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To: Maya van Rossum, Delaware Riverkeeper
From: Mark Stout
Subject: Supplement to my 14 December 2015 "Comments on the PennDOT
Determination of Effects Report on the Headquarters Road Bridge" report
Date: 18 January 2016

In our report to you entitled "Comments on the PennDOT Determination of Effects Report on the Headquarters Road Bridge," dated 14 December 2015, we analyzed the assertion in PennDOT's report that there is a "site-specific safety problem" at the Headquarters Road Bridge and found it unpersuasive. An important element of that analysis was a review of the crash history at the bridge. We reviewed (1) ten Tincum Township police reports of accidents in the vicinity of the bridge for the period 2003 to 2010 provided to us by the township and (2) those elements of the "PennDOT Crash History Summary" which were available to us at the time. Since the submission of our 14 December report, we have received previously missing information from the "PennDOT Crash History Summary," specifically, the "CDART Crash Resume Data," a summary of the ten accidents PennDOT used in reaching the conclusions stated in the Determination of Effects report. The purpose of these supplementary remarks is to review our assessment in light of the fresh data received.

You will recall that in our analysis of the 10 accident reports provided by Tincum Township we determined that 3 were located on or at the Headquarters Road Bridge, 1 was nearby, and 6 were unrelated to the bridge. This determination was based on a review of the narratives and sketches included in the police reports as well as field visits. My colleague Bill Anderson, an experienced traffic engineer and former Manager of the Bureau of Traffic Engineering at the New Jersey Department of Transportation, played a critical role in this analysis.

The partial "PennDOT Crash History Summary" available to us for our 14 December 2015 report also identified only 3 crashes actually located at the bridge out of a total of 10 crashes summarized. However, as we stated at the time, comparison of the 10 records supplied by Tincum Township and the summary analysis in the "PennDOT Crash History Summary" suggested that the two lists might not be identical.

The new data enables us to compare the two lists in detail. The newly available PennDOT "CDART Crash Resume Data" provides summary data for 10 accidents, including exact location by milepost and "offset" (distance in feet from the nearest milepost).

A collision diagram illustrating the crashes found in the lists is attached. The diagram is based on details identified in the crash reports and on locations referenced to the PennDOT Straight Line Diagram.

We find the following in comparing the two lists:

- Only 3 crashes are on both the Township and PennDOT lists.
- All 3 duplicate reports are of crashes at or near the bridge.
- Of the 7 PennDOT reported crashes which are not on the Township list (and are also not at or near the bridge), 5 are located to the west of the bridge (4 of these west of the intersection with Red Hill Road) and 2 are located east of the bridge in the area of the curve discussed in our 14 December 2015 report. **None of these 7 crashes has any relation to Headquarters Road Bridge.**

The 3 crashes identified on both lists are:

1. 24 October 2003. Our description (from the 14 December 2015 report): "A vehicle driving westbound on Headquarters Road attempted a left turn onto the bridge and slid on an icy road surface on the bridge, resulting in contact with the bridge wall." This crash occurred at the bridge but in our opinion was not caused by the geometry of the bridge. There is nothing in the CDART Crash Resume Data report to contradict this assessment.
2. 7 May 2006. Our description: "A motorcyclist reported losing control of his eastbound motorcycle on loose gravel as he entered the bridge." This crash occurred at the bridge but in our opinion was not caused by the geometry of the bridge. There is nothing in the CDART Crash Resume Data report to contradict this assessment.
3. 6 July 2007. Our description: "A vehicle driving westbound was reported as having made contact with a fence or wall near the bridge. Based on the limited description and the police sketch, the vehicle probably made contact with the fence on the western end of the bridge." PennDOT evidently considers this crash to be at the bridge. We believe it occurred at some point west of the bridge, not at the bridge. The location data provided by PennDOT is ambiguous, but the police narrative, sketch, and coding ("hit fence or wall," as distinguished from other possible choices, such as "hit bridge pier or abutment," "hit parapet end," "hit bridge rail," or "hit concrete or longitudinal barrier") all suggest contact with the fence west of the bridge. In any event, in our opinion the crash was not caused by the geometry of the bridge. There is nothing in the CDART Crash Resume Data report to contradict this assessment.

There is one crash on the Township list ó but not on the PennDOT list ó which we determined to be at the bridge:

1 April 2006. Our description: "An unregistered, uninsured vehicle left the scene of the crash while the driver and passengers were out for a "joyride." Details of the crash are minimal but do indicate that contact was made with the Jersey barrier on the bridge." This crash occurred at the bridge but in our opinion was not caused by the geometry of the bridge.

We draw the following conclusions from this analysis:

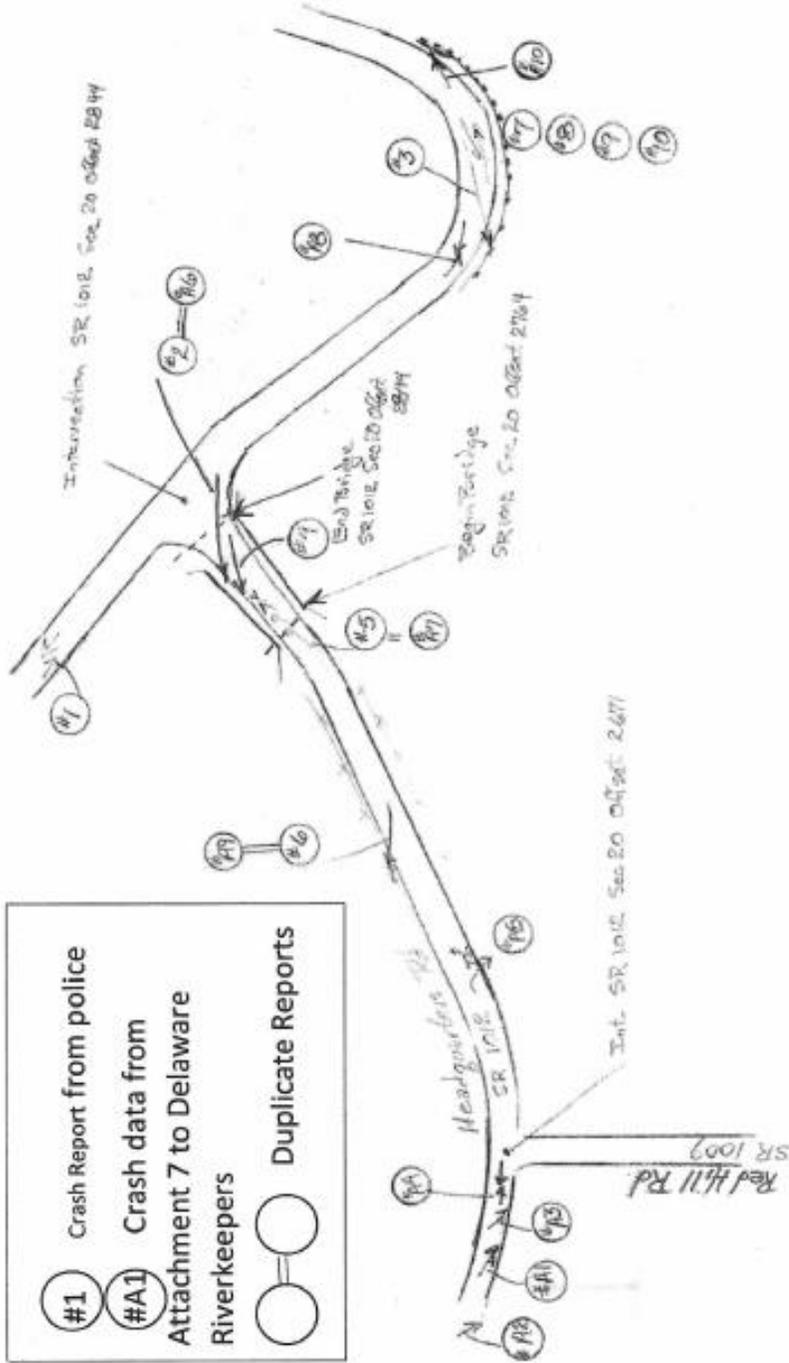
First, there were ó at most ó 4 crashes on or at the Headquarters Road Bridge during the last ten years of its service.

Second, the òPennDOT Crash History Summaryö leaves the impression that 10 crashes occurred on or at the bridge, when the CDART Crash Resume Data report clearly identifies only 3.

Third, there is no evidence that the 3 (or 4 using a more generous definition) crashes that occurred on or at the bridge were caused in any way by the geometry or condition of the bridge.

Fourth, the crash history points to problems at the curve to the east of the bridge (which we discussed in the 14 December 2015 report) and at the curve west of Red Hill Road (which we did not analyze but which show several accidents in the PennDOT data), not at the bridge.

Finally, the additional data provided in the CDART Crash Resume Data report reinforces our opinion that the crash history does not support the conclusion that there is a site-specific safety problem at the Headquarters Road Bridge.



COLLISION DIAGRAM
 Headquarters Rd near Bridge over Tinicum Creek
 Tinicum Twp., Bucks Co.
 12/21/2015