

## ZONING

### 320 Attachment 5

#### Township of Conestoga

##### Appendix 1 - Transportation Impact Analysis

- A. Transportation Impact Analysis.** When required, a transportation impact analysis (TIA) shall be provided according to the following:
1. Applicability - A TIA shall be prepared for any subdivision or land development proposal that will result in the development generating 100 new peak-hour vehicle trips, according to the most recent trip generation standards of the Institute of Transportation Engineers. In addition, a TIA may be required if the Township Engineer and Township Supervisors find that current transportation conditions exist in the area, such as a high-accident location, inadequate intersection geometry, or a congested intersection, which directly affect the proposed development and which would be further exacerbated by the development in the absence of improvements.
  2. Requirements. The TIA shall include the following elements and be prepared to the following requirements:
    - a. Preparation requirements. All transportation analyses shall be prepared by or under the supervision of qualified transportation engineers with specific training and experience in the preparation of transportation analyses for proposed developments.
    - b. Study area. The TIA study area shall be determined by the characteristics of the surrounding area. The intersections to be studied shall be mutually agreed upon between the Township Engineer and the transportation engineer preparing the analysis. Generally, intersections to be included in the analysis shall be adjacent to the site or shall directly affect access to the site, and shall include such intersections within 1/4 mile of the site.
    - c. Horizon year. Traffic forecasts shall be prepared for the anticipated year (“horizon year”) of the development’s completion, under conditions of expected occupancy and build-out.
    - d. Background traffic. Background traffic volumes shall be established for roads and intersections within the TIA study area for the horizon year, based on current traffic counts and an annual growth factor to be agreed upon between the Township Engineer, the transportation engineer preparing the analysis, and the PennDOT District Traffic Engineer.
    - e. Non-site-generated traffic estimates. Horizon year traffic estimates shall be made of all non-site-generated traffic and traffic generated by all other developments within the study area, for which preliminary or final approvals have been issued. This traffic is incremental to the background growth in traffic.

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- f. Trip generation calculation. The TIA shall identify the categories and quantities of land uses that are proposed in the development, together with their corresponding trip generation rates and the resulting number of trips that are to be generated. Trip generation rates shall be referenced from the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, from a local analysis of actual conditions at a similar development, or from another source acceptable to the Township Engineer. All sources shall be cited in the analysis. Unusual or special trip rates generated by uncommon land uses shall be explained in the analysis.
- g. Consideration of pass-by and shared-use trips. Pass-by trips or shared trips (i.e., when vehicles which are already using the roadway are attracted to the site) shall be calculated and accounted for using ITE standards, or studies and interviews at similar land uses may be required to substantiate the anticipated effects, as acceptable to the Township Engineer.
- h. Determination of influence area. Prior to the distribution of site-generated trips for nonresidential developments, an influence area shall be defined which contains not less than 80% of the trip ends that will be attracted to the development. The influence area can be determined by the use of usual and customary studies or documented material, and which are acceptable to the Township Engineer. The influence area may also be based on a reasonable maximum convenient travel time to the site, or by delineating area boundaries based on locations of competing developments.
- i. Estimates of trip distribution. Trip distribution may be estimated by an ITE-endorsed method acceptable to the Township Engineer. A multiuse development may require more than one distribution and coinciding assignments for each phase of completion. Consideration shall also be given to whether inbound and outbound trips will have similar distributions.
- j. Trip assignments. Assignments shall be made considering logical routings, available roadway capacities, left turns at critical intersections, and projected travel times. Multiple paths between origins and destinations may be necessary to reflect realistic estimates, rather than assigning the routes with the shortest travel times. Multiple pathways shall be assigned to projects with multiple access points or with internal roads. Pass-by trip assignment shall consider the rerouting of existing traffic.
- k. Capacity analysis. A capacity analysis shall be performed at each of the major street and project site intersections within the analysis area. In addition, capacity analyses shall be completed for those roadway segments within the study area that are determined by the Township Engineer to be sensitive to site traffic. These may include such segments as internal site roadways, parking facility access points, and for vehicles queuing off- and on-site. The Township Engineer may require studies of other locations.

The recommended level-of-service analyses procedures in the most recent edition of the Institute of Transportation Engineers Highway Capacity Manual shall be followed. For purposes of the analysis, the overall level-of-service ratings of A, B, C

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and D shall be considered acceptable for signalized intersections, and levels E and F considered unacceptable.

- l. Level of service calculations. The recommendations of the traffic study shall be oriented towards the provision of safe and efficient movement of traffic to, from, within, and past the proposed development, while minimizing the impact on non-site trips. Levels of service should not degrade below D if they are D or better prior to development and should not be allowed to degrade further if they are already at E or F prior to development.
- m. Safety. The traffic study shall include an analysis of existing accident data in the study area, an identification of potentially hazardous road or intersection configurations, and an explanation of the anticipated impact from the proposed development on these locations.
- n. Documentation required. The TIA shall document the purpose, procedures, findings, conclusions, and recommendations of the study.
  - i. Required documentation. The following documentation shall be provided at a minimum:
    - (a) Study purpose and objectives.
    - (b) Description of the site and the study area.
    - (c) Existing conditions in the study area.
    - (d) Recorded or approved nearby developments.
    - (e) Trip generation, distribution, and modal split.
    - (f) Horizon year trip volumes on roadways in the study area.
    - (g) Assessment of any change in roadway operating conditions resulting from the development traffic.
    - (h) Recommendations for site access and transportation improvements needed to maintain traffic flow to, from, within, and past the site at an acceptable and safe level of service.
  - ii. Sequence of analysis. The analysis shall be presented in a logical sequence. It shall follow a step-by-step process through the study's various stages and its conclusions and recommendations.
  - iii. Time frame for improvements. The recommendations shall specify the period within which the improvements should be made, in relation to the various stages of the development's construction, and any monitoring of operating conditions and improvements that may be required.
  - iv. Data presentation. Data shall be presented in the form of tables, graphs, maps, and diagrams whenever possible for clarity and ease of understanding and review.
  - v. Executive summary. An executive summary of one or two pages shall be provided, which concisely reviews the basic purpose, conclusions, and recommendations.
  - vi. Unusual situations. Unusual or complicated situations may require the use of expanded studies or reviews that involve analyses that extend beyond the minimal requirements in this section.

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3. Certificates. When approved, the preliminary plan shall include:
  - a. Certifications. The signature of the applicant, certifying his or her adoption of the plan.
  - b. Supervisors signatures. The signature of a majority of the Township Supervisors, certifying approval of the plan, on the date shown.
  - c. Planning module. In addition, the applicant shall submit in triplicate the required DEP sewage planning modules.
4. Review and approval by Township Engineer. The analysis shall be submitted to the Township Engineer for review and approval. The Township Engineer may specify that the applicant shall correct deficiencies in the analysis.

**B. Environmental Impact Assessment.** When required, an environmental impact assessment shall be provided according to the following standards:

1. Purpose. In order to more effectively evaluate subdivision and/or land development proposals, the applicant shall disclose the environmental consequences of such proposals through the submission of an environmental impact assessment (EIA). The EIA is intended to provide the Township with information adequate to evaluate potential adverse impacts of the proposal and the proposed mitigation of adverse impacts. The EIA will help determine whether the overall objectives of the Zoning Ordinance and the Conestoga Township Comprehensive Plan are met. The EIA is also intended to address the environmental protection objectives set forth in the Pennsylvania Municipalities Planning Code (MPC) and Article I, Section 27 of the Constitution of the Commonwealth of Pennsylvania.
2. Contents and scope of the EIA. The EIA shall contain text, tables, maps, and analyses that document the existing resources of the subject site and the predicted impacts associated with the proposed subdivision and/or land development. It is recommended that information contained in the Conestoga Township Comprehensive Plan is utilized. Additionally, because the information presented in those plans was developed for Township-wide rather than site-specific purposes, the applicant is encouraged to supplement or update that information as appropriate with any published reports, studies, or natural resource data as may be available, or with original, site-specific investigations. Prior to preparing the EIA, the applicant is strongly encouraged to meet informally with the Planning Commission to discuss the appropriate level of detail for the EIA for a particular project. The contents of the EIA shall follow the format specified below.
  - a. Description of existing conditions. The applicant shall identify all of the following natural resources and features, as applicable, on the subject property. If a particular resource or feature is not applicable to a given property, it should be so stated.
    - i. Geological resources. The geological characteristics of the property shall be presented on a map and described. Such characteristics include the location and boundaries of rock formations at, or having direct influence on, the property, as well as unique features such as faults and/or fractures.

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- ii. Slopes. The topographical characteristics of the property shall be presented on a map and described. Areas of slopes in each of the following ranges shall be highlighted: 0% to 15%, 15% to 25%, and greater than 25%.
- iii. Soils. The soil characteristics of the property shall be presented on a map. Such characteristics shall include a description and mapping of all soil types and shall include a table identifying pertinent soil characteristics such as: depth to bedrock, depth to seasonal high water table, flood-hazard potential, limitations for on-site wastewater disposal or land application of wastewater (if applicable), drainage classification, classification as to whether hydric or potentially containing hydric inclusions, and classification as to prime farmland or farmland of statewide importance. Information from the USDA-NRCS Soil Survey of Lancaster County, at minimum, shall be presented.
- iv. Water resources. The hydrological characteristics of the property shall be presented on a map and described. Such characteristics include surface water features, their direction of flow, watershed (drainage area) boundaries, and groundwater resources. Surface water resources include streams, creeks, runs, springs, and any other permanent or intermittent drainageways; ponds, lakes, or other natural bodies of water; and any man-made impoundments. Groundwater resources include features such as aquifers and aquifer recharge areas. Where rivers, streams, creeks, runs or other linear waterways are shown, trees and other vegetation within 50 feet of the waterway shall be shown on the same map.
- v. Vegetation. The existing vegetation and land cover characteristics of the property shall be presented on a map and described. The locations and boundaries of the woodland and forest areas of the property shall be identified according to their dominant species types. In addition, all noteworthy trees shall be identified. The locations and boundaries of other vegetation associations, such as cultivated areas, pasture, meadows, old fields, and scrubland, also shall be identified. The generalized vegetation and cover types on areas immediately adjacent to subject property also shall be identified; the level of detail for adjacent areas may be less than for the subject property.
- vi. Wildlife. The known or potential use of the property by wildlife shall be identified. The suitability of the property as habitat for, and the known use of the site by, terrestrial or aquatic species shall be described. Any PNDI sites listed for the property shall be identified.
- vii. Wetlands. Existing wetlands and wetland margins on the tract shall be identified.
- viii. Floodplains. The limits of the existing floodways and 100-year floodplains on the site, according to the latest FEMA maps or as directed by the Township Engineer or Zoning Officer, shall be mapped.
- ix. Visual resources and aesthetics. The visual resources and scenic roads on or adjacent to the property shall be presented on a map and described. Such

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characteristics shall include areas that have a particular amenity value and areas that offer interest in viewing the property.

- x. Land use. The land use conditions and characteristics of the site and adjacent parcels shall be presented on a map and described. Categories of land use shall include: paved or other impervious surfaces, lawns and other landscaped areas, croplands, pastures, woodlands, oldfields, barren areas, easements, rights-of-way, and trails. The land use map may be combined with the vegetation map if appropriate. The generalized land uses on areas immediately adjacent to the subject property also shall be identified.
  
- b. Description of proposal and assessment of impacts. The nature and purpose of the proposed subdivision or land development shall be described. An impact assessment of all potential adverse effects of the proposal on on-site and off-site (e.g., downstream) natural resources and features shall be prepared. The proposal shall be described in terms of the scale and/or magnitude of effects that it will have on each of the natural resources and features identified above. At a minimum, the impact assessment shall identify the following:
  - i. The location and acreage of each natural resource and feature that will be disturbed directly by the proposal, and a description of the nature of the disturbance.
  - ii. The location and acreage of each natural resource and feature that will be disturbed indirectly by the proposal, and a description of the nature of the disturbance.
  - iii. The nature of any effects on each resource and feature as to whether it is beneficial, adverse, or neutral.
  - iv. The magnitude, degree, or significance of any adverse effects identified, relative both to the resources of the site and to the resources of the Township.
  - v. The temporal natures of each adverse effect, as to whether it is temporary or permanent, short term or long term.
  - vi. The extent to which the subject proposal, in conjunction with other existing or proposed projects, may result in cumulative adverse effects on the natural resources and features of the property or in the Township.
  
- c. Alternatives. Alternatives that would preclude, reduce or lessen potential adverse impacts or produce beneficial effects, shall be discussed. Alternatives to the proposed subdivision and/or land development that were considered but rejected shall be discussed, and the reasons for their being rejected shall be given. The discussion shall address alternatives such as: revised location; redesign, layout, or siting of buildings, roads, and other structures; alternate methods for sewage disposal, water supply, and stormwater management; reduction in the number or size of proposed lots or structures.

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- d. Measures to mitigate adverse effects. For adverse effects which cannot be avoided by alternative design or method, the types of remedial, protective, or mitigation measures that will be implemented shall be identified and discussed. Such mitigation measures include those required through existing procedures, regulations, and standards, and those unique to a specific proposal.
  - i. Mitigation measures which pertain to existing procedures, regulations, and standards are those related to current requirements of federal, state, county, and/or Township agencies for remedial or protective action such as: sedimentation and erosion control, stormwater runoff control, water quality control, creation of compensatory wetlands, air quality control, and the like.
  - ii. Mitigation measures which may be unique to a specific subdivision and/or land development proposal include additional efforts to minimize adverse effects, such as revegetation; screening; fencing; emission control; traffic control; noise control; reduction in number or size of lots, buildings, or other structures; land acquisitions or donations; and the like.
- e. List and qualifications of authors. The names, addresses, telephone numbers, and qualifications of persons directly responsible for the preparation of the EIA.
- f. Scope of environmental impact assessment. The applicant is strongly encouraged to use the sketch plan process to receive input from the Board of Supervisors, Township Planning Commission, and other officials, in determining the significant natural features of the site, significant impacts, potential mitigating measures, and alternative development scenarios to be discussed in the EIA.