

Exhibit 20.

Distance Traveled Calculation to Identify the Estimated Point of Collision

The approximate point of collision determination is based upon a basic Time/Speed/Distance Traveled Calculation performed by the Crashworthiness Working Group Chairperson (author of this report), which utilized the recorded image of the lead UP locomotive on-board video/audio recording system, as further described in the On-Board Video/Audio Recording - Group Chairman's Factual Report of the Investigation.

As documentation of the calculation:

- as a 'starting point' for the measurement calculation, the recorded video image markedly showed the [eastbound] locomotive entering the west portal of Tunnel 28 at 4:22:03.93 pm (a definitive 'initiation point' benchmark, as demonstrated by the distinct solar shadow cast upon the video camera as it passed through tunnel portal)¹⁶⁰,
- as an 'end point' for the measurement calculation, the recorded video image also shows the collision impact to occur at 4:22:23.27 pm (an obvious definitive 'conclusion point' benchmark)¹⁶¹,
- from the above, the recorded video image shows a time interval between the two (above) identified distance-point benchmarks of 19.34 seconds¹⁶²,
- UP Locomotive Event Recorder [lead unit) shows a recorded locomotive average speed of 41.33 mph¹⁶³ = 60.63 ft/sec,
- using the above data, this calculates to be a total distance traveled (between the two identified benchmark points) of about:

$$(19.34 \text{ seconds}) \times (60.63 \text{ ft/sec}) = 1,173 \text{ ft}$$

which is at a 'point of reference' on the track to the east of the west portal of Tunnel 28,

- wherein, allowing for a 547 ft tunnel length^{164, 165}, and allowing a 'camera to front coupler' distance of about 8 ft, this further calculates to be a distance traveled (upon exiting the east tunnel portal) of about:

$$1,173 \text{ ft} - (547 \text{ ft}) + (8 \text{ ft}) = 634 \text{ ft}$$

which is at a 'point of reference' on the track to the east of the east portal of Tunnel 28, which is also the approximate point of collision.

¹⁶⁰ from the video image, determined to occur at 6:22:03 + 14/15 seconds*, which is 4:22:03.93 pm (local time)
*camera 'image framing rate' = 15 frames/second

¹⁶¹ from the video image, determined to occur at 6:22:23 + 4/15 seconds*, which is 4:22:23.27 pm (local time).

¹⁶² determined by basic arithmetic subtraction; the ref. time of collision impact of 4:22:23.27, minus the ref. time entering the tunnel of 4:22:03.93, which equals a time interval 19.34 seconds.

¹⁶³ an average speed, for the two speed [recording] data channels, for the time interval of 4:22:03 to 4:22:23, inclusive, was derived / employed for this, utilizing the UP Locomotive Event Recorder Factual Report - Tabular Data.

¹⁶⁴ ref. Track Group Chairman's Factual Report, Appendix A (which cited a surveyed 'point of reference' ["station"] of the west portal at 11+97, and the east portal at 6+50, which, by subtraction, resulted in a tunnel length of 547 ft).

¹⁶⁵ the Crashworthiness Investigation noted that the tunnel length dimension (of 537 ft) cited in the "Metrolink Ventura Subdivision Track Chart" [page 7], an SCRRRA document, does not appear to be accurate data.