

**UDO-CC6**  
**A TEXT AMENDMENT PROPOSED BY PLANNING AND DEVELOPMENT**  
**SERVICES STAFF TO AMEND SECTION 12.2 OF THE UNIFIED DEVELOPMENT**  
**ORDINANCES RELATING TO TRAFFIC IMPACT STUDY STANDARDS**  
**(VERSION REFLECTING ALL PROPOSED CHANGES)**

Be it ordained by the \_\_\_\_\_, North Carolina, that the Unified Development Ordinances is hereby amended as follows:

**Section 1.** Section 12.2 Traffic Impact Standards is amended as follows:

## 12.2 TRAFFIC IMPACT STUDY STANDARDS

### A. INTENT

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1. These standards are intended to provide the City-County Planning Board, and all other local elected and appointed boards within Forsyth County the information necessary to make informed decisions regarding planned development impacts to traffic on their roads.
2. By adopting these standards the City-County Planning Board seeks to ensure that:
  - a. All decisions regarding traffic impacts due to development are based upon technical study, and
  - b. Needed improvements are made in a cost effective and efficient manner.

### B. APPLICABILITY

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1. City-County Planning Board (CCPB) staff, the Winston-Salem Department of Transportation (WSDOT) and/or the North Carolina Department of Transportation (NCDOT) review proposed development plans for traffic impacts. WSDOT and/or NCDOT have the ultimate responsibility for resolving questions concerning traffic impact studies. These agencies may recommend that a traffic impact study be performed for any proposed development that meets the trip generation threshold of this ordinance.
2. Anyone performing a traffic impact study in Forsyth County shall contact WSDOT and/or NCDOT to determine the traffic concerns of each jurisdiction or to request a pre-study conference.
3. These standards are intended to provide structure for the traffic study preparer. Individual study recommendations will be determined on a case by case basis.
4. All traffic impact studies should conform to sound engineering principles and are subject to review by WSDOT and/or NCDOT. The study should be submitted electronically to the Planning Department, the Winston-Salem Department of Transportation and NCDOT Division 9.
5. All methods used for analysis other than those mentioned in these standards shall be explained, and their limitations described in an appendix to the traffic impact study.

## **C. BASIS FOR REQUESTING A TIS**

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1. A traffic impact study shall be required according to any of the following:
  - a. Any proposed Special Use District Rezoning, Planning Board Review, or subdivision that will increase the approach traffic volumes at intersections or roadways by 150 or more vehicles in the peak hour.
  - b. Proposed development in the vicinity of areas previously identified as having levels of service "E" or "F", hazardous locations, or other similar adequacy concerns.
  - c. Where a reduction in safety is expected at intersections or roadways. A traffic signal warrant study may still be requested by NCDOT or WSDOT even if a traffic impact study is not.
  - d. Where a proposed development has been approved by the City-County Planning Board or any elected board in Forsyth County based on recommendation from an acceptable traffic impact study and that project has not been completed within two (2) years of the date of approval, an updated traffic impact study may be required. If changes are made to the pre-approved site plan that will require a new approval from the City-County Planning Board or other elected, a new and/or updated traffic impact study may be required.

This recommendation may be waived by the Director of WSDOT and/or the Division Engineer of NCDOT Division 9 upon written request by the petitioner upon adequate justification for such waiver.

## **D. STANDARDS FOR REVIEW**

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1. A Traffic Impact Study shall only be performed by a Professional Engineer licensed by the North Carolina Board of Registration for Engineers and Land Surveyors, to practice engineering in North Carolina, with experience in the preparation of traffic impact studies.
2. The following areas of investigation shall generally be included in a Traffic Impact Study:
  - a. An examination of traffic flows, exclusive of the site being studied, defined as "background traffic";
  - b. An examination of projected traffic flows when site traffic is added, defined as "total traffic";
  - c. A discussion of mitigation measures (if such measures are recommended);
  - d. An examination of projected traffic flows after the site is developed and mitigation measures are implemented.
3. Traffic shall be examined as follows:
  - a. From data collected by persons or agencies within the defined study area which is no more than two years old at the time of study preparation;
  - b. From traffic counts obtained by the applicant based on the specification established at the pre-study conference.
4. The study area shall be determined as follows:

The study area should include each intersection with a major thoroughfare highway which can be considered as a logical travel path between the site and the major thoroughfare highway network. Major thoroughfare highways are so designated by the Winston-

Salem/Forsyth County Thoroughfare (or Transportation) Plan. The study area(s) should be reviewed and approved by WSDOT or NCDOT prior to preparing the study.

Additional intersections between the site and the major thoroughfare intersection(s) as well as those intersections that are rationally identified as being impacted by a development shall be included in the study area.

5. The design hour shall be determined by:
  - a. The period for the proposed development which will generate the highest traffic volumes; and/or
  - b. The period of highest traffic volumes on the traffic facilities within the study area.
6. The forecast year shall be determined according to some or all of following criteria:
  - a. A scheduled phase or the completion of the project (for this and other projects);
  - b. The Winston-Salem/Forsyth County Comprehensive Plan;
  - c. Locally adopted Transportation or Thoroughfare plan or capital improvement program schedule, or Transportation Improvement Program;
  - d. Major transportation system changes.
7. The following technical procedures and guidelines shall be used:

Roadways and intersections shall be analyzed using the appropriate analysis method as depicted in the latest edition of the Highway Capacity Manual, Transportation Research Board. Additional analyses may be recommended depending on the traffic concerns expressed at the pre-study conference.
8. The minimum standard for traffic operations is defined as follows:

Level of service "D" is the lowest level of service that should be considered adequate for intersections and roadway approaches to intersections in Winston-Salem and Forsyth County. No development should bring a level of service down by more than one level without implementing roadway improvements.
9. Background traffic shall be determined by-thoroughfare classification, as per the most current locally adopted Winston-Salem/Forsyth County Transportation or Thoroughfare Plan document:
  - a. By historic and/or projected traffic increase rates on roads classified as being major thoroughfares (arterial or major collectors); and
  - b. By developments/trips that have been approved (recorded) on roads classified as minor thoroughfares or streets (minor collectors or local roads).
10. Trip Generation, Distribution and Assignment shall be determined using the following:
  - a. The latest edition of the Trip Generation Manual, Institute of Transportation Engineers; or
  - b. Documented local trip generation rates, (as determined through previous or current studies).

Trip distribution shall be determined by using the following:

  - c. Gravity model;
  - d. Trip assignment of the traffic demand forecasting model;
  - e. Utilization of demographic data leading to trip purpose and trip tables;
  - f. Current directional distribution only if no future changes to land use and no improvements to transportation facilities are expected until the design year;
  - g. Trips should be assigned to the study area network during the study's design hour.

11. Pass-by Trips shall be determined by using either of the following:
  - a. The Institute of Transportation Engineers pass-by trip rates; or
  - b. Documented local pass-by trip rates, (as determined through previous or current studies).
12. Traffic shall be apportioned to the proposed project in the following manner:
  - a. First, the projected level of service for the study area is forecast without the proposed project.
  - b. Second, the projected level of service is forecast with the addition of the proposed project.

The two forecasts shall be evaluated to determine whether the traffic projected to be generated by the proposed development will lower the projected Levels of Service (LOS) within the study area to below LOS "D" or one level below the current level of service.
13. When a traffic impact study projects that the intersection(s) or roadway(s) in the study area will meet the level of service standard and other identified recommendations have been addressed, Planning staff shall make no further traffic impact recommendations. However, it is possible that the NCDOT Division Engineer or the Winston-Salem Department of Transportation may still recommend additional analyses and/or improvements.
14. When a traffic impact study projects that the intersection(s) or roadway(s) in the study area will be inadequate then the following alternatives may be considered:
  - a. The project is deferred or reduced in scope so that the level of service standard is not exceeded, or
  - b. A mitigation plan is submitted for review by Planning, WSDOT and/or NCDOT staff. The mitigation plan together with the recommendations of staff are presented to the Planning Board and elected body, where required.
    - i. A mitigation plan is:
      1. An addition to a traffic impact study, (the recommendation for which is identified by preliminary study results);
      2. Intended to identify specific causes of lowered levels of service (traffic impacts);
      3. Recommends improvements that will moderate the effects of projected traffic impacts;
      4. Recommends transportation demand management options.
      5. Examples of possible mitigation plan improvements may include, but are not limited to: construction of new roads, road improvements, traffic signals, ridesharing programs, off-site parking facilities and para-transit, signal timing/phasing changes, channelization modifications, changes in ingress/egress points, reducing the number of entrances, and/or lane widening.
    - ii. Mitigation Plan improvements may be phased and shall be sensitive to the following:
      1. Timing of short-term and long-term network improvements that are already planned, scheduled and/or funded;
      2. Time schedules of adjacent developments;
      3. Size and timing of individual phases of development;
      4. Right-of-way needs and availability of additional right-of-way within appropriate time frames;
      5. Local priorities for transportation improvements and funding;
      6. Local priorities for transportation demand management strategies;

7. Necessary lead time for additional design and construction;
  8. That the sum of improvements are proportional to the projected Impact.  
Analysis of traffic needs by development phase should provide the information needed to determine the appropriate sequence of improvements.
  - iii. The improvements recommended in the mitigation plan are the sole responsibility of the developer to implement unless 100% of construction costs for the projected improvements are in the subject budget year of the seven year Transportation Improvement Program or the local Government's Capital Improvements Program.
  - c. The developer may agree to pay fees to fund the necessary improvements by written agreement with WSDOT and/or NCDOT.
  - d. If the existing level of service is inadequate (i.e., "E" or "F"), or the existing plus background growth (not including the site) causes an inadequate level of service, then the developer shall be expected to mitigate only the traffic to be generated by the proposed project.
  - e. If the proposed development is of significant economic importance it may be recommended that the developer be granted an exception and/or waiver where improvements are scheduled or included in either the NCDOT TIP or locally approved Capital Improvements Program.
15. Additional analyses may be recommended, including but not limited to Sight Distance Analysis, Signal Warrant Analysis, Environmental Analysis, and Traffic Signal Progression Analysis

**Section 2.** This ordinance shall be effective upon adoption.