September 9, 2019

D. Grant Crawford
City of Gahanna
Department of Public Service & Engineering
200 S. Hamilton Road
Gahanna, OH 43230

RE: Results of the Heat Map & Improvements Congestion Impacts Study

Mr. Crawford:

We have completed the assigned traffic congestion study and heat map for the City of Gahanna. The analysis, results, conclusions, and recommendations are documented below.

Background and Analysis

Carpenter Marty Transportation was retained to complete additional study/analysis relative to the Gahanna Thoroughfare Plan. The purpose of this study is to determine if addressing capacity issues at certain intersections would aid in alleviating traffic congestion in certain corridors. Situations can exist in which improving an intersection does not always lead to improved traffic flow through a corridor. Some intersections or roadways adjacent to an improvement are already at capacity and cannot handle the additional traffic demand a nearby capacity improvement will produce. For instance, mitigating delays at one intersection in a series only pushes the problem to a downstream intersection that may have existing capacity issues. Therefore, the improvement results in insignificant benefit for the overall corridor traffic flow. A traffic congestion Heat Map (attached) was created to help determine the levels of congestion at Gahanna intersections and the roadway links between them. This map will help Gahanna prioritize improvements on a wholistic level, focusing on locations where the congestion will not just transfer to adjacent roadways or intersections.

Results and Conclusions

Intersections that have capacity issues according to the Heat Map are listed below as well as some recommendations to improve each intersection. Some recommended improvements may not mitigate existing issues for all movements at each intersection due to capacity issues that are not related to the intersection.

- **US-62 and W. Olde Ridenour Road:** Improvements to this intersection could improve traffic flow in the north and south directions and would likely be less effective in the east and west directions. The roadways to the east and west are at capacity and this intersection is not the limiting factor slowing traffic in this corridor.
- **W. Johnstown Road and IR-270:** Improvements at this intersection could lead to improved traffic flow in all directions as capacity exists on adjacent roadways and intersections to handle additional volumes.

6612 Singletree Drive Columbus, Ohio 43229 ▪ 614.656.2424 ▪ www.cmtran.com

- **Taylor Road and Morrison Road:** Improvements at this intersection could improve traffic flow in the north and south directions on Morrison Road. Taylor Road (west) is constrained by capacity issues on Taylor Road.
- **US-62 and Stygler Road**: Improvements to this intersection could improve travel for three of the four approaches. Traffic moving north, south, or west could be improved. Traffic traveling in the east direction could see improvement at this intersection but would likely create more congestion at adjacent intersections to the east. This intersection is the gateway entry for traffic traveling to/from areas west of Gahanna. It sees significant volume throughout most of the day. Analysis developed for the West Side Intersection Improvements project determined that this intersection could benefit from improvements. However, the intersection of Granville Road (US-62) and Mill Street is another bottleneck within Gahanna approximately 0.5 miles east of this intersection. Intersection improvements at US-62 and Stygler Road could push additional volume to the Granville Road and Mill Street intersection.

Additional Discussion

The capacity results shown on the Heat Map were based solely on peak hour and 24-hour traffic counts. In some cases, traffic counts may not reflect true traffic demand at an intersection, especially when capacity and queuing issues are present. The Heat Map analysis and results were conducted on a large scale, as a big-picture view of congestion in the City overall. The conclusions drawn above from the Heat Map must be checked against field observations, which were not included in the scope of this study. We suggest a meeting with City officials to go over these results and compare them to their field knowledge of the City's congestion. This information could fine tune this Heat Map and conclusions drawn above. This would allow the City to confidently select possible future improvement projects that would most benefit traffic flow in the City and not transfer capacity issues to nearby intersections. Detailed analysis for any proposed improvement projects is recommended before design and implementation to determine the true impacts.

This concern of an improvement project moving an existing congestion issue to adjacent intersections is common to all cities with congestion. However, this should not deter the City from implementing a project that can provide improvements, especially when it will lead to crash mitigation. Congestion issues cannot be fixed by one large-scale project due to funding constraints suffered by all agencies. Congestion improvements are typically implemented one intersection at a time. Improving an intersection only to have that congestion move to an adjacent intersection may still be a positive impact. Later funds may be utilized to improve that adjacent intersection.

6612 Singletree Drive Columbus, Ohio 43229 ▪ 614.656.2424 ▪ www.cmtran.com

If I can help in any way, do not hesitate to contact me at jgallagher@cmtran.com or 614.286.0822 anytime.

Sincerely,

John Gallagher, MS, PE, PTOE
Director of Traffic and Planning Services
Carpenter Marty Transportation

6612 Singletree Drive Columbus, Ohio 43229 ▪ 614.656.2424 ▪ www.cmtran.com