Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-82

Burlington Northern Santa Fe
St. Genevieve
October 21, 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.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2006-62

1.Name of Railroad Operating Train #1: Amtrak [ATK]	1a. Alphabetic Code: ATK	1b. Railroad Accident/Incident No.: 101324
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: Amtrak [ATK]	3a. Alphabetic Code: ATK	3b. Railroad Accident/Incident No.: N/A
4. U.S. DOT_AAR Grade Crossing Identification Number: 092479W	5. Date of Accident/Incident: Month 07 / Day 03 / Year 2006	6. Time of Accident/Incident: 04:45: ☐ AM ☑ PM

7. Type of Accident/Indicent (single entry in code box): 1. Derailment; 2. Head on collision; 3. Rear end collision; 4. Side collision; 5. Raking collision; 6. Broken Train collision; 7. Hwy-rail crossing; 8. RR grade crossing; 9. Obstruction; 10. Explosion-detonation; 11. Fire/violent rupture; 12. Other impacts; 13. Other (describe in narrative): 07

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
0	0	0	0	Northwest

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Castle Rock	83.8	N/A	WA	COWLITZ

17. Temperature (F) (specify if minus)	18. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark	Code	19. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow	Code	20. Type of Track 1. Main 2. Yard 3. Siding 4. Industry	Code
80 F		2		1		1

21. Track Name/Number	22. FRA Track Class (1-9, X)	Code	23. Annual Track Density (gross tons in millions)	24. Time Table Direction 1. North 3. East	Code
Main No. 1		4	43.40		2

OPERATING TRAIN #1

25. Type of Equipment Consist (single entry)	A. Spec. MoW Equip.	Code	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
1. Freight train; 2. Passenger train; 3. Commuter train; 4. Work train; 5. Single car; 6. Cut of cars; 7. Yard/switching; 8. Light loco(s).; 9. Maint./inspect.car		2		1	ATK507

28. Speed (recorded speed, if available) R - Recorded E - Estimated: 75 MPH; Code: R

29. Trailing Tons (gross tonnage, excluding power units): N/A

30. Method(s) of Operation (enter code(s) that apply): a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other (Specify in narrative)

Code(s)				
e	N/A	N/A	N/A	N/A

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

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	N/A	1	N/A
(2) Causing (if mechanical cause reported)	N/A	N/A	N/A

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

33. Was this consist transporting passengers? (Y/N): Y

34. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	1	0	0	0	0
(2) Total Derailed	0	0	0	0	0

35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	13	0	0	0
(2) Total Derailed	0	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
38541	0	M303	N/A

Number of Crew Members / Length of Time on Duty

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	0	1	1	Hrs 3 Mi 25	Hrs 9 Mi 0

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	4
Nonfatal	N/A	0	0

49. EOT Device? 1. Yes 2. No: 2

50. Was EOT Device Properly Armed? 1. Yes 2. No: 2

51. Caboose Occupied by Crew? 1. Yes 2. No: 2

OPERATING TRAIN #2

52. Type of Equipment Consist (single entry)	A. Spec. MoW Equip.	Code	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
1. Freight train; 2. Passenger train; 3. Commuter train; 4. Work train; 5. Single car; 6. Cut of cars; 7. Yard/switching; 8. Light loco(s).; 9. Maint./inspect.car		N/A		N/A	N/A

55. Speed (recorded speed, if available) R - Recorded E - Estimated: 0 MPH; Code: N/A

57. Method(s) of Operation (enter code(s) that apply): a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track

57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable

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56. Trailing Tons (gross tonnage, excluding power units)	c. Auto train stop d. Cab e. Traffic f. Interlocking	i. Time table/train orders j.Track warrant control k. Direct traffic control l.Yard limits	o. Positive train control p. Other (Specify in narrative) Code(s)	2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter
N/A			N/A N/A N/A N/A N/A	N/A

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.	Alcohol	Drugs
(1) First involved (derailed, struck, etc)	0	N/A	N/A		N/A	N/A
(2) Causing (if mechanical cause reported)	0	N/A	N/A	60. Was this consist transporting passengers? (Y/N)	N/A	

61. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	0	0	0	0	0	(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
0	0	N/A	N/A

Number of Crew Members				Length of Time on Duty	
67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen	71. Engineer/Operator	72. Conductor
N/A	N/A	N/A	N/A	Hrs 0 Mi 0	Hrs 0 Mi 0

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	0	0	0

76. EOT Device? (1. Yes 2. No)	77. Was EOT Device Properly Armed? (1. Yes 2. No)	78. Caboose Occupied by Crew? (1. Yes 2. No)
N/A	N/A	N/A

Highway User Involved

79. Type	Code
A. Auto B. Truck C. Truck-Trailer. D. Pick-Up Truck E. Van F. Bus G. School Bus H. Motorcycle J. Other Motor Vehicle K. Pedestrian M. Other (spec. in narrative)	A

80. Vehicle Speed (est. MPH at impact)	81. Direction geographical) 1.North 2.South 3.East 4.West	Code
20		4

82. Position	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	3

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? (1. Highway User 2. Rail Equipment 3. Both 4. Neither)	Code
	4

Rail Equipment Involved

83. Equipment	Code
1.Train(units pulling) 2.Train(units pushing) 3.Train (standing) 4.Car(s) (moving) 5.Car(s) (standing) 6.Light Loco(s) (moving) 7.Light(s) (standing) 8.Other (specify in narrative)	1

84. Position of Car Unit in Train
1

85. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	1

86b. Was there a hazardous materials release by (1. Highway User 2. Rail Equipment 3. Both 4. Neither)	Code
	4

86c. State here the name and quantity of the hazardous materials released, if any.
N/A

87. Type of Crossing Warning	1.Gates	2.Cantilever FLS	3.Standard FLS	4.Wig Wags	5.Hwy. traffic signals	6.Audible	7.Crossbucks	8.Stop signs	9.Watchman	10.Flagged by crew	11.Other (spec. in narr.)	12.None
Code(s)	08	11	N/A	N/A	N/A	N/A	N/A					

88. Signaled Crossing Warning (See instructions for codes)	Code
N/A	

89. Whistle Ban (1. Yes 2. No 3. Unknown)	Code
	2

90. Location of Warning (1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach)	Code
	1

91. Crossing Warning Interconnected with Highway Signals (1. Yes 2. No 3. Unknown)	Code
	2

92. Crossing Illuminated by Street Lights or Special Lights (1. Yes 2. No 3. Unknown)	Code
	2

93. Driver's Age	94. Driver's Gender (1. Male 2. Female)	Code
44		2

95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train (1. Yes 2. No 3. Unknown)	Code
	1

96. Driver (1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative))	Code
	3

97. Driver Passed Standing Highway Vehicle (1. Yes 2. No 3. Unknown)	Code
	2

98. View of Track Obscured by (primary obstruction) (1. Permanent Structure 2. Standing Railroad Equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicle 7. Other (specify in narrative) 8. Not obstructed)	Code
	3

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	4	0

99. Driver Was (1. Killed 2.Injured 3. Uninjured)	Code
	1

100. Was Driver in the Vehicle? (1. Yes 2. No)	Code
	1

102. Highway Vehicle Property Damage (est. dollar damage)
8000

103. Total Number of Highway-Rail Crossing Users (include driver)
4

104. Locomotive Auxiliary Lights? (1. Yes 2. No)	Code
	1

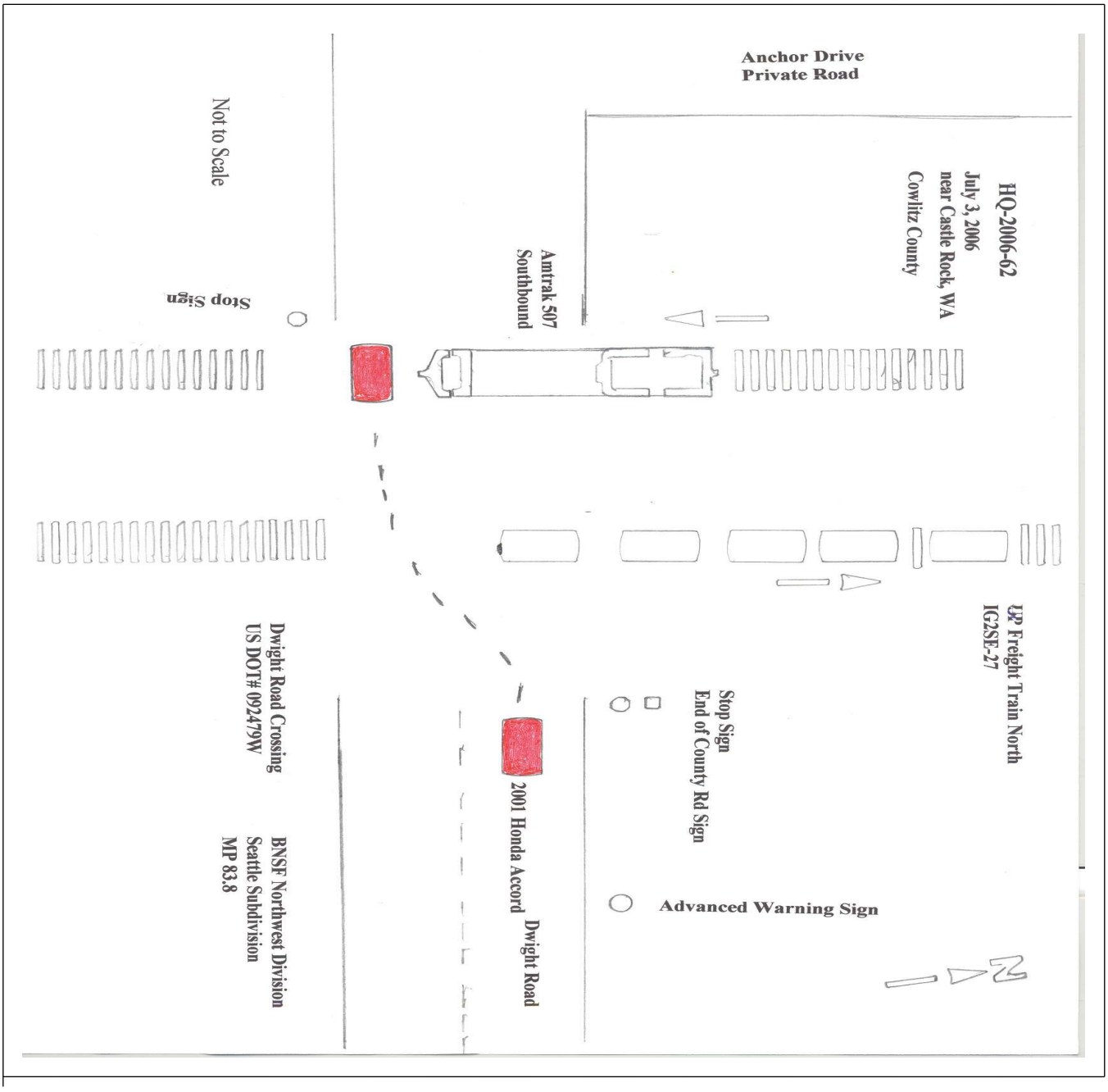
105. Locomotive Auxiliary Lights Operational? (1. Yes 2. No)	Code
	1

106. Locomotive Headlight Illuminated? (1. Yes 2. No)	Code
	1

107. Locomotive Audible Warning Sounded? (1. Yes 2. No)	Code
	1

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

HQ-62-2006 Sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

A southbound Amtrak passenger train collided with an automobile at a private highway-rail crossing on July 3, 2006, at 4:45 p.m. The accident occurred near Castle Rock, Washington, 49 miles north of Vancouver, at BNSF Milepost 83.8, on the BNSF Railway Company Seattle Subdivision.

The driver (highway user) of the automobile and all three passengers were killed. There were no injuries to the train crew or passengers. The leading locomotive sustained damages of $38,541. There was no derailment.

At the time of the accident it was daylight and clear. The temperature was 80 degrees Fahrenheit.

The accident was caused by the failure of the highway user to yield the right of way to the southbound passenger train.

110. NARRATIVE

Circumstances Prior to the Accident

The crew of the southbound Amtrak train 507 included a locomotive engineer, a conductor, and an assistant conductor. The engineer went on duty at 1:20 p.m at Seattle, Washington. Seattle is the engineer's home. Prior to reporting for duty, he received more than the required statutory off duty time. The conductor and the assistant conductor went on duty at Portland, Oregon, at 7:45 a.m. and were on the return portion of the trip from Seattle to Portland. Portland is the home terminal for the conductor and assistant conductor. Both crew members received more than the statutory off duty time prior to reporting for duty.

Their assigned passenger train consisted on one locomotive (ATK 465), one cab car (ATK 90253), and twelve passenger cars. The train was scheduled to operate from Seattle to Portland. The passenger train received an initial terminal train air brake test that morning in Eugene, Oregon. The passenger train had previously operated from Eugene to Seattle and was returning south to Portland. Amtrak train 507 was not equipped with an end of train device (reference Box 50).

As the southbound passenger train approached the accident area, Dwight Road, a private highway-rail grade crossing, on main track number one, the locomotive engineer was seated at the controls on the right side of the locomotive control cab. The locomotive engineer was the only person in the cab. The conductor and the assistant conductor were located in a passenger coach.

A northbound Union Pacific freight train was operating over the Dwight Road highway-rail grade crossing on main track number two. The Union Pacific freight train was 7,177 feet long and weighed 4,570 tons.

Approaching the accident area (by rail) from the north, there are in succession, a 2 degree, 30 minute curve to the right for 2,112 feet followed by a tangent of 3696 feet to the point of the accident, and 2.2 miles beyond. There is a 0.3- percent descending grade. In the area of the Dwight Road highway-rail crossing, the road is straight and crosses the track at a 90 degree angle. Traveling east to west on the highway, the road is practically level. At the crossing, the road has a slight upgrade from east to west as the road crosses the track.

The railroad timetable direction of the passenger train was south. Timetable directions are used throughout this report.

The Accident
Train Amtrak 507 South

The locomotive event recorder indicated the train was being operated at 75 mph approaching the accident area. The maximum authorized speed for this train was 79 mph as designated in the current BNSF Timetable No. 3. According to the Amtrak engineer, the view of the east side of the crossing was obstructed by a northbound freight train operating over the Dwight Road highway-rail crossing. He stated he sounded the locomotive horn as the train approached the crossing, because he thought his train would arrive at the same time the last car of the freight train would clear the crossing. Just as the train entered the crossing, the engineer became aware of the impending collision when he noticed "something come out around the end of the last car." He immediately initiated an emergency train air brake application just prior to impact with the automobile.

Highway Vehicle

The automobile was traveling east to west on Dwight Road. According to the Amtrak engineer, the automobile entered the crossing as soon as the northbound freight train cleared the Dwight Road highway-rail crossing. There was no way to estimate the speed of the automobile prior to the collision, but the posted speed limit in this area is 25 mph. The train struck the passenger side of the automobile, a 2001 Honda Accord, midpoint. The automobile was split in two pieces. The train

came to a stop about 1,800 feet south of the point of collision.

After the train stopped, the engineer remained on the locomotive to establish radio communications with the train dispatcher. The conductor and the assistant conductor walked back to the remains of the automobile and waited for the arrival of emergency response personnel.

A Cowlitz County, Washington, deputy sheriff arrived on scene about 5:00 p.m. After emergency personnel determined a medical response was not required, the deputy sheriff interviewed all three crew members.

A BNSF road foreman and an Amtrak road foreman were dispatched from Vancouver and Portland. They assessed the condition of the track structure and the condition of the train. The passengers were transferred to another southbound Amtrak train to continue their trip to Portland. The empty passenger train was operated back to Seattle so the locomotive could be repaired. It was operated by a relief engineer with the original engineer, still on-duty, acting as a pilot. The conductor and the assistant conductor were released from duty and transported to Portland by automobile. All three crew members were offered professional counseling, but due to confidentiality, it is unknown if they utilized the service.

The driver and all three passengers in the automobile were pronounced dead at the scene.

Analysis and Conclusions
Analysis

The driver was a 44 year old female. The three passengers in the automobile included a 17 year old female (the driver's daughter) and two males who were 18 years old. It is unknown if the driver's remains were toxicologically tested.

Upon arrival at the accident scene, the deputy sheriff administered a field sobriety test to the engineer. There was no indication before, during, or after the test, that the engineer was impaired.

The private highway-rail crossing at grade is equipped with stop signs. There is a standard advance warning sign on approach to the private crossing posted approximately 183 feet from the crossing. There is a county roadway sign stating "End of County Road" posted on the east side of the private Dwight Road highway-rail crossing. The area of the accident is not maintained by Cowlitz County.

The railroad does not have whistle posts in place because whistle posts are not required at private highway-rail crossings. The locomotive engineer began sounding the locomotive horn when the train approached the private crossing. This was later validated by analysis of the locomotive event recorder.

The leading locomotive was equipped with a headlight, auxiliary lights and an audible warning device required by Federal regulations. The locomotive received a daily inspection from railroad mechanical personnel in Eugene at 04:00 hours on the day of the accident. The locomotive engineer tested the bell and horn prior to the trip at 12:50 hours in Seattle. The locomotive sustained damage to the ditch lights as a result of the accident. A post accident inspection conducted by Amtrak mechanical personnel indicated that the locomotive horn, bell, headlight and auxiliary lights functioned as intended. The devices were in compliance with Federal requirements.

The locomotive was also equipped with a speed indicator and an event recorder as required. The relevant event recorder data was downloaded by Amtrak personnel, and analyzed by railroad personnel and a third party contractor. The analysis disclosed that the locomotive engineer was in compliance with all applicable railroad operating and train handling requirements. FRA reviewed the results of this analysis and concurred with the conclusions.

Private Grade Crossing Information:

This crossing has been identified as USDOT # 092479W.

The last accident at this crossing occurred on December 13, 1988 (FRA Safety Data Website).

Amtrak is the only regularly scheduled passenger service that operates over this crossing.

The primary use for this crossing is to provide access for private residents; however, there are no restrictions or barriers or signs to prevent anyone from using the crossing. The county has posted a sign on the east side of the crossing stating: "End of County Road." There has not been any formal safety training of residents.

The crossing can be utilized by anyone. There are no restrictions to access the crossing. The mailman and private delivery services must cross the tracks to deliver the mail and parcels to eleven mailboxes and households.

There are no industrial hazmat shipments made by motor vehicles at this crossing.
There are many different types of hazmat shipments made by two class 1 railroads (BNSF and Union Pacific) over the crossing on a daily basis.

The average daily train count is 60 trains per day and the average daily traffic count is 65 cars per day (FRA Safety Data Website).

The motorist's sight distance at the crossing as viewed at the stop signs posted on both approaches to the crossing is approximately 1,000 feet or more in all four quadrants, when unobstructed by a train.

The crossing is of concrete panel construction and is 24 feet long with black top asphalt approaches on both sides of the crossing. The road is 21 feet wide. The roadway across the crossing is in good condition. The roadway on both approaches to the crossing is in good condition. The roadway on the east side of the crossing is maintained by the county. The landowner performing roadway maintenance on the west side of the crossing is unknown.

There are stop signs on each side of the crossing. The east stop sign is located 15 feet from the nearest rail. The east stop sign is 24 inches by 24 inches and 67 inches from the ground to the bottom of the sign. The east stop sign is located 46 inches from the edge of the roadway. The east stop sign with red background and white letters is slightly faded, but still visible during daylight hours. Attached to the east stop sign post are two rectangular signs with a white background and black letters. The top sign (5 inches by 16 inches) states: "Your location is, DOT# 092479W. The bottom sign (8 inches by 16 inches) states: "BNSF, To Report Stalled Vehicles or Other Emergencies, call 1-800-832-5452."

The End of County Road sign is located 17 feet from the nearest rail on the east side of the crossing. The End of County Road sign is 24 inches by 24 inches square and 94 inches from the ground to the bottom of the sign. The End of County Road sign is located 72 inches from the edge of the roadway. The End of County Road sign with a white background and black letters is in good condition.

There is one yellow advanced warning sign located approximately 183 feet from the nearest rail east of the crossing (reference Box 87). The advanced warning sign is 36 inches in diameter and the sign is in good condition. The advanced warning sign is located 52 inches from the edge of the roadway and the sign is 78 inches above the ground to the bottom of the sign.

The west stop sign is located 12 feet from the nearest rail. The west stop sign is 24 inches by 24 inches and 67 inches from the ground to the bottom of the sign. The west stop sign is located 20 inches from the edge of the roadway. The west stop sign with red background and white letters is new and replaces the stop sign that was damaged in the accident. Attached to the west stop sign post is one rectangular sign with a white background and black letters. The sign (12 inches by 24 inches) states: "No Trespassing, BNSF Railway Co, BNSF Police, Violators Will Be Prosecuted, 1- 800-832-5452."

On July 16, 1975, the crossing was listed as a public crossing in the FRA Safety Data Website. In 1998, the crossing changed from a public crossing at grade to a private crossing according to the FRA Safety Data Website.

Attempts by the railroad to locate a private crossing agreement have been unsuccessful. A homeowner indicated that he had never heard of a crossing agreement between the homeowners living across the tracks and he also indicated that he does not pay an annual fee for use of the private crossing. Another homeowner indicated that the crossing was rehabilitated when the county reconfigured Dwight Road when a landowner petitioned the county to vacate portions of the road. A property owner "worked" with the railroad to install the concrete crossing panels and applied asphalt to the west side of the crossing at his own expense.

There are no state laws within Washington Utilities and Transportation Commission's (WUTC) jurisdiction that govern private crossings. It is WUTC's understanding that no state laws exist for private crossings, but the WUTC can only reference laws specifically assigned to the WUTC.
The WUTC diligently searched their records from 1960 to present and could find no proceedings of any kind regarding the change of the Dwight Road crossing from a public to a private crossing, or from a private to a public crossing. The WUTC did not conduct a formal accident investigation into the July 3, 2006, accident at Dwight Road.

Conclusions

The railroad was in compliance with current operating rules and applicable Federal regulations. Even though he was not required to do so, the engineer sounded the locomotive horn and bell as his train approached the crossing as proven by the event recorder, because the view of the east side of the crossing was obstructed by a northbound freight train. There are highway stop signs located at the private crossing. The locomotive engineer was the only witness to the accident and could not provide information that could be used to determine why the highway user failed to stop for the approaching southbound passenger train.

Probable Cause and Contributing Factors

A contributing factor may have been the northbound freight train obstructing the driver's view of the approaching southbound passenger train.

The FRA determined that the probable cause of the accident was the failure of the highway user to yield the right of way to the southbound passenger train.