



When do you need a traffic study?

By Mike Spack, PE

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The short answer – when a government agency tells you. The longer answer - traffic studies are typically required when there is controversy with a neighborhood group about your project or your development needs to go through an environmental review process (such as an Environmental Assessment Worksheet, Alternative Urban Areawide Review, or Environmental Impact Statement). The purpose of this article is to answer two questions:

1. What size development should trigger the need for a traffic study?
2. If you do need a traffic study, how big should the scope be?

The Environmental Quality Board has general guidelines for traffic studies, but there is a lot of room for interpretation by the Responsible Government Unit. Almost no government agencies in Minnesota have written guidelines for traffic studies, with the notable exception of Scott County. The Institute of Transportation Engineers (ITE) has developed a Recommended Practice titled *Transportation Impact Analyses for Site Development* (referred to as *ITE's Recommended Practice* in the rest of this article). It is important to find out if you are working in a jurisdiction that has published guidelines. If not, *ITE's Recommended Practice* should be your guide.

What size development will likely trigger the need for a traffic study?

ITE's Recommended Practice states that “in lieu of other locally preferred thresholds, it is suggested that a traffic impact study be conducted whenever a proposed development will generate 100 or more added (new) trips during the adjacent roadways’ peak hour or the development’s peak hour.” Table 1 presents thresholds for different land uses that will generate 100 vehicle trips during the peak hour.

Table 1 – Land Use Thresholds That Will Trigger the Need for a Traffic Study

Land Use	Development Size
Residential:	
Single Family Home	90 Dwelling Units
Apartment	150 Dwelling Units
Owned Condominium/Townhouse	190 Dwelling Units
Mobile Home Park	170 Dwelling Units
Shopping Center	6,000 sq. ft. (Gross Leasable Area)
Fast Food Restaurant with Drive-in	3,000 sq. ft. (Gross Floor Area)
Gas Station with Convenience Store	7 Fueling Positions
Bank with Drive-in	2,000 sq. ft. (Gross Floor Area)
General Office	67,000 sq. ft. (Gross Floor Area)
Medical/Dentist Office	29,000 sq. ft. (Gross Floor Area)
Research and Development Facility	71,000 sq. ft. (Gross Floor Area)
Light Industrial/Warehousing	185,000 sq. ft. (Gross Floor Area)
Manufacturing Plant	144,000 sq. ft. (Gross Floor Area)

Source: ITE's *Trip Generation*, 2003

I have written a lot of memos that detail how much traffic will be generated by little developments that won't have any impact on the neighboring roadways. Table 1 can be used by developers to avoid hiring me (or other traffic engineers) to write those memos.

How big will the scope of the traffic study be?

This is a big question because the scope of the study will lead to the physical mitigation measures the developer will be responsible for. On a small development, the developer might be required to add a turn lane at the main driveway. For a regional mall, the developer might be required to build a freeway interchange a mile away. If there aren't feasible mitigation measures, the responsible government agency may require a less dense development or a phasing plan that is dependent on public infrastructure improvements.

ITE's Recommended Practice details the study area limits that should be used for different size developments. Table 2 presents these suggested study area limits.

Table 2 – Suggested Study Area Limits for Transportation Impact Analyses

Development	Study Area
Fast Food Restaurant	Adjacent intersection if corner location
Service Station (with or without fast food counter)	Adjacent intersection if corner location
Mini-mart or convenience grocery with or without gas pumps	660 feet from access drive
Other development with fewer than 200 trips during any peak hour	1,000 feet from access drive
Shopping center less than 70,000 sq. ft. or Development with 200 to 500 peak hour trips	All signalized intersections and access drives within 0.5 miles from a property line of the site and all major unsignalized intersections and access drives within 0.25 miles
Shopping center between 70,000 sq. ft. and 100,000 sq. ft. or Office or industrial park with 300 to 500 employees or Well balanced, mixed use development with more than 500 peak hour trips	All signalized and major unsignalized intersections and freeway ramps within 1 mile of a property line of the site
Shopping center with more than 100,000 sq. ft. or Office or industrial park with more than 500 employees or All other developments with more than 500 peak hour trips	All signalized intersections and freeway ramps within 2 miles of a property line, and all major unsignalized access (streets and driveways) within 1 mile of a property line of the site
Transit Station	0.5-mile radius

The last piece in developing the scope of a traffic study is developing the horizons that should be studied. Table 3 presents the recommended study horizons from *ITE's Recommended Practice*.

Table 3 – Suggested Study Horizons

Development Characteristic	Suggested Horizon(s)
Small Development (less than 500 peak hour trips)	<ul style="list-style-type: none"> • Anticipated opening year, assuming full build-out and occupancy
Moderate Single Phase Development (500 – 1,000 peak hour trips)	<ul style="list-style-type: none"> • Anticipated opening year, assuming full build-out and occupancy • 5 years after opening date.
Large Single Phase Development (more than 1,000 peak hour trips)	<ul style="list-style-type: none"> • Anticipated opening year, assuming full build-out and occupancy • 5 years after full build-out and occupancy • Adopted transportation plan horizon year, if the development is significantly larger than that included in the adopted plan or travel forecasts for the area
Moderate or Large Multiple Phase Development	<ul style="list-style-type: none"> • Anticipated opening years of each major phase, assuming full build-out and occupancy of each phase • Anticipated year of complete build-out an occupancy • Adopted transportation plan horizon year, if the development is significantly larger than that included in the adopted plan or travel forecasts for the area • 5 years after opening date if completed by then and there is no significant increase (less than 15 percent) in trip generation from adopted plan or area transportation forecasts

Conclusions

The purpose of this article is to give you a quick reference you can use on your projects. Table 1 gives thresholds to determine if your development will generate enough traffic to warrant a traffic study. Tables 2 and 3 will help you develop the appropriate scope when you do need a traffic study to make sure your development is adequately studied without going overboard. When you do need a traffic study, I recommend you hire a traffic engineer who is familiar with ITE's *Transportation Impact Analyses for Site Development*.