

York County Government

# Traffic Impact Analysis Guidelines Methodology

Implementation Guide for Section 154.037 – Traffic Impact Analysis of the York  
County Code of Ordinances

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## **I. Introduction**

The purpose of this document is to guide the implementation of Section 154.037 - Traffic Impact Analysis of the York County Code of Ordinances and establish uniform guidelines for preparing a traffic impact analysis.

As York County has experienced an increase in residential, commercial, and institutional development over the last five years, there has been and continues to be a significant increase in traffic and impact to York County's overall transportation network. A Traffic Impact Analysis (TIA) is one tool York County utilizes to ensure development impacts are properly mitigated and York County grows in a manageable and sustainable manner. York County will use the Traffic Impact Analysis to make informed decisions regarding rezoning, preliminary plat, site plan, and some special exception applications. The Traffic Impact Analysis will ensure York County is able to:

- Identify in advance any potential adverse impacts to the existing transportation network and ensure adequate mitigation is provided for by proposed development;
- Assist public and private sector entities in the early identification of issues related to traffic operations, including but not limited to driveway/access locations, traffic signals, and other elements of transportation facilities; and
- Support long-term planning solutions that foster responsible growth of transportation infrastructure consistent with the local government's Comprehensive Plan and vision for the community.

A development application (rezoning, site plan, preliminary plat, and some special exceptions) will not be deemed complete until a final approved TIA, if required, is received and approved by York County. In addition, applicants should note that interagency and intergovernmental coordination is necessary for projects that impact transportation facilities maintained by state or municipal governments.

## **II. Submission and Review of a TIA**

When a proposed development meets the applicability requirements of Section 154.037 Traffic Impact Analysis of the York County Code of Ordinances for a Tier 1 or Tier 2 Document, the developer shall contract with a qualified, South Carolina-licensed traffic engineer to develop the document. The traffic engineer shall contact York County Planning and Development Services to determine the scope of the TIA. As part of the scoping process, the traffic engineer shall coordinate with York County Planning and Development Services staff and Engineering Department staff to establish the study area. If a proposed project, requiring a Tier 2 study, impacts a road maintained by the South Carolina Department of Transportation (SCDOT), York County staff shall include SCDOT staff in the scoping process. If the TIA scope for a proposed project includes roads or property within municipal limits, the municipality shall be provided with TIA drafts for courtesy reviews. The scope must be presented in writing to all reviewing parties and receive written approval from all reviewers to confirm that the content of the scope is complete, prior to drafting the TIA document. Email is an acceptable form for review and approval of a proposed scope of work.

All Traffic Impact Analysis submittals must be provided to York County's Development Coordination Center to be entered into the plan review system. Draft submittals must be submitted digitally (Applicants shall utilize the County's digital submittal program throughout the entire review and approval process.) for review. Submission of two hard copies of draft documents is optional. York County staff (Planning and Engineering) will review the TIA within 30 days of submission. Comments or notification of approval will be forwarded to the applicant. Revised draft TIAs may be needed depending on the level of comments provided by reviewers. .

If the TIA is approved, the applicant shall submit final sealed copies to York County. The final draft must include a South Carolina Certificate of Authorization stamp and South Carolina PE stamp with signature and date, and incorporate all recommendations for mitigation agreed upon by reviewing parties. Submit a digital copy and two hard copies of the final draft. If a proposed project, requiring a Tier 2 study, impacts a road maintained by the SCDOT, York County staff shall not approve the TIA until confirmation of approval of the project's general concept is received from SCDOT staff.

## **III. TIA Guidelines and Standards for Tier 1 Documents**

The purpose of a Tier 1 Document is to provide vital information regarding potential impacts associated with developments in a memorandum format. A Tier 1 traffic impact analysis shall be used for proposed development that is anticipated to generate either a small increase in existing peak hour (AM or PM) trips and/or ADT or generate a small number of new peak hour

(AM or PM) trips and/or Average Daily Trips (ADT), which would have a minimal impact on existing Levels of Service (LOS). Generally, a Tier 1 traffic impact analysis is appropriate for projects that will generate less than 400 ADTs or less than 100 peak hour trips per day. A Tier 1 traffic impact analysis shall include, at a minimum:

- Study Area Description
  - The study area must include all site access points and the road(s) being accessed.
  - Provide a vicinity map or general description of the site location.
- Land Use
  - Include a description of the existing and proposed land use. List the number and type of residential units, square footage of gross and leasable floor area, number of employees, etc.
- Trip Distribution and Traffic Assignment
  - Provide a trip generation table of the proposed development for daily, AM peak, and PM peak periods. Use equations or rates available from the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual unless an alternative methodology is approved by York County staff.
  - Provide the expected trip distribution and assignment percentages based on existing and/or future traffic patterns.
  - Include a turning movement diagram for AM and PM peak hour volumes for each access location. The number and spacing of access points shall comply with applicable county, state, and American Association of State Highway and Transportation Officials (AASHTO) standards.
  - Document existing traffic volumes on all roads being accessed using current SCDOT Annual Average Daily Trip (AADT) counts, where available. Daily traffic counts must be recorded on roads that are maintained by York County or are maintained privately.
- Conclusion
  - Describe the impact of the proposed development on the surrounding area and roadway system. Note the percentage of increase over existing traffic volumes that is projected to occur due to traffic generation by the proposed development.
  - No non-residential development shall increase the traffic on an existing residential subdivision street with at least 300 ADT by more than 25%.

If the Planning and Development Services Department determines the information does not support a determination of a minimal impact, the applicant shall be required to expand upon the TIA and perform a Tier 2 Traffic Impact Analysis.

## **IV. TIA Guidelines and Standards for Tier 2 Documents**

The purpose of a Tier 2 Document is to identify system and immediate area impacts associated with a proposed development accessing the road system. A Tier 2 traffic impact analysis shall be used for proposed development that is anticipated to generate a large number of peak hour (AM or PM) trips and/or ADT, which would have a significant impact on existing LOS. A Tier 2 traffic impact analysis will be required for all projects that will generate more than 400 ADTs; 100 or more peak hour trips per day; is in the vicinity of an intersection that is known to be operating at or below the minimum acceptable level of service; is of a nature or is in a location that causes a concern for traffic safety; or the proposed development proposes 30 or more individual residential lots. Tier 2 Documents shall follow the outline below and be presented in a report format. Please note any and all assumptions where made within the submitted document.

- I. Executive Summary
- II. Introduction
- III. Analysis of Existing Conditions
- IV. Proposed Development
- V. Analysis of Future Conditions
- VI. Conclusions and Recommendations
- VII. Appendices

When preparing a Tier 2 Document, address the following items. If an item is not applicable, identify as such:

- Study Area Description
  - The study area must include the roadway being accessed by the development and significant roadway intersections up to and including the nearest traffic signal(s), as determined by the reviewing agencies.
  - Provide a vicinity map of the study area identifying all streets by name and route number with a north arrow, and provide a general description of the site location.
- Proposed Land Use
  - List the number and type of residential units, square footage of gross and/or leasable floor area, number of employees, etc.
  - Identify proposed site access points.
- Analysis Period
  - The weekday AM Peak (6:30-8:30) and the PM Peak (4:30-6:30) periods will be used for all studies unless otherwise specified during the scoping process.

- Provide weekday SCDOT AADT.
- Traffic count times for school developments will be based on the proposed school hours. Weekend generation rates may be required depending on the nature of the proposed land use.
- Data Collection
  - Include peak-hour turning movement volumes for the current year, future background, future build, and future build mitigated. Future dates shall be the year of estimated project completion plus one year.
    - Include the traffic growth rate and discuss the assumptions used. Background growth for the study area will be determined by establishing an average percentage of change (increase/decrease) over the past ten years using SCDOT AADT records for the primary road included within the study area. Provide a table listing road name, identification number, station number, years and AADT used to determine growth factor.
    - Discuss traffic characteristics (vehicle mix, percentage of truck traffic, and any special vehicle requirements).
  - Describe existing traffic conditions including roadway, bicycle, pedestrian, and transit facilities (lane configuration, existing storage lengths, speed limits, traffic accident data, etc.)
  - Details shall be provided on curb space use on public streets along the edge of the development site when it is intended that such areas be used for parking, parking space access, delivery and loading zones, passenger zones, taxi cab stands, bus stops, fire zones/and other official/emergency zones. This review shall include a description of existing conditions prior to development and proposed changes resulting from the development, including a description of any loss or gain in curb space use by the activities intended.
  - Identify existing traffic control devices including traffic signals and regulatory signs.
  - Obtain and use current traffic signal timings and phasing in operation from the SCDOT or other managing agency.
  - Record current year traffic counts while school is in regular session on Tuesday, Wednesday, or Thursday unless approved otherwise. Counts cannot be older than 12 months from the date that the project scope is determined unless otherwise approved.
  - Include approved but not yet constructed developments within the study area and associated improvements. York County staff will provide a list of developments based on applicable TIA reports submitted and/or approved

- projects within the study area that may result in significant cumulative impacts to the transportation network.
- Include planned public transportation improvements in the study area.
- Trip Generation
  - Use equations or rates available in the latest edition of the ITE Trip Generation Manual unless an alternative methodology is approved by York County staff.
  - Provide a table of categories and quantities of land uses with the corresponding trip generation rates or equations and the resulting number of trips.
  - Land use tables for phased projects shall include uses and trip generation separately for each phase of the development.
  - Document reasons for using rates, equations, reductions for pass-by or internal capture trips, etc.
- Trip Distribution and Traffic Assignment
  - Provide figures documenting separately the directional distribution and assignment of future traffic volumes.
  - Provide figures documenting the assignment of pass-by trips.
  - Discuss vehicle types and note any vehicles that require special routing due to weight, length, and/or width restrictions.
  - On-site vehicle circulation and parking patterns shall be designed so as not to interfere with the flow of traffic on any public street and shall accommodate all anticipated types of traffic.
- Capacity Analysis
  - Identify intersection LOS (current year, future background, future build, future build mitigated) at each study area intersection.
    - LOS shall be based on the procedures in the latest edition of the Transportation Research Board's Highway Capacity Manual.
  - For existing traffic signals, identify the development's impact on operations in terms of overall LOS and determine necessary changes to lane lengths, widths, and configuration, traffic signal timing, phasing, etc.
  - For non-signalized intersections, identify the stop-controlled approach LOS.
  - Analyze vehicle queuing and storage for all turn lanes and interstate ramps under stop or signal control within the study area.
- Traffic Safety Analysis
  - Verify that intersection sight distance requirements can be met at all proposed site access points. Provide measurements and photos to document the existing sight distance at proposed driveway locations.
- Mitigation and alternatives



- LOS will be measured for segments and intersections using ITE standards for LOS calculations. Identify the need for road improvements or alternative transportation measures to mitigate LOS deficiencies and improve traffic flow. If applicable, this shall include pedestrian and bicycle danger mitigation.
  - For intersections involving only minor streets, as defined in the County Code, an intersection LOS C or better shall be maintained.
  - On intersections involving one or more major streets, as defined in the County Code, an intersection LOS D or better shall be maintained.
- Provide a figure of existing lane configurations and recommended lane configurations and pavement markings and list and/or discuss the recommended improvements including storage lengths.
- Analyze and recommend improvements to achieve the targeted LOS.
- Provide conceptual design drawings with labels and dimensions to illustrate proposed site mitigations.
- Where the existing or no-build LOS is at or above the adopted LOS standard, the traffic impact analysis shall identify those improvements required to ensure that development-related traffic demands result in no reduction in LOS below the adopted LOS standard, and identify additional improvements needed to maintain or raise the LOS to the standards on the applicable street(s).
- All recommended mitigation that is due to traffic generated by the proposed development will be the responsibility of the developer.
- Where the no-build LOS for a segment or an intersection is below the adopted LOS standard and the proposed development increases the delay, the developer will be required to contribute a percentage of funding equal to the percentage of delay increase for the segment or intersection towards transportation improvements within reasonable distance of the study area.
  - The cost estimate for transportation improvements and the percentage amount to be contributed by the developer must be approved by Planning and Engineering Department staff, and also SCDOT staff if the improvement includes a road maintained by the SCDOT. York County Government reserves the right to obtain a third-party estimate for the cost of transportation improvements. The third-party estimate will prevail over the estimate received from the developer.
  - The following cost estimates should include, but is not limited to the following:

- (Construction) Construction Staking and Grades, Utility Relocations, Traffic Control, Mobilization, Erosion Control, Pavement Markings/Signing, Design.
- (Right of Way) Agent Negotiation Fee, Appraisal, Title Search, Land Acquisition.
- Conclusion and Recommendation
  - Describe the impact of the proposed development on the study area.
  - Discuss any significant findings regarding safety, change in LOS, etc.
  - List all recommended improvements to the existing roadway system that are necessary to mitigate the effects of changes due to the proposed development or are due to the effects of background growth.
  - Describe the benefits or mitigated effects of making the recommended improvements.
- Appendix of supporting information and data
  - Field survey notes
  - Turning movement counts
  - Synchro reports
  - Internal capture calculations
  - Pass-by calculations
  - Approved development data/calculations
  - Volume development worksheets
  - Photographs and measurements documenting sight distance

## **V. Expiration of a TIA**

If a proposed development does not commence in a timely fashion, fully built out within the proposed time frame, or the market dictates a change in land use from what was approved within a TIA document, changes or updates to a previously approved TIA may be required. To address these changes and other deviations from approved TIA scopes, these guidelines are provided to determine when a revised TIA is required. An approved TIA will be considered valid unless:

- The build year date is exceeded by more than twelve months.
- Road improvements have been constructed within the study area and were not considered in the original TIA or change the distribution of traffic within the study area.
- Road improvements considered in the original TIA that were needed to achieve the targeted LOS and mitigate the impacts of the proposed development or change the distribution of traffic within the study area were not completed within the timeframe projected in the TIA.

- Development occurs within the study area that is significantly greater than the anticipated background growth (from a rezoning, annexation, etc.)
- The developer of the site proposes to increase the number of residential units in developments approved to contain up to 300 units by ten percent or more, in developments approved to contain 300 or more units by five percent or more, or to increase the commercial square footage of gross and leasable floor area by twenty percent or more.
- A change in use or scale of the development is proposed that may result in an increase in trip generation, a change in traffic distribution, change in access points, or additional impact to a LOS.

When a development's TIA is considered to no longer be consistent with the previously approved scope for one or more of these reasons, additional development of the site shall not be approved by York County staff until a revised TIA is approved by all reviewing agencies.

## **VI. Coordination with Plan Submittals**

All transportation mitigation agreed upon by reviewing agencies must be illustrated or noted on all rezoning plans, Preliminary Plat, Construction Drawing, Final Plat, and Site Plan submittals. For projects requiring a TIA, no plan approvals will be provided by York County staff until the TIA is approved by all reviewing agencies.