

Animation of Accident Reconstruction

Highway-Railroad Grade Crossing Collision

Midland, Texas

November 15, 2012

HWY13MH003

This animation is a shelf item and may be obtained by contacting:

National Transportation Safety Board
FOIA Requester Service Center (CIO-40)

490 L'Enfant Plaza, SW

Washington, DC 20594

(202) 314-6551

800-877-6799

Online request: <https://www.nts.gov/palsec/palMain.aspx>

This animation is also available on the NTSB website: <http://www.nts.gov/>

This two-dimensional animated reconstruction shows the accident sequence for a highway-railroad grade crossing collision during an annual parade that was held in downtown Midland, Texas. The accident occurred on November 15, 2012 at 4:35 pm local time, when a freight train struck a parade float as it was traversing the grade crossing.

This animation is a series of images that illustrate the overall accident sequence starting from 30 seconds before impact. The animation shows the positions of two parade floats, six police vehicles escorting the parade floats or providing traffic control, and the train involved in the collision. The parade float involved in the collision was the second float in the procession and consisted of a truck tractor in combination with a flatbed trailer, with chairs on the flatbed occupied by 24 passengers. The train was a Union Pacific Freight Train consisting of four locomotives and eighty-four freight cars. The positions of the parade floats and police vehicles during the accident sequence, as well as the status of traffic and railroad crossing signals, were calculated using recorded video from several sources, physical evidence and witness interviews. The position of the train was determined from the locomotive event recorder data and onboard recorded video. The animation concludes with an aerial photograph provided by the Midland, TX Police Department showing the final positions of the train and the parade float after the accident. The animation does not depict vehicles other than those involved with the parade and the train involved in the collision. The animation also does not depict the

weather or visibility conditions at the time of the accident. The animation includes a voice over narration.

The right hand side of the screen depicts the overall accident area at the grade crossing. The North direction along with a scale are also depicted. Time to collision in seconds, the advance preemption cycle, railroad warning lamps and railroad automatic gates status are represented as text in the upper left hand corner of the screen. On the bottom left hand side of the screen there is an inset depicting the distance of the train from the grade crossing with a scale. The distance to impact is indicated as text as well as the train horn and the train emergency brake status.

Voice over Narration

1. On Thursday, November 15, 2012, about 4:35 pm central standard time, a Union Pacific Freight Train collided with a parade float as it crossed an active grade crossing equipped with gates, bells, and flashing red lights.
2. This presentation will show a timeline of events leading up to the collision.
3. The view on the right side of the screen shows the location of the traffic signals and grade crossing signals in the area of the accident.
4. The view on the bottom left of the screen shows the train approaching the grade crossing.
5. The parade float was the second float in the procession and consisted of a truck tractor in combination with a flatbed trailer, with chairs on the flatbed occupied by 24 passengers.
6. Law enforcement personnel were escorting each float along the parade route.
7. As the parade float was traveling south at approximately 9 mph along South Garfield Street, the freight train was traveling east at about 62 mph.
8. The maximum operating speed of freight trains in this area was 70 mph.
9. About 30 seconds before the collision, the truck passed the Stop Line at the intersection of South Garfield Street and West Front Avenue.

10. The traffic signal at the intersection was displaying a red stop signal, but the law enforcement personnel blocked the cross traffic and allowed the float to proceed unhindered.
11. About the same time, the approaching freight train triggered the traffic signal to enter the advance preemption cycle, keeping the signal red to prevent traffic from backing up onto the grade crossing.
12. However, there is no overt sign to indicate that the traffic signal remains red in response to an approaching train.
13. About 20 seconds before impact, when the parade float was approximately 80 feet from the rail crossing, the railroad flashing warning signal lamps and bell activated.
14. The railroad warning signal lamps flashed 12 times by the time the truck tractor passed the railroad warning signal and automatic gate. The parade float had slowed to about 5 mph to navigate the grade crossing.
15. About 14 seconds before impact, the automatic gate began to descend, coming down behind the truck tractor onto the flatbed, striking several of the flag poles lining its right side.
16. About 8 seconds before impact, while the train was approximately 700 feet from the grade crossing, the train engineer sounded the locomotive horn.
17. About 5 seconds before impact, with the train 400 feet from the grade crossing, the engineer placed the train into emergency braking.
18. However, the train was still traveling approximately 62 mph at impact.
19. It took the train an additional 70 seconds and 3100 feet to come to a stop.
20. This is a photograph of the final rest positions of the parade float and the train.
21. Four passengers who had been on the flatbed were fatally injured and 12 others were injured.