In the outside camera shown in the images above, the video shows train #705 traveling by two poles: one labeled 3126 followed by a pole labeled 3130. Using a scale satellite image obtained from Google Earth, the distance between pole 3126 and 3130 is approximately 205.62 ft. It takes train #705 approximately 16.21 seconds to travel between the poles resulting in an average speed of 8.65 mph (consistent with the data report).

Using the diagrams in the provided documents for measurements and weight, I was able to model the impact between the two involved train cars in a widely used crash simulation program that utilizes momentum, energy, and restitution (MER) calculations for analysis.[[1]](#footnote-1) I can then, in turn, estimate an approximate speed change or delta V imparted to car #1266 during the most substantive phase of the crash, in which the right side of car #1262 snags against the left rear aspect of car #1266. A closing speed of 8.65 mph from car #1262 would have resulted in a delta V in car #1266 of approximately 6.5 mph. Movement of people inside car #1266 can also be seen in the video.

ESI’s analysis of the speed of the impact is underestimated but it is not clear where they made their mistake. The speed of Train 140, based on the video, is approximately 8.65 mph and not 7.4 mph as they had calculated from the video. Using their estimated weights in our simulator indicated the delta V to car #1266 is 5.5 mph with a peak acceleration of 4.0 g. Although it is questionable if they should have used the combined weight of Train 140 (the train containing car #1266) since it was the car that was impacted and not the entire train. If they used the video to calculated the delta V and acceleration of car #1266, then is a much less precise way to estimate the speed change in car #1266 than using a simulator.

The following documents/files were provided and reviewed for the preparation of this report:

1. Civil Action Cover Sheet-Case Initiation
2. Deposition of Anthony Brown dated June 6, 2023
3. Deposition of Denise Jones dated June 5, 2023
4. From Mr. Pochron’s case files:
   1. Deposition of James Pochron dated June 2, 2023
   2. Hand drawn diagram by Mr. Pochron
   3. Deposition of Gregory Williams dated February 6, 2024
   4. Deposition of Jason Taksas dated February 6, 2024
   5. Rail Equipment Incident Report, Bates stamped 000505-00516
   6. Tabular Data, Bates stamped 000542-000551
   7. Metra Police Incident Report
   8. Defense expert report labeled Anne Mathias & Emmanuel Manuel – Investigative Report
   9. Train surveillance video file labeled Bates stamped 000717-5 cameras.avi
   10. Plaintiff, James Pochron’s Fifth Supplemental Answers to Defendant, Metra’s Interrogatories
   11. Train repair costs
       1. SRTP 3-Repair\_Cost1262 001135-001136.pdf
       2. SRTP 3-Repair \_Cost1266 001137-001138.pdf
   12. Numerous color photographs
       1. Photographs Bates 000598-000713.pdf
       2. Klima Supp Photos 1-18.pdf
       3. Add’l photos.pdf)
   13. Schematic files
       1. A01-001\_A0138b81998-Bates001323.pdf
       2. A01-002\_A0138B81999E-Bates001324.pdf
       3. SRTP 4 – Train Car 1262 1266 Schematics001139.pdf
   14. Handwritten statement signed by Mr. Pochron, Mr. Brown, and Ms. Jones

1. Virtual Crash 5, vCrash America Inc. [↑](#footnote-ref-1)