

Traffic Impact Assessment Requirements

City of Oakwood
Hall County, Georgia



Table of Contents

INTRODUCTION	- 1 -
FORMAT AND CONTENT OF STUDY.....	- 1 -
APPENDIX A: GLOSSARY OF TERMS	- 6 -
APPENDIX B: SUPPLEMENTAL GUIDANCE.....	- 10 -
APPENDIX C: SUBMITTAL AND REVIEW OF STUDY	- 11 -

ACKNOWLEDGEMENTS

These requirements for the preparation of Traffic Impact Assessments in the City of Oakwood, GA were developed in cooperation with the City of Oakwood Department of Planning and Development.

For more information, contact:

Stan Brown, City Manager
City of Oakwood
Post Office Box 99
Oakwood, GA 30566

Telephone Number: (770) 534-2365
Fax Number: (770) 297-3223
E-mail: sbrown@cityofoakwood.net

Consultant



Clough Harbour & Associates LLP

1800 Peachtree Street NW
Atlanta, GA 30309-2518
(404) 352-9200
www.cloughharbour.com

July 2007

**CITY OF OAKWOOD
HALL COUNTY, GEORGIA
TRAFFIC IMPACT ASSESSMENT REQUIREMENTS
December 12, 2007**

INTRODUCTION

A Traffic Impact Assessment must evaluate the adequacy of the existing transportation system to serve the proposed development and determine the expected effects of the proposed development on the transportation system. The Traffic Impact Assessment must provide adequate information for City staff to evaluate the development proposal and, when appropriate, recommend conditions of approval.

The qualified professional supervising the preparation of the Traffic Impact Assessment is encouraged to coordinate preparation with local staff and staff from other jurisdictions, as appropriate, to ensure that all necessary components are included in the Traffic Impact Assessment and to reduce revision and review time.

FORMAT AND CONTENT OF STUDY

In order to be reviewed, the Traffic Impact Assessment shall include at least the following minimum components:

- (a) **Title Page**: A title page listing the name of the proposed development and its location.
- (b) **Table of Contents**: A table of contents outlining the study shall be provided.
- (c) **Executive Summary**: An executive summary, discussing the size and characteristics of the development, the major findings of the analysis and any recommendations made by the qualified professional.
- (d) **Vicinity Map**: A vicinity map showing the location of the proposed project in relation to the transportation system of the area.
- (e) **Study Area Map**: A map of the Traffic Impact Assessment study area identifying the intersections and roadways included in the study. See Appendix A for guidance in determining the extent of study.

(f) **Inventory of Transportation Facilities:** A description of the transportation facilities in the study area, including:

- roadway names, locations and functional classifications
- intersection lane configurations
- intersection traffic control (including signal timing and phasing)
- existing rights-of-way
- transit routes and stops (if any)
- pedestrian and bicycle facilities
- planned transportation system improvements

An existing lane configuration sketch shall be submitted for all roadways and intersections within the study area.

(g) **Site Plan and Development Data:** A complete description of the proposed development, including a site plan, with the best available information as to the nature and size of each proposed use and the proposed location and traffic control of all proposed access points. The distance from all proposed access points to adjacent accesses and/or streets, including those across a street right-of-way from the subject development, shall also be identified.

(h) **Existing Traffic Volumes:** Peak hour and total daily traffic volumes on all arterial, collector and local streets within the study area. Source traffic count data should, as a rule, not be more than one year old when the report is prepared. Traffic counts between one and three years old may be used if factored to the current year. Traffic counts older than three years will not be accepted.

(i) **Facility Performance:** Existing performance of the transportation system for all study intersections and road segments within the study area, including applicable measures such as:

- Levels of Service (LOS)
- Volume/Capacity ratios (V/C)
- Control Delay.

(j) **Trip Generation:** Complete trip generation figures for all aspects of the proposed development. The source for trip generation rates shall be "*Trip Generation*" published by the Institute of Transportation Engineers (ITE), most recent edition, unless otherwise approved by the City Engineer.

For developments expected to generate more than thirty (30) trucks per day, the trip generation data shall include separate figures for trucks. If phased development is proposed, the study shall include projections for the year that each phase of the development is planned to be complete.

The Traffic Impact Assessment shall also include trip generation data for any pending and approved developments that would affect the study area. The City Engineer shall facilitate the review of applicable files by a qualified professional to determine the names and development characteristics of pending and approved developments in the study area.

- (k) **Trip Distribution and Assignment:** Trip distribution for the proposed development. For developments expected to generate more than thirty (30) truck trips per day, the study shall include separate trip distribution figures for trucks.
- (l) **Forecast Traffic Volumes Without the Development:** Forecast traffic volumes without the development, on all arterial, collector and local roads within the study area, in the anticipated opening year of the proposed development (assuming full build-out and occupancy) and in the applicable horizon year(s).

Qualified professionals should consult city transportation and/or planning staff for information to determine the most appropriate sources or methods of determining future traffic volumes. If phased development is proposed, the Traffic Impact Assessment shall include projections for the year that each phase of the development is planned to be complete.

- (m) **Forecast Performance Without the Development:** Forecast performance, including relevant measures such as Levels of Service (LOS), Volume/Capacity (V/C) ratios and Control Delay of the transportation system without the development for each applicable project horizon year(s).
- (n) **Forecast Traffic Volumes With the Development:** Forecast traffic volumes with the development, on all arterial, collector and local roads within the study area, in the anticipated opening year of the proposed development (assuming full build-out and occupancy) and in the applicable horizon year(s).
- (o) **Forecast Performance With the Development:** Forecast performance, including relevant measures such as Levels of Service (LOS), Volume/Capacity (V/C) ratios and Control Delay of the transportation system with the development for each applicable project horizon year(s).
- (p) **Sight Distance:** A safety analysis of the site accesses and an assessment whether adequate sight distances are provided at driveways and streets abutting the development.
- (q) **Operational Characteristics:** Analysis of prevailing operating speeds, if significantly different than speed limits, right and left turn lane warrants, queue lengths, acceleration and deceleration lanes including lengths and tapers, throat lengths, channelization, and other characteristics of the site accesses, which exist and may be needed, as appropriate.

The Traffic Impact Assessment shall address whether driveways and intersections are located and spaced safely and designed to accommodate expected traffic volumes and maneuvers. The operational characteristics analysis shall also evaluate the turning and traveling characteristics of the vehicles that will be using the proposed development and the adequacy of the geometrics of the existing and proposed roadway (public and/or private) configurations to accommodate these characteristics.

- (r) **On-site Circulation:** The Traffic Impact Assessment shall address whether on-site vehicular and pedestrian circulation and parking layouts are safe and efficient.

- (s) **Significant Impacts:** Analysis, as appropriate, of any potential adverse or controversial effects of the proposed development on the transportation system in the area. Examples of possible effects include, but are not limited to:
- infiltration of non-residential traffic into residential neighborhoods
 - traffic noise
 - creation of potential for traffic violations
 - conflicting turning movements with other driveways
 - any new pedestrian or bicycle transportation needs arising from the development
- (t) **Mitigation Measures and Costs:** The Traffic Impact Assessment shall identify and describe specific mitigation measures and associated costs that will provide future horizon-year levels of service with the development that are no worse than future horizon-year levels of service without the development, unless a waiver/modification is granted by the City Engineer based on future design year conditions with development which are safe and within the range of acceptable operation (LOS C or better in rural areas, LOS D or better in urban areas).

For locations where the level of service of the horizon-year without the development is Level of Service F, the mitigation improvements shall provide an estimated delay which will be no worse than the delay for the horizon-year without the development.

If a new intersection is being established to serve as access to the development, the intersection shall be designed to operate at the following Level of Service in the future horizon year representing the full-build-out and occupancy of the project:

Rural Setting: Level of Service C or better
Urban Setting: Level of Service D or better

If roadway improvements are needed, the study shall show a drawing at an appropriate (readily legible) scale for all recommended lane configurations.

Signal Warrants: If signalization is indicated by the operations analyses, a traffic signal warrant analysis shall be conducted as a part of the Traffic Impact Assessment. The traffic signal warrant analysis shall be based on the warrant criteria and methodologies of the current edition of the Manual on Uniform Traffic Control Devices (MUTCD). The warrant analysis shall also identify the threshold of development (if the development is phased) whereby the warrant criteria are satisfied

The estimated cost associated with implementing all such mitigation measures shall be provided in the Traffic Impact Assessment. The Traffic Impact Assessment may take into account any city/county/state-approved roadway, traffic signalization and other improvements in determining mitigation measures and providing recommendations.

- (u) **Alternative transportation:** Considerations for transit, pedestrian and bicyclist needs shall be made for every site development. In cases where nonmotorized or transit travel is expected to remain low, these considerations can be addressed qualitatively. In these cases, the evaluation shall include a description of the existing facilities serving these alternative modes

and their physical condition; identify missing connections and/or barriers in these existing facilities; identify and describe ADAAG non-compliance issues if they exist; location of the site in relation to existing or planned pedestrian/bicycle trails or transit services; identify opportunities for system enhancement/connectivity for these transportation modes.

For site developments that are expected to generate high levels of pedestrian/bicycle/ transit travel or for sites located in areas with existing high levels of pedestrian/bicycle/ transit travel, quantitative analyses shall be conducted in addition to the qualitative assessments described above in order to assess the LOS and impacts on these modes. The quantitative analyses shall be performed in accordance with Highway Capacity Manual or other applicable industry-standard methodologies.

Examples of development where quantitative analyses should be conducted include: downtown sites, sports or cultural arenas/centers, educational facilities, mixed-use developments and any other development that relies on "off-site" parking.

- (v) **References:** A listing of all technical documents and resources cited or consulted in preparing the Traffic Impact Assessment.

- (w) **Technical Appendix:** Relevant technical information, including but not limited to: copies of raw traffic count data used in the analysis, calculation sheets and/or computer software output for all LOS and V/C calculations in the analysis, and warrant worksheets for signals, turn lanes, signal phasing, etc. used in the analysis.

APPENDIX A: GLOSSARY OF TERMS

City Engineer: The City of Oakwood City Engineer, or his or her designee.

Development proposal:

Any application for a change of land use intensity district, preliminary plat, conditional use permit or certificate of appropriateness. For purposes of this guidance, a determination of applicability shall be made at the first development proposal encountered.

Horizon Year:

Unless otherwise specified or approved by the City Engineer, the study horizon year(s) shall be determined based on the size of the proposed development, as follows:

Study Horizons

Development Characteristic	Study Horizon(s)
Small Development (<500 peak-hour trips)	➤ Anticipated opening year, assuming full build-out and occupancy
Moderate Single-phase development (500-1,000 peak-hour trips)	➤ Anticipated opening year, assuming full build-out and occupancy ➤ 5 years after opening date
Large single-phase development (>1,000 peak-hour trips)	➤ Anticipated opening year, assuming full build-out and occupancy ➤ 5 years after full build-out and occupancy ➤ Adopted Regional Transportation Plan horizon year, if the development is significantly larger than that included in the adopted plan or travel forecasts for the study area
Moderate or large multi-phase development	➤ Anticipated opening years of each major phase, assuming build-out and full occupancy of each phase ➤ Anticipated year of complete build-out and occupancy ➤ Adopted Regional Transportation Plan horizon year, if the development is significantly larger than that included in the adopted plan or travel forecasts for the study area

Note: Peak-hour trips based on the most recent edition of Trip Generation (Institute of Transportation Engineers) or other sources as approved by the City Engineer.

Source: Transportation Impact Analyses for Site Development
An ITE Proposed Recommended Practice, 2005

Internal trips: Trips that are made among the various land uses within a multi-use or mixed-use development using internal site roadways without using external streets. These internal trips may be made by vehicle or by an alternate mode, such as walking.

Level of Service (LOS): A quantitative and qualitative measure of how well traffic flows on a given street or highway. Level of Service relates to such factors as highway width, number of lanes, percentage of trucks, total traffic volume, turning movements, lateral clearances, grades, sight distance, capacity in relation to volume, travel speed and other factors which affect the quality of flow. Level of Service is typically summarized by letter grades described as follows:

- LOS "A" is a condition with low traffic volumes, high speeds and free-flow conditions.
- LOS "B" is a condition with light traffic volumes, minor speed restrictions and stable flow.

- LOS "C" is a condition with moderate traffic volumes, where speed and maneuvering are restricted to a limited degree by the amount of traffic.
- LOS "D" is a condition with heavy traffic operating at tolerable speeds, although temporary slowdowns in flow may occur.
- LOS "E" is a condition of very heavy flow and relatively low speeds. Under LOS "E" the traffic is unstable and short stoppage may occur.
- LOS "F" is a condition of extremely heavy flow, with frequent stoppage and very slow speeds. It is an unstable traffic condition under which traffic often comes to a complete halt.

New trips: Total vehicle trips, minus pass-by trips, minus internal trips, if applicable.

Pass-by trips: Vehicle trips that are made by traffic already using the adjacent roadway and entering the site as an intermediate stop on the way to another destination.

Peak hour: The time period(s) that represents peak traffic demands of the adjacent street system and/or the peak traffic demands of the projected uses of the development within the project. Typically, the peak hours for study will include the highest four consecutive 15-minute intervals during the weekday period from 7 a.m. to 9 a.m. and during the weekday p.m. period from 4 p.m. to 6 p.m. In the case of retail uses, special events and recreational facilities, a Saturday midday period (typically from 11 a.m. to 1 p.m.) or other suitable time period may also represent a peak hour condition.

Peak-hour trip generation study: A study by a qualified professional of one or more actual developments of similar land use and development characteristics which provides empirical data on the actual number of trips entering and exiting said development(s) during the a.m. and p.m. peak hour. A peak-hour trip generation study shall consist of a.m. and p.m. peak hour traffic counts by direction (entering and exiting) on at least three separate weekdays if the study is based on only one similar development, or at least one a.m. and p.m. traffic count for three different actual developments. The results of actual traffic counts from peak-hour trip generation studies may be adjusted to discount pass-by trips as provided in this guidance.

Planning Director: The City of Oakwood Planning Director, or his or her designee.

Professionally accepted: As pertains to trip generation information, this term shall specify data published by the Institute of Transportation Engineers, or prepared by a qualified professional under work supervised by the City, or prepared by a qualified professional and accepted by the Planning Director.

Qualified professional: For purposes of conducting traffic impact studies as may be required by this guidance, a qualified professional shall mean a registered professional engineer or certified planner with specific training and experience in traffic and transportation engineering and planning. For purposes of conducting peak-hour trip generation studies, a qualified professional shall mean a registered professional engineer or certified planner with experience in traffic and transportation engineering and planning, or another professional approved by the Planning Director based on education and experience to conduct such trip generation studies.

Study Area: The study area shall include all intersections of the site access drive(s) and the adjacent street system. The study area shall also consider the trip generation characteristics of the proposed

development and the context of the site in relation to the transportation system. The following table provides general guidance in selecting the limits of the study area.

Suggested Study Area Limits

Development	Study Area
Fast-food Restaurant Service Station (with or without fast-food counter)	Adjacent intersection if corner location
Convenience Grocery/Mini-mart with or without fuel pumps	650 feet from access drive
Development (other than above) with fewer than 200 trips during any peak hour	0.25 mile from access drive
Retail less than 70,000 sq. ft. GLA - or - Development with peak-hour trips between 200 and 500 during any peak hour	All signalized intersections and access drives within 0.5 miles from property line of the site and all major unsignalized intersections and access drives within 0.25 miles
Retail between 70,000 and 100,000 sq. ft. GLA - or - Office or Industrial park with between 300 and 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
Retail greater than 100,000 sq. ft. GLA - 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 (streets and driveways) within 1 mile of a property line of the site

GLA = gross leasable area

Source: *Transportation Impact Analyses for Site Development – An ITE Proposed Recommended Practice, 2005*

Other factors that should be considered in defining boundaries of the study include areas with existing congestion, areas that may be susceptible to shortcuts, or residential areas that are likely to be impacted. The study limits should be documented in a formal letter of understanding with the City Engineer.

Traffic Impact Assessment: An analysis and assessment, conducted by a qualified professional, that assesses the effects that a development proposal's traffic will have on the transportation network in a community or portion thereof. Traffic impact studies vary in their range of detail and complexity depending on the type, size and location of the proposed development.

Trip: A single or one-directional travel movement with either the origin or destination of the trip inside the study site.

Trip generation: An estimate of the number of vehicle trips that will be generated due to the new development, which is calculated based on the type and amount of land uses in the proposed development and professionally accepted trip generation rates for each such land use.

Trip generation should be expressed on an average daily basis and for the peak hour(s) (weekday a.m., weekday p.m., Saturday midday, etc.) of adjacent street traffic. Where the peak hour of site-generated traffic occurs during time periods other than the peak hour(s) of the adjacent street traffic, the vehicle trips generated during the site peak hours shall also be identified.

APPENDIX B: SUPPLEMENTAL GUIDANCE

1. THRESHOLDS OF APPLICABILITY

A Traffic Impact Assessment shall be required for any development proposal which is expected to generate more than one hundred (100) new trips during a peak hour or more than seven hundred and fifty (750) new trips in an average day, as determined in accordance with this guidance. A Traffic Impact Assessment may also be required for development that does not meet these traffic generation criteria if, in the opinion of the City Engineer, the development is expected to have a significant impact on highway safety or operations.

Commentary: The Institute of Transportation Engineers (ITE) recommends that thresholds for Traffic Impact Assessment requirements be established at 100 peak hour trips. That threshold is appropriate because 100 vehicles per hour can change the level of service at an intersection approach, and because turn lanes may be needed to satisfactorily accommodate site traffic without adversely impacting through (non-site) traffic (Source: ITE, Traffic Impact Analyses for Site Development: A Recommended Practice, 2005).

2. PROPOSALS WHICH ARE EXEMPTED FROM TRAFFIC IMPACT ASSESSMENTS

- (a) A Traffic Impact Assessment is not required if a development proposal is initiated by the City.
- (b) A development proposal may be exempted from the Traffic Impact Assessment requirement by the City Engineer if a prior Traffic Impact Assessment for the subject property has been submitted to the satisfaction of the City and approved by the City, and the proposed development is substantially similar to that for which the prior Traffic Impact Assessment was conducted. The exemption of a Traffic Impact Assessment and/or the determination of "substantially similar" will be at the discretion of the City Engineer.
- (c) Any development of regional impact that complies with rules of the Gainesville-Hall Metropolitan Planning Organization shall be exempt from this guidance.

3. TRIP GENERATION

The source for trip generation rates for the purposes of this Ordinance shall be "*Trip Generation*" published by the Institute of Transportation Engineers (ITE), most recent edition, unless otherwise approved by the City Engineer. Determinations of whether this guidance applies shall be made based on application of data from ITE *Trip Generation*, which may change from time to time, or as otherwise approved by the City Engineer.

In the event that information submitted by the applicant of the discretionary development proposal is insufficient to calculate the trip generation that would be expected to result from the proposed development, then the City Engineer shall determine if: (1) professionally acceptable trip generation

rates applicable to the subject development exist from other reputable sources, such as the *Journal of the Institute of Transportation Engineers*; (2) other trip generation studies of similar developments are available; or (3) professionally acceptable trip generation rates for one or more similar land uses can be used in making the determination of applicability.

ADJUSTMENTS FOR PEAK-HOUR TRIP GENERATION

- (a) **Discounting of pass-by trips.** The peak-hour trip generation study may subtract from the empirical data on actual vehicle trips those trips that are reasonably considered to be “pass-by” trips as defined by this guidance, using professionally accepted assumptions about the percent of pass-by trips approved by the Planning Director.

- (b) **Reduction for internal trips in multi-use or mixed use developments.** In calculating the new trips generated from a proposed development containing multiple uses or mixed uses, a qualified professional with the approval of the Planning Director may apply a percentage reduction to the total vehicle trips shown in any peak hour trip generation study to account for internal trips, as defined in this guidance, so as to account for (discount) the number of internal trips reasonably expected to occur in such multi-use or mixed use development. Said reduction shall not exceed twenty-four percent (24%) of total trips generated.

APPENDIX C: SUBMITTAL AND REVIEW OF STUDY

1. SUBMITTAL AND REVIEW OF STUDY

The applicant for the proposed development or the qualified professional shall submit one electronic copy and two (2) paper copies of the Traffic Impact Assessment and technical appendix to the Planning Director. The Planning Director shall forward the study to the City Engineer for review. Within ten (10) working days of the City's receipt of a Traffic Impact Assessment, the City Engineer shall review all calculations and analyses and determine if they are complete, reasonable, understandable, consistent and fully explained. The conclusions presented in the Traffic Impact Assessment shall be consistent with and supported by the data, calculations and analyses in the report. Calculations, graphs, tables, data and/or analysis results that are contrary to good common sense or not consistent with and supported by the data will not be accepted. When the City Engineer review is complete, the Planning Director shall return the Traffic Impact Assessment to the development applicant for correction and re-submission as may be required.