

**RAILROAD ACCIDENT INVESTIGATION**

**Report No 3779**

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BOSTON AND MAINE RAILROAD

MEDFORD, MASS

November 19, 1957

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**INTERSTATE COMMERCE COMMISSION**

**Washington**

**SUMMARY**

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<b>DATE</b>	<b>November 19, 1957</b>
<b>RAILROAD</b>	<b>Boston and Maine</b>
<b>LOCATION</b>	<b>Medford, Mass</b>
<b>KIND OF ACCIDENT</b>	<b>Derailment</b>
<b>TRAIN INVOLVED</b>	<b>Passenger</b>
<b>TRAIN NUMBER</b>	<b>30</b>
<b>LOCOMOTIVE NUMBER</b>	<b>Diesel-electric units 4224A and 4224B</b>
<b>CONSIST</b>	<b>9 cars</b>
<b>SPEED</b>	<b>57 m p h</b>
<b>OPERATION</b>	<b>Timetable, train orders, and automatic block-signal system</b>
<b>TRACKS</b>	<b>Double, tangent, level</b>
<b>WEATHER</b>	<b>Raining</b>
<b>TIME</b>	<b>8 30 a m</b>
<b>CASUALTIES</b>	<b>2 killed, 71 injured</b>
<b>CAUSE</b>	<b>Excessive speed entering track being used as temporary main track</b>

## INTERSTATE COMMERCE COMMISSION

REPORT NO 3779

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS UNDER  
THE ACCIDENT REPORTS ACT OF MAY 6, 1910

BOSTON AND MAINE RAILROAD

March 17, 1958

Accident at Medford, Mass , on November 19, 1957, caused by excessive speed entering a track being used as a temporary main track

REPORT OF THE COMMISSION<sup>1</sup>

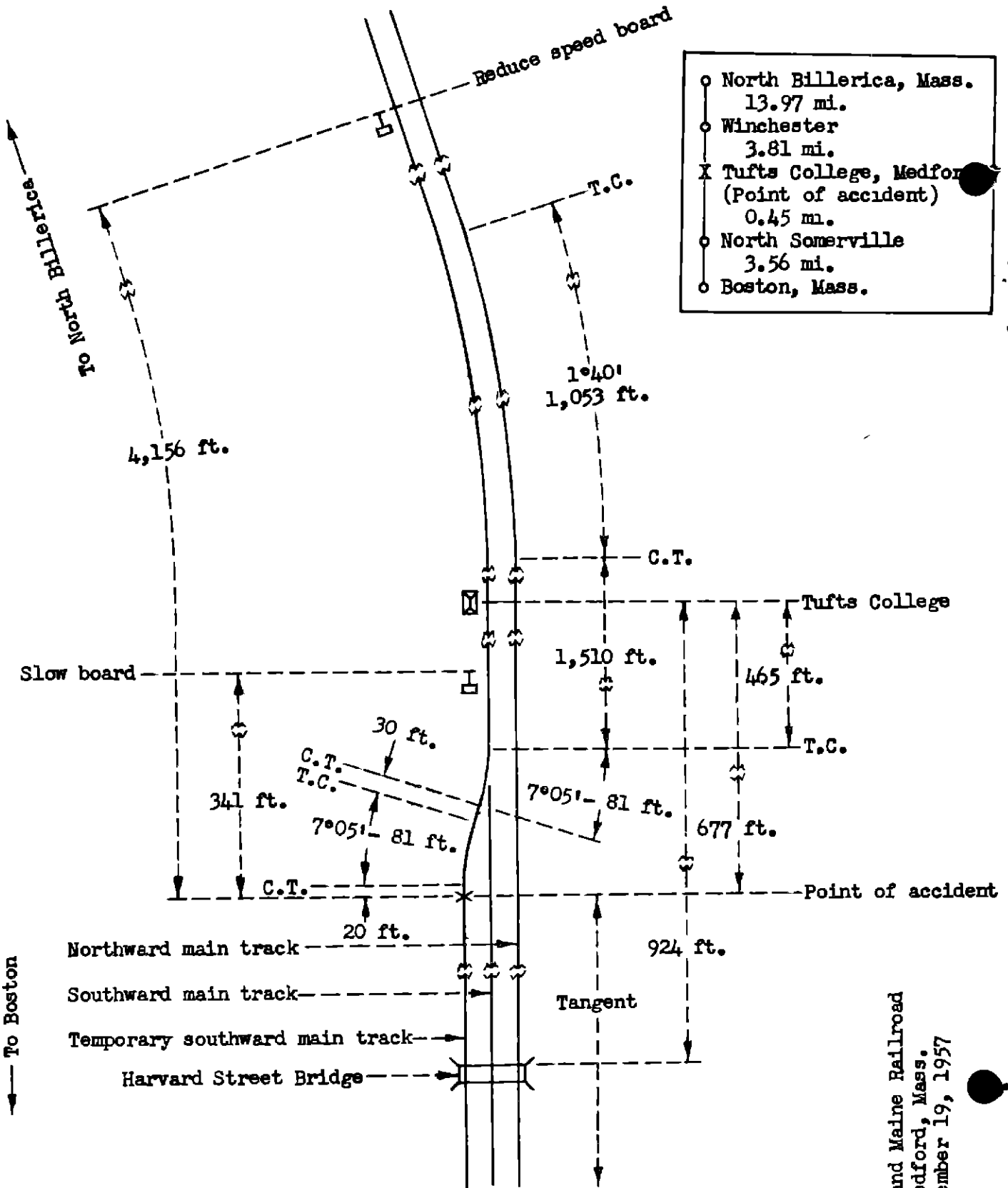
*TUGGLE, Commissioner*

On November 19, 1957, there was a derailment of a passenger train on the Boston and Maine Railroad at Medford, Mass , which resulted in the death of 2 train-service employees, and the injury of 62 passengers, 4 railway mail clerks, 1 railway express messenger, 1 Pullman Company employee, and 3 train-service employees. This accident was investigated in conjunction with representatives of the Massachusetts Department of Public Utilities

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Under authority of section 17 (2) of the *Interstate Commerce Act* the above-entitled proceeding was referred by the Commission to Commissioner Tuggle for consideration and disposition



Boston and Maine Railroad  
 Medford, Mass.  
 November 19, 1957

### Location of Accident and Method of Operation

This accident occurred on that part of the Boston Division extending between North Billerica and Boston, Mass., 21.79 miles. In the vicinity of the point of accident this is a double-track line over which trains moving with the current of traffic are operated by timetable, train orders, and an automatic block-signal system. The main tracks from east to west are designated as northward and southward. A siding approximately 1,730 feet in length parallels the main tracks on the west and extends southward from Medford to North Somerville. In the vicinity of the point of accident the main tracks and the siding extend over a bridge which spans Harvard Street, Medford. The bridge is 24 feet 11 inches in length. The bottoms of the rails on the bridge are 12 feet 7 inches above the street. The north end of the bridge is located 924 feet south of Tufts College Station, Medford. At the time of the accident the portion of the bridge under the southward main track was being repaired. The north end of the siding was connected to the southward main track at a point 465 feet south of Tufts College Station and was being used as a temporary southward main track. The accident occurred on the siding at a point 677 feet south of Tufts College Station. From the north on the southward main track and the siding there are, in succession, a 1°40' curve to the right 1,053 feet in length, a tangent 1,510 feet, a 7°05' curve to the right 81 feet, a tangent 30 feet, a 7°05' curve to the left 81 feet, and a tangent 20 feet to the point of accident and a considerable distance southward. In the vicinity of the point of accident the grade is practically level.

In the vicinity of the point of accident the track structure of the main track consists of 115-pound rail, 39 feet in length, laid new in 1949 on an average of 21 treated ties to the rail length. It is fully tieplated with double-shoulder canted tie plates, double spiked, and is provided with 4-hole joint bars and an average of 8 rail anchors per rail. It is ballasted with stone to a depth of 8 inches below the bottoms of the ties. The track structure of the siding consists of 85-pound rail, 33 feet in length, laid on an average of 17 ties to the rail length. It is fully tieplated. The portion of the siding extending from its connection with the southward main track to Harvard Street Bridge was ballasted with new gravel to a depth of 8 inches below the bottoms of the ties on the day before the accident occurred. The east and west rails of the connection were each provided with a 33-foot length of 100-pound rail having compromise joints at each end.

This carrier's operating rules read in part as follows:

#### GENERAL RULES

F \* \* \* any unusual conditions which may affect the movement of trains, must be promptly reported by quickest available means of communication to the proper authority.

#### DEFINITIONS

FIXED SIGNAL—A signal of fixed location indicating a condition affecting the movement of a train or engine.

NOTE --The definition of a "Fixed Signal" covers such signals as \* \* \* slow signs \* \* \*

SPEEDS Restricted—A speed that will permit stopping short of another train, obstruction, or switch not properly lined but not exceeding 15 miles per hour.

## OPERATING RULES

11 In block signal territory fuses burning red 5 minutes will be used. Train finding a lighted fuse will stop, then proceed at restricted speed to the next signal but for not less than one mile \* \* \*

\* \* \*

27 \* \* \* the absence of a signal at a place where a signal is usually shown, must be regarded as the most restrictive indication that can be given by that signal \* \* \*

28b When main tracks are temporarily unsafe for trains to pass except at reduced speed, a reduce speed board, slow board and resume speed board must be displayed in accordance with instructions as shown under Aspects of Signals

\* \* \*

The boards must be displayed in a position where enginemen on approaching trains will have a clear view of same

\* \* \*

109 Bulletin boards will be maintained at points designated in the time-table where instructions modifying the rules or special instructions will be posted for the information of conductors, enginemen, yardmen and others concerned in the movement of trains, who must examine them before starting on each trip or before going on duty, and as frequently as possible thereafter

\* \* \*

SLOW BOARDS  
(TEMPORARY)

REDUCE SPEED BOARD

Location—Approximately 4000' in advance of point to be protected, and upon the right of and adjoining track to which it refers

Indication—Approach slow board at not exceeding speed shown on reduced speed board

SLOW BOARD

Location—100' in advance of point to be protected, and upon the right of and adjoining track to which it refers

Indication—Speed between slow board and resume speed board must not be in excess of speed shown on the reduce speed board

The maximum authorized speed for passenger trains is 70 miles per hour, but it was restricted to 15 miles per hour in the vicinity of the point of accident

Temporary reduce speed boards, slow boards, and resume speed boards were installed at points north and south of the siding before it was placed in service as a temporary southward main track. The reduce speed board for southbound trains was located west of the southward main track and 4,156 feet north of the point of accident. It consisted of a sign having a maximum height of 1 foot and a width of 1 foot mounted on a mast of 2-inch boiler tube 4 feet in length flattened at each end. The sign bore the numerals "15" in black figures approximately 6 inches in height on a yellow background. A lamp displaying a yellow light was mounted on top of the mast. The slow board for southbound trains was located west of the southward main track and 341 feet north of the point of accident.

A reduce speed board as required by the carrier's specifications consists of a sign having a maximum height of 2 feet and a width of 2 feet mounted on a mast of 2-inch boiler tube approximately 10 feet in length flattened at each end. The sign is required to display the speed restriction in black figures approximately 10 inches in height on a yellow background.

#### **Description of Accident**

Bulletin Order No. 28, dated November 14, 1957, concerning the movement of trains over the temporary southward main track, was posted on bulletin boards at Boston and White River Jct., 142.92 miles north of Boston, regular terminals for the engine crew of No. 30, on November 15, 1957. This bulletin read in part as follows:

TO ALL CONCERNED

Effective at 10:20 AM, Monday, Nov. 18, 1957, or after the passage of train #418 at North Somerville the following track and signal changes will be made between North Somerville and Tufts College, and will remain in effect until further notice.

#### **TRACK CHANGES**

The Old Southward Passing Siding, extending from Tufts College Station to a point just north of North Somerville Station will become the Southward Main Track.

The north end of this Siding will be thrown into the Southward Main Track and normal position of south end switch will be reversed for duration of this bulletin.

Engineering Department will be engaged in repairs to Harvard Street Bridge.

\* \* \*

#### **SPEED RESTRICTIONS**

A temporary speed restriction of 15 MPH will be in effect on the Old Southward Passing Siding.

Temporary slow boards will be erected.

\* \* \*

No. 30, a southbound first-class passenger train consisted of diesel-electric units 4224A and 4224B coupled in multiple-unit control, 2 milk cars, 1 baggage-mail car, 2 baggage cars, 1 sleeping car, 1 buffet-sleeping car, and 2 coaches, in the order named. The first and second cars were of steel-underframe construction, and the other cars were of all-steel construction. This train passed Winchester, 13.97 miles south of North Billerica, the last open office, at 8:24 a.m., 2 minutes late, passed a lighted red fusee, passed the slow board at Medford, and while moving

at a speed of 57 miles per hour as indicated by the tape of the speed-recording device, the locomotive, the first six cars, and the front truck of the seventh car were derailed immediately after entering the temporary southward main track at a point 677 feet south of Tufts College Station.

Separations occurred between the diesel-electric units, and at both ends of the second to the sixth cars, inclusive. The first diesel-electric unit stopped on its right side with the front end on top of the south abutment of the bridge and the rear end on Harvard Street. The second diesel-electric unit and the first car struck and demolished a portion of a brick building adjacent to the track. The second diesel-electric unit and the first car stopped parallel to and about 25 feet west of the siding with the front end of the unit about 230 feet south of the point of derailment. The second and third cars stopped across the tracks. The other derailed cars stopped on or near the track structure. The first to the third cars, inclusive, were destroyed. The diesel-electric units and the fourth to the sixth cars, inclusive, were heavily damaged. The seventh car was slightly damaged.

The engineer and the fireman of No. 30 were killed. The conductor, the baggageman, and the flagman were injured.

It was raining at the time of the accident, which occurred about 8:30 a. m.

#### Discussion

The temporary reduce speed boards, slow boards, and resume speed boards were installed and hooded 3 days before the siding was placed in service as the temporary southward main track. On the morning of the day the connection between the southward main track and the siding was to be completed, it was found that the reduce speed boards both north and south of the siding had been pulled from the ground by an unknown person or persons, and were lying on the ground. These boards were replaced immediately. Specifications of the carrier require that the mast of temporary slow boards extend 3 feet 6 inches into the ground. However, the mast of the reduce speed board being used north of the point of accident was about 6 feet shorter in length than the carrier's standard and the section foreman who replaced the board said that the mast extended only about 1 foot 8 inches into the ground. The connection between the southward main track and the siding was completed about 10:20 a. m. on the day before the accident occurred.

As No. 30 was approaching the point where the accident occurred the speed was about 57 miles per hour as indicated by the tape of the speed-recording device. The engine men were in the first diesel-electric unit, the conductor and the flagman were in the rear car, and the baggageman was in the fifth car. The brakes of this train had been tested and had functioned properly when used en route. The members of the train crew said that they had read and understood the contents of Bulletin Order No. 28 but that they did not discuss it with the engine men. The conductor said that he conversed with the engine men before the train departed from White River Jct. and that they appeared to be normal. He said that he did not take action to stop the train as it was approaching the point of accident because a brake application was made in the vicinity of Winchester and he thought that the application was being made to reduce the speed of the train to comply with the speed restriction at Medford. The baggageman said that as the train was approaching the point of accident he observed that the speed was in excess of the speed restriction. He said that he intended to signal the engineer by use of the air communicating signal system to reduce speed but the accident occurred before he could pull the signal cord.



The flagman said that a light brake application was made in the vicinity of Winchester but it was released before the speed of the train was materially reduced. Both the conductor and the flagman said that an emergency application of the brakes was not made before the accident occurred. The flagman said that when he alighted to provide flag protection he observed a lighted red fusee a short distance from the north slow board.

After the accident occurred a freshly burned-out red fusee was found 8 feet north of the north slow board and 13 inches west of the west rail of the southward main track. The investigation disclosed that No. 312, a southbound first-class passenger train passed the point of accident about 4 minutes before the accident occurred. The flagman of No. 312 said that he dropped a lighted 5-minute red fusee to the track structure in the vicinity of the north slow board when the train passed that point. Observations made after the accident occurred disclosed that a lighted red fusee in that location can be seen by the engine crew of an approaching southbound train throughout a distance of 1,982 feet.

Examination of the equipment disclosed no defects which could have caused or contributed to the cause of the accident. The undamaged brake equipment of the train was tested and was found to function as intended.

The track structure of the temporary southward main track was destroyed throughout the distance extending from the south end of the connection to Harvard Street Bridge. Examination of the rails recovered after the accident occurred disclosed that the west rail of the temporary southward main track immediately south of the south compromise joint was bowed outward at the north end throughout a distance of 8 feet. Marks on the track structure indicated that the derailment occurred at that location.

After the accident occurred it was found that the reduce speed board for southbound trains had again been pulled from the ground and had been removed from the carrier's property. The investigation disclosed that the board had been removed about 4:00 p. m. on the day before the accident occurred. From that time until the accident occurred, 26 southbound passenger trains and 6 southbound freight trains operated over the temporary southward main track. None of the members of the crews of these trains reported the absence of the reduce speed board to the proper officials as required by the carrier's rules.

Although a thorough search was made for the board it was not found until 3 days after the accident occurred. It was then found in the brush west of the southward main track in the vicinity of the original location of the board. A freshly dug hole about 7 inches deep was also found approximately 70 feet north of the original location of the board and 4 feet west of the west rail of the southward main track. It is apparent that the person or persons who removed the board had attempted to replace it shortly before it was found.

Since both the engineer and the fireman were killed in the accident it could not be determined why the engineer did not take action to reduce the speed of the train in compliance with the instructions contained in Bulletin Order No. 28 or to stop the train when it was approaching the lighted red fusee as required by the rules. The flagman said that he sounded the Shut-off-steam-heat signal on the air communicating signal system when the train was in the vicinity of Winchester. The body of the fireman was found in the engine compartment of the first diesel-electric unit and it is possible that he was proceeding to the rear of the unit to comply with the flagman's signal at the time the engineer should have taken action to control the speed of the train.

**Cause**

This accident was caused by excessive speed entering a track being used as a temporary main track.

Dated at Washington, D C , this seventeenth  
day of March, 1958

By the Commission, Commissioner Tuggle,

(SEAL)

HAROLD D McCOY,  
Secretary