



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-83***

***Massachusetts Bay Commuter Railroad Company
Franklin, MA
October 23, 2006***

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

1. Name of Railroad Operating Train #1 Massachusetts Bay Transit Authority [MBTA]		1a. Alphabetic Code MBTA		1b. Railroad Accident/Incident No. 0485	
2. Name of Railroad Operating Train #2 N/A		2a. Alphabetic Code N/A		2b. Railroad Accident/Incident N/A	
3. Name of Railroad Responsible for Track Maintenance: Massachusetts Bay Transit Authority [MBTA]		3a. Alphabetic Code MBTA		3b. Railroad Accident/Incident No. 0485	
4. U.S. DOT_AAR Grade Crossing Identification Number 536861K		5. Date of Accident/Incident Month: 10 Day: 23 Year: 2006		6. Time of Accident/Incident 07:48: <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	
7. Type of Accident/Incident (single entry in code box) 1. Derailment 4. Side collision 7. Hwy-rail crossing 10. Explosion-detonation 13. Other (describe in narrative) 2. Head on collision 5. Raking collision 8. RR grade crossing 11. Fire/violent rupture 3. Rear end collision 6. Broken Train collision 9. Obstruction 12. Other impacts 07					
8. Cars Carrying HAZMAT 0	9. HAZMAT Cars Damaged/Derailed 0	10. Cars Releasing HAZMAT 0	11. People Evacuated 0	12. Division System	
13. Nearest City/Town Franklin		14. Milepost (to nearest tenth) 28.4	15. State Abbr Code N/A MA		16. County NORFOLK
17. Temperature (F) (specify if minus) 50 F	18. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2		19. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 2		20. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1
21. Track Name/Number Franklin Branch		22. FRA Track Code Class (1-9, X) 3	23. Annual Track Density (gross tons in millions) 0	24. Time Table Direction Code 1. North 3. East 3	

OPERATING TRAIN #1

25. Type of Equipment Consist (single entry) 1. Freight train 4. Work train 7. Yard/switching 2. Passenger train 5. Single car 8. Light loco(s). 3. Commuter train 6. Cut of cars 9. Maint./inspect.car		A. Spec. MoW Equip. Code 3		26. Was Equipment Attended? 1. Yes 2. No 1		27. Train Number/Symbol 710	
28. Speed (recorded speed, if available) Code R - Recorded E - Estimated 40 MPH R		30. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits				30a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable 2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter 0	
29. Trailing Tons (gross tonnage, excluding power units) 0		g. N/A	N/A	N/A	N/A		

31. Principal Car/Unit (1) First involved (derailed, struck, etc) N/A	a. Initial and Number 1	b. Position in Train 1	c. Loaded (yes/no) yes	32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol Drugs N/A N/A	
(2) Causing (if mechanical cause reported) 0	0	0	N/A	33. Was this consist transporting passengers? (Y/N) Y	

34. Locomotive Units	a. Head End	b. Mid Train		c. Rear End		35. Cars	a. Freight	b. Pass.	c. Freight	d. Pass.	e. Caboose
(1) Total in Train	0	0	0	1	0	(1) Total in Equipment Consist	0	7	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	1	0	0	0

36. Equipment Damage This Consist 500000	37. Track, Signal, Way, & Structure Damage 29273		38. Primary Cause Code M303		39. Contributing Cause Code N/A	
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40. Engineer/Operators N/A				41. Firemen 0				42. Conductors 3				43. Brakemen 0				44. Engineer/Operator Hrs 2 Mi 36				45. Conductor Hrs 2 Mi 36			
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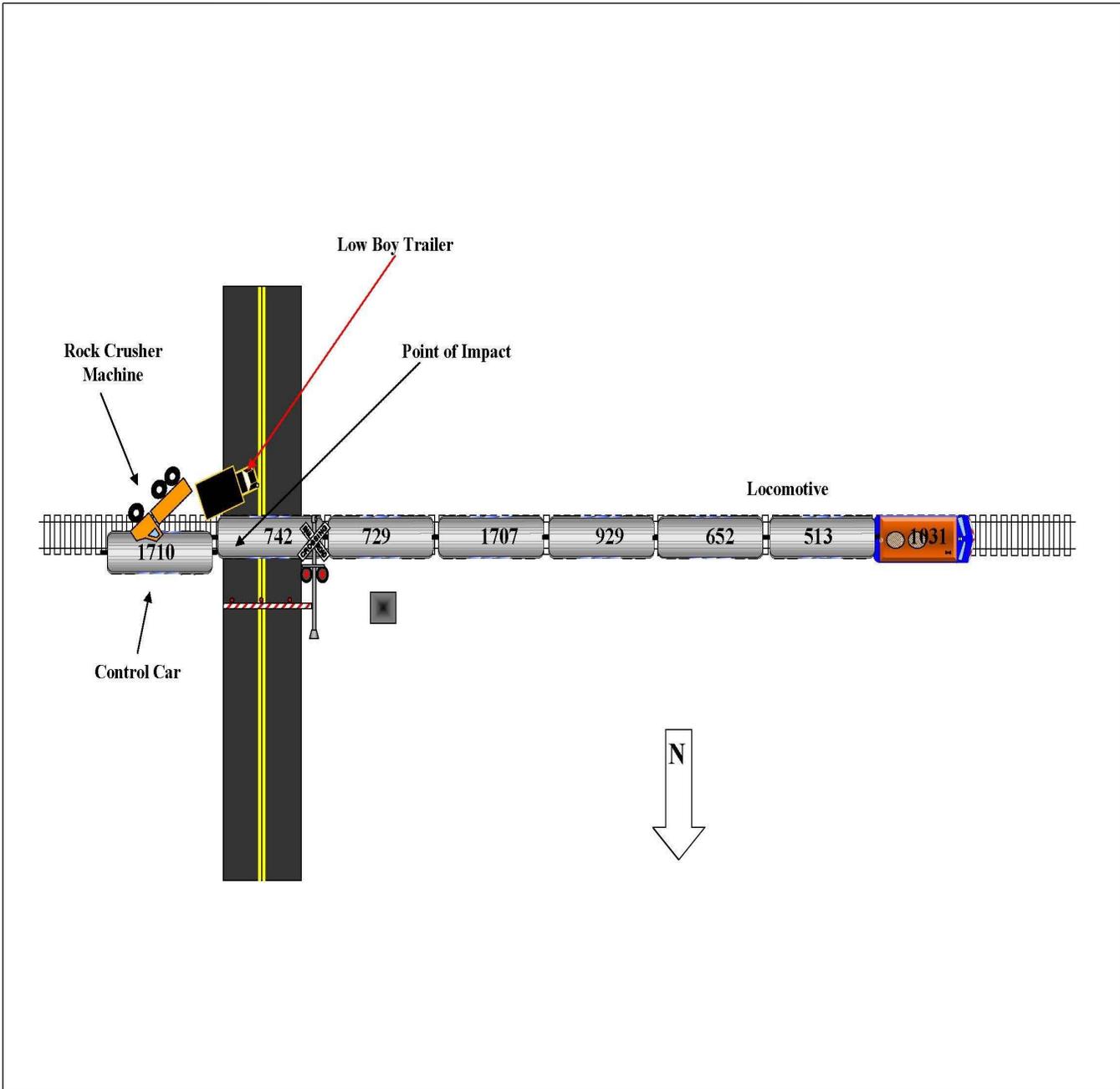
Casualties to:	46. Railroad Employees 0	47. Train Passengers 0	48. Other 0	49. EOT Device? 1. Yes 2. No 2		50. Was EOT Device Properly Armed? 1. Yes 2. No N/A	
Nonfatal	N/A	26	0	51. Caboose Occupied by Crew? 1. Yes 2. No		N/A	

OPERATING TRAIN #2

52. Type of Equipment Consist (single entry) 1. Freight train 4. Work train 7. Yard/switching 2. Passenger train 5. Single car 8. Light loco(s). 3. Commuter train 6. Cut of cars 9. Maint./inspect.car		A. Spec. MoW Equip. Code N/A		53. Was Equipment Attended? 1. Yes 2. No N/A		54. Train Number/Symbol N/A	
55. Speed (recorded speed, if available) Code R - Recorded E - Estimated 0 MPH N/A		57. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track				57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable	

108. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.

HQ-2006-
83
Sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

A eastbound MBTA passenger train collided with a tractor trailer truck at the Fisher Street crossing on October 23, 2006, at 7:48 a.m. The trailer was a low bed type which was carrying a portable rock-crushing machine that weighed approximately 53 tons. The trailer was hung up on the crossing and the truck driver was attempting to raise the trailer at the time of the collision. The collision occurred in Franklin, Massachusetts, at MBTA Milepost 28.4, on the MBTA Franklin Branch.

The truck driver was not injured, but two railroad employees and 26 passengers sustained various types of injuries. The low boy trailer was slightly damaged. The rock crusher machine was knocked off of the trailer with the conveyor belt of the machine slicing through the roof of the control car and coming to rest against the car. The control car sustained approximately \$500,000 worth of damage. The lead truck of the control car did derail and the entire passenger car was severely leaning towards the fireman's side. Because of this, the two wheels on the engineers side of the rear truck were raised up off of the rail.

The FRA's investigation concluded the probable cause was the low boy trailer loaded with the rock crushing machine was fouling the track. According to the MBTA police report, the area of the collision was thickly settled residential and commercial in nature. The roadway was poor in condition due to recent construction and had been patched with asphalt. Several potholes were present in the roadway on the day of the collision. Both of these conditions played a significant role on the clearance of the trailer. Because of these findings, it was determined that the truck driver was not responsible for the collision. The FRA's investigation also concurs with the findings of the MBTA police.

110. NARRATIVE

Circumstances Prior to the Accident

The crew of passenger train MBTA 710 included a locomotive engineer, a conductor, and two assistant conductors. One of the assistant conductors first went on duty at 7:25 a.m., EST, October 23, 2006 at the MBTA Forge Park station. The remainder of the crew first went on duty at 5:12 a.m., EST, October 23, 2006 at the MBTA equipment layover facility in Franklin, Massachusetts. This is the regular assignment for all crew members and all received more than the statutory off duty period, prior to reporting for duty.

Their assigned passenger train consisted of one locomotive and seven passenger cars. MBTA Train 710 departed the MBTA Forge Park station at the scheduled time of 7:45 a.m. and was due to arrive at Boston's South Station at 8:52 a.m.

As the eastbound train approached the accident area, the locomotive engineer was located in the engineers compartment of the control car. The conductor was located in the first car behind the control car, one assistant conductor in the second car behind the control car and the additional assistant conductor in the last passenger car of the train.

In this area of the railroad, the track is a single main line with a 3-degree curve to the left. In this area of Fisher Street, the road crosses the track perpendicular. When traveling in the northbound direction, the road does descend from the track and turns to the right.

The railroad timetable direction of the train was east.

The Accident Train MBTA 710

The train was being operated at 40 mph approaching the accident area. The engineer observed a man to the right of the track waving in a stop motion. The engineer placed the train's brakes in an emergency application while sounding the horn. At that time the train proceeded through the curvature of the track and the Fisher Street crossing came into view. The engineer could see the huge machine perpendicular on the track. Realizing that impacting the machine imminent, the engineer turned to warn the passengers. At the same time, he felt and saw the train strike with the machine. The speed was recorded on the event recorders of the control car and the locomotive. The maximum authorized speed for the train was 40 mph, as designated in the current MBCR Timetable No. 5.

Highway Vehicle

The tractor trailer was traveling south to north on Fisher Street. As the loaded trailer was pulled over the single main line, it bottomed out on the track and became hung up. The truck driver attempted to free the trailer by utilizing the "blocking system" to lift it off the track. When he realized that his attempts to free the trailer were unsuccessful, he exited the cab of the tractor and attempted to manually place blocks under the trailer. As he was attempting this maneuver, the crossing's active warning devices activated and the crossing gates began to lower. He then observed the train approaching and ran for safety. As a result of the collision, the tractor was separated from the trailer.

The train struck the trailer, knocking the portable rock crushing machine off the trailer and onto the railroad right of way. The conveyor belt of the machine struck the front of the control car and also lacerated the roof of the control car behind the engineers compartment. The trailer came to rest against the control car with the wheels remaining on the road surface. The train came to a stop approximately 79 feet east of the roadway.

After the train stopped, the conductor notified the train dispatcher of the emergency and requested medical assistance. The conductor and two assistant conductors then assisted in the evacuation of the train passengers.

At 7:51 a.m., EMT's, MBTA Transit police and Franklin police were notified. MBCR Senior Trainmaster William Rae was dispatched to the scene and arrived at approximately 9 a.m. The MBTA Transit police arrived at approximately 9:15 a.m. The MBTA Transit police took control of the collision site and conducted the investigation into the collision.

The locomotive engineer and 20 train passengers were transported to the Milford Regional Medical Center with non-life threatening injuries. Days after the accident, one employee and six passengers reported injuries sustained in the collision.

The remainder of the train passengers were transported to the Franklin Train Station where they could board a train to continue on their trip.

Analysis and Conclusions

The driver was a 40 year old male. He had been operating tractor-trailers for total of 22 years.

The highway-rail grade crossing at grade is equipped with cross bucks, warning lights, gates, and a bell. There is no advance warning sign or pavement markings. There is also no sign for north bound travel on Fisher Street warning that low boy trailers are prohibited. Also, Fisher Street is not the only street that provide accessibility to the location where the rock crushing machine was picked up at. Trucks can gain access by operating over the Hayward Street highway-rail grade crossing, which is not humped, through the Franklin public works yard.

At the time of the collision, the Fisher Street crossing was listed in the FRA Inventory as a private crossing. Since that time, the crossing has been changed in the inventory to a public crossing. The roadway is under the care of the Town of Franklin Public Works.

The railroad has a whistle post located approximately 1,000 feet west of the Fisher Street crossing. MBCR Timetable No. 5 requires the sounding of the locomotive horn when the train is proceeding in either direction. The engineer stated that he did sound the horn when he saw the man waving for the train to stop. One of the assistant conductors confirmed that he did hear the horn sounding. The event recorder does confirm that the horn was sounded.

The active warning devices were tested by an MBCR signal maintainer in the presence of a FRA signal and train control inspector. The warning devices functioned as intended.

The leading control car was equipped with a headlight, auxiliary lights, and the audible warning device as required by Federal regulations. Due to the amount of damage sustained by the control car, none of these devices could be tested.

The control car was equipped with an speed indicator and event recorder as required. The relevant event recorder data was downloaded by the MBCR cab signal supervisor that was present at the collision site. The data was analyzed immediately by the supervisor and the MBCR Senior Road Foreman of Engines. The analysis disclosed that the engineer was in compliance with all applicable railroad operating rules. FRA reviewed the results of this analysis, and concurred with the conclusion.

The engineer was operating the train in full compliance with railroad operating rules and Federal regulations.

Conclusion

Based on the investigation by the MBTA Transit police, possible contributing causes are; poor condition of the roadway due to recent construction which had been patched with asphalt as well as several potholes in the roadway on the day of the collision. Both of these conditions played a significant role in the clearance of the trailer. As a result of these conditions, the police did not cite the driver nor feel that he was responsible for the collision. Also, there was no warning sign posted for the north bound Fisher Street traffic warning about poor clearance for a low bed trailer, however; it should be noted that Fisher Street is a one-way street with South bound traffic only, the low bed trailer was traveling in the wrong direction. There is a warning sign posted prohibiting low bed trailers from transversing the tracks which is viewable if traveling in the correct direction on this one-way street.

The FRA's investigation concluded that the probable cause was the low bed trailer fouling the track because of the highway user's misjudgement under normal weather and traffic conditions; the highway user operated his low bed trailer over a prohibited crossing.