CITY OF PICKERINGTON

City of Pickerington
Traffic Impact Study Requirements

June 14, 2021

PURPOSE

The City of Pickerington's (COP) objectives for a Traffic Impact Study (TIS) are as follows:

- Determine the appropriate location, spacing, and design of of new access connection(s) from proposed residential and commercial developments. It is the goal to minimize traffic operational and safety impacts to the City roadway system according to the roadway function and in accordance with the standard and guidelines of ODOT, FHWA, COP and other appropriate standards and guidance.
- Determine the adverse impacts to traffic operations and necessary mitigation measures required for the adjacent intersections and nearby roadway system necessary to maintain a satisfactory level of service and safety.
- Assure that the internal traffic circulation of the proposed development is designed to provide safe and efficient access to and from the adjacent and nearby roadway system consistent with City County and State requirements.

REQUIREMENT

TIS reports are required to be prepared by the site developer in the following situations:

a. Developments of any single type, or mixed-use types, that can be expected to generate more than 100 new peak hour vehicle trips on the adjacent street per ITE Trip Generation Manual (latest edition).
b. Developments of less than 100 new peak-hour trips in problem areas such as high crash locations, congested areas, or other areas of local concern to the City.
c. Any change to previously approved development plans or plats that will increase the site traffic generation by more than 15% if more than 100 peak-hour trips are involved will:
    i. Void any previously approved TIS document;
    ii. Require submission and approval of a new TIS document.

d. Any change that will cause the directional distribution of traffic to change by more than 20% where site traffic generation can be expected to ultimately be over 100 peak-hour trips.
e. Any incomplete project when the original TIS is more than two years old.
f. Any agreement between the developer and the City requires cost-sharing contributions to major roadway improvements.
g. Any other situation where the City Engineer believes it is important to understand the impact of traffic from the new development on its surrounding area.

STUDY GUIDANCE

A TIS submitted to the COP should generally follow the guidance in the Institute of the most recent version of Transportation Engineer's *Transportation Impact Analysis for Site Development* and other generally accepted industry methodologies and procedures.

Pre-Study Meeting

Prior to the start of the TIS, a meeting is to be scheduled with the appropriate COP staff and the TIS preparer. This meeting will establish the following issues and needs that the TIS will address:

- Study Area
- Opening and Design Year
- Field Data Collection
- Development Phasing (if applicable)
- Source of Background Traffic Growth Rates
- Analysis Required:
    - Capacity Analysis
    - Signal Warrant Analysis
    - Turn Lane Warrant Analysis
    - Intersection Safety Distance Analysis
- Existing Safety Issues (high crashes, visibility concerns, etc.)

The TIS preparer shall submit a Memorandum of Understanding (MOU) which details the assumptions and methodologies agreed upon at the pre-study meeting. The MOU should be submitted to COP within one week of the pre-study meeting.

Study Area

The Study Area for a TIS will be determined in cooperation with the City of Pickerington based on the size and potential impacts of the proposed change in land use. Typically, the study area will consist of:

- All proposed site driveways
- At least one public road intersection on either side of the site

- Other intersections or high-volume driveways that could be significantly impacted by the traffic induced by the development (as determined by the COP)

The City of Pickerington retain the right to modify the minimum study area based on local or site-specific issues.

Design Year Traffic

The TIS is to analyze the opening year of the proposed development and the horizon year which is 10-years from the opening year. The City of Pickerington may require different horizon years based on the complexity and phasing of the proposed development. Acceptable methods for future traffic forecasting are outlined later in this document.

Traffic Counts

Traffic counts shall be performed using manual or automated collection devices that have been documented to produce accurate results.
All traffic counts must be taken on an average weekday (Tuesday, Wednesday, or Thursday) (no holidays, inclement weather, special events, etc.) when nearby schools are in full session, unless otherwise directed by the COP. In some cases such as where the proposed development lies in a heavily commercial area, weekend counts may be requested.

24-hour counts to determine local peak hours are encouraged. These counts can be taken from other recent studies or MORPC's traffic count database if available. 24-hour counts should be less than 5 years old, and more recent if significant changes have occurred in growth and development in the study area since the count.

Intersection turning movement counts will be performed at all study intersections for the purpose of determining peak hours volumes for the hours agreed to by the COP. Count data may need to be indicated in 15-minute intervals. Typical traffic count time and duration requirements are:

- Weekday morning peak period (2 hours)
- Weekday evening peak period (2 hours)
- If traffic within the study area is significantly influenced by a school, additional peak periods coinciding with the school peak hours may also be required.
- If the location is in an area that is primarily commercial, recreational, or of another use that generates significant Saturday traffic, Saturday peak period (2 hours typical) traffic volumes may also be required.
- If the site involves a church or is located near a large church, Sunday peak period (2 hours typical) may also be required.

Intersection turning movement counts should include separate accounting for heavy vehicles (B&C classifications as defined by ODOT). Cyclist and pedestrian movement

volumes should also be collected in built-up areas or if specifically requested by the COP.

Traffic Forecasts
An appropriate background growth rate shall be applied to existing traffic volumes on study area roadways to estimate future traffic volumes on the roadways without the proposed development ("no-build" traffic volumes). The applicant is encouraged to request a growth rate from the Mid-Ohio Regional Planning Commission (MORPC), which is based on their regional travel demand model. If a MORPC generated rate is not available or inappropriate to use for other reasons, a rate can be developed from other historical data and proposed to the COP for use.

Additionally, any significant increase in vehicle trips due to other anticipated (approved or likely to occur) development in the study area shall be calculated using the current edition of the ITE manual and added to the background growth. The additional development to be included shall be agreed upon with the COP. If appropriate, a reduction in the background growth rate supplied my MORPC may be appropriate since some or all of the additional development may already be accounted for in the MORPC model.

Daily, peak hour of the adjacent street, and peak hour for the land use, trips for all development proposed by the applicant shall be calculated using the ITE *Trip Generation Manual*.

Estimates for Pass-by, Diverted Linked, and/or Internal Capture trips should be produced based on the procedures and information provided in the ITE *Trip Generation Manual, Volume 1: Users Guide and Handbook, NCHRP Report 684 – Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*, or other applicable and defensible data and methods.

Operational Analysis
The analysis must include the design years of opening day of the full development and 10-years after. Additional analysis years may be required if a phased approach is planned to implement the development.

All analyses shall examine the peak hour traffic volume for the adjacent roadway and the peak hour traffic volume of the proposed development. The analysis shall be prepared for the morning and afternoon (AM and PM) peak hours. Land use classifications which experience high trip generations during periods outside of weekday street peak hours (schools, special events, recreational uses, etc.) shall require analyses of off peak these hours.

The desirability of access locations shall be evaluated based on the requirements of the *Ohio Department of Transportation State Highway Access Management Manual* and other appropriate industry accepted access guidelines (*TRB Access Management Manual*). Intersection and stopping sight distance shall also be considered when locating

new or modifying existing access locations and be in accordance with the latest version of ODOT L&D manual Volume 1.

The TIS shall examine "before and after" conditions to evaluate traffic impacts associated with the proposed development (Build/No-Build). The impacts of all access alternatives on roadway capacity and throughput shall be calculated for the opening year Build and No-Build conditions and for the 10-year (from opening-day) Build and No-Build conditions. Analysis shall be performed using *Highway Capacity Software*, *Synchro*, or other software as agreed to and acceptable to the City, which calculates results based on the current version of the *Highway Capacity Manual*.
Should the analysis indicate that the degradation below levels of service for either the opening day or design years for the build condition but not the no build conditions, then mitigation measures must be recommended to improve the levels of service to the desired threshold.

For all proposed access points or access modifications, an overall intersection level of service (LOS) of "D" shall be obtained for the 10-year analysis, with no single movement being worse than LOS E or having a volume to capacity ratio of more than 0.90. At adjacent, off-site, intersections and access points, the LOS calculated for each intersection approach in the proposed condition shall be the same or better than achieved by the existing intersections, with no individual movement being worsened by more than one LOS grade. For example, a left turn movement may not be degraded from a "C" to an "E." Recommendations shall be made in the TIS for access points and external roadway improvements such as the addition/extension of turn lanes and through lanes as well as traffic control devices necessitated by the construction of the proposed development. The developer is responsible for mitigating the impacts of traffic generated by the project.

All improvements shall be constructed to provide adequate traffic queuing storage based on the ODOT Location and Design Manual, Vol. 1. Build traffic queuing lengths at each existing intersection shall also be calculated, tabulated, and compared to available storage lengths. Queuing storage deficiencies and improvements needed to correct these deficiencies shall be identified for opening year and 10-year Build conditions.

Existing and potential pedestrian and bicycle traffic flows shall be considered. If appropriate, a pedestrian and/or bicycle flow and access plan (sidewalks, paths, bike lanes roadway crossings, signal improvements, etc.) shall be included in the study.

Signal warrant analyses shall be conducted at all multi-movement access points considered in each alternative scheme. Any access which meets signal warrant thresholds but does not otherwise meet spacing requirements and standards as established for the roadway per the *State Highway Access Management Manual* may be required to be redesigned, reconstructed, and/or relocated. The study should evaluate the feasibility of coordinating any proposed signals with other existing signals within the study area to achieve desired traffic progression.

Left and right turn lane warrant analysis shall be conducted at each unsignalized site access point. The turn lanes warrants shall be evaluated based on ODOT *Location and Design Manual*. If a turn lane is warranted the length of the turn lane shall be calculated based on the criteria contained in ODOT *Location and Design Manual*, Volume 1.

The study should recommend adoption of the access scheme which provides the safest design and most efficient level of service consistent with the purpose, requirements, and design standards of the *State Highway Access Management Manual*, the ODOT *Location and Design Manual*, and COP requirements. The recommended access scheme should not aggravate an existing safety problem or create a potential new safety problem. All sight distances and other roadway geometry shall meet these established standards and guidelines.

ODOT Requirements

It should be noted that if ODOT review and approval of the traffic study is also required, the applicant should coordinate with ODOT District 5 to determine additional Traffic Impact Study requirements.

Memorandum of Understanding (MOU)

A MOU shall be prepared to define and clarify the above requirements in writing. The FCEOCOP shall approve the MOU prior to the completion and submission of the TIS. A typical MOU shall include the following:

- A preliminary site plan showing:
  - the proposed location, land use type, and size of all development components
  - the locations of all existing access points to the public roadway system
  - the proposed site's internal traffic circulation system (conceptual)
  - existing and proposed property lines and ownership
- Proposed Study Area with adjacent intersections identified that will be included in the study
- Other development within the study area that is proposed, planned, in construction, or not yet completely occupied
- A table showing calculated Daily, Peak Hour of the Adjacent Street Traffic, and Peak Hour of the Generator trips for all development
- Proposed traffic count locations and times and justification
- Estimated daily and peak hour trips to be generated by each development component. Saturday and/or Sunday trips should be included if appropriate
- The assumed background growth rates or the methodology for obtaining for all existing roadways in the study area
- Assessment of the need for a pedestrian/bicycle flow plan
- Opening Year and Design Year of study
- Any proposals for realigning or relocating any public roadways