

COUNTY OF MARION TRAFFIC IMPACT ANALYSIS GUIDELINES

Effective June 19, 2008

INTRODUCTION

Traffic Impact Analyses (TIAs) are developed to estimate the impact of new development on area roadways and identify improvements necessary to mitigate that impact. The purpose of this policy is to provide guidance to ensure that TIAs are developed in a consistent manner. These guidelines assist in identifying how a development will interact with the existing transportation networks, where traffic capacity constraints may occur, where transportation services are sufficient or where extra services are required. More recently expectations have been raised for the need to assess the viability and impact on modes other than the private car, such as passenger transport, walking and cycling, and the ability to access services without the need to travel by car. However, this has often been undertaken in an ad hoc and secondary manner. It is well understood that land use generates trips and it is important that appropriate development occurs in the right locations and where the surrounding transportation networks can support it. These guidelines provide a process to ensure that a full evaluation of transportation opportunities and constraints is undertaken for proposed developments in accordance with the **Marion County Comprehensive Plan Goals, Objectives and Policies**.

PURPOSE

Florida Statutes, Chapter 163, Growth Management Section requires that public roadway facilities needed to support developments must be available "concurrent" with the impact of such development. Chapters 163, requires local government to maintain an adopted standard of level of services on the public roadways for safe and orderly flow of vehicular traffic. It is the intent of this guideline to provide information that ensures that the roadways are in place and adequate, to provide a level of service that will provide safe and orderly traffic flow.

PROCESS

Traffic Impact Applications, Methodology Review, Report Preliminary Study, Final Study and review, and fees shall be coordinated with the County Engineering Department/Development Division. All studies shall provide analysis corresponding to the total amount of capacity that is being requested reserved for concurrency. A complete submittal shall also include all of the required contents for the specific methodology/study type. A submittal determined to be incomplete will not be considered to be in the process until all required information is submitted.

The County Engineer shall administrate the study guidelines and is authorized to reject an applicant's methodology, or report with recommendations from the County Traffic Engineer and Planning Director. The County of Marion Engineering Traffic Division is responsible for development and maintenance of the guidelines.

DOCUMENT SUBMITTAL

All studies shall provide documentation and data to support the analysis and conclusions of the study. For studies to be reviewed by the staff, a total of eight (8) copies are required. All electronic files must be submitted along with the study document to be considered complete. For the purpose of minimizing confusion and the need to review multiple documents, the first submittals shall be labeled 'Preliminary'. The applicant, upon satisfying all conditions/requirements for approval, shall submit a document labeled 'Final Traffic Study'. The final document shall include all revisions and correspondence that occurred throughout the review and approval process. The applicant shall include three hard copies and one electronic copy of the final report.

STUDY LEVEL

For the purpose of determining what level of study must be completed the following thresholds have been established:

Traffic Impact Statement – projects generating fewer than **100** net new peak hour trips.

A Traffic Statement shall include a review of site access, circulation, and access management. Statement shall provide driveway volume, distribution, site trips per Institute of Transportation Engineering (ITE) manual and roadway information. A Level of Service (LOS) analysis will also be required for all site access points for developments generating 50 trips or more in the peak hour of the development (AM, PM, Sat/Sun).

Traffic Study – projects generating **100** or more net new peak hour trips.

A Traffic Study shall include the review of site access, circulation, access management, safety, roadway links analysis and intersection analysis that will be significantly impacted by the development.

FEE SCHEDULE

The fees associated with the Methodology and Traffic Study submissions shall be in accordance with the attached Resolution 03-R-161 of the Marion County Board of County Commissioners.

METHODOLOGY

Prior to the submittal a traffic study, a detailed methodology shall be agreed upon by the County and the Applicant. At a minimum, the methodology shall detail the following items:

- ❖ Description of the Proposed Development
- ❖ Study Level
- ❖ Analysis Timeframe
- ❖ Analysis Period

- ❖ Assumptions for Trip Generation - pass-by, internal capture, distribution, mode split and trip assignment
- ❖ Study Area
- ❖ Existing Conditions Inventory
- ❖ Existing Traffic
- ❖ Background Traffic
- ❖ Committed Traffic
- ❖ Planned Improvements (To be included as part of analysis)

DESCRIPTION OF PROPOSED DEVELOPMENT

The applicant shall provide a brief overview of the proposed development including location map depicting major streets, type of use, and density/intensity.

STUDY LEVEL

The applicant shall indicate if a Traffic Impact Statement or a Traffic Study will be utilized for the analysis of the proposed development.

ANALYSIS TIMEFRAME

The methodology shall include a build-out schedule. For phased projects, the years included in the analysis period should correspond to the phasing schedule. Projects with more than a five year build-out will be required to conduct interim traffic analysis as an update to the original traffic study and included in the developer agreement (this should be tied to concurrency and the requested vesting of trips).

ANALYSIS PERIOD

The analysis shall be based on peak hour which typically occurs during the PM period of a typical weekday. However, the analysis period should be related to the known and anticipated peaking patterns of the transportation system and development traffic. If this period is not adequate, the period selected should be the period of the highest combination of development and background traffic. Depending on the type of land use and local characteristics, study of both AM and PM peak hour or other peak periods may be required.

TRIP GENERATION

Trip generation shall be based on the latest edition of the ITE Trip Generation Manual. The use of ITE rates or equations shall be determined using Section 4.2 of the FDOT Site Impact Handbook. When the land use categories and descriptions of the ITE Trip Generation Manual clearly do not apply or the rates are not appropriate for a proposed development, locally derived trip generation rates developed by the applicant may be used. Trip generation rates that are based on local conditions should be developed according to the methodology described in the ITE manual. The use of alternative trip generation studies shall be identified as part of the initial methodology for approval.

INTERNAL CAPTURE - It is recognized that certain mixed-use projects may have traffic circulation among various uses within the subject property, which are not using the public roadway system. If internal capture is considered for reduction in the impact, credit the internal capture trips first and then apply the pass-by percentage to calculate total new trips. The internal capture traffic may be credited against the total new external project trips. The use of internal capture rates requires that internal roadways be present at the time of impact. Internal capture rate should also be used where land uses share parking facilities, the total trip generation from the site will be less than would be estimated by summing the estimated trip generation, if each of the land uses were estimated individually and summed. Internal capture rates shall be calculated and documented based on the recommended procedures of the ITE Trip Generation Handbook. The maximum allowable internal capture rates shall be 20%.

PASS-BY TRIPS – The use of site specific pass-by studies conducted in accordance with ITE procedures may also be allowed upon approval from the County of Marion staff. The studies must be proposed and approved in the methodology stage of the traffic analysis. The maximum allowable pas-by rate shall be 30% with the exception of convenience stores and gas stations. For these uses, the maximum allowable pass-by rate will be as specified in the ITE Trip Generation, current edition.

With respect to pass-by trips, the total driveway or adjacent intersection volumes are not reduced. However, the number of new trips added to the roadway network resulting from the proposed development is reduced accordingly.

DIVERTED TRIPS - If a project proposes diverted trips, the total driveway volumes shall not be reduced and these trips shall count as new trips where the travel road segments to reach the project site that they did not previously travel. The calculations for diverted trips shall be provided as part of the methodology and approved by the reviewing agencies prior to inclusion in the traffic analysis.

MODE SPLIT - This section deals with the anticipated use of other modes of travel (non-auto) and shall be applied as applicable based upon FDOT procedures for determining mode split within a defined study area.

TRIP DISTRIBUTION - May be performed using manual techniques as approved by the County traffic engineer or by using the latest version of the Central Florida Regional Planning Model v4 (CFRPM IV) adopted by the Marion/Marion County Transportation Planning Organization (TPO). The trip distribution methodology should consider the area population, locations of similar land use, known traffic trends and travel distances. Trips should be assigned based on logical routing patterns to the major street network which includes those corridors classified as collectors and above. The exception to this rule is that trips may be assigned to the local street system when the local streets provide direct access to the proposed development.

No distribution plan should differ more than 10% from the existing traffic pattern unless approved by the County traffic engineer. Any modifications to the CFRPMv4 files shall be clearly explained within the text of the traffic analysis

and all electronic files shall be submitted with the traffic study. Staff and applicant shall review the distribution plan to determine if the proposed distribution is reasonable.

TRIP ASSIGNMENT - Total traffic shall be calculated and trip assignments for the net trips made for each link and intersection within the project's study area. The assignments shall address phasing and cover the build-out period of the project. An existing and future turning movement map shall be included in the analysis. The turning movement maps shall show the existing traffic volumes, the background traffic volumes, any known project traffic volumes, and the project traffic volumes. Turning movement maps shall be completed for all intersections within the study area and shall correspond to the trip generation and trip assignment portions of the traffic study.

STUDY AREA

The study area shall include any public roadway where the net new traffic from the proposed project is at least 3% of the maximum service volume (based on the FDOT Generalized Level of Service) of the roadway plus one segment beyond. In addition, all roadways having a LOS below the adopted LOS standard shall be included in the study area unless they meet state statutory thresholds for 'de minimis' developments (FS163.3180) (6). A map illustrating the study area shall be included along with a table listing pertinent road data (i.e. current traffic count, LOS standard and service volume, V/C ratio, area type, number of lanes, etc.) for each segment. The identified road segments shall be consistent with the TPO Roadway Segment Database. The map should clearly depict the traffic assignment to each roadway. In addition, a list of each signalized and/or major un-signalized intersection shall be included. An intersection will be determined to be in the study area if the total number of new site-generated peak hour trips passing through the intersection is greater than or equal to 100. If the number is less than 100, then the signalized intersection is not a study area location;

EXISTING CONDITIONS INVENTORY

Existing roadway conditions shall be included for all impacted corridor segmentation within the study area and one segment beyond. The existing roadway conditions data shall be consistent with all corridor data from the Marion/Marion County TPO Roadway Segment Database.

Data to be included in the existing conditions inventory by roadway segment shall include: adopted LOS standard, adopted LOS capacity, existing LOS, current traffic counts, background traffic volumes, number of lanes, posted speed limit, FDOT group classifications & existing v/c ratios.

EXISTING TRAFFIC

The yearly traffic counts from the most current TPO Marion/Marion County Annual Traffic Counts book and the Congestion Management System Counts maintained by the TPO shall be used to determine the study area only.

It may be necessary for the applicant to conduct additional traffic counts to provide current traffic counts where there are outdated (older than one year) or no traffic counts taken. Additional counts may also be needed if there have been any changes to the transportation system that may compromise the integrity of a particular count location (construction, development, etc.) since the last counts were taken.

All counts shall include peak hour information for segment and intersection analysis and shall be obtained at the time that best coincides with the peak period to be analyzed. The peak should be the period with the highest combined street and site generation traffic volumes. FDOT seasonal factor shall not be applied to reduce volumes. For retail development on S.R. 200 and S.R. 464 applicants will be required to consider more than the weekday PM peak, because the weekend peak traffic may exceed the weekday peak even though the through volumes on the segment may be less. Traffic counts may be needed to determine the appropriate analysis period in some cases.

BACKGROUND TRAFFIC

As part of determining the background traffic for a project, the proposed project build out year must be established. Background traffic shall be developed by applying the annual growth rate for the roadway segment to the existing traffic counts, and then compounded annually through the build out year for the project.

The applicant shall use the most current traffic counts available in the Annual Marion/Marion County TPO Traffic Count Book to develop background traffic rates.

COMMITTED TRAFFIC

Committed development traffic from vested projects, projects that have received Development Review Committee approval and projects that are in the approval process shall be included. The project and the amount of committed trips shall be identified as part of the initial methodology. Assignment of the committed trips is not necessary as part of the initial methodology but is required as part of the final analysis.

PLANNED IMPROVEMENTS

Any improvements not yet constructed but anticipated to be used as part of the analysis shall be identified. The improvements include construction within the first three years of the FDOT Work Program or a local government Capital Improvement Program or improvements identified as part of an enforceable developer's agreement or DRI development order.

TRAFFIC IMPACT STATEMENT & TRAFFIC STUDY

REQUIRED CONTENTS OF A TRAFFIC IMPACT STATEMENT

The Traffic Impact Statement shall include at a minimum the following components to be considered complete:

1. Site access review including the most current site plan;
2. circulation; and

3. Access management.

Note: If a known safety issue or intersection capacity issue exists on the fronting segment, the County Traffic Engineer may require detailed safety analysis or intersection analysis as part of the Traffic Statement.

REQUIRED CONTENTS OF A TRAFFIC STUDY

The Traffic Study shall include at a minimum the following components to be considered complete:

1. **Introduction** – The introduction should include a description of the type, size, location, and expected build-out of the proposed development.
2. **Existing Conditions Analysis** - The existing conditions analysis should be presented in a tabular format and should constitute a review of the current conditions in the study area without trips generated by the proposed development.
3. **Intersection and Segment Analysis Table** - A list of intersections and segments within the study area that were analyzed.
4. **Project Analysis** – The project analysis shall be based upon the results from traffic volume estimates, directional distributions and total traffic projections. The study area segments, intersections and the site access shall be evaluated for capacity constraints and operating conditions. These evaluations shall be performed utilizing the most current version of the FDOT HCS software package for signalized and unsignalized intersections and the FDOT Generalized LOS Tables for roadway segments. If applicable, a traffic signal warrants analysis shall be performed for the main site access driveway using the criteria that has been set forth in the Manual on Uniform Traffic Control Devices (MUTCD).
5. **Future Conditions Analysis** – A complete future conditions analysis shall be included in the study. The future conditions analysis shall include all roadway links and intersections analyzed in the existing conditions section of the study and shall also include a peak hour/peak direction LOS analysis showing the future roadway conditions (segment and intersection if required) after applying the background traffic, the proposed project traffic, and any improvements.

Additionally, future conditions table and a future turning movement illustration shall also be included in all traffic studies.

The future conditions table shall be consistent with the existing conditions table and provide analysis for roadway segments and intersections within the study area. The table shall at a minimum include information such as: functional classification, FDOT Generalized LOS Tables classifications, LOS capacity future projected traffic volumes, and the projected LOS (peak hour/peak direction for both weekdays). In certain cases, a Saturday or

Sunday analysis may be required. Segments identified in the future conditions table shall be consistent with those identified in the existing LOS Table. The applicant shall perform the analysis for all intersections and segments within the study area and compare the existing intersections peak hour segment with the projected intersections peak hour segments calculating the estimated LOS and v/c ratios. This process shall be employed for both conditions using the FDOT generalized tables only.

A future turning movement illustration shall be included as part of the analysis. The illustration shall show the individual movements for the project traffic, projected background traffic, other project(s) (as determined by the County Traffic Engineer) and the total traffic.

6. **Conclusions/Mitigation Analysis** – The conclusion/mitigation analysis shall summarize the overall impact of the proposed development on the study area and identify specific improvements needed, timing for construction of those improvements, and the entity responsible for payment of the improvements.
7. **Appendices** – All supporting documentation shall be included in the appendices. Where other documentation (methodology or other professional documents) are used by reference, specific citations shall be included in the text of the Traffic Study.

MITIGATION

MITIGATION IMPACTS (GENERAL)

The key role of the traffic study is to ensure that the developments are designed and implemented in such a way that they promote access by all modes and manage demand to avoid unacceptable impacts on County and State roadway networks. Depending on the nature and scale of the development, this may require a combination of measures to promote all mode access and minimize extra vehicle traffic that may be generated by the development. Scenarios shall be designed to give greater emphasis to access by pedestrians, cyclist and passenger transport. Such measures may mean changing the location of a building and/or parking within a site, diverting/providing bus services or supplementing the level of passenger transport to the site.

INTERSECTIONS AND SEGMENTS MITIGATION

All proposed improvements shall include a mitigation analysis section that mirrors the information provided in the future conditions table (specifically, to provide a LOS analysis based upon the identified improvements). The County may consider extending credits for signalization and intersection improvements that address failures at some intersections to an operational level that ‘significantly’ improves the overall LOS to a level where that intersection operates more efficiently than the existing conditions analysis indicated. It is feasible that multiple ‘significant’ improvements to some intersections within a study area may offset the increased delay at other non-improved intersections within the study area which could result in increased efficiency of the overall system. In addition, the mitigation analysis shall include cost estimates for design, construction, and right-of-way acquisition for each identified improvement.

TRAFFIC SIGNAL MITIGATION

Where the developer has proposed changing signal timings to accommodate more through traffic by reducing side-street green light timing, the issue of maintaining the adopted LOS for all turning movements at an intersection must also be addressed by the following:

1. All signalized intersection future analysis recommendations shall maintain the adopted level of services, and the v/c ratio shall remain less than 0.99 on all approach movements. The intersection movement rate of flow cannot exceed the roadway segment volume vehicle per hour.
2. If optimization of traffic signal timing is used to mitigate a failed level of service the side street g/C ratio cannot be adjusted down more than 20%.
3. If the aforementioned thresholds cannot be maintained then the signal system shall be re-timed to accommodate the additional volume on the main roadway and additional physical improvements shall be evaluated to meet the acceptable LOS standards.
4. All signalized intersection calculations shall use the existing timing (minimum/maximum green) for a base to estimate future timing patterns. Existing timing shall be obtained through County's Traffic Engineer Division.
5. For planning purposes the existing signal minimum/maximum timing shall be used to determine the existing and future LOS.

SAFETY MITIGATION

Developments with driveways on two-lane non-state roadways that equal or surpass 50,000 square feet of gross floor area, 700 AADT, 35 PM peak hour residential trips, or 10 PM peak hour heavy vehicle trips, as defined by the Federal Highway Administration, generated by industrial land uses shall evaluate a deceleration, right, and/or left turn lane at the site access point(s) and shall pay 100% of the improvement, if warranted. In addition, the County Traffic Engineer may require turn lanes at other locations for safety purposes.

NON -TCEA MITIGATION

If the mitigation measure is based upon a safety condition, then the improvement shall be added at the sole expense of the applicant. If the mitigation measure is a capacity improvement, the applicant may elect to pay their proportional share, if the County of Marion, Marion County or the FDOT has identified and allocated the funds for the project to be constructed within three (3) years. If the preceding condition has not been met the improvement shall be added at the sole expense of the applicant.

FAIR SHARE PROCEDURES (TCEA)

For those developments within the adopted Transportation Concurrency Exception Areas (TCEA) or other areas having other provisions for providing mitigation for development impacts based on a “fair share” methodology, the calculations for the fair share contribution shall be determined based on the ratio of the capacity created by the improvement to the total number of project trips assigned to the improvement. All calculations shall be based on peak hour traffic. The formula for this calculation is as follows:

- Fair Share % = (project trips / improvement trips) * 100

For example, the traffic analysis identifies the need for an additional turn lane that will create an additional capacity of 100 trips and the project is contributing 20 trips to the new turn lane. The fair share percentage would be calculated as follows:

- (20 new trips/100 additional capacity) * 100 = 20%

In this example the applicant would be responsible for a 20% contribution for the final cost of the improvement. For projects that identify operational improvements such as changing signal phasing and signal installation, the entire cost (i.e., engineering design, corridor development study, etc) shall be the sole responsibility of the applicant.

| DEVELOPMENT STANDARDS - FAIR SHARE PROCEDURES

Where segment or intersection improvements identified in a traffic impact analysis are not possible due to policy, physical, or financial constraints, there shall be the option of utilizing the funds collected to the development standards identified below:

- a. The installation of Advanced Traffic Management Systems along the following arterial roadways:
 - SR 200
 - SR/CR 464
 - SR 326
 - SR 35
 - US 27
 - US 441
 - US 41
 - CR 200A
 - CR 484
 - CR 42
 - NE 35th Street

The total fair-share contribution for the development standard option shall be the same as the fair-share contribution for the segment and intersection improvement option indicated by the traffic impact analysis.

TRAFFIC ANALYSIS SOFTWARE

ARTPLAN

The most current version of the FDOT LOSPLAN software package shall be used for those developments intending to submit an analysis for the purpose of determining the capacity of a roadway segment. This should be done only if no capacity/LOS is available from the FDOT generalized tables and this information presented to County staff. If the total traffic exceeds 85% of the maximum service volume at the adopted LOS standard for the roadway, then LOSPLAN can be used to develop new LOS thresholds. The TPO Maximum Service Calculation Procedures shall be used in the software. The software utilized shall be consistent with the functional classification and lane characteristics of the roadway. All capacity/LOS analysis to be conducted with a traffic assessment or study shall be approved with the methodology for the project. Where previous capacity analysis has been conducted for a segment within the last year and providing no significant changes have occurred within or affecting the segment, then this analysis may be used.

HCS / SYNCRHO

The most current version of the FDOT HCS or SYNCHRO software packages shall be used for those developments intending to submit an analysis for the purpose of determining the capacity of an intersection. The analysis shall document and source any changes to the default values of the software in the text of the traffic study. Use an average of the approach peak hour factor (PHF) at existing intersections to determine the intersection PHF for use in analysis. All capacity calculations shall use existing signal timing. For those intersections where signals are proposed, a 90-second cycle with minimum phase lengths shall be used.

MIXED USE & UNIQUE DEVELOPMENT ANALYSIS

MULTI-/MIXED USE DEVELOPMENT ANALYSIS

Where small individual land use development is located within a larger development the methodology for site impact analysis for the entire development is to address each land use independently and sum the resulting trip generation.

SPECIAL/UNIQUE DEVELOPMENT ANALYSIS

When a development is analyzed that cannot be adequately described by ITE, the development generation data will be based on type, intensity and timing of trips to be generated. The County staff will recommend the trip generation characteristics that are appropriate for the analysis. However the applicant may recommend a trip generator with supporting documentation for staff approval prior to use.