

Paul C. Goodhue, P.E., PTOE
Goodhue Consulting, Inc.
9191 Glenridge Boulevard
Centerville, Ohio 45458

March 23, 2020

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

RE: Traffic Study Review for Johnson Road at US-33, The Plains, Athens County, Ohio

Dear Mr. Maiden:

At your request, I have reviewed the SR 682/JOHNSON ROAD TRAFFIC STUDY dated March 6, 2020 and the accompanying PowerPoint slides dated March 23, 2020 that you have provided to me.

The review that I performed was focused on the safety elements of the study and I have focused on reviewing the previous crash history that has occurred between 2009 and 2019 at the subject intersection, specifically reviewing Figures 1 and 2 in the study. At this time, I have not reviewed in detail the traffic operations analyses of how closing Johnson Road at US-33 will impact SR 682 and the intersecting roads.

Prior to the construction of the directional curbing and delineators in September 2013, a total of 16 crashes involving multiple vehicles occurred during a 5-year period encompassing the entire calendar years of 2009 through 2013. Significantly, most of the crashes (12 of 16) that occurred during that time period were of a variety of angle crash types, which typically have high injury severity and/or fatalities. Six of these 16 crashes (38%) in that 5-year period included injuries and 1 crash included a fatality. The intersection, as it was operating prior to the construction of the directional curbing and delineators, was clearly dangerous. The intention of the countermeasures implemented was to reduce the angle crashes that included vehicles traveling from the minor street approaches (Johnson Road and River Road) and destined to turn left or proceed straight through the dangerous intersection. Had these movements been effectively restricted between 2009 and 2013, five of the 16 crashes may have been prevented during this time period. These 5 crashes included 2 injury crashes (40%) and 1 fatal crash. The addition of low-cost directional curbing and delineators on each of the minor streets was expected to bring a high safety benefit.

With greater restriction of the left and through movements through the construction of the directional curbing and delineators in September 2013, a total of 12 crashes occurred during a 6-year period encompassing the entire calendar years of 2014 through 2019. An inspection of all the crashes in this period as well as what potential countermeasure would be most effective at mitigating them is below:

- Two (2) of the crashes (1 each in 2014 and 2018 and neither involving injuries) involved motorists ignoring the restriction for through and left turning movements from Johnson Road and River Road (1 each). These crashes could have been prevented *only* if the motorist exiting these roads had complied with the restrictions of these movements. The directional curbing and delineators were effective though as crashes were effectively reduced from 5 total in a 5-year period (2009 to 2013, 3 of the 5 included an injury or fatality) to 2 total in a 6-year period (2014 to 2019, neither of which included an injury or fatality). **Closing the median would eliminate these two crashes.**
- One (1) crash (2014) was a sideswipe type with a motorist in the US 33 westbound left turn lane and with a passing motorist in the through lane. Having one sideswipe crash in 11 years of data does not indicate that sideswipe crashes are particularly common or concerning. However, restricting the left turn movement by **closing the median would eliminate this one crash.**
- Three (3) crashes (1 in 2014 and 2 in 2015) were rear end crashes occurring on the Johnson Road approach to US-33. One of the 2015 crashes included an injury. The most effective way to prevent these crashes from occurring is to **remove the at-grade intersection of Johnson Road with US-33.**
- Two (2) crashes (1 in 2015 and 1 in 2016) were right turn angle crashes involving Johnson Road right turning traffic colliding with US 33 eastbound through traffic. The best way to eliminate these crashes is to **remove the at-grade intersection of Johnson Road with US-33.**
- Three (3) crashes (all in 2019) were left turn angle crashes involving US 33 westbound left turning vehicles with eastbound through vehicles. A countermeasure that would prevent these dangerous crashes, all of which included injuries, would be to restrict the left turn movement. **Closing the median would accomplish this most effectively.**
- One (1) crash (2019) was a rear end crash occurring in the US 33 westbound left turn lane. Having one of these crashes in 11 years of data does not indicate that these rear end crashes are particularly common or concerning. However, the only way to eliminate this crash type would be to restrict the left turn movement. **Closing the median would accomplish this most effectively.**

The traffic study offered two primary alternatives to mitigate the crash history at this dangerous intersection. First, the closing of the crossing by constructing a median will firmly prohibit the already restricted dangerous left and through movements on the minor streets (Johnson and River Roads) and now restrict left turns from east and westbound US 33. The study offers variations of this alternative that include right turn acceleration and/or deceleration lanes on eastbound US-33 and ultimately concludes that neither lane is feasible. The median alone, had it been constructed in 2013, could have potentially reduced the number of crashes from 12 over a 6-year period (2014 to 2019) to 5 crashes, a 58% reduction. Under this alternative, both Johnson Road and River Road would each function with right-in/right out movements only. The construction of a median only, including the

Mr. Jeff Maiden
March 23, 2020
Traffic Study Review for Johnson Road at US-33, The Plains, Athens County, Ohio

removal of the US-33 left turn lanes, would have a relatively low cost compared to a high benefit of reducing 7 dangerous crashes (1 injury).

The second alternative adds the closing of Johnson Road just south of US-33 to the construction of the median described in the first alternative above. This additional countermeasure would address the remaining 5 crashes while also adding the cost of removing Johnson Road south of US 33 and constructing a cul-de-sac. Timing changes would also need to be made at the studied traffic signals along the SR 682 corridor as well. In addition, travel routes, including for Athens High School, Athens Messenger, two churches, several shops at the Eclipse Development, and housing, will be impacted. In the study provided by ODOT, they indicated that crashes due to the right turns from Johnson Road onto US 33 eastbound have increased recently. An inspection of the crash diagrams shows that none of these 5 crashes has occurred since 2016, with none occurring in calendar years 2017, 2018, and 2019. While the initial 3-year period (2014 to 2016) included 5 crashes, the most recent 3-year period includes zero crashes.

In my opinion, the directional curbing and delineators installed in 2013 proved to be an effective countermeasure, directly reducing crashes at the intersection for the crash patterns they were aimed at mitigating. However, they were never intended to mitigate the most dangerous crashes that remain at the intersection today. These crashes can be mitigated by removing the median crossing and I support this countermeasure.

However, the crash history, currently, at this intersection does not support the additional countermeasure that calls for closing off Johnson Road at US-33. There is no discussion in the study that explains the predicted or expected safety performance of this intersection based on implementing variations of the countermeasures offered in the study and instead detail how the alternatives address the past crash history, but not reducing expected crashes. Additionally, I have not reviewed or been provided with a copy of the associated safety analyses (CAMTool, ECAT, cost estimates, etc.) and without seeing those, I find it unlikely that the cost-to-benefit ratio would support closing the at-grade intersection.

In the absence of further data and analysis to review, I support the alternative that closes the median opening. 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 3 years) or are low both in volume (below 1 crash per year) and in severity (no injury/fatality pattern).

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.



Paul C. Goodhue, P.E, PTOE
President