RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4130

PENNSYLVANIA-READING SEASHORE LINES

SOMERDALE, N. J.

SEPTEMBER 21, 1967

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

Washington

Summary

DATE:	September 21, 1967	
RAILROAD:	Pennsylvania-Reading Seashore Lines	
LOCATION:	Somerdale, N. J.	
KIND OF ACCIDENT:	Collision	
EQUIPMENT INVOLVED:	Freight train	School bus
TRAIN NUMBER:	Extra 6020 South	
LOCOMOTIVE NUMBER:	Diesel-electric unit 6020	
CONSIST:	6 cars, caboose	
ESTIMATED SPEEDS:	20-25 m.p.h.	30-40 m.p.h.
OPERATION:	Timetable, train orders, automatic block-signal system	
TRACK:	Single; tangent; level	
HIGHWAY:	Tangent; slightly descending grade westward; crosses track at angle of 67°47'	
WEATHER:	Clear	
TIME:	2:55 p m.	
CASUALTIES:	2 killed; 3 injured	
CAUSE:	School bus driver's failure to stop short of a rail-highway grade crossing and to remain standing until the approaching train had passed, as required by New Jersey State law.	

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RAILROAD SAFETY BOARD

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Synopsis

On September 21, 1967, a freight train on the Pennsylvania-Reading Seashore Lines collided with a school bus at a rail-highway grade crossing in Somerdale, N. J Two occupants of the bus were killed, and three other bus occupants were injured

The accident was caused by the school bus driver's failure to stop short of a rail-highway grade crossing and to remain standing until the approaching train had passed, as required by New Jersey State law

Location and Method of Operation

The accident occurred on that part of the railroad extending between West Collingswood and Williamstown Jct , N J , a distance of 13 7 miles This is a single-track line over which trains operate by timetable, train orders, and an automatic block-signal system Somerdale is 5 8 miles south of West Collingswood

The collision occurred on the main track at Somerdale, where the railroad is crossed at grade by Somerdale Road, a county highway

The crossing is protected by two automatic railroad-crossing warning signals of the flashing red-light type Because of houses, trees and shrubbery in the northeast angle of the crossing (see photo and sketch), the view between a southbound train approaching the crossing and a vehicle moving westward on Somerdale Road in approach to the railroad is materially restricted

In the accident area, Atlantic Avenue parallels the main track on the east This avenue intersects Somerdale Road, 83 feet east of the crossing

The maximum authorized speed for all trains in the accident area is 45 miles per hour The maximum authorized speed for vehicles on Somerdale Road is 50 miles per hour, except in school zones, where the speed limit is 25 miles per hour while children are going to and from school, during opening and closing hours A school zone extends throughout a considerable distance east and 100 feet west of the railroad crossing. At the time of the accident, children were leaving the school during closing hours

Details concerning the main track, Somerdale Road and crossing, railroad-crossing warning signals, railroad carrier's operating rules, New Jersey State motor vehicle regulations, New Jersey State Department of Education regulations governing school buses, and other factors are set forth in the appendix

Description and Discussion

Extra 6020 South, a southbound freight train consisting of switcher-type diesel-electric unit 6020, six cars and a caboose, left West Collingswood at 2:35 p m the day of the accident, after its brakes had been tested and had been found to be functioning properly The engineer and front brakeman, the only crew members on the locomotive, were seated, respectively, on the west and east sides of the control compartment at the north end of the unit, to the rear of the engine hood The conductor and flagman were in the caboose The headlight was lighted

Approximately twenty minutes after leaving West Collingswood, the train approached the Somerdale Road crossing while moving southward on the main track at 20 to 25 miles per hour, as estimated by the engineer and front brakeman. Both of these crew members said that the locomotive bell was ringing, and that the prescribed whistle signal was sounded on the locomotive horn throughout the approach of the train to the crossing from the crossing-whistle sign located 1,495 feet northward As the train neared the crossing, apparently within a distance of about 100 feet, the front brakeman saw an approaching westbound school bus on Somerdale Road come into view approximately equidistant from the crossing. He immediately called a warning to the engineer, realizing that the bus was not reducing speed and that it was not going to stop short of the crossing The engineer, who was unable to see the bus due to his view being obstructed by the engine hood, promptly applied the train brakes in emergency Immediately afterward, at 2:55 p m , before the speed of the train was reduced, the locomotive entered the crossing and was struck on its east side, at the front end, by the school bus.

The train stopped with the caboose on the crossing None of its equipment was derailed and no crew member was injured Appurtenances at the front of the locomotive were slightly damaged

The school bus spun around on Somerdale Road as a result of the impact, throwing the bus driver and three school children to the ground It stopped upright in the eastward curb lane, with its front end facing eastward and its rear end about three feet from the east side of the caboose It was destroyed (see photo)

The bus driver and one school child were killed Three other children aboard the bus were injured

At the time of the accident, the bus was en route from the driver's residence in Kirkwood, N J , picking up retarded children from various schools in the Somerdale area and transporting them to their homes About 2:50 p.m , after a stop at the Osage elementary school, the bus continued on its route with four children aboard and turned westward onto Somerdale Road. It then neared the railroad crossing while moving through a school zone At this time, another school bus and an automobile were stopped, one behind the other, on Atlantic Avenue short of the intersection of that avenue and Somerdale Road In addition, an eastbound motortruck was stopped on Somerdale Road a few feet short of the crossing The drivers of these vehicles were aware that a train was approaching the crossing and were waiting for it to pass before driving over the track.

The three drivers witnessed the accident It is the substance of their testimony that the school bus approached the crossing at 30 to 40 miles per hour, and that they heard the locomotive horn of the approaching train being sounded at this time They further stated that the red

lamps of the automatic crossing-warning signals were flashing and that the crossing bell was ringing Immediately after the train entered the crossing, the three witnesses saw the school bus also enter the crossing, at unreduced speed, and collide with the locomotive None of the witnesses saw or heard anything which would indicate that the bus driver was aware of the approaching train, or that the brakes of the bus were applied before the collision

Examination of Somerdale Road after the accident revealed no skid marks at its westward approach to the crossing.

Examination of the school bus revealed that its brake linings were dry and of good thickness. The brakes were found locked in applied position, with the brake pedal depressed This and the absence of skid marks at the westward approach to the crossing tends to indicate that the driver may have seen the train at the last moment and may have applied the brakes of the bus immediately before the impact

It is apparent that the horn and bell of Extra 6020 South were being sounded as required while the train approached the Somerdale Road crossing, and that at the same time the automatic railroad-crossing warning signals were indicating the immediate approach of the train to the crossing Due to restricted visibility conditions in the crossing area, neither crew member on the train locomotive was able to see the school bus approaching on Somerdale Road until the front brakeman saw it emerge from behind shrubbery at a distance of about 95 feet from the track Upon realizing the bus was not going to stop short of the track, the front brakeman called a warning and the engineer promptly applied the train brakes in emergency The train was within a distance of about 100 feet from the crossing at that time and apparently was moving at 20 to 25 miles per hour. Thus, there was insufficient braking distance for the train to stop or reduce speed, before it entered the crossing and collided with the school bus

The school bus approached the crossing at 30 to 40 miles per hour, while moving in a school zone when children were leaving the school at the close of school hours Thus, it apparently was moving at 5 to 15 miles per hour over the speed limit at this time Due to restricted visibility conditions, the driver was unable to see the approaching train From all indications, the driver apparently was also unable to hear the crossing bell, or the locomotive horn and bell Nevertheless, the red lamps of both crossing-warning signals were flashing as the school bus approached the crossing throughout a considerable distance and were clearly visible from the bus and other vehicles were stopped in the vicinity of the crossing in compliance with the visual and audible warning indications. Hence, the driver should have been alerted to the fact that the train was nearing the crossing in sufficient time to stop the school bus short of the track, as required by State law when a clearly visible mechanical or electric device gives warning of the immediate approach of a train. The driver, however, evidently did not notice

that the crossing-warning signals were functioning and drove onto the crossing at unreduced speed immediately after the train locomotive entered the crossing, causing the collision The reason for the bus driver's apparent failure to see or hear any indication of the approaching train could not be determined

The driver of the school bus was a 43 year old woman employed by the Voorhees Township Board of Education, Ashland, N J She possessed a valid New Jersey driver's license and a special license to drive school buses. She had passed a physical examination in August, before schools re-opened for the Fall term, and had passed a State test for school bus drivers She had two years experience driving school buses and, after schools re-opened in September, had made twelve trips over the route being taken on the day of the accident Her driving record was clear, according to New Jersey State Police.

The school bus was a 1966 General Motors Handi-bus with a seating capacity for nine persons (see photo). It had a 6-cylinder, 120-horsepower gasoline engine; a transmission with three forward speeds; two axles and hydraulic brakes It carried New Jersey license plates No MG 5858, and was owned by the Voorhees Township Board of Education. The bus was used for the transportation of retarded children to and from various schools in the general area of Somerdale It did not meet construction requirements of school bus specifications prescribed by the New Jersey State Department of Education, and bore no marking which designated it as a "school bus "

Under New Jersey State law, the driver of any school bus carrying any school child or children is required to stop the vehicle, before crossing at grade any track or tracks of a railroad, and to listen and look in both directions along the track or tracks for any approaching train, and for signals indicating the approach of a train In essence, a"school bus" is defined by New Jersey law as any vehicle operated for the transportation of children to or from school which complies with regulations of the New Jersey State Department of Education. These regulations provide that where twelve or more pupils are transported, the conveyance must meet certain minimum construction and equipment standards They further provide that vehicles with a capacity of less than twelve pupils, such as sedan-type passenger cars, limousines, station wagons and other vehicles including the type involved in the accident, may be used as "school buses" without complying with these standards

According to representatives of the New Jersey State Department of Education and the Safety Education Bureau of the New Jersey State Police, the vehicle involved in the accident was not a "school bus", within the meaning of that term as defined by State law, because it did not meet prescribed standards and had a seating capacity of less than twelve pupils Hence, it was not required to comply with provisions of State law that require the drivers of any school bus to stop, before crossing at grade any track or

tracks of a railroad , and to listen and look in both directions along the tracks for any approaching train, and for signals indicating the approach of a train. The Director of the Bureau of Transportation Education, New Jersey State Board of Education, stated that to the best of his knowledge this accident was the first one involving a collision between a small-type school bus and a train in the past thirty years.

Findings

1. The train was being operated in accordance with applicable rules and regulations

2 The automatic railroad-crossing warning signals were functioning properly and were indicating the approach of the train.

3 The school bus was moving in a school zone at a speed somewhat in excess of the speed limit for vehicles moving in such zones The excessive speed, however, does not appear to be a significant factor in the accident

4 The driver of the school bus was unable to see the train approaching, and apparently neither saw nor heard any of the signals that were giving a warning of the approach of the train to the crossing

5 The school bus entered the crossing without stopping, as required by State law when a clearly visible mechanical or electrical device gives warning of the immediate approach of a train, causing the accident. The reason for the failure of the driver to stop the bus short of the crossing could not be determined.

Cause

This accident was caused by the school bus driver's failure to stop short of a rail-highway grade crossing and to remain standing until the approaching train had passed, as required by New Jersey State law.

Dated at Washington, D C., this 11th
day of April 1968
By the Federal Railroad Administration,
Railroad Safety Board.

Bette E Holt
Acting Executive Secretary

(SEAL)

Appendix

Track

The main track is tangent and practically level throughout a considerable distance north and south of the Somerdale Road crossing

Somerdale Road and Crossing

Somerdale Road is tangent a considerable distance east and west of the crossing, and crosses the railroad at an angle of 67°47'. It is surfaced with bituminous material to a width of 32 feet east of the crossing and to a width of 37 feet west of the crossing. The grade for westbound vehicles is slightly descending 400 feet to the crossing, and level over the track

The crossing is 62 feet wide Planking is laid along both sides of each rail throughout the width of the crossing The remaining area is surfaced with bituminous material to the level of the tops of the rails

Railroad Crossing Warning Signals

An automatic railroad-crossing warning signal of the flashing red-light type is adjacent to the north side of Somerdale Road, 10 feet east of the nearest rail at the crossing. The mast of this signal is about 16 feet high. A bell is fixed to the top of the mast A crossbuck bearing the words RAILROAD CROSSING in black letters on a white background is attached to the mast below the bell Below the crossbuck a pair of red lamps, facing northward for southbound traffic on Atlantic Avenue, is attached to the mast. Immediately underneath, two pairs of red lamps, facing eastward and westward on Somerdale Road, are attached to the mast back-to-back, about eight feet above the surface of Somerdale Road About two feet below these lamps, a sign, bearing the words STOP ON RED SIGNAL in white reflectorized letters on a black background, is fixed to the mast. A similar automatic railroad-crossing warning signal, without a bell, is in the southwest angle of the crossing for eastbound traffic on Somerdale Road

The controlling circuits are so arranged that when a southbound train reaches a point 3,378 feet north of the crossing, the red lamps of the signals start to flash and the crossing bell begins to ring. They function continuously until the train moves over the crossing.

Railroad Carrier's Operating Rules

14 ENGINE WHISTLE SIGNALS

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Note - The signals prescribed are illustrated "o" for short sounds, "——" for longer sounds. ***

SOUND	INDICATION
***	
(1) — — o —	Approaching public crossings at grade, to be prolonged or repeated until crossing is reached. ***
***	

TRAIN SIGNALS

17. The headlight will be displayed to the front of every train by day and by night

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30 The engine bell or warning signal must be sounded *** while approaching and passing public crossings at grade ***

New Jersey State Motor Vehicle Regulations

DEPARTMENT OF LAW AND PUBLIC SAFETY
DIVISION OF MOTOR VEHICLES

Title 39 Motor Vehicle and Traffic Regulations

39:1 - 1 Terms defined

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"School bus" means every motor vehicle operated by, or under contract with, a public or governmental agency, or religious or other charitable organization or corporation, or privately operated for compensation for the transportation of children to or from school for secular or religious education which complies with the regulations of the Department of Education affecting school buses.

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39:4 - 127 1 Crossing Railroad Grade Crossing

(a) Whenever any person driving a vehicle approaches a railroad grade crossing under any of the circumstances stated in this section, the driver of such vehicle shall stop within fifty feet but not less than fifteen feet from the nearest rail of such railroad, and shall not proceed until he can do so safely The foregoing requirements shall apply when:

1 A clearly visible electric or mechanical signal device gives warning of the immediate approach of a railroad train;

***

3 A railroad train approaching within approximately one thousand five hundred feet of the highway crossing emits a signal audible from such distance and such railroad train, by reason of its speed or nearness to such crossing, is an immediate hazard;

4. An approaching railroad train is plainly visible and is in hazardous proximity to such crossing;

***

39:4 - 128 Full stop at grade crossings; ***

(a) The driver of any *** school bus carrying any school child or children *** before crossing at grade any track or tracks of a railroad shall stop such vehicle within fifty feet but not less than fifteen feet from the nearest rail of such railroad and while so stopped listen and look in both directions along such track or tracks, for any approaching train, and for signals indicating the approach of a train ***

New Jersey State Dept. of Education Regulations Governing School Buses

NEW JERSEY HANDBOOK FOR SCHOOL BOARDS AND ADMINISTRATORS

Minimum Standards for School Buses

1420 Foreward

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Where twelve or more pupils are transported, the conveyance must comply with all the specifications prescribed by these rules However, with the approval of the county superintendent, vehicles with a capacity of less than twelve pupils, such as sedan type passenger cars, limousines, station wagons of other types of motor vehicles except motor vehicles commonly known as "omnibuses" may be used as "school buses" as that phrase is used in the School Transportation Law without complying with Rules 1421 to 1495 inclusive

(Investigation Note: Rules 1421 to 1495, inclusive, prescribe specifications relating to the construction and equipment of school buses In addition, the handbook contains numerous other regulations governing the operation of school buses and also contains excerpts from pertinent New Jersey motor vehicle statutes, including 39:1-1 and 39:4-128)

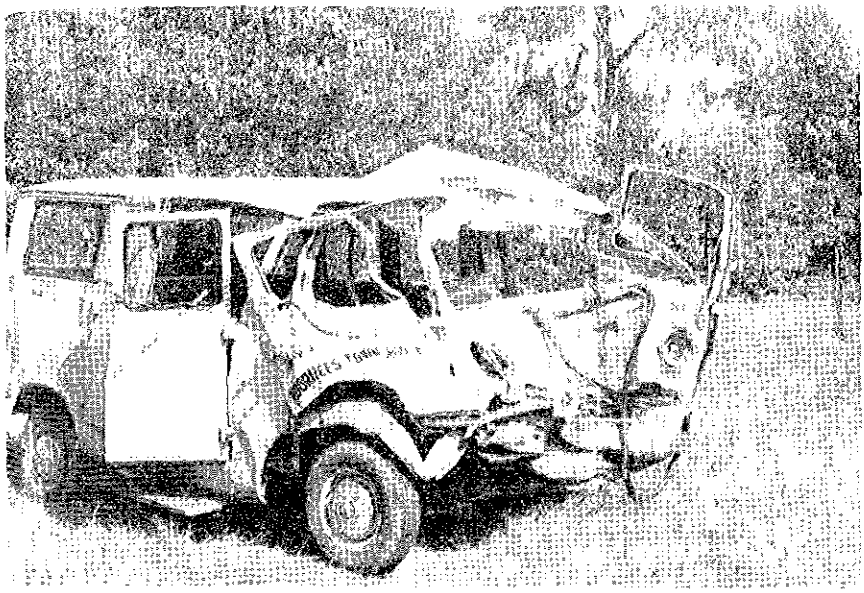
Other Factors

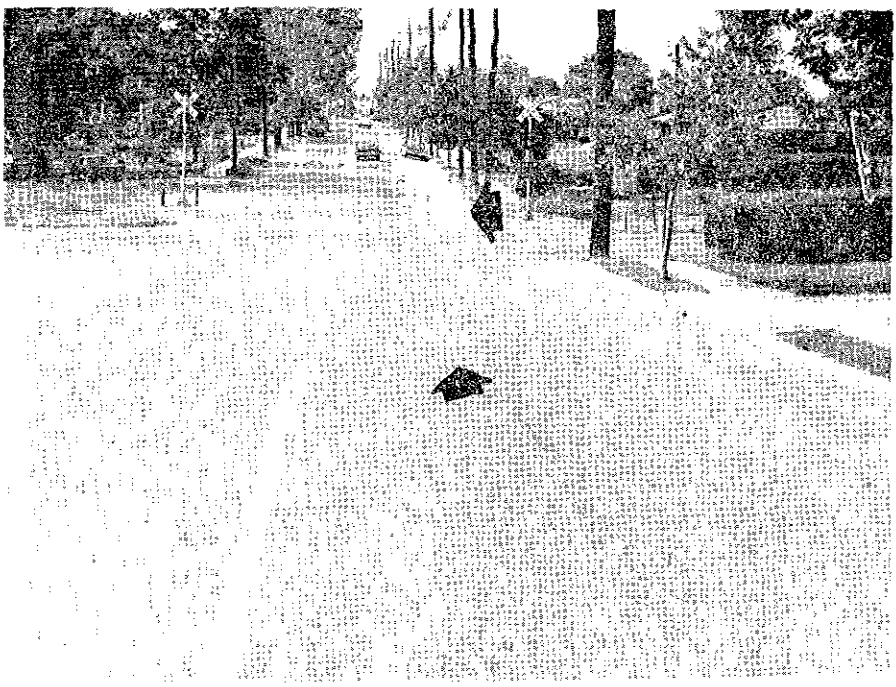
The accident occurred at 2:55 p m , in clear weather

In the 24-hour period beginning 11:59 p m , September 26, 1967, a traffic count disclosed that 4,418 highway vehicles moved over the Somerdale Road crossing

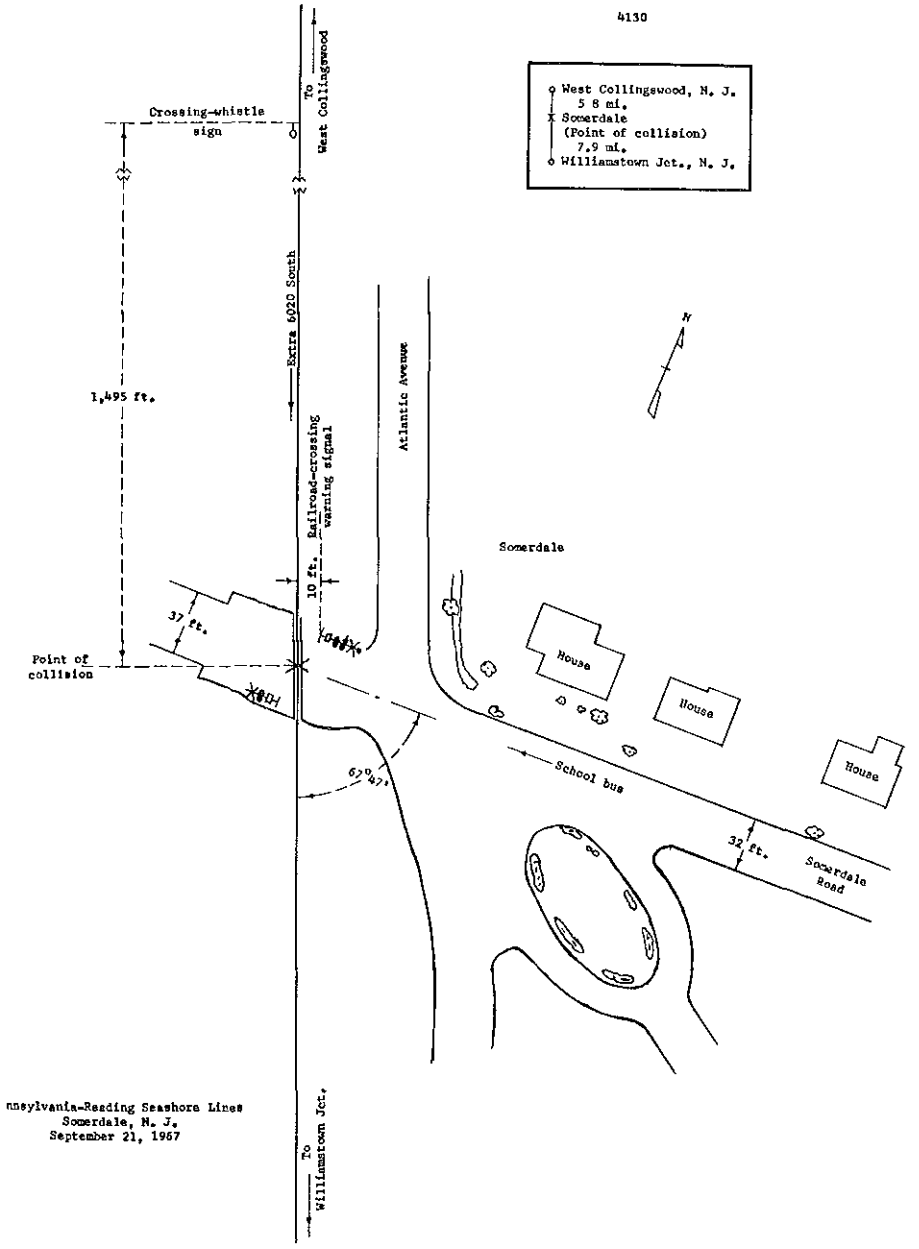
In the 30-day period preceding the day of the accident, the average daily railroad movement over the crossing was 5 2 trains

According to their daily time returns, the engineer of Extra 6020 South had been on duty 2 hours 25 minutes at the time of the accident, after having been off duty 9 hours 5 minutes The conductor front brakeman, and flagman had been on duty 2 hours 10 minutes, after having been off duty 9 hours 45 minutes, 9 hours 35 minutes, and over 24 hours, respectively.





Somerdale Road crossing. Arrows show directions of train and school bus.



nsylvania-Reading Seashore Lines
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