

CHAPTER 900. DEVELOPMENT STANDARDS

SECTION 901. INFRASTRUCTURE STANDARDS

901.5. Transportation Impact Study

A. Intent and Purpose

The intent and purpose of the Traffic Impact Study (TIS) is to identify the potential traffic impacts of new development on the transportation system and to develop mitigation strategies to address said impacts.

B. Applicability

This section applies whenever a Traffic Impact Study (TIS) is required by this Code.

C. General

The TIS is to be signed and sealed by a Florida Registered Professional Engineer.

For Development of Regional Impact (DRI) developments and Florida Quality Developments, completing a traffic study in accordance with Chapter 380, Florida Statutes, the methodological procedures and interpretation of the Level of Service (LOS) standards provided in the definitions, as they relate to the Committed Network, Background Traffic Growth/Future Traffic, and LOS Standards sections herein shall be followed. DRIs and Florida Quality Developments shall also comply with the requirement to estimate when facilities are expected to fail, pursuant to the procedures identified in Section 901.12, Transportation Analysis, and the requirements of Section 901.4, Substandard Roadway Analysis. (Note: opt-out projects shall be subject to the LOS standards as provided in the Comprehensive Plan and shall have the ability to pay proportionate share in accordance with State law.)

To demonstrate concurrency de minimis status, the following subsections shall be applicable, in addition to other information as required by the County:

- Methodology Statement
- Definitions
- General Analysis Requirements and Software
- Impacted Roadways/Intersections
- Trip Generation
- Distribution/Assignment

- Internal Capture
- Passerby Capture
- Traffic Counts
- Background Traffic Growth

The network on which de minimis determinations are based may include the Committed Network as defined herein.

D. Methodology Statement

Prior to conducting any study, a methodology statement shall be prepared by the applicant and submitted for review and approval by the County Administrator or designee. The purpose of the methodology statement is to establish agreed-upon methodologies and assumptions prior to the start of the study and, if appropriate, to provide substantiation that the development's impacts are de minimis and further traffic study and review is not required. The following elements of the methodology, as listed below, should be specifically addressed at a minimum:

- Description of land uses, site location, build-out schedule, and phasing, including any interim uses generating traffic.
- Preliminary Site Plan
- Trip Generation
- Internal Capture
- Background Traffic Growth Procedure
- Distribution and Assignment
- De Minimis Assertion, if applicable.
- Committed Network

Unless otherwise agreed to in the methodology process, the procedures of this subsection shall be followed.

A methodology statement shall be prepared using the guidelines provided in the following paragraphs. The methodology statement shall be first reviewed by a County representative, if necessary, through a methodology meeting with the applicant's consultant. The applicant's consultant will then revise the statement based upon agreed upon methodologies. The applicant shall ensure the consultant does not prepare a traffic study without an approved methodology statement signed by the County Administrator or designee.

In some subsections, these TIS Guidelines identify optional ways to undertake elements of the analysis, and the methods to actually be applied should be agreed upon in the methodology process.

Methodology Agreements shall be valid to govern submittal of the TIS for a period of six (6) months from the date of approval. If Methodology Agreements have been reached under earlier editions of these procedures, those agreements will remain valid for a period of six (6) months after approval of the methodology. Expired Methodology Agreements must be updated to reflect the current version of the TIS Guidelines, as well as changes in the Committed Network, Background Traffic Growth/Future Traffic, and the Non-De Minimis Roadway List.

E. Impacted Roadways/Intersections

Impacted roadways and intersections that must be studied in the TIS shall include the following:

1. If a development generating less than 1,200 gross external (driveway) daily trips is determined to require a traffic study; e.g., is not de minimis under concurrency, then the study network for that development shall include the road facilities on the Non-De Minimis Roadway List causing that determination as well as any others required under the below sections. In the case that the roadway causing the requirement to undertake the traffic study is a Near-Critical Road and if development traffic consumes less than one (1) percent of the service volume, then no further analysis of that facility is required.
2. Any Major Road Network Facilities to which development traffic makes its first connection to the Major Road Network, provided the development traffic consumes one (1) percent or more of the facility service volume on any one (1) road segment of the facility. If the first connection to the Major Road Network is to a Critical Road, then the facility shall be studied even if development traffic is below one (1) percent of the service volume.
3. Major Road Facilities on which the two (2) way peak-hour project traffic consumes five (5) percent or more of the existing or committed two (2) way peak-hour-service flow rate on any included road segment.
4. The site driveway connections to public roads are considered impacted. In addition, intersections of the local/nonmajor roads with the Major Road Network segments identified in this Code, Section 901.5.D.2, that provide access between the site to the Major Road Network.
5. Major Intersections that are part of the impacted roadways.

| Lanes | Road Type | Area | Service Volume | |
|-------|-----------|-------------------|----------------|--------|
| | | | LOS C | LOS D |
| 2 | Collector | Urbanized | 870 | 1,390 |
| 4 | Collector | Urbanized | 2,030 | 2,950 |
| 2 | Arterial | Urbanized | 1,310 | 1,560 |
| 4 | Arterial | Urbanized | 3,300 | 3,390 |
| 6 | Arterial | Urbanized | 4,950 | 5,080 |
| 8 | Arterial | Urbanized | 6,280 | 6,440 |
| 4 | Freeway | Urbanized | 5,350 | 6,510 |
| 6 | Freeway | Urbanized | 8,270 | 10,050 |
| 8 | Freeway | Urbanized | 11,180 | 13,600 |
| 2 | Collector | Transitioning | 670 | 1,300 |
| 4 | Collector | Transitioning | 1,570 | 2,810 |
| 2 | Arterial | Transitioning | 1,260 | 1,490 |
| 4 | Arterial | Transitioning | 3,150 | 3,290 |
| 6 | Arterial | Transitioning | 4,730 | 4,930 |
| 4 | Freeway | Transitioning | 5,250 | 6,220 |
| 6 | Freeway | Transitioning | 8,110 | 9,600 |
| 8 | Freeway | Transitioning | 10,960 | 12,980 |
| 2 | Arterial | Rural Undeveloped | 740 | 1,190 |
| 4 | Arterial | Rural Undeveloped | 4,000 | 5,140 |
| 6 | Arterial | Rural Undeveloped | 6,000 | 7,710 |
| 4 | Freeway | Rural Undeveloped | 4,980 | 5,890 |
| 6 | Freeway | Rural Undeveloped | 7,690 | 9,090 |
| 2 | Collector | Rural Developed | 1,070 | 1,350 |
| 2 | Arterial | Rural Developed | 1,100 | 1,500 |
| 4 | Arterial | Rural Developed | 4,060 | 5,250 |
| 6 | Arterial | Rural Developed | 6,080 | 7,870 |
| 4 | Freeway | Rural Developed | 4,980 | 5,890 |
| 6 | Freeway | Rural Developed | 7,690 | 9,090 |

Mainline segments of toll roads may be excluded from the analysis, but analysis of ramp-merge and diverge sections, toll booths, and ramp connections of expressways to the nonexpressway road network shall be included to ensure toll road operations do not adversely affect other public road operations.

For purposes of determining if peak-hour-development traffic consumes one (1) percent or five (5) percent or more of the existing service capacity of a road, the generalized roadway service volumes from the Generalized Service Volumes tables of the Florida Department of Transportation (FDOT) current *Quality/LOS Handbook* (the 2002 values are reproduced in Table 1 for convenience) shall be used. Roadway functional classification shall be based on the Vision Plan Map of the Comprehensive Plan.

F. Analysis Scenarios (see Section 901.12)

G. General Analysis Requirements and Software

LOS and turn-lane-length analysis shall be undertaken for all impacted roadways and intersections in accordance with the procedures below.

1. For the facility on the Major Road Network to which the development has direct access:
 - a. If the future year total volume is seventy (70) percent or less of the Major Road, generalized service volume using the latest version of FDOT generalized tables, detailed capacity and turn-lane-length analyses shall be undertaken for site driveway connections to that facility, and/or of the local street providing site traffic access to that major road facility. Turn-lane-length analysis shall be undertaken in accordance with Section 901.3, Access Management.
 - b. If the future year total volume is more than seventy (70) percent of the generalized service volume using the latest version of FDOT generalized tables, a detailed capacity analysis shall be undertaken for that facility that evaluates LOS and the adequacy of turn-lane lengths. Turn-lane-length analysis shall only be required for signalized and major unsignalized intersections within the directly accessed facility that are within one mile of the driveway or local street intersection providing access to the site from the Major Road. Turn-lane-length analysis shall be undertaken in accordance with Section 901.3, Access Management.
2. For analysis of roadways outside of the area as described in Paragraph 901.5.G.1.b above, the use of the latest version of FDOT's generalized tables is permitted as an initial screening tool. If failure is estimated, then a more detailed analysis is required using the procedures described below.
3. Road Facility limits shall be as defined in the County's Annual Concurrency monitoring LOS report. Adjustments, if appropriate, shall be proposed in the methodology statement, and be developed based on acceptable engineering and planning practices as set forth in the *Highway Capacity Manual* (HCM).
4. All analysis shall be undertaken for conditions during the 100th highest hour of the year. Other time periods or a.m. analysis may be required if requested during the methodology meeting or during the first sufficiency review.
5. Use of analysis software is allowed in accordance with the following:

- a. For unsignalized intersections, the latest version of *Highway Capacity Software* is the preferred software for analyzing delay and LOS.
- b. For signalized intersections, the latest version of *Synchro* software using the percentile delay methodology is required.
- c. For interrupted flow road segment analysis, the preferred software is the latest version of *Synchro*.
- d. For uninterrupted flow roads (those with more than two [2] mile signal spacing) the latest version of the FDOT's *Highplan* software is acceptable.
- e. The electronic copy of the analysis files shall be provided. The hard copy of the summary sheets shall be provided unless otherwise requested by the County Administrator or designee.
- f. Other analysis software may be required by the County to address situations not addressed by the above provisions or if requested by the applicant and approved by the County Administrator or designee during the methodology step.
- g. If any analysis software is used as an alternative to the FDOT's generalized tables, detailed LOS analysis of all major intersections within the facility is required.
- h. The input data to the software shall be field verified and provided in the report including, but not limited to:
 - (1) Geometry, including lane widths and turn-lane lengths.
 - (2) Heavy vehicle factor.
 - (3) Directional factor, (D Factor, not to be less than 0.52 for the future conditions analysis).
 - (4) Peak-hour factor, not to exceed 0.95 for the future conditions analysis.
 - (5) Values of the above parameters should be estimated in the future conditions analysis to reflect unconstrained, demand conditions.
 - (6) Existing signal timing and phasing can be obtained from the County Administrator or designee. The existing signal timing, including its maximum and minimum settings, shall be used for the initial analysis of future conditions. Any timing change outside of the existing minimum and maximum setting may be

presented for County approval as part of the mitigation strategy.

- (7) Segment lengths.
 - i. If the FDOT's generalized, roadway service-volume tables are used, the following information shall be provided in a separate table:
 - (1) Class of roadway (interrupted or uninterrupted).
 - (2) County or State maintained.
 - (3) Area type.
 - (4) Signal density.
 - (5) LOS standard.
 - j. Other parameters that govern the roadway/intersection capacity analysis shall be based on the parameters described in the latest version of the HCM.
 - k. The County may require the inclusion of proposed or anticipated traffic signals in the future year condition that may not exist in the "existing condition," including signals at development entrances.
6. Where driveway movements are restricted, the associated necessary U-turns and added flow at the upstream and downstream median openings or intersections should be identified and analyzed as development traffic.
7. Procedure to determine detailed facility service volume for purposes of establishing Critical and Near-Critical Roads:
 - a. Undertake *Synchro* intersection capacity analysis using current 100th highest-hour volume estimates.
 - b. Check turn movements to be sure the volume/capacity (v/c) ratio is less than or equal to one (1.0) on all turning movements.
 - c. Check turn-lane length to accommodate 95th percentile queue, if inadequate, increase green to shorten the queue.
 - d. Allocate remaining green time to through movements to minimize delay subject to the v/c ratio <1.0.
 - e. Apply the through movement v/c ratios determined in this way to an *ArtPlan* analysis to solve for facility service volume.

- f. Divide the weighted average volume for the facility (weighted by segment length) by the facility service volume determined by *ArtPlan*.

H. Trip Generation

The trips from/to the site shall be estimated using the latest *Institute of Transportation Engineers (ITE) Trip Generation Handbook* (ITE Manual), including separate trip-generation estimates for interim traffic-generating uses. An interim use would be land excavation, as defined in this Code, Chapter 1300, and removal of more than 30,000 cubic yards even as an interim use, is presumed to be a separate and distinct land use requiring separate trip-generation estimates. Such land use is also presumed to generate more than ten (10) percent heavy vehicles. Other rates may be required by the County, or may be used if requested by the applicant and approved by the County. Use of other rates must be requested during the methodology step.

Heavy vehicles adversely affect traffic because they occupy more roadway space and have poorer operating capabilities than passenger cars, particularly with regard to acceleration, deceleration, and the ability to maintain speed on upgrades. Accordingly, for trip-generation purposes, if heavy vehicles are ten (10) percent or more of the trips generated by the proposed land use, the total estimated trips for heavy vehicles shall be multiplied by two (2) unless ITE heavy vehicle data or other County-approved heavy vehicle, trip-generation data for the land use support a different multiplier; however, in no event shall the multiplier be less than one (1). The multiplier shall not be used for purposes of study area determination. The multiplier shall not be used in addition to the multiplier used in the analysis software to determine LOS.

For estimating daily trip generation for purposes of establishing de minimis status, the daily trip-generation rates of Section 1302.2, Mobility Fees, shall be acceptable.

To encourage redevelopment of previously developed sites, a credit against any previously existing land uses shall be given for the replacement of any traffic generating building or structure that existed on or after January 1, 1985. If the petitioner can provide evidence of such a prior use on the site, the TIS shall analyze the net increase in trips associated with the proposed land use as development traffic. If the site was dormant during the collection of the traffic-count data the analysis is based upon, then the prior-vested portion of the development traffic must be added as "background" traffic. For purposes of access-management analysis, the total trips (prior vested plus additional, new trips) should be analyzed at site access and connection points to the Major Road Network.

I. Internal Capture

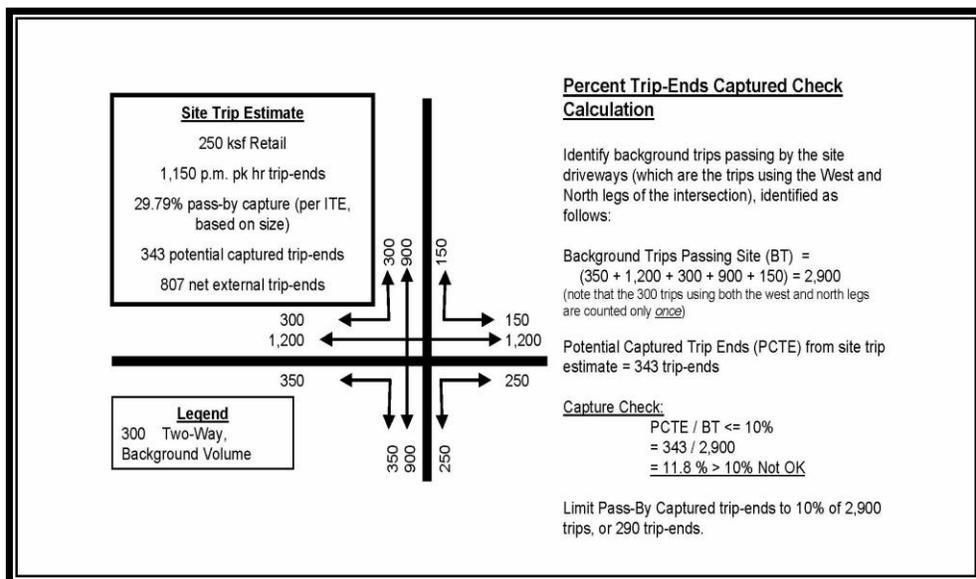
Internal capture estimates shall be based on ITE acceptable methodologies and, where the ITE data is not applicable, professional judgment. However, in no case will an internal capture of more than twenty (20) percent be acceptable unless the County accepts a higher internal capture percentage based on verifiable documentation; e.g., field studies of comparable sites.

J. Passerby Capture

The total, gross, external trips of the project traffic may be reduced by a passerby factor to account for the project traffic that is already traveling on the adjacent roadway. Passerby capture shall not exceed twenty (20) percent of site-generated traffic unless data supporting higher rates are included in the current version of the ITE Manual or are otherwise approved by the County Administrator or designee. In no event shall the total passerby trips entering and exiting a site exceed ten (10) percent of the total, background traffic on the adjacent roadway. In analysis of the site-access intersections with major roads, the passerby trips shall be included and separately identified.

In cases where median controls limit left-in/left-out access to the site, traffic on the "far side" of the road can be considered in assessing the upper limit on captured trips; however, the effects of that traffic in the associated necessary U-turns and added flow at the upstream and downstream median openings or intersections should be identified as development traffic at those locations.

The passerby-capture percentage shall be computed as the number of trips entering, plus exiting the site land uses claimed as captured, divided by the number of background trips passing by the site on major roads directly abutting or passing through the site. An example of this computation is provided below:



K. Distribution/Assignment

The latest, adopted, Tampa Bay Regional Planning Model (TBRPM) is acceptable in determining the trip-distribution percentages and trip assignments. The results of the model will be reviewed by the County Administrator or designee for reasonableness to ensure the existing and future travel patterns are correctly simulated. Manual trip distribution and assignment may also be acceptable as long as it is reviewed and accepted by the County Administrator or designee and logically replicates the existing and future travel patterns.

L. Traffic Counts

All counts shall be conducted based on acceptable engineering standards. Raw turning-movement counts and daily tube counts (minimum forty-eight [48] hours) shall be provided for all the intersections and road segments that are being analyzed. The raw counts shall be converted to the 100th highest hour of the year based on the FDOT's peak season adjustment factors and minimum K100 factors. Prior to approval of the methodology statement, other peak season adjustment factors or adjustment methodologies that may result in different peak season adjustment factors may be requested at the discretion of the County.

For saturated intersections, the FDOT's methodology shall be followed to estimate the turning-movement counts by multiplying the average annual daily traffic (AADT) tube count at appropriate locations by field verified "D" and minimum K100 factors, and by applying the percentage turns obtained from the field turning-movement counts. In no event, however, shall the estimated, turning-movement counts be less than the existing field counts.

Tube counts at appropriate locations shall be provided for segment analysis using the FDOT procedures. The segment tube counts at mid-block locations shall be checked against turning-movement counts at near intersections. In general, the mid-block counts and turning-movement counts shall not be significantly different unless the difference can logically be explained.

Approved FDOT- or County-maintained counts may be used if they are less than one (1) year old. However, new counts may be requested if there are recent improvements to the transportation system that cause significant changes in traffic patterns. Counts more than one (1) year old will not be acceptable unless otherwise approved by the County Administrator or designee. Machine counts should start no earlier than 9:00 a.m. on Mondays and end no later than 3:00 p.m. on Fridays.

M. Background Traffic Growth/Future Traffic

The existing traffic counts shall be increased by a growth factor up to the project's build-out date, which shall be reasonably specified to account for increases in existing traffic due to other approved and pending developments, as determined by the County Administrator or designee.

In the case of pending or approved developments having a build-out period longer than the development under review, the County Administrator or designee may allow the incorporation of a reasonable fraction of the approved or pending development in the background traffic estimate. The County Administrator or designee may maintain a database of traffic growth rates for this purpose.

Any development for which the applicant demonstrates that the project is not built or the project is not pending need not be considered in background traffic.

Background traffic growth rates and background traffic volume estimates shall be based on any combination of the following techniques, which must be proposed and agreed upon in the methodology process:

1. Historical growth rates (minimum of the past three [3] years) may be used in areas where the expected growth is representative of the past growth.
2. Consideration of traffic from approved and pending developments may be required in areas where the historical trend is judged by the County to be inappropriate. This may be accomplished through application of the latest adopted TBRPM, the Metropolitan Planning Organization's (MPO) Urban Area Transportation System Planning Model.
3. The growth/future traffic on roads that do not currently exist shall be based on the TBRPM (the latest, adopted model).
4. If the TBRPM is used, the background-traffic growth for existing roads shall be determined as follows: (a) identify the validated year-model volume and build-out year (future) model volume, (b) interpolate these values to identify a model-based volume for existing conditions (year to be consistent with the date of "current" count data), (c) identify the growth rate between the interpolated existing conditions model-based volume and the build-out year (future) model volume, and (d) apply this growth rate to the existing conditions traffic counts. The build-out year (future) model volume is determined by applying the project's build-out year socioeconomic data to the committed and/or improved network. The build-out year socioeconomic data may be obtained by interpolating between the MPO's or County's adopted, validated year and the adopted, interim, or future year, socioeconomic data, then adjusting to reflect the pending and approved developments.
5. The socioeconomic data of the model shall reasonably represent, if appropriate, the approved and pending developments in the vicinity of the project as approved by the County Administrator or designee during the methodology process.
6. Minimum, annual growth rates in all cases shall be two (2) percent, unless otherwise approved by the County Administrator or designee.

7. The assumed growth rate for each impacted roadway segment shall be presented in a table.
8. The background traffic growth estimates of the model will be reviewed by the County Administrator or designee to ensure growth reasonably reflects recent and expected growth trends.
9. The connections of surrounding traffic analysis zones in the model should be reviewed to reflect other approved and pending developments and to ensure appropriate network loading.

For purposes of de minimis determinations under Section 1301.6.D.3.e, 100th highest hour-traffic volume data shall be factored to account for vested and de minimis trips to the calendar year of the list of non-de minimis roads that is current at the time the petition for de minimis determination is submitted.

N. Level of Service Standards

1. The LOS standards for all major road segments (facilities) shall be consistent with the letter standards per the County's latest adopted Comprehensive Plan.
2. The overall intersection LOS standard is the same as the segment (facility) standard. Where different LOS standards apply to different legs of an intersection, the overall intersection LOS standard will be "D."
3. The delay for individual-turning movements and through movements may exceed the segment standard by one (1) letter grade (maximum of 100 seconds of delay for the "F" condition) provided that the v/c ratio for the subject movement remains less than or equal to one (1). Average delays up to 100 seconds are acceptable for individual turning movements where the v/c ratio is less than 0.8.
4. For site-access driveways and local street connections serving site-access traffic, delays up to 100 seconds will be considered acceptable.

O. Inventory of Existing and Future Conditions

At minimum, the following additional information shall be provided:

1. Build-out date of the project must be a reasonable date based on the size of the project.
2. The geometry, speed limit, and the LOS standard of all the existing roadways, intersections and committed intersections, and roadway improvement projects within and in close proximity of the study area.

3. Existing vehicle counts and data supporting heavy vehicle factor for capacity and substandard road analysis.
4. Graphic presentation of the project's proposed access locations, types, and internal roads with connections to the County's vision/build-out or long-range plan of roadways. The graphic shall also cover the area beyond the boundary of the project to include all the external, major roadways and existing or future, access points and types of developments surrounding the project.
5. Pavement-marking plans/concept plans of roadways that provide direct access to the project and have completed or are undergoing design or route study phase, if available.
6. Graphic presentation of project, traffic percent distribution and total background and project traffic assignments.
7. Inventory of existing or committed, traffic-control devices.

P. Mitigation of Impacts

1. General Guidance

- a. This subsection provides discussion on how the adequacy of mitigation will be technically reviewed and determined by the County Administrator or designee. The mitigation options discussed below are set forth in Section 1301, Concurrency.
- b. Improvements for mitigation of impacts at an individual location must work effectively relative to upstream and downstream roadway conditions. As examples:
 - (1) A proposed improvement that relies upon dual lefts, three (3) through lanes, and a right-turn lane to provide adequate capacity to serve the traffic demand at an intersection approach where only one (1) lane feeds traffic might not be considered an effective improvement, because for example, one (1) lane can only feed traffic at a rate of 1,850 vehicles per hour, but the intersection capacity analysis relies upon approach-lane capacity in excess of the 1,850 vehicles per hour.
 - (2) A proposed improvement that cannot achieve effective lane utilization due to downstream conditions would not be considered an effective improvement. For example, provision of a second through lane with a receiving lane on the far side of an intersection of only 300 feet in length.

- (3) Analyses of improvements to closely spaced intersections should include evaluations of the traffic flow interaction and signal timings of the two (2) intersections to ensure the proposed improvements will achieve the intended result.

2. Mitigation Options

- a. Restore to adopted standard: Identify an improvement at an impacted location that restores LOS to the adopted standard for the "future year with development traffic" condition, as defined in Section 901.12.G.
- b. Proportionate-Share Mitigation: The proportionate-share payment shall be calculated in accordance with State law.

- (1) Cost values for proportionate-share calculations shall include route study costs, design, right-of-way, construction, construction engineering/inspection costs, and contingency costs.

- (a) For improvements to County roads, the following general rules shall apply to estimate improvement costs. The County Administrator or designee reserves the right to make use of more detailed information when available prior to the issuance of a Certificate of Capacity requiring a proportionate-share or cost calculation. The latest available cost estimates will be used only after the needed improvements for the proposed development are identified to the satisfaction of the County:

- (i) The route study cost should be \$40,000.00 per mile.

- (ii) The construction cost should be based on 85 percent of the costs in the latest available FDOT, District Seven, Cost Reports column presently titled Subtotal. This cost column represents Long-Range Estimate (LRE) costs, plus Maintenance of Traffic, plus Mobilization.

- (iii) The design cost should be five (5) percent of the total construction cost from Step (ii).

- (iv) The Construction Engineering Inspection (CEI) cost should be three (3) percent of the cost from Step (ii).
- (v) Contingency cost shall be ten (10) percent of the construction cost from Step (ii).
- (vi) Right-of-way costs from a location specific study should be used when available. Right-of-way costs of at least 23.5 percent of the cost from Step (ii) are generally expected.

For intersections, site-specific conditions should be reviewed in every case.

The County Administrator or designee will be the agency responsible for review and approval of the County road improvement cost estimates.

- (b) For FDOT-maintained roads, the following general rules shall apply to estimate improvement costs. If more detailed studies have been undertaken that provide better estimates, they may be submitted for consideration. The FDOT shall have the right to change these general rules no later than two (2) weeks prior to the issuance of a Certificate of Capacity requiring a proportionate-share or cost calculation.
 - (i) The construction cost, including Design and CEI for improvements, should be based on latest available general cost estimates produced by FDOT, District Seven.
 - (ii) The right-of-way cost estimate should be 120 percent of the estimated construction cost (LRE column).
 - (iii) The Project Development and Environment Study cost should be five (5) percent of the construction cost.

The latest available costs estimates will be used after the list of needed improvements are finalized to the satisfaction of the County.

- (2) Where an improvement to an alternate road which draws background traffic away from an existing road estimated to fail is identified as a solution to congestion, and development traffic is assigned to both the existing road as well as the alternate road, then the proportionate-share computation will include the total, development traffic on the existing road and the new road.

EXHIBIT 901.5.A

PASCO COUNTY TIS GUIDELINES SIZE OF DEVELOPMENT THAT GENERATES 600 DAILY DRIVEWAY TRIPS

| Land Use | Trip Rate (1) | Size of Dev. | Unit |
|---|---------------|--------------|----------|
| RESIDENTIAL: | | | |
| Single-Family (Detached) | 7.59 | 80 | DU |
| Multifamily (Apartments) | 6.30 | 96 | DU |
| Mobile Home Park | 4.67 | 129 | DU |
| Age-Restricted Single-Family | 3.71 | 162 | DU |
| Congregate-Care Facility (Attached) | 2.25 | 267 | DU |
| Low-Rise Condominium (1 to 2 stories)/Townhouse | 5.20 | 116 | DU |
| High-Rise Condominium (3 or more stories) | 4.18 | 114 | DU |
| LODGING: | | | |
| Hotel | 8.30 | 73 | Room |
| Motel | 5.63 | 107 | Room |
| Resort Hotel | 5.10 | 118 | Room |
| Recreational Vehicle Park | 3.70 | 163 | RV Space |
| RECREATION: | | | |
| Marina | 2.96 | 203 | Berth |
| Golf Course | 35.74 | 17 | Hole |
| Miniature Golf Course | 3.30 | 182 | Hole |
| Movie Theaters | 106.63 | 6 | Screen |
| General Recreation | 2.28 | 264 | Acres |
| Racquet Club/Health Club/Spa/Dance Studio | 14.03 | 43 | 1,000 SF |
| Bowling Alley | 33.33 | 19 | 1,000 SF |
| Community Center | 22.88 | 27 | 1,000 SF |
| INSTITUTIONAL: | | | |
| Hospital | 17.57 | 35 | 1,000 SF |
| Nursing Home | 2.48 | 242 | Bed |
| Elementary School | 1.29 | 466 | Student |
| Middle School | 1.62 | 371 | Student |
| High School | 1.71 | 351 | Student |
| Junior/Community College | 1.20 | 501 | Student |
| University | 2.38 | 253 | Student |
| Church | 9.11 | 66 | 1,000 SF |
| Day Care | 3.03 | 199 | Student |
| Cemetery | 4.73 | 127 | Acres |
| OFFICE: | | | |
| General Office - 50,000 SF or less | 15.65 | 39 | 1,000 SF |
| General Office - 50,001 to 100,000 SF | 14.25 | All | 1,000 SF |
| General Office - 100,001 to 200,000 SF | 12.15 | All | 1,000 SF |
| General Office - 200,001 to 400,000 SF | 10.36 | All | 1,000 SF |
| OFFICE (cont.): | | | |
| General Office - Greater than 400,000 SF | 8.83 | All | 1,000 SF |
| Medical Office | 35.95 | 17 | 1,000 SF |
| Office Park | 11.70 | 52 | 1,000 SF |
| Veterinarian Clinic | 32.80 | 19 | 1,000 SF |
| RETAIL: | | | |
| Specialty Retail | 49.99 | 13 | 1,000 SF |
| Shopping Center - Under 50,000 GSF | 86.56 | 7 | 1,000 SF |
| Shopping Center - 50,000 to 200,000 GSF | 62.81 | All | 1,000 SF |
| Shopping Center - 200,001 to 400,000 GSF | 46.23 | All | 1,000 SF |
| Shopping Center - 400,001 to 600,000 GSF | 38.66 | All | 1,000 SF |
| Shopping Center - 600,001 to 800,000 GSF | 34.37 | All | 1,000 SF |
| Shopping Center - Greater than 800,000 GSF | 30.33 | All | 1,000 SF |
| Pharmacy/Drug Store with Drive-Through | 95.21 | 7 | 1,000 SF |
| Home Improvement Superstore | 29.80 | 21 | 1,000 SF |
| Hardware/Paint | 51.29 | 12 | 1,000 SF |
| Quality Restaurant | 91.10 | 7 | 1,000 SF |
| High-Turnover Restaurant | 126.50 | 5 | 1,000 SF |
| Fast Food Restaurant with Drive-Through | 522.62 | 2 | 1,000 SF |
| Gasoline Station | 168.56 | 4 | Fuel POS |
| Quick-Lube | 40.00 | 16 | Bays |
| Auto Repair or Body Shop | 30.09 | 20 | 1,000 SF |
| Self-Service Car Wash | 108.00 | 6 | Bay |
| Tire Store | 24.87 | 25 | 1,000 SF |
| New/Used Auto Sales | 32.93 | 19 | 1,000 SF |
| Supermarket | 103.38 | 6 | 1,000 SF |
| Convenience Store with Gas Pumps | 803.24 | 1 | 1,000 SF |
| Furniture Store | 5.06 | 119 | 1,000 SF |
| Bank/Savings Drive-In | 281.55 | 3 | 1,000 SF |
| Convenience/Gasoline/Fast-Food Store | 984.59 | 1 | 1,000 SF |
| INDUSTRY: | | | |
| General Light Industrial | 6.97 | 87 | 1,000 SF |
| General Heavy Industrial | 1.50 | 401 | 1,000 SF |
| Industrial Park | 6.96 | 87 | 1,000 SF |
| Manufacturing | 3.82 | 158 | 1,000 SF |
| Warehouse | 4.96 | 121 | 1,000 SF |
| Miniwarehouse | 2.50 | 241 | 1,000 SF |
| High-Cube Warehouse | 1.20 | 501 | 1,000 SF |
| Airport Hangar | 4.96 | 121 | 1,000 SF |

NOTES: For land uses not listed herein, either the *ITE Trip Generation Handbook*, latest edition, or other trip-generation studies as approved by the County shall be used.

To estimate total daily driveway trips for land uses listed herein with heavy vehicles that are 10 percent or more of the total daily driveway trips, the total estimated daily driveway trips for heavy vehicles shall be multiplied by 2, unless ITE heavy vehicle data or other County-approved heavy vehicle trip generation data for the land use support a different multiplier; however, in no event shall the multiplier be less than 1. The size of the development thresholds listed herein may be reduced based on additional heavy vehicles trips.

Source: Pasco County 2006 Transportation Impact Fee Update Study Summary Report.

EXHIBIT 901.5.B

PASCO COUNTY TIS GUIDELINES SIZE OF DEVELOPMENT THAT GENERATES 1,200 DAILY DRIVEWAY TRIPS

| Land Use | Trip Rate (1) | Size of Dev. | Unit |
|---|---------------|--------------|----------|
| RESIDENTIAL: | | | |
| Single-Family (Detached) | 7.59 | 159 | DU |
| Multifamily (Apartments) | 6.30 | 191 | DU |
| Mobile Home Park | 4.67 | 257 | DU |
| Age-Restricted Single-Family | 3.71 | 324 | DU |
| Congregate-Care Facility (Attached) | 2.25 | 534 | DU |
| Low-Rise Condominium (1 to 2 stories)/Townhouse | 5.20 | 231 | DU |
| High-Rise Condominium (3 or more stories) | 4.18 | 288 | DU |
| RECREATION: | | | |
| Hotel | 8.30 | 145 | Room |
| Motel | 5.63 | 214 | Room |
| Resort Hotel | 5.10 | 236 | Room |
| Recreational Vehicle Park | 3.70 | 325 | RV Space |
| INSTITUTIONAL: | | | |
| Marina | 2.96 | 406 | Berth |
| Golf Course | 35.74 | 34 | Hole |
| Miniature Golf Course | 3.30 | 364 | Hole |
| Movie Theaters | 106.63 | 12 | Screen |
| General Recreation | 2.28 | 527 | Acres |
| Racquet Club/Health Club/Spa/Dance Studio | 14.03 | 86 | 1,000 SF |
| Bowling Alley | 33.33 | 37 | 1,000 SF |
| Community Center | 22.88 | 53 | 1,000 SF |
| INSTITUTIONAL: | | | |
| Hospital | 17.57 | 69 | 1,000 SF |
| Nursing Home | 2.48 | 484 | Bed |
| Elementary School | 1.29 | 931 | Student |
| Middle School | 1.62 | 741 | Student |
| High School | 1.71 | 702 | Student |
| Junior/Community College | 1.20 | 1,001 | Student |
| University | 2.38 | 505 | Student |
| Church | 9.11 | 132 | 1,000 SF |
| Day Care | 3.03 | 397 | Student |
| Cemetery | 4.73 | 254 | Acres |
| OFFICE: | | | |
| General Office - 50,000 SF or less | 15.65 | None | 1,000 SF |
| General Office - 50,001 to 100,000 SF | 14.25 | 85 | 1,000 SF |
| General Office - 100,001 to 200,000 SF | 12.15 | All | 1,000 SF |
| General Office - 200,001 to 400,000 SF | 10.36 | All | 1,000 SF |
| OFFICE (cont.): | | | |
| General Office - Greater than 400,000 SF | 8.83 | All | 1,000 SF |
| Medical Office | 35.95 | 34 | 1,000 SF |
| Office Park | 11.70 | 103 | 1,000 SF |
| Veterinarian Clinic | 32.80 | 37 | 1,000 SF |
| RETAIL: | | | |
| Specialty Retail | 49.99 | 25 | 1,000 SF |
| Shopping Center - Under 50,000 GSF | 86.56 | 14 | 1,000 SF |
| Shopping Center - 50,000 to 200,000 GSF | 62.81 | All | 1,000 SF |
| Shopping Center - 200,001 to 400,000 GSF | 46.23 | All | 1,000 SF |
| Shopping Center - 400,001 to 600,000 GSF | 38.66 | All | 1,000 SF |
| Shopping Center - 600,001 to 800,000 GSF | 34.37 | All | 1,000 SF |
| Shopping Center - Greater than 800,000 GSF | 30.33 | All | 1,000 SF |
| Pharmacy/Drug Store with Drive-Through | 95.21 | 13 | 1,000 SF |
| Home Improvement Superstore | 29.80 | 41 | 1,000 SF |
| Hardware/Paint | 51.29 | 24 | 1,000 SF |
| Quality Restaurant | 91.10 | 14 | 1,000 SF |
| High-Turnover Restaurant | 126.50 | 10 | 1,000 SF |
| Fast Food Restaurant with Drive-Through | 522.62 | 3 | 1,000 SF |
| Gasoline Station | 168.56 | 8 | Fuel POS |
| Quick-Lube | 40.00 | 31 | Bays |
| Auto Repair or Body Shop | 30.09 | 40 | 1,000 SF |
| Self-Service Car Wash | 108.00 | 12 | Bay |
| Tire Store | 24.87 | 49 | 1,000 SF |
| New/Used Auto Sales | 32.93 | 37 | 1,000 SF |
| Supermarket | 103.38 | 12 | 1,000 SF |
| Convenience Store with Gas Pumps | 803.24 | 2 | 1,000 SF |
| Furniture Store | 5.06 | 238 | 1,000 SF |
| Bank/Savings Drive-In | 281.55 | 5 | 1,000 SF |
| Convenience/Gasoline/Fast-Food Store | 984.59 | 2 | 1,000 SF |
| INDUSTRY: | | | |
| General Light Industrial | 6.97 | 173 | 1,000 SF |
| General Heavy Industrial | 1.50 | 801 | 1,000 SF |
| Industrial Park | 6.96 | 173 | 1,000 SF |
| Manufacturing | 3.82 | 315 | 1,000 SF |
| Warehouse | 4.96 | 242 | 1,000 SF |
| Miniwarehouse | 2.50 | 481 | 1,000 SF |
| High-Cube Warehouse | 1.20 | 1,001 | 1,000 SF |
| Airport Hangar | 4.96 | 242 | 1,000 SF |

NOTES: For land uses not listed herein, either the *ITE Trip Generation Handbook*, latest edition, or other trip-generation studies as approved by the County shall be used.

To estimate total daily driveway trips for land uses listed herein with heavy vehicles that are 10 percent or more of the total daily driveway trips, the total estimated daily driveway trips for heavy vehicles shall be multiplied by 2, unless ITE heavy vehicle data or other County-approved heavy vehicle trip generation data for the land use support a different multiplier; however, in no event shall the multiplier be less than 1. The size of the development thresholds listed herein may be reduced based on additional heavy vehicles trips.

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