



***Federal Railroad Administration  
Office of Railroad Safety  
Accident and Analysis Branch***

***Accident Investigation Report  
HQ-2019-1318***

***Union Pacific (UP) Highway-Rail Grade Crossing Accident  
Athens, Texas  
January 25, 2019***

***Note that 49 U.S.C. §20903 provides that no part of an accident or incident report, including this one, 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.***

**SYNOPSIS**

On January 25, 2019, at 4:06 p.m., CST, a Union Pacific Railroad Company (UP) westbound mixed freight train MPBLF-24 (Train 1), with 2 engines and 54 cars, collided with a southbound Athens Independent School District school bus at a public highway-rail grade crossing (US DOT No. 790453V) resulting in the fatal injury to one of the three bus occupants.

The train crew did not suffer any injuries.

The highway-rail grade crossing collision occurred in Athens, Texas, at Milepost (MP) 583.03 on UP Railroad's Corsicana Subdivision.

No railroad equipment was derailed and no hazardous materials were involved. This accident was not Positive Train Control (PTC) preventable. This was not an Amtrak route.

Damages were estimated at \$45,424 to equipment, and \$269.00 to track or structure; for a grand total of \$45,693.

At the time of the accident, the weather was clear, the temperature was 54 °F and the road surface was dry.

FRA determined the probable cause of the accident to be M302 — Highway user inattentiveness.

Additionally, FRA determined a probable contributing cause to be M303 — Highway user misjudgment under normal weather and traffic conditions.

**TRAIN SUMMARY**

1. Name of Railroad Operating Train #1 Union Pacific Railroad Company	1a. Alphabetic Code UP	1b. Railroad Accident/Incident No. 0119TO030
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**GENERAL INFORMATION**

1. Name of Railroad or Other Entity Responsible for Track Maintenance Union Pacific Railroad Company		1a. Alphabetic Code UP	1b. Railroad Accident/Incident No. 0119TO030	
2. U.S. DOT Grade Crossing Identification Number 790453V		3. Date of Accident/Incident 1/25/2019	4. Time of Accident/Incident 4:06 PM	
5. Type of Accident/Incident Hwy-Rail Crossing				
6. Cars Carrying HAZMAT 3	7. HAZMAT Cars Damaged/Derailed 0	8. Cars Releasing HAZMAT 0	9. People Evacuated 0	10. Subdivision Corsicana
11. Nearest City/Town Athens		12. Milepost (to nearest tenth) 583	13. State Abbr. TX	14. County HENDERSON
15. Temperature (F) 54 °F	16. Visibility Day	17. Weather Clear	18. Type of Track Main	
19. Track Name/Number Main		20. FRA Track Class Freight Trains-40, Passenger Trains-60		21. Annual Track Density (gross tons in millions) 15.7
22. Time Table Direction West		23. PTC Preventable No		

**OPERATING TRAIN #1**

1. Type of Equipment Consist: Freight Train					2. Was Equipment Attended? Yes			3. Train Number/Symbol MPBLF-24			
4. Speed (recorded speed, if available) R - Recorded 38.0 MPH E - Estimated		Code R	5. Trailing Tons (gross excluding power units) 4917		6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter					Code 0	
6. Type of Territory Signalization: <u>Signaled</u> Method of Operation/Authority for Movement: <u>Direct Train Control</u> Supplemental/Adjunct Codes: <u>Q</u>											
7. Principal Car/Unit		a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	8. 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.)		UP 4720	1	no				0	0		
(2) Causing (if mechanical, cause reported)		0	0	no	9. Was this consist transporting passengers?					No	
10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train		Rear End		11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded		Empty		e. Caboose
		b. Manual	c. Remote	d. Manual	e. Remote		a. Freight	b. Pass.	c. Freight	d. Pass.	
(1) Total in Train	2	0	0	0	0	(1) Total in Equipment Consist	41	0	13	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0
12. Equipment Damage This Consist 45424			13. Track, Signal, Way & Structure Damage 269								
14. Primary Cause Code M302 - Highway user inattentiveness											
15. Contributing Cause Code M303 - Highway user misjudgment under normal weather and traffic conditions											
Number of Crew Members						Length of Time on Duty					
16. Engineers/Operators		17. Firemen	18. Conductors		19. Brakemen	20. Engineer/Operator		21. Conductor			
1		0	1		0	Hrs: 7 Mins: 30		Hrs: 7 Mins: 30			
Casualties to:		22. Railroad Employees	23. Train Passengers	24. Others		25. EOT Device?		26. Was EOT Device Properly Armed?			
Fatal		0	0	1		Yes		Yes			
Nonfatal		0	0	2		27. Caboose Occupied by Crew?					N/A
28. Latitude 32.212721000			29. Longitude -95.843706000								

**CROSSING INFORMATION**

Highway User Involved		Rail Equipment Involved	
1. Type School Bus		5. Equipment Train (Units Pulling)	
2. Vehicle Speed ( <i>est. mph at impact</i> ) 2	3. Direction ( <i>geographical</i> ) South	6. Position of Car Unit in Train 1	
4. Position of Involved Highway User Moved over Crossing		7. Circumstance Rail Equipment Struck Highway User	
8a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? Rail Equipment		8b. Was there a hazardous materials release by Neither	
8c. State here the name and quantity of the hazardous material released, if any. N/A			
9. 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> ) 3. Standard FLS      6. Audible      9. Watchman      12. None  7, 11		10. Signaled Crossing Warning	11. Roadway Conditions Dry
12. Location of Warning Both Sides		13. Crossing Warning Interconnected with Highway Signals No	14. Crossing Illuminated by Street Lights or Special Lights No
15. Highway User's Age 78	16. Highway User's Gender Male	17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train No	18. Highway User Stopped and then proceeded
19. Driver Passed Standing Highway Vehicle No		20. View of Track Obscured by ( <i>primary obstruction</i> ) Not Obstructed	
Casualties to:	Killed	Injured	21. Driver was Injured
23. Highway-Rail Crossing Users	1	2	22. Was Driver in the Vehicle? Yes
		24. Highway Vehicle Property Damage ( <i>est. dollar damage</i> )	25. Total Number of Vehicle Occupants ( <i>including driver</i> )
		10000	3
26. Locomotive Auxiliary Lights? Yes		27. Locomotive Auxiliary Lights Operational? Yes	
28. Locomotive Headlight Illuminated? Yes		29. Locomotive Audible Warning Sounded? Yes	

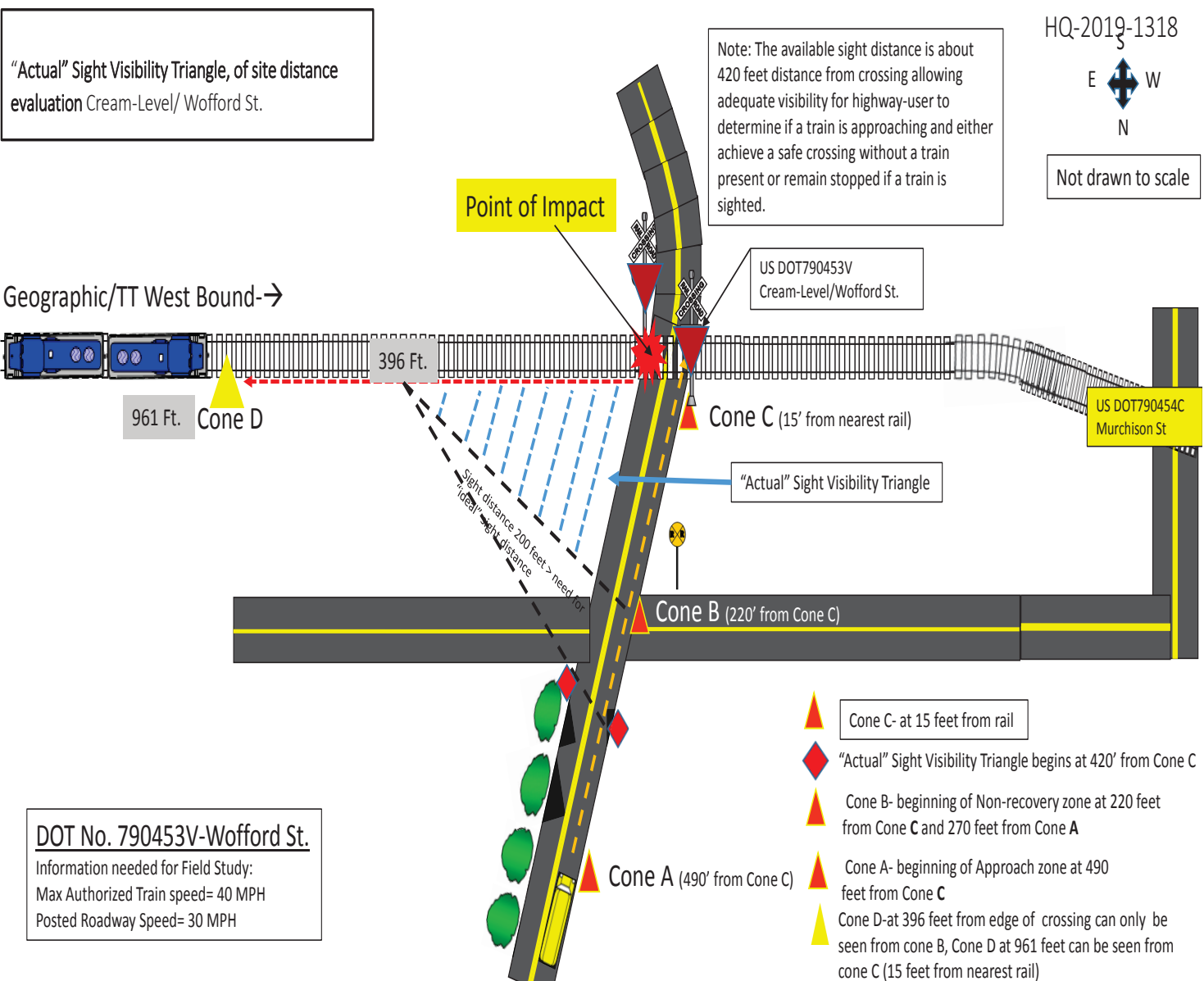
**10. Signaled Crossing Warning**

**Explanation Code**

- |  |  |
|--|--|
| 1 - Provided minimum 20-second warning             | A - Insulated rail vehicle   |
| 2 - Alleged warning time greater than 60 seconds   | B - Storm/lightning damage   |
| 3 - Alleged warning time less than 20 seconds      | C - Vandalism  |
| 4 - Alleged no warning                             | D - No power/batteries dead  |
| 5 - Confirmed warning time greater than 60 seconds | E - Devices down for repair  |
| 6 - Confirmed warning time less than 20 seconds    | F - Devices out of service   |
| 7 - Confirmed no warning                           | G - Warning time greater than 60 seconds attributed to accident-involved train stopping short of the crossing, but within track circuit limits, while warning devices remain continuously active with no other in-motion train present |
| N/A - N/A  | H - Warning time greater than 60 seconds attributed to track circuit failure (e.g., insulated rail joint or rail bonding failure, track or ballast fouled)   |
|  | J - Warning time greater than 60 seconds attributed to other train/equipment within track circuit limits   |
|  | K - Warning time less than 20 seconds attributed to signals timing out before train's arrival at the crossing/island circuit   |
|  | L - Warning time less than 20 seconds attributed to train operating counter to track circuit design direction  |
|  | M - Warning time less than 20 seconds attributed to train speed in excess of track circuit's design speed  |
|  | N - Warning time less than 20 seconds attributed to signal system's failure to detect train approach   |
|  | O - Warning time less than 20 seconds attributed to violation of special train operating instructions  |
|  | P - No warning attributed to signal systems failure to detect the train  |
|  | R - Other cause(s). Explain in Narrative Description   |

**SKETCHES**

Sketch - Sketch



**NARRATIVE**

**Circumstances Prior to the Accident**

Union Pacific Railroad Company (UP) westbound mixed freight Train MPBLF-24 (Train 1) consisted of 2 locomotives (UP 4720 and UP 4167) and 54 cars. It measured 3,802 feet with 4,917 trailing tons, and received an inspection and air brake test on all cars and locomotives prior to train 1 departing the origin terminal in Pine Bluff, Arkansas.

On January 25, 2019, at 8:30 a.m., CST, the crew of Train 1, consisting of one engineer and one conductor, went on duty near Longview, Texas. The crew received more than the statutory off-duty period prior to reporting for duty.

The accident occurred near Athens, Texas, on the UP's Corsicana Subdivision, at a public highway-rail grade crossing located at Milepost (MP) 583.03, US DOT No.790453V, (the crossing). Approaching the accident area, the Corsicana Subdivision is a single main track, with a maximum authorized speed of 40 mph.

The vehicle involved in this incident was a 2004 IC LLC 77 passenger school bus (the school bus). The school bus made a stop approximately 15 feet from the crossing then proceeded southward over the crossing at an estimated 3 mph when it was struck. There was one driver with two student passengers.

As Train 1 approached the crossing, the Engineer was seated at the controls on the right side of the locomotive cab and the Conductor was seated on the left side of the locomotive.

At the time of the accident, the weather was clear, the temperature was 54 °F and the road surface was dry.

**The Accident**

As Train 1 was approaching the crossing, the Engineer and Conductor first saw the school bus driving very slowly south approaching the crossing along Wofford Street just north of the crossing then appeared to come to a stop and then proceed into the path of Train 1.

Train 1 was traveling west at a recorded speed of 38 mph with a maximum authorized speed of 40 mph (Corsicana Subdivision Timetable), on the UP's Corsicana Subdivision under Centralized Traffic Control (CTC) authority when the Conductor and Engineer saw the school bus moving onto the crossing. The Engineer and Conductor responded almost simultaneously and immediately by making an emergency application of the air brakes.

Train 1 impacted the school bus at the about the middle of the bus on the driver's side while the bus was moving across the tracks. Train 1 continued west after impact, pushing the school bus for approximately 1,458 feet before coming to a complete stop just west of Murchison Street (HRGX US DOT No.

790454C).

Personnel from the Texas Department of Public Safety; Athens Police Department; and Henderson EMS and Fire Department responded to the scene. The 13-year-old male passenger was fatally injured after being ejected from the emergency rear door of the school bus post impact. The 9-year-old female passenger was air transported to the Children's Medical Center in Dallas, Texas, for treatment and was in critical but stable condition. The 78-year-old male bus driver was transported to Athens Hospital for minor injuries and was treated and released. The crew of train1 did not suffer any injuries.

The estimated cost of damage to UP equipment was Equipment -- \$45,424; and Track Structure -- \$269.00; for a grand total of \$45,693.

The estimated damages to the AISD school bus was \$10,000.

### **Post-Accident Investigation**

The Federal Railroad Administration (FRA) Region 5 sent inspectors from the Operating Practices, Signal & Train Control, and Grade Crossing & Trespasser Prevention disciplines to investigate the accident in conjunction with local authorities.

The following analysis and conclusions represent the findings of the FRA investigation into this accident.

### **Analysis and Conclusions**

Analysis – Toxicological Testing: This accident did not meet the criteria for Title 49 Code of Federal Regulations (CFR) Part 219, Subpart C, *Post-Accident Toxicological Testing*. The crew of Train 1 was not tested under FRA guidelines or company authority for reasonable cause for the use of alcohol or drugs.

The driver of the school bus was not post-accident tested.

Conclusion: FRA determined drugs and alcohol use by the crew of Train 1 did not contribute to the accident.

Analysis - Fatigue: FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis. At or above this baseline, FRA does not consider fatigue as probable for any employee. Software sleep settings vary according to information obtained from each employee. If an employee does not provide sleep information, FRA uses the default software settings.

FRA obtained fatigue-related information, including a 10-day work history for the Locomotive Engineer and the Conductor assigned to Train 1. The results of the analysis indicate fatigue was not probable for either crew member.

Conclusion: FRA determined that fatigue did not contribute to the cause or severity of the accident.



Analysis-Train Crew Performance: Post-accident interviews with the crew of Train 1, view of lead locomotive video, and analysis of event recorder data from the lead and controlling locomotive, found the Engineer's actions to be consistent with safe practices and proper train-handling procedures. Per the event recorder on the lead locomotive, the horn and brakes of train 1 were operated as required.

Conclusion: FRA determined the actions of the crew of Train 1 did not contribute to the cause or severity of the accident.

Analysis – Motive, Power and Equipment: An FRA motive, power, and equipment (MP&E) inspector reviewed locomotive inspection reports for both locomotives (UP 4720 and UP 4167) involved in the collision without exception. The Class I Airbrake Test documentation was found to be correct by MP&E Inspector.

Conclusion: FRA determined the motive power and equipment did not contribute to the cause or severity of the accident.

Analysis – Sight Distance: FRA investigators conducted a clearing and approach sight distance evaluation field study of the Public Highway-Rail Grade Crossing on the public road (Cream-Level/Wofford Street). The crossing was equipped with cross-bucks and yield signs in accordance with Federal Highway Administration (FHWA) Highway-Rail Grade Crossing Handbook (second edition, 2007).

Approaching the area of the accident, the track is tangent and on an undulating grade, with unobstructed visibility. This public crossing is equipped with yield signs, cross-bucks, and Emergency Notification System (ENS) signs on both sides of the crossing. The annual average daily traffic count for the crossing is 2,950 vehicles (as of 2013), with 3 percent of the vehicles being trucks -- with no school bus traffic noted.

Wofford Street (sometimes referred to as Cream Level Road) is a two-lane paved surface roadway that crosses the Union Pacific Railroad (UP) Corsicana Subdivision Main Track (MT) at a 45-60-degree angle, at-grade, west of Wood Street (DOT 790452N) and east of Murchison Street (DOT 790454C). The crossing was equipped only with a crossbuck and yield sign at the time of the collision. Wofford Street had an advance warning sign, but no pavement markings at the time of the collision. Edmondson Street intersects Wofford Street (right turn only) measured 220 feet north of the crossing.

Clearing Sight Distance of 961 feet was available at this crossing. From a stopped position at Cone C, there is adequate visibility to see Cone D. This evaluation indicates that from a stopped position, the operator of a vehicle such as a long-wheel base school bus, had adequate sight distance of 961 feet down the tracks. Had Train 1 been farther than 961 feet from the crossing, at a train speed of 40 miles per hour, the school bus driver would have had enough time to safely cross the tracks before Train 1's arrival. This was not the case in this collision. Based on time-stamped still photos from the locomotive's

Forward Image Camera, the bus began moving about five seconds prior to impact. At this point, Train 1 was traveling 38 miles per hour and was in the final 300 feet of the approach when the bus moved into the crossing. This evaluation indicates that sight-distance at this crossing was not a factor in the collision.

Conclusion: FRA determined that sight distance at the crossing did not contribute to the cause or severity of the accident, however the sight distance available indicates the bus driver's misjudgment under normal weather and traffic conditions contributed to the cause of the accident. (M303 – Highway user misjudgment under normal weather conditions)

Analysis – School Bus Drivers Actions: A review of the video recording by FRA from the outward facing Track Image Recorder (TIR) onboard lead locomotive UP 4720 clearly showed the school bus made a brief stop before traversing the crossing.

Additionally, FRA reviewed the inward facing cameras on the school bus which confirmed the bus stopped briefly before pulling into the path of the approaching train.

In a post-accident interview, the bus driver stated he did not "hear or see a train," while stopped at the crossing, however the bus passengers attempted to warn the driver of the approaching train immediately after the driver begins to move onto the crossing. Additionally, the train horn is recognizable on the inward facing cameras on the school bus as the school bus enters the crossing. This indicates the train was visible, and audible warning was being provided, prior to the school bus entering the crossing.

Conclusion: FRA determined the school bus driver's actions were the probable cause of the accident. (M302 – Highway user inattentiveness)

### **Overall Conclusion**

The FRA investigation of the accident concluded drugs and alcohol, fatigue, the crew of Train 1's performance and railroad equipment did not contribute to the cause or severity of the accident.

Audio and camera evidence demonstrate the train was visible, and audible warning was being provided. Additionally, video evidence from the school bus shows the other occupants of the school bus recognized the approaching train, and attempted to warn the driver. Failure of the school bus driver to recognize to the approaching train, and comply with all applicable laws was the cause of the accident. (Texas Transportation Code, Section 545.253, *Buses to Stop at All Railroad Grade Crossings*)

### **Probable Cause**

FRA determined the probable cause of the accident to be M302 — Highway user inattentiveness.

### **Probable Contributing Cause**

FRA determined a probable contributing cause to be M303 — Highway user misjudgment under normal weather and traffic conditions.