TRAFFIC IMPACT STUDY PROCEDURES

Hughes County, SD

February, 2020

The procedures described in this guide outline the minimum standards for a traffic impact study in support of any development proposal in Hughes County, SD. Traffic consultants are encouraged to discuss projects with the County prior to starting the study. Topics for possible discussion at such meetings might include directional distribution of traffic, definition of the study area, intersections requiring capacity analysis, and methods for projecting build-out volumes. This should provide a firm base of cooperation and communication between the County, the owner or developer, and the consultant in creating traffic conditions that are in the best interest of the total community. Specific requirements will vary depending on the site location. However, all traffic reports shall contain, as a minimum, the following information:

1. Introduction
    a. Land Use, Site, and Study Area Boundaries. A brief description of the size of the land parcel, general terrain features, the location within the jurisdiction and the region should be included in this section. In addition, the roadways that provide access to the site, and are included in the study area, should be identified.

       The exact limits of the study area should be based on engineering judgment and an understanding of existing traffic conditions at the site. In all instances, however, the study area limits shall be mutually agreed upon by the developer, the design professional, and County staff. These limits will usually result from initial discussions with staff. A vicinity map that shows the site in relation to the surrounding transportation system should be included.

    b. Existing and Proposed Site Uses. The existing and proposed uses of the site should be identified in terms of the various zoning categories of the County. In addition, the specific use for which the request is made should be identified, if known, since a number of uses may be permitted under the existing ordinances.

    c. Existing and Proposed Uses near the Site. A complete description of the existing land uses near the site as well as their current zoning and use should be included. The developer should also state the proposed uses for vacant adjacent land in order that any proposed transition in uses is identified. This latter item is especially important where large tracts of undeveloped and/or underdeveloped land are in the vicinity of the site and within the prescribed study area. Generally, much of this information can be obtained from the initial meetings with the County's planning staff.

    d. Existing and Proposed Roadways and Intersections. The developer must describe roadways and intersections within the study area as well as improvements contemplated by government agencies. Intersection descriptions will include number of lanes on each approach and intersection traffic control. Improvement descriptions shall include the nature of the Improvement project, its extent, implementation schedule, and the agency or funding source responsible.

2. Trip Generation and Design Hour Volumes
    a. Trip Generation Table. Provide a summary table listing each type of land use, independent variable, quantity, average trip generation rates used (total daily traffic and a.m./p.m. peak hours), and the resultant total trips generated.
    b. Trip Generation Method. Calculate trip generation from the latest data contained in the *Trip Generation Manual*, published by the Institute of Transportation Engineers (latest edition). In event that data is not available for the proposed land use, the County must approve estimated rates prior to use.

    c. Design Hour Volumes. Calculate design hour volumes generated by the site based on trip generation.

3. Trip Distribution – Calculate the portion of the site-generated traffic that is expected to use each site access point. Calculate the distribution of site-generated traffic to the study area entry/exit points based on existing traffic counts. Clearly state the technical analysis steps, methods, and assumptions used in this work.

4. Trip Assignment – Describe the utilization of study area roadways by site-generated traffic. Combine anticipated site traffic volumes with existing and projected traffic volumes to determine mainline and turning movement volumes for future conditions with the site developed as proposed. Internal trips in excess of 10 percent will require analytical support to demonstrate how the higher figures are derived. Non-generated passerby traffic reductions in generation volumes may be considered, if applicable. All estimates of trip distribution, assignment, and modal split are subject to review and approval by the County.

5. Existing and Projected Traffic Volumes
    a. Graphics should show:
        i. A.M. and P.M. peak hour site traffic (in and out) including turning movements
        ii. A.M. and P.M. peak hour total traffic, comprised of site and background volumes, including turning movements, for current conditions and 20 years in the future.
    b. Provide all traffic count data and analysis worksheets in report appendices. Total daily traffic counts should be actual counts and not based on factored peak hour sampling. Latest available counts from the South Dakota Department of Transportation, Hughes County, or other agencies may be acceptable if not more than two years old.

6. Capacity Analysis – Conduct capacity analysis for roadway intersections at driveways for the proposed development. Conduct capacity analysis for roadway intersections within the previously defined study area. Analyze daily traffic volumes and relevant peak hour volumes for existing and 20-year forecast conditions. Conduct capacity analyses using Highway Capacity Manual methods using the latest edition of Highway Capacity Software (HCS, FHWA and McTrans Center/University of Florida).

7. Traffic Signals
    a. Determine the need for new traffic signals using the warrant procedures in the *Manual on Uniform Traffic Control Devices (MUTCD)*, latest edition.

b. Acceptable cycle lengths for capacity analysis and signal timing are between 50 and 120 seconds. The County Highway Superintendent may approve cycle lengths outside this range. Left-turn phases shall have a minimum split of at least 10 seconds. Thru phases shall have a minimum split of at least 20 seconds, unless approved by the County Highway Superintendent, and no less than the time required for a pedestrian to cross the roadway in accordance with the latest edition of the MUTCD.

8. Level of Service – The design objective for all new roadway components and signalized intersections shall be Level of Service (LOS) C during the peak hour. Individual signalized approaches shall be designed to at least LOS D for arterial roadway approaches or LOS E for collector/local/private roadway approaches, with no individual movement having a volume/capacity ratio of greater than 1.00. Existing corridors with established adjacent development shall be designed to LOS D. The design year will be the 20-year planning horizon. Levels of service shall be as defined in the *Highway Capacity Manual*, latest edition.

9. Traffic Safety – Traffic crash data for affected roadway corridors may be required for the study. Where this is necessary, estimates of increased or decreased crash potential shall be evaluated for the development.

10. Recommendations – In the event that analysis indicates unsatisfactory levels of service on study area roadways, a description of proposed improvements to remedy deficiencies shall be included in the study report. In general, the recommendations section should include:
    a. A description of the location, nature, and extent of proposed improvements needed to provide sufficient roadway capacity.
    b. An iteration of the capacity analysis that demonstrates the anticipated results of making the proposed improvements.

11. Conclusion – The last chapter of the report must be a clear, concise description of the study findings. This concluding chapter will also serve as an executive summary.

12. Revisions – Revisions to the traffic report must be provided as required by the County Highway Superintendent. The need to require revisions will be based on the completeness of the traffic report, the thoroughness of the impact evaluation, and the compatibility of the study with the proposed access and development plan.

13. Submittals – The developer shall submit the following to the County Highway Superintendent:
    a. Draft Traffic Impact Study report – 2 paper copies, electronic files of traffic data and analysis
    b. Final Traffic Impact Study report – 1 paper copy, 1 PDF copy, any revised traffic data and analysis electronic files