



Greater Bemidji Area Joint Planning Board  
City of Bemidji Northern Township

317 4<sup>th</sup> Street NW Bemidji, MN 56619 Office (218) 759-3579 Fax (218) 759-3591

## Traffic Study Requirements Guidance

### I. Purpose

This guidance was created based on the Institute of Transportation Engineers (ITE) published Recommended Practice report *Transportation Impact Analyses for Site Development*. Section 1010 Non-Motorized Transportation of the Joint Planning Board (JPB) zoning ordinance was also referenced in creating this guidance document. This is guidance is meant to help the JPB work with site developers and the regulating road authority on determining a need for a traffic study analysis for each individual project. The JPB anticipates each projects location, size, proposed land use(s), and the road authority’s long-term plan will have a different level of impact on the transportation system so therefore this document is a guide not a requirement.

### II. Traffic Impact Study Guidelines based on ITE Recommended Practice

A baseline recommendation is a traffic study is necessary anytime a proposed development is expected to generate 100 new trips to the adjacent street network during the a.m. or p.m. peak hour of the adjacent street traffic. Or whenever a development will generate 750 or more new daily trips. Whenever a proposal does not meet the baseline recommendation a traffic memorandum may be sufficient, but a full Traffic Impact Study may still be required by the City Engineer.

### III. Land Use Thresholds Based Upon Weekday Trip Generation Characteristics

The following table from ITE outlines a base estimate for different land uses proposed trip generation characteristics to provide estimates of peak-hour trips. If a proposed land use is not designated on this table the developer may be required to submit estimated trip generation characteristic and method used for generating number.

Land Use	≤ 100 Peak Hour Trips	≤ 500 Peak Hour Trips
Residential:		
Single Family Home	95 Units	565 Units
Apartment	150 Units	880 Units
Condo/Townhouse	190 Units	1,320 Units
Mobile Home Park	170 Units	N/A
Shopping Center (GLA)	6,000 Sq. Ft.	70,000 Sq. Ft.

Fast-Food Restaurant with Drive-In (GFA)	3,000 Sq. Ft.	N/A
Gas Station with Convenience Store (Fueling Positions)	7 Fueling Positions	N/A
Bank with Drive-In (GFA)	3,900 Sq. Ft.	N/A
General Office (GFA)	67,000 Sq. Ft.	376,000 Sq. Ft.
Medical/Dentist Office (GFA)	31,000 Sq. Ft.	N/A
Research and Development Facility (GFA)	73,000 Sq. Ft.	513,000 Sq. Ft.
Light Industrial / Warehousing	180,000 Sq. Ft.	460,000 Sq. Ft.
Manufacturing Plant	149,000 Sq. Ft.	661,000 Sq. Ft.
Park and Ride Lot with Bus Service	170 Parking Spaces	655 Parking Spaces

Notes:

Rates/equations used to calculate above thresholds (for all uses but park and ride lot with bus service) are from Trip Generation for the weekday p.m. peak hour of the adjacent street (Institute of Transportation Engineers, 2008). For the park and ride lot with bus service, the weekday a.m. peak hour of the adjacent street was used. For a shopping center, the Saturday peak hour of the generator produces more trips than the weekday p.m. peak hour of the adjacent street. Vehicle trip generation rates for most land uses decrease as the size of the development increases. Thus, the size of the development generating 500 trips is expected to be more than five times the size of a development generating 100 trips.

Sq. Ft. = square feet

GLA = gross leasable area

GFA = gross floor area

N/A – not available

SOURCE: Stove and Koepke, 2002 (adjusted to reflect rates and equations in Trip Generation, 2008).

**IV. Will a Traffic Impact Study or Traffic Memorandum be required?**

If this guidance document using the tables provided by ITE clearly identifies the need for a traffic study one shall be required. If it is not clear the JPB and regulating road authorities that may be impacted will need to decide if a traffic study will be required. The JPB and regulating road authority also, will need to decide what level of traffic analysis needs to be studied and to what extent. If a traffic impact study will not be required a traffic memorandum may need to be reviewed by the JPB and regulating road authority.

**V. Typical Requirements of a Traffic Memorandum**

- 1) Purpose and scope of report with study area identified.
- 2) Proposed land use types and sizes.

- 3) Existing estimated trips vs. proposed estimated trip generation during peak hour.
- 4) A site plan showing proposed ingress/egress to development and all signalized and non-signalized intersections within 1,000 feet of the proposed development.
- 5) Engineered determination that proposed development will not have a negative impact on surrounding transportation system with the proposed estimated generated trips.

## **VI. Typical Requirements of a Traffic Impact Study**

It's recommended to review project scope with City of Bemidji Engineering Staff prior to initiating the traffic impact study.

- 1) State the purpose and scope of the report and identify the study area of the project.
- 2) State all assumptions used in analysis and make reference to and/or include all supporting documents used to prepare the report.
- 3) Describe, in detail, proposed land use type(s) and size(s).
- 4) Identify number, location and type of proposed access drive(s) to the development site.
- 5) Evaluate intersection sightline distances from proposed driveways.
- 6) Provide a detailed summary of data collection efforts and results.
- 7) Estimate number of trips generated by the development site. Identify most critical analysis period.
- 8) Determine anticipated directional distribution of site-generated traffic.
- 9) Intersection assignment of site traffic including through and turning movements
- 10) Internal circulation of site traffic and parking
- 11) Need for turning lanes or bypass options at proposed driveway location(s)
- 12) Traffic control needs and warrants
- 13) Determine anticipated future non-site (background) traffic volumes.
- 14) Identify other "nearby approved" developments within the study area.
- 15) Evaluate "existing + site + nearby approved developments" traffic operating conditions to assess cumulative impact of traffic for pre-specified target year.

- 16) Recommend on-site and/or off-site road improvements for each traffic conditions separately (i.e. “existing”, “existing + site”, “existing + site + nearby approved developments”, and “future long-term”).
- 17) It is useful to address percent contribution to off-site road improvements by individual development sites (i.e. proposed and other nearby development site), based on number of new trips each and every one of these development sites generate and add to adjacent street network primarily during critical peak-hour.
- 18) Include findings and recommendations using nontechnical jargon to help public officials with their decision making.

**VII. The traffic analysis will be used for.**

- 1) To provide developers or designers with recommendations regarding site selection, site transportation planning and traffic impacts.
- 2) To assist public agencies in reviewing the attributes of proposed developments in conjunction with requests for annexation, land subdivision, zoning changes, building permits, or other development reviews.
- 3) To establish or negotiate mitigation requirements where off-site impacts require improvements beyond those otherwise needed. Such reports also have been used by public agencies as the basis of levying impact fees or assessing developer contributions to roadway facility improvements.

**VIII. Does this development require non-motorized transportation improvements?**

Section 1010 of the JPB zoning and subdivision ordinance allows the JPB to require non-motorized transportation improvements when developing or redeveloping a site. The requirement is meant for commercial, mixed-use, and urban residential districts. The following factors are given high priority when determining the need for on-site non-motorized transportation improvements.

- 1) Whether the corridor provides a primary access, to a significant destination such as a community or Regional Park or recreational area, a school, a commercial area, grocery store, or an employment center. Any destination that is within .5 miles shall meet these criteria.
- 2) Whether the corridor is in an area where a relatively high number of users of non-motorized transportation modes can be anticipated.
- 3) Whether a public road corridor provides important continuity or connectivity links for an existing or proposed trail, path, or sidewalk network.

When one or more of the context factors listed in this section is met, new development, major alterations, conditional/interim use permits, and subdivisions requests shall include on-site access and circulation design for pedestrians, bicyclists, and motor vehicles, and

integrate these facilities with adjacent properties to support the safe travel of persons of all ages and abilities. Pedestrian and bicycle facilities shall have a paved surface width of not less than five feet and shall provide ADA (Americans with Disabilities Act) compliant accessibility.

The following outlines exemptions from non-motorized transportation requirements.

- 1) The Planning Administrator and/or the City Engineer (when applicable) jointly determine that the construction of such facilities is not practically feasible or cost effective specifically because of significant or adverse environmental impacts to streams, flood plains, remnants of native vegetation, wetlands, steep slopes, or other critical areas, or due to impacts on neighboring land uses. Cost alone is not a reasonable factor.
- 2) The Planning Administrator and/or the City Engineer (when applicable) jointly determines there is insufficient space to safely accommodate new facilities or there are relatively high safety risks.
- 3) There is a lack of need for the facilities due to a failure to meet each of the context factors listed in this section. If a residential development proposal does not meet both context factors 2 and 3 as outline in Section 1010 (B) above, the Planning Administrator can waive the non-motorized transportation requirements.
- 4) Permits for accessory uses, paving of driveways, sign requests, landscaping, farm animals and other actions that do not result in new development, major alterations, conditional/interim uses, or subdivision of land are exempt from the Non-Motorized Transportation Standards.
- 5) If the road the serves as the primary access to the proposed development is not paved, and any new roads will not be paved as a result of the development, the Non-Motorized Transportation Standards shall not apply.