



City of Sarnia

CITY OF SARNIA TRANSPORTATION MASTER PLAN: TRANSPORTATION IMPACT STUDY GUIDELINES

REPORT

JULY 2013



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1. INTRODUCTION

A transportation impact study (TIS) provides valuable information and analysis for governing agencies and others reviewing development and redevelopment proposals. The City of Sarnia Transportation Impact Study Guidelines have been compiled to outline the process and structure required to produce a comprehensive transportation impact assessment for a development or redevelopment proposal in the City. A TIS includes explicit consideration of all modes of travel including automobiles, trucks, transit vehicles, cyclists and pedestrians.

1.1 Why is a Transportation Impact Study Required?

The main purpose of a TIS is to demonstrate that the transportation impacts of a proposed development or redevelopment will be manageable and that the transportation aspects of the proposal are consistent with the objectives of the City of Sarnia. The TIS also provides the basis for the identification and evaluation of transportation related improvements or measures to be included as conditions of approval for the development or redevelopment application. Hereafter, all references to the terms “development” or “development proposal” will be equally applicable to redevelopment applications/proposals.

Through the TIS, the proponent must demonstrate that the application or proposal meets the following City objectives:

- That there is sufficient arterial road network capacity to accommodate the proposed development, taking into account transportation system improvements and any travel demand management initiatives which will be secured in conjunction with the proposal;
- That the development must be phased, if necessary, in conjunction with the implementation of transportation system and service improvements and any travel demand management initiatives, to ensure that supply and demand are balanced over time;
- That the proposal incorporate a suitable travel demand management strategy which includes all reasonable measures to facilitate and promote cycling and walking for trips to and from the site, and future potential transit service; and
- That the number of vehicular parking spaces provided in conjunction with the proposal be minimized with explicit consideration for short and long term parking demands, special needs parking and commercial vehicle loading facilities.

In some cases the trip generation potential from a development proposal may be insignificant when considered in isolation; however, the cumulative effects of a number of such proposals in one area may, in combination, require transportation improvements. It is for this reason, that the City may request the preparation of a transportation impact statement to ensure that the land uses and trip generation potential of these smaller proposals can be collectively accounted for in overall planning initiatives (Refer to the requirements in **Section 2.2**)

1.2 Applicability

It should be recognized that the guidelines included in this document are relevant at the time of printing. These guidelines will be revised, as necessary, to reflect current City policy, practice and



accepted standards. The proponent shall contact the City of Sarnia – Public Works Department at the contact noted below to obtain any updates since this compilation date.

The following document outlines general guidelines for the preparation of transportation impact studies for submission to the City. There may be instances where the guidelines and general study assumptions may not be applicable to certain locations in the City, or specific types of developments. It should be recognized that the purpose of this document is to provide a framework for the preparation of a TIS and shall not be substituted for good transportation engineering judgement.

For additional information or for clarification of any of the material contained in this document, please contact the departments/agencies included in **Exhibit 1-1**, as applicable:

Exhibit 1-1: Department and Agency Contacts

Planning and Building Department	Director Planning and Building Department City Hall, 3 rd Floor 519-332-0330 ext 3292
Public Works Department	City Engineer Public Works Department City Hall, 3 rd Floor 519-332-0330 ext. 3279
Provincial Roads	Ministry of Transportation of Ontario Regional Traffic Section Southwestern Region 659 Exeter Road London, Ontario, N6E 1L3 Telephone: 519-873-4351

1.3 Acknowledgement of Responsibility

When the scale of the development requires a TIS, it is the Proponent’s responsibility to retain an experienced transportation consultant to complete the assessment. The City of Sarnia requires that a TIS be prepared and/or reviewed by a qualified firm/individual. The individual taking responsibility for the Proponent’s TIS work must be a registered Professional Engineer with more than five years of applicable experience in the preparation of transportation impact studies.

Included in **Appendix A** is a Project Record that must be submitted with all TIS reports and addendums, including the stamp of the professional engineer taking responsibility for the work. In completing this form, the engineer is verifying that appropriate assumptions and methodologies have been used in the completion of the TIS and is indicating the individual(s) who are taking corporate/professional responsibility for the work. This information will also assist City staff in contacting the appropriate individual if clarification of any part of the transportation impact assessment is required during the review process, or at some time in the future.

2. TIS REQUIREMENTS AND SCOPE

2.1 When is a Transportation Impact Study Required?

There are a number of considerations in determining the need, elements and level of detail for a TIS. Generally a TIS may be required when one or more of the following are anticipated/present:

- The development proposal will add more than 100 peak-hour vehicle trips to the transportation system;
- The development is planned with an access to an arterial roadway within 200 meters of a signalized intersection;
- The development is located in an area of high roadway congestion, high operating speeds, and limited sight distance where safety is an issue;
- If in the opinion of the City the development has the potential to create unacceptable adverse operational and safety impacts on the area road network;
- The development, its access, or type of operation, is not envisaged by local land-use or transportation plans;
- The development requires a change or an exception to a City planning or by-law policy, strategy or plan, including rezoning;
- The development is a large recreation or entertainment facility, or is in the vicinity of one, that would likely serve as a regional attraction; and/or
- If in the opinion of the City the previous TIS prepared for the same site is outdated.

The above criteria are necessarily general and in view of the lack of definitive criteria to establish the need for and scope of a TIS for a particular proposal, the Proponent shall consult with City Staff, to determine site specific TIS requirements.

2.2 TIS Scope/Detail

The level of detail and the required components of the TIS will be a function of the location, size and operations of the development proposal. Included in **Exhibit 2-1** is a summary of the points in the development approval process where a TIS may be requested and its overall objectives.

In some cases, the size, location and nature of the proposal will be such that a detailed transportation impact study is not required. Through discussions with City staff, the proponent may be required to prepare a more basic Transportation Impact Statement, which would outline the general characteristics of the site, its operation and trip generation potential, and a high level assessment of traffic impact, access, safety and parking requirements. The Transportation Impact Statement would be a technical letter, stamped by a Professional Engineer specializing in transportation planning, which outlines the required components agreed upon with the City.

The proposed development may lie within an area for which a recent and relevant Secondary Plan has already been completed. Under this scenario, the City shall determine if certain elements of the TIS can be omitted or directly incorporated into the current TIS work, i.e., background growth potential, identified arterial road improvements, etc.

Exhibit 2-1: General TIS Scope

Stage of Approval	General Transportation Impact Study Scope
Secondary Plan/Area Plan	<ul style="list-style-type: none"> • Identification of major/arterial transportation infrastructure and operational improvements associated with area wide development potential • Determination of the collector roadway network and the major intersection configurations and type of control
Draft Plan of Subdivision	<ul style="list-style-type: none"> • Arterial and collector roadway requirements and operations • Phasing plan • General description of access locations and operations • Allocation of responsibility for implementation of transportation infrastructure improvements
Rezoning	<ul style="list-style-type: none"> • Arterial and collector roadway requirements and operations • Phasing plan • Transportation infrastructure improvements tied to phasing plan • Description of access locations and operations
Site Plan	<ul style="list-style-type: none"> • Access location and operations • Transportation infrastructure improvements tied to phasing plan • Site specific impacts on road network including adjacent site operations

Included in **Exhibit 2-2** is an indication of the components that the City of Sarnia will require at the various points in the development process. The proponent is to review the TIS requirements included in the column representing their specific point in the development process and discuss relevancy with City of Sarnia Staff.

The onus will be on the Proponent to demonstrate that certain aspects of the general requirements for a TIS are not required based on the point in the approval process, or availability and content of recent studies. The proponent should discuss the study scope before initiating the study.

Exhibit 2-2: Specific TIS Elements

TIS Component	Site Development Process			
	Secondary Plan/Area Plan	Draft Plan of Subdivision	Rezoning	Site Planning
Transportation Network				
Major transportation improvements <ul style="list-style-type: none"> • Planned roadways • New interchange/intersection • Road widening • New transit routes/services • Pedestrian and bicycle routes 	√	√	√	
Local transportation system improvements <ul style="list-style-type: none"> • Intersection improvements • Traffic signal installation or modifications • Traffic calming plans 		√	√	√
Long range transit route and facilities planning	√	√		
Travel Demand Analysis				
Development potential beyond the study area	√	√	√	√
Site specific travel demand from other approved developments within study area			√	√
Project specific travel demands and assignments		√	√	√
Area wide transit demands	√	√		
TDM measures (where applicable)	√	√	√	√
Transportation Analysis				
Arterial road link capacity, intersection location, configuration and control	√	√	√	√
Traffic control, lane requirements and operations at collector and local road intersections	√	√	√	√
Storage lengths and tapers for auxiliary lanes at all intersections		√	√	√
Impact on movement of farm machinery	√	√		
Transit route planning	√	√		
Bicycle route planning	√	√		
Off-site pedestrian facilities		√		√
On-street parking requirements/provisions		√	√	√
Driveway access and operations			√	√
Traffic infiltration potential	√	√	√	√
Traffic management plan	√	√		
Site Operations				

TIS Component	Site Development Process			
	Secondary Plan/Area Plan	Draft Plan of Subdivision	Rezoning	Site Planning
Driveway access design and operations including sight distances and corner clearances			√	√
On-site pedestrian/bicycle facilities and operations				√
On-site traffic calming elements				√
Parking and loading layout and design				√
Parking supply			√	√
Improvements and Funding				
Identification of major transportation infrastructure improvements	√	√	√	√
Site phasing and required improvements	√	√	√	√

Having established the TIS scope, the remainder of this guideline document, including the appendices, outlines the acceptable methodologies for which to document the required components. Provided next in **Exhibit 2-3** is a graphic illustrating the various components of a standard TIS.

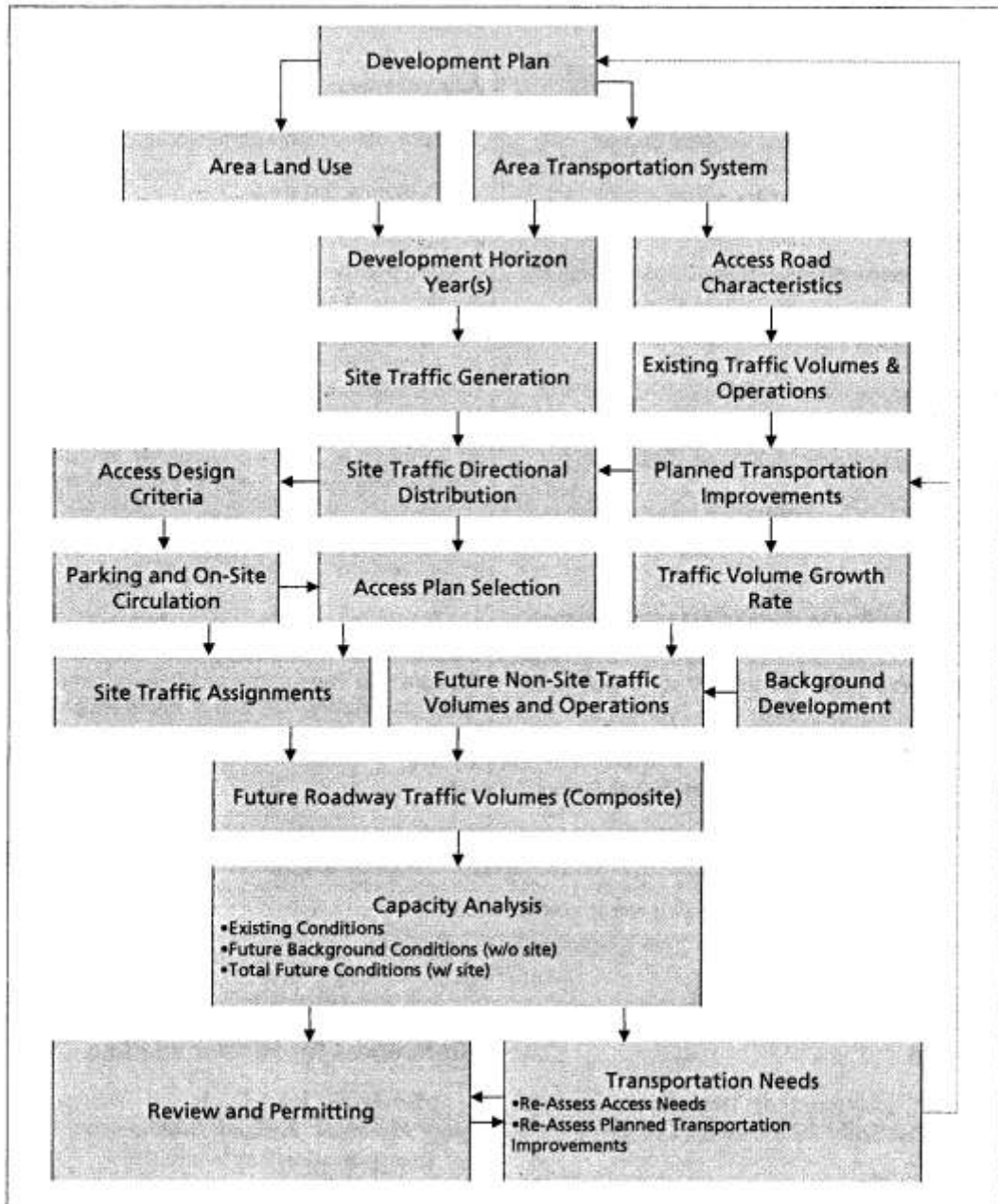
2.3 Other Jurisdictional Requirements

In addition to the requirements outlined herein for the City of Sarnia for the preparation and submission of a TIS, the Province of Ontario and/or County of Lambton may require additional information or analysis to satisfy their requirements for a development proposal if within their area of control along provincial or County roads within the City of Sarnia. The proponent shall meet with all affected jurisdictions simultaneously to expedite the process and ensure consistency for the TIS scope/approach.

2.4 Functional Life of TIS

Generally, a TIS will have a "functional life" of three years. However, major planning/ development, road network or transit changes within the study area during this timeframe may reduce the applicability of the document if they were not previously considered.

Exhibit 2-3: TIS Process



SOURCE: Adapted from Stover and Koepke 2002.

3. DESCRIPTION OF THE DEVELOPMENT PROPOSAL AND THE STUDY AREA

A description of the development proposal, its location and the proposed TIS study area is required to allow City Staff to identify the site location, its anticipated operation and area of potential impact. In addition, this valuable information allows timely review of key study assumptions. Provided below is a summary of the required elements of the project and study area.

3.1 Description of the Development Proposal

The following components of the project shall be summarized at the beginning of the transportation impact study document, *as applicable*:

- Existing land uses or special provisions in an Official Plan, Official Plan Amendments, Zoning By-law etc.;
- Planned staging of the development;
- Boundary roadways, nearby intersections and accesses to adjacent land uses or developments; and
- Proposed access points and types.

For a site-specific TIS, the following shall be provided, as applicable:

- Municipal address;
- Rezoning application number;
- Total building size and building locations;
- Floor space including a summary of each type of use;
- Number of parking spaces along with location and access arrangements;
- Number and type of loading areas along with location and access arrangements; and
- Anticipated date of occupancy and hours of operation, if known.

As applicable, the Proponent shall provide an area road network, subdivision drawings or a preliminary site plan, of a suitable scale, for consideration in the evaluation of the TIS.

3.2 Description of Study Area

3.2.1 DEFINITION OF THE STUDY AREA

Generally, the size of the study area will be a function of the size and nature of the development proposal and the existing and future operations of the surrounding road network.

The study area shall encompass all City and Provincial roads, intersections, interchange ramp terminals and transit facilities, which will be noticeably affected by the travel generated by the proposed development. Typically, this will include areas that may be impacted as follows:

- Increase by 10% or more of traffic volumes on adjacent facilities;
- Volume/capacity (V/C) ratios for overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above; or
- V/C ratios for exclusive movements increased to 0.95 or above.

Since the definition of a TIS study area cannot be based on definitive criteria, it is important that the Proponent contact City Staff to establish mutually acceptable study area limits and scope of study.

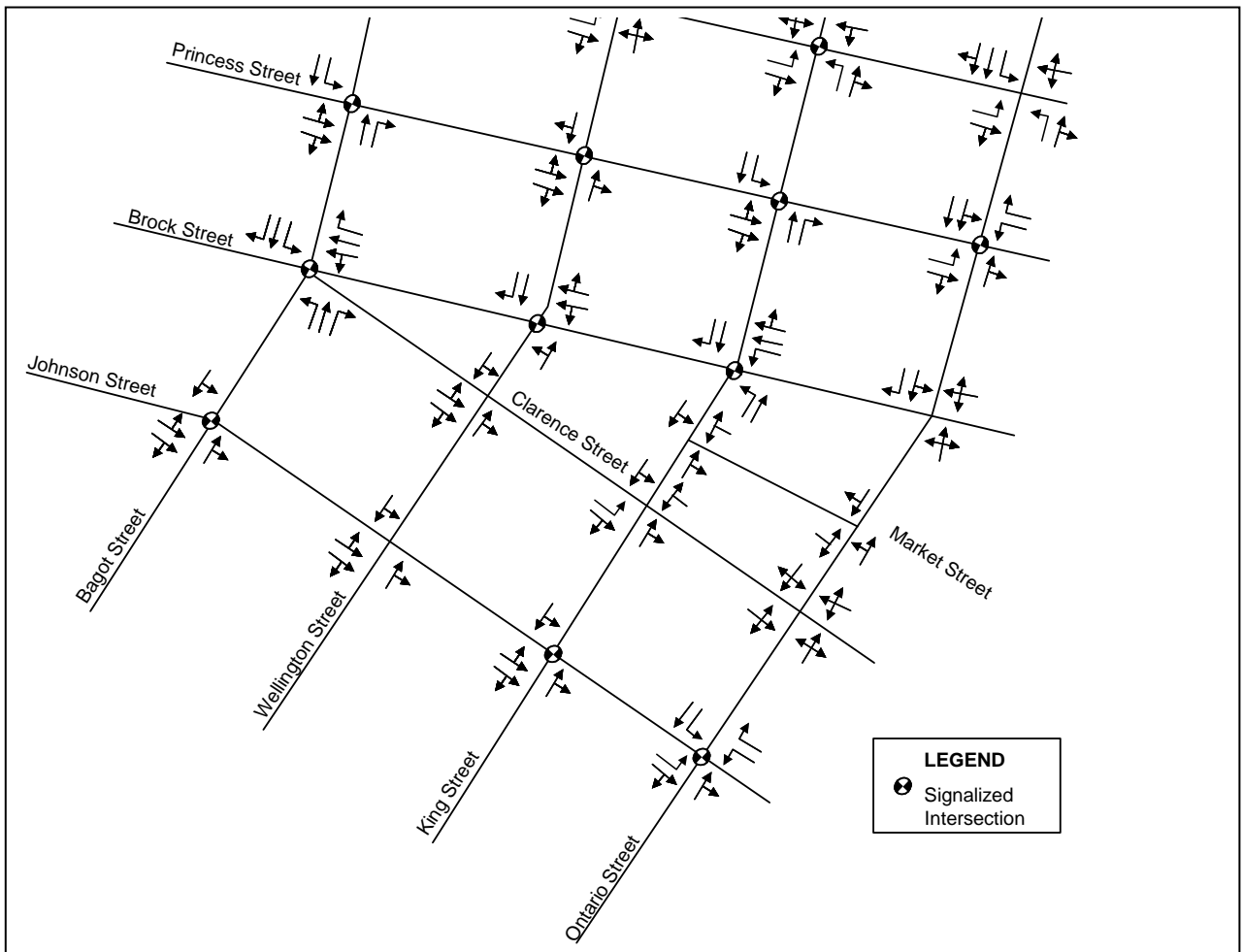
3.2.2 FEATURES OF STUDY AREA

A description and an illustration of the existing transportation system within the study area shall be provided in the existing conditions section of the TIS and shall include, but not be limited to, the following:

- Roads indicating the number of lanes, jurisdiction and posted speed;
- Signalized/unsignalized intersections and interchange ramps terminals indicating, as relevant:
 - Lane configurations, widths and storage lengths;
 - Available permitted movements;
 - Turning restrictions, by time of day/day of week, as applicable; and
 - Type and mode of control.
- Location of sidewalks, bicycle paths/routes and pedestrian control and school crossing guard locations;
- Location of on-street parking, parking/stopping restrictions adjacent to the development and those, which would affect the operation of the roadways and intersections in the study area;
- Truck haul routes/heavy vehicle load restrictions including the times they are in effect;
- Routes used for movement of farm machinery along and/or across public rights-of-way;
- Planned roadway and pedestrian improvements which will have a noticeable impact on the transportation operations within the study area; and
- Other developments in the study area, which are under construction, approved or for which an application has been submitted. Briefly describe the size and nature of these developments in general terms.

Included in **Exhibit 3-1** is an example of a typical graphic that should be included with the description of the study area.

Exhibit 3-1: Example Road Network and Traffic Control Graphic



4. ANALYSIS PERIODS

4.1 Horizon Year(s)

It is important that the Proponent obtain agreement from City Staff regarding appropriate horizon years for the specific development prior to proceeding. Generally, the horizon year will be taken as five (5) years from the full build-out of the site/area. Other considerations to be taken into account are as follows:

- Area plan/secondary planning horizons;
- Other area development proposals;
- Future roadway infrastructure initiatives; and
- Occupancy date.

Interim horizon years may need to be evaluated to account for:

- Phasing of developments;
- Interim site access arrangements; and/or
- Planned transportation system improvements.

4.2 Analysis Periods

Identification of the time periods for analysis should take into consideration the following:

- Type and size of development;
- Trip generation potential during weekday AM and PM peaks of the adjacent road network;
- Hours of operation;
- Reoccurring special events; and
- Seasonal fluctuations.

Typically, the weekday AM and PM peak traffic periods will constitute the "worst case" combination of site related and background traffic; however, in the case of retail, entertainment, religious, institutional, sports facility uses, weekend or site peak analysis may be required.

5. EXISTING TRANSPORTATION CONDITIONS

To provide a representative picture of the existing conditions, the following shall be included in the TIS, as applicable:

- Exhibit(s) showing the existing traffic volumes for the roadways and intersections in the study area including pedestrian volumes and heavy vehicle percentages. Traffic volumes may be acquired from the City if available, along with previous (no older than 3 years) transportation planning, traffic operation or transportation impact studies undertaken in the vicinity of the proposed development. In general, traffic counts more than three (3) years old or counts that do not appear to reflect current conditions, shall be updated by the applicant;
- Intersection analysis of the existing conditions for all peak periods. The analysis shall be undertaken with industry-accepted methodologies and assumptions. Intersection analysis should be undertaken using the Highway Capacity Manual (HCM) methodology, with preference for Synchro 6.0 (or newer) or the Highway Capacity Software (HCS). Calibration of the analysis to actual conditions must be undertaken;
- Summary of level-of-service including volume to capacity (v/c) ratios and critical queue lengths for all intersections and critical movements. Full documentation of the results of all level of service analyses shall be provided in an appendix; and
- Summary of key field observations of the existing conditions.

6. BACKGROUND TRAFFIC

6.1 Future Developments

The Proponent shall include anticipated traffic growth on the area road network from developments that are expected to proceed prior to or within the selected study horizons, as identified in **Section 4.1**. This may include land zoned for development, but for which there isn't an active development application. The Proponent shall contact the City's Planning and Building Department to establish the approved/active development proposals within the Study Area.

The background changes in traffic growth shall take into account:

- Developments that are being constructed;
- Occupancy levels of adjacent development, i.e., buildings which are constructed but not fully occupied; and
- Developments/land uses that are planned to be closed, or activities suspended which will noticeably impact the transportation system in the study area.

6.2 Future Transit Services

The Proponent shall review the development proposal, including the site design (if applicable), in the context of having the area serviced by existing or potential future Sarnia Transit service. The report should identify the development attributes that lend to the provision of transit service or connections. The following documents will provide guidance in this regard:

- Promoting Sustainable Transportation Through *Site Design: An ITE Proposed Recommended Practice*, Institute of Transportation Engineers, 2004; and
- Transit-Supportive Land Use Planning Guidelines, Ministry of Transportation and Ministry of Municipal Affairs of Ontario, April 1992,
http://www.mah.gov.on.ca/userfiles/HTML/nts_1_3173_1.html

7. SITE TRAVEL DEMANDS

7.1 Estimation of Traffic Demand

Available trip generation methods may include one or more of the following, and will be a function of the proposed development and its intended operations:

- Trip generation surveys from similar developments in the City of Sarnia or comparable municipality, which have similar operating characteristics as the proposed development;
- ITE Trip Generation rates provided that differences in the site operations and size are accounted for; and
- "First principles" calculations of anticipated trips to/from the site.

Where appropriate, it may be justified to reduce the base trip generation rates of the proposed development to account for:

- **Pass-by Trips** - Trips that represent intermediate stops on a trip already on the road network, i.e. a motorist stopping into a service station on their route to/from work. Pass-by trips must be accounted for in the turning movements into/out of the site;
- **Captive Market Effects** - Trips which are shared between two or more uses on the same site; and
- **Travel Demand Management (TDM)** – any strategies to be employed at the proposed development to reduce single occupancy vehicle (SOV) trip making, i.e., staggered work hours, ridesharing or company shuttle for commercial/industrial projects, or bike storage, bike lanes or transit-supportive design in a residential project.

All trip generation assumptions and adjustments assumed in the calculation of "new" vehicle trips shall be supported and documented. Sensitivity analysis shall be undertaken where trip generation parameters have the potential to vary considerably and most probable values cannot be readily identified.

7.2 Trip Distribution and Assignment

7.2.1 TRIP DISTRIBUTION

The trip distribution assumptions should be supported by one or more of the following, in the order of preference:

- Origin-destination surveys;
- Comprehensive travel surveys;
- Existing travel patterns; and/or
- Market studies.

Engineering judgement shall be used to determine the most applicable of the above methodologies for each particular application.

7.2.2 TRIP ASSIGNMENTS

Trip assignment assumptions shall reflect the most "probable" travel patterns considering the planned site access. Traffic assignments may be estimated using a transportation planning model or "hand assignment" based on knowledge of the proposed road network in the study area.

The assumptions shall take into account projected "pass by" trips, "diverted" trips, and "internal" trips.

7.3 Summary of Traffic Demand Estimates

A summary of the existing and future traffic demands shall be provided in a series of graphics that summarize the following:

- Existing traffic;
- Future background - existing plus background traffic growth;
- Site generated traffic; and
- Future total traffic - future background + site generated traffic.

Summary exhibits must be provided for each peak period and analysis horizon. In some cases, interim traffic conditions may need to be assessed to reflect phasing of developments, interim site access arrangements or planned transportation system improvements. Should pass-by or diverted trips be assumed, separate assignments should be shown to allow the reviewer to follow the logic.

8. EVALUATION OF IMPACTS OF SITE GENERATED TRAVEL DEMAND

The following are the steps that shall be undertaken to evaluate the impacts of the site-generated traffic on the area road network:

- Calculate the travel demand generated by the development proposal and assign it to the area road network consistent with the methodology outlined in **Section 7**.
- Undertake intersection analysis for all intersections and accesses within the study area;
- Provide a summary of level-of-service for all analysis periods and time horizons. Full documentation of the results of all level of service analyses shall be provided in an appendix.
- Identify signalized intersections where:
 - Volume/capacity (V/C) ratios for overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above;
 - V/C ratios for dedicated turning movements increased to 0.95 or above; or
 - Queues for an individual movement are projected to exceed available turning lane storage or impact upstream transportation facilities.
- Identify unsignalized intersections where the overall intersection or individual movement are operating level of service is “E” or above.
- Identify potential safety or operational issues associated with the following:
 - Weaving/merging;
 - Corner clearances;
 - Sight distances;
 - Vehicle-pedestrian conflicts;
 - Access conflicts;

- Traffic infiltration;
- Cyclist operations;
- Heavy truck movement conflicts;

All of the above considerations may not be applicable to the development site/area. It should also be recognized that the above list is not exhaustive and there may be other operational or safety concerns that may need to be addressed in the TIS; and

- Provide supplementary analysis required to address vehicle queue lengths/queue blocking, merging, weaving, gap availability/acceptance, sight distance availability, etc.

9. TRANSPORTATION SYSTEM IMPROVEMENTS

This section outlines the process of identification of physical and operational transportation system improvements and other measures required to ensure that the impacts associated with proposed development can be mitigated to the satisfaction of the City.

9.1 Identification of Required Improvements

The physical and operational remedial measures recommended in the TIS must address all deficiencies identified through the completion of the tasks outlined in **Section 8** of this document. The road network improvement requirements identified in the TIS must address and ensure that:

- Site generated traffic does not create conditions in which the capacity criteria summarized in **Section 8** are exceeded;
- Vehicular, pedestrian and cyclist operations and safety are maintained or improved; and
- Site generated traffic will not have a noticeable adverse impact on existing or proposed residential communities.

Additional analysis shall be provided to demonstrate that the proposed mitigating measures will in fact address the impacts of the site generated traffic. The City requests that functional plans be provided for all recommended road improvements. A “to-scale” drawing illustrating edge of pavement and lane designations is typically required. An exhibit should be provided within the body of the report, which illustrates the proposed physical improvements.

9.2 Implementation and Funding of Required Improvements

The Proponent must demonstrate that the required improvements are:

- Implemented in conjunction with the planned timing of the development. For example, some roadway improvements may require an Environmental Assessment prior to implementation (i.e. road widening). The Proponent must demonstrate that the development will be phased or timed, as necessary, in conjunction with the implementation of transportation infrastructure and/or service improvements, to ensure that travel supply and demand are kept in balance over time.

- Feasible given existing operational or physical constraints of the road network or field equipment, i.e., if an advance phase is required at a signalized intersection, then the ability of the controller to accommodate additional phases will need to be verified;
- Adequately funded by Proponent funds. The TIS must address to what extent the required transportation system or service improvements will be provided or contributed to by the Proponent.

10. SITE PLAN, PARKING AND ACCESS REQUIREMENTS

This section addresses site plan criteria, parking and access locations in order to develop a plan that will be harmonized with the surrounding developments and provide acceptable access and site circulation for all anticipated modes of travel.

Points of consideration with respect to site plan criteria, parking and access are:

- Evaluation of proposed access points with respect to possible mutual interference with other adjacent or opposed access points shall be undertaken;
- Evaluation of sight lines to ensure safe conditions in accordance with accepted standards;
- Evaluation of the potential for access and circulation movements with on-site parking, traffic control, drive through facility etc. to result in queues extending onto or vehicles backing onto public roadways;
- Demonstration that the parking policies and standards applied to the development are in accordance with City requirements, including bicycle parking;
- Evaluation of delivery vehicle/courier unloading facilities and access to these facilities with respect to location, size and design. Convenient access shall be provided in order to avoid the possibility of pick-up/delivery occurring on City rights-of-way;
- Description and evaluation of site access provisions for pedestrians and cyclists; and
- Description of the measures taken to make the proposed development accessible to persons with personal mobility limitations.

11. DOCUMENTATION AND REPORTING

It is recommended that the format of the TIS follow the guidelines outlined in this document, as applicable. The following is a recommended structure for a standard comprehensive TIS report:

- Site/Development Description;
- Study Area;
- Existing Conditions;
- Analysis Periods;
- Background Travel Demand;

- Site Generate Travel;
- Future Travel Demand;
- Future Transportation Operations and Impacts;
- Improvement Alternatives Required to Mitigate Traffic and Transit Impacts; and
- Conclusions and Recommendations.

A minimum of three (3) copies of the TIS with technical appendices, with the final number to be determined by the City, shall be provided to the City for review. An electronic copy of the text material and analysis shall be provided in Adobe Acrobat (pdf) and/or other file formats acceptable to the City. A technical appendix included under another cover shall be provided in the case where the analysis and other technical materials are too substantial to provide in one document. The City prefers to have large appendix materials provided in electronic format. Where possible, key maps, diagrams, graphs, tables and other exhibits shall be placed adjacent to the relevant text as opposed to an appendix.

APPENDIX A

EXAMPLE PROJECT RECORD

City of Sarnia
Transportation Impact Study

PROJECT RECORD

Development Name/Reference:

Company or Firm:

Original Report Name:

Original Submission or Addendum:

I hereby certify that the attached document has been prepared accurately and to the best of my knowledge. The assumptions and analysis contained herein have been formulated using sound transportation planning and traffic operations methodologies.

Individual accepting corporate responsibility:

Name:

Signature:

Project Manager (if applicable):

Name:

Other Individuals involved in the preparation of the study and can be contact regarding study content:

Name:

Name:

Engineer's Stamp

