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February 26, 2021

Mr. Jeff Maiden, P.E., P.S.
County Engineer
Athens County Engineer's Office
16000 Canaanville Road
Athens, Ohio 45701

RE: Updated Crash History Review for Johnson Road at US-33, The Plains, Athens County, Ohio

Dear Mr. Maiden:

In late March 2020, at your request, I reviewed the SR 682/JOHNSON ROAD TRAFFIC STUDY prepared by ODOT District 10 dated March 6, 2020 and the accompanying PowerPoint slides dated March 23, 2020 that you provided to me. The review that I performed at that time focused on the safety elements of the study and I focused on reviewing the previous crash history that occurred between 2009 and 2019 at the subject intersection, specifically reviewing Figures 1 and 2 in the study. I did not review the traffic operations analyses of how closing Johnson Road at US-33 will impact SR 682 and the intersecting roads. The observations, analyses, and conclusions that I offered in my letter addressed to you on March 23, 2020 remain valid to this day.

Following the conversation we had, I pulled historical crash data from ODOT's online GIS Crash Analysis Tool (GCAT) for the time period beginning in January 2016 through January 2021 at the following locations along US-33:

- US-33 at Johnson Road/River Road (at-grade intersection)
- US-33 interchange at SR 682 (grade-separated interchange)
- US-33 at SR 682 (at-grade intersection)

US-33 at Johnson Road/River Road. During the five (5) plus year period from 2016 to 2021, a total of twenty-three (23) crashes occurred at the at-grade intersection itself or within the intersection influence area. For the purpose of this analysis, the intersection influence area extends eight hundred (800) feet up- and downstream of the at-grade intersection along US-33. Of the twenty-three (23) crashes that occurred, eight (8) of the crashes involved animals and are typically removed from crash analyses because they occur randomly and cannot be modeled and/or analyzed by Highway Safety Manual (HSM) methodologies. Of the remaining fifteen (15) crashes that occurred over the five (5) plus year period, only five (5) total were located within the bounds of the intersection itself. The remaining ten (10) crashes were located either up or downstream of the intersection itself on US-33. The five (5) intersection-related crashes during this five (5) plus year period include three (3) left turn, one (1) angle, and one (1) right turn crash types. For more information on the

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crashes that occurred between 2014 and 2019, please refer back to my March 23, 2020 letter. A total of four (4) crashes within the intersection influence area occurred during 2020 and January 2021. Two (2) of the four (4) crashes involved animals. The other two (2) crashes that occurred:

- A left turn angle crash occurred on March 10, 2020. The crash involved a vehicle turning left from westbound US-33 turning to southbound Johnson Road. A motor vehicle traveling on eastbound US-33 struck the left-turning vehicle. I inspected the crash report and this crash included suspected minor injuries. **This crash would have been avoided if the median crossing is permanently closed.**
- A sideswipe-passing crash occurred on January 25, 2021 on eastbound US-33. This crash occurred outside of the intersection influence area when a vehicle made an improper lane change and collided with another vehicle. **This crash likely would have occurred regardless of whether the median crossing is closed and/or Johnson Road is closed.**

Beginning with crashes that occurred as early as January 2014 through January 2021 (a seven plus year period), I believe that a total of eight (8) crashes may be avoided through the closing of the median crossing. In my letter dated March 23, 2020, I wrote that seven (7) crashes would be reduced between 2014 and 2019. The eight (8) crashes are all dangerous left-turn angle crashes that include varying severity of injuries. **I remain in support of the State's conclusion to close the median crossing as an appropriate safety countermeasure.**

Similarly, a total of thirteen (13) crashes may be avoided through the closing of the median crossing (8 crashes avoided) and the closing of Johnson Road to US-33 (5 crashes avoided). These five (5) crashes would have been avoided without the right-in/right-out movements to/from Johnson Road. I remain in opposition to the State's conclusion to close Johnson Road to US-33 to address safety issues. In my letter dated March 23, 2020, I wrote that five (5) crashes would be reduced between 2014 and 2019 with all five (5) occurring before 2017. Only one (1) of these five (5) crashes included an injury severity. **At this time, I recommend the State close the median crossing while continuing to monitor the types and patterns of crashes that may lead to reconsidering closing Johnson Road to US-33 in the future.** The total number of crashes (five) over a seven (7) year plus period is not significant enough. Additionally, no crashes that would be avoided by closing Johnson Road have occurred since 2016. These crashes have not occurred in more than four (4) years.

I pulled historical crash data at the next two (2) locations as a point of comparison and I am providing a high-level summary of the crashes that occurred at each location during the five (5) plus year period.

US-33 interchange at SR 682. During the five (5) plus year period from 2016 to 2021, a total of twenty-two (22) crashes occurred at the interchange itself or within the interchange influence area. For the purpose of this analysis, the interchange influence area extends eight hundred (800) feet up- and downstream of the merge/diverge points of the interchange along US-33 and along SR 682 three hundred (300) feet up and downstream of the ramp intersections. A high number of crashes, ten (10) of the twenty-two (22), involved injuries. Injuries involved in 45.5 percent of crashes is relatively high considering the statewide average for injury crashes at different interchange elements (merge/diverge points, ramp terminals) is around thirty percent (30%). Rear-end crashes are also over-represented with eight (8, 36.4%) crashes occurring in the interchange influence area. Of the ten (10) crashes that included injuries, two (2) were rear-end crashes, two (2) involved striking fixed objects, two (2) were sideswipe-passing crashes, two (2) involved left-turners, while one (1) each were a head on and angle crash. Other than in 2018 when seven (7) crashes occurred, in no other year did more than four (4) crashes occur at the interchange. No crash pattern was particularly outstanding beyond the high percentage of injury-related crashes. A deeper investigation and review of historical crashes at this location should be performed before generating additional traffic to this interchange.

US-33 at SR 682 intersection. During the five (5) plus year period from 2016 to 2021, a total of five (5) crashes occurred at the at-grade intersection itself or within the intersection influence area. Four (4) of the crashes involved only property damage, while one (1) crash included a fatality and injured motorists. Of the five (5) crashes, one (1) each involved a vehicle striking an animal, a vehicle striking a fixed object, a sideswipe-passing crash with two (2) vehicles, a right turn angle crash, and an angle crash that included the fatality. Two (2) crashes occurred in 2016, one (1) in 2018, and two (2) in 2020.

- An angle crash occurred on May 27, 2020. The crash involved a vehicle turning left from southbound SR 682 turning to eastbound US-33. A motor vehicle traveling on westbound US-33 struck the left-turning vehicle. This crash included one (1) fatality and, additionally, three (3) injured persons. Two (2) of the injuries were incapacitating.

Three (3) of these five (5) crashes could be avoided if either the median crossing is closed (1 crash avoided) and/or SR 682 is closed at US-33 (3 crashes avoided). While the crash history does not currently show a pattern that suggests either countermeasure is needed at this point, the implementation of either countermeasure has the potential to avoid dangerous crashes like the one that occurred in May 2020 that could result in another fatality or serious injury.

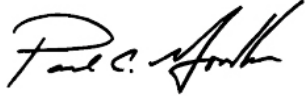
Conclusion. In the absence of further data and analysis to review, I support the alternative that closes the median opening based on the crash history and safety concerns. Once the median opening is closed, I recommend that the crashes at the Johnson Road intersection are further monitored to see if they indeed remain at zero (like they have for the past four plus years) or are low both in volume (below 1 crash per year) and in severity (no injury/fatality pattern).

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Should you have any questions or need additional information, please contact me by phone at 937-271-7778 or via email at paul.goodhue@goodhueconsulting.com.

Sincerely,

Goodhue Consulting, Inc.

A handwritten signature in black ink, appearing to read "Paul C. Goodhue". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Paul C. Goodhue, P.E, PTOE
President