 Training & compliance 10/15/22
10b	Update Procedures: Develop and implement into procedures, training, and compliance the checklists for car house circle checks	Include circle checks as required in FTA's immediate action letter into procedures, training and compliance requirements associated with actions for these CAP's.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)		Issue on 9/2/22 Training & compliance 11/15/22
10c	Update Procedures: Develop and implement into procedures, training, and compliance the checklists for pre-trip inspections	Incorporate a checklists for pre-trip inspections, as required in FTA's immediate action letter into procedures, training and compliance requirements associated with actions for these CAP's.	Transportation Dept (Andrea Gordon) Vehicle Maintenance (Stephens Hicks) Transportation Training & OCC (Aisheea Isidor)		Issued 8/8/22 Training & compliance 10/15/22
11	Updated Procedures: Vehicle Maintenance will remove a coupler wiring modification	New modification will actuate the hook open movement on both facing cars. It will remove old wiring modification that was implemented to prevent a short with work car equipment that happened in the late 1980's in the #1 & #2 fleets. That work car equipment is now decommissioned.	Vehicle Maintenance (Stephens Hicks)	7/18/2022	10/24/2022
12	Staffing/Personnel: Build plan for increasing capacity for forepersons and yard staff to support additional workload	Develop a labor model, create a budget, and hiring plan to ensure there is adequate foreperson and yard staffing on all relevant shifts to allow for safe carhouse and yard moves and to comply with future procedures and rulebook at each location	Dave Panagore (Office of Chief Administration) & Dave Carney (Chief of Transit Services)	7/5/2022	9/1/2022
13	Staffing/Personnel: Hire all relevant positions	Execute on hiring plan to fill all currently vacant positions as well as the additional positions need to support new procedures	Dave Panagore (Office of Chief Administration) & Dave Carney (Chief of Transit Services)	9/1/2022	12/30/2023
14	Communication: Transportation memo issued regarding brake cutout	Sent Rule Reminder Memo on procedures for brake cut-outs (BCO's) (attached)	Transportation Dept (Andrea Gordon)		6/8/22
15	Communication:	Directive from CSO on vehicle movement within yard limits and into/out of the car	Vehicle Maintenance (Stephens Hicks)		6/21- 6/23/22



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	All forepersons received and signed for receipt of two safety directives from CSO	house, emphasizes communication about train defects, horsing a vehicle with a defect.			
16	Communication: All yard staff received and signed for receipt of two safety directives from CSO	Directive from CSO on how to handle an unsuccessful uncouple, secure in place, and have Vehicle Maintenance respond to assist	Transportation Dept (Andrea Gordon)		6/21- 6/23/22
17	Communications: Heavy Rail Transportation will update rule book	Update Rule book on movement within yard limits and into/out of car houses as well as updating / creating definitions	Transportation Dept (Andrea Gordon)	7/5/2022	4/1/2023
18	Communications: Light Rail Transportation will update rule book	Update Rule book on movement within yard limits and into/out of car houses as well as updating / creating definitions	Transportation Dept (Andrea Gordon)	7/5/2022	4/1/2023

COMPLETION DOCUMENTATION

Performance Metrics

Estimated Completion:

- Train Red Line, Cabot, Codman, and Caddigan yard staff and forepersons on Heavy Rail Special Order for all vehicle yard moves and moving heavy rail vehicles into/out of car houses issued. New Special Orders will be implemented upon completion of training at each location. 11/18/2022
- Train Orange Line, Wellington yard staff and forepersons on Heavy Rail Special Order for all vehicle yard moves and moving heavy rail vehicles into/out of car. New Special Orders will be implemented upon completion of training at each location. 1/6/2023
- Train Blue Line, Orient Heights yard staff and forepersons trained on Heavy Rail Special Order for all vehicle yard moves and moving heavy rail vehicles into/out of car. New Special Orders will be implemented upon completion of training at each location. 1/27/2023
- Train Green Line, Riverside, Reservoir, Lake Street, Mattapan, and Inner Beltway yard staff and forepersons on Light Rail Special Order for all vehicle yard moves and moving heavy rail vehicles into/out of car. New Special Orders will be implemented upon completion of training at each location. 2/24/2023
- Complete Pin Hitch documents for all rail fleets. 12/15/22

Verification

Overview:

- Rewrite existing SRCP audit for movement of equipment into/out of the car house; have committee accept changes and implement the new procedure when training is complete, and the Special Order is released for the location
- Write new SRCP audit for movement of equipment within the yard limits; have committee accept changes and implement the new procedure when training is complete, and the Special Order is released for the location
- Vehicle Maintenance will develop an SRCP to audit movement into/out of the car house and audit personnel are following the Blue Flag/Blue Signal procedures when they are implemented
- Ensure safety checklist and potentially pre-trip inspections for vehicles going into service are submitted as required, reviewed, and evaluated by a manager for compliance for every yard move as applicable.

BUDGET/COST ESTIMATE

Overview:

- Vehicle Maintenance recommends hiring eighteen (18) additional forepersons to cover Sunday 3rd shift to Friday 2nd shift for every car house location except Lake Street and Mattapan. This would be three (3) per location. This includes Cabot, Wellington, Orient Heights, Riverside, Reservoir, and the Inner Beltway facility.


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- Heavy Rail Transportation recommends hiring 30% more yard staff to cover the additional work load.

Segment Code	Cost Estimate
Foreperson 18 new positions	\$2,753,974
Yard Master 8 new positions	\$1,271,785
Yard Motor Persons 23 new positions	\$2,458,050
Total	\$6,483,809



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CORRECTIVE ACTION PLAN COMMITMENT

Responsible Parties

Department ⁴	Name	Contact Email	Signature
Vehicle Maintenance	Stephens Hicks	[REDACTED]	DocuSigned by: Stephens Hicks 3F757E7229-3C...
Rail Transportation	Andrea Gordon	[REDACTED]	DocuSigned by: Andrea Gordon 7E934C70E1874E7...
Transportation Training & OCC	Aisheea Isidor	[REDACTED]	DocuSigned by: Aisheea Isidor 7757C724F50484D...
Chief of Transit Services	David Carney	[REDACTED]	DocuSigned by: David Carney 3-8B5C4130F42C...
Chief Human Resource Officer	Thomas Waye	[REDACTED]	DocuSigned by: Howaida Kamel 308DF25850C7437... Howaida Kamel, MBTA Chief of Staff – CAO's Office, on behalf of Thomas Waye
Chief Financial Officer	Mary Ann O'Hara	[REDACTED]	DocuSigned by: Mary Ann O'Hara 4-7625C8584E...

Executive Leadership of Responsibilities Parties

DocuSigned by: Jeffrey D. Gonneville 3F757E7229-3C...	8/12/2022
Jeffrey D. Gonneville MBTA Deputy General Manager	Date
DocuSigned by: Howaida Kamel 4741-4393027461	8/12/2022
Howaida Kamel MBTA Chief of Staff – CAO's Office On behalf of David Panagore MBTA Chief Administration Officer	Date
DocuSigned by: Matthew DeDonato 642B73E377-012	8/12/2022
Matthew DeDonato MBTA Deputy Director of Safety Oversight and Planning On behalf of Ronald Ester MBTA Chief Safety Officer	Date

⁴ Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



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DocuSigned by:

Jonathan Lenicheck

8/12/2022

Jonathan Lenicheck
MBTA Chief of Staff – GM's Office
On behalf of Steve Poftak
MBTA General Manager

Date