ZEBULON

NORTH CAROLINA

TOWN OF ZEBULON
JOINT PUBLIC HEARING AGENDA
BOARD OF COMMISSIONERS
AND PLANNING BOARD
April 10, 2023
6:00 PM

I. CALL TO ORDER

II. APPROVAL OF THE AGENDA

III. PUBLIC HEARING

A. **TA 2023-04 Traffic Impact Analysis Amendments** – Text Amendments to Section 6.13 of the Zebulon Unified Development Ordinance to lower the thresholds and expand the study area for Transportation Impact Analysis.

IV. ADJOURNMENT

ZEBULON
NORTH CAROLINA

STAFF REPORT
TRANSPORTATION IMPACT ASSESSMENT
TEXT AMENDMENT
APRIL 10, 2023

Topic: **TA 2023-04 – Section 6.13 - TIA Text Amendment**
Speaker: Michael J. Clark, CZO, AICP, Planning Director
From: Michael J. Clark, CZO, AICP, Planning Director
Prepared by: Michael J. Clark, CZO, AICP, Planning Director
Approved by: Joseph M. Moore II, PE, Town Manager

Executive Summary:
The Board of Commissioners will consider text amendments to Section 6.13 of the Zebulon Unified Development Ordinance regarding Transportation Impact Analysis regulations.

Background:
As part of the development process, the Town requires applicants to conduct a Transportation Impact Analysis (TIA) on projects anticipated to generate traffic above a defined threshold. A TIA examines how the proposed traffic impacts surrounding intersections and road segments and identifies if any improvements are required to mitigate the additional traffic.

The proposed text amendments will lower the thresholds for when a TIA is required and will automatically require TIAs to be performed based on particular uses, regardless of traffic generation. It further broadens the radius of intersections to be studied to assure that full traffic patterns are being considered.

Discussion:
The discussion before the Board involves the following proposed changes to the Town's Transportation Impact Analysis (UDO § 6.13):

1. Thresholds

   Lowering the peak hour trips from 100 down to 50 and including 150 average daily trips (ADT) as an additional threshold.

2. Applicability Metrics

   Inclusion of metrics beyond trips, such as acreage, building lots, people, square footage, proximity to intersections, and pre-existing traffic conditions.

3. Study Area Boundary

   Increasing the study area of surrounding intersections from ¼ miles up to ½ mile (and within 1-mile radius for higher traffic generating projects).

Policy Analysis:
TIAs are a key tool in effectively coordinating land use and transportation and the proposed revisions are in keeping with the goals of the Town's Comprehensive Land Use Plan and Comprehensive Transportation Plan.

Financial Analysis:
In accordance with Chapter 6 of the Unified Development Ordinance, the developer is responsible for the construction of infrastructure improvements, including roadway and intersection improvements, as part of the development. The TIA provides a systematic approach, backed by quantitative data, to justify requiring developers to address those road improvements. This transfers the costs of these road improvements from the Town to the developer.

Staff Recommendation:
Staff recommends seeking public input during a joint public hearing and referring the matter to the Planning Board for recommendation.

Attachments:
1. Text Amendments for UDO Section 6.13

6.13. TRANSPORTATION IMPACT ANALYSIS

6.13.1. INTRODUCTION

The Town of Zebulon requires that the traffic and circulation impacts of proposed development projects be analyzed. The traffic impacts of proposed developments are to be analyzed through the preparation of a traffic impact analysis (TIA) prepared in conformance with the Town of Zebulon requirements. The TIA must be prepared, signed and sealed by a traffic engineer or a civil engineer registered in the State of North Carolina, qualified to practice traffic engineering. This section identifies the required format and methodology that is generally required to be utilized in the study preparation, subject to the review and approval of the Town of Zebulon.

6.13.2. PURPOSE

The purpose of the TIA is to identify the impacts on capacity, level of service (LOS), and safety, which are likely to be created by a proposed development. A TIA report should identify the improvements needed to:

A. Ensure safe ingress to and egress from a site;

B. Maintain adequate street capacity on adjacent public streets;

C. Ensure safe and reasonable traffic operating conditions on streets and at intersections in the vicinity of a proposed development;

D. Avoid creation of or mitigate existing hazardous traffic conditions;

E. Minimize the impact of nonresidential traffic on residential neighborhoods in the community; and

F. Protect the substantial public investment in the existing street system.

6.13.3. APPLICABILITY

A. A TIA shall be required for any new development projects utilizing a development plan, site plan, and preliminary plat that can be anticipated to generate at least ~~100~~ 50 vehicle trips in either the a.m. or p.m. peak hour, or exceeding 150 average daily trips (as determined by Institute of Transportation Engineers Standards).

B. Any redevelopment projects to an existing building that involve a rezoning of the property or a special use permit shall be required to provide a TIA if the projects are anticipated to generate at least ~~2~~50 vehicle trips in either the a.m. or p.m. peak hour (as determined by Institute of Transportation Engineers Standards). ~~and would require a special use permit.~~

C. A TIA shall be required for any new school development or school redevelopment projects utilizing a development plan, site plan, and preliminary plat that can be anticipated to generate at least 100 vehicle trips in either the a.m. or p.m. peak hour. Trip generation calculations shall be determined using the North Carolina Department of Transportation (NCDOT) Municipal and School Transportation Assistance (MSTA) Traffic Calculator. Final approval of such developments may require comments, recommendations, and approval from the NCDOT Division Office based on an analysis and evaluation of the capacity and efficiency of the anticipated development's roadway network. Any roadway modifications or improvements necessitated by the proposed development should be designed and constructed in conformance with the current NCDOT design and construction guidelines.

D. Town staff reserves the right to require a TIA if operational or safety concerns exist. Some additional factors for determination may include any nonresidential use meeting one or more of the following:

1. covering more than two (2) acres;
2. including more than three (3) building lots;
3. providing an assembly area for more than four hundred (400) persons;
4. involving office or sales floor area over twenty thousand (20,000) square feet;
5. within one hundred fifty (150) lineal feet of any intersection of two (2) designated Thoroughfares
6. within five hundred (500) lineal feet of any public road intersection currently operating as a Level of Service D, E or F;

~~C.~~**7.** and/or involving service or delivery vehicles in excess of one (1) ton.

~~D.~~E. Whenever a TIA is required and meets the standards set forth in this section pursuant to division ~~(D)(1), (2) and (3)~~A, B, C, or D above, the TIA report shall be incorporated and included as part of the Technical Review Committee (TRC) submittal packet.

6.13.4. PRE-APPLICATION CONFERENCE

The applicant shall schedule a pre-application meeting with the Planning Director to discuss procedures, standards, and regulations required for TIA submittal and approval.

6.13.5. MEMORANDUM OF UNDERSTANDING

The traffic engineer shall submit a memorandum of understanding (MOU) to the Planning Director to document the agreements made during the pre-application conference which discusses the criteria used in the analysis of the TIA. The MOU may be received by the town via email, fax, or mail. The traffic engineer shall not begin work on the TIA until the Town has approved the MOU.

6.13.6. PERIOD OF VALIDITY

A TIA report and traffic counts shall be valid for a specific site for no more than one year, so long as no significant modifications to the development proposed for the site that substantially increase the traffic impact are made.

6.13.7. TRAFFIC IMPACT ANALYSIS REPORT ELEMENTS

The TIA shall follow standard transportation engineering processes for determining trip generation and distribution including trip generation category, diversion assumptions, distribution assumptions, the adequacy of the road network to serve the proposed development, and whether off-site road dedication and improvements should be made to mitigate the effects of the development proposed in the application. The data and methods used in the TIA shall be based upon the latest editions of Institute of Transportation Engineers (ITE) manuals. A TIA shall address the factors listed below:

A. EXECUTIVE SUMMARY

At the beginning of the TIA, the executive summary shall summarize the analysis and conclusions and identify recommended transportation improvements.

B. SITE DESCRIPTION

The TIA shall contain reports, graphics, illustrations, narratives, and a site plan that describe the characteristics of the site and adjacent land uses as well as expected development in the vicinity that will influence future traffic conditions. A description of potential uses and traffic generation to be evaluated shall be provided. A description of the proposed development, including access plans, staging plans, and an indication of land use and intensity, shall be provided.

C. STUDY AREA

The study area shall include all proposed access points, all signalized intersections and all non-signalized intersections having side-street average daily traffic counts of ~~4,000~~2,000 vehicles per day or more within ~~one-quarter~~one-half mile of the property lines on all streets adjoining the site in accordance with Table 6.13.7.C: Study Area Boundaries. If the estimated trip generation for the project is over ~~5,000~~ 2,500 trips per day, then the study area shall include all proposed access points, all signalized intersections, and all non-signalized intersections having side-street average daily traffic counts of ~~4,000~~2,000 vehicles per day or more within ~~one-half~~one mile of the property lines on all adjoining streets. The potential traffic from any approved project shall be considered in the study as determined by the Planning Director. The Planning Director has the right to add or subtract study area intersections based on specific study area characteristics, and local traffic patterns.

TABLE 6.13.7.C: STUDY AREA BOUNDARIES

ELEMENT	< ~~5,000~~2,500 TRIPS PER DAY	> ~~5,000~~ 2,500 TRIPS PER DAY
All proposed access points	Yes	Yes
All signalized intersections within ~~1/4~~1/2 mile	Yes	Yes

All signalized intersections more than ~~1/4~~1/2 mile but within ~~1/2~~one mile of site	No	Yes
All non-signalized intersections within ~~1/4~~1/2 mile of the site with at least ~~4,000~~2,500 average daily trips	Yes	Yes
All non-signalized intersections more than ~~1/4~~1/2 mile but within ~~1/2~~one mile of the site with at least ~~4,000~~2,500 average daily trip	No	Yes

D. INTERSECTIONS SHALL BE ANALYZED UNDER FOUR SCENARIOS

1. Existing.
2. No-build: (existing + annual growth + approved developments).
3. Build: (existing + annual growth + approved developments + site traffic).
4. Build improved: (existing + annual growth + approved developments + site traffic + necessary improvements).
5. Scenario 4 may be eliminated if improvements are not necessary to satisfy any queuing problems or the LOS criteria listed herein. Overall LOS and delay must be provided for all signalized intersections and worst movement LOS and delay must be provided for all unsignalized intersections. Intersection analysis shall include queue analysis. The analysis year for all future scenarios is one year following the development's scheduled completion year (build + 1).

E. EXISTING TRAFFIC CONDITIONS

The TIA shall contain a summary of the data utilized in the study and an analysis of existing traffic conditions, including:

1. Traffic count and turning movement information, including the source of and date when traffic count information was collected;
2. Correction factors that were used to convert collected traffic data into representative design-hour traffic volumes;
3. Roadway characteristics, including the design configuration of existing or proposed roadways, existing traffic control measures (e.g., speed limits and traffic signals), and existing driveways and turning movement conflicts in the vicinity of the site; and
4. Identification of the existing level of service for roadways and intersections without project development traffic using accepted methods of evaluation. Level of service should be calculated for the weekday peak hour and, in the case of uses generating high levels of weekend traffic, the Saturday peak hour.

F. LEVEL OF SERVICE

For corridors, including mainline, merging areas, and ramp junctions, a LOS C shall be maintained on any expressway, freeway, or arterial, and an LOS D on any other designated nonlocal street on the thoroughfare plan. At all intersections, an LOS C shall be maintained on any arterial or higher-order street and an LOS D on any other nonresidential street. Where the existing level of service is below these standards, the traffic impact analysis report shall identify those improvements or transportation demand management techniques needed to maintain the existing level of service, and what additional improvements would be needed to raise the level of service to the standards indicated.

G. NUMBER OF ACCESS POINTS

The number of access points provided shall be the minimum needed to provide adequate access capacity for the site. Evidence of LOS D operations for individual public street movements at access locations is a primary indication of the need for additional access points. However, the spacing and geometric design of all access points shall be consistent with the access management criteria of the ordinance.

H. TRAFFIC FLOW AND PROGRESSION

The location of new traffic signals or proposed changes to cycle lengths or timing patterns of existing signals to meet level of service standards shall not interfere with the goal of achieving adequate traffic progression on major public streets in the vicinity of the development.

I. VEHICLE STORAGE

The capacity of storage bays and auxiliary lanes for turning traffic shall be adequate to ensure that turning traffic will not interfere with through traffic flows on any public street.

J. INTERNAL CIRCULATION

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 site traffic.

K. SAFETY

Access points shall be designed to provide for adequate sight distance and appropriate facilities to accommodate acceleration and deceleration of site traffic. Where traffic from the proposed development will impact any location with an incidence of high accident frequency (defined as one of the five to ten highest accident locations in the area), the accident history should be evaluated and a determination made that the proposed site access or additional site traffic will not further aggravate the situation.

L. HORIZON YEAR(S) AND BACKGROUND TRAFFIC GROWTH

The TIA shall identify the horizon year(s) that were analyzed in the study, the background traffic growth factors for each horizon year, and the method and assumptions used to develop the background traffic growth. Background growth rates should be developed using historical traffic counts and/or population and employment growth in the area, with a maximum of 6% per year. Unless otherwise approved by the Planning Director, the impact of development shall be analyzed for the build out year plus one year into the future after the development is completed.

M. TIME PERIODS TO BE ANALYZED

For each defined horizon year, specific time periods are to be analyzed. For most land uses, this time period will be the average peak hour a.m. and p.m. However, certain uses (e.g., major retail centers, schools, or recreational uses) will have characteristic peak hours different than that found for adjacent streets, and these unique peak hours may need to be analyzed to determine factors, such as proper site access and turn lane storage requirements.

N. TRIP GENERATION, REDUCTION, AND DISTRIBUTION

The TIA shall summarize the projected peak hour and average daily trip generation for the proposed development and illustrate the projected trip distribution of trips to and from the site, and should identify the basis of the trip generation, reduction, and distribution factors used in the study. Trip distribution assumptions should be based on existing traffic patterns and employment and population centers in the area.

O. TRAFFIC ASSIGNMENT

The TIA shall identify projected design-hour traffic volumes for roadway segments, intersections, or driveways in the study area, with and without the proposed development, for the horizon year(s) of the study.

P. IMPACT ANALYSIS

The TIA shall address the impact of traffic volumes of the projected horizon year(s) relative to each of the applicable traffic service standards and shall identify the methodology utilized to evaluate the impact. The weekday a.m. and p.m. peak hour impact shall be evaluated as well as the Saturday peak hour for those uses exhibiting high levels of weekend traffic generation.

Q. MITIGATION/ALTERNATIVES

In situations where the traffic levels of service standards are exceeded, the traffic impact report shall evaluate each of the following alternatives for achieving the traffic service standards by:

1. Identifying where additional rights-of-way are needed to implement mitigation strategies; and
2. Identifying suggested phasing of improvements where needed to maintain compliance with traffic service standards.

R. RECOMMENDATIONS

The TIA shall clearly state the mitigation measures recommended by the analysis and shall summarize how the recommended mitigations are roughly proportional to the identified impacts. The recommended street and highway mitigation measures shall be shown on a drawing that depicts existing and recommended improvements.

S. OTHER

Other items may be required at the discretion of the Town Manager, Planning Director, or Public Works Director depending upon the type and scale of the project. These may include, but are not limited to: queue length analysis, pedestrian counts, accident data, traffic speeds, stopping sight distances, and signal warrant analyses.

6.13.8. SAFETY AND OPERATIONAL ANALYSIS

The TIA shall examine existing roadway conditions to determine if safety and/or operational improvements are necessary due to increase in traffic from the project or cumulative projects. The types of improvements to be identified may include, but are not limited to:

A. Need for turning lanes;
B. Intersections needing sight distance studies;
C. Parking restrictions;
D. Measures to reduce cut-through project traffic in adjacent residential areas;
E. Potential impacts to adjacent schools;
F. Queue lengths and impacts to adjacent intersections;
G. Need for signal interconnect systems.

6.13.9. DEFERRAL OF OBLIGATION

Upon request of the applicant or property owner to the hearing body, the obligation to dedicate or improve thoroughfare rights-of-way or to make intersection improvements imposed on an application may be deferred to a later stage of the development process. As a condition of deferring the obligation to dedicate rights-of-way for or to improve thoroughfares, which deferral shall be in the sole discretion of the town, the town shall require the developer to execute a subdivision or site development improvement agreement specifying the amount and timing of the rights-of-way dedication or improvements to thoroughfares, including the posting or depositing of a bond, letter of credit, or other fiscal surety, in a form and under terms acceptable to the town, in advance of approval of the development application.

6.13.10. WAIVER

A. The Board of Commissioners is empowered to hear and decide waiver exemptions from the terms of this section. A request for a waiver shall be heard at a quasi-judicial hearing. All appropriate fees shall be paid at the time of application for a waiver.
B. The Board of Commissioners may waive the requirements for a TIA if a previously prepared traffic study or transportation plan, not older than ten years clearly shows that no capacity or safety issues exist that might be compounded as a result of the proposed development, and thereby, no adverse impacts of unsafe or hazardous conditions would be created on the transportation system.
C. Developments in the central business districts that are not required to provide on-site or off-street parking are exempt from the requirements of this section.
D. After completion of the TIA, the Board of Commissioners may waive suggested improvements upon determining the spirit and intent of this section will still be met through alternative standards.

6.13.11. FORMAT AND SUBMITTAL OF REPORT

A. Five copies of the final printed report must be bound and submitted to the Planning Department.
B. The report should contain discussion of all of the major facets of the study including background data, traffic data collected, trip generation, trip distribution and assignment, analysis of conditions with and without the proposed project, recommended mitigation measures, and appendices with pertinent data.
C. Renderings of the proposed development are recommended for inclusion in the report.
D. If necessary, copies relating to projects impacting state roads should be submitted to the North Carolina Department of Transportation (NCDOT) District Office as well as the NCDOT Traffic Engineering Branch.
E. The report must be signed and sealed by a traffic engineer registered in the State of North Carolina on the cover or table of contents page.
~~E.~~F. The report shall include a graphic map with aerial photo of the studied intersections with labels showing the different LOS scenarios listed in subsection D above and a list of recommended improvements.