TRAFFIC ENGINEERING SERVICES, INC.

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December 22, 2011

Michael Lemens
Director/City Engineer
City of Kenosha
625 52nd Street
Kenosha, WI 53140

RE: Wal-Mart Store No. 70824 – Traffic Impact Study Review

Location: City of Kenosha
52th Street and 30th Avenue (NW Quadrant)
Kenosha County

Dear Mr. Lemens,

A review of a Traffic Impact Study (TIA) prepared by Traffic Analysis and Design for a Wal-Mart development in the City of Kenosha, Kenosha County Wisconsin has been completed. We concur with the recommendations and conclusions set forth in this TIA with one access design change defined below. In addition to the recommendation and conclusions in the TIA additional comments and recommendation are noted below.

General Comments:

Chapter 1

1. Chapter 1 is an Executive Summary therefore the comments for this information will be summarized through the review of the remaining chapters.

Chapter II

1. The area of influence and study intersections defined in Chapter II part B1 and B2 are sufficient. The development traffic disperses beyond these intersections and development traffic accounts for less than 20% to any one movement at the adjacent intersections.
2. We concur with the conservative approach of using high generator land uses for the two outlots.

Chapter III

1. The Peak Hour time periods studied are AM Peak Hour 7:45-8:45 AM , PM Peak Hour 3:15 - 4:15 PM, and Saturday 12:00 -1:00PM. The AM peak hour is later and the PM peak hour is earlier than what is typically found however in review of the count data the time periods are accurate and we concur with these times.

2. The peak hour operating conditions analysis for 2011 background traffic has been reviewed. Synchro software was used for analysis as well as a gap study. In general the input parameters used are acceptable and standard for this type of analysis. The Gap study does indicate there is additional capacity at 52nd Street and 32nd Avenue. It has been found that when Synchro software nears capacity of a turning movement that the software tends to overestimate the delay. The Gap study in this case confirms the additional capacity of this intersection and particularly the southbound approach.
3. A gap analysis was performed at the proposed access location on 52nd Street. The Gap analysis was reviewed and we agree with the findings regarding the number of gaps and the seconds of gap time.

Chapter IV

1. We agree with the conservative approach of using a 1% annual growth rate even though in there has been a steady decline in traffic volumes in the area.
2. The ITE Land Use code 813 Free-Standing Discount Superstore and Land Use Code 934 Fast-Food Restaurant with Drive-Through Window are the appropriate Land Use Codes to be used to develop the trips generated for this type of retail development.
3. The pass-by trip and linked trip percentages have been reviewed. We agree with the percentages used for this analysis.
4. Trip Distribution and Trip Assignment has been reviewed and we agree with the percentages used for analysis as well as the assignment to the study intersections.
5. The Build Year of 2011 and 2021 traffic volumes have been reviewed and we agree with the traffic volumes that will be used for analysis.

Chapter V

1. Year 2021 Background Traffic operating conditions were reviewed and similar to the year 2011 Background Traffic conditions the Gap study results were used for the Southbound approach. We agree with the results.
2. Year 2011 and Year 2021 Build Traffic operating conditions were reviewed and similar to the previous analysis Synchro was used in most cases and the gap study results were used for the turn movements that were at capacity according to Synchro Software. We agree with the results.
3. A warrant analysis was completed for 52nd Street and the Wal-Mart access driveway. The Warrant report input and output has been reviewed and we agree with the analysis and results. Typically when an exclusive right turn lane is part of the geometry the right turn volume is excluded from the analysis and this is the case with the southbound right turn lane for the Wal-Mart driveway. In this case due to the heavy volume on 52nd Street and the delay that the right turn may experience an alternative of using 25% right turn volume could also be used. Even with this additional volume added the warrants would still not be met.
4. Queueing Analysis has been reviewed and we agree with the results.

Chapter VI

1. We concur that there are no improvements needed to for Year 2011 and Year 2021 Background Traffic.
2. We concur with the recommendations for the Year 2011 and Year 2021 Build Traffic for the access to 30th Avenue and access to 32nd Avenue.

3. We have reviewed the recommendation for a full access intersection at the Wal-Mart driveway and 52nd Street. The southbound approach at the Wal-Mart access to 52nd Street operates at a poor level of service. We recommend limiting the access to 52nd Street to a right in and right out rather than a full access. The access to 32nd Avenue can accommodate the left in volume via the intersection of 52nd Street and 32nd Avenue for volume entering from the west. The left out volume can utilize the access to 30th Avenue and then utilize the signalized intersection of 52nd Street and 30th Avenue for volume exiting the site to the east. We would recommend limiting parking on 32nd Avenue from the Wal-Mart access south to 52nd Street.
4. We would recommend striping the intersection of 52nd Street and 32nd Avenue to include an eastbound 100' left turn lane and westbound 50' left turn lane. This configuration can be accomplished similar to the pavement marking for the eastbound approach to 52nd Street and 30th Avenue. The through lane would be reduced in width to accommodate the left turn bays.

Appendix

1. It is recommended to have the Synchro input/output files reprinted. The text and numbers within the printout is disorganized.

In general we concur with the recommendations and conclusions set forth in the TIA and with the change in access design, defined above, to the Wal-Mart access to 52nd Street we agree that the study intersections will operate with safe and efficient operations through 2021.

If you have any questions regarding the review please contact Wayne R. Higgins or Jim Bojar in our office.

Respectfully Submitted,

Wayne R. Higgins

Wayne R. Higgins, PE, PTOE, TSOS
President