

## 8. TRAFFIC IMPACT

A. **Purpose and Intent.** The purpose of this section is to ensure that new development and redevelopment does not adversely affect the capacity of streets and intersections to accommodate vehicular traffic safely and efficiently. The intent of this section is to provide the information necessary to allow the town to assess the adequacy of available capacity to meet existing, projected, and proposed demand at adopted levels of service. More specifically, this section intends to:

1. Provide a standard set of analytic tools and format that shall be used to identify a development's expected traffic impact on the road system;
2. Identify traffic problems associated with access to and from a development site; and
3. Require Traffic Impact Analysis (TIA) for to develop improvements or site design modifications needed to solve potential adverse traffic impacts and access problems.

B. **Traffic Impact Analysis (TIA) Defined.** A TIA shall include information to:

1. Evaluate impacts of site-generated traffic on intersections and streets within an impacted area;
2. Evaluate impacts to site access points under projected traffic loads;
3. Ensure site accesses meet professional and accepted engineering design standards;
4. Evaluate site-generated traffic impacts on traffic flow on public streets within the designated impact area;
5. Evaluate the potential for impact on residential streets in the designated impact area; and
6. Identify transportation infrastructure needs and any costs created by the development and any necessary cost sharing for the improvements.

- C. **Applicability.** A TIA is required prior to approval of any zoning map amendment (rezoning), special use permit, site plan and/or preliminary plat that exceeds the following thresholds in one (1) or more development applications submitted for a parcel or parcels under common ownership:
1. The proposed development, or phases of development, or contiguous tracts under the same ownership, would accommodate or could be expected to generate fifty (50) or more added vehicle trips to or from the site during the peak traffic hour (based on the proposed development or the adjacent roads and intersections); or
  2. The proposed development, or phases of development, or contiguous tracts under the same ownership, would accommodate or could be expected to generate five-hundred (500) or more added vehicle trips to or from the site during a twenty-four (24) hour period (based on the proposed development or the adjacent roads and intersections).
  3. In calculating the number of added vehicle trips expected to be generated, trip generation rates must be obtained from the most recent editions of Trip Generation and Trip Generation Handbook, published by the Institute of Transportation Engineers (ITE). Only "new" vehicle trips will be counted; no pass-by or internal trip capture will be used in calculating "added vehicle trips."
  4. If the peak hour and/or daily drip threshold is not met for a proposed development, a trip generation letter and access location and design review analysis are required.
  5. The Land Development Administrator (LDA) may waive the requirement for a TIA upon determining that a TIA is not necessary to determine needed road improvements, that adequate capacity exists to serve the proposed development, and that no unsafe or hazardous conditions will be created by the development as proposed. This decision shall be documented with specific reasoning provided by the LDA.

**D. Preparation of TIA.**

1. The cost of the TIA shall be the responsibility of the applicant of the development. The applicant shall utilize the services of an on-call consultant, hired, or retained by the town, to perform the required TIA.
2. All costs of the TIA by the on-call consultant shall be the responsibility of the applicant, not the town. The required TIA shall be sealed by a licensed professional engineer.

**E. Level of Service.**

1. The traffic impact analysis must demonstrate that the proposed development would not cause build-out-year, peak-hour levels of service on any arterial or collector road or intersection within the study area to fall below Level of Service (LOS) "D," as defined by the latest edition of the highway capacity manual, or, where the existing level of service is already LOS "E" that the proposed development would not cause the LOS to fall to the next lower letter grade.
2. If the road segment or intersection is already LOS "F," the traffic impact analysis must demonstrate that the proposed development, with any proposed improvements, would not cause build-out year peak-hour operation to degrade more than five (5) percent of the total delay on any intersection approach.
3. The spacing of access points within a proposed development shall comply with all applicable town, state and American Association of State Highway and Transportation Officials (AASHTO) standards (where applicable).
4. Access points shall provide for adequate sight distance for the safety of vehicles and pedestrians. To the extent that application proposes specific access points, the analysis must also demonstrate that the proposed development would avoid unsafe conditions on adjacent roads. This requirement applies to signalized and unsignalized intersections.
5. On-site Internal circulation shall not interfere with the flow of traffic on any public street.

6. Failure to meet these standards may serve as a basis for denying the application, or for conditional approval of the application or application on provision of improvements or other mitigation measures needed to correct deficiencies due to the proposed development's impacts. This shall be determined or agreed upon by the Board of Commissioners.
- F. **Study Area.** The TIA shall address the proposed development's traffic impacts on:
1. Roads and intersections within the development site, as designated by town staff or the TIA preparing consultant;
  2. Road segments and intersections abutting the development site, as designated by town staff or the TIA preparing consultant; and
  3. Off-site road segments and intersections where traffic from the proposed development is expected to account for at least ten (10) percent of the road's or intersection approach leg's average daily traffic.
- G. **Required Traffic Impact Analysis Contents.** A TIA shall be based on peak hour traffic and trips and contain all the information below:
1. A description of the project and site, including charts, graphics, and narrative. The description of the project and site shall include access plans, phasing plans, land uses, and intensity of uses;
  2. Characteristics of the site and adjacent land uses and expected development in the study area;
  3. The location and characteristics (functional classification, number of lanes, speed limit, signalization) of roads and intersections in the study area and existing traffic volumes and conditions (including level of service) of those roads and intersections;
  4. A description of the location and traffic-related characteristic (land use, intensity, expected date of full build-out and occupancy, vehicular access points and characteristics, etc.) of the proposed development and other developments in the study area that are under construction, approved or pending approval, as well as roadway and other transportation facilities and improvements in the impact area that are under construction, programmed or planned;

5. Projections of future background traffic (existing traffic volumes forecasted to buildout year levels based on agreed upon traffic growth rate) plus traffic generated by other development in the study area that is under construction, approved, or pending approval, future site traffic and total future traffic (the sum of future background traffic and future site traffic);
6. Future background and site traffic projections must be made for the peak hours (as identified by town planning staff or review consultant) of the adjacent road segments and intersections and for the development's expected full build-out and occupancy date, and must include trip generation, trip distribution (using preapproved distribution by town planning staff or review consultant), and traffic assignment estimates;
7. Analyses of the proposed development's incremental impacts on:
  - a. Road capacity during peak hours at all site access points and at road segments and intersections in the study area (including determination of the level of service for the road segments and intersections, queuing vs. existing/proposed storage);
  - b. The need for signalization of intersections in the study area; and
  - c. Existing or potential high accident areas (as references in the adopted transportation plan or determined by town planning staff.
8. A qualitative analysis/review of sight distance at access points, when required by planning staff or the review consultant;
9. A description of the location, nature, and extent of site access and transportation improvements and other measures recommended to mitigate any failure to meet traffic operation standards due to the proposed development's traffic impacts, including the expected effectiveness of each mitigation measure in addressing deficiencies, the feasibility of implementing the measures, suggested allocation of responsibility for funding and implementing the measures, the measures' relationship to planned public transportation improvements, and a suggested time schedule for the implementation of the measures;

10. Résumés of the preparers of the analysis, demonstrating specific education, training, and professional experience in traffic-related analyses and, if the analysis involves roadway or traffic signal design or traffic engineering;
11. Identification of all assumptions and data sources used in its projections, analyses, and recommendations; and
12. If the TIA accompanies a rezoning application, its description of the proposed development must indicate the full range of land uses and development intensities allowed by the proposed zoning and identification of the allowable land use/intensity that can be expected to have the greatest traffic impact on peak hour traffic on adjacent roads and intersections. This highest impact land use/intensity will constitute the "proposed development" for which traffic projections are made and traffic impacts are analyzed.

#### **H. Mitigation Alternatives.**

1. In situations where the LOS standards are projected to be exceeded for the buildout year for residential and the 10-year projection for commercial and mixed-use developments, the analysis shall evaluate each of the following alternatives for achieving the traffic service standards:
  - a. Identify additional right-of-way and street improvements needed to implement mitigation strategies;
  - b. Identify suggested phasing of development and transportation improvements where needed to maintain compliance with LOS standards;
  - c. For developments impacting constrained facilities, identify access, pedestrian, transit, or other improvements required to mitigate the impacts of the proposed development on the constrained facility; and
  - d. In the event that the proposed mitigation is not permitted by NCDOT, the development shall provide the most effective mitigation to improve LOS allowed by NCDOT.