

**NATIONAL TRANSPORTATION SAFETY BOARD**  
Office of Research and Engineering  
Washington, D.C. 20594

August 13, 2018

## **Video Study**

**NTSB Case Number:  
HWY17MH011**

### **A. ACCIDENT**

Location: Concan, Texas  
Date: March 29, 2017  
Time: 12:20 PM  
Vehicle 1: 2007 Dodge Ram 3500 pickup truck  
Vehicle 2: 2004 Ford E350 with a bus body

### **B. AUTHOR**

Dan T. Horak  
NTSB

### **C. ACCIDENT SUMMARY**

For a summary of the accident, refer to the *Crash Summary Report*, which is available in the docket for this investigation.

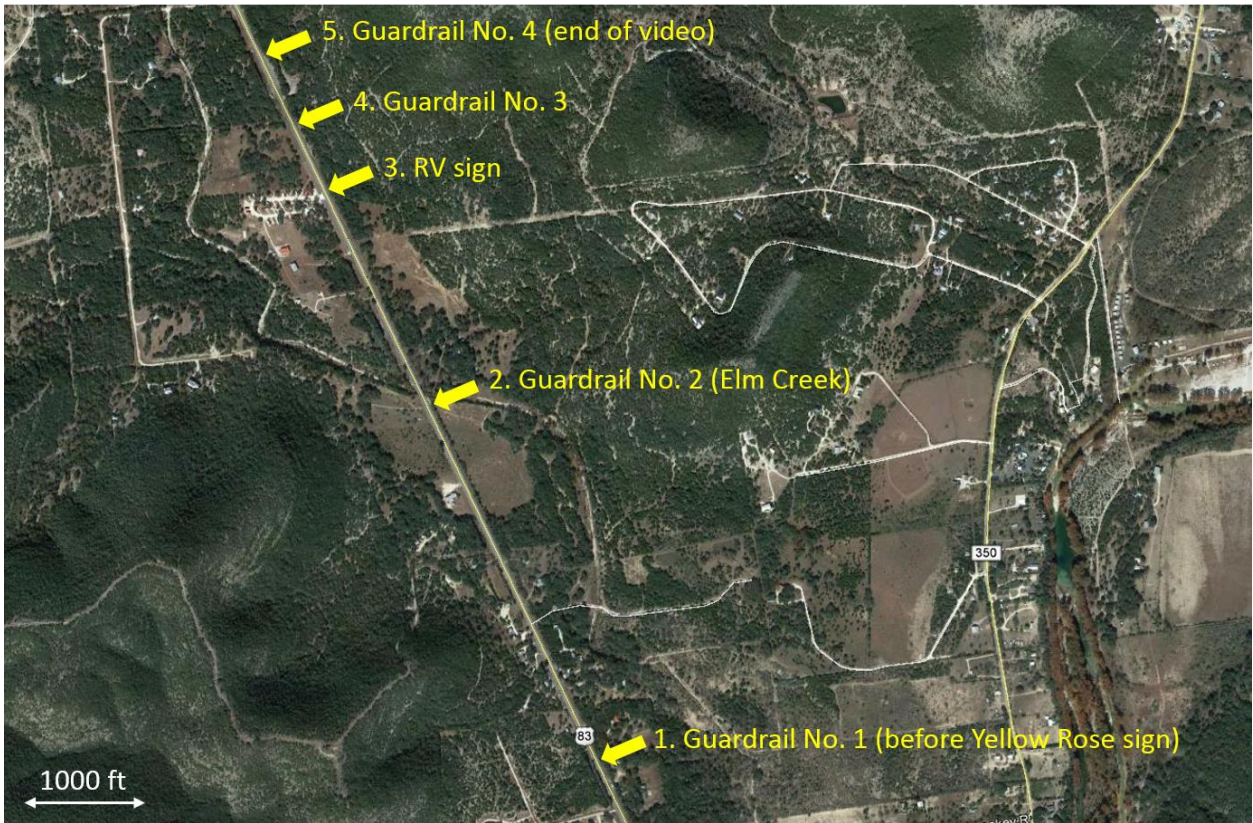
### **D. DETAILS OF INVESTIGATION**

The goal of this investigation was estimating the speed of the pickup truck during the last minute of travel before entering the curve where it collided with the bus. Analysis was based on a video recorded with a Samsung Galaxy S5 camera by a passenger in a vehicle that was traveling behind the pickup truck.

The video had resolution of 1920x1080 and frame rate of 30 fps. Pickup truck speeds were estimated based on the times when the pickup truck was at reference locations that were visible in the video and in Google Earth. The time at a location was set to the time when a video frame was acquired. Pickup truck location was defined as the location of its rear bumper along the road. Figure 1 shows the pickup truck at reference location No. 2, a strike plate of a guard rail.

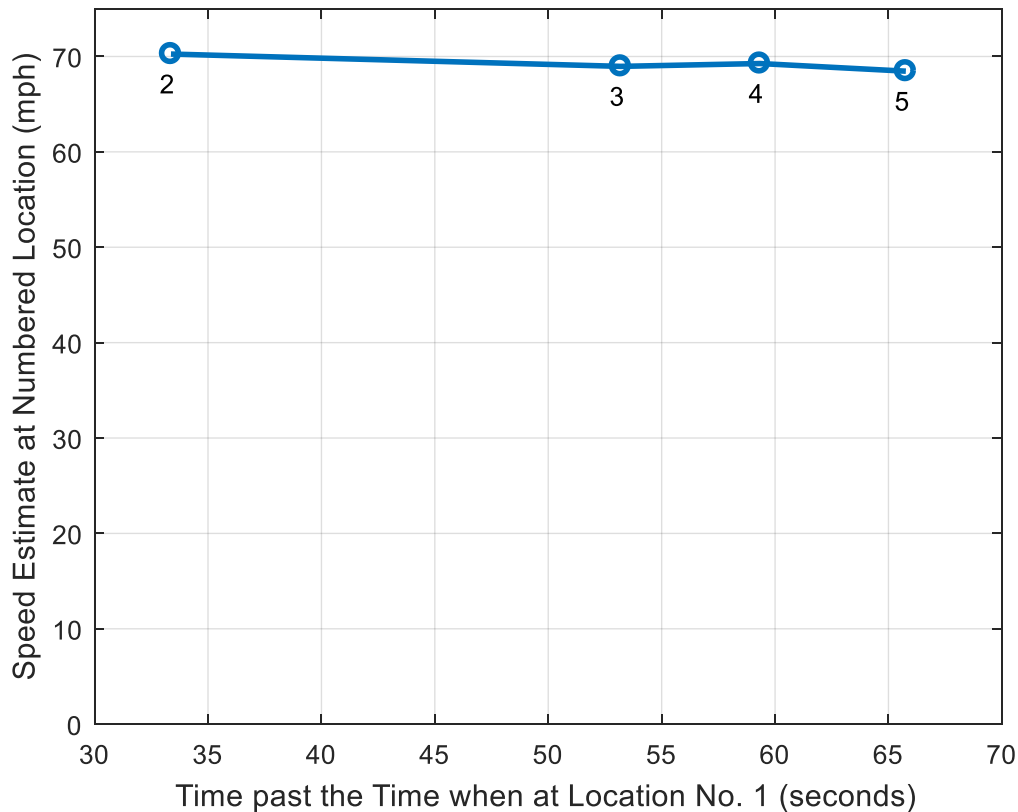


**Figure 1. Pickup Truck at Reference Location No. 2 (a guardrail strike plate)**



**Figure 2. Aerial View of the Accident Area with Marked Reference Locations**

There were five reference location used in this study. Four were strike plates of guardrails on the right side of the road and one was an 'RV' sign on the left side of the road. The five reference locations are shown on the aerial view in Figure 2.



**Figure 3. Estimated Pickup Truck Speeds**

Pickup truck speeds were estimated along the segments between the reference locations shown in Figure 2 and assigned to the location at the end of the segment. For example, estimated speed at reference location 2 was the speed in the road segment between reference locations 1 and 2. The four estimated speeds are shown in Figure 3. The time in the figure was set to zero when the pickup truck was at location 1.

Figure 3 shows that the speed was approximately constant at  $69\pm 2$  mph. There was a car traveling ahead of the pickup truck and the pickup truck kept an approximately constant distance between the two vehicles on this single-lane road.

## **E. CONCLUSIONS**

Video acquired with a smartphone camera by a passenger in a vehicle traveling behind the accident pickup truck was used for estimating the pickup truck speed. The estimated speed was  $69\pm 2$  mph.