

## Animation of Accident Reconstruction

A combination vehicle crossed the center median of Interstate 65 and collided with a 15-passenger van traveling in the opposite direction

Munfordville, Kentucky

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HWY10MH011

Board Meeting

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

National Transportation Safety Board

Records Management Division (CIO-40)

490 L'Enfant Plaza, SW

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Online request: <http://www.nts.gov/pubmail/pubmail.asp>

This animation is also available on the NTSB website

This three-dimensional animated reconstruction shows the accident sequence for a collision between a combination vehicle and a 15-passenger van on Interstate 65 (I-65) in Munfordville, Kentucky.

This animation illustrates the overall accident sequence from just before the combination vehicle left the roadway until the vehicles were at their final rest positions. The motions of the vehicles shown in the animation are based on the reconstruction of the accident. Computer simulation models were used to calculate the motion of the vehicles prior to the collision between van and the tractor of the combination vehicle. These computer simulations used the initial speeds (calculated to be near the posted speed limit of 70 mph) along with the three-dimensional survey data of the physical evidence to reconstruct the motion of the vehicles. The post-collision motions of the vehicles could not be simulated precisely because of limited physical data and model limitations, and the motions shown in the animation are based on the physical evidence of impacts and a general reconstruction of the post-collision trajectories of the vehicles. For a more in-depth discussion of the reconstruction and its limitations, please refer to the accident report. The animation does not depict the weather or visibility conditions at the time of the accident. The animation includes audio.

The animation sequence shows the combination vehicle departing the left lane of southbound I-65 at a shallow angle and entering the 60-foot-wide depressed earthen median between the southbound and northbound roadways. The combination vehicle then travels across the median, striking and overriding the four-cable, alternating post median barrier adjacent to the left shoulder of northbound I-65, and then crosses the left shoulder and enters the travel lanes of northbound I-65. At that time, a 15-passenger van is traveling northbound in the left lane. As the combination vehicle crosses in front of the 15-passenger van, the 15-passenger van strikes the tractor of the combination vehicle. The 15-passenger van rotates clockwise, becoming engaged with the combination vehicle, which continues across both travel lanes and the right shoulder of

northbound I-65. As the combination vehicle and 15-passenger van travel across the right shoulder, the van separates from the combination unit, strikes a vertical, cut rock slope, and rebounds back into the travel lanes, coming to rest in the left lane of northbound I-65, facing south. The combination unit tractor strikes the rock slope beyond the shoulder and rolls onto its right side. This animated sequence is approximately 11 seconds in duration.

The animation is shown from three different viewpoints. The first viewpoint is a chase view following the combination vehicle with the label “Combination vehicle view”, the second viewpoint is a chase view following the 15-passenger van, with the label “15-Passenger van view” and the final viewpoint is an overall view that is focused on the combination vehicle as it crosses the median and overrides the four-cable, alternating post median barrier, with the label “Median crossover and impact view”. The three views are presented twice divided by the title “Repeat of Animation Sequence”.

Voice Over:

First view: This is a view of the combination vehicle traveling southbound.

Second view: This is a view of the 15-passenger van traveling northbound.

Third view: This is a view of the impact and subsequent vehicle movement.

Repeat of first view: This is a view of the combination vehicle traveling southbound.

Repeat of second view: This is a view of the 15-passenger van traveling northbound.

Repeat of third view: This is a view of the impact and subsequent vehicle movement.