



***Federal Railroad Administration  
Office of Safety  
Headquarters Assigned  
Accident Investigation Report  
HQ-2005-110***

***Tri-County Commuter Rail Authority (TCCX)  
Pompano Beach, Florida  
November 13, 2005***

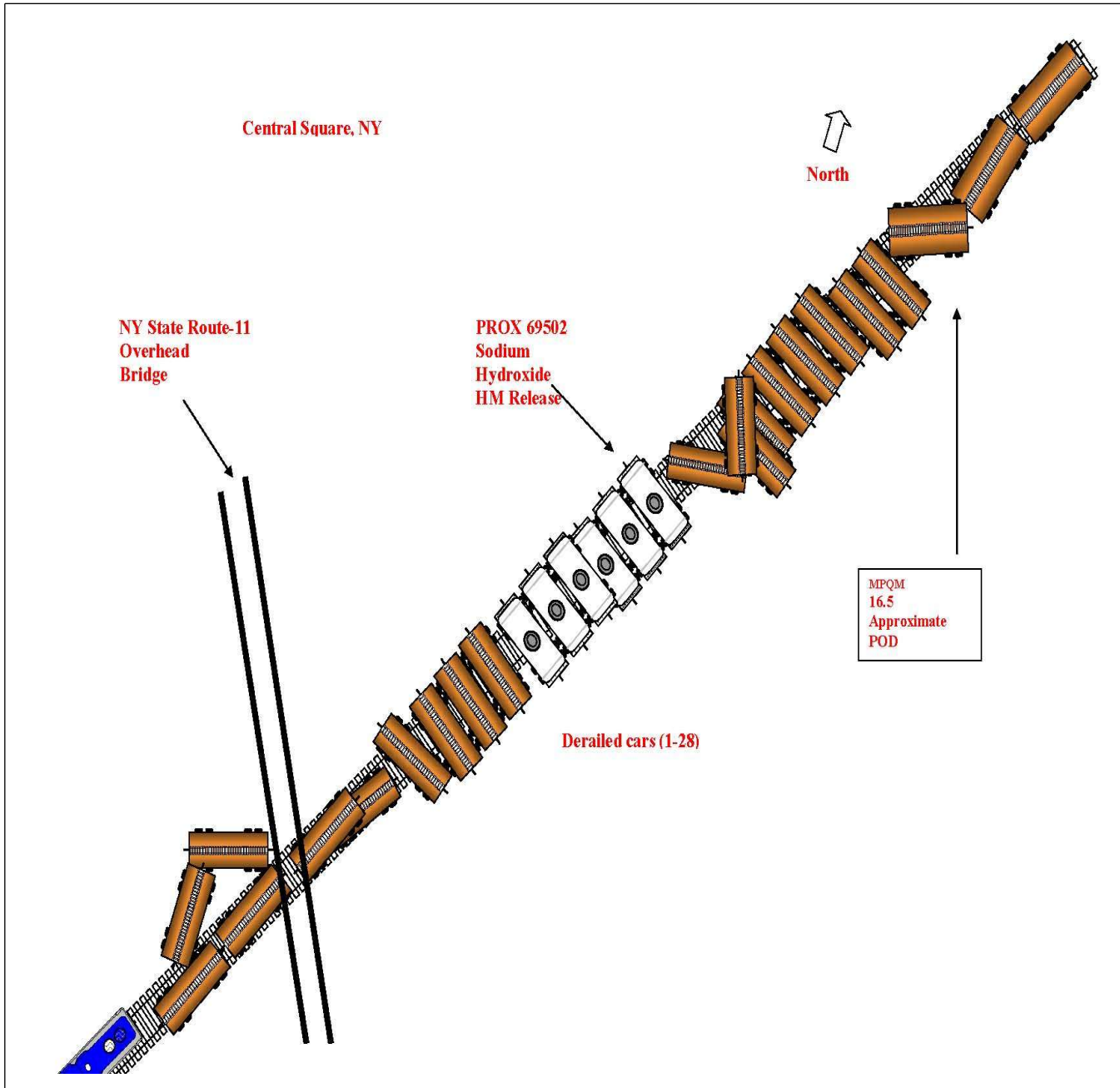
***Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.***

DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION		FRA FACTUAL RAILROAD ACCIDENT REPORT				FRA File # <u>HQ-2005-110</u>		
1. Name of Railroad Operating Train #1 Tri			1a. Alphabetic Code TCCX		1b. Railroad Accident/Incident No. 111305			
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: CSX Transportation [CSX]			3a. Alphabetic Code CSX		3b. Railroad Accident/Incident No. 111305			
4. U.S. DOT_AAR Grade Crossing Identification Number  628171P			5. Date of Accident/Incident Month Day Year 11 13 2005		6. Time of Accident/Incident 07:40: <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM			
7. Type of Accident/Incident (single entry in code box)			7. Hwy-rail crossing		10. Explosion-detonation			
1. Derailment			8. RR grade crossing		11. Fire/violent rupture			
2. Head on collision			9. Obstruction		12. Other impacts			
3. Rear end collision			6. Broken Train collision		13. Other (describe in narrative) 07			
8. Cars Carrying HAZMAT 0		9. HAZMAT Cars Damaged/Derailed 0		10. Cars Releasing HAZMAT 0		11. People Evacuated 0		
12. Division Jacksonville								
13. Nearest City/Town Pompano Beach			14. Milepost (to nearest tenth) SX1003.9		15. State Abbr Code N/A FL		16. County BROWARD	
17. Temperature (F) (specify if minus) 73 F		18. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 4		19. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 3		20. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1		
21. Track Name/Number 1			22. FRA Track Code Class (1-9, X) 4		23. Annual Track Density (gross tons in millions) 15.7		24. Time Table Direction Code 1. North 3. East 2	
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).		A. Spec. MoW Equip. Code		
3. Commuter train		6. Cut of cars		9. Maint./inspect.car		26. Was Equipment Attended? 1. Yes 2. No 3 1		
27. Train Number/Symbol P68313								
28. Speed (recorded speed, if available) Code R - Recorded E - Estimated 79 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								
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)		0		0		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		Rear End		
b. Manual		c. Remote		d. Manual		e. Remote		
35. Cars		a. Freight		b. Pass.		c. Freight		
d. Pass.		e. Caboose						
(1) Total in Train		1		0		0		
(2) Total Derailed		0		0		0		
36. Equipment Damage		This Consist		2000		37. Track, Signal, Way, & Structure Damage 0		
38. Primary Cause Code		M308		39. Contributing Cause Code		M399		
Number of Crew Members		Length of Time on Duty						
40. Engineer/Operators 1		41. Firemen 0		42. Conductors 1		43. Brakemen 0		
44. Engineer/Operator Hrs 5 Mi 21		45. Conductor Hrs 5 Mi 21						
Casualties to:		46. Railroad Employees		47. Train Passengers		48. Other		
Fatal		0		0		0		
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)		1. Freight train		4. Work train		7. Yard/switching		
2. Passenger train		5. Single car		8. Light loco(s).		A. Spec. MoW Equip. Code		
3. Commuter train		6. Cut of cars		9. Maint./inspect.car		53. Was Equipment Attended? 1. Yes 2. No N/A 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				

DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION		FRA FACTUAL RAILROAD ACCIDENT REPORT				FRA File # <u>HQ-2005-110</u>			
56. Trailing Tons ( <i>gross tonnage, excluding power units</i> )		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 ( <i>Specify in narrative</i> ) 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.	
(1) First involved ( <i>derailed, struck, etc</i> )		0		N/A		N/A		Alcohol N/A Drugs N/A	
(2) Causing ( <i>if mechanical cause reported</i> )		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 c. Remote		Rear End d. Manual c. Remote		62. Cars	
								Loaded a. Freight b. Pass. c. Freight 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		0		64. Track, Signal, Way, & Structure Damage		0		65. Primary Cause Code N/A	
								66. Contributing Cause Code N/A	
		Number of Crew Members						Length of Time on Duty	
67. Engineer/Operators N/A		68. Firemen N/A		69. Conductors N/A		70. Brakemen N/A		71. Engineer/Operator Hrs 0 Mi 0	
								72. Conductor Hrs 0 Mi 0	
Casualties to:		73. Railroad Employees		74. Train Passengers		75. Other		76. EOT Device? 1. Yes 2. No N/A	
Fatal		0		0		0		77. Was EOT Device Properly Armed? 1. Yes 2. No N/A	
Nonfatal		0		0		0		78. Caboose Occupied by Crew? 1. Yes 2. No N/A	
Highway User Involved					Rail Equipment Involved				
79. Type C. Truck-Trailer. F. Bus J. Other Motor Vehicle A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian B. Truck E. Van H. Motorcycle M. Other ( <i>spec. in narrative</i> ) Code A					83. Equipment 3. Train ( <i>standing</i> ) 6. Light Loco(s) ( <i>moving</i> ) 1. Train( <i>units pulling</i> ) 4. Car(s) ( <i>moving</i> ) 7. Light(s) ( <i>standing</i> ) 2. Train( <i>units pushing</i> ) 5. Car(s) ( <i>standing</i> ) 8. Other ( <i>specify in narrative</i> ) Code 1				
80. Vehicle Speed ( <i>est. MPH at impact</i> ) 5					81. Direction ( <i>geographical</i> ) 1. North 2. South 3. East 4. West Code 3				
82. Position 1. Stalled on Crossing 2. Stopped on Crossing 3. Moving Over Crossing 4. Trapped Code 3					85. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User Code 1				
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					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 1. Gates 4. Wig Wags 7. Crossbucks 10. Flagged by crew 2. Cantilever FLS 5. Hwy. traffic signals 8. Stop signs 11. Other ( <i>spec. in narr.</i> ) Warning 3. Standard FLS 6. Audible 9. Watchman 12. None					88. Signaled Crossing Warning ( <i>See instructions for codes</i> ) Code 05				
Code(s) 01 02 06 N/A N/A N/A 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 1									
93. Driver's Age 28		94. Driver's Gender 1. Male 2. Female Code 1		95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown Code 2		96. Driver 1. Drove around or thru the Gate 4. Stopped on Crossing 2. Stopped and then Proceeded 5. Other ( <i>specify in narrative</i> ) 3. Did not Stop Code 5			
97. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown Code 1		98. View of Track Obscured by ( <i>primary obstruction</i> ) 1. Permanent Structure 3. Passing Train 5. Vegetation 7. Other ( <i>specify in narrative</i> ) 2. Standing Railroad Equipment 4. Topography 6. Highway Vehicle 8. Not obstructed Code 8							
101. Casualties to Highway-Rail Crossing Users		Killed Injured 3 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 ( <i>est. dollar damage</i> ) 10000		103. Total Number of Highway-Rail Crossing Users ( <i>include driver</i> ) 3			
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.

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sketch.jpg



## 109. SYNOPSIS OF THE ACCIDENT

A southbound Tri-Rail Commuter Train collided with an automobile at a highway-rail grade crossing on November 13, 2005, at 7:40 p.m. Eastern Standard Time (EST). The accident occurred in Pompano Beach, Florida (FL), at CSX milepost (MP) SX1003.9, on the Jacksonville Division, Miami Subdivision.

The motor vehicle driver and two passengers were fatally injured. The motor vehicle was totally destroyed. There were no injuries to the train crew members or passengers. The leading locomotive sustained minor damages of \$2,000 and there was no derailment.

At the time of the accident it was dark, light rainfall, and a temperature of 73 °F. Prior to the accident, there was heavy rainfall in the area.

The accident was caused by the motor vehicle driver deliberately disregarding crossing warning devices.

According to the Florida Traffic Crash Report, the driver disregarded other traffic control, Florida State Statute 316.1575 Obedience traffic control devices at railroad-highway grade crossings.

The contributing factor to this accident is the long activation time of the warning devices prior to the arrival of the train.

## 110. NARRATIVE

The following information was obtained from an investigation that was conducted by the FRA.

**Circumstances Prior to the Accident**

Tri-Rail Commuter Train P68313 included a locomotive engineer and a conductor. They went on duty at 2:19 p.m., EST, on November 13, 2005, at the Hialeah Yard in Miami, FL. This is their home terminal and both crew members received more than 10 hours off duty time. Their train consisted of one locomotive, three passenger cars, and a cab car. Herzog mechanical department performed a Class 1 air brake test at Hialeah Yard, then Train P65613 departed southward toward Miami Airport Station. At 3:19 p.m., they left Miami Airport Station, northward, en route to West Palm Beach, FL. This trip was uneventful.

At 6:53 p.m., the same equipment and crew departed West Palm Beach southbound as Train P68313, with the locomotive forward, en route to the Miami Airport Station. The commuter train is not equipped with an end-of-train device.

As the train approached the accident area location, MP SX1003.9, the engineer was seated at the controls on the west side of the locomotive. The conductor was located in one of the passenger cars performing his normal onboard duties.

The CSX timetable and geographical direction of the train was south. Timetable directions are used throughout this report.

Train P68313 was operating at 79 miles per hour (mph) on main track No. 1 approaching the accident area. From MP SX1002 to the point of the accident, Hammondville Road, the track is level and tangent. The engineer's view of the crossing intersection was unobstructed.

**Hammondville Road Crossing**

Hammondville Road is an asphalt surface with two lanes for eastbound highway traffic and two lanes for westbound highway traffic. Eastbound, the highway lanes are 13 feet wide and there is a non traversable median that is nine inches in height and extends 195 feet west. Eastbound and to the south of the right-hand lane, there is a curb that is six inches in height, then a grassy area that is seven feet wide, and then a sidewalk

that is six feet wide. From west to east, there are three tangent tracks that intersect Hammondville Road highway-rail grade crossing. They are designated as west storage track, No. 1 main track, and No. 2 main track. The railroad crossing surface is rubber and the tracks intersect the highway at an angle of 67°.

#### The Accident

##### Train Tri-Rail P68313 South

The engineer said he was sounding the horn for the crossing, sounding the last long as he entered the road crossing. He said the gate arms were down and the four lanes of highway traffic were stopped. He observed a white motor vehicle entering the crossing and realized that the vehicle was driving around the south side of the cantilever and not on the roadway. He then initiated an emergency train air brake application at impact and ducked to avoid flying debris. He did not see what happened to the vehicle. The speed was recorded by the event recorder of the controlling locomotive. The maximum authorized speed for this train was 79 mph as designated in CSX Timetable No. 4.

The engineer then called the conductor on the radio and told him what had happened. He advised the conductor to call the Herzog Operations Center and said he would notify the CSX Train Dispatcher.

The motor vehicle involved was a 1999 GMC Jimmy occupied by a 28-year-old male driver, a 24-year-old female, and a 2-year-old male. The direction of the motor vehicle was east on Hammondville Road. The highway-rail grade crossing warning devices were activated and the gate arms were in the horizontal position. The motor vehicle was in the right-hand lane and stopped for traffic. Witnesses reported, the GMC Jimmy leave the road, drive up on to the sidewalk, and proceed eastward toward the grade crossing. They further stated, the motor vehicle traveled behind and around the cantilever mast, then back toward the highway-rail grade crossing, where it was struck by the train on No. 1 main track. Investigating police officer markings at the accident scene indicated the driver of the motor vehicle drove up the six-inch curb and onto the sidewalk at a point 55 feet west of the gate arm.

The train struck the left side of the motor vehicle about midpoint. The motor vehicle driver and the passenger in the front seat were ejected. The passenger in the left rear seat remained in the vehicle, restrained by a car seat. The motor vehicle was forced southward about 130 feet and came to rest between the No. 2 main track and the storage track. The train stopped north of Race Track Road, highway-rail grade crossing, MP SX1004.7, which is about 4,000 feet south of the accident site.

After the train stopped, the engineer stayed on the locomotive and the conductor remained on the train. A Wackenhut Custom Protection Officer (CPO) was located in the cab car. The CPO exited the cab car and proceeded to the locomotive to check on the status of the engineer. He interviewed the engineer and asked the conductor about the passengers, which appeared to not be injured. The CPO then walked back to the collision scene and interviewed witnesses.

Pompano Beach Fire Rescue was notified of the accident at 7:41 p.m. A Broward County, Florida, sheriff arrived at the scene at about 7:42 p.m. The Pompano Fire Department sent four truck and six rescue vehicles to the scene, the first unit arrived at 7:43 p.m. About 10:15 p.m., the train was released by the investigating authorities. Broward County Medical Examiners Office arrived at the accident scene about 12:11 a.m., on November 14, and determined all occupants of the motor vehicle were fatally injured.

The Broward County, Florida, Medical Examiner performed toxicological testing on the remains of the driver, and the results were not available when this accident report was submitted.

#### Analysis and Conclusions

The Hammondville highway-rail grade crossing is equipped with gate arms, cantilevered flashing lights, flashing lights, and bells. The warning devices are controlled by a Safetran Systems Corporation Grade Crossing Predicator 3000 ND2 (GCP). There are visible pavement markings located 255 feet west of the crossing. The State of Florida Department of Transportation (FDOT) owns the track, structures, and equipment from MP SX1037.3 to MP SX964.1 on the Miami Subdivision. South Florida Regional Transportation Authority, Tri-County Commuter Rail Authority (SFRTA) by agreement with FDOT controls and operates the corridor. Herzog, Inc. is contracted by SFRTA to provide train crews and maintenance personnel for the commuter trains. Wackenhut provides security personnel. CSX Transportation by agreement provides train dispatching, track, and signal maintenance.

The railroad has a whistle post 1,485 feet north of the Hammondville grade crossing where the engineer began sounding the whistle. This data was verified by the locomotive event recorder.

There was a CSX signal supervisor on the scene at 11:50 p.m. He obtained the information from the GCP keyboard display. The liquid crystal display enables the user to view diagnostic information, application programming entries, and train movements. The history warning time displayed by the keyboard indicated that the warning devices were activated for at least 250 seconds prior to the collision. This warning time feature will not count beyond 250 seconds.

Two separate witnesses at the scene stated that the Hammondville warning devices were activated between 15 and 30 minutes before the passenger train arrived. A truck driver, who was stopped at the road crossing, observed motorists raise the horizontal gate arms, which allowed several motor vehicles to travel over the grade crossing. Another witness reported four or five cars and a black truck mount the sidewalk and successfully go around the south side of the gate. These vehicles were followed by a white Jimmy, that was stopped in the right-hand lane of eastbound traffic. This vehicle also drove onto the sidewalk and proceeded eastward toward the grade crossing. The driver operated his vehicle around the south side of the cantilever mast and then back onto the rubber grade crossing, where it was struck by Train P68313. Also, one witness stated he sounded his truck horn trying to warn the motor vehicle driver of the oncoming train. This witness also stated that the warning devices were activated for 20 minutes prior to the arrival of the train. After the fatality, CSX posted signal maintainers at Hammondville Road grade crossing. Their duties were to record any unusual occurrences and the warning times for train movements. This observation began on November 13, 2005, at 11:09 p.m. and ended November 15, 2005, at 11:30 a.m. During this observation 19 southbound train movements on main track No. 1 were observed and 38 other train movements. During this observation period there were no unusual occurrences recorded and the highway-rail grade crossing warning devices functioned as intended.

The investigation by the CSX signal department could not determine the cause of the crossing warning system to be activated for more than 60 seconds. Also, a review of the railroad's incident logs determined that the railroad did not have any knowledge of the long warning time prior to the collision.

The locomotive was equipped with a headlight, the auxiliary lights, and the audible warning device required by Federal regulations. These devices were tested by the conductor prior to departing Hialeah Yard in Miami, FL, and again by Herzog mechanical in Hialeah Yard on November 14, 2005, at 3:50 a.m. The locomotive was equipped with a speed indicator and an event recorder as required. The relevant event recorder was downloaded by Herzog mechanical at Hialeah Yard in Miami. The analysis disclosed that the locomotive engineer was in compliance with all applicable railroad operating and train handling requirements.

#### Conclusions

The railroad was in compliance with their own and all applicable Federal standards. The highway user disregarded the highway-rail grade crossing warning devices and operated his vehicle off the roadway to avoid these devices. The cause for the long activation time reported by witnesses and the minimum 250 seconds of warning time indicated by the keyboard display could not be determined.

#### Probable Cause & Contributing Factors

The probable cause is, according to the Florida Traffic Crash Report, the driver disregarded other traffic control. Florida State Statute 316.1575 Obedience traffic control devices at railroad-highway grade crossings states, "(1) Any person walking or driving a vehicle and approaching a railroad-highway grade crossing under any of the circumstances stated in this section shall stop within 50 feet but not less than 15 feet from the nearest rail of such railroad and shall not proceed until he can do so safely. The foregoing requirements apply when:

- (a) A clearly visible electric or mechanical signal device gives warning of the immediate approach of a railroad train;
  - (b) A crossing gate is lowered or a human flagman gives or continues to give a signal of the approach or passage of a railroad train;
  - (c) An approaching railroad train emits an audible signal or the railroad train, by reason of its speed or nearness to the crossing, is an immediate hazard; or
  - (d) An approaching railroad train is plainly visible and is in hazardous proximity to the railroad-highway grade crossing, regardless of the type of traffic control devices installed at the crossing.
- (2) No person shall drive any vehicle through, around, or under any crossing gate or barrier at a railroad-highway grade crossing while the gate or barrier is closed or is being opened or closed."
- Contributing factor is the long activation time of the warning devices prior to the arrival of the train.

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