# TRANSPORTATION IMPACT HANDBOOK

Estimating the Transportation Impacts of Growth

June 30, 2010

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DEPARTMENT OF TRANSPORTATION
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The purpose of this document is to guide the professional through the current generally accepted professional practice. It should also help the professional understand the existing statutes, rules, and policies of FDOT. However, unless a rule, statute, or standard is referenced, the material inside is to be used for guidance by professionals. This should assist in making better decisions for the study of the transportation impacts of new developments.

www.fdottransportationimpacthandbook.com

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# 1 Transportation Impact

## Introduction

## 1.1 Introduction

*The Florida Department of Transportation (FDOT) has developed these guidelines to assist FDOT staff in their review of developments. While this handbook is primarily for FDOT staff, it is available to local governments and other transportation partners in an effort to communicate the FDOT's guidance for reviewing various documents. This update has been titled "Transportation Impact Handbook" to reflect the broader scope of work including local government comprehensive plans, growth management responsibilities, and multimodal transportation – rather than simply traffic analysis. This handbook is designed to reflect legislative and other changes that have taken place since 1997.*

## 1.2 Background

**Transportation Impact Analysis –** *An analysis that estimates and quantifies the specific transportation-related impacts of a development proposal*

A major part of FDOTs role in growth management involves reviewing proposed developments, comprehensive plan amendments, land development code amendments, capital improvement budgets, provision of public facilities, proportionate fair share agreements, Development of Regional Impact (DRI) agreements, and Evaluation and Appraisal Report (EAR) based amendments. Since these local government decisions provide the basis for development approvals, they often incorporate land use changes and impacts to the transportation network. As such, transportation impact analyses are conducted to evaluate how the transportation network would function once the proposed land use change or development takes place.

Depending upon the anticipated impacts, several state and regional agencies will have inputs on these approvals. Significant impacts on regional or statewide transportation facilities are reviewed by the FDOT's District Growth Management staff to ensure that the adopted performance standards are achieved and maintained.

**Concurrency –** *The growth management concept intended to ensure that the necessary public facilities are available concurrent with the impacts of development*

In accordance with Sections 163.3184 (3) and (4), 334.044, and 380.06(6), Florida Statutes (F.S.), the FDOT is responsible for reviewing and providing comments on local government comprehensive plan amendments and Development Orders as they relate to transportation impacts on state and regional multimodal facilities. The types of reviews and the associated statutory and regulatory basis for these reviews are summarized on **Exhibit 1**. The two main categories of reviews are:

- **Local government plan reviews**
- **Development of regional impact (DRI) reviews**

As indicated on **Exhibit 1**, various actions related to planning documents require coordination between the FDOT District Growth Management Coordinators and local governments or developers. Local government comprehensive plan (LGCP) amendment reviews are just one type of review. The DRI review steps shown on **Exhibit 1** have been sequentially ordered to serve as a frame of reference. Regardless of the type of review, the FDOT reviewer should work with the local government staff and applicants to identify opportunities to integrate multimodal services into the planning process and create strategies for making communities ready for transit in the future.

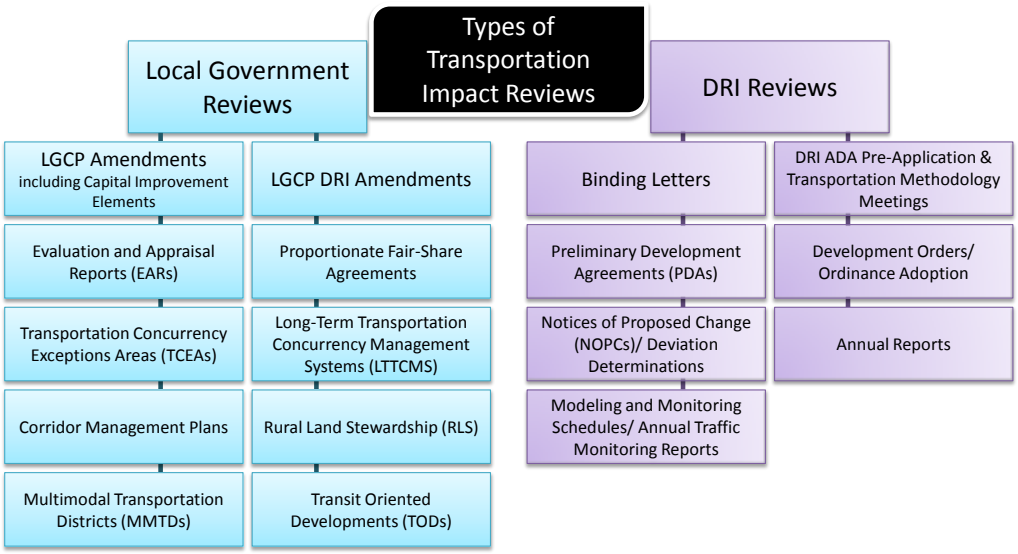

*Q/LOS Handbook*


*Transit Guidelines*

The FDOT's latest *Quality/ Level of Service Handbook* and the *Guidelines and Performance Measures to Incorporate Transit and Other Multimodal Considerations into the FDOT DRI Review Process* both provide guidance for

incorporating transit considerations into the planning process and quantifying multimodal transportation service in the analysis of impacts.

Exhibit 1
Examples of Review Types




The FDOT Office of Policy Planning (OPP) coordinates with the FDOT District Growth Management Coordinators and the Department of Community Affairs (DCA) in developing policies, procedures, and guidelines to assist the Districts and other review agencies with the assessment of transportation impacts associated with growth and development. Increasing coordination between FDOT, DCA, and local governments will be necessary as communities identify desirable growth patterns through strategic regional visioning efforts such as "How Shall We Grow", appropriate mixtures of development, and complementary multimodal transportation networks. To effectively protect and maintain the transportation network, all professionals will need to work cooperatively to respond to growth management issues, protect quality of life, and maximize the use of limited funding.

*Please direct your questions and concerns to your District Growth Management Coordinators or Tim Smith*
*timothy.smith@dot.state.fl.us*
*850-414-4906*

When conducting an analysis, professionals will need to be familiar with the following :

- Local and adjacent comprehensive plans
- Metropolitan planning organization long rang transportation plans
- Transit development plans
- Transportation disadvantaged service plans
- Transportation demand management resources
- Commuter assistance programs
- Bicycle and pedestrian plans
- Capital improvement elements
- Proposed amendments

- Existing or proposed transportation concurrency exception areas (TCEAs), transportation concurrency management areas (TCMAs), multimodal transportation districts (MMTDs)
- Existing or proposed developments of regional impact (DRIs), as well as the potential impacts to the statewide and regional multimodal transportation system.

## Why is a Transportation Impact Analysis Needed?

The FDOT's role is to protect the integrity of the transportation system for the general public and to minimize degradation of both the regional and local transportation networks. There are a number of additional reasons for the FDOT to perform a transportation impact review:

- Provide public agencies with a mechanism for managing transportation impacts of land development within the context of metropolitan transportation planning, local government comprehensive planning, and concurrency
- Provide applicants with recommendations for effective site transportation planning
- Provide public agencies with a method for analyzing the effects of development on transportation
- Establish a framework for the negotiation of mitigation measures for the impacts created by development
- Ensure that a state facility impacted by the proposed development is operating at an acceptable level of service
- Promote multimodal transportation systems where appropriate

*The FDOT reviewer's role*

This handbook is intended to guide the FDOT in reviewing local government comprehensive plan (LGCP) elements, DRI's and other land use approvals that may impact the State Transportation System (STS). In addition, this handbook is intended to offer guidance to transportation partners at all levels of government to enhance coordination in the existing review processes.

In order to sustain a professional and constructive review process, FDOT reviewer comments should be:

- Professional
- Concise
- Provide suggested action by the applicant to address specific comments
- Reference FDOT procedures, manuals and handbooks in the methodology agreement, where applicable, including any District procedures ,Florida Statutes and Administrative Rules

The FDOT reviews of LGCPs are focused on the relationship between transportation, land use, intergovernmental coordination, and capital improvements elements of the LGCP, as identified in Rule 9J-5, F.A.C.

*"Chapter 163.3180 (2)(c), Florida Statutes, requires transportation facilities needed to serve new development to be in place or under actual construction within three years after the local government approves a building permit or its functional equivalent that results in traffic generation."*

## 1.3 About this Handbook

This handbook was designed as an electronic desktop preference for the FDOT reviewer. Hyperlinks to other resources which address specific issues in greater detail are included throughout the handbook. In addition, a comprehensive **List of Resources** is provided to allow for further research. The handbook has been organized in this manner to facilitate practical use. It consists of five Chapters and Appendices as follows:

**Chapter 1** – **Introduction:** This Chapter provides an overview of the Transportation Impact Handbook and summarizes the legislative and rule changes that have occurred since the Site Impact Handbook was prepared in April 1997.

**Chapter 2** - **Standard Transportation Impact Analysis Steps:** This Chapter discusses standard steps for the completion of transportation impact analyses and reviews. Chapter 2 should be utilized in conjunction with other chapters that describe the various types of FDOT reviews.

**Chapter 3** – **Local Government Comprehensive Plan Reviews:** This Chapter describes how the FDOT assists local governments with development project reviews. It describes the types of LGCP amendment and land development reviews and the FDOT roles and responsibilities in this process. 9 Resource Guides are included at the end of the chapter. The Resource Guides were designed to be a "one-stop shop" listing other research materials available for the FDOT reviewer to use to quickly locate information on specific topics.

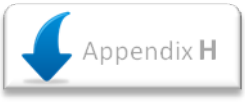
**Chapter 4** – **Developments of Regional Impact Reviews:** This Chapter addresses the transportation impact analyses related to DRIs, as required by Florida Statute. Checklists are included at the end of the chapter.

**Chapter 5** – **Mitigation Strategies:** This Chapter provides information on mitigation processes and options for mitigating transportation impacts to the STS.

**Appendices:** The Appendices include Questions 21 – Transportation and 22 – Air Quality and samples of FDOT district comments.

The Transportation Impact Handbook and many of the linked resources are available online. The handbook is intended to be a 'living document' and will be updated periodically according to need. The website features a place for comments and an online forum for additional feedback.


*TIH Website*




***Glossary** of frequently used terms*

## 1.4 Updates to this Handbook

### Legislative Updates

State law pertaining to transportation has changed significantly since the original Site Impact Handbook was published in 1997.

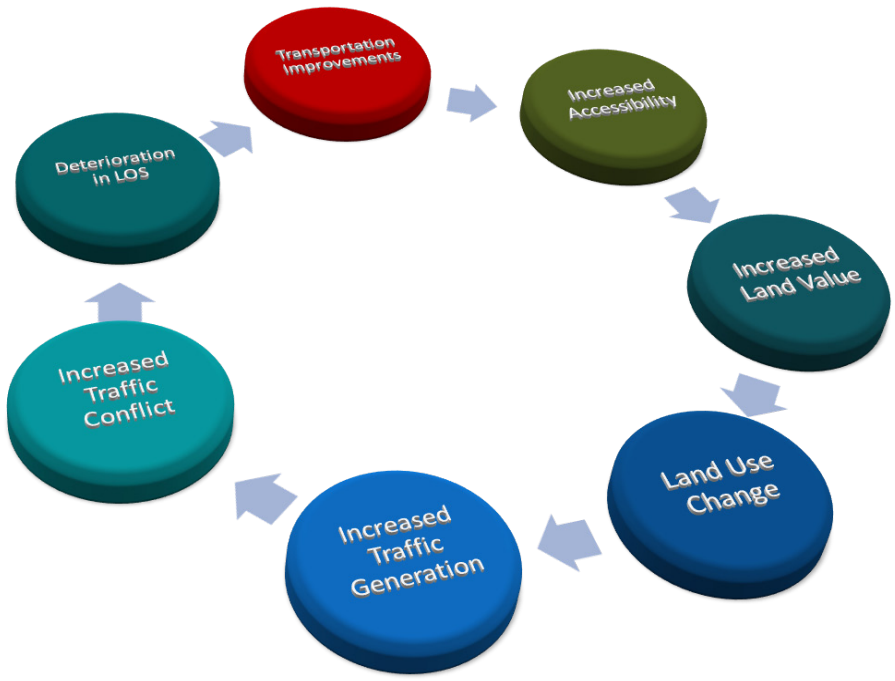
Some major transportation-related changes include:

- A definition and requirement for local government **financial feasibility** through capital improvement element (CIE) of the LGCP
- Establishment of the Strategic Intermodal System (SIS) and requirement that **LOS standards on the SIS** be consistent with FDOT standards
- Designation of **transportation concurrency exception areas** (TCEAs) and **transportation concurrency management areas** (TCMAs) to encourage redevelopment and urban infill
- Creation of **multimodal transportation districts** (MMTDs) to encourage alternative transportation options, and the requirement for local governments to coordinate with FDOT prior to designation of MMTDs
- New regulations governing the contribution of **proportionate share and proportionate fair share** mitigation for transportation projects
- Requirements for monitoring transportation and expressway authorities;
- Establishment of **transportation concurrency backlog authorities**, a county or municipal system created to plan and finance identified transportation deficiencies
- New requirements for the transportation element to incorporate transportation strategies that address reductions in **green house gas emissions.**
- The creation of Dense Urban Land Areas (DULA) and corresponding potential for expansion of Concurrency Exemption Areas

### 1.4.1 Integrating Land Use and Transportation

The legislative changes reflect a fundamental shift in the way transportation is viewed in the state of Florida. In particular, there is a growing recognition of the land use and transportation relationship in establishing a regional vision for growth. Land use and transportation are strongly interdependent and exhibit a cyclical relationship, as depicted on **Exhibit 2**.

Exhibit 2
Land Use/
Transportation Cycle




Transportation facilities and services are essential and high levels of mobility and accessibility are needed to attract economic development, a goal of the Florida Transportation Plan. Development often impacts the transportation system's performance. This causes a need to improve nearby transportation facilities. Transportation improvements tend to increase capacity in large increments. After improvements are made, traffic demand increases slowly, from a combination of latent demand, congestion on other facilities, and changes in land development patterns leading to deteriorating levels of service (LOS). The nature of these patterns results in two systems that are rarely balanced. Failure to address the management of land development and the subsequent need for improved transportation planning and facilities will result in premature degradation of the transportation system.

### 1.4.2 Providing Multimodal Mobility Options

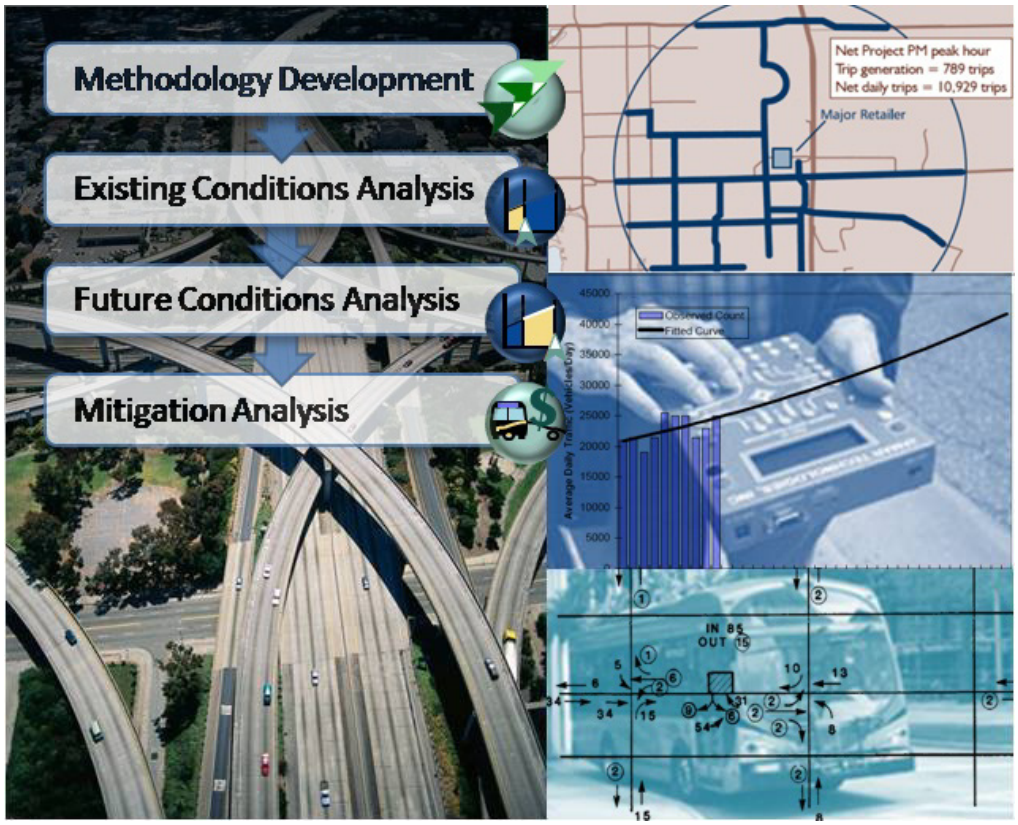
Another change reflected in recent legislation and incorporated into this handbook is a growing recognition of the importance of providing communities with transportation choices. As growth management planning has evolved and recognized the land use/transportation relationship, professionals have become increasingly aware of the need for additional transportation choices. Single occupant vehicles cannot offer the sole means of addressing transportation needs, if we are to create sustainable growth. Multimodal alternatives to the single-occupant vehicle include walking, cycling, carpooling, and riding transit just to name a few. These travel choices work best in compact development patterns. The term used throughout this document to refer to these choices is "multimodal transportation."

This emphasis on multimodal transportation choices has coincided with practical considerations of providing long-term mobility on the transportation network in a cost effective way. As roadways have become more congested, right-of-way for expanding roads has become limited, and construction and fuel costs have increased, more emphasis is now being placed on multimodal options. Recent legislation (as discussed in **SECTION 1.4**) addresses the importance of transit and other multimodal strategies, including improvements for pedestrians, bicycles, paratransit, and fixed-bus route systems. It is important to identify and implement new multimodal strategies to be considered during development review, and this update to the handbook offers reviewers ways to incorporate these considerations into the review process.

The FDOT's Public Transportation Office assists communities with the development of transportation choices and manages various transportation modes including air, waterway, rail, transit, bicycle and pedestrian travel. As projects are reviewed, the FDOT reviewer has the ability to assist communities as they prepare for future transit service, adopt more diverse land use patterns, and plan for travel modes other than single-occupant vehicles. Technical assistance and additional resources to assist the FDOT reviewer are available from the FDOT Public Transportation Office.

*"In 1999, the Florida legislature amended Chapter 163, Florida Statutes, commonly known as the Growth Management Act, authorizing local governments to establish multimodal transportation districts. The purpose of the legislation was to provide a planning tool that Florida communities could use to systematically reinforce community design elements that support walking, bicycling and transit use. It also enabled Florida communities to advance transportation concurrency—a policy requirement that transportation facilities be available concurrent with the impacts of development— through development of a high quality multimodal environment, rather than the typical approach involving road widening for automobile capacity."*

*Model Regulations and Plan Amendments for Multimodal Transportation Districts, National Center for Transit Research, April 2004, page 1.*




# 2 The Transportation Impact Process

## 2.1 Introduction

This chapter provides technical guidance for reviewing transportation impact studies.

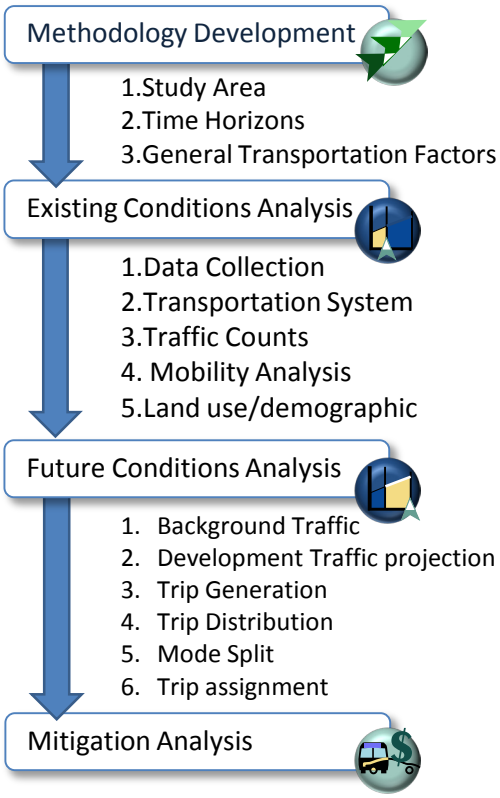
The objectives of an impact study and its review are the following:

- To have an open and honest dialogue with all parties
- To have a realistic study and review of the possible impacts of the new development
- Provide a multimodal perspective in handling the expected impacts
- To make decisions based on the transportation services, and the relationship with land use
- To have a fair assessment of the impacts and the need for improvements
- To achieve a safe and efficient transportation system adjacent to the development site

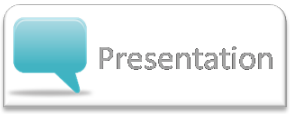
*Adapted from: Transportation Impact Analysis for Site Development, ITE 2005*

Exhibit 3 illustrates the basic framework for transportation impact analysis and review. In general, transportation impact analyses and reviews should follow this general set of basic procedures.

Exhibit 3
**Basic Transportation Impact Analysis**




## 2.1.1 Importance of Multimodal Considerations




*Standard Site Impact*

There are opportunities for including multimodal considerations at each stage of the transportation impact analysis. Some of the best references on these multimodal considerations are:


*Transit Guidelines*

- *Guidelines and Performance Measures to Incorporate Transit and Other Multimodal Considerations into the FDOT DRI Review Process, State of Florida Department of Transportation Public Transportation Office, 2008*


*Multimodal Studies*

- *Multimodal Trade-Off Analysis in Traffic Impact Studies, State of Florida Department of Transportation, Office of Systems Planning, 2003*

### 2.1.2 The Types of Traffic Impact Studies We Review

Traffic studies analyzed by FDOT Planning

- Developments of Regional Impact (DRIs)
- Comprehensive Plan Amendments
- Concurrency Study/Check (sub DRIs of 200,000 square feet, or so) on critical corridors

### 2.1.3 Considerations for Study Requirements

The size, location, and type of development, as well as jurisdictional requirements, will influence the type and level of detail required for each step of the impact study.

**Methodology Development**

**Methodology Development** is the first step in any traffic impact analysis. This process should define the data, techniques, practices, and assumptions that will be used while preparing a transportation impact analysis. All parties should reach agreement regarding the data to be considered, the basic criteria and factors to be used in the study. This step can be helpful to set the stage for integrating the consideration of transit and multimodal services into the analysis. Once a methodology has been defined and accepted, the technical analyses can begin.

**Existing Conditions**

An **Existing Conditions** analysis is developed to assess current conditions and establish a basis for comparison to future conditions. In addition to the roadway network the study should analyze the following: the transit network (not just the routes but frequency and other measures of transit quality), sidewalk, bicycle, pedestrian facilities.

**Future Conditions**

**Future Year Conditions** for a future horizon year (that does not include the proposed development) are forecast to develop Future Background Conditions. The **background conditions** assessment then serves as the basis for a comparison to future conditions with the proposed site development.

*Trip Generation*

*Trip Distribution*

*Mode Split*

*Trip Assignment*

The future conditions analysis is where the future impacts of a proposed development or amendment are assessed. These analyses are comprised of multiple steps. First, the number and type of trips associated with site development are estimated in the **Trip Generation** step. **Trip Distribution** estimates are then prepared to identify the origin and destination of trips associated with the proposed site development. The **Mode Split** is estimated to determine the travel mode (automobile, transit, walking, etc.) used by site-generated trips. Finally, knowing the number of trips, their origins and destinations, and travel mode, the various trips are placed on the transportation network through the **Assignment** step.

Once the trips (auto or other) are assigned to the network, measures of effectiveness, such as Quality/Level of Service Analysis are required. The anticipated multimodal services identified should be taken into consideration and reflected in the future condition analysis.

### Mitigation

When a transportation impact analysis conducted for a proposed development indicates that the transportation system will operate at an undesirable level, mitigation measures to reduce transportation impacts should be undertaken. Mitigation can be in the form of increasing system capacity, enhancing operational efficiency, or reducing demand, and should be relative to the size of the transportation impact expected. When adverse transportation impacts are expected on SIS facilities, FDOT should work with local governments and other transportation agencies to identify and agree upon mitigation measures. F.S. 163.3177(3)(d) says: "*... the local government shall, in cooperation with the Department of Transportation, develop a plan to mitigate any impacts to the Strategic Intermodal System...*" This is important even in exemption areas where FDOT comments are only advisory.

The remainder of this chapter provides a more detailed discussion of each step in the site impact process; describing key study elements both applicants and reviewers should consider when preparing and reviewing a transportation impact analysis.

Summary checklists for the overall site impact analysis process are provided as in this handbook. These checklists can serve as a tool to help ensure that the site impact process is properly executed by both the applicant and the reviewer.

## 2.2 Methodology Development (Step 1)

*Establish responsibilities and analyses that will be performed*

The **Methodology Development** process usually begins when the applicant (developer or other party) contacts the local government, Regional Planning Council (RPC), FDOT or other agency to discuss a proposed development. A formal methodology development process is required for some types of developments, such as a Development of Regional Impact (DRI). Many local governments have adopted official methods they require for development related traffic studies. Even if no formal process is required, it is good practice for participating agencies to agree to a methodology before requesting that the applicant perform a transportation impact analysis.

Prior to conducting any transportation impact analysis, it is necessary to establish the minimum technical responsibilities and analyses that will be performed. It is

the applicant's responsibility to ensure that the methods proposed follow the practices accepted by FDOT and other participating agencies. Local governments should be contacted to verify if they have adopted an official methodology for transportation impact assessments. FDOT should participate in methodology development, as appropriate, for the development type and scope. During the methodology step, FDOT's representative should be prepared to address any transportation-related concerns or FDOT methodology requirements as part of the transportation impact analysis effort.

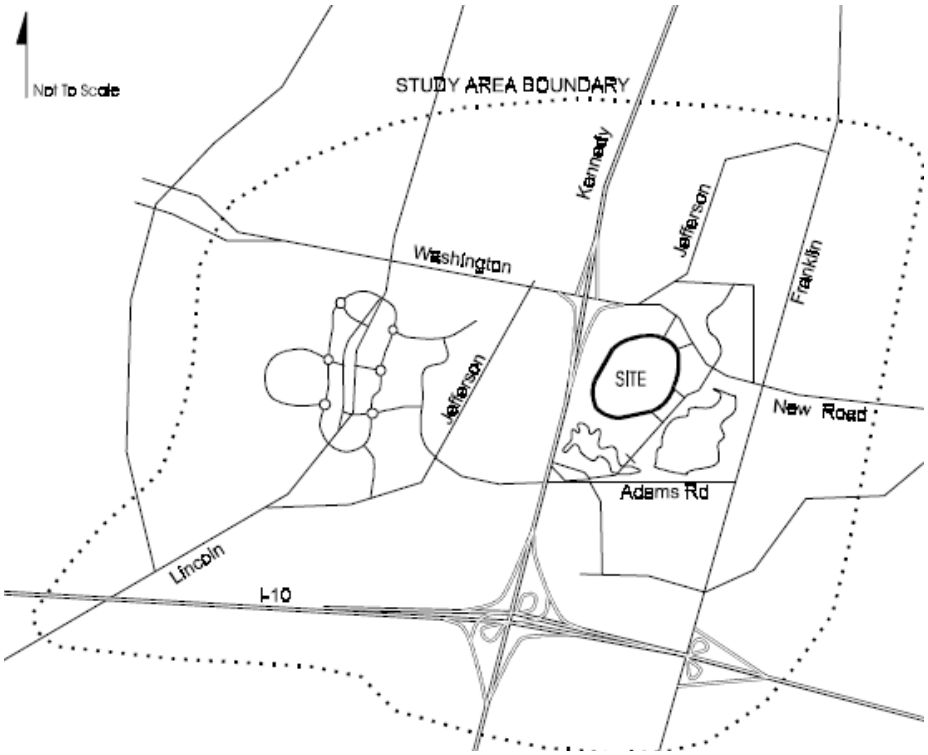
### 2.2.1 Study Area Requirements

*Adjustments to the study area boundaries may be needed to account for site specific circumstances*

The applicant and FDOT's reviewer should consult with all appropriate agencies to identify applicable policies and criteria in defining the study area (see Exhibit 4). The study area is sometimes referred to as the "traffic impact area" or simply the "impact area." Local criteria for defining the study area typically involve a comparison of project traffic to thresholds of the percentage of the maximum service flow rate at an established LOS criterion. For example, typically in the case of DRIs, the study area includes all roadways where traffic generated by the proposed development is equivalent to 5 percent of the maximum service volume at the LOS standard for the facility.

Exhibit 4

**Example Study Area**




Many local governments have adopted procedures that prescribe the methodology used in defining the study area for traffic studies used to support

comprehensive plan amendments. The FDOT reviewer should be familiar with the local ordinances and how they apply to the review process.

Another example is that study areas for concurrency assessments may be defined as a given distance based on the number of trips generated by a development. For example, the study area will encompass a radius of 0.5 miles for developments generating 50 peak hour external trips. Some local governments have adopted a tiered approach to determining a study area.

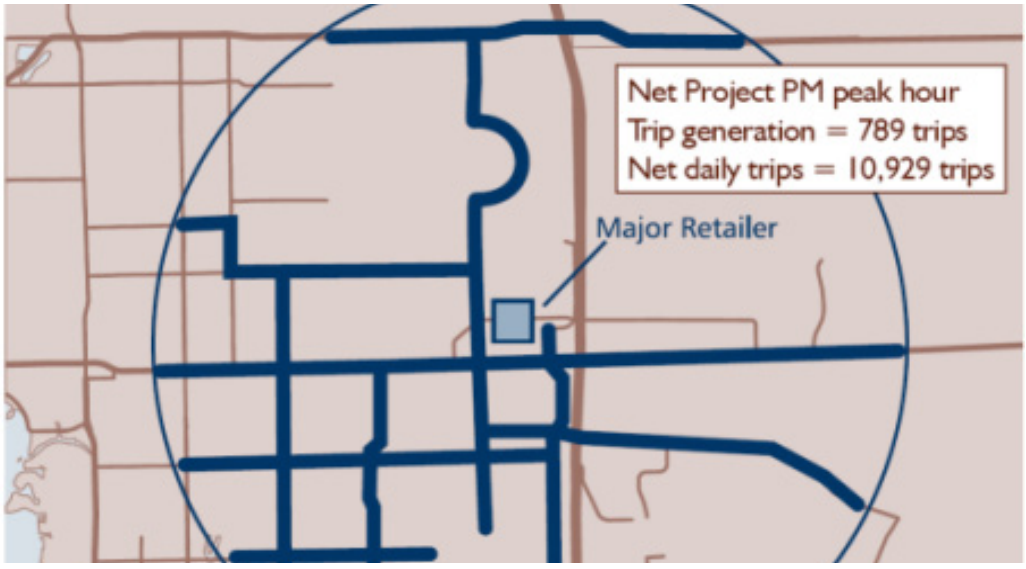
For example, a small scale analysis might be required for developments generating between 50-100 trips with a study area radius of .5 miles, and a large scale study might be required for developments of greater than 100 trips with a 3 mile study radius. Due to the potential for varying methodologies among local governments, FDOT reviewers should pay particular attention to if and how development trips that cross jurisdictional boundaries are treated in the assessment. Adjustments to the study area boundaries may be needed to account for site specific circumstances. The *Transportation Concurrency Best Practices Guidebook* (DCA 2007) has detailed descriptions of these methods of determining impact areas.

Exhibit 5 shows an example of the traffic impact area using a radius from the development based on trip generation

Exhibit 5

**Example of Traffic Impact Area or Study Area**

*Source: Concurrency Best Practices Guide, DCA 2007*




## 2.2.2 Time Horizons – Analysis Years

In general, the analysis years should be related to:

- The opening date of the proposed development
- Completion of major phases in a multi-year development

- Long-range transportation plans or Local Government Comprehensive Plan (LGCP) horizons,
- Metropolitan Planning Organization (MPO) prepared Transportation Improvement Program horizons or other significant transportation network changes
- Corresponding local government's Capital Improvement Elements.

Analysis years should be clearly defined in the report (i.e., "2010 Existing Conditions" instead of just "Existing Conditions") and agreed to during the methodology process.

A change in the proposed development phasing (notice of proposed change in the DRI process - see Chapter 4) may require a new analysis year be considered. Exhibit 6 suggests study horizons as a function of the type of site impact review.

Exhibit 6
**Suggested Study Horizons**

| | |
|---|---|
| **Local Government Comprehensive Plans** | Existing, short-term (five-year), and long-term (existing comprehensive plan horizon year or at least 10 years) analyses are typically required for comprehensive plan elements. |
| **Developments of Regional Impact** | The year of the opening of first phase of the development, the anticipated opening year of each major phase of the development assuming build out and full occupancy of each phase, and the final build-out year (or year of complete development assuming full occupancy) should be considered for all DRI type analyses. |
| **Concurrency Reviews** | Typically these developments occur in a single phase. Therefore, the anticipated opening year of the development assuming build out and full occupancy is the only horizon year required. Local government requirements should be reviewed. |

## 2.2.3 General Transportation Factors

### Analysis Periods

Transportation impact analyses are usually based on a peak-hour analysis. The analysis period should be related to expected peaking patterns of demand on the roadway and anticipated development traffic.

The typical period used by the FDOT for most transportation impact analyses is the 100$^{th}$ highest hourly volume. This period represents a typical weekday peak hour during the peak season of the year (see the FDOT Quality/Level of Service Handbook and Rule 14-94 FAC for additional information). If this period is not adequate, the period selected should be the period that has the highest combination of development and background traffic. This is referred to as the

"**critical hour**." To illustrate this concept, typical critical hours for selected land uses are illustrated in Exhibit 7.


*Project Traffic Forecasting Handbook*

The analysis period to be used should be clearly stated in the methodology. The FDOT reviewer should check that appropriate factors have been applied to field collected data so that the appropriate analysis period is being used. Detailed information about the application of adjustment factors to collected traffic counts is found in the FDOT *Project Traffic Forecasting Handbook*.

Exhibit 7

**Typical Critical Hour Analysis Period for Various Types of Developments**

| Development | Weekday Street Peak Hour AM | Weekday Street Peak Hour PM | Other |
|---|---|---|---|
| **Residential** | X | X | |
| **Office** | X | X | |
| **Shopping Center** | | X | (including freestanding Discount Superstores) |
| Intersection capacity | | X | |
| Access Design | | X | Saturday 11:00-15:00 |
| **Restaurants** Fast Food | | X | 11:00-13:00 |
| Dinner Trade | | X | |
| **Industrial** | X | X | Industrial Plant shifts may precede typical commuter adjacent street peak hour |
| **Hotel/Motel** | | X | |
| **Schools** Grade | X | | 14:30-15:30 |
| High | X | | 14:30-15:30 |
| College | X | X | |
| **Medical** Hospitals | X | X | 6:30-8:00 14:30-15:30 |
| Doctors offices | | X | 9:00-10:00 16:00-18:00 |
| **Convenience Markets/Gas** | X | X | |
| **Sports/Recreational** | | | Peak entry/exit |

***Adapted From:*** *ANALYSIS OF TRAFFIC IMPACT FOR NEW DEVELOPMENTS PAUL C. BOX, Skokie, Illinois* ***Public Works Magazine:*** *February 1981*

## Trip Generation and Adjustments

Trip generation is the process by which the number and type of trips associated with a given land use is estimated. Trip generation may be the most critical element of the transportation impact analysis because it estimates the amount of vehicular travel associated with a specific land use or development. An estimate of trip generation from the development using FDOT approved trip generation methods (such as ITE's *Trip Generation* publications) is required in all analyses.

> *If there is no land use code in the Trip Generation Handbook for a specific development, a local government may require the applicant to either use the equations or rates of a similar land use or conduct trip generation studies at sites with characteristics similar to those of the proposed development.*

*Advice from,* ***Transportation Concurrency Best Practices***

**Source**: Transportation Concurrency Best Practices, DCA, 2007When dealing with adjustments to trip generation that are made to lower the gross trip generation (e.g. internal capture percentages for mixed-use projects, transit oriented development, pass-by capture rates for retail land uses, etc) these should be accompanied by sufficient logical justification and/or empirical data early in the process. We suggest this be a major item of discussion at Methodology Development.

Trip generation and adjustments are discussed in detail in Section 2.4.

## Use of "Manual Methods" and Travel Demand Forecasting Models

Future conditions for impact assessments can be estimated using "manual methods," travel demand forecasting models, or a combination of the two. For the purposes of this handbook, "**Manual Methods**" are those methods of trip generation NOT done with large scale travel demand models, such as FSUTMS. The most common examples of what we call "Manual Methods" are, trip generation done through the use of trip generation factors, and background traffic growth done by growth factors or adding known trips from other developments to the surrounding road system.

The method to be used will often depend on the size and scope of the project, as well as the availability of a travel demand model for the study area. The method to be used should be determined as early as possible in the process through coordination with FDOT and local agencies. The preparer of a transportation impact analysis should ensure the purpose of using any model is clearly stated and approved by FDOT prior to initiating the study.

In many cases, a hybrid approach can be used that employs elements of both manual and model methods. For example, background conditions and trip generation might be estimated using manual methods while trip distribution and

assignment might be based on model methods. In another example, if the FDOT reviewer questions the distribution and assignment of trips generated by a development analyzed using a manual method, the step potentially could be compared with the results of an assignment made with a travel demand model.

### Other Major Committed Developments

Major committed developments are developments that have an approved development order (DO) or an approved concurrency management certificate. These should be considered in the transportation impact analysis. These trips are known as "Vested Trips." If one or more developments are included in a comprehensive plan amendment package, they should all be analyzed in one comprehensive analysis.

*Other major committed developments should be considered in any site impact analysis*

The traffic from these developments is part of the background traffic and is addressed in greater detail in **Step 3: Background Traffic.** The manner in which committed development will be accounted for in the analysis should be determined as early as possible in the process through coordination with FDOT and local agencies.

### Redevelopment Sites

If a new development is being proposed on a site that previously generated a significant amount of traffic, the reviewer should determine, in advance, the treatment of the traffic that used to be generated on that site.

*How to account for previous traffic from site that is being redeveloped*

In order to encourage in-fill development, some local governments and other agencies "discount" the older site developed traffic and treat it as part of the Background Traffic. This will depend on local government practices, and other considerations such as, the time the property was vacant and existing traffic conditions around the site.

## 2.3 Existing Conditions Analysis and Data Collection (Step 2)

The existing traffic information (year, adjustment factors representing peak season, daily and peak hour traffic) should be discussed during the **Transportation Methodology** and accepted by the governmental entities prior to conducting traffic counts.

Once the parameters are established in the methodology development step, the transportation impact analysis can begin. The first step in the process is to perform an analysis of the existing travel conditions. This analysis establishes a basis of comparison for the proposed development. The basic analysis should consist of identifying the physical characteristics of the transportation system and traffic operating conditions of roadways using FDOT's guidelines for data collection found in the FDOT Quality/Level of Service Handbook, 2009 and

PDF link

*Q/LOS Handbook*

standards or other accepted techniques. The quality of service for transit, and non vehicle travel can also be evaluated using the Handbook.

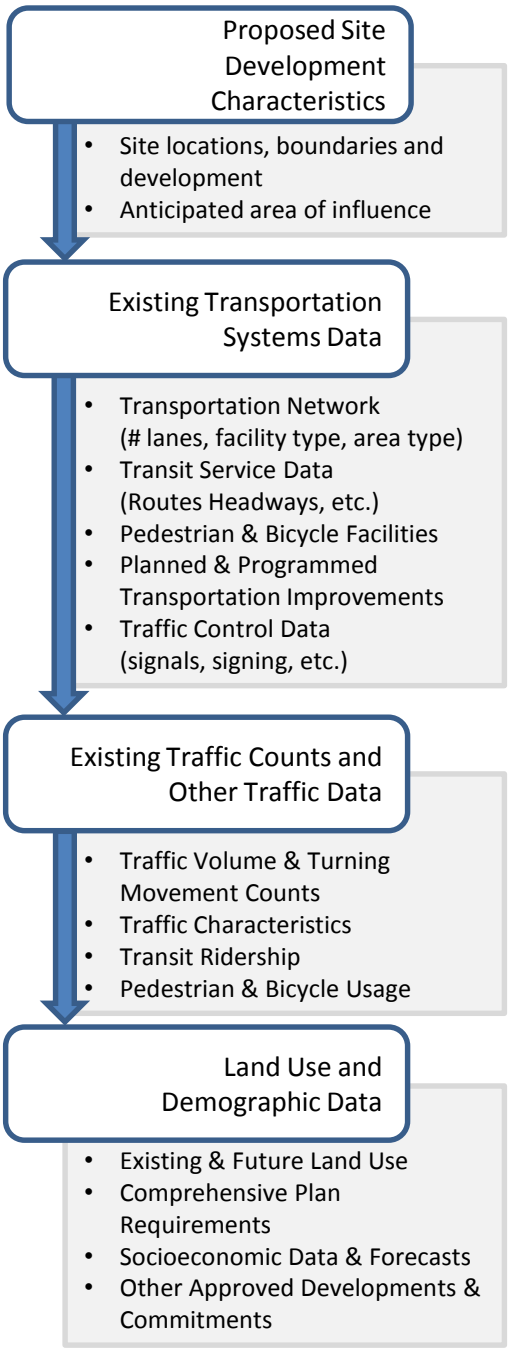
### 2.3.1 Data Collection

The specific data that should be collected during a transportation impact analysis is usually defined in the methodology development step. The applicant is responsible for the collection, assembly, analysis and presentation of all data. Types of data generally required for the study area are discussed below. Exhibit 8 summarizes the data collection and existing conditions requirements.

*Exhibit 8*

***Common Data Needs for Site Impact Analysis***

The applicant is responsible for compiling all data



## 2.3.2 Proposed Site Development Characteristics

*The proposed land uses should be identified by intensity and classification consistent with **ITE's Trip Generation Report***

The proposed site development characteristics will identify the location of the proposed development, site boundaries and other site related characteristics. This information should be presented based on the following guidance:

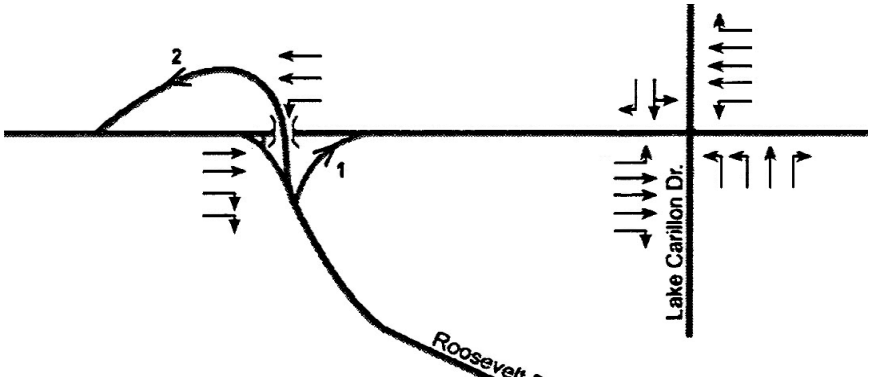
- A site plan or master plan should be provided which clearly indicates the location of proposed land uses and intensities, and internal roadways
- The proposed land uses should be identified by intensity and classification consistent with ITE's *Trip Generation*
- The proposed traffic signals, median openings and major driveway locations serving the site.
- The required study area or anticipated area of influence for the proposed development should be identified with site development characteristics;

## 2.3.3 Existing Transportation System Data

The existing Transportation System Data will include the physical and functional characteristics of the transportation system. Required data to be provided include:

- Geometric data such as the number of lanes, locations of intersections and signals (see example below)

**Existing Number of Lanes**




- The functional classification, access management classification and jurisdiction responsible for the facility (state, county or local) for all facilities within the area of influence
- The area type (rural, transitioning, urban or urbanized area)
- Traffic signal location and operations information identification of transit, bicycle, and pedestrian routes/facilities that the development might impact or use
- Safety information for all modes, including pedestrian crashes. This may point out problem areas for future remediation

- Identification of any Strategic Intermodal System (SIS) facilities, Florida Intrastate Highway System (FIHS) facilities, Transportation Regional Incentive Program (TRIP) funded facilities, or facilities on the State Highway System (SHS)
- Identification of programmed improvements on state highways and significant regional, local (city or county) roads and transit facilities within the next three years or through each major phase of the proposed development
- Identification of planned improvements that are reported in the MPO long-range transportation plan
- Identification and review of multimodal information, data, and considerations with appropriate agencies

**Data Considerations for Future Transit Service**

When considering potential transit services, the density, diversity, and distance factors associated with a proposed development should all be considered. Specifically, transit needs should be assessed in the context of the types of housing, mixture of land uses, density and intensity of development, and walking distance to transit stops.

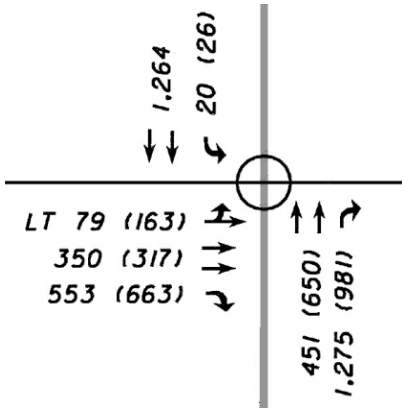
As the need for transit services is reviewed, the focus of the analysis should extend outward from development projects and activity nodes to consider the potential for modifying existing or committed fixed-route bus service, circulator, or feeder service to premium transit.

The study area should not be restricted in terms of walking distance; rather the reviewer should consider, in consultation with the transit provider, whether it is desirable to extend service a modest distance to serve new development.

**The transit development plan (TDP) should be reviewed and the transit agency serving the area should be contacted to determine the current and committed service in the area.**

### 2.3.4 Traffic Counts and other Traffic Data

Existing transportation demand data will include current and historical traffic volumes, turning movement counts, traffic characteristics such as peaking and directional factors, ridership data, bicycle and pedestrian activity, even if it is simply good observational reports of cycling and pedestrian activity. Existing data that will support trip generation analysis such as origin and destination data or market analysis may also be required. All traffic analysis summaries and reports should clearly identify the specific year of analysis.




**Example of Existing Intersection Counts**

*Numbers in parenthesis are PM Peak and Without are AM Peak*

*Where FDOT or local government data is not available, collect data in accordance with FDOT procedures*

Where FDOT data is not available, (this is usually for turning and freeway ramp counts), the applicant is responsible for collecting data in accordance with FDOT guidance and procedures and consistent with agreed upon methodologies. Data from years where significant transportation network changes occurred or major phases of related developments were opened to traffic should be noted and possibly excluded if it could skew a trend analysis.

For a planning analysis of existing conditions, FDOT recommends calculating roadway traffic volumes and specific traffic factors based on 3-day counts. This would be 72-hours of consecutive counts taken within the time frame of Monday afternoon through Friday morning in urbanized, transitioning and urban areas. For rural areas 7-day counts are usually required. Weekend counts may be necessary for some developments (sport/recreational i.e. theme parks, stadiums) and discount retail commercial (i.e. Wal-Mart/Target, Home Depot/Lowes big box stores).

For DRIs and other larger developments, the last five years of historical data should be collected (if available). FDOT's existing Annual Average Daily Traffic (AADT) counts, classification counts, and Automated Telemetry Recorder (ATR) sites (sometimes called Permanent Count Stations) should be the prime source for historical traffic data.

PDF link

*Q/LOS Handbook*

This data is stored in the traffic characteristics inventory (TCI) and roadway characteristics inventory (RCI) databases maintained by FDOT. RCI provides a graphical interface, available in CD or DVD format, to access traffic data collected for over 7,500 traffic count locations.

PDF link

*Project Traffic Forecasting Handbook*

The two major sources for guidance are:

- *FDOT Q/LOS Handbook,* http://www.dot.state.fl.us/planning/systems/sm/los
- *FDOT Project Traffic Forecasting Handbook*

### 2.3.5 Land Use and Demographic Data

*See Exhibit 13 for guidance on converting employment data into business square footage.*

Land Use and Demographic Data will include future land use classification, intensity, population, employment, comprehensive plan data and zoning requirements. If a Cube/FSUTMS model will be used in the analysis, the traffic analysis zones (TAZ) representing the location of the proposed development should be identified. The socioeconomic data contained in the ZDATA files of the model should be verified for accuracy and reasonableness, within the study area.

Other committed developments should also be identified including related vested developments within the preliminary area of influence, adopted amendments to the comprehensive plan or other development agreements. The applicant is responsible for collecting this information within the study area as directed by review agencies. The extent of data required for other committed development should be agreed to during the methodology meeting. The applicant is also responsible for verifying all of the data collected.

#### Model Data Considerations

*It is important to understand the model application and base data*

When considering the use of large scale transportation model data, it is important to understand the model application and base data. Data obtained from fringe areas of a travel demand model is often subject to greater errors and should be carefully evaluated to ensure its applicability. Comparisons of the model forecasts to ground counts should be used to check how the model is performing in the fringe areas as this is often where issues exist with travel demand models.

#### Level of Service Analysis

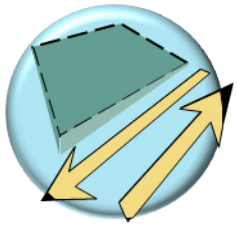
FDOT has adopted statewide minimum LOS standards (Rule Chapter 14-94) that apply on the SIS, SIS connectors, FIHS, and TRIP roadways (except in established transportation concurrency exemption areas). All LOS determinations are to be based on methodologies consistent with the latest *Highway Capacity Manual* , the latest *FDOT Quality/Level of Service Handbook* or a methodology determined by FDOT as having comparable reliability.

For existing conditions, Level of Service analysis should be performed along each segment of the roadway system identified in the methodology step within the area of influence. These facilities will include the major roadways, and intersections within the study area. Critical intersections for analysis may be identified based on the functional classification of the roadways or based on the volume of development traffic utilizing the intersection.

The procedures in the latest version of the *FDOT Quality/Level of Service Handbook* should be of sufficient detail for most existing condition analyses. If a freeway interchange may be affected by the proposed development, additional freeway segment, ramp and weave analysis procedures from the latest version of the *FDOT Interchange Handbook* and *Highway Capacity Manual* is required.

# 2.4 Projecting Future Conditions (Step 3)

## 2.4.1 Projecting Background Traffic



Background Traffic serves as the base condition in determining the impacts of development on the transportation system in future years. Background traffic is comprised of two elements:

- The expected increase from overall growth in through traffic (traffic movements through the study area that do not have an origin or destination in the study area)
- Traffic from other developments in the study area (other than the project being analyzed). For example, major committed developments defined as developments that have an approved development order (DRIs) or concurrency management certificate should be included in background traffic

Background (non-site) traffic is typically estimated using one of three methods based on local area needs and conditions:

1) **Growth Rate/Trend Methods** relying on historic trends. This method is typically appropriate in applications for:
   - Small projects that will be built within one or two years
   - Areas with at least five years of data showing stable growth and expected to remain stable
2) **Build-up methods** that use specific development information. This method is typically appropriate in applications for:
   - Areas experiencing moderate growth
   - Areas where multiple projects will be developed during the same period
   - Project horizon years of 5 years or less
   - Locations where there is thorough documentation of development approvals
3) **Model methods** involve the use of a large scale travel demand model, such as FSUTMS. Model methods are typically appropriate in applications for:
   - High growth areas
   - Large regional projects that may have multiple build-out phases
   - Locations where there is sufficient information available to calibrate the model to current and future conditions.

*Special Note on Using Large Scale Transportation Models*

Modeling is a complex practice involving knowledge, experience, and particular knowledge of the area models being used. The following discussion is meant to be broad guidance. The practices in your FDOT district may vary. All modeling decisions should be done with regular contact with the modeling section of the FDOT district.

The Growth Rate (Trends) and build-up methods are often referred to as manual growth trends method, even if done with a computer.

The type of development project, the development within the study area, available data, horizon year, and agency requirements should all be considered when selecting the most appropriate method for a given situation. It is noted that the applicant may be requested to document growth assumptions using more than one method. For example, rates based on using the Growth Rate (Trends) Method and the Model Method may be requested so that comparisons can be made and differences can be discussed.

### 2.4.2 The Growth Rate/Trend Method for Projecting Background Traffic

These are typically performed using trend or growth rate analysis of historic traffic data. The process of adding vested development traffic into background traffic is known as the "Build-up Method" and is described further below.

**Growth Rate/Trends Method**

*Growth rates based on trends are the most basic approach to developing future growth projections*

The Growth Rate/Trends Method is the most basic approach to developing future growth projections (Reference: ITE *Transportation Impact Analyses for Site Development*), because the growth rate method reflects historical trends. The estimates using this approach will be dependent upon how the historical trend reflects the horizon year traffic. Traffic volumes should be used in developing growth trends and should be based on at least five years of data. However, care should be exercised in using data beyond five years as the results may over-emphasize past trends. An area that has remained rural for many years may have recently changed to a "booming" growth area. In this case, the use of many past year counts will significantly under-predict future traffic. Note also that peak hour growth patterns do not necessarily follow daily traffic growth patterns.

The ITE's **Transportation Impact Analysis for Site Development** has this caution:

> *The growth rate method is often insensitive to localized changes. It should not be used in cases where other extensive nearby development will occur during the study period, or where growth rates are unstable. Sizable errors could develop. Furthermore, growth in average daily traffic does not always parallel growth in peak-hour traffic, and most historical data are for average daily traffic. This method should also not be used where substantial transportation system changes (infrastructure changes) will alter traffic patterns within the study area, unless an accurate redistribution step is included.*

## Growth Rate/Trend Analysis Techniques

When using either AADT or a related demographic characteristic for forecasting background traffic, the following steps are required:

- Identify the data that is required based on the study area and the sources of relevant data
- Obtain the historic traffic-count data for the existing locations(s) or demographic data
- Perform a growth trend analysis using one of three growth forms identified below and plot the patterns of traffic growth rates for the existing location(s)


*Background Traffic and Trends*

Growth rate trend analysis is the method of fitting a mathematical curve that will adequately describe a trend in data for projection purposes. Three growth forms are used for site impact analysis:

1. linear
2. exponential
3. decaying exponential

Further details and an example application of each of these methods are presented in the next sections.


***Traffic Trends Analysis Tool***

*Allows an analyst to estimate future traffic based on the historical data collected by FDOT.*

### FDOT Trends Spreadsheet Program

FDOT developed and maintains a software analysis tool that can be used to prepare trend analysis. ***Traffic Trends Analysis Tool*** is an Excel-based tool that allows an analyst to use the Florida Traffic Information count database, select a traffic count station data set (from a database of count locations organized by County), and then prepare future trend analysis. The software allows for comparison of results using all three growth techniques and provides a statistical evaluation ($R^2$ value) for each. The automated analysis process provides the analyst with opportunities to select the range of historic data to be included, consider multiple future projection years.

## Example Application of Trend Analysis and the Trends Spreadsheet

The following example is provided to illustrate the use of the three regression models for forecasting traffic volumes on a roadway (US 17/92) in Seminole County. Information regarding the applicability of the three growth trend techniques is also presented. Exhibit 9 summarizes the historical AADT on the roadway facility.

Exhibit 9 Historical Volumes
(Seminole County site 0040)

| *Year* | Volume (AADT) |
|---|---|
| 1998 | 21,000 |
| 1999 | 21,500 |
| 2000 | 19,000 |
| 2001 | 21,500 |
| 2002 | 25,500 |
| 2003 | 25,000 |
| 2004 | 25,000 |
| 2005 | 21,500 |
| 2006 | 23,000 |
| **2007** | 25,000 |

## Linear Growth

*Linear growth assumes a constant amount of growth in each year and does not consider a capacity restraint*

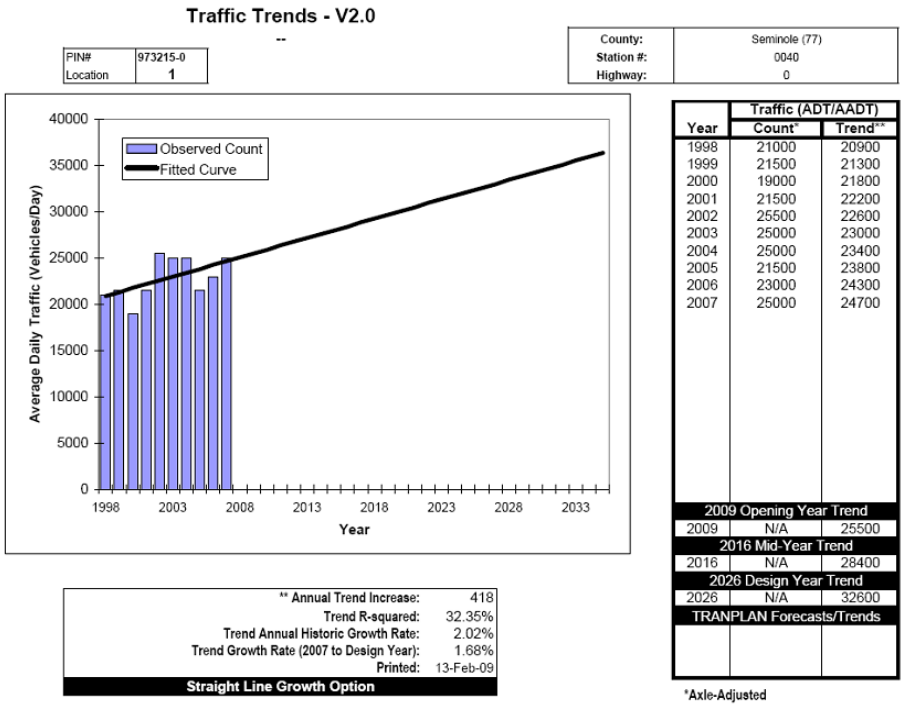
Linear growth predicts the future traffic based on a straight line developed from historic traffic growth. This model assumes a constant amount of growth in each year and does not consider a capacity restraint. The mathematical model for linear growth is as follows:

Future Volume = (Linear Growth Rate * Number of Years) + Base Year Volume

$$Volume_{FY} = G_{Linear} * N + Volume_{BY}$$

Where: G = Linear growth rate
N = Years beyond the base year
FY = Future year
BY = Base year

Exhibit 10
Linear Growth Projects Using Traffic Trends




Using the Seminole County example data, the results of the linear growth rate estimated an average growth of 418 vehicles per year as shown in Exhibit 10. The software allows users to select three analysis horizon years per evaluation run. In this example, an opening year of 2009 was evaluated along with a mid-year of 2016, and a long-term horizon of 2026.

## Exponential Growth

Exponential growth predicts the future traffic based on a percentage of growth from the previous year. This model is most applicable where there is rapid growth and capacity available. The mathematical form of exponential growth is as follows:

*Exponential growth is most applicable where there is rapid growth and capacity available*

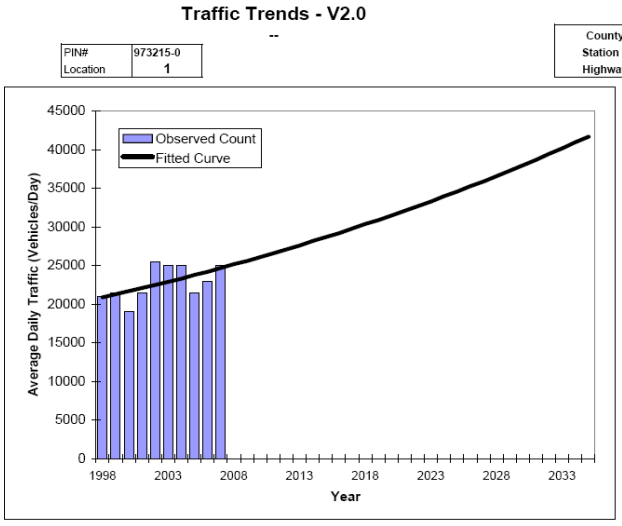
$$\text{Future Volume} = \text{Base Year Volume}\,(1 + \text{Growth Rate})^{\text{Number of Years}}$$

$$\text{Volume}_{FY} = \text{Volume}_{BY} * (1 + Gr)^{(FY-BY)}$$

Where: $G_r$ = Geometric growth rate
FY = Future year
BY = Base year

Exhibit 11

Exponential Growth Projects Using Traffic Trends




| Year | Traffic (ADT/AADT) Count* | Trend** |
|---|---|---|
| 1998 | 21000 | 20900 |
| 1999 | 21500 | 21300 |
| 2000 | 19000 | 21700 |
| 2001 | 21500 | 22100 |
| 2002 | 25500 | 22500 |
| 2003 | 25000 | 22900 |
| 2004 | 25000 | 23300 |
| 2005 | 21500 | 23800 |
| 2006 | 23000 | 24200 |
| 2007 | 25000 | 24700 |
| 2009 Opening Year Trend | | |
| 2009 | N/A | 25600 |
| 2016 Mid-Year Trend | | |
| 2016 | N/A | 29200 |
| 2026 Design Year Trend | | |
| 2026 | N/A | 35300 |
| TRANPLAN Forecasts/Trends | | |

*Axle-Adjusted

| | |
|---|---|
| Trend R-squared: | 32.84% |
| Compounded Annual Historic Growth Rate: | 1.87% |
| Compounded Growth Rate (2007 to Design Year): | 1.90% |
| Printed: | 13-Feb-09 |
| Exponential Growth Option | |

## Decaying Exponential Growth

Decaying Exponential Growth is used to project future traffic in areas with a declining rate of growth over the analysis period. This model form is recommended for site impact analysis in mature areas.

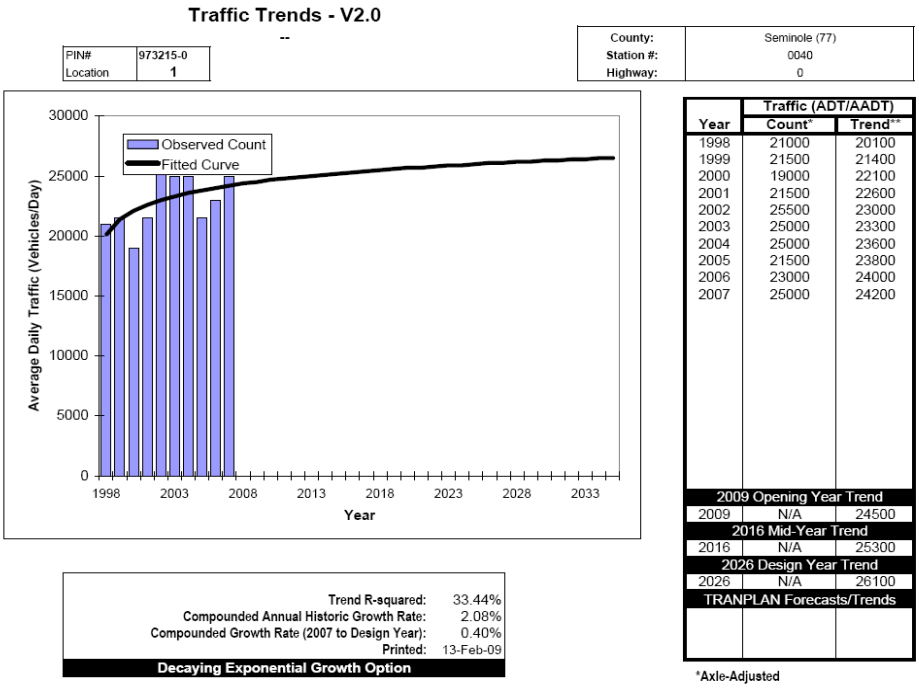
*Decaying Exponential Growth is used to project future traffic in areas with a declining rate of growth over the analysis period*

$$\text{Volume}_{FY} = \text{Volume}_{BY} * \sum_{BY}^{FY} \frac{X}{FY - BY} \sum_{BY}^{FY} \frac{X}{FY - BY}$$

Where: X = Normal straight line growth from trend data
FY = Future year
BY = Base year

Exhibit 12

Decaying Exponential Growth Projects Using Traffic Trends




Presentation

*Trends Example*

Exhibit 12 illustrates application of a decaying exponential growth project to the Seminole County data.

The Presentation link contains a step-by-step illustration of the use of the software to derive the three examples shown in Exhibits 10 through 12.

## What if the Background Traffic Has Declined?

In the event that an area has a decline in traffic, the probable cause must be determined. Analysis should be done to decide if the decline is a long term trend. Some local governments and other agencies use a minimum growth rate guide. In these cases the FDOT reviewer must join the discussion with all parties to arrive at an acceptable agreement.

### 2.4.3 Build-Up Method

*The build-up method = vested developments + background through traffic*

The build-up method of traffic involves the identification of all trips associated with vested developments in the study area, assigning those trips to the study area transportation system, and then adding the background through traffic. The build-up method of projecting background traffic is appropriate when other area developments are proposed that will affect local area traffic patterns during the same horizon period.

Considerations for using the build-up method are outlined below.

**Assess impacts of committed system improvements**

- Work with local and state agency staff to identify a subarea.
- Identify committed transportation projects and project probable travel pattern changes within the subarea.

**Identify and add vested development traffic**

- Confirm vested projects and phasing within the subarea with local and state agency staff.
- Obtain trip assignment associated with vested projects (desirably including documentation of trip generation, trip distribution, and trip assignment).
- Other committed developments that should be identified include: related vested developments within the preliminary area of influence, adopted amendments to the comprehensive plan or other development agreements.
- Sum the vested trips.

**Estimate growth in background traffic not related to the development of the vested development.** (Also called "Natural Growth")

*Don't Double Count! Check for reasonableness*

Double counting of development generated trips may occur when estimating the other background traffic. Checks for reasonableness should be made. If the build-up method is used, a lower traffic growth rate than a direct trend analysis may be used in estimating the natural growth trips. The vested development traffic then is added to the "natural" growth that would occur without the presence of the vested developments. For example, if the build-up method were proposed and historical trends indicated a 4 percent per year linear growth rate, 2.5 percent (or some other rate less than 4 percent) might be used, instead based on the anticipated "natural" (not from other surrounding vested developments) population growth within the study area.

### 2.4.4 Large Scale Transportation Model Methods


*Modeling Methods*

The FDOT and MPOs typically maintain travel demand models that incorporate large planning areas. These models are typically calibrated to a base year and include a long-term future horizon year for the corresponding transportation system. Travel demand models can be used to assist in the identification of traffic patterns and needs associated with site development.

The model method of transportation impact analysis uses an MPO-adopted regional travel demand model to forecast the trip distribution and assignment of development-generated trips. Trip generation for the development should be calculated using ***ITE's Trip Generation Report***. There are two general methods for using a FSUTMS model for distributing and assigning ITE-generated trips during a traffic impact analysis: the special generator method and the link volume factor method.

**Special Generator Method:**

Develop a new traffic analysis zone (TAZ) or set of zones for the development and code in connectors from the new zone centroids to the transportation network.

- Connection points should be consistent with the preliminary site access plan (see Step 10: Site Access).
- Code socioeconomic data consistent with the development program into the model's ZONEDATA file
- Identify appropriate ITE vehicle trip rate(s) and estimate site trip generation manually using ITE's Trip Generation Report.
- Identify appropriate trip purposes for commercial properties based on prevailing land use type (e.g., shopping center would be predominantly home-based shopping trips).
- Identify reasonable auto occupancy rates for each trip purposes. Look for consistency with the Cube Catalog keys. Apply auto occupancy rates to ITE trips by purpose to calculate person trips and sum for residential and non-residential uses in each development TAZ.
    1) Enter person trips by zone and trip purpose into SPECGEN file.
    2) Set up model to execute using script files that isolate development trips from other background trips.
    3) Conduct initial model run with a select link analysis on all centroids for zones comprising the project to:
    4) Obtain initial vehicle trip distribution patterns of site-generated trips.
    5) Compare vehicle trip generation obtained manually and with the planning model.
    6) If the model-derived number of vehicle trips is less than the manual calculation for any given land use, the total external site trip generation obtained using the planning model should be adjusted until

the modeled number of trips is greater than or equal to the manually estimated trip. This is more likely for non-residential uses.

- Identify any difference in vehicle trips between manual and model calculations.
- Adjust number of trips in SPECGEN file by a similar ratio.
- Rerun the model.
- Identify any remaining difference in vehicle trips between manual and model calculations.
- Continue steps 3 and 4 until model calculations are **greater than or equal to** manual calculations.

7) Convert site-generated trips to PM peak period or other, as directed by local concurrency ordinances.
8) Estimate internal capture using the guidelines contained in ITE's Trip Generation Handbook.
9) Adjust trips to commercial properties on site to account for agreed upon pass-by trip percentages.

### Link Volume Factor Method

Develop a new traffic analysis zone (TAZ) or set of zones for the development and code in connectors from the new zone centroids to the transportation network. Connection points should be consistent with the preliminary site access plan.

1) Code socioeconomic data consistent with the development program within the ZONEDATA file (e.g., single-family homes in development = single-family dwelling units in FSUTMS).For land use types not found in the ZONEDATA file, use rates for land use types that are comparable to FSUTMS land uses and acceptable to review agencies. Example land use conversion rates are shown in Exhibit 13.
2) Take supplemental demographic data (persons per dwelling units, percent automobile ownership, percent of dwelling units vacant, etc.) from zones in the ZONEDATA file that contain land use and population characteristics that are expected to be similar to the character of the project site. Example land use conversion rates are shown in Exhibit 13.
3) Set up model to execute using script files that isolate development trips from other background trips (Selected Link Analysis on centroids).
4) Identify cordon line around the proposed development.
5) Estimate internal capture using the guidelines contained in ITE's Trip Generation Handbook method.
6) Calculate the total number of external trips (i.e., those crossing the proposed development cordon line).
7) Calculate the percent distribution of external project trips (link distribution

percentages) by dividing the number of project trips on each link of the network by the total number of external project trips.

8) Identify appropriate ITE vehicle trip rate(s) and estimate site trip generation manually using ITE's Trip Generation.
9) Factor the total number of ITE external project trips by the link distribution percentages calculated earlier for each link in the loaded network.
10) Resulting ITE trips times link distribution percentages can be plotted link by link.
11) Adjust trips to commercial properties on site to account for agreed upon pass-by trip percentages.
12) Factor the total number of ITE external trips (with IC and Pass by subtracted) by the link distribution percentages…"

Exhibit 13
Land Use Conversion Rates for Traffic Impact Assessments

| Land Use | Conversion Rate* |
|---|---|
| **Single-Family Dwelling Unit** | **3 persons per DU** |
| **Multi-Family Dwelling Unit** | **2 persons per DU** |
| **Office** | **4 service employees per 1,000 sq ft** |
| **Hospital** | **3 service employees per 1,000 sq ft** |
| **Retail <200k sq ft** | **3 commercial employees per 1,000 sq ft** |
| **Large Retail** | **2 commercial employees per 1,000 sq ft** |
| **Industrial** | **2 industrial employees per 1,000 sq ft** |
| **Warehousing** | **1 industrial employee per 1,000 sq ft** |
| **Hotel** | **1 service employee per room** |
| *This data is a compilation of "Rules of Thumb" and calculations using ITE Trip Generation. These conversion rates should only be considered when local data FDOT District guidance or more specific knowledge is not available. | |

If the model method is used, ITE recommends the model should be carefully examined to confirm: (Reference: *Transportation Impact Analyses for Site Development)*

- Land use and demographic assumptions within the model are valid
- Key collector streets and centroid connections (links between the roadway network and the analysis zone) are included
- The roadway network is accurately represented (i.e. appropriate link data such as presence of facilities, number of lanes, link capacity, travel speeds, etc.)
- The trip assignment method (confirm if and how trips are routed between zones considering multiple potential paths).

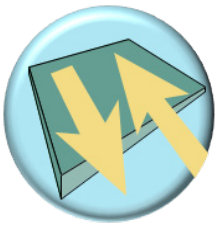
*Understand the model's strengths and limitations*

It is essential that the model user have a thorough understanding of a given model's analysis strengths and limitations so that model output can be properly interpreted and used.

### ZDATA Interpolation

In addition to forecasting AADT volumes directly, the applicant may be required to develop FSUTMS model inputs (ZONEDATA) for years that are not major horizon years in the model used in the site impact analysis. When the duration between model horizon years is less than five years, it may be appropriate to interpolate the ZONEDATA using a linear regression equation, for example between 2015 and 2020. Data in years where significant transportation network changes are anticipated to occur or major phases of related developments are proposed to open should be considered to the greatest extent and linear interpolation of ZONEDATA files should be discouraged. More detail on the use of ZONEDATA files in site impact analysis is provided in **Step 4: Trip Generation**.

## 2.5 Trip Generation of the New Development




*Trip Generation Basics and Pitfalls*

Trip generation is the process by which the number and type of trips associated with a given land use is estimated. Trip generation may be the most critical element of the transportation impact analysis reviewed by FDOT because it estimates the amount of vehicular travel associated with a specific land use or development. An estimate of trip generation from the development using FDOT approved trip generation methods (such as ITE's *Trip Generation* publications) is required in ALL analyses even when the model method is used.

When dealing with adjustments to trip generation that are made to lower the gross trip generation (e.g. internal capture percentages for mixed-use projects, pass-by capture rates, etc.) these should be accompanied by sufficient logical justification or empirical data early in the process. We suggest this be a major item of discussion at Methodology Development.

## 2.5.1 Trip Generation Data

*A trip end either begins or ends in the development*

To understand trip generation, it is first necessary to define a trip end. For the purposes of this handbook, a trip end is a single or one-direction vehicle movement with either the origin or the destination (entering or exiting movement) inside the study site and one origin or destination external to the land use. To avoid confusion, all "trips" in this section of the handbook (regarding Manual Methods of Trip Generation) will be vehicle movements. The term "person-trips" will be used to differentiate instances where the number of persons is referred to. Person trips are usually a term used in the model calculations of trip generation. For example, a family of four traveling from home to school would represent one vehicle trip and four person-trips.

Trip generation databases have been developed over time and can be used to estimate the number of trips likely to be associated with a given land use. One of the most recognized and comprehensive report of trip generation data available is the Institute of Transportation Engineer's *Trip Generation*, currently available in the 8th Edition. It is comprised of data collected nationally. A wide variety of land uses are represented in *Trip Generation*, though users should exercise judgment in selecting and applying trip rates for their situation.

Exhibit 14 (next page)

*ITE Trip Generation Manual Page Example*


ITE Trip Generation Handbook, Second Edition

*One of the most recognized and comprehensive compilations of trip databases available is the Institute of Transportation Engineer's Trip Generation*

**Source: ITE *Trip Generation, 8th Edition***

# Single-Family Detached Housing
## (210)

Land Use

ITE Land Use Code

**Average Vehicle Trip Ends vs:** Dwelling Units — Independent Variable

**On a:** Weekday — Time Period

Sample Size: Number of Studies: 351

Average Size of Independent Variable: Avg. Number of Dwelling Units: 197

Directional Distribution: 50% entering, 50% exiting

Percent of total trip ends entering and exiting the site during indicated time period

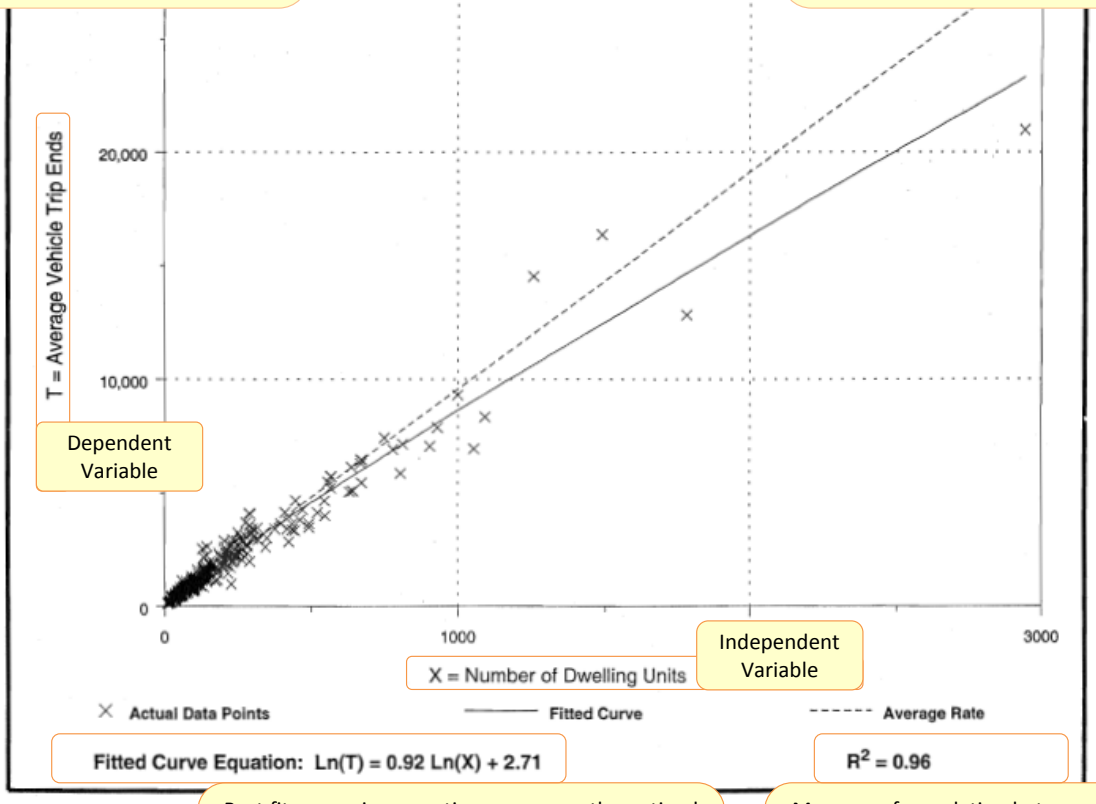
**Trip Generation per Dwelling Unit**

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 9.57 | 4.31 - 21.85 | 3.69 |

**Weighted Trip Generation Rate:** The weighted average number of trip ends per one unit of independent variable *e.g. Dwelling Unit*

Minimum and maximum trip generation rates from the entire range of studies reported

The standard deviation estimates the difference among the trip generation rates in all studies for a land use and independent variable




Dependent Variable

Independent Variable

**Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.71**

$R^2 = 0.96$

Best fit regression equation; expresses the optimal mathematical relationship between two or more related variables. If the variables are related linearly, the equation will be : T=aX+b.
In a non-linear relationship: Ln(T)=aLn(X) + b.

Measure of correlation between 2 variables, expressed on a scale of 0 to +1. The closer to +1 the $R^2$ is, the better the correlation between the variables

*Trip Generation*, 8th E

### Data Applicability

*Evaluate whether the trip generation data is applicable to the specific project*

*Trip Generation* contains a tremendous amount of data; however, that data is not necessarily appropriate in all situations. *Trip Generation* users should carefully review the data available and consider its applicability in the context of each project's circumstances. Some key items to consider in assessing the usefulness of *Trip Generation* data for a particular application include:

- Selection of the land use closest to that being assessed is critical (Read the land use description about where and when sites were studied). Many land uses in ITE may sound similar but have very different trip generation rates.
- The number of data points available: some of the ITE data is very limited in terms of sample size and/or number of analysis periods
- Trip patterns change from suburban to urban areas (most of the data in *Trip Generation* reflects suburban development settings with little or no transit service, pedestrian amenities, or travel demand management programs)
- Trip patterns may evolve over time (for example, drive-in bank trip generation rates have steadily decreased over the last decade due to the evolution of the banking industry and the introduction of direct deposit, web-based banking, automatic teller machines , etc.)
- Seasonal variations and peaking characteristics in the trip generation associated with some land uses may be significant (schools, for example)
- ITE encourages users, when practical, to collect local data to supplement the ITE data; particularly in situations where data samples are small or other conditions warrant

*Collect additional empirical data when needed.*

It will sometimes be necessary to collect additional empirical data or document other supplemental studies in the absence of sufficient comprehensive data from *Trip Generation* or other resources.

## 2.5.2 Use of Trip Generation Rates or Equations

The average rates provided in ITE's *Trip Generation* are calculated by different methods and can vary substantially from what is appropriate to the development as a result of the range of data selected, the number of sites sampled, and the method used to estimate the weighted average trip rate.

*ITE's **Trip Generation Handbook (section 3.4)** provides guiding principles for selecting equations or average rates*

Trip generation equations are also provided in ITE's *Trip Generation* that can provide better estimates of trip generation under certain conditions. In general, the fitted equations tend to reflect a decreasing trip rate as building size increases. This is particularly true with large retail shopping centers.

Many of the land use categories in *Trip Generation* provide both an average trip rate and an equation to estimate the number of trips for that use. FDOT often applies the guidance in ITE's *Trip* ***Generation Handbook, Second Edition*** for

selecting regression equations or average rates. The ITE **Trip Generation** report only provides equations where their national committee felt there was sufficient data. This does not always mean that the equation is always the best choice.

Section 3.4 of the **Trip Generation Handbook**, Second Edition contains a detailed method for determining the choice of average rate or equation. However, sometimes a plainly numerical approach as suggested in the **Trip Generation Handbook** is inadequate. The professional will look at the size and type of development they are proposing and see where it "fits" in the graph provided and then read the descriptions in **Trip Generation** to see which method (or a midway point between average rate and equation) is the most appropriate estimate measure.

## 2.5.3 Limitations of Trip Generation Data

While offering the most comprehensive national trip database available, *Trip Generation* does not offer sufficient data for all situations. Some of the key limitations of *Trip Generation* include:

*Florida's unique demographic makeup and the influence of tourism on travel in Florida may require variances from these national averages for certain land use types*

- Not all land uses are represented in the *Trip Generation* database
- Most data collected for ITE's *Trip Generation* were collected in suburban locations with free parking and little or no transit service
- Much of the data was collected years ago and may not reflect the current trip generation of development

Due to data availability and the need to understand site specific conditions, judgment is required in the analysis of mixed-use developments, neo-traditional developments, transit oriented developments, and other unusual generators.

### Multi-Use or Mixed-Use Developments

ITE defines multi-use (or mixed-use) as developments that contain a mix of land uses. However, there are a number of land use designations identified in ITE's Trip Generation that already contain a mix of land uses. For example, an Office Park (ITE Code 750) is described as "a subdivision or planned unit development containing general office buildings and support services such as banks, restaurants, and service stations arranged in a park- or campus-like atmosphere." Therefore the Office Park should not be considered as part of a mixed-use development. Similarly, office buildings with support retail or restaurant facilities contained inside the buildings should be treated as general office square footage because the trip generation rates provided reflect this situation (ITE *Trip Generation*). FDOT should evaluate the grouping of several small land uses carefully. Additional information about internal capture and community capture rates that may be used in the analysis of mixed-use developments is included below.

## Neo-Traditional Developments

Neo-traditional developments seek to reduce the need for driving by providing a mix of land uses to serve residential needs and by providing a community design that supports walking and alternative modes of travel. Developments where neo-traditional concepts are proposed should be carefully reviewed to understand the trip making characteristics of the area and discussions should take place to agree on the best method to quantify trip reduction, if any.

## Transit-Oriented Developments

Transit-Oriented Development (TOD) is a mixed-use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership (*source*: Wikipedia). A TOD neighborhood typically has a center with a train station, metro station, tram stop, or bus stop, surrounded by relatively high-density development with progressively lower-density development spreading outwards from the center. TODs generally are located within a radius of one-quarter to one-half mile from a transit stop, as this is considered to be an appropriate scale for pedestrians.


*TOD - Wikipedia*

Data on the trip generation characteristics of TOD in Florida is very limited. In reviewing data from TOD in other locations, care needs to be taken to understand the level of transit provided in the TOD and how it compares to the site being evaluated. For example, a TOD based around a mature Metro Rail Station with 6 minute headways would have much different travel behavior than a TOD based around a bus station with one-hour headways. The FDOT provides land use and design guidance about TODs and other transit applications in the publication, Accessing ***Transit***: *Design Handbook for Florida bus Passenger Facilities*


*Accessing Transit*


*FDOT Transit*

Additional information about FDOT transit initiatives and resources can be found at: http://www.dot.state.fl.us/transit/.

## Special or Unusual Generators

*The reasoning and data used should be documented and approved by FDOT prior to use*

When a proposed development is one that cannot be adequately described by ITE Trip Generation, new trip generation data may be required based on the type, intensity and timing of trips to be generated. Judgment may be used to recommend trip generation characteristics that are appropriate for the development. However, the reasoning and data used to support these estimates should be documented and approved by FDOT prior to use. Examples of special or unusual generators include unique places like outdoor bazaars, a motorcycle sales shop, other unique retail or service business not well represented by data contained in the trip generation manual, unique theme parks, and venues with special events.

### Alternatives to ITE Trip Generation Data

Given these limitations, it is sometimes necessary to adjust trip rates to reflect documented local conditions and/or develop additional trip generation data. First, a review should be conducted to determine if other applicable data is available. Trade publications such as *ITE Journal*, university studies, government studies, and studies by other recognized parties are made available from time to time and often serve as an interim guidance until incorporated into a future edition of *Trip Generation*.

*Local trip data should be collected in accordance with ITE's **Trip Generation Handbook** requirements and at least three different sites are required*

Lacking any published data, a common alternative to using data from ITE's ***Trip Generation*** is to collect data from other developments of similar size and scope or to use trip generation rate standards established by local governments. When these alternative sources are used, each rate should be justified and approved by FDOT prior to use. Local trip data should be collected in accordance with ITE's **Trip Generation Handbook** (Chapter 4), requirements, and at least three different sites are required. It is essential that trip rates for all projects, and particularly those for unique or controversial uses, be established in an open and comprehensive manner agreed to by FDOT and the applicant.

## 2.5.4 Internal Capture Rates for Multi Use Developments

Estimating an internal capture rate for a mixed use development is often one of the most debated and challenging steps in the overall site transportation impact assessment process. Internal capture rates vary by the mix of land uses, size, and location context (i.e. remoteness, presence of competing external destinations) of the proposed development.


Internal Capture

The preferred method for determining internal capture is the ITE **Trip Generation Handbook** methodology, Chapter 7 Multi-Use Development.

> ***Note**: The National Cooperative Highway Research Program (NCHRP) 08-51 "**Enhancing Internal Trip Capture Estimation for Mixed-Use Developments**" should be sometime in 2010. This Report will expand the internalization method shown in the existing Trip Generation Handbook. One of the products of the NCHRP report will be new software for the new procedure.*


*NCHRP 08-51*

The proposed methodology used to estimate internal capture should be clearly documented by the applicant and agreed to by the FDOT prior to the initiation of the study. It is recommended that the applicant go beyond simply stating how internal capture will be calculated and provide actual preliminary adjustment

factors and sample calculations. This way, agencies can provide general comments early in the process.

In evaluating a proposed internal capture rate, the following general guidance should be considered:

- Sites having a mix of residential and nonresidential components have the highest potential for internal capture trips. Mixes of nonresidential land uses are less likely to have a significant internal capture rate unless a hotel or motel is contained within the site.
- Residence and employment centers should be income compatible so residents have ample employment opportunities in the community.
- The design of the internal roadway system/site circulation system of the development may impact internal capture. A well-designed development with good internal connectivity and pedestrian/bicycle will make it more convenient for trips to stay on site.
- If there are ample nearby substitutes for internal capture trips, the internal capture rate may need to be adjusted. For example, if a mixed-use development is located near other large retail development, the internal capture rate may be adjusted downward to reflect these nearby competing destinations.
- The ITE land use "shopping centers" (ITE code 820) is generally not considered a mixed-use development because of the way shopping center data has been collected. Therefore, internal capture rates should not be used to forecast trips when data from ITE code 820 is used.
- When using the ITE procedure, sites with multiple residential components (single-family houses, apartments, condos, etc.) should compute the trip generation for each residential type separately but record the trip generation value as only a single land use on the ITE worksheet. These residential trips would be documented as separate for all other purposes, other than Internal Capture.
- Internal capture rates should be calculated for each phase of a multiuse development. If development plans change during the review process, all internal capture calculations should be updated and the site impact assessment submitted for additional review.

Site specific data is needed to estimate a reasonable internal capture rate. Internal capture rates can have a major impact on the outcome of the analysis. The use of rules of thumb regarding minimum or maximum values is discouraged. What is needed is significant supporting analysis from the applicant. The FDOT should be diligent in requiring technical justification for all internal capture rates.

## 2.5.5 Community Capture

*A Definition of Community Capture*

Community Capture is the reduction in the number of external vehicle trips generated by a large, mixed-use development reducing the overall impact of the proposed community on the transportation system outside of the development. Community Capture occurs due to the combined land-use, location, design, and multimodal characteristics of the development. Internal Capture, as accepted by the professional transportation community, recognizes that a portion of the total trips for a multi-use development may be satisfied within the development. The concept of Community Capture extends the application of internal capture to include potential trip interactions and reductions within the boundaries of large scale, multi-use developments. In these large-scale cases, internal capture trips would be a wholly contained subset of community capture trips. While "Community Capture" and "Internal Capture" are somewhat different, some of the research and applications associated with Internal Capture can apply to Community Capture.

### Where May Community Capture Be Applied?

Community Capture can be applied to a large, self-standing development, such as a new community or town, with a balanced mix of uses that may fulfill a significant portion of the community's needs within the development. These communities may be separated by travel-time, design, or distance from other major land use concentrations. They provide a wide range of internal services, which may satisfy a significant portion of their needs within the community.

The community would make many off-site trips unnecessary by being of sufficient size to provide a balance of land uses, including a range of housing types and values, neighborhood and community retail centers, entertainment facilities, offices, and employment. The community would also provide a range of support services such as schools, civic institutions, houses of worship, public parks, and government facilities. Larger communities may have several town centers or villages, which embrace connectivity within, and between, each center and village with a transportation system of all modes, including pedestrian paths, bicycle facilities, and shuttles.

### Numerical Factors for Community Capture

Because each site will have unique characteristics, FDOT will not recommend minimum nor maximum values for Community Capture. Reasonable analysis of proposed developments will be used and will be verified by substantial and ongoing monitoring programs. Ideally, over time, agreement may occur on some ranges and measurement criteria. However, because this is an emerging topic, many of the early estimates will be negotiated, based on best professional judgment and verified with monitoring agreements.

### Justification of Community Capture Values

The justification will need to include summaries showing the numbers and percentages of trips served within the proposed development. For example, depending on the development, it might look like this,

> *"X % of the entering shopping trips expected in the PM peak hour makes up Y% of the total exiting shopping trips from homes within the community."*

As a Development of Regional Impact (DRI), the proposed community will include the standard "Map H," development program summary, and build-out schedule. Additionally, there must be information provided in sufficient detail to clearly support and explain the process used to determine a proposed Community Capture value.

This analysis should be done for each phase, with an agreed upon monitoring program.

### Using the Right Tools for Determining Community Capture

No single tool for determining Community Capture currently exists. While refinements to existing tools, such as the modeling methodology described below, are currently under development, no one procedure has been demonstrated to provide a final Community Capture value. Until there is more experience and knowledge regarding Community Capture, reasonable analysis and negotiations, supported by substantial and detailed monitoring requirements will be used.

### Commitment to Traffic Monitoring

Expanded traffic monitoring beyond the current basic requirements of the DRI annual/biennial report will be a required provision in accepting Community Capture rates. While the detailed needs of the traffic monitoring program will be determined through the traffic study process, elements such as origin and destination studies, trip generation studies, and an evaluation of land use mixes in the community and surrounding the community will usually be included in the monitoring program. At a minimum, monitoring will be necessary before the development enters a new phase. If appropriate, trip characteristic assumptions and impact mitigation requirements will be revised, based on the monitoring. Traffic monitoring at a frequency greater than by phase may be required for more aggressive development programs or if significant changes are made to the planned development program.

### The Role of Pre-Application and Methodology Meetings

During the pre-application and transportation methodology meetings it will be important to have discussions among the experts in development and transportation (DCA, FDOT, RPCs, local governments, transportation professionals and representatives of the development community), to agree on factors needed to determine Community Capture and external impacts. All requests for utilizing Community Capture rates require more detailed information and specific

*The Role of Pre-Application and Methodology Meetings in Community Capture*

commitments for justification. If sufficient information is not available at the time of the methodology meeting to make the commitments necessary to justify a Community Capture rate, final agreements on a rate will not be made until such information is available.

## The Factors Impacting Community Capture

Community Capture will go beyond Internal Capture, accounting for the unique trip making aspects of a large, self-standing development with a balanced mix of uses such as a new community or town. The concept focuses on:

**Land Use Characteristics:** A balance of land uses where form and function result in trips being satisfied within the development must exist for significant Community Capture to occur. Some of these factors are:

**"Income Compatible" Uses**: Residence and employment centers should be "income compatible" so residents have ample employment opportunities in the community. Employment centers should attract a reasonable amount of the workforce from within the community.

**Type of Community**: Is this a community planned for all age groups with job opportunities, or is it a retirement community? Is the new community primarily recreational? These issues can have an important impact on Community Capture.

**Community Design**: The design features of the community can affect both the number of external vehicle trips, as well as the internal trips using major roadways. For example, a well-designed development with good internal connectivity will make it more convenient for trips to stay on site. By providing alternative connections internal to the site, the number of vehicle trips needing to use a major roadway to traverse the site can be reduced. Internal capture is facilitated by a high level of connectivity and short travel distances between complimentary land uses.

**Development Maturity**: The project's fullest Community Capture may not occur until the complementary land uses mature. This may occur late in the development program. This will depend on the quantity and balance between complementary land uses. However, each phase or increment must mitigate the cumulative impacts to the regional network resulting from the current phase or increment and previously approved phases or increments.

**Location Context**: The location context of large, mixed-use developments may impact Community Capture in the following ways:

**Remote Locations**: For a remote location with a balance of complementary land uses, high trip capture may occur. For the trips not captured on site, longer external trip lengths will result because there would be few opportunities for trips to end near the site.

**Competing External Opportunities**: If there were ample nearby destinations (shopping, jobs, or entertainment) outside of the community, the Community Capture rate would likely be lower. For example, if a mixed-

use development is located near other large developments, the Community Capture rate may be reduced.

**Trip Generation of Isolated Communities**: Discussion is ongoing regarding the trip generation characteristics of isolated communities. One assumption proposed is if a community is isolated, and a trip cannot be satisfied on site, some discretionary trips are less likely to occur. While not making a trip can be an option for some trips, such as shopping, it is not an option for work-based trips, which have the highest impact during the peak hours.

**Multimodal Elements** (Encouragement of transit, walking and cycling): The provisions of on-site transit circulators and integrated systems of bicycle, golf cart, and pedestrian paths may have an impact on vehicle trip generation and vehicle trip capture. Such amenities make it easier for trips to remain on site and may reduce the need for vehicle trips to occur.

Currently, large-scale transportation models, such as FSUTMS, which are not specifically modified for Community Capture purposes, may be insensitive to some of the factors expected to affect Community Capture. To address some of the limitations associated with using travel demand models to estimate capture, a methodology is proposed based on the following modifications:

- Consider land use categories in place of or in addition to traditional trip purposes. Within the model, use an increased selection of housing types (single-family, multifamily, rental apartments) and categories (high cost employed, retired, seasonal, medium cost employed, and low cost employed) and a trip purpose table for the expanded housing categories which can be used to create a residential trip generation and trip purpose profile to better match the development plan;
- Consider land use categories at trip attraction ends, such as retail/restaurant price levels to better match with residential income/price category. Also, consider for income/price category. Summarize the potential attractions within the community, based on the marketing plan, to better account for income differences;
- Create transportation analysis zones (TAZs) for each land use along with more detailed coded networks; and
- Carefully use travel-time friction factors (called the modeling K factor) within the model to make reasonable adjustments to the trip distribution patterns within the community and to the trip lengths external to the community.

While this methodology appears to be a positive step in addressing some of the traditional limitations of travel demand models in determining capture rates, the methodology needs to be tested to gain a better understanding of the sensitivity of the model to the proposed variables. The use of additional or modified variables must be documented and discussed with reviewing agencies early in the methodology development phase.

Currently, most standard large-scale travel demand models are not sufficiently detailed to predict internal capture. Unmodified models and their "raw" output are not appropriate tools to be used alone to justify Community Capture values. When the model is part of the justification for Community Capture values, clear documentation of the model process, including the submittal of all model files, must be provided, so a professional reviewer with reasonable competence in travel demand models can replicate the analysis and conclusions.

**Institute of Transportation Engineers (ITE) Multi-Use Development Methodology**

The ITE multi-use development methodology has been the primary tool used to estimate internal capture since 2000. While the ITE multi-use development methodology does not account for variables such as proximity of on-site land uses and location context, the methodology does provide an organized and professionally accepted manner to evaluate internal capture. If the data needed to support a Community Capture assessment is not available, an internal capture value determined using the ITE methodology could be used. A new national project to update the ITE method is expected to be complete in 2010. This project is expanding the database and refining the method employed in the ITE methodology.

Developments qualified for the internal and community capture will consider how the State roads within the boundaries of the planned development will be treated for impact and mitigation purposes.

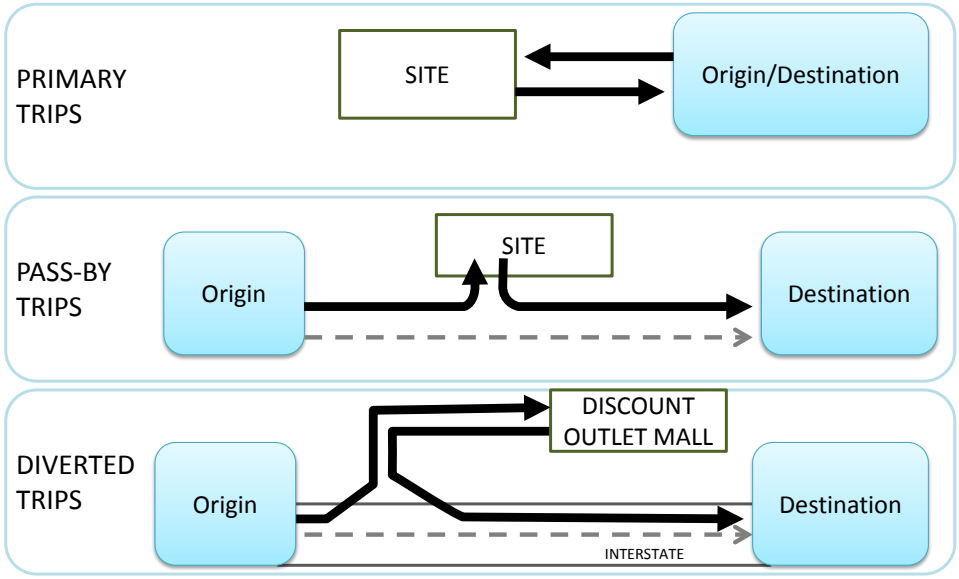
## 2.5.6 Trip Types


*ITE Trip Generation Handbook, Second Edition*

After the number of trips has been estimated, the type of trips should also be addressed. The *Trip Generation Handbook* defines three basic types of trips generated by a development: primary, pass-by and diverted. Exhibit 15 illustrates the types of trips from the ITE *Trip Generation Handbook, Second Edition* illustrates the trip types.

Exhibit 15

**Types of Trips**
**Source: ITE**




## Primary Trips

**Primary trips** are trips made for the specific purpose of visiting the generator. The stop at the generator is the primary reason for the trip (ITE *Trip Generation Handbook, Second Edition*). Primary trips are new trips on the network.

## Pass-by trips

**Pass-by trips** are trips that are currently on the roadway system and pass directly by a generator on the way to the primary destination. These trips are involved in a "trip chain" of destinations with neither the origin nor the final destination of the primary trip being in the development. Pass-by trips are convenience-oriented; for example stopping to refuel a vehicle during a commute from work. Pass-by trips are applied only to retail-oriented land uses and would have traveled on the roadway adjacent to the retail land use even if the retail was not present.

## Diverted trips

**Diverted trips**, like pass-by trips, are not new to the system. However, diverted trips are now using a segment of the roadway system that they previously were not. Facilities that receive diverted trips may require analysis of the impacts of the development trips.

*With diverted trips, the total driveway volumes are not reduced. Diverted trips are counted as new trips where they travel on segments required to reach the site where they previously did not travel*

In most situations, no reduction is made for diverted trips because they tend to be difficult to account for. FDOT may allow consideration of diverted trip impacts on a case-specific basis when there is a clear reason for doing so and the diversion can be reasonably estimated. For example, a reasonable case might be made for considering diverted trips in the analysis of a large commercial development proposed to be located adjacent to an Interstate interchange. If use of diverted trips were to be justified and supported by FDOT in a situation such as the example above, then the diverted trips would be treated similar to pass-by trips on the segments where they would have existed before the diversion took place.

*All rates should be approved by FDOT*

In all cases, pass-by and diverted trip rates should be justified by the applicant, approved by FDOT before use, and clearly documented in the analysis.

## Estimating the Number of Pass-by & Diverted Trips

The *Trip Generation Handbook, Second Edition* provides pass by and diverted trip data for several different retail land uses. Guidance provided in the *Trip Generation Handbook, Second Edition,* suggests the following process for estimating pass-by trips:


*Pass-by Trips*

- If a regression curve is provided, use the equation as a starting point for estimating pass-by trips. Consider whether the data scatter at the size of the independent variable in question is representative of the project.
- If no regression equation is provided, the average pass-by rate could be used as a starting point for estimating pass-by trips if two criteria are met:
    - The sample consists of three or more data points; and
    - The size of the proposed development is within the range of data provided in the table or figure.

The decision on whether to use or adjust the average rate will be based on professional judgment. The *Trip Generation Handbook, Second Edition,* notes that a review of the data or of "*the data plot might indicate that the development site in question could be expected to have a slightly higher or lower pass-by rate due to its size, location, or proximity to through-traffic.*" If the data does not meet the above criteria, local data should be collected to supplement the existing data.

## Pass-by Trip Impacts

Properly estimating the number of pass-by trips is important because even though they do not add extra trips to the surrounding roadway system, they do impact the traffic at the driveways and all the turning movements expected at these driveways.

*The number of pass-by trips is calculated after accounting for internal trips*

- Pass-by trips reduce the number of new trips on the roadway network, however, site driveway volumes are not reduced by pass-by trips;
- The percentage of trips that can be classified as pass-by for a site will vary by the type of land use, time of day, type and volume of traffic carried on the adjacent street, and the size of development;
- Credit for pass-by trips is usually only allowed for retail and some commercial land uses such as fast-food restaurants with drive-through windows, service stations, and drive-in banks; and
- The number of pass-by trips is calculated **after** accounting for internal trips (Total Site Trip Generation – Internal Trips = External Trips; apply pass-by reduction to External Trips).

*Pass-by rates should be approved by FDOT prior to use*

In all cases, pass-by rates should be justified by the applicant and approved by FDOT prior to use. The pass-by trips estimated in the trip generation step are preliminary. Final pass-by trips are estimated following trip assignment when the number of pass-by trips considered can be compared with the total traffic on the facility. Proper application of pass-by trips requires that the following check for a reasonableness or "common sense" check, involving a comparison of the number of pass-by trips and assuring that not exceed 10 percent of the adjacent street traffic volume during the peak hour. This is explained in the next section.

## 2.5.7 Explanation of the 10 Percent of the Adjacent Street Traffic

The FDOT-approved methodology for determining the 10 percent, divides the total pass-by trip reduction by the adjacent-street traffic volume and ensures the resulting Pass-by volume is less than 10 percent of the adjacent street traffic. This calculation would become more complex when the development is served by more than one arterial roadway. Another consideration is the availability of median openings directly serving the property. This 10 percent is a rule-of-thumb and not a statistically studied factor. It should be used as a measure of reasonableness only.

Historically, some applicants and reviewers determined the maximum allowable pass-by trips by taking 10 percent of the adjacent-street traffic and allowing this number of trips to enter and then exit the retail development. FDOT does not accept this method because it results in up to 20 percent of adjacent street traffic to be subtracted from the base trip generation as pass-by trips.

**Example**

*Proposed:* 500,000 gross square feet of shopping

1,811 peak-hour generation (*7th Edition Trip Generation*)

869 entering, 942 exiting (48%/52% split from *Trip Generation*)

24% pass-by reduction (*Trip Generation Handbook*)

= 435 pass-by trip ends (209 entering, 226 exiting)

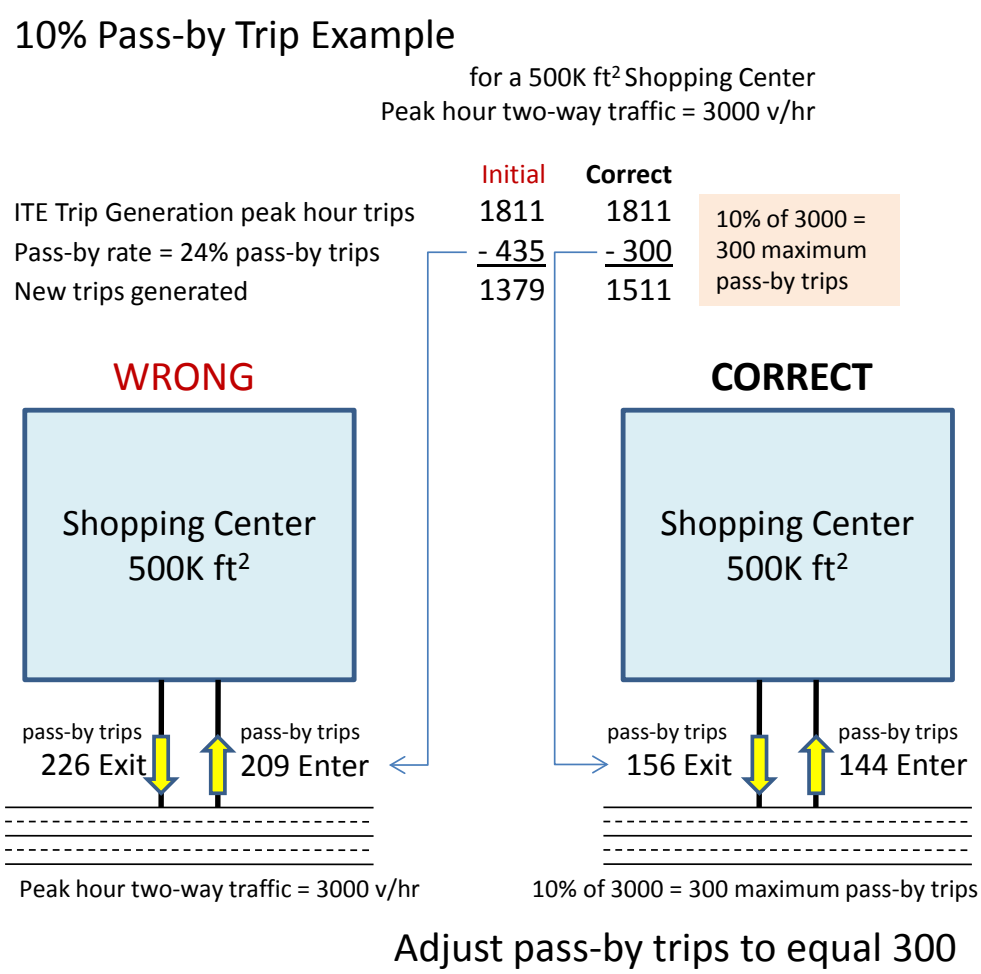
Adjacent street traffic volume (peak-hour two-way): 3,000

10% of adjacent street traffic = 300

Because the calculated number of pass-by trips (435) exceeds 10 percent of the adjacent street traffic (300), the number of pass-by trips should be reduced to 300 and the directional split re-applied. Exhibit 16 illustrates the correct methodology. This same method can be used for more than one roadway, only the calculations will be more complex.

Exhibit 16

**Application of 10 Percent Pass-by Trips**




## Pass-by Trip Assignment

Pass-by trips are assigned to the development's driveways based on local knowledge of expected trip patterns and traffic volumes. When considering pass-by trips, the distribution of driveway volumes may change and be related to the street traffic. The analysis of pass-by trips should occur in two steps:

1. Determine the number of new trips and pass-by trips for the site,
2. Then assign the pass-by trips in proportion to the street traffic and the driveways, and then assign the new trips in accordance with standard trip distribution procedures. Once the number of pass-by trips is determined, their assignment should be prepared in a way that reflects local travel patterns.

## 2.5.8 Pass-by Trips and Model Volumes

*Special generators modeling using FSUTMS should be based on total external trip generation before any pass-by trip reduction*

FSUTMS-based travel demand models are sometimes used to develop traffic estimates. Because site trips will tend to displace non-site trips when comparing a "with and without" site trip modeling process, special generator modeling using FSUTMS should be based on total external trip generation before any pass-by trip reduction. Trip assignments are run with and without site development (identifying total and development related trips on all links). Pass-by trips can then be deducted from the site development volumes on the highway network links (though the pass-by trips should remain at the site driveways). In all cases, pass-by and diverted trip rates should be justified by the applicant and approved by FDOT prior to use.

### Model Method of Analysis for Trip Generation

The model method of site impact analysis typically uses an adopted regional travel demand model for development generated trips. Model trip generation estimations of the site being studied should be adjusted to match estimations from ITE's Trip Generation or other approved method. Trip generation should be calculated off line using ITE's ***Trip Generation*** or other approved method. Model trip generation estimations should be adjusted to match estimations from ITE's *Trip Generation* or field data. The following summarizes the steps required to estimate trip distribution and internal capture using regional travel demand models:

1. **Develop a new traffic analysis zone(s)**(TAZ) for the development and provide connectors from this zone's "centroid" to the transportation network. The connectors should be coded consistently with other centroid connectors in the model (facility type, area type and number of lanes). The connections should be made to a facility that is appropriate to the intensity and type of land uses associated with the development and is consistent with the preliminary site access plan. Residential and nonresidential land uses should be modeled in separate TAZs unless they will be located in a single mixed-used site. Socioeconomic data consistent with the development program should be coded within ZDATA 1 and ZDATA 2 files.

*Model trip generation estimations of the site being studied should be adjusted to match estimations from ITE's Trip Generation or other approved method*

2. **Conduct initial model run** to:
    - Obtain initial person trip generation outputs to extract the trip purpose percentages.
    - Extract total vehicle trips from the development zones using the O-D matrix output.

3. **Estimate site trip generation manually using ITE's *Trip Generation***. Although preliminary estimates of pass-by and diverted traffic may be estimated using information contained in ITE's *Trip Generation*, pass-by and diverted trips cannot be calculated when using the model method and may therefore be ignored.
4. **Compare vehicle trip generation obtained manually and with the planning model.** If the difference is greater than 5 percent for any given land use, the total external site trip generation obtained using the planning model should be adjusted until convergence occurs with manually estimated trip generation using the following methodology. Identify any difference in vehicle trips between manual and model calculations.
    - Convert vehicle trip difference to person trips by using vehicle occupancy factors coded within the model.
    - Insert person trip difference values in the ZDATA3 file. Trip purpose percentages obtained from Step 2 should be assigned to person trips entered into the ZFDATA3 file.
    - Rerun the model and repeat Steps 2 through 4 until convergence is obtained between the manual and model vehicle trip values.

        *Note:* Subsequent iterations may be required to reach a level of convergence that satisfies FDOT. A rule of thumb of a maximum difference of 5 percent between the manually generated and model generated vehicle trips for the project is commonly used. A table comparing the trip generation based on ITE's *Trip Generation* and the model-generated trips should be provided for each development TAZ.

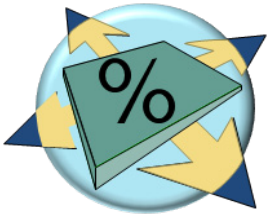
        *Note:* If the model being used contains transit and highway networks, the total of automobile trip making (single-occupant, and HOV) should be compared to the ITE-based trip generation reduced for the estimated transit usage approved by FDOT.
5. Estimate internal capture using the guidelines contained in ITE's *Trip Generation Handbook*.
6. Calculate internal capture using the planning model. Internal capture is estimated by planning models as trips originating and arriving within project TAZs. The inclusion of intrazonal trips (trips that never leave a project TAZ) in internal capture estimations is subject to approval by FDOT. Model internal capture could be conducted based on the calculation methodology presented with FDOT approval.
7. If trips are anticipated to have an origin or destination external to the model's study area, ZDATA4 files should be adjusted.

### Redevelopment/ Existing Trips

*Consider the number of trips associated with the existing use*

If a redevelopment project is being analyzed, the analysis should consider the traffic associated with the existing (or previously existing) development for comparison purposes. If trip generation, distribution or assignment of trips associated with the new development is anticipated to be significantly different from the existing development, then existing site traffic data should be carried through the entire analysis in parallel to the new development to determine the resulting traffic impacts created by redevelopment. All documentation of development review trip generation estimates should clearly identify both existing and FSUTMS projected future trip generation associated with a particular property. Requirements for how to address urban redevelopment trip generation are found in Section 163.3180(8), FS. Local land development regulations should also be consulted.

## 2.6 Trip Distribution




The next step in the site impact analysis is trip distribution. The purpose of trip distribution is to determine the final destination and origin traffic analysis zones of the traffic studied in the impact analysis.

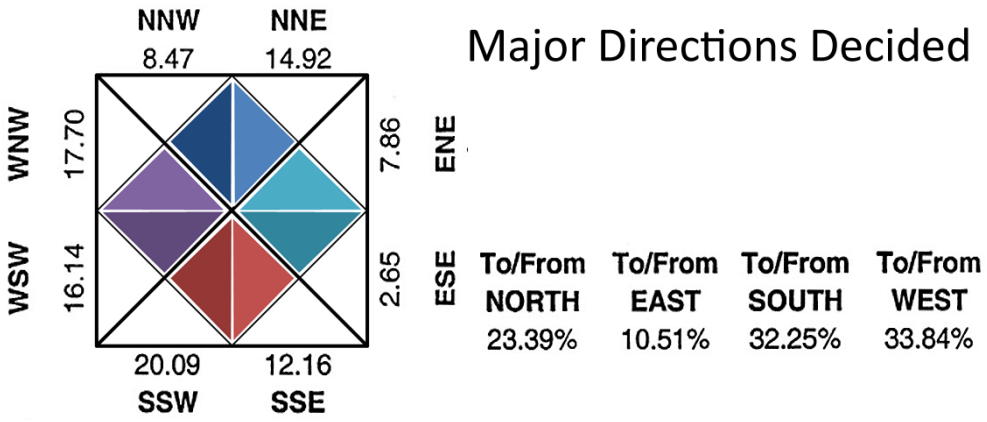
Trip distribution can be estimated using a number of different methodologies reflecting either model or manual methods. FDOT and any participating local review agencies should approve of the trip distribution methodology selected.

Whether a manual or modeling method is used, trip distribution should be performed in each analysis year and documented and summarized in a figure that illustrates the percentage of total site trip generation that occurs in each zone. The figure should clearly show that the distribution of external trips from the site adds up to 100%.

Exhibit 17

**Major Directions of Trip Distribution from site**

*Trip distribution should be summarized in a figure that clearly shows the distribution of external trips from the site.*




*Source: Kimley Horn*

### 2.6.1 Manual Methods

Manual methods of trip distribution provide the analyst with a basic understanding of the travel patterns and market areas associated with the development. When performing manual methods of traffic distribution, good judgment is essential to conduct a proper evaluation. Key assumptions should be clearly documented for review by FDOT and other reviewing agencies.

#### Analogy Method/Origin-Destination Studies


*Manual Distribution*

The analogy method derives the trip distribution of a proposed development based on existing data collected at sites that are similar to the subject development. Typically, traffic count and turning movement data are used in the analogy method. Other data sources include conducting a license plate origin-destination survey or a driver response survey, summarizing traveler home zip codes (for employment centers), or using other methods defining distribution of travelers to and from the site consistent with procedures described in the latest edition of the *Institute of Transportation Engineers Manual of Transportation Engineering Studies*. Applications of the analogy method include (ITE: Transportation and Land Development, p. 54):

- Fast-food restaurants where a competing establishment is near the site
- Service stations where traffic volumes on the adjacent streets are similar to those forecasted at the site
- Motel sites near an existing motel
- Residential developments on the fringe of an urban area
- Sites to be developed in residential use where the tract is one of the few vacant parcels in a developed area
- Occupied buildings located in an office complex being developed by phases

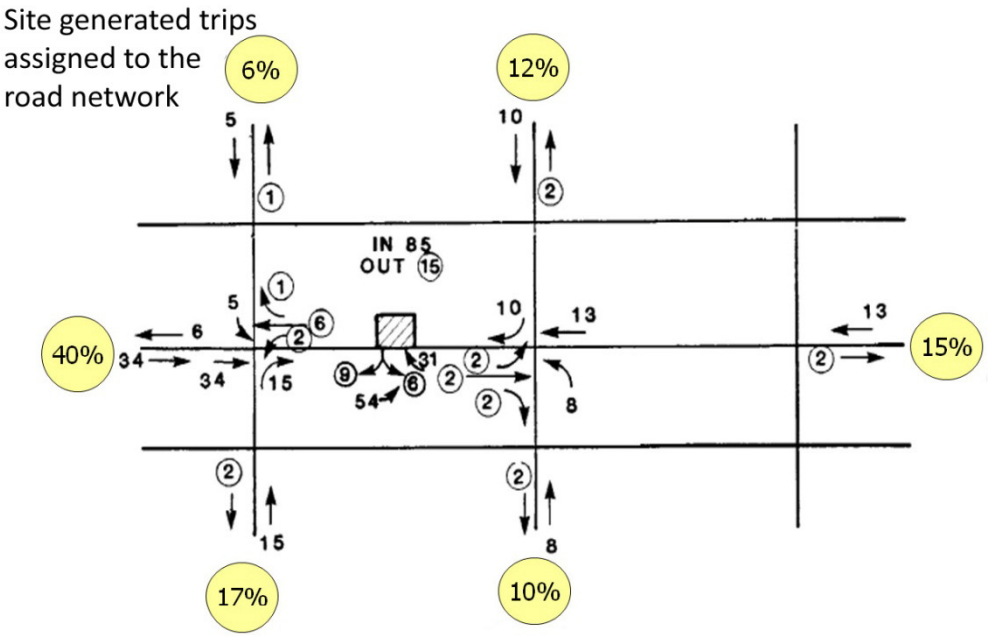
Origin and destination studies may also be needed during multiphase projects to verify the assumptions made in the original analysis of impacts. In all cases, the data from the analogous site should be deemed accurate and defensible and should be approved by FDOT, as well as any local review agencies.

In many cases, when not using a large scale travel model, this manual trip distribution is simply combined with a manual trip assignment. This does require a good knowledge of the market area of the development and area traffic patterns.

See Exhibit 18.

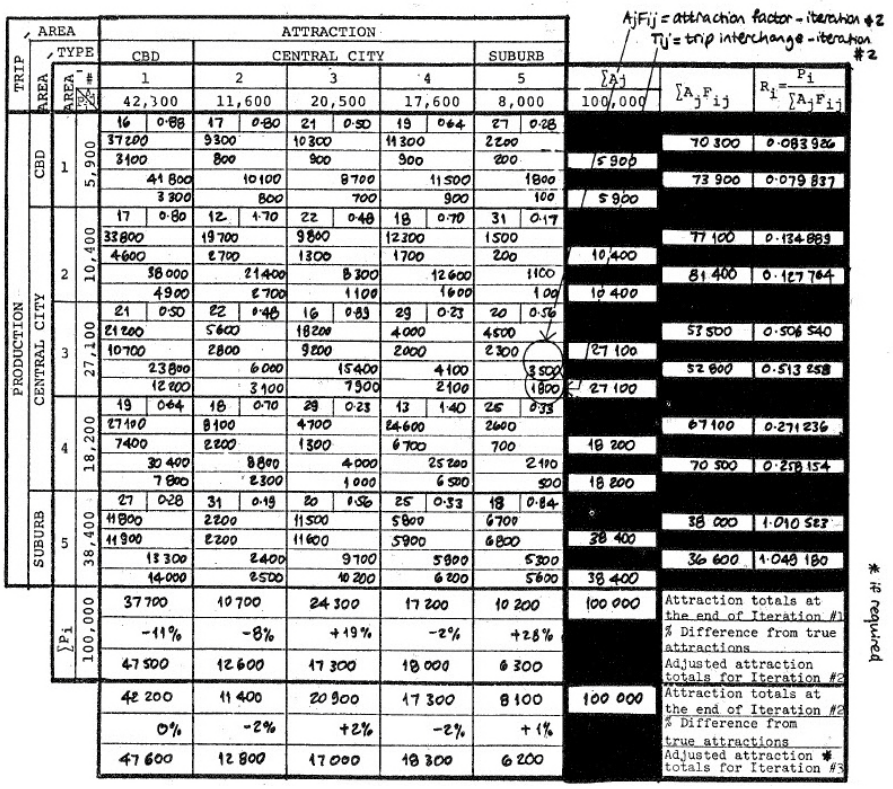
Exhibit 18

**Manual Distribution Example**




The manual distribution and assignment of trips

***Source**: Site Impact Evaluation Handbook – FHWA 1985*




Example of the complexity of manual trip distribution

***Source**: NCHRP 187 – Quick Response Urban Travel Estimation Techniques and Transferable Patterns. TRB 1978*

## 2.6.2 Model Method and "Blended" Methods

*Justification and documentation of all adjustments to the model generated distribution should be included in the traffic analysis*

Model methods are generally preferred for developing trip distribution for large scale developments for two reasons: (1) most manual distribution and assignment techniques include numerous subjective inputs, and (2) Models typically can provide trip distribution projections for a base year and future years that can be used for estimating a proposed development's trip distribution with some modifications. The base year and future year models should be reviewed to ensure the inherent network and socio-economic data are appropriate for the intended application. For example, the capacities of current and planned transportation improvements and land uses should be properly incorporated into the model to reflect the future roadway network at the time of completion of the proposed development.


*Model Distribution*

The use of model methods to determine distribution percentages of vehicles is common in combination with manual assignment processes. However, for large networks, model assignments may be a more desirable method for determining the minimum time path between traffic analysis zones. A blended methodology should be approved by FDOT prior to use.

Manual trip distribution results and model outputs can be compared to provide reasonableness checks. Model methods may be used to determine an initial trip distribution and then manual adjustments may be made based on engineering judgment and familiarity with the transportation network. Justification and documentation of all adjustments to the model generated distribution should be included in the traffic analysis. Sufficient justification and explanation of the method used is needed, if the model assignment is manually adjusted. The original model plot should be included in addition to the figure showing the adjusted distribution.

## 2.7 Mode Split/Alternative Travel Forecasts

Mode split is the process of estimating the number of travelers between zones that are anticipated to use modes other than automobiles in site impact analysis. This process estimates how many people travel to and from a site by auto, transit, and other modes such as by bicycle or walking.

As Florida moves towards more emphasis on transit and some automobile trips are replaced with transit and ridesharing trips, it becomes more necessary to consider the inherent insensitivities of the typical mode split model to account for new and increased transit services, cycling and walking.

*The level of analysis will be made with FDOT and local agencies, including transit providers*

The level of mode split analysis necessary can be determined on local conditions and should be made in coordination with FDOT and local agencies, including transit providers where applicable. In many instances, the Mode Split portion of the typical four-step modeling process will not be sufficient for corridor or site specific transit forecasting.

For example, a Multimodal Transportation District (MMTD), or a Transportation Concurrency Exception Area (TCEA), or a Transit Oriented Development (TOD), is an area that requires special modal study based on more detailed considerations.

### Transit Mode Split Assessment Methods

The applicant will be required to provide justification on any transit, bicycle, or pedestrian adjustment reducing vehicle trips. The justification will usually consist of a special study prepared to better understand the impact of existing or proposed transit service, levels of walking and bicycling and necessary commitments to needed infrastructure, or funding to support the existing or planned transit service in the area.

The applicable model mode split or transit forecast needs to be reviewed to determine whether the transit routes, headways, and ridership rates are calibrated adequately prior to its acceptance in proposing additional transit alternatives in mitigating a proposed site's impacts.

### The Transit Boardings Estimation Tool (TBEST)

The FDOT's Public Transit Office has developed the transit analysis tool TBEST (The Transit Boardings Estimation and Simulation Tool) that may be used in transit assessments.

TBEST is a comprehensive transit analysis and ridership forecasting model that is capable of simulating transit travel demand at the individual stop-level while accounting for factors such as sidewalk coverage, network connectivity, bus headways, transfers, time-of-day variations, and route competition. TBEST

simulates transit ridership in a way that allows it to provide detailed information regarding ridership estimates at individual stops. TBEST can also be used to obtain route level, segment level, location-based, or system level measures through the stop-level outputs. By simulating ridership at the level of the individual stop, the model can provide a strong framework for modeling transit ridership.

The use of TBEST for impact assessments should be discussed by the applicant and review agencies (including transit agencies) and a clear methodology should be defined. It is recognized that TBEST may not be applicable in all cases. TBEST provides users with a specialized transit planning model to supplement or to replace the use of the more standard travel tools.

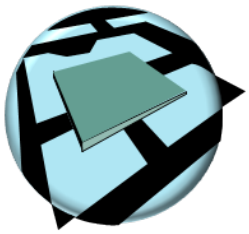

*www.tbest.org*

More detailed information about TBEST and its use can be reviewed on-line at http://www.tbest.org/

## FSUTMS and Transit Modeling

Large scale travel models, such as FSUTMS provide mode split data. The model applies vehicle occupancy factors or transit usage equations to convert person-trips to vehicle-trips. The vehicle occupancies differ by trip purpose. For example, work trips generally have fewer passengers than recreational trips. Information from a FSUTMS model should be reviewed carefully to understand the level of transit sensitivity in the base model and to understand how the development and proposed network changes were coded.

## 2.8 Trip Assignment



*Trip distribution and assignment are two related but distinct activities*

Trip assignment involves determining the amount of traffic that will use each access point and route on the roadway network. Trip assignment determines the number of site-generated turning and through movements at each intersection and roadway segment of the study area network.

Trip distribution and assignment are two related but distinct activities. Trip distribution is the step in determining where trips wish to go. Assignment is the subsequent step in which the trips are placed on the network to reach the desired destination.

The products of the assignment step are traffic volumes appropriate for use in the analysis of operating conditions. It is important to note that traffic factors will usually need to be applied to both field collected data and model derived volumes. For example, **Model Output Conversion Factors** (MOCF) by the FDOT are used to convert peak season weekday average daily traffic (PSWADT) volumes assigned by travel demand forecasting models to estimated AADT volumes. The use of traffic factors is summarized in the **FDOT Quality/LOS Handbook**. Even when using FDOT approved adjustments, care must be taken to see if the output is reasonable. A full description of the MOCF as well as other adjustments is found in the **Project Traffic Forecasting Handbook** .


*Project Traffic Forecasting Handbook*

### 2.8.1 General Considerations

Several important general considerations are involved in preparing trip assignment. These considerations are highlighted below, followed by detailed discussion of specific modeling techniques and analysis procedures.

Trip assignment should begin by identifying multiple paths between origins and destinations. The potential for using these paths can then be evaluated on a comparative basis considering:

- Driver tendencies and local patterns in developing logical travel routes.
    - For example, drivers often will use the first convenient driveway they reach to access a site with multiple driveways.
    - Driver characteristics reflecting the proposed land use (will drivers tend to use back roads/local connections or are they new to the area and will tend towards major travel routes that are well signed).

- The design of the internal circulation systems and the location of residential land uses;
    - The outbound trips tend to be more evenly distributed among multiple exits than the inbound trips;
- Available roadway capacities
    - Identify known capacity constraints and assess how constraints may impact alternative evaluation/routing.
    - Turn movement capacity and restrictions; particularly for left-turns.
- Relative travel times.
    - The proposed land use may impact driver needs and tendencies – for example, the differences between a daily commute trip and a recreational tourist exploration trip.
    - Horizon years and corresponding conditions at the time.
    - Planned improvements or network changes could result in changes to trip assignment compared to current conditions or when evaluating multiple horizon years.
    - Travel paths may vary by time of day.
- Assignment percentages typically apply to two-way trips (arriving and departing).
    - While generally oriented the same way, individual routes may defer to reflect multiple access and egress options and turn movements will likely be different or reversed between an entering and exiting trip.
    - One-way streets may influence assignment patterns.
- The presence of on/off ramps at interchanges.
    - Pass-by trips enter from adjacent streets and typically exit to the same street to continue on their original path.

**Adapted from**: Transportation Impact Analyses for Site Development, ITE 2005

## 2.8.2 Traffic Attenuation

*No more than 10 percent of trips should attenuate per segment*

As traffic from a specific site travels distances, the number of those site generated trips drops. They drop (or attenuate) because as longer distance is traveled, more and more people reach their final destinations. In order to reflect this reality in a manual traffic assignment, it is necessary to use something called Traffic Attenuation. It determines what percentage of trips are satisfied at various differences from the originating site. In evaluating trip assignment alternatives, a commonly used guideline by FDOT is that no more than 10 percent of trips should dissipate (or attenuate) per study segment of roadway under study unless there is a cross street or some major land use that could attract major trips from the usual flow.

Another method for establishing traffic attenuation is the use of the trip length frequency curves of the urban area or a similar area.

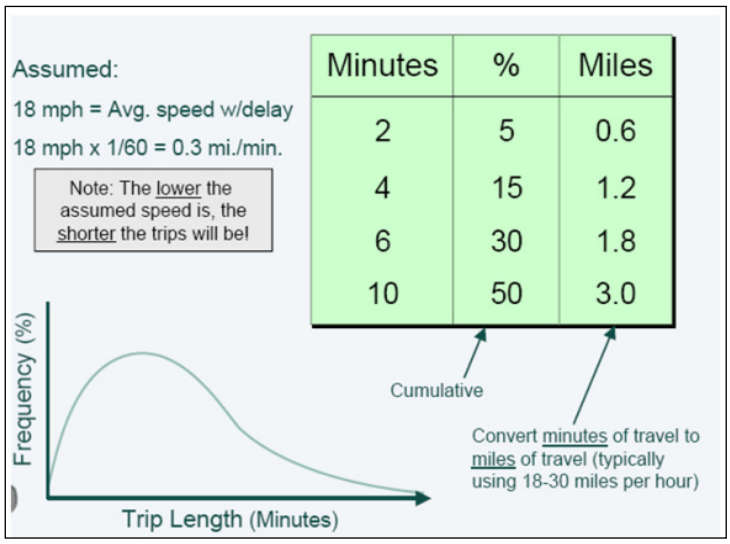
Exhibit 19

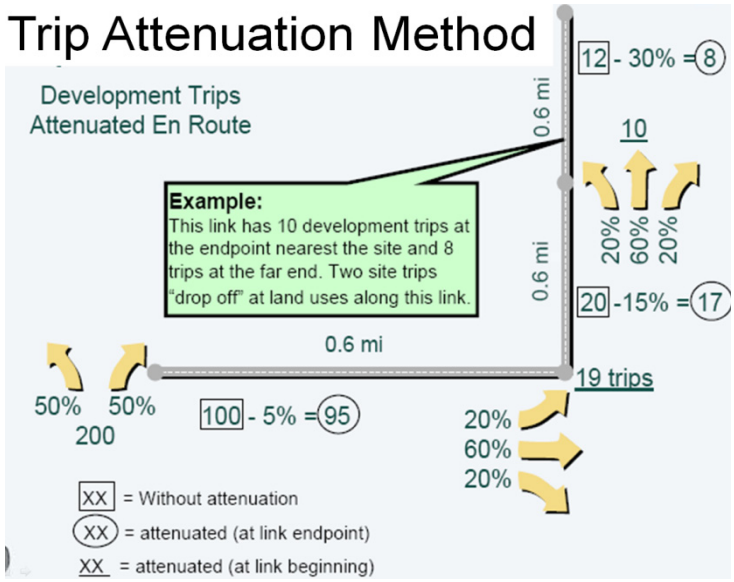
**Traffic Attenuation Example**

*View presentation describing this method*

Presentation

*Traffic Attenuation*




## 2.8.3 Documentation

*Proper documentation will allow for careful and thoughtful review of the assignment*

Trip assignment, by its nature, will reflect driver tendencies behavior, and thus in part becomes a case study of human factors and preferences. Because the process can reflect a complex decision process, it is important to document the basis for making an assumed trip assignment. Proper documentation of the assumptions and decisions made in developing the trip assignment will allow for careful and thoughtful review of the assignment. Applicants are encouraged to work proactively with FDOT and other local agencies to ensure trip assignment assumptions are reasonable and reflective of local conditions.

## 2.8.4 Manual Methods of Trip Assignment

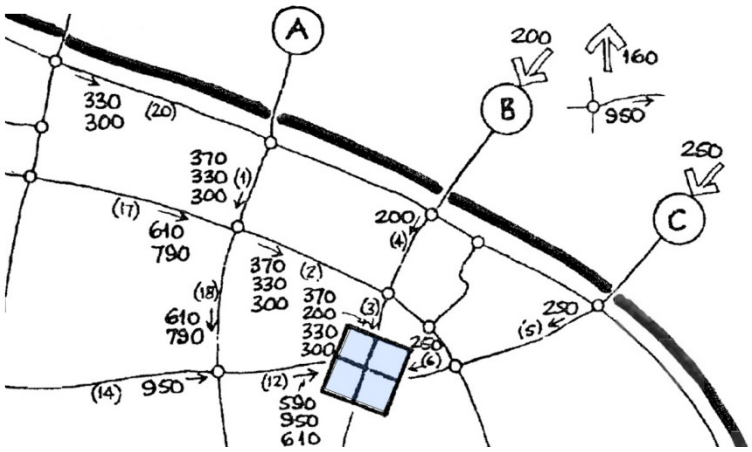
*If the access plan is modified, the assignment process may have to be repeated until a logical assignment is achieved for the network*

Manual trip assignment often assigns site traffic based on existing or anticipated future turning and through movement percentages. The assignment may reduce site volumes along roadway segments using attenuation factors to account for "intervening opportunities" for the trip to end. In simple terms, this means trips may be added and subtracted to the roadway network between major intersections and corridors to reflect local area origins and destinations. Manual assignments for each analysis period should be made for each analysis year. Multiple paths should be assigned between origins and destinations based on experience and judgment to achieve realistic estimates.

The assignment process may be performed a number of times during a typical analysis based on the number of site access and internal circulation alternatives and traffic impact mitigation alternatives considered. If the access plan is modified during subsequent reviews or permitting, the assignment process may have to be repeated and alternative site access and circulation plans considered until a logical assignment is achieved for the network.

Exhibit 20

**Manual Assignment Example**




*Source: NCHRP 187 – Quick Response Urban Travel Estimation Techniques and Transferable Patterns. TRB 1978*

### Recommended Procedure for Manual Trip Assignment When Pass-by Trips are Present

Pass-by trips should be analyzed in the network carefully. The following procedure is based, in part, on the recommendations of ITE's Transportation Impact Analyses for Site Development when pass-by trips are involved in the assignment.

1. Apply the trip reduction factors for internal capture and pass-by traffic, and then assign volumes to each roadway segment. Illustrate in a map the assignment of development trips and provide a corresponding table.
2. In addition to estimating a normal distribution, estimate a trip distribution for pass-by and diverted trips.

Perform separate trip assignments using the individual distribution patterns for primary, pass-by and diverted trips. Pass-by trips and diverted trips should be evaluated carefully considering the location of the driveway and the total traffic on the adjacent roadway links. The assignment should consider the unique turn movement patterns of pass-by and diverted trips and should account for the subtraction of existing turn movements related to the pass-by trip that are no longer made.

- For example, a pass-by trip assignment might require that an eastbound through trip be removed and replaced with an eastbound right-turn and companion northbound right-turn at a site driveway.
- Diverted trips are not subtracted from the roadways and access points they are added to. They are new trips on the roads they divert to.
- Applicants should assign trips to the network such that the primary, pass-by and diverted trips are distinguishable and can be easily reviewed.

3. Consider the effects of traffic diversion by existing traffic to other facilities as result of the site-generated traffic, if appropriate.
4. Check the assignment for reasonableness. Generally, pass-by traffic should not exceed 10 percent of traffic on adjacent streets.

## 2.8.5 Model Methods of Trip Assignment

FSUTMS uses a capacity restrained routine, known as user equilibrium, to perform the final highway assignment. Capacities are used in this routine so that congestion can be accounted for. FSUTMS decreases speeds on congested roadways and shifts traffic between routes after each iteration of the assignment until equilibrium is achieved. At that point, all trips in the model area have found the least congested, shortest-time path to their destination such that no other adjustment can be made to traffic without increasing travel times.

### Selected Zone Analysis

*The preferred technique is the Selected Zone Analysis tool*

The preferred technique for site impact analysis trip assignment is called selected zone analysis. Selected zone analysis allows for review of network-wide trip assignment associated with a single or multiple Transportation Analysis Zone(s) (TAZ). Analysts are encouraged to confer with existing model development documents and user's guides for models they are currently working with to determine the appropriate way for conducting a selected link analysis.

Should a model not currently be set up to perform Selected Link Analyses, the analyst may need to modify the model's highway assignment script. The preferred method is to have the model create a path file with data restricted to just the nodes and links being analyzed. The proper syntax for this process may be found in the Cube Voyager Reference Guide. This reference guide is typically found as a PDF file at C:\Program Files\Citilabs\Cube as a file named RG_CubeVoyager.pdf. This information is also found in the Cube interactive help. The analyst should coordinate with staff at the agency responsible for maintaining the model, typically someone at either the Florida DOT district office or the Metropolitan Planning Organization, to ensure that any modifications made to the model in order to perform Selected Link Analyses are acceptable.

Analysts should *NOT* attempt to evaluate traffic by running two separate model scenarios in which one scenario has the data corresponding to the development included and the other scenario has had the data corresponding to the development removed. The resulting estimate derived from subtracting the volumes of the scenario with the development data from the scenario without the development data, a technique commonly known as the "Net Impact" or the "With and Without" method, *DOES NOT* directly represent the site-generated trip assignment impact. This is because the equilibrium highway assignment process that drives the model diverts trips, often resulting in virtually no change in traffic volumes. This is a subtle but critical point. Judicial precedent in Florida has established that the DRI process must account for ALL trips caused by development, NOT the net impact resulting from displacing existing trips to other roadways (*Reference*: Westinghouse Gateway Communities, et al. v. Lee County Board of County Commissioners Case).

The appropriate use of the selected link assignment is to identify the pattern of site trip assignment by roadway link and, in turn, use that pattern to prepare the actual assignment of site-generated traffic using other model or manual methods. The model assignment should *NOT* be used to calculate internal capture, background traffic, or turning movements. There are two appropriate methods for using travel demand models for traffic impact analysis:

- Special Generator Method
- Link Volume Factor Method

These methods are discussed in SECTION **2.4.4 Large Scale Transportation Model Methods**

### FSUTMS Modeling of Assignment

At a conceptual level, five key steps are taken to perform a trip assignment.

1. Input proposed development's land use into zonal data and/or adjust the model's special generators
2. Run FSUTMS
3. Display traffic that enters/exits development zone(s) on the loaded network using the traffic assignment path file
4. Save development traffic as a new link attribute for further analysis (a new attribute may need to be created in the network for this purpose if one does not already exist)
5. Check for reasonableness


*NCHRP Report 255*

*NCHRP 255 should be used by the applicant unless another procedure has been approved by FDOT.*

In some circumstances, such as at the fringe of a model, manual adjustments may be necessary. If post assignment adjustments are made, the process should be clearly justified and documented. *National Cooperative Highway Research Program (NCHRP) Report No. 255, Highway Traffic Data For Urbanized Area Project Planning And Design,* identifies the procedure for adjusting link volumes and arriving at design traffic and turn movements.


*Webinar with an entire segment on the use of NCHRP 255 – September 2008*

The model output volumes from FSUTMS typically represent the peak season weekday average daily traffic (PSWADT) condition. These volumes must be converted to AADT and then to peak hour volumes using conversion factors. This process is described in the FDOT **Project Traffic Forecasting Handbook**. All adjustments and conversion factors should be documented, reviewed and approved by FDOT. Some models may represent AADT by default or may automatically convert model PSWADT to AADT during the model process. The analyst is encouraged to reference all available model documentation and coordinate with the appropriate FDOT or MPO staff if there is a question concerning the units of the model output volumes.

## 2.8.6 Trip Assignment at Intersections

The operational analysis of individual intersections is often required as part of a site transportation impact assessment. The trip assignment at intersections should be compared to the assignment shown at the facility level so that both analyses are using consistent values. It is also noted that the background volumes used in a detailed intersection assessment should be compared to the background volumes used in the facility analysis. For example, the sum of a specific approach (left turn movements plus through movements plus right turn movements) at an intersection should reasonably match the approach volume used in the facility analysis. Additional information about the assessment of individual intersections is provided in the **FDOT Quality/LOS Handbook**. FDOT has also developed an Excel spreadsheet tool called "TURNS5" which may be useful. Instructions for the use of this spreadsheet are found in CH 7 of the FDOT **Project Traffic Forecasting Handbook**


*Turns 5*


*Project* Traffic Forecasting *Handbook*

# 2.9 Future Conditions Analysis/Mitigation/Determine Future Transportation Needs (Step 4)

*Determines what mitigation may be required*

The Future Conditions Analysis determines if the transportation system will operate acceptably with the additional site-generated trips. If not, one must determine what mitigation may be required. The reviewer should have a clear understanding of the evaluation method used.

This section assumes that an evaluation methodology is based on Florida's Planning LOS Standards and methods. In some instances, local governments may use a different methodology or performance measures. The applicant should clearly document and justify the methodology used and should confirm all methodology assumptions and analysis requirements with FDOT.

## 2.9.1 Significance and Adversity Testing

*Significant depends on the type of development and local government*

The significance of impacts is usually determined by considering the percentage of traffic on a roadway segment that is generated by the development during the peak hour in relationship to the maximum service volume at the LOS standard for the facility during the same period. The significance criterion may vary by the type of development and local government jurisdiction. For example, the typical DRI level of significance is 5 percent of the maximum service volume at the LOS standard for the facility during the 100$^{th}$-highest hour. However, local governments may establish more stringent levels of significance that will govern if the standard is adopted as part of the LGCP (Rule 9J-2.045(6), FAC). Therefore, FDOT should review the criteria established by the local government prior to performing a review.

Developments are considered to adversely impact a roadway if:

> *The roadway is significantly impacted, and the LOS on the roadway with the development trips is below the adopted LOS standard.*

*When the roadway is significantly and adversely impacted, the developer is responsible to mitigate the impacts of the project*

When the roadway is significantly and adversely impacted, the developer is responsible to mitigate the impacts of the project. Strategies that may be implemented to mitigate impacts are discussed in **Chapter 5: Mitigation Analysis**

### 2.9.2 Florida's Planning LOS Standards

The LOS standards were recently updated in April 2009. The rule is intended to promote public safety and general welfare, ensure the mobility of people and goods, and preserve the facilities on the State Highway System (SHS) SIS, and facilities funded by the TRIP. The standards are to be applied to FDOT's planning activities. Unless otherwise provided by law, the minimum LOS standards for the SIS, will be used by FDOT in review of local government comprehensive plans, assessing impacts related to developments of regional impact (DRI), and assessing other developments affecting the SIS.

In reference to the latest 2009 state legislation, many urban areas in Florida qualify as Dense Urban Land Areas. Once their comprehensive plans are amended, they can become Transportation Concurrency Exception Areas (TCEAs). These areas may be exempt from all of the Level of Service Standards. The FDOT reviewer should check the local government comprehensive plans to see if LOS standards have been changed.

Areas still affected by the Level of Service Rule can set their own operational standards in their comprehensive plans, but the FDOT standards still remain for highways on the Strategic Intermodal System (SIS).

Exhibit 21 Statewide Minimum LOS Standards

| Area Type | SIS and FIHS facilities | | TRIP funded facilities and other State roads | |
|---|---|---|---|---|
| | Limited Access Highway (Freeway) | Controlled Access Highway | Other Multilane | Two-Lane |
| Rural Areas | B | B[1] | B | C |
| Transitioning Urbanized Areas, Urban Areas, or Communities | C | C | C | C |
| Urbanized Areas under 500,000 | C(D) | C | D | D |
| Urbanized Areas over 500,000 | D(E) | D | D | D |
| Roadways parallel to exclusive transit facilities | E | E | E | E |
| Inside TCMAs | D(E)[2] | E[2] | _[2] | _[2] |
| Inside TCEAs[2] and MMTDs[2] | _[2] | _[2] | _[2] | _[2] |

Level of service standards inside of parentheses apply to general use lanes only when exclusive thru lanes exist.

1. For rural two-lane facilities, the standard is C.
2. Means the Department must be consulted as provided by Section 163.3180(5), (7), or (15), Florida Statutes, regarding level of service standards set on SIS or TRIP facilities impacted by TCMAs, MMTDs, or TCEAs respectively
   NOTE: Level of service letter designations are defined in the FDOT's latest *Quality/Level of Service Handbook*.

## Area Type

For development reviews, FDOT's LOS standards and area types remain effective throughout the project's planning horizon. For example, in FDOT's review of a proposed multi-phase development the same standards and area types would be used regardless of the amount of development anticipated over time. The only time the applicable standards may change is when the development order conditions provide for a reevaluation of transportation impacts for subsequent phases of development. The change in LOS standards may result from an official change in designation (e.g., Census update, rule change, variance)

## Intersections

*Both facility LOS and intersection v/c are appropriate to determine impacts*

Although arterial facility LOS is stressed in highway level of service standards, detailed volume-to-capacity analyses at selected intersections may be necessary to evaluate specific projects. Both facility LOS and intersection volume-to-capacity ratio criteria are appropriate to determine impacts from proposed developments and required mitigation efforts. Additional information about intersection assessments is provided in the FDOT Quality/LOS Handbook.

### 2.9.3 LOS Analysis Tools

All LOS determinations are to be based on the latest *Highway Capacity Manual* (HCM) and or software (HCS). FDOT *Quality/Level of Service* (Quality/LOS) *Handbook,* or a methodology determined by FDOT as having comparable reliability. The only tools FDOT will officially accept and support for roadway analysis (auto) for planning purposes are the Generalized Service Volume Tables, LOSPLAN, and the HCM/HCS, each applied at the proper level of analysis. Operational analyses based on other tools such as CORSIM may be submitted to FDOT for consideration, but FDOT reviewers are under no obligation to consider, review, or comment on such analyses.

For transit, pedestrian, and bicycle capacity and LOS analyses, the operational tools FDOT fully recognizes for planning applications are the:

- Transit Capacity and Quality of Service Manual;
- Pedestrian LOS Model; and
- Bicycle LOS Model.

FDOT also recognizes software applications that support these tools. The FDOT Quality/LOS Handbook provides guidance on the various tools available to calculate capacity and LOS and provides detailed guidance on using those tools in the planning stages of a project.

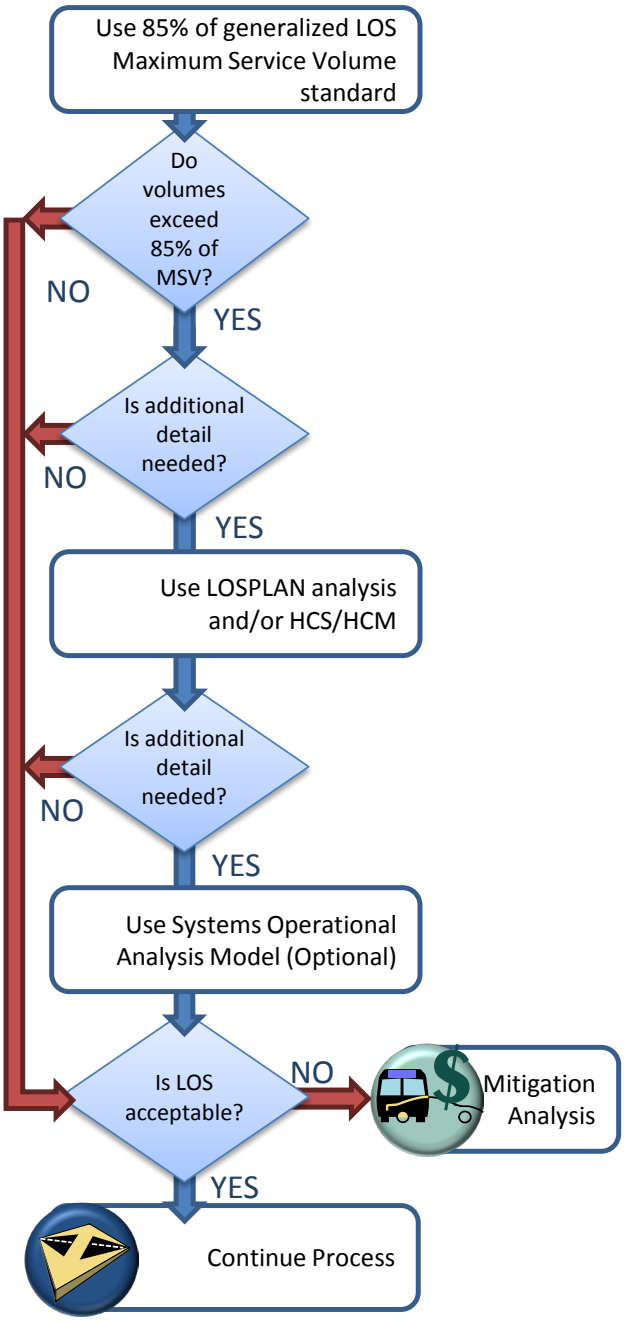
**LOS and Operational Tools for Freeways and Interchange areas:**

Whenever traffic from a development impacts a freeway or interchange, the analysis must be coordinated with the District Interchange Review Committee. Within this study process, other more operational evaluation models (such as CORSIM) may be used if approved by the District and the Federal Highway Administration. Additional information regarding interchange justification can be found at the Department's Interchange Justification webpage.

## 2.9.4 The Tiered Level of Service Approach

For site traffic impact analysis, Level of Service (LOS) analysis should be performed along each segment of the roadway system identified in the methodology phase within the area of influence and at each major street and site access intersection within the study area. Critical intersections for analysis should also be identified based on proximity to the site and the volume of development traffic using the intersection.

Exhibit 22
Tiered LOS Approach




All LOS analyses should be performed using methods or software approved by FDOT. LOS analyses should be performed for existing and future conditions as determined in the methodology phase. If an interstate facility or other SIS/FIHS limited-access roadway is affected, freeway, ramp, and weave analysis procedures of the latest version of the Highway Capacity Manual (HCM) should be used.

A tiered Level of Service approach for site impact analysis may be performed using the following methods as illustrated in Exhibit 22.

A more detailed description of the tiered approach is:

1. Values shown in the generalized LOS tables are based on the latest Highway Capacity Manual and actual Florida traffic and signalization data, making the tables applicable throughout Florida. However, it is recognized that traffic characteristics vary by area and facility. The tables are guideline estimates of auto LOS. The LOS standards as appropriate must be adhered to in FDOT reviews of LGCPs and DRIs by the FDOT reviewer. The generalized LOS tables represent a first cut at estimating LOS. Because these tables are based on average conditions across Florida, 85 percent of the standard was recommended as a conservative assumption for the conditions that might exist on any particular roadway.

   Therefore, a sketch planning level analysis is performed first using the FDOT Generalized Service Volume Tables. If volumes (background plus development traffic) being analyzed exceed 85 percent of the maximum service volume (MSV) at the LOS standard for the facility, a more detailed analysis may then be required

2. If the background, plus development traffic exceeds 85 percent of the MSV at the LOS standard, then a more detailed planning analysis may be performed using LOSPLAN. The additional detail used in LOSPLAN may allow the applicant and/or reviewer to gain a better understanding of the possible traffic impacts. LOSPLAN allows consideration of individual intersections; however, the analysis technique is still a conceptual planning tool. It is important to note that when using LOSPLAN, inserting specific traffic inputs (such as K and D factors) without simultaneously addressing key roadway and control inputs (such as effective green time ratios) is inappropriate and will not be accepted by the FDOT.

*When using LOSPLAN, roadway specific traffic inputs and key roadway and control inputs must be used*

3. If the generalized tables or LOSPLAN do not adequately describe the analysis conditions, the latest version of the procedures of the Highway Capacity Manual (such as the Highway Capacity Software) should be used.

4. If additional detail is required in the analysis, more operational models may provide guidance to the applicant and reviewer to assist in understanding the existing operating conditions.

5. During design level analysis associated with determining the geometric and traffic operational requirements of mitigation alternatives, the generalized tables provided in the FDOT Quality/LOS Handbook are not sufficient. The requirements for design level analysis should be reviewed with the FDOT prior to initiating the analysis.

### Inputs to LOS Analysis

*The traffic, control and roadway inputs used in LOS analysis for site impact should be based on local conditions*

The traffic characteristic, traffic control features, and road features used in planning analysis of LOS for site impact analysis, should be based on local conditions. If the conditions are not known, field data should be collected or the assumptions used allowed in the latest version of FDOT's Quality/LOS Handbook, should be used as defaults. In operational and design analysis, all inputs should reflect the conditions existing or anticipated to occur during the analysis period. To ensure that an analysis is consistent with Florida conditions and research, the inputs and volumes should be within the ranges specified in the FDOT Quality/LOS Handbook.

### Documentation

Following an analysis of existing and future conditions, the results should be documented in figures and tables that include LOS and capacity for each segment and intersection during the peak period in each analysis year.

## 2.9.5 Bicycle & Pedestrian LOS Analysis

Bicycle and Pedestrian LOS assesses bicycling and walking conditions from the bicyclist's and/or and pedestrian's point-of-view. As with automobiles, levels of service are used to quantify bicycle and pedestrian quality of service.

FDOT has adopted the Bicycle LOS Model [*Landis, 1997*], as the basis for its multimodal planning methodology. It has been successfully applied to over 200,000 miles of roadways in the U.S. (including Florida) and Canada. Because it is an operational model, FDOT, in cooperation with the model developers have made some simplifying assumptions for incorporating it into the 2009 Quality/LOS Handbook and accompanying software. The bicycle levels of service are based on five variables listed by relative importance:

- Average effective width of the outside thru lane
- Motorized vehicle volumes
- Motorized vehicle speeds
- Heavy vehicle (truck) volumes
- Pavement condition

FDOT has developed the Pedestrian LOS Model, as the basis for its multimodal planning methodology. It has been successfully applied to cities in Florida and the U.S. Because it is an operational model, FDOT, in cooperation with the model developers have made some simplifying assumptions for incorporation into the 2009 Quality/LOS Handbook and accompanying software. The pedestrian levels of service are based on four variables listed by relative importance:

- Existence of a sidewalk
- Lateral separation of pedestrians from motorized vehicles
- Motorized vehicle volumes
- Motorized vehicle speeds

These models may be used in partial fulfillment of the multimodal analysis requirements of FDOT and other local agencies. Requirements for use of the models should be confirmed with FDOT on a project-specific basis. Specific details about the models are available in the FDOT Quality/LOS Handbook. In addition, NCHRP Report 616 is a new tool for conducting more detailed pedestrian and bicycle LOS analysis. It is described below in the Multimodal LOS section.

## 2.9.6 More Detailed Transit Quality of Service Tools

Transit quality of service assesses transit performance from the passenger point-of-view. As with other travel modes, levels of service are used to quantify transit quality of service. Techniques for evaluating transit quality of service are not yet as well-established as those for highway quality of service, and the techniques continue to be developed and refined. The two national resource documents most frequently used to assess transit LOS are the Transit Capacity and Quality of Service Manual, 2nd Edition (TCQSM), and *National Cooperative Highway Research Program (NCHRP) Report 616: Multimodal Level of Service Analysis for Urban Streets*.

At a state level, the FDOT Quality/LOS Handbook summarizes the planning level methodologies developed by FDOT to assess transit (currently limited to scheduled fixed route bus service), provides guidance on the application and limitations of existing FDOT transit assessment methodologies, and includes generalized planning applications to assess transit LOS (included as part of the generalized tables that are typically used for roadway assessments).

### The Transit Capacity and Quality of Service Manual (TCQSM)

**The Transit Capacity and Quality of Service Manual,** 2nd Edition (TCQSM) is the transit counterpart to the Highway Capacity Manual. Published by the Transportation Research Board (TRB) as Transit Cooperative Research Program (TCRP) Report 100, the TCQSM is a nationally recognized document that provides standard procedures for measuring transit capacity and quality of service.


*NCHRP 616*

**NCHRP Report 616 Multimodal Level of Service Analysis for Urban Streets**

TRB's *National Cooperative Highway Research Program (NCHRP) Report 616: Multimodal Level of Service Analysis for Urban Streets* offers a method for assessing how well an urban street serves the needs of multiple users. This method provides four models for estimating auto, bus, bicycle, and pedestrian

*NCHRP 616 offers a method for assessing how well an urban street serves the needs of multiple users*

LOS, respectively, on an urban street. The models use a combination of readily available data and data normally gathered by an agency to assess auto and transit LOS.


*MMLOS User Guide*


*TCQSM*

**Multimodal Level of Service Analysis for Urban Streets: Users Guide**
The Multi Modal Level of Service (**MMLOS**) method is particularly suited for the evaluation of urban arterial streets, and less so for route and system-level evaluations, thus serving as a complement to the **Transit Capacity and Quality of Service Manual** (TCQSM) methods. The two methods are similar in that there is considerable overlap between the quality-of-service factors incorporated into each method. In addition, the MMLOS method will result in the same LOS as the TCQSM's frequency measure, in the specific case when an uncrowded bus route operates at a given frequency at exactly a baseline speed (12 or 15 mph, depending on the location).

A key difference between the TCQSM and the MMLOS method is in the measures used to determine LOS. The TCQSM's LOS measures can be directly measured in the field and have units associated with them (e.g., buses per hour or standing area per passenger). In contrast, the MMLOS method is based on a measure that blends multiple factors (frequency, speed, reliability, crowding, and bus stop amenities) into a single, unit-less traveler-perception index. Although the factors used to develop the MMLOS index are all field-measurable, the final index value itself cannot be directly measured and any given index value can result from multiple combinations of quality-of-service factors. One advantage of the MMLOS index, though, is that it can be directly compared to the index values produced by the other modal models. As a result, LOS C for transit should represent a comparable level of satisfaction for transit passengers as LOS C would for bicyclists. The LOS values produced by other methods cannot necessarily be compared with each other in that manner.


*Q/LOS Handbook*

The transit assessment methodology contained in the FDOT Q/LOS Handbook is based on TCQSM technique. In conducting an analysis of scheduled fix route bus transit using the FDOT methodologies, it is important to understand the fundamental assumptions described in the FDOT Quality/LOS Handbook. For detailed transit planning applications, operational assessments, and assessments for other types of transit systems (for example demand responsive systems), more advanced applications may be needed.

## 2.10 Access Management, Site Access, and Internal Circulation

The proper application of access management and basic site planning principles is essential to all site impact analysis. This process involves the review of proposed site plans and expected improvements. During this stage, the reviewer assesses the impact of the project on traffic movements and evaluating safety and operations at, and near the access points (driveways or roadways). The level of detail of the site plans associated with the impact assessment will vary based upon the purpose of the study and what level of approval is being sought. For example, DRI applicants should provide approximate driveway locations, and address overall internal and external network connectivity, and land use/development organization within the site (often shown on Map H of DRI requirements.

The design of site circulation, parking, and access should also easily accommodate bus and pedestrian movements for existing or future bus services. Transit friendly designs are generally defined as those within a reasonable walking distance of an existing or proposed transit stop or station. Having a safe and well marked pedestrian path to the entrance of development is one important aspect of good design. Other aspects of transit friendly designs include providing ample pavement widths to accommodate buses.


*FDOT Public Transit Office*

The FDOT Public Transit Office has produced several publications that discuss pedestrian and transit-friendly design in greater detail and can be found at http://www.dot.state.fl.us/transit/.

Site impact design issues include identifying an appropriate design vehicle (the largest vehicle that will typically use the roadway), speeds, and multimodal accommodations. Most site plans should include the following information, at a minimum:

- Sufficiently detailed drawing of access, circulation and parking
- Landscaping details for analysis of sight distances
- Distance between driveways and intersections
- Median opening locations and spacings
- Existing driveways in opposing location of the proposed site
- Location of proposed multimodal accommodations

## Access Management Standards

FDOT has developed numerous standards, guidelines, policies and recommended practices in the areas of corridor access management and site access planning. These standards are provided in Rule Chapter 14-96, FAC, (driveway permitting) and Rule Chapter 14-97, FAC (access management standards). For example, all new driveways associated with a new or expanded development will be permitted through the process described in the Rule Chapter 14-96, FAC, State Highways System Connection Permits Administrative Process. The application of these principles to roadway and corridor design features is discussed in greater detail in a number of FDOT publications such as:


*Driveway Guide*

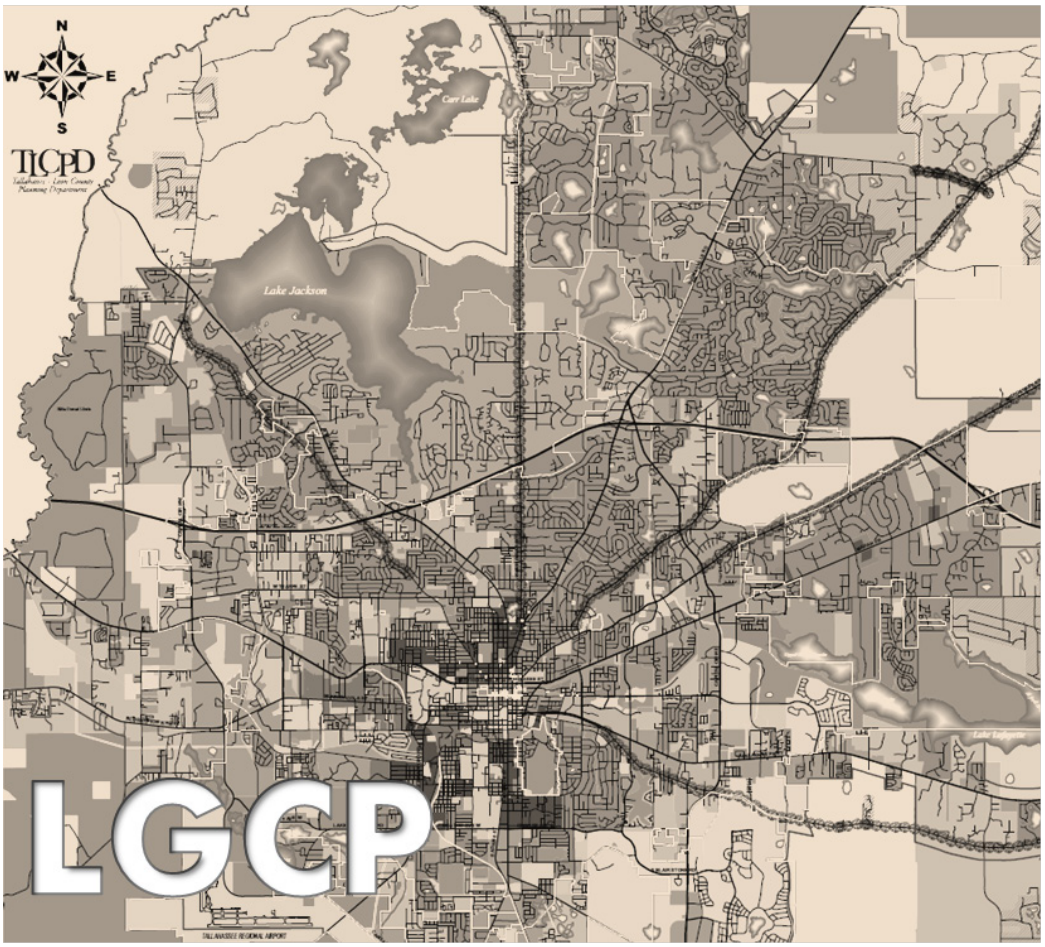
- ***Driveway Information Guide***


*Median Handbook*

- ***Median Handbook***


*Access Management*

- The FDOT also maintains an extensive on-line collection of technical resources on access management at: http://www.dot.state.fl.us/planning/systems/sm/accman/.




# 3 Local Government Comprehensive Plan Reviews

## 3.1 Comprehensive Plans and Plan Amendments

### 3.1.1 Introduction

Adopted by the 1985 Legislature, the Local Government Comprehensive Planning and Land Development Regulation Act - also known as Florida's Growth Management Act (Chapter 163, Part II, Florida Statutes) - requires all local government to adopt Local Government Comprehensive Plans that guide future growth and development. Comprehensive plans contain chapters or "elements" that address future land use, housing, transportation, infrastructure, coastal management, conservation, recreation and open space, intergovernmental coordination, public schools, coastal management (coastal areas) and capital improvements. Comprehensive plans may also include optional elements that address economic development, and urban design.

## Comprehensive Plans

*DCA reviews for consistency*

Comprehensive plans and plan amendments are key components of the framework for growth management in Florida. FDOT provides comments to DCA in reviewing changes that affect transportation. DCA is responsible for the overall review process and is the agency with statutory authority to object to and determine whether plan amendments are consistent or not consistent with state law. Reviews of plan amendments by FDOT are submitted to DCA for its consideration. While transportation is often a major issue of concern within its reviews, DCA must take into account many other issues, such as the promotion of infill and redevelopment, and the need for affordable housing.


*525-010-101-C*

FDOT procedure 525-010-101-C states that FDOT District plan amendment reviews will focus on the transportation, land use, intergovernmental coordination, and capital improvements elements of the plan, as identified in Rule 9J-5.005(1)(c), Florida Administrative Code (F.A.C). These elements, together with the Future Land Use Map and Future Transportation Map, coordinate land use patterns, transportation systems, and capital improvements projects needed to support development of a community. Changes to an adopted comprehensive plan may impact the transportation network, including the multimodal components of the network.

*Future Land Use and Transportation elements must be consistent*

The elements of a local government comprehensive plan must be coordinated and consistent with (s.163.3177(2), Florida Statutes (F.S.), and Rule 9J-5.005(5), F.A.C.). For example, the Future Land Use Element includes goals, objectives and policies and a Future Land Use Map that implement the jurisdiction's desired land use pattern. Likewise, goals, objectives and policies creating the jurisdiction's transportation system are delineated in the Transportation Element, and the Future Transportation Map identifies those transportation facilities necessary to accommodate and serve the future growth and development depicted on the Future Land Use Map (FLUM). The Capital Improvements Element and associated 5-year Schedule of Capital Improvements (which specify the sequencing and funding for transportation projects and other public projects required to maintain adopted Levels of Service) must also be consistent with the Future Land Use and Transportation elements. The Intergovernmental Coordination Element identifies the agencies and organizations with which the local government will coordinate its planning activities and outlines the coordination mechanisms that will be used.

In addition, With transportation concurrency now moving into additional concepts beyond traditional level of service, reviewers need to consider a broader framework which includes greenhouse gas, vehicle miles traveled, alternative transportation, land use, urban structure and urban design.

Greenhouse gas emissions strategies are now required to be included in the traffic circulation and transportation elements. These strategies include compact multi-modal and/or intermodal mixed use areas including downtown/urban infill/redevelopment areas which can reduce vehicle miles traveled. Other strategies include increased network connectivity and pedestrian and transit oriented development.

## 3.2 The Comprehensive Plan Amendment Process

A citizen, property owner, or the local government itself may initiate an amendment of the local comprehensive plan. Amendments often involve changing the future land use designation of property to another designation that allows a different (usually greater) amount of residential development. Future Land Use Map changes may alter the intensity of allowed non-residential development or the types of land uses allowed on the property. In addition to such Future Land Use Map amendments, changes to the comprehensive plan's goals, objectives and policies (text) may be requested.

The amendment application is first considered by the local planning agency. Pursuant to s.163.3174, F.S., the local planning agency (usually the planning board or the local governing body) is responsible for preparing the comprehensive plan and plan amendments, as well as the evaluation and appraisal report (see below). After a public hearing, the local planning agency makes a recommendation to the governing body regarding the requested plan amendment.

### 3.2.1 FLUM - Future Land Use Map

*System must have sufficient capacity for proposed development*

Future Land Use Map amendments and text changes to the Traffic Circulation or Transportation Elements should be supported or justified by a transportation impact analysis included in the amendment package. The analysis should provide information that will allow a determination of whether the transportation system has sufficient capacity to accommodate the impacts of the proposed level of development and whether mitigation is needed. Many local governments have established thresholds for when an amendment must include a transportation impact analysis, so that amendments which are below the threshold do not need such a supporting analysis.

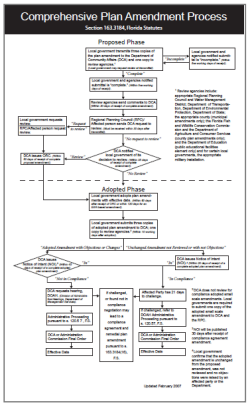
The comprehensive plan amendment process is time sensitive with specific limitations on review periods. The FDOT reviewer should thoroughly understand state statute and rule requirements regarding comprehensive plan amendments.

The applicable statutory authority, existing guidance and suggested review procedures are provided in the resources at the end of this section.

The large-scale plan amendment process is summarized below. The statute provides for 11 different review processes of such amendments, most of which are applicable in only very limited circumstances. Normally, large-scale amendments may be adopted by a local government no more than two times per year. However, please be aware that the statute contains 34 exceptions to the twice per year limitation.

A pilot review program is detailed in 163.32465 (2). This streamlined review program is applicable to several pilot local governments in highly developed and populated counties.

## 3.2.2 Proposed Large Scale Plan Amendment Process




PDF link

*Comp Plan Process Flow Chart*

After receiving a recommendation from the local planning agency, the local governing body may transmit the requested plan amendment, with or without changes, to DCA. A flow chart illustrating the comprehensive plan amendment process can be accessed by clicking on the PDF link.

Assuming the local governing body decides to submit the request as a proposed plan amendment, copies are sent to DCA, FDOT, and other state and regional review agencies (for a complete list see s.163.3184(3), F.S., and Rule 9J-11.009(6), F.A.C.). The local government may request that the proposed amendment be reviewed and an Objections, Recommendations and Comments (ORC) report be issued by DCA. Alternatively, the local government may request that the proposed amendment not be reviewed (s.163.3184(3), F.S.). However, DCA may elect to review the proposed amendment if no review is requested. In addition, a proposed amendment must be reviewed if requested by a regional planning council or an affected person, as defined in s.163.3184(1), F.S. DCA will notify the local government within 35 days of receipt of a complete proposed amendment package if the proposed amendment is to be reviewed or not reviewed. If an amendment seems likely to raise significant transportation issues, DCA will consult with FDOT before making a decision to review or not review an amendment that the local government has requested not be reviewed.

If a review is to be conducted, DCA will complete the review within 60 days after receiving the proposed amendment. DCA will notify the state and regional review agencies that they should submit their reviews of the proposed amendment to DCA within 30 days of receipt of the proposed amendment (DCA

will notify FDOT and the other review agencies of the exact date by which their reviews should be received by DCA). DCA considers all agency reviews to the ORC Report to ensure that the local government has copies.


*DCA ORC Reports*

The ORC Report documents whether a proposed amendment is inconsistent with the provisions of Chapter 163, Part II, F. S., Rule 9J-5, F.A.C., the applicable strategic regional policy plan, and the State Comprehensive Plan (Chapter 187, F.S.). The report also includes recommendations for revising the proposed amendment so that, if adopted, it would be consistent with these requirements. DCA posts ORC Reports on its web site (see Objections, Recommendations and Comments, Reports, Notices of Intent and Public School Interlocal Agreements Online web page). The ORC report is the basis for DCA's compliance decision, so if the comments are not carried forward in the ORC report then the issues cannot be addressed.

A new FDOT reviewer may want to refer to an old ORC report prior to review. This will assist the FDOT reviewer with their comments and to identify who the DCA reviewer for their area is. It is also suggested that the reviewer coordinate with the DCA reviewer prior to any deadlines.

### 3.2.3 Adopted Large Scale Plan Amendment Process

*Local government decides within 60 – 120 days.*

After receiving the DCA ORC Report, the local government must decide within 60 days whether it will adopt the amendment as proposed (transmitted), adopt the amendment with changes, or not adopt the amendment at all. In the case of new comprehensive plan and amendments that implement the recommendations in an evaluation and appraisal report, the time period to adopt, not adopt or adopt with changes is 120 days.

*Notice of intent within 20 days.*

After the local government adopts the amendment, it is submitted to DCA for a compliance review. If there were no objections to the proposed amendment and the amendment was adopted exactly as proposed, then DCA must issue, within 20 days after receipt of the adopted amendment, a notice of intent finding the amendment in compliance. The notice is published by DCA in a local newspaper chosen by the local government.

*DCA issues notice of intent within 45 days*

The *adopted* amendment may or may not include changes made to the *proposed* amendment in response to the objections included in the DCA ORC Report or for some other reason, such as reconsideration of the scope of the amendment by the local governing body. For amendments that were subject to an ORC Report, regardless of whether or not changes were made to the proposed amendment, DCA has 45 days to review the adopted amendment and issue a notice of intent finding the adopted amendment either in compliance or not in compliance.

DCA's compliance determination is based on the objections included in the ORC Report and any changes made by the local government to the plan amendment as adopted. If the ORC Report included transportation-related objections, FDOT should carefully review the adopted amendment to see if these objectives have been adequately addressed in the adopted amendment and any concerns should be shared with DCA.

*Amendment goes in effect 21 days after notice.*

If DCA finds the plan amendment In Compliance, the amendment goes in effect 21 days after publication of the notice, unless an affected person files a petition with DCA challenging the finding of In Compliance. The petition must be filed within 21 days after the publication of the notice. The petition will request that a hearing be conduction by an administrative law judge of the Division of Administrative Hearings of the Department of Management Services. After the hearing, the administrative law judge will file a recommended order regarding the compliance of the plan amendment. DCA will issue a final order if it determines the plan amendment is In Compliance. If DCA determines the plan amendment to be Not In Compliance, DCA will submit the recommended order to the Administration Commission for final action.

If DCA finds the plan amendment Not In Compliance, it will request that the Division of Administrative Hearings schedule a hearing to decide what remedial action should be taken by the local government to bring the amendment into compliance. To avoid such hearings, DCA and the local government may meet to discuss the issues and reach agreement on how the amendment could be revised so that it could be found in compliance. If transportation issues are involved, FDOT will be consulted by DCA during these negotiations. If the negotiations are not successful, the hearing will be held. If transportation issues are to be a subject of the hearing, FDOT may be asked to participate in the hearing.

After the hearing the administrative law judge will submit a recommended order to the Administration Commission for final action. If the Administration Commission finds the amendment is Not In Compliance, it will specify the remedial action the local government must take to bring the amendment into compliance. The law specifies certain penalties if the local government does not undertake the remedial actions (s.163.3184(11), F.S.). Typically, the remedial actions will include amending the comprehensive plan (such amendments are called remedial amendments) to resolve the compliance issues. If transportation issues are involved, FDOT will be consulted by DCA during the review of the remedial amendment.

# 3.3 Review of Future Land Use Map (FLUM) Amendments

The Future Land Use Element and the accompanying Future Land Use Map (FLUM) implement a jurisdiction's vision for its future. Each future land use category must be defined in terms of uses allowed, and must include standards to be followed in the control and distribution of population densities and building and structure intensities. The proposed distribution, location, and extent of the various categories of land use are depicted on the FLUM and supplemented by goals, measurable objectives, and policies.

## 3.3.1 Legal Authorities

FDOT reviews amendments to the adopted Future Land Use Map (FLUM) under the following authorities:

**Florida Statutes (F.S.):**

- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.

**Florida Administrative Code (F.A.C.):**

- Rule 9J-5, F.A.C.
- Rule 9J-11, F.A.C.

➔ **Resource Guide 2. Online Resources**

➔ **Resource Guide 8. LGCP Amendment Review Checklist**

## 3.3.2 Review Procedure

***Required Information***

The FDOT reviewer should be familiar with the following information prior to beginning a review of a proposed FLUM change. The transmitted plan amendment package received from the local government will contain the following data:

- Proposed changes to the goals, objectives and policies, if any.
- A description of the proposed FLUM change, including the maximum allowed densities and intensities of the existing and proposed land use(s).
- A map depicting the location of the proposed land use change and the surrounding area as well as the existing FLUM.
- A transportation analysis of the availability of transportation facilities consistent with Rule 9J-5.019(3)(a), F.A.C.
- A map of the study area roadways.
- If a travel demand model is used, the model files used for the short term and long term analyses.
- Copies of the analysis spreadsheets showing trip generation, internal trip capture, pass-by trips, transit trips, trip distribution and assignment,

background traffic, total traffic, short-term (five-year) analysis, and a long-term analysis that is consistent with the long-term planning timeframe of the comprehensive plan.

### *Key Review Points*

FLUM amendments change an adopted land use classification as depicted on the map. These changes have a great potential to affect the transportation system. The amendment should identify the impacts that the proposed change will have on the transportation system and any improvements needed to mitigate these impacts. These improvements should then be incorporated into the Transportation Element and scheduled for construction in the Five-Year Schedule of Capital Improvements (located in the Capital Improvements Element).

Review of FLUM amendments focus on:

1) Whether the FLUM and the Future Transportation Map are coordinated and consistent,
2) Whether the adopted LOS standard or other mobility performance measures will be achieved and maintained over a five-year period even with the additional development potential associated with the amendment;
3) Whether the infrastructure needs associated with the amendment are reflected in the Capital Improvements Element and on the Future Transportation Map; and
4) Whether the amendment is supported by relevant and appropriate data and analysis applied in a professionally acceptable manner.

Interagency coordination between FDOT and the DCA is critical in implementing effective transportation and land use planning (FDOT Procedure 525-010-101-C). After the District submits its plan amendment review, the District should communicate with the DCA plan reviewer assigned to the community that submitted the amendment to assist in determining whether a transportation issue should be included in the ORC Report. DCA, the District, and the local government may participate in conference calls to discuss transportation-related issues.

The FDOT reviewer should focus on the general issues outlined in the LGCP Amendment Review Checklist in Resource Guide 8 when conducting a FLUM amendment impact evaluation. The checklist responses and the FDOT reviewer's comments should form the basis of the FDOT's formal review of an amendment.

## Floor Area Ratio (FAR)

Typically, FLUM amendments propose changes to the density or intensity of the land use for a particular property. An accompanying transportation impact analysis may convert the broad land use descriptions into quantifiable units. This is usually done for commercial and office land uses where square footages are calculated from gross acreages using Floor Area Ratios (FARs).

The FAR is the ratio of the gross square footage of a structure to the area of the site. The higher the ratio, the greater the intensity of the individual site development. Thus, a FLUM change to a category with a larger FAR will imply greater area (as square feet) of particular uses which in turn may affect trip generation and distribution, site access and levels of service.

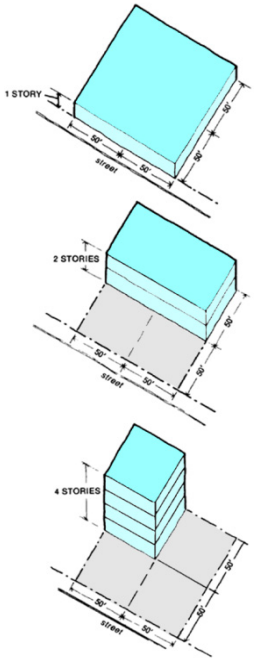



Exhibit 23

**Different Buildings with the same floor area (FAR 1.0)**

## Impervious Surface Ratio (ISR)

A companion measure, Impervious Surface Ratio (ISR) describes the relationship between the total impervious surface area on a site and the gross land area. Though this may not affect trip generation specifically, a higher ISR indicates that more storm water will need to be accommodated off the site.

The Future Land Use Element should specify maximum FARs for every land use category that allows non-residential land uses. The maximum FARs should form the basis of all analyses. The FDOT reviewer should be familiar with the jurisdiction's land use categories, how the FAR is determined, and its influence on land use and transportation.

A FLUM amendment may create an inconsistency between the Future Land Use and Transportation elements if the land use change causes a transportation facility to fall below its adopted LOS standard or other mobility performance measures. This inconsistency may be evident from the supporting transportation analysis. In this case, the FDOT reviewer should identify the inconsistency and suggest methods to remedy it.

Any FLUM amendment should include an analysis demonstrating internal consistency and the continued coordination of the transportation and future land use elements. The transportation analysis should determine whether the existing, committed or planned transportation facilities are sufficient to accommodate any new growth impacts.

This test occurs at two levels: (1) whether the FLUM and the Future Transportation Map are coordinated and consistent, and (2) whether the adopted LOS standard or other adopted mobility performance measures will be achieved and maintained over a five-year period even with the additional development potential associated with the amendment.

The LOS standard determines whether a roadway has sufficient capacity to accommodate the impacts associated with the proposed land use change. It is also expressed as the maximum service volume established by policy in the comprehensive plan for a specific roadway.

FDOT establishes LOS standards by Rule 14-94, F.A.C., on roadways that are a part of the Strategic Intermodal System (SIS). For SIS roadway facilities, local government comprehensive plans must adopt the LOS standard established by FDOT (see s.163.3180(10), F.S.). In TCEAs created by s.163.3180(5)(b), F.S., local governments no longer have to consult with FDOT on impacts to the SIS and TRIP funded roadways. In TCEAs designated under s.163.3180(5)(b)7., F.S., local governments must continue to consult with the state land planning agency and FDOT to assess impacts on adopted level of service standards established for regional transportation facilities identified in the Strategic Regional Policy Plan, including SIS and TRIP funded roadways, and provide a plan for mitigation of impacts to the SIS

On other roadways, local governments may establish adequate LOS standards or mobility performance measures that need not be consistent with any FDOT LOS standard.

A failing system indicates that transportation improvements need to be included in the comprehensive plan amendment. For instance, the data and analysis may show the need for improved transit service, bicycle/pedestrian access, intersection improvements or a new or expanded road. If the Future Transportation Map does not show those improvements, then the proposed amendment is inconsistent with the map. In that case the local government will need to propose transportation strategies to meet adopted standards. The Future Transportation Map will also need to be amended.

An analysis that shows a deficiency in the transportation network may also recommend mitigation projects. These improvements should already be in the Five-Year Schedule of Capital Improvements of the Capital Improvements Element or added in the same amendment cycle. The requirements relating to the Capital Improvements Element are in s.163.3177(3), F.S., and Rule 9J-5.016, F.A.C.


*Mobility Techniques*

The Department has published a recommended standard methodology for CPAs. This text is included in Resource Guide 9. This suggested methodology was published in the FDOT report: Documenting Improved Mobility Techniques on SIS and TRIP Facilities also referred to as LOS Issue Paper 13.

## 3.4 Review of Text Amendments

Text amendments are changes to the goals, objectives and policies of the adopted comprehensive plan. Text amendments require an assessment of how proposed changes in policy affect the transportation system. For example, an amendment of the policy that establishes maximum development densities for a particular FLUM category does not alter the map itself, but may result in additional trips on facilities that serve areas designated by the FLUM category. Text amendments may modify levels of service standards for specific local facilities, revise criteria for facility prioritization or funding, or establish which modes are to serve specific land uses or districts within the jurisdiction.

***Legal Authorities***

**Florida Statutes (F.S.):**

- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.

**Florida Administrative Code (F.A.C.):**

- Rule 9J-5.006, F.A.C.
- Rule 9J-5.016, F.A.C.
- Rule 9J-5.019, F.A.C.

➔ **Resource Guide 2. Online Resources**

➔ **Resource Guide 4. Existing Guidance**

➔ **Resource Guide 8. LGCP Amendment Review Checklist**

### 3.4.1 Review Procedure

Text amendments in any element should be reviewed for potential impacts to the transportation system in a similar manner to the reviews of Future Land Use Map amendments.

***Required Information***

- Proposed text amendment package
- Any data and analysis used to support the amendment
- Demonstration of financial feasibility, if required, in the CIE.
- Current Capital Improvements Element and Five-Year Schedule of Capital Improvements, if required.

***Key Review Points***

Future land use, transportation, and projects in the Five-Year Schedule of Capital Improvements all affect the efficiency of the transportation system. Text amendments should be analyzed for internal consistency and impacts on land use patterns and transportation systems. The FDOT reviewer should coordinate with DCA when reviewing text changes to plan elements.

## 3.5 Future Land Use Element

This element contains goals, objectives and policies that implement the land development pattern for the jurisdiction. The reviewer should be familiar with s.163.3177(6)(a), F.S., which specifies the criteria for the element. Several of these affect the form and efficiency of the transportation system. These criteria include:

- Encourage the redevelopment and renewal of blighted areas;
- Encourage the elimination or reduction of uses inconsistent with the community's character and future land uses; and
- Discourage the proliferation of urban sprawl.

Discouraging urban sprawl is critical in implementing transportation and land use planning. It accomplishes many related planning objectives. Rule 9J-5.006(5)(g), F.A.C., provides a method of determining whether or not a plan or plan amendment discourages the proliferation of urban sprawl. The reviewer should be familiar with this section of Rule 9J-5, F.A.C., to assure that transportation and land use goals, objectives and policies adequately discourage the proliferation of urban sprawl.

## 3.6 Transportation Element

The transportation-related comprehensive plan requirements are not identical for all communities. Local governments located within the urbanized area of an MPO must include a Transportation Element in their comprehensive plan addressing all modes of transportation, including mass transit, ports and aviation, consistent with the requirements of s.163.3177(6)(j), F.S. Local governments located outside the urbanized area of an MPO have fewer requirements in their Traffic Circulation Element (s.163.3177(6)(b), F.S.). Furthermore, municipalities having a population greater than 50,000 and counties having a population greater than 75,000 that are located outside the urbanized portion of an MPO must include a Mass Transit Element and a Port, Aviation, and Related Facilities Element (note that at this time this requirement applies to only two counties, Citrus and Monroe).

Any text amendment to the Mass Transit Element or Port, Aviation, and Related Facilities Element should be reviewed for internal consistency with other portions of the comprehensive plan and for effects on the existing and future transportation network.

The Transportation Element provides goals, objectives, and policies for the future transportation modes and needs (s.163.3177(6)(j), F.S., and Rule 9J-5.019, F.A.C.). The element should be coordinated with other local and regional transportation plans. It should address traffic circulation, alternative modes of transportation, multimodal level of service standards, and transit objectives.

The Transportation Element and Future Land Use Element should demonstrate internal consistency and continued coordination with each other. Coordination and consistency between these two elements will help jurisdictions to create a cohesive development pattern and transportation system.

A text change to the Transportation Element may result from a FLUM amendment, an EAR-based amendment, or a need to update or revise the element. Any change to the Transportation Element may influence land use strategies and capital projects. The FDOT reviewer should be aware of the following potential changes:

1. A change in level of service standards for any mode
2. Land use strategies to promote bicycle and walking
3. Measures to preserve, acquire or protect transportation rights-of-way
4. Changes to a concurrency exception area (see below)

The text amendment should be reviewed for consistency with the Future Land Use and Capital Improvements Elements. The FDOT reviewer and local government staff should be communicating frequently while the element is being developed or amended.

## 3.7 Capital Improvements Element

The Capital Improvements Element (CIE) is adopted and updated to reflect the timing and funding of capital projects to meet and maintain adopted LOS standards for all infrastructure. The CIE and its required Five-Year Schedule of Capital Improvements identifies projects that are needed to ensure that the adopted LOS or other mobility performance measures are achieved and maintained for concurrency-related facilities. The projects contained in the schedule may originate from varying sources including the local government itself, the transit development plan, the FDOT Work Program or the MPO Transportation Improvement Plans and Long Range Transportation Plans. The FDOT reviewer is encouraged to read the DCA's Guide to the Annual Update of the Capital Improvements Element for detailed guidance on the reviewing the Capital Improvements Element.


*Guide to Update CIE*

The requirement that comprehensive plans elements be internally consistent is a key factor that necessitates the review of the CIE with proposed text or map amendments (s.163.3177(2), F.S., and Rule 9J-5.005(5)(a), F.A.C.). The CIE must be reviewed to ensure consistency if any amendment includes a proposed transportation project as mitigation or as part of a mobility plan.

Another important requirement of comprehensive plan projects is that they must be financially feasible (s.163.3177(2), F.S.). The Five-Year Schedule of Capital Improvements must provide committed funding sources for projects in the first three years and planned funding sources for years 4 and 5 (s.163.3164(32), F.S.). However, the annual update to the Capital Improvements Element need not comply with the financial feasibility requirement until December 1, 2011 (s. 163.31877(6)(b)(1), F.S.).

## 3.8 Transportation Concurrency-Related Amendments

Transportation concurrency is implemented through a local government's permitting process designed to ensure transportation facilities and services are available to address the impacts of development. Local governments are required by s.163.3180, F.S., and Rule 9J-5.0055, F.A.C., to develop and adopt a transportation concurrency management system.

Transportation concurrency is implemented by adopting LOS standards or other mobility performance measures, addressing existing service deficiencies, and providing infrastructure or strategies to accommodate new growth. Section 163.3180(5), F.S., provides for exemptions to concurrency requirements, for planning activities such as public transportation facilities or infill or redevelopment projects in adopted exception areas.

FDOT staff should understand the requirements and methodologies of local government concurrency systems as they may receive requests for technical assistance from local governments and may become involved when a local concurrency study identifies impacts to the state transportation system. The FDOT's primary role in transportation concurrency management is to provide technical support to local governments in creating this system.

Local governments use existing roadway capacity, estimated trips from a proposed development and the adopted LOS standard or other mobility performance measures to determine whether the service needs of a proposed development exceed the existing and scheduled roadway capacity improvements. If capacity is unavailable and no improvements are scheduled, the developer has the option to provide the improvements or a monetary contribution, unless the government agrees to provide the necessary improvements.

The FDOT reviewer should focus on the goals, objectives, and policies in the local comprehensive plan that defines the framework for the concurrency management system. The FDOT reviewer should document the review and should demonstrate that the LOS standards or other mobility performance measures are being achieved and maintained. Having the needed data for the corridor impacted by the proposed amendment will assist the FDOT reviewer during the comprehensive plan amendment process.

For example, if a SHS or SIS facility is operating near or below the adopted LOS or performance standard, the FDOT reviewer should coordinate with DCA during

the review of a proposed comprehensive plan amendment to request additional data and analysis documenting the effect of the amendment on the facility. Local governments are required to adopt the FDOT LOS standards for SIS facilities for their concurrency management system except in areas utilizing transportation concurrency alternatives; however, local governments may adopt different LOS standards for other facilities.

The FDOT reviewer may provide recommendations for:

- Methodologies for evaluating concurrency
- Identifying facilities
- Tracking development projects
- Considering programmed improvements
- De minimus impacts on hurricane evacuation routes
- Proportionate fair-share tracking
- Concurrency management system update schedule
- Preferred monitoring data for the Department

The method for monitoring concurrency is an important element of a local government's concurrency management system. Local governments use various forms of tracking systems, such as spreadsheets, that can be used for segments of a transportation system to determine concurrency. Intranet tracking systems can be used for internal review and approval, and to provide automatic updates.


*CMS*

The FDOT reviewer should be familiar with the various methodologies used by the jurisdictions in their District. A sample spreadsheet used for determining this information for concurrency management systems can be accessed online at: http://www.cutr.usf.edu/research/access_m/pdf/CMS.xls

## 3.8.1 Concurrency Alternatives

Local governments may adopt the following alternatives to transportation concurrency, as provided in s.163.3180, F.S.:

- Transportation Concurrency Exception Areas (TCEAs);
- Multimodal Transportation Districts (MMTDs);
- Long-Term Concurrency Management Systems (LTCMS);
- Transportation Concurrency Management Areas (TCMAs); and
- Transportation Concurrency Backlog Authorities.

Local governments implement these alternatives to meet the basic intent of concurrency by advancing planning objectives, including promoting infill development in urban areas, fostering alternative modes of transportation, or

addressing major system deficiencies. In these areas, conventional roadway LOS may not apply or multimodal LOS may be used concurrently. When reviewing these alternatives, the FDOT reviewer should focus on potential impacts on the SHS and SIS facilities.

## 3.8.2 Transportation Concurrency Exception Areas

### TCEA

All or a portion of a community may be a Transportation Concurrency Exception Area (TCEA), either because it is a Dense Urban Land Area (DULA) or because it has been designated as a TCEA within the local comprehensive plan.

SB 360 amended section 163.3184, F.S., to define DULAs. With the exception of Broward and Miami-Dade Counties, TCEAs may be adopted for qualifying DULA areas. These qualifying areas include the Urban Service Area of DULA Counties, a DULA County that has no Urban Service Area, and DULA municipalities. In addition, certain areas of non-DULA cities and county may also qualify for TCEAs.

A non-DULA municipality may designate the following areas as TCEAs:

- Urban infill - s. 163.3164(27), F.S.
- Community redevelopment - s. 163.340(10), F.S.
- Downtown revitalization - s. 163.3164(25), F.S.
- Urban infill & redevelopment - s. 163.2517, F.S.
- Urban service area/boundary - s. 163.3164(29), F.S. and s. 163.3177(14), F.S.

A non-DULA county may designate the following areas as TCEAs:

- Urban infill - s. 163.3164(27), F.S.
- Urban infill & redevelopment - s. 163.2517, F.S.
- Urban service areas - s. 163.3164(29)

### *Legal Authorities*

**Florida Statutes:**

- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.
- Section 163.3180(1)(b), F.S.
- Section 163.3180(10), F.S.

**Florida Administrative Code:**

- Rule 9J-5.0055(6), F.A.C.
- Rule 9J-5, F.A.C.
- Rule 9J-11, F.A.C.

➔ **Resource Guide 4. Concurrency Alternatives**

### *Review Procedure*

***Required Information:***

- The TCEA comprehensive plan amendment
- Demonstration of comprehensive plan consistency
- The TCEA purpose and boundary justification
- The TCEA multimodal transportation system
- Mobility and related strategies

- Land use categories and zoning within the TCEA
- Traffic Impact evaluation
- Maps and figures
- The data and analysis used

***Key Review Points***

The FDOT reviewer should become familiar with the requirements for designating a TCEA based on Rule 9J-5.0055(6), F.A.C.:

1. A specific geographic area, or areas, delineated in the local government comprehensive plan for urban infill development, urban redevelopment or downtown revitalization.
2. TCEAs should incorporate a wide range of strategies including, timing and staging plans, parking control and pricing policies, transportation demand management programs, transportation system management programs availability of public transportation, and utilization of creative financing tools for the provision of transportation services and facilities.

The review documentation should include an evaluation of the transportation impacts associated with the TCEA. The FDOT reviewer should also consider the following criteria:

- TCEA size
- Study area
- Transportation impacts on major corridors
- Consistency with the Future Land Use Element
- Consistency with the Transportation Element
- Consistency with the Capital Improvements Element

The FDOT reviewer should focus on strategies that address network connectivity, mitigate impacts to the SIS, support and fund mobility, and implement alternative modes of transportation. Another goal of a TCEA is to improve mobility through various modes of transportation while reducing the demand for automobile travel. Short-term and long-term improvements for the various modes of transportation within the TCEA should be identified, including public transit, walking, or cycling.

The amendment should contain policies to ensure network connectivity between pedestrian, bicycle, and transit alternatives within and the TCEA and surrounding areas. One mode of transportation should not be overlooked to promote the connectivity of another mode.

The review analysis should show transportation and land use strategies to mitigate impacts to the state-funded facilities and should coordinate with the FDOT prior to any update or designation of a new TCEA. The FDOT reviewer should obtain, if available, annual reports, LOS monitoring, evaluations, or traffic

studies to determine impacts to the state-controlled facilities.

The Capital Improvement Element should identify funding sources for implementing TCEA mobility strategies and capital improvements. These may include community redevelopment taxes and grants and mitigation contributions. Mobility projects within a TCEA may be funded by public or private partnerships.

## 3.8.3 Dense Urban Land Area TCEAs

**DULA**

Dense Urban Land Areas (DULAs) are established pursuant to s.163.3164(34), F.S. Changes to Chapter 163, F.S., enacted in 2009 require all jurisdictions designated as DULAs to adopt within two years land use and transportation strategies to support and fund mobility. These changes place a strong emphasis on local government planning for mobility as part on the overall comprehensive plan. Local governments are also encouraged to adopt complementary land use and transportation strategies that reflect the region's shared vision for its future (s.163.3180(5)(b)4., F.S.).

Dense Urban Land Areas are defined as:

a) A municipality that has an average of at least 1,000 people per square mile of land area and a minimum total population of at least 5,000;
b) A county, including the municipalities located therein, which has an average of at least 1,000 people per square mile of land area; or
c) A county, including the municipalities located therein, which has a population of at least 1 million. Miami-Dade and Broward Counties are the exceptions.

The designation as a DULA has implications for transportation concurrency and land use planning. All DULAs are designated as TCEAs with respect to statewide concurrency requirements (which, see below). However, it is important for the reviewer to be familiar with the specific statutory directives applicable to DULAs. Under s.163.3180(5)(b), F.S., the following jurisdictions also are TCEAs:

a) A municipality that qualified as a DULA.
b) The urban service areas that are adopted into the comprehensive plans of DULA counties.
c) A county which has a population of at least 900,000 and qualified as a DULA but does not have an adopted urban service area.


*List of counties*

In addition the FDOT Central Office has published a map atlas of DULAs throughout the state. Eight counties and 246 local governments were designated as DULAs (and therefore as TCEAs) in 2009. Because populations change and cities incorporate or annex, the FDOT reviewer should check annually which jurisdictions in the District are DULAs. The list of designated counties and municipalities is posted on the DCA website.


*Notice*

The state transportation concurrency requirements are not mandated in these areas. However, any local ordinances (including the comprehensive plan) that establish transportation concurrency are still in effect unless the local government amends its comprehensive plan to remove them. Refer to the DCA website for further direction on this issue.

A local government's future land use plan amendments within all DULAs/TCEAs that are designated and maintained in accordance with s.163.3180(5), F.S., shall be deemed to meet the requirement to achieve and maintain level of service standards for transportation (s.163.3177(f), F.S.). Thus, plan amendments within DULAs may not be reviewed for consistency with state transportation LOS standards. However, when reviewing proposed plan amendment, FDOT reviewers should comment on any proposals that do not reflect sound planning practice or would have the effect of creating future transportation-related issues, including impacts to the SIS. These issues may require consultation with local governments outside the formal plan amendment review process. In addition, local governments that must incorporate land use and transportation strategies that support and fund mobility for these areas will require a great deal of technical assistance from FDOT to ensure that the plans actually address mobility needs even in the absence of using an LOS standard as a review criterion during the plan amendment process.

### 3.8.4 Land Use and Transportation Strategies to Support Mobility

**DULA**

As mentioned above, all jurisdictions designated as DULAs must adopt within two years land use and transportation strategies to support and fund mobility. Since the DULA designations became effective on July 8, 2009 (the date the list was published on the DCA website), these amendments are due by July 8, 2011. The amendments must include land use and transportation strategies to support and fund mobility within the exception area, including alternative modes of transportation. FDOT and DCA should be prepared to offer technical assistance to local governments as they prepare the required comprehensive plan amendment. Strategies available to local governments include but are not limited to:

- Promoting infill development, compact development, mixed use development, and mixed use activity centers
- Promoting pedestrian and bicycle access and connectivity to all modes of transportation
- Increasing allowed density/intensity to support transit and minimize vehicle miles traveled
- Supporting alternate modes of transportation
- Establishing multimodal transportation districts
- Complete streets policies
- Maintaining or improving the connectivity between all modes
- Adopting corridor management plans that support and fund multimodal development
- Promoting transit oriented development (TOD) and traditional neighborhood development (TND)
- Using transportation system management (TSM) techniques to increase operating efficiency
- Establishing transportation demand management (TDM) programs to encourage alternatives to the single-occupant vehicle

Documents that discuss mobility plans and strategies from other states are included in Resource Guide 6.

**Resource Guide 6. Transportation and Land Use**

## 3.8.5 Multimodal Transportation Districts

### MMTD

A Multimodal Transportation District (MMTD) is an urban area where the primary priority is assuring a safe, comfortable, and attractive pedestrian environment with convenient interconnection to transit (s.163.3180(15)(a), F.S.). Vehicle mobility is a secondary priority in these districts through urban design features that support an integrated multimodal transportation system. MMTDs include mixed-use activity centers, street and land use connectivity, pedestrian and bicycle facilities and accommodations, and access to alternative modes of transportation.

Another goal of the MMTD is to promote infill development and redevelopment. Local governments may implement multimodal LOS standards for MMTDs that rely on non-vehicular modes of transportation in an effort to address concurrency, including LOS standards for pedestrians, bicycles, and transit.

### *Legal Authorities*

**Florida Statutes**

- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.
- Section 163.3180(1)(b), F.S.
- Section 163.3180(10), F.S.
- Section 163.3180(15)(a), F.S.

**Florida Administrative Code:**

- Rule 9J-5.0055(2)(b), F.A.C.
- Rule 9J-5.0055(3)(c)7., F.A.C.

➔ **Resource Guide 5. Multimodal Transportation Districts**

### *Review Procedure*

***Required Information:***

- The MMTD comprehensive plan amendments
- Demonstration of comprehensive plan consistency
- The MMTD purpose and boundary justification
- The MMTD multimodal transportation system
- Multimodal LOS standards or performance measures
- Proposed community design features/elements
- Potential development within the MMTD
- Transportation impact evaluation
- Financial feasibility of proposed improvements
- Maps and figures
- The data and analysis used

### *Key Review Points*

The amendment should demonstrate how the MMTD reduces vehicle miles traveled while supporting alternate modes. The FDOT reviewer should consider the following criteria during a MMTD analysis:

- District size
- Study area
- Transportation impacts
- Consistent with the Future Land Use Element
- Consistent with the Transportation Element
- Consistent with the Capital Improvements Element
- Extra-Jurisdictional impacts

DCA tracks the adopted MMTDs throughout the state. Monitoring the progress of an MMTD should include coordination between the Department, local governments, and the DCA. Section 163.3180(15)(c) FS states that local governments may establish multimodal level of service standards that rely primarily on nonvehicular modes of transportation within the district… These standards can be used to measure progress towards meeting multimodal objectives, as detailed in the FDOT *Multimodal Transportation District and Areawide Quality Level of Service Handbook.*

## 3.8.6 Long-Term Transportation Concurrency Management Systems

**LTTCMS**

A Long-Term Transportation Concurrency Management System (LTTCMS) provides local governments with additional time to acquire the funding necessary to address roadway deficiencies (s.163.3180(9), F.S.). Local governments may adopt a LTTCMS with a planning period of up to 10 years, or up to 15 years with DCA approval.

The local government may adopt interim LOS standards and rely on a long-term schedule of capital improvements for a particular roadway corridor. The long-term schedule must be financially feasible and include the commencement and completion dates of the identified projects.

***Legal Authorities***

**Florida Statutes:**

- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.
- Section 163.3180(1)(b), F.S.
- Section 163.3180(10), F.S.
- Section 163.3180(9), F.S.
- Section 163.3180(5)(f), F.S.

**Florida Administrative Code:**

- Rule 9J-5.0055(4), F.A.C.
- Rule 9J-11, F.A.C.

➔ **Resource Guide 4. Concurrency Alternatives**

***Review Guidance***

***Required Information:***

- Purpose of the LTTCMS
- Proposed study area and boundary
- Existing and interim LOS standards
- Area multimodal transportation facilities
- Traffic impact evaluation within study area
- Land use categories and zoning within study area
- LTCMS comprehensive plan amendments
- Financial feasibility analysis
- Implementation and monitoring processes
- Maps and figures
- Data and analysis used

***Key Review Points***

Section 163.3180(9), F.S., provides the minimum requirements for a LTTCMS. The jurisdiction must designate in the comprehensive plan specific areas where significant backlogs presently exist. These areas must be shown on a map and must be consistent with other elements of the comprehensive plan, including the FLUM. The LTTCMS must be a financially feasible system to ensure that

existing deficiencies are corrected within the 10 year period and establish priorities for addressing backlogged facilities.

As with all local government comprehensive plan amendments, FDOT should coordinate its review with DCA staff. The FDOT reviewer should also be available to provide technical assistance early in the study preparation and amendment process.

## 3.8.7 Transportation Concurrency Management Areas

**TCMA**

Another alternative for local governments is to establish a Transportation Concurrency Management Area (TCMA), pursuant to s.163.3180(7), F.S. A TCMA promotes urban infill development and redevelopment in an effort to reduce urban sprawl. However, a TCMA differs from a TCEA because it establishes an areawide LOS for roadways. The FDOT reviewer should coordinate with DCA and the local government to analyze the efficiency of this type of LOS.

***Legal Authorities***

**Florida Statutes**:

- Section 163.3184(4), F.S.
- Section 163.3180(1)(b), F.S.
- Section 163.3180(10), F.S.
- Section 163.3180(7), F.S.

**Florida Administrative Code:**

- Section 9J-5.0055(5), F.A.C.

➔ **Resource Guide 4. Concurrency Alternatives**

***Review Procedure***

***Required Information:***

- Justification for TCMA
- TCMA size and boundaries
- Roadway system
- Areawide LOS analysis
- Land use categories in the TCMA

***Key Review Points***

The LOS for TCMAs is determined by analyzing the LOS on similar transportation facilities within the management area serving common origins and destinations. If a TCMA has been specified within the LGCP , the plan amendment should:

- Show that the TCMA supports and promotes other elements
- Demonstrate network connectivity and provide multiple options or mode for common trips
- Determine current and future service requirements needed to maintain LOS
- Show that the LOS and facilities will support infill development and redevelopment, and
- Demonstrate that the planned improvements and alternate modes will achieve mobility.

## 3.8.8 Transportation Concurrency Backlog Authorities

Pursuant to s.163.3182, F.S., a local government may create a Transportation Concurrency Backlog Authority if it has an identified transportation concurrency backlog. The statute defines a backlog as an identified deficiency where the existing extent of traffic volume exceeds the LOS standard adopted in a local government comprehensive plan for a transportation facility. This definition pertains to s.163.3182, F.S., only. Such an authority would develop a plan to eliminate the backlogs and the plan would be adopted as part of the local comprehensive plan.

***Legal Authorities***

**Florida Statutes:**

- Section 163.3182, F.S.
- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.
- Section 163.3180(1)(b), F.S.
- Section 163.3180(10), F.S.

**Florida Administrative Code:**

- Rule 9J-5, F.A.C.
- Rule 9J-11, F.A.C.

➔ **Resource Guide 4. Concurrency Alternatives**

***Review Guidance***

***Required Information:***

- The Transportation Concurrency Backlog Plan
- An identification of concurrency backlogged facilities
- Financial feasibility analysis
- Schedule for completion of projects
- Proposed study area and boundary
- Existing LOS standards
- Area multimodal transportation facilities
- Traffic impact evaluation within study area
- Potential development within study area
- Comprehensive plan amendments
- Maps and figures
- Data and analysis used

***Key Review Points***

As with all local government comprehensive plan amendments, FDOT should coordinate its review with DCA staff. The FDOT reviewer should also be available to provide technical assistance to jurisdictions early in the study preparation and amendment process.

# 3.9 Other Local Government Comprehensive Plan Reviews

Local governments may process other amendments to the LGCP in addition to those discussed in previous sections. When reviewing such amendments, the FDOT reviewer should evaluate the impacts on the SHS and SIS, and the use of professionally accepted techniques for measuring LOS and other mobility performance measures.

Two frequently encountered reviews are discussed below: the Evaluation and Appraisal Report, and amendments related to developments of regional impact.

➔ **Resource Guide 2. Online Resources**

## 3.9.1 Evaluation and Appraisal Reports and Amendments

**EAR**

The Evaluation and Appraisal Report (EAR) is an audit of a local government's successes and failures in implementing its comprehensive plan. The EAR is prepared every seven years to evaluate and update a LGCP (s.163.3191, F.S.). It is the first step in updating the comprehensive plan. The document identifies needed changes to the plan, which may include updates that reflect changes in local circumstances and community goals, or changes in state law. The schedule for EAR submissions for each local government is posted on the DCA website.

The FDOT reviewer will be involved in four aspects of the EAR process:

- The scoping meeting, if held
- Review of the proposed report
- Review of the adopted report
- Review of the EAR-based amendments

***Legal Authorities***

**Florida Statutes (F.S.):**

- Section 163.3180(10), F.S.
- Section 163.3191, F.S.

**Florida Administrative Code (F.A.C.):**

- Rule 9J-11, F.A.C.

➔ **Resource Guide 3. Evaluation and Appraisal Reports (EARs)**

## Review Procedure

### Required Information

- A vacant and developable lands analysis
- A financial feasibility analysis of the comprehensive plan
- An identification of corrective measures to address the major issues identified in the EAR process
- An evaluation of the success of any adopted transportation concurrency alternative.
- An assessment of the extent to which changes are needed to develop a common methodology for measuring impacts on transportation facilities for the purpose of implementing its concurrency management system in coordination with the municipalities and counties, as appropriate pursuant to s. 163.3180(10)

## Key Review Points

At the initiation of a local government's EAR process, the local government may choose to hold a scoping meeting with adjacent local governments and regional and state agencies (s.163.3191(3), F.S.). A preliminary list of major issues that have emerged since the adoption of the original plan should be developed by the local government for distribution at the scoping meeting. The FDOT reviewer should attend and identify any transportation issues the EAR should address.

The FDOT reviewer should become familiar with the guidelines for reviewing transportation analysis included in the EAR and should consider the following criteria during a review:

- Impacts on SHS and SIS
- Issues affecting transportation systems
- Common methodology concurrency determination
- Amendments to Transportation Element
- Amendments to Future Land Use Element

The adopted LOS standards referenced in the EAR should be reviewed to ensure consistency with the FDOT's LOS standards for SIS-funded facilities. By state law (s.163.3180(10), F.S.) local governments may set different LOS standards for non-SIS facilities and SIS facilities in concurrency exception areas in DULAs created by s. 163.3180(5)(b),. Any noted inconsistencies should be pointed out to the local government along with a request that the inconsistencies be corrected in the EAR-based amendment.

The FDOT reviewer should evaluate any concurrency exception areas by comparing the current conditions to the goals, objectives, and policies identified in the original justification report. This evaluation should confirm that the EAR adequately assesses the efficiency of the area. It also ensures that the goals, objectives, and policies have been implemented with the funded strategies to support exception areas.

## 3.9.2 EAR-based Amendments

### EAR Amendments

EAR-based amendments are required to be submitted within 18 months after DCA determines the EAR is sufficient (s.163.3191(10), F.S.). These amendments may include changes to the FLUM or to the text of the elements, based on the recommendations in the EAR. EAR-based amendments should be reviewed using the processes discussed in the previous sections. For additional guidance on EAR-based amendments, see the DCA documents on EARs on the agency's website.

### *Legal Authorities*

**Florida Statutes (F.S.)**

- Section 163.3191(10), F.S.

**Florida Administrative Code (F.A.C.)**

- Rule 9J-11.018, F.A.C.

### *Key review points*

EAR-based amendments should address the recommended changes in the EAR previously reviewed. The FDOT reviewer should be aware of any revisions that might affect internal consistency of the amendments with other elements and effects on the transportation system.

EAR-based amendments may also be responses to changes in state law. For example, state law now requires including greenhouse gas reduction strategies in the comprehensive plan. Amendments based on EARs adopted after July, 2009, must address this requirement. FDOT reviewers should analyze EAR-based plan amendments for policies and strategies relating to greenhouse gas reduction, which may include transportation strategies, land use, or a combination.

## 3.9.3 Development of Regional Impact-based Amendments

### DRI Amendment

A Development of Regional Impact (DRI) is authorized through the issuance of a local development order. Since all local development orders must be consistent with the comprehensive plan (Section 163.3184(3), F.S.), the DRI must be consistent with the comprehensive plan. Thus, a DRI-related comprehensive plan amendment may need to be prepared to ensure consistency of the plan with a proposed DRI, or substantial deviation to an existing DRI. Such amendments are not subject to the twice year limitation on the adoption of plan amendments; however, they do follow the LGCP amendment review process.

### *Legal Authorities*

**Florida Statutes**:

- Section 163.3184(3), F.S.
- Section 163.3184(4), F.S.
- Section 380.06(6), F.S.

**Florida Administrative Code (F.A.C.)**:

- Rule 9J-5, F.A.C.
- Rule 9J-11, F.A.C.

### Resource Guide 5. Existing Guidance

#### FDOT Review Procedure

***Required information***:

- Amendment application
- Transportation impact study for the amendment

### *Key review points*

The FDOT reviewer should analyze the amendment for consistency with the relevant elements in the comprehensive plan and with Chapter 380, F.S. The transportation impact study for the amendment should focus on the anticipated trips, growth trends on the adjacent roadway facilities and proposed mitigation.

- Primarily Chapter 163, FS and Rule 9J-5, FAC

# Resource Guide 1. Legal Authority for Department Review

Florida Statutes: Statutes & Constitution :View Statutes : flsenate.gov

Florida Administrative Code: Florida Administrative Rules, Law, Code, Register – F.A.C., FAW, eRulemaking

The following rules and statutes provide the authority that guides the Department's review of local government comprehensive planning documents:

## Florida Statutes (F.S.):

ss.163.3180(10) and 163.3191(1)(p), F.S., address roadways that traverse multiple jurisdictions and require local governments to consider compatibility of LOS standards with standards in adjacent jurisdictions. Local governments are also encouraged to coordinate with other local governments to develop common methodologies for measuring transportation impacts in their concurrency management systems.

s.163.3184(30) F.S. Local Government Transmittal of Proposed Plan or Amendment, Paragraph (a) requires local governments to transmit the complete proposed comprehensive plan or plan amendment to FDOT.

s.163.3184(4) F.S. Intergovernmental Review, requires FDOT to provide comments to DCA within 30 days of receipt of the complete proposed plan amendment.

s.163.3191(6), F.S. The local government shall provide a copy of the adopted EAR to FDOT. DCA is to review the adopted EAR and make a preliminary sufficiency determination within 60 days of receiving the adopted EAR. FDOT should provide comments to DCA 30 days prior DCA's 60-day deadline regarding the sufficiency of the EAR. Within 90 days, DCA will make a final sufficiency determination.

s.334.044, F.S. Establishes that FDOT has the responsibility for coordinating the planning of a safe, viable and balanced state transportation system serving all regions of the state, and to assure the compatibility of all components, including multimodal facilities.

s.380.06(6) F.S. Application for Approval of Development; Concurrent Plan Amendments, requires any local government comprehensive plan amendments related to a development of regional impact (DRI) to be considered by the local government at the same time as the DRI.

## Florida Administrative Code (F.A.C.):

Rule Chapter 9J-5 F.A.C., describes the minimum criteria (data and analysis) for review of local government comprehensive plans and plan amendments related to a development of regional impact (DRI) to be considered by the local government at the same time as the DRI.

Rule Chapter 9J-11 F.A.C., describes procedures governing the submittal and review of local government comprehensive plans and amendments.

Rule Chapter 14-94 F.A.C., establishes the FDOT LOS standards for SIS (including SIS Connectors and Emerging SIS), FIHS, and TRIP-funded facilities.

## FDOT Policies/Procedures

The Department utilizes both policies and procedures to guide reviewers in their duties. The department reviewer should be familiar with and as needed refer to the following policies and procedures:

Topic No: 525-010-101-C, District Review of Local Government Comprehensive Plans

## Publications – Online Guidance

*Note: 06/07 Resource Documents are still linked to original sources*

Transportation Concurrency Best Practices Guide – A document produced by the Department of Community Affairs with a primary focus on local government concurrency. Also includes guidance on comprehensive plan amendment reviews and cumulative analysis.

Sample Concurrency Management Spreadsheet- A downloadable CMS in excel spreadsheet.

User Guide – Instructions for concurrency management system spreadsheet.

A GIS-Based Concurrency Management System for Local Governments- DCA sponsored project of Treasure Coast Regional Planning Council to use GIS as basis for concurrency management system.

Best Practices Guide for Transportation Planning in Small Florida Cities – DCA sponsored guide to help small local governments meet transportation planning and concurrency requirements.

Guide for the Creation and Evaluation of Transportation Concurrency Exception Areas - DCA guide that providing detailed guidance on the evaluation of TCEAs.

Case Studies of Florida Communities – Case studies conducted with creation of guidebook.

Working with Transportation Concurrency Exception Areas- FDOT guidebook on how District staff should coordinate with local governments as they adopt and maintain TCEAs.

Multimodal Transportation Districts and Areawide Quality of Service Handbook – FDOT handbook designed to assist local governments create and adopt MMTDs.

Model Regulations and Plan Amendments for Multimodal Transportation Districts Report – FDOT guidebook designed to assist local governments in adopting comprehensive plan policies and local ordinances in support of MMTDs.

Guide to the Annual Update of the Capital Improvements Element- DCA guide providing detailed direction on the annual update of the Capital Improvements Element of a local comprehensive plan.

Working with Proportionate Fair Share - FDOT publication providing guidance on the application of proportionate fair share.

Joint letter to the Okaloosa-Walton County Transportation Planning Organization – A joint letter by FDOT and DCA answering various questions relating to proportionate fair share submitted by the Okaloosa-Walton TPO.

# Resource Guide 2. Online Resources

Evaluation and Appraisal Reports - Division of Community Planning – DCA webpage providing guidance and resources on the Evaluation and Appraisal Report process.

Capital Improvement Elements - Division of Community Planning – DCA webpage providing guidance and resources on updates to Capital Improvement Elements of local government comprehensive plans.

Growth Management and Comprehensive Planning- DCA webpage providing guidance and resources on local government comprehensive planning process.

Transportation Planning - Division of Community Planning- DCA webpage providing guidance and resources related to transportation planning in Florida.

Florida Transportation and Growth Management – FDOT Policy Planning webpage providing transportation and growth management guidance and resources.

FDOT Systems Planning Office - Traffic Impact Analysis – FDOT systems planning webpage providing information and resources on traffic impact analysis.

FDOT Systems Planning Office - Quality/Level of Service- FDOT systems planning webpage providing information and resources on measuring quality/level of service.

DCA - Transportation Concurrency Best Practices Guide – Appendix A

DCA - Guide to the Annual Update of the Capital Improvements Element

DCA - Growth Management and Comprehensive Planning Webpage

http://www.dot.state.fl.us/planning/systems/sm/los/default.shtm 2009 Q/LOS Handbook

http://www.dot.state.fl.us/planning/systems/sm/siteimp/ FDOT TIPS (Trip Generation, Internal Capture, and Pass-By) Software

http://www.ite.org Institute of Transportation Engineers (ITE) Trip Generation documents

http://www.dot.state.fl.us/planning/systems/mspi/ (FIHS), (SIS), Emerging SIS, and Transportation Regional Incentive Program (TRIP)-funded facilities

DCA - Capital Improvement Element - Division of Community Planning Webpage

## Resource Guide 3. Evaluation and Appraisal Reports (EARs)

Evaluation and Appraisal Reports - Division of Community Planning

Chapter 163.319 Evaluation and appraisal of comprehensive plan

FDOT Draft Guidance for Producing a Transit Development Plan

## Resource Guide 4. Concurrency Alternatives

Transportation Concurrency Best Practices Guide

Guide for the Creation and Evaluation of Transportation Concurrency Exception Areas

Working with Transportation Concurrency Exception Areas

Transportation Planning - Division of Community Planning

## Resource Guide 5. Multimodal Transportation Districts

Transportation Concurrency Best Practices Guide

Multimodal Transportation Districts and Areawide Quality of Service Handbook

Model Regulations and Plan Amendments for Multimodal Transportation Districts Report

## Resource Guide 6.
## Transportation and Land Use Strategies that Support Mobility

http://www.epa.gov/smartgrowth/2009-0616-epahuddot.htm

http://www.lincolninst.edu/pubs/smart-growth-policies.aspx

http://www.cnu.org/

http://www.smartgrowthplanning.org/index.html

http://www.livableplaces.org/policy/todincentives.html

http://www.fhwa.dot.gov/hep/climate/index.htm

http://www.pps.org/

http://www.vtpi.org

http://www.walkable.org

http://www.arb.ca.gov

http://www.sandiego.gov/planning/programs/transportation/mobility/index.shtml

http://www.cityofventura.net/mobility

## Resource Guide 7. Reviews of Other Plan Elements

For further guidelines regarding review criteria and required LOS standards, refer to Section 9 of the FDOT District Five, *Local Government Comprehensive Planning Review Guidelines*, 2007, and *Applicability of Standards* For Roadway LOS Analysis, (CH 8.1 of Quality/Level of Service Handbook) respectively.

*Note*: The document was published by District 5 for use within that specific district. It has not been officially adopted by FDOT for statewide use.

# Resource Guide 8. LGCP Amendment Review Checklist

| *Project* | *Reviewer* | *Date of Review:*<br>*Comments Due:* |
|---|---|---|

| **LGCP Amendment Review Checklist** | | Y N N/A |
|---|---|---|
| A. Study area boundaries established | 1. Include all significantly impacted SHS segments under proposed FLUM amendment land use scenario, including those located outside the jurisdiction of entity pursuing amendments? | ○ ○ ○ |
| | 2. All SIS segments identified? | ○ ○ ○ |
| B. Transportation impacts for existing FLUM adequately defined for comparison use in review? | 1. Land use scenario defined for existing FLUM category which has mix, densities and intensities of primary and secondary permitted land uses representing a worst-case scenario? | ○ ○ ○ |
| | a. Assumptions fully documented? | ○ ○ ○ |
| | b. Trip-generating characteristics of the existing FLUM Land Use Scenario shown? | ○ ○ ○ |
| | 2. Acceptable method employed to determine distribution of trips for existing FLUM Land Use Scenarios? | ○ ○ ○ |
| | a. All internal capture and internal/external split assumptions properly documented? | ○ ○ ○ |
| | 3. Existing SHS segments' LOS shown? | ○ ○ ○ |
| | • Department-approved methods used to perform the LOS analysis? | ○ ○ ○ |
| | • Department and LGCP LOS standards used to determine LOS grade? | ○ ○ ○ |
| | 4. LOS determined for SHS Segments for existing FLUMs Land Use Scenario? | ○ ○ ○ |
| C. Maximum potential land uses permitted under the proposed FLUM Amendment identified? | | ○ ○ ○ |
| D. Future land use scenario defined | 1. Reasonable mix, densities and intensities of permitted land uses representing a worst-case scenario? | ○ ○ ○ |
| | 2. Assumptions used in defining FLUM Amendment Land Use Scenario fully documented? | ○ ○ ○ |
| E. Department–approved methods | 1. Trip generation, distribution and assignment based on FLUM amendment Land Use Scenario? | ○ ○ ○ |
| | 2. Adequate documentation provided to permit review of the analyses? | ○ ○ ○ |
| F. Level of Service | 1. LOS been determined for SHS segments under FLUM Amendment Land Use Scenario? | ○ ○ ○ |
| | 2. Additional improvements to SHS segments required, beyond those identified in adopted long-range plans? | ○ ○ ○ |
| | 3. Commitments to providing additional improvements made as a condition of FLUM Amendment approval? | ○ ○ ○ |
| G. LOS determined for multimodal service/facilities (transit, walking and bicycling). | | ○ ○ ○ |
| H. FLUM Amendment provides for sufficient additional local transportation infrastructure to preserve functional integrity of impacted SHS segments, preventing a shift to their serving local trip needs? | | ○ ○ ○ |
| I. Proposed FLUM Amendment impact existing or proposed public transit service, as set forth in local agency's Transit Development Plan? | | ○ ○ ○ |
| J. Green house gas strategies in traffic circulation and/or transportation elements | | ○ ○ ○ |

# Resource Guide 9. Standardized Comprehensive Plan Review Process

A standardized comprehensive plan review process and schedule among a local government, FDOT, and DCA may enhance communication and coordination of CPA review as well as mitigation of impacts. While ideal and recommended, this process occurs on a voluntary basis and is not required by statutes or rule.

An approach to such a review process is outlined below. During this process, all parties should ensure that improvements required to accommodate proposed future land use map (FLUM) changes are identified in the local government transportation or traffic circulation element and the capital improvement element. These elements should also accurately reflect any improvements found in the MPOs long range transportation plan (LRTP) transportation improvement program (TIP), and Transit Development Plan (TDP)

## Standardized Comprehensive Plan Review Process and Schedule

*Palm Beach County holds a comprehensive plan pre-application meeting for applicants. Review agencies such as FDOT are invited to attend.*

Local governments, DCA, and FDOT would benefit from establishing a standard comprehensive plan amendment (CPA) review process and schedule to ensure impacts to SIS, FIHS, and TRIP-funded facilities are adequately addressed through planning efforts. Notably this process encourages involving FDOT at an earlier stage to allow transportation concerns to be addressed prior to CPA transmittal. Below is a step-by-step process to achieve these goals:

### *Step 1. Identify CPA cycle dates*

Local governments, FDOT, and DCA should mutually obtain and maintain a schedule of key dates for the two annual CPA cycles for each local government.

### *Step 2. CPA pre-application*

Local governments may consider hosting a pre-application meeting for CPAs that may impact SIS, FIHS, or TRIP-funded facilities. In particular, such meetings will be useful in addressing complex issues regarding large-scale future land use map (FLUM) amendments, transportation concurrency exception areas (TCEAs), transportation concurrency management areas (TCMAs), and multimodal transportation districts (MMTDs). Invitees should include representatives from the local government initiating the plan amendment, metropolitan planning organization (MPO), FDOT, and the regional planning council (RPC).

*Transportation Concurrency: Best Practices Guide* (Resource 1), includes a methodology for analyzing the traffic impact of comprehensive plan amendments. A recommended approach for addressing the cumulative impacts of CPAs is also included. Local governments may allow applicants to conduct a transportation impact analysis by subarea and/or corridor to identify cumulative impacts to SIS, FIHS, and TRIP-funded facilities. A cumulative analysis is best accomplished by aggregating or grouping proposed comprehensive plan amendments into specific geographic areas. These

geographic areas may be sub-area, neighborhood, sector, or other planning areas, impact fee districts, transportation corridors, or specific traffic analysis zones.

*Step 3. Initial CPA Review (optional)*

Local governments may offer FDOT early review of the plan amendment agenda documentation package prepared by local staff for presentation before the designated local planning agency. This effort affords the local government an opportunity to address transportation system concerns early in the comprehensive plan amendment process. FDOT District staff will assess proposed CPAs for impacts to SIS, FIHS, and TRIP-funded facilities. Plan amendments of concern may include those located in close proximity to designated SIS facilities or other strategic transportation corridors and those in areas where transportation infrastructure is operating near or below adopted LOS with no supporting transportation facilities improvements programmed in the capital improvements element (CIE). FDOT will notify the local government of any concerns prior to the public hearing for transmittal of the plan amendments. This will give local government staff the opportunity to re-evaluate the transportation impact of proposed CPAs. In addition, District staff may appear at the public hearing (at the District Secretary's discretion) to place on record concerns the Department may have relating to a pending plan amendment.

*Step 4. Final CPA Review*

A copy of CPAs approved by the local government along with supporting documentation transmitted to DCA for review should also be sent directly by the local government to the FDOT District representative responsible for amendment reviews. DCA will determine the completeness of the plan amendment within 5 working days of receipt and notify the District if the package is complete. It is the responsibility of the local government to certify to DCA that copies of additional submissions have been sent to the FDOT District.

Within 10 days after receipt of amendment package, District staff will notify DCA which amendments they intend to submit review comments on and a list of preliminary concerns relating to the amendments. Plan amendments noted in the Initial Review should be included at a minimum unless changes were made to the proposed CPA that eliminate the concerns. DCA may request that the District perform a review on any amendment not included on the District's list. DCA will notify local government of its intention to conduct a review of the amendments listed by the District per §163.3184 (6) (b) F.S.

Within 30 days after receipt of an amendment package District staff will

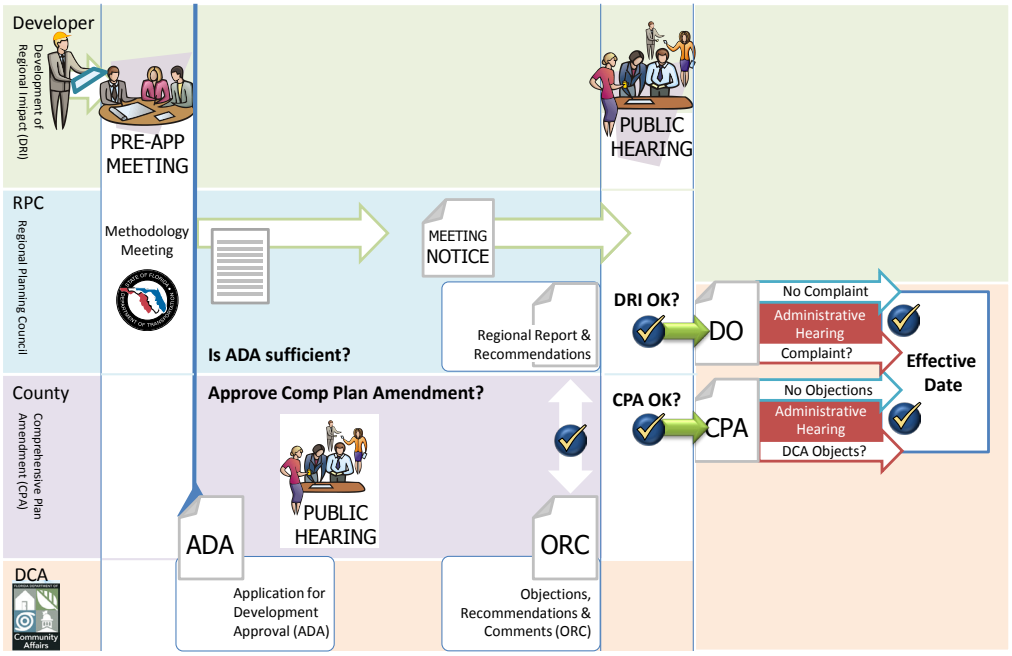
forward written comments to DCA regarding the respective plan amendment for potential inclusion into the subsequent Objections, Recommendations, and Comments ORC Report issued by DCA to the local government. Office of Policy Planning staff within FDOT Central Office as well as the applicable DCA reviewer should be contacted for any review containing a recommendation for "Objection" to facilitate communication and coordination.

FDOT staff review and comments should address the following:

1) Identify whether there is sufficient information to evaluate the impact of the proposed land use change on SIS, FIHS, and TRIP-funded facilities such as a transportation impact analysis. If not, request that an appropriate transportation impact analysis to be submitted for review
2) Identify flaws in the transportation impact analysis and recommend corrective action;
3) Identify the location of the proposed future land use amendment in proximity to the nearest SIS, FIHS, or TRIP-funded facility;
4) Verify the trip generation estimate of both the existing and future land use as well as the difference which is used for analysis;
5) Verify the adopted LOS standard (per Rule 19-94, F.A.C.) and the current level of service. Note where local government is using an incorrect LOS standard for SIS, FIHS, and TRIP-funded facilities;
6) If new trips will impact a deficient or near-capacity facility, ensure corresponding transportation system capacity improvement is in transportation and capital improvement elements (financially feasible);
7) If development (such as transit oriented development (TOD) or traditional neighborhood development (TND)) intends to rely on transit or other multimodal strategies, verify that adequate plans and programs are in place to support transit, transportation demand management, etc;
8) Include positive comments regarding the use of multimodal strategies, including,
   - Recognize the transportation system benefits of TOD or TND; or
   - Note the importance of access management.


*Mobility Techniques*

From: Documenting Improved Mobility Techniques on SIS and TRIP Facilities




# 4 Developments of Regional Impact

## 4.1 Introduction to Development of Regional Impact Review

This section will help the FDOT reviewer understand the Development of Regional Impact (DRI) review process. In addition to providing a general understanding of the process, the section will discuss the milestones at which the FDOT reviewer should become involved, when the reviews should be conducted, the timeframe allowed for review and with whom coordination is required.

*A DRI is . . . any development which would . . . effect citizens in more than one county.*

A DRI is defined by Section 380.06(1), FS, as any development which, because of its character, magnitude or location, would have a substantial effect on the health, safety or welfare of citizens in more than one county. The state has established thresholds to determine when a development should undergo the DRI review process. The Department of Community Affairs determined the need for review using Chapter 28-24, FAC. The process used to determine if a project is a DRI is presented in CH 4.2.1.

SB 360 broadens the DRI exemption for developments within a qualifying DULA area. These qualifying areas include a DULA municipality, the Urban Service Area of a DULA County and within a DULA County that has no Urban Service Area. With the exception of developments within an Area of Critical State Concern, within the Wekiva Study Area or within 2 miles of the Everglades Protection Area, developments that would otherwise meet thresholds for DRI review in

qualifying DULAs are now exempt from DRI review. Unlike under the TCEA provisions, Broward and Miami-Dade Counties are included under the DRI exemption. In addition, certain areas of non-DULA cities and counties may also qualify for exemption from the DRI review process.

DRI exemptions for non-DULA cities/counties:

In non-DULA municipalities, areas designated for:

- Urban infill
- Community redevelopment
- Downtown revitalization
- Urban infill & redevelopment
- Urban service area/boundary

In non-DULA counties, areas designated for:

- Urban infill
- Urban infill & redevelopment
- Urban service area

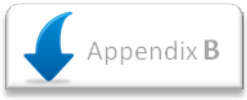

In addition to the DULA Map Atlas FDOT has published a map of the special environmentally sensitive areas where the DRI exemption does not apply.

***Resources in this document***

*FDOT Reviewers should be familiar with*

A summary table is provided in Appendix A which lists the different DRI-stages which the FDOT reviewer has an opportunity to participate in. The requirements listed in Question 21 (Transportation) and Question 22 (Air Quality) for a proposed DRI Application for Development Approval (ADA) are included in Appendix B.


*DRI-stages*




*Question 21 – Transportation*
*Question 22 – Air Quality*

FDOT reviews have historically focused on question 21 dealing with the transportation impacts of DRIs. However the FDOT reviewer will also need to be familiar with question 22 dealing with Air Quality and any related requirements. For Example the EPA has proposed to strengthen the National Ambient Air Quality Standards (NAAQS) for ozone. The EPA is scheduled to issue a final ozone standard by August 31, 2010. Whenever EPA updates a NAAQS, it designates areas in which violations of the new or revised NAAQS are occurring as "nonattainment" areas. EPA's final determination of which areas are to be designated as nonattainment would occur within one year or by August 31, 2011. It is anticipated that significant areas within Florida will be affected by the designation.

Following the designation of nonattainment areas, Florida must submit its revised State Implementation Plan (SIP) to EPA by December 2013. The SIP revision will address all sources of volatile organic compounds (VOC) and nitrogen oxides (NOx), the precursors to ozone formation. MPO Long Range

Transportation Plans (LRTP) developed within nonattainment areas must show conformity to the SIP. This requires transportation plans to meet VOC and NOx emission budgets contained in the SIP. A conformity determination will be required for all transportation plans within nonattainment areas beginning one year after final nonattainment designations are made. Additions, deletions or modifications to regionally significant projects negotiated within the DRI process may trigger a determination of conformity for the applicable MPO LRTP. Failure to maintain a conforming plan may result in the ultimate suspension of Federal transportation funds.

New DRIs should immediately determine whether the project falls within a nonattainment area. Projects within a nonattainment area should consult with DEP Division of Air Resource Management and FDOT District officials for initial guidance regarding air quality impacts and requirements.

*FDOT Reviewers should be familiar with*

*Question 9 – General Location Map*

*Question 10 – General Project Description*

It is noted that at a minimum the FDOT reviewer should also be familiar with the following information:

**Question 9 Maps:** A General Location Map (Map A), an Aerial Photo of the site (Map B), Existing Land Use and Significant Resources (Map D), and the Master Plan (Map H) all provide valuable visual information that assists in orienting the reviewer with the site.

**Question 10 General Project Description:** This section provides a general overview of the site and includes information about the size of the site, the proposed development plan, the general market for the site, consistency with the Comprehensive Plan, and demographic and employment information. The demographic and employment information is of particular interest as it can be used as a reasonableness check for proposed internal capture rates (i.e. a comparison can be made between the anticipated price of homes and the expected on-site employment income).

## *Incorporating Transit and Other Multimodal Considerations*

The National Center for Transit Research (NCTR) has developed specific guidance for the FDOT reviewer to incorporate multimodal and transit performance measures into the DRI review process. The guidance includes specific multimodal information to be included in the ADA, multimodal information to be submitted for the transportation methodology meeting, mode split analysis, sufficiency checklist, evaluation criteria, mitigation strategies, local government development order, and monitoring. Regardless of the stage of the DRI review, the FDOT reviewer should work with local government, other reviewing agency staff and applicants to identify opportunities to integrate transit and multimodal services and create strategies for making communities ready for transit in the future. The *Guidelines and Performance Measures to Incorporate Transit and Other Multimodal Considerations into the FDOT DRI Review Process* also provides sample FDOT review comments and discusses methods for quantifying multimodal transportation impacts. Key sections of the NCTR document have been incorporated into this handbook, resources and appendices.


*Transit Guidelines*

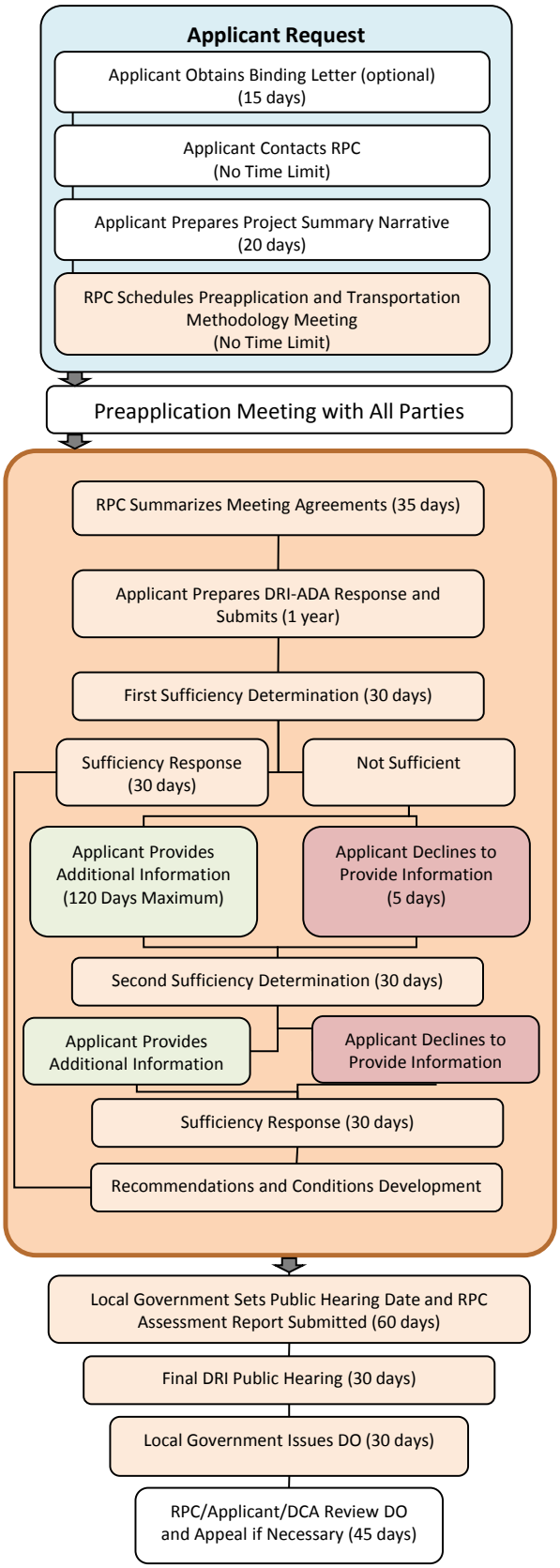
## Regional Planning Council and Local Government Participation in the DRI Review Process

The Regional Planning Council (RPC) plays a key role in the DRI process, coordinating application and review activities at the regional level (Section 360.06(7)(a)F.S.). Local government participation is also important since the local planning agency plays a lead role in the identification of local issues or concerns relative to the project. The local government is also responsible for conducting a public hearing on the project and serves as the primary agency in the execution and approval of binding development orders (DO).

## DRI Process

Exhibit 24
**DRI Process**

*Know the review times for each step of the DRI process*




The procedural requirements for applying for approval of a DRI are found in Rule 9J-2-045, FAC, of the DCA. The FDOT reviewer should know the review times appropriate for each step of the DRI process. It is noted that the actual review times for the FDOT reviewer will likely be even shorter than the statutory limits since the times reflect those for the lead coordinating agencies. These review times, along with lead agency identification and statutory and code reference guidelines, are depicted in Exhibit 24.

*Note: typical processing time thru DCA and local jurisdiction(s) takes no less than 270 days from initial submittal to formal adoption*

## Modifications of Approved DRIs

For modifications of approved DRIs, the review of annual/biennial reports, or the review of traffic monitoring reports, the FDOT reviewer should clarify the review time and comment process with the lead agency (often the local government). While such reviews are often not as lengthy or complicated as the review of a newly proposed DRI, FDOT participation is critical in assuring that impacts to the Strategic Intermodal System (SIS) and State Highway System are identified and properly mitigated.

The instructions and review requirements outlined in this Chapter are applicable to all types of Developments of Regional Impact (DRIs). Additional considerations unique to a particular step in the DRI process or to a unique type of DRI are addressed in the review checklists referenced in this Chapter. This Chapter primarily focuses on ADA reviews which normally represent the most common and complex FDOT reviews associated with DRI applications.

The following list highlights the activities in which the FDOT reviewer has opportunities to respond with comments, through the coordinating RPC or other agency, to the applicant for various types of DRI reviews.

*DRI Activities Which the FDOT Reviewer May Respond To*

**ADA Reviews**

- DRI Determination (Binding Letter of Determination)
- Methodology Development
    - Pre-application Conference Format Meeting
    - Pre-application Conference Project Summary Narrative Review
    - Transportation Methodology Meeting Information Submittal Review
    - Review of RPC Regional Issues List and Agency Comments (which may include Transportation Methodology Letter of Understanding)
- ADA Review
- Applicant Response Review (also called Sufficiency Reviews)
- RPC Assessment Report
- Local Government Development Order Review

**Approved DRIs**

- Proposed Changes to Approved DRIs
- Annual/Biennial Report Review
- Traffic Monitoring Study

## Other review types

The following types of other reviews associated with DRIs are also addressed in this section:

- **Notifications of Proposed Change (NOPCs):** A report that is required to be submitted by the applicant to the local government, the RPC and DCA when a change is proposed to a previously approved DRI.
- **Annual/biennial reports:** A required report that summarizes information describing any changes that have been made to the development plan during the reporting period, information about the master plan, lands purchased, permitting, and local government, and a summary of each development order condition and when each commitment has been complied with.
- **Transportation or Traffic monitoring studies:** These studies are usually required by a condition in the development order and are described in greater detail below.


See Appendix A which details the DRI stages, review timeframes and responsible agencies for the FDOT reviewer to provide input to.

*Transportation or Traffic monitoring studies are frequently included in Development Order conditions*

As DRI analysis is a complex process, the requirement for transportation or traffic monitoring studies is being included more frequently in Development Order agreements. These studies, which differ from the statutory requirement of annual/biennial reports, usually require the collection and analysis of transportation data to verify assumptions associated with internal capture (or community capture if applicable), background growth rates, and other assumptions made during the ADA. Monitoring studies also serve to show how close a development's traffic is getting to the improvement thresholds. A similar process to that of an ADA (i.e. methodology development, study review, and sufficiency determinations) is often used in the review of monitoring studies. FDOT participation throughout the process is essential. FDOT staff should recommend appropriate monitoring for single occupancy vehicle use such as applicable multimodal criteria from DRI Checklist 5. Additional information about this step is presented in 4.4.2 Traffic Monitoring Studies.

*The DRI process often requires the review of large amounts of information*

The DRI process requires reviewing large amounts of information over a period of time determined by statute. The following are general recommendations that may be helpful for the FDOT reviewer throughout the DRI process.

- **Resolve minor problems by phone.** If there is an apparently minor question and assuming this is accepted protocol among parties involved (if in doubt, ask at Methodology Meeting), call the consultant directly in an attempt to resolve the question.

*Solving problems on a local system can reduce problems on the state system*

- **Support local agencies in their attempts to achieve/maintain local and collector road continuity.** When the FDOT helps solve the problems on a local system it often reduces problems on the state system. Local rights-of-way systems frequently have discontinuous patterns. Consequently, the state system is used for many local trips. Many reasons have caused discontinuity in local street rights-of-way. These factors range from lack of planning to intentionally planned enclaves. Developers continue to pressure for very large enclaves without through streets. The FDOT needs to work with and stand behind local planners' attempts to create continuous local street systems. These systems double as an attractive alternative for pedestrians and bicyclist. Their trips can reduce motor vehicle trips on state system.
- **Work with other reviewing agencies to introduce the concept of multimodal considerations early in the process and provide available resources.** The discussion of multimodal measures should occur as early as possible so that site designs and concepts can incorporate multimodal features and continue all the way through the discussion of mitigation alternatives.

## 4.2 Review Requirements for proposed DRIs/Substantial Deviations

### Binding Letter of Determination/DRI Determination

Prior to initiating any DRI application, the applicant or one of the lead DRI agencies (usually the local government) may request a determination from DCA as to whether the project meets the definition of a DRI. A Binding Letter of Determination summarizes the determination by DCA as to whether a proposed development must undergo a DRI review. Many DRIs choose to forgo this step if it is clear the development will cross the thresholds and they already intend to go through the DRI process.


*DCA Procedures*

Chapter 28-24, FAC, and Section 380.065 FS spell out the criteria used by DCA to make this determination. These thresholds are provided in Exhibit 25 and serve as the primary basis for DRI determination. The following website contains additional information www.dca.state.fl.us/fdcp/DCP/Procedures/index.cfm. DCA must make a finding of sufficiency, or request additional information within 15 days of receipt of a request for a binding letter of interpretation or a supplement. This leaves the FDOT reviewer with even less time to provide assistance if requested.

### FDOT Reviewer Role

While DCA may request that the FDOT reviewer participate in the determination of possible transportation impacts, this step in the DRI-ADA process does not mandate review by the FDOT.

Exhibit 25

## DRI Thresholds

| TYPE/MEASURE | | | DRI THRESHOLD 100% |
|---|---|---|---|
| **ATTRACTION/REC. FACS.** | SINGLE PERFORMANCE | SEATS | 10,000 |
| | | PARKING | 2,500 |
| | SERIAL PERFORMANCE | SEATS | 4,000 |
| | | PARKING | 1,000 |
| | MULTI-SCREEN THEATRE (Min. of 8 Screens & 2,500 Seats) | SEATS | 6,000 |
| | | PARKING | 1,500 |
| **HOSPITAL** | BEDS | | 600 |
| **HOTEL/MOTEL** | ROOMS | | 350[2] |
| **INDUSTRIAL** | ACRES | | 320 |
| | PARKING SPACES | | 2.500 |
| **MINING OPERATIONS** | ACREAGE (Disturbance/Removal | | 100 |
| | WATER WITHDRAWAL (GPD) | | 3,000,000 |
| **MULTIPLE LAND USES** | TWO OR MORE USES (%) | | 145 |
| | THREE OR MORE USES[3] | | 160 |
| **OFFICE** | GROSS SQUARE FEET | | 300,000[4] |
| **PETROLEUM STORAGE** | BARRELS[5] | | 200,000 |
| | BARRELS[5] | | 50,000 |
| **RECREATIONAL VEHICLE** | SPACES | | 500 |
| **RESIDENTIAL** | *SEE: DCA Residential Thresholds by Population Listing* | | |
| **RETAIL/COMMERCIAL** | GROSS SQUARE FEET | | 400,000 |
| | PARKING SPACES | | 2,500 |
| **SCHOOLS** | **NEW**/NUMBER OF STUDENTS | | 5000[8] |
| | **EXISTING/**EXPANSION OF POPULATION (%) | | 20[8] |

Chart adapted from Tampa Bay Regional Planning Council

See exclusions, exceptions, and other information from Statute 380.0651

**ATTRACTION/REC. FACS.** *[SOURCE: Sections 380.0651(3)(b), F.S. & 28-24.016, F.A.C]*

**HOSPITAL** *[SOURCE: Sections 380.0651(3)(g) & 28-24.017, F.A.C.]*

**HOTEL/MOTEL** *[SOURCE: Sections 380.0651(3)(f), F.S. & 28-24.026, F.A.C.]*

**INDUSTRIAL** *[SOURCE: Sections 380.0651(3)(c), F.S. & 28-24.029, F.A.C.]*

**MINING OPERATIONS** *[SOURCE: Section 28-24.019, F.A.C.]*

**MULTIPLE LAND USES** *[SOURCE: Section 380.0651(3)(i), F.S. & 28-14.032, F.A.C.]*

**OFFICE** *[SOURCE: Sections 380.0651(3)(d), F.S. & 28-24.020, F.A.C.]*

**PETROLEUM STORAGE** *[SOURCE: Section 28-24.021, F.A.C.]*

**RECREATIONAL VEHICLE** *[SOURCE: Sections 380.0651(3)(h), F.S. & 28-24.027 F.A.C.]*

**RESIDENTIAL** *[SOURCE Sections 380.0651(3)(j), F.S. & 28-24.023 F.A.C.] See: DCA Thresholds ,*

**RETAIL/COMMERCIAL** *[SOURCE: Sections 380.0651(3)(f), F.S. & 28-24.031, F.A.C.]*

**SCHOOLS** *[SOURCE: Sections 380.0651(3)(k), F.S. & 28-24.024, F.A.C.]*

### 4.2.1 Transportation Methodology Development

**Pre-application Conference**

Before filing an Application for Development Approval, the applicant should contact the RPC to arrange a Pre-application Conference to discuss all issues associated with the project (Rule 9J-2.021(1)(a)FAC). This conference is typically organized by the RPC in cooperation with the applicant. All appropriate review agencies, including the FDOT, are also invited.

**Pre-application Conference:**

*Serves as a general discussion of all issues associated with the proposed DRI*

This conference is conducted to identify issues, coordinate appropriate State and local agency requirements, promote a proper and efficient review of the proposed development, and ensure that RPC staff are aware of all the issues to which reviewing agencies will require the applicant to respond (such as wildlife impacts, economic considerations, and environmental challenges). The applicant should prepare a Project Summary Narrative that summarizes the overall project and the key assumptions to be used in preparing the ADA.

**Transportation Methodology Meeting:**

*Held as part of the Pre-application conference to discuss applicant's response to Question 21*

Additionally, the Pre-application Conference will serve to specify information requirements, including the required number of copies of the ADA, the method of their distribution to reviewing agencies, the deletion of questions from the ADA, and to clarify concerns of the reviewing agencies. A Transportation Methodology Meeting typically occurs during the Pre-application Conference.

**FDOT Reviewer Role**

While desirable, FDOT attendance at the entire Pre-application Conference (i.e. field visit, environmental discussion, etc) should be decided on a case by case basis. During the portion of the Pre-application Conference where all disciplines and agencies are present, FDOT comments should be general and focus more on big picture issues and process such as stating whether the FDOT has any committed projects in the area and confirming that the FDOT will be a reviewer on all future biennial report and monitoring studies. Specific technical details are usually better discussed during the Transportation Methodology meeting. If a specific Transportation Methodology meeting is not held, all the issues listed below under the Transportation Methodology should be discussed during the Pre-application Conference.

**Transportation Methodology Meeting**

Usually a specific Transportation Methodology meeting is held as part of the Pre-application Conference. This should be confirmed by the FDOT reviewer upon being notified of the Pre-application Conference (Section 380.06(7) (a), Rule 9J-2.021 FAC). In cases where local government comprehensive plans and land development regulations include policies to support a multimodal transportation system, appropriate stakeholders representing these modes should also be

present. This could include staff from: the District Public Transportation Office, regional transit authority, local transit agency, regional ridesharing agency as well as TDM professionals and MPO and local bicycle/pedestrian coordinators. These stakeholders would augment the staff representing the FDOT, DCA, DEP, MPO, RPC, affected local governments, the applicant and their consultants.

*See multimodal features in DRI Checklist 2*

To make each applicant fully aware of the type of multimodal features that reviewers will be seeking in the application, it is recommended that the reviewer to make potential applicants aware of DRI Checklist 2. This exhibit specifies information to be provided by the applicant to address modes in addition to single-occupant vehicles.

Detailed parameters may be found within the materials listed in DRI Checklist 2. Much of this information is subject to local conditions and not conducive to statewide parameters.

During the Transportation Methodology meeting, technical discussions take place regarding the details of the applicant's methodology to answer Question 21 of the ADA. Before the Transportation Methodology meeting, the applicant prepares a detailed transportation methodology to be submitted to the reviewing agencies (this may be part of the overall Project Summary Narrative, but often it is a stand-alone document).


Some Districts provide the applicant with a format for the transportation methodology to adhere to. A sample used by District Two is listed in Appendix C. The methodology document should be received by the reviewer 10 working days prior to the transportation methodology meeting; if for some reason this does not occur, the FDOT should request it from the RPC and applicant.

The reviewing agencies should come to the meeting having already reviewed the methodology and prepared to discuss key issues. The methodology meeting should focus on discussing key issues associated with the study such as phase dates, roadway service volumes and LOS designations, network assumptions, trip generation (internal capture, pass-by, mode reductions), and background growth assumptions. In many cases, key issues will include multimodal and land use considerations. These considerations must be addressed in any transportation concurrency exceptions. These would include exceptions relating to Dense Urban Land Areas.


*DULA*

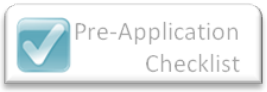
The preliminary response by the applicant to the criteria in DRI Checklist 1 should be contained in the applicant's transportation methodology submittal. The applicant should be made aware that the transportation methodology should be

received by the RPC 20 days prior to the transportation methodology meeting for distribution to reviewing agencies.

## FDOT Reviewer Role

The Transportation Methodology Meeting is critical in the DRI process. It is the first opportunity for the FDOT to express its concerns about the project's potential impact on the SIS/SHS and to provide significant input in the questions needing answers. The Transportation Methodology Meeting also provides an opportunity to collaborate with other reviewing agencies and identify information which may be useful in performing a thorough and accurate assessment of project impacts. Checklists have been provided for each of these purposes. The checklists cover issues raised in a typical DRI review. The lists should be modified, as appropriate, to address specific project characteristics. DRI Checklist 1, should be used by the FDOT reviewer during this stage of the DRI review process. As previously noted, the information provided in DRI Pre-Application Checklist should be brought to the attention of the applicant.

*Clearly document and present the issues to the applicant and to the RPC*




It is important for the FDOT reviewer to clearly articulate ***all*** major issues and concerns at this meeting to minimize possible discrepancies or omissions during the review of the ADA. The FDOT reviewer needs to provide comments not only on the information that is submitted and discussed, but also request any information that has not been discussed or included that is necessary for the completion of the study. Potential topics of discussion include:

**Internal Capture/Community Capture:** The methodology for determining internal capture should be clearly documented and supported with sample calculations. If the DRI is eligible to use Community Capture, the applicant should state their intent to use the methodology to determine Community Capture and provide the supporting documentation needed. It is noted that the proposal of high capture percentages will need to include detailed documentation and discussion for support.

**Interchange Impacts:** Whenever traffic from a DRI impacts a freeway or interchange, the applicant should be made aware of the potential need to coordinate with the District Interchange Review Committee. The applicant will need to be provided and consider information from any ongoing interchange modification study efforts (IMR, IJR, IOAR, or SIMR). It is also noted that if a new interchange is being sought, the applicant should coordinate with the District Interchange Review Committee and that specific analysis procedures will be necessary. It is noted that this will be in addition to the standard requirements of the ADA. Additional information regarding interchange justification can be found at the Department's Interchange Justification webpage.

**Multimodal Considerations:** The FDOT reviewer should make certain that existing multimodal guidance is made available to the applicant. The discussion of multimodal measures should occur as early as possible so that site designs and concepts can incorporate multimodal features and services. Mitigation measures should also consider multimodal alternatives in addition to traditional roadway capacity projects. In many cases, the applicant is required to submit the proposed transportation methodology in advance. This gives the reviewers the opportunity to provide early comment on the details of the proposed methodology. One example of such comments is provided in Appendix E. The example is from District 4 in which the applicant requests trip reductions based on multimodal use. The comments offer a conditional acceptance of the reductions based on additional information to be provided by the applicant.

**Land use conversion table (Trip equivalency matrix):** An applicant may propose a "land use conversion table" or "trip equivalency matrix" as part of a DRI traffic analysis. While the use of land use conversion tables and their application varies around the state there are some basic considerations that a reviewer should be aware of. The base development program of a DRI provides for critical assumptions on mix of uses, internal capture, and trip distribution. Each of these factors also impact the transportation assessment and proportionate share obligations. The purpose of these land use conversion tables is to allow for flexibility in the development plan. The idea being that the land use conversion tables determine the amounts of specified land uses that may be exchanged with others in the development plan without changing the overall transportation impacts of the DRI. Thus, the equivalency matrix intends to be "impact neutral" but in reality there is probably only a very narrow window in which this holds to be true. The implementation of conversion tables must be evaluated cautiously. Specified conversions are often accepted in terms of one identified land use at a specific development intensity being converted to another clearly identified land use at specific development intensity. However, it is very difficult for a land use conversion chart to show adequately the wide range of possible conversions.

*There is probably only a very narrow window in which this holds to be true.*

When the use of a matrix is proposed the reviewer should ensure that:

1. The basic character of the project is not altered.
2. The proposed development intensity fluctuation does not contradict the threshold set by F.S. 380.06(19) for Substantial Deviation.
3. The proposed matrix is based on Peak Hour directional trips as the peak hour directional rate is used as the basis for DRI analysis.
4. Land uses are not exchanged across phases of a multi phase DRI. For example, in a mixed use program if phase 2 had residential and employment and the developer built the residential but not the

employment, they shouldn't use the matrix to pull residential forward from Phase 3 unless there is a clear understanding of the impacts to transportation.

In addition, some reviewing agencies have established guidelines when reviewing equivalency matrices. These are included as examples and your study conditions could lead to different limits.

5. Limiting the minimum/maximum development intensity threshold by a maximum of 10% change in project trip directionality. Anything more than that will be deemed significant as changes in such magnitude will impact the directionality of the assigned project trips, thus creating unreviewed traffic impact on the roadway network.
6. Limiting the use of the matrix by +/- 15% based on the substantial deviation thresholds.
7. Limiting the minimum/maximum exchanges to 25 -30% from the requested land uses stated in the DRI

In summary, the key for the reviewer is to ensure that the resulting impacts of the exchange are as close to the original approved study impacts and mitigation as possible.

*Review submittals prepared by the RPC*

The FDOT reviewer should request opportunities for review of submittals prepared by the RPC prior to their transmittal to the applicant and should also state its desire to be a reviewing agency for the biennial monitoring report, should the DRI achieve approval. As transportation or traffic monitoring studies become more utilized over the life of a DRI, the FDOT reviewer should introduce the concept of monitoring and initiate the discussions about the potential need for future monitoring studies.

*Provide the applicant with a written summary*

The FDOT reviewer should provide the applicant with a written summary of the FDOT comments shortly after the methodology meeting has been completed. The FDOT reviewer should clearly explain to the applicant that interchange approvals and permits for driveways, median openings, and traffic signals require separate approvals outside of the DRI process. The FDOT reviewer should document cases where assumptions clearly do not meet FDOT standards (such as closely spaced signals and median openings).

Formal DRI-ADA requirements for review by the FDOT will include, at a minimum, Questions 21 and 22 (found within Chapter 9J-2.045 FAC, Chapter 9J-2.046 FAC and DCA Form RPM-BSP-ADA-1 and Appendix A) dealing with transportation and air quality impacts of the proposed development.

The FDOT reviewer can take two actions to increase the likelihood of receiving complete and adequate information in all submittals. The first is to assure that the


applicant is aware of resources available through the FDOT which will assist the preparation of plans and documentation which meet FDOT criteria. A list of these materials is provided in **DRI Pre-Application Checklist.** The second action is to make copies of the FDOT's review checklists (1-7) available to potential applicants and other reviewing agencies. This will clarify for all parties involved the general issues which the FDOT will bring to the table when performing a review.

The applicant is required to revise the transportation methodology per discussions during the Transportation Methodology Meeting and comments received shortly after the meeting. The FDOT reviewer should clearly document any issues that have not been resolved during the methodology development process and present the issues to the applicant and to the RPC. The FDOT reviewer should also contact the RPC to understand the process used by the RPC to officially close the methodology period. The RPC, DCA or Applicant may request that another Pre-application Meeting be conducted if the DRI-ADA is not submitted within one year of the initial Pre-application Meeting.

### 4.2.2 Pre-application Conference/Transportation Methodology

**Meeting Documentation**

The RPC will document the findings and agreements from the Pre-application Conference and Transportation Methodology Meeting within 35 days following the Pre-application Conference. The RPC Regional Issues List and Agency Comments may include the Transportation Methodology Meeting Letter of Understanding (MLOU). The MLOU summarizes the study area and data, data collection, analysis approaches and mechanisms, data presentation and mappings, and documentation requirements agreed to by the applicant and all agencies reviewing the transportation question. This documented understanding helps ensure that the review occurs in a timely fashion. The basis for the review of the MLOU should be a combination of two sets of documentation: the FDOT reviewer's review of the Transportation Methodology Meeting Information Submittal and the FDOT reviewer's notes from the meeting itself. DRI Checklist 1 (Resource 4.5.5), should be used again by the FDOT reviewer during this stage of the DRI review process.


**FDOT Reviewer Role**

The FDOT reviewer should recognize that the analysis conditions, restrictions and special conditions identified in these transmittals are binding. If FDOT has comments that state that it does not agree with or has concerns with the MLOU, these must be submitted in writing to the RPC. This puts them on record. If these comments are not agreed to by all parties, and FDOT objects later in the process, this can give standing later with DCA. For this reason, FDOT should carefully review the documents.

The Pre-application Conference attendees and state and regional agencies involved in the DRI review process have a review time period specified by the RPC (at least 14 days) to comment, agree or disagree in writing with the summary of the methodology 9J-2.021(f).

*Reviewing agencies may **NOT** object after agreement has been reached*

After and if agreement has been reached regarding assumptions and methodologies, the reviewing agencies, including the FDOT, may **NOT** subsequently object, unless changes to the project or information occur which make said assumptions and methodologies inappropriate (9J-2.021(f), FAC and 9J-2.045(3)(e), FAC).

### 4.2.3 Application for Development Approval (ADA) Process

The Application for Development Approval (ADA) process is where the applicant provides review agencies with the information needed to make a sufficiency determination. After reviewing the submittal, the agency can either determine that the submittal is sufficient (no additional information is needed) or request additional information Rule 9J-2.022.

*The RPC may request additional information no more than twice*

The RPC may request additional information on behalf of reviewing agencies no more than twice, unless an applicant waives this limitation (380.06(10), FS). Agency requests are in the form of comments on the ADA submittal (1st Request for Additional Information) and comments on the applicant's first response to agency comments (2nd Request for Additional Information). While later coordination between the applicant and agencies is often needed and often occurs, every effort should be made to resolve issues during the required review process.

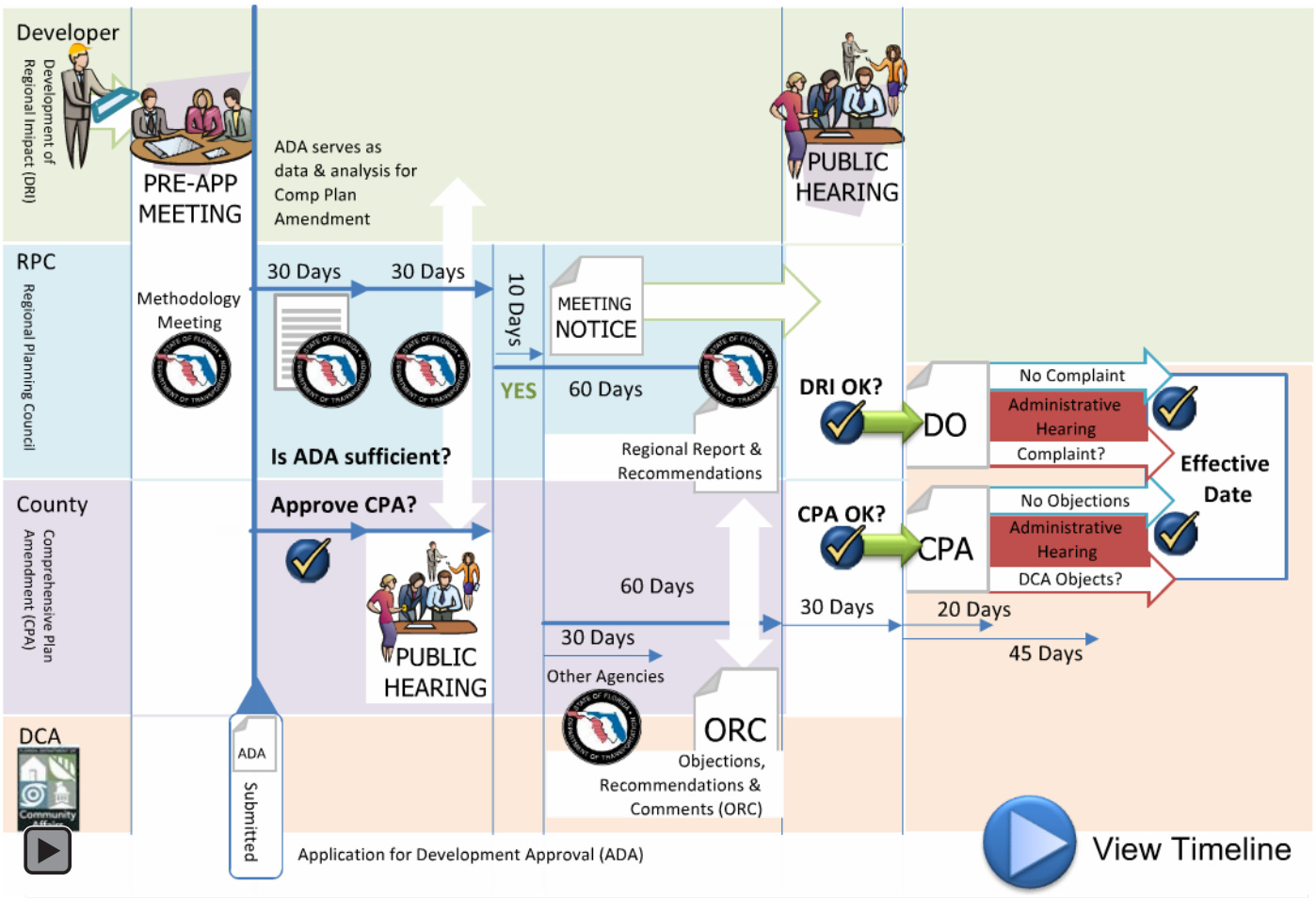
*County must receive LGCP Amendment prior to or concurrent with developer filing ADA*

However, new information submitted by the applicant in the form of an amended or revised ADA is normally reviewed and commented upon by the reviewing agencies after the first DRI-ADA submittal.

In addition, DRI-LGCP amendments are normally initiated at this point to ensure consistency with the proposed DRI (380.06(6), FS). Detailed information about the review requirements for LGCP amendments is found in Chapter 2. Exhibit 26 displays a chart showing the concurrent review and processing of the DRI and LGCP. Note that 380.06(6)(b)6, FS requires the county to conduct a public hearing for both processes at the same time.

Exhibit 26

Concurrent Process for DRI & Comp Plan Amendment Transportation Review




The RPCs have the responsibility to coordinate with all affected agencies with regard to both the notification and coordination of review. This coordination requires FDOT comments/interests to be weighed against concerns of other agencies that may conflict with the interests of the FDOT. If this occurs the FDOT reviewer should work with the staff of partner agencies to reach a decision that is best for all parties involved. Even still, in such instances the RPC may carry forward a position which does not support the FDOT's conclusions.

### 4.2.4 ADA Review/ 1st Sufficiency Determination/1st Request for Additional Information

**Applicant Requirements**

The applicant completes the ADA in accordance with the requirements agreed to during the Pre-application Conference. The ADA is then submitted to the RPC for distribution and review by the reviewing agencies including the FDOT.

**Sufficiency Determination**

*Sufficiency can either be declared by an applicant or by the reviewing agencies*

Sufficiency is the determination that the applicant has supplied all of the necessary information in order to assess the development's regional impacts. Sufficiency can either be declared by an applicant (after responding to two requests for additional information by the RPC) or by the reviewing agencies. Local government staff members are notified by RPC to set a public hearing date once sufficiency has been declared.

When sufficiency is determined by the applicant, the FDOT reviewer needs to coordinate with other agencies to make sure that all transportation issues have been resolved. If outstanding issues still exist, the FDOT reviewer, often through the RPC, should contact the applicant about whether additional information will be provided by the applicant so that issues can be resolved prior to the RPC Hearing.

**FDOT Reviewer Role**

The FDOT reviewer ’s responsibility upon receipt of a ADA is to determine whether the applicant has:

1. Provided a complete submittal. Due to the time constraints associated with reviews, it is very important to check that the ADA submittal contains all pages (including technical appendices) and all requested supplemental information (such as analysis and model files) for a review to be completed.
2. Adhered to the conditions agreed upon during the methodology process and set forth in the MLOU.
3. Provided sufficient detail and support documentation to enable the FDOT reviewer to adequately assess project impacts on the SIS/SHS.
4. Proposed impact mitigation measures which adequately protect LOS on SIS/SHS/FIHS facilities

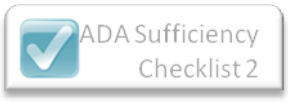
In addition, the FDOT reviewer should include specific recommendations to resolve any outstanding issues.

*The ADA review is the opportunity to communicate FDOT concerns regarding the transportation impacts caused by development*

The ADA review is the first opportunity for the FDOT reviewer to conduct a thorough review of the applicant's estimate of transportation impacts anticipated by the proposed DRI. It also constitutes the most comprehensive opportunity for the FDOT reviewer to let other review agencies know about transportation concerns. The product of the review will be a determination that the applicant is sufficient (i.e. no additional information is needed) or a written set of comments requesting the applicant to provide additional information. This is often referred to as either the *ADA Review* or *1st Sufficiency Determination* or *1st Request for Additional Information*. A determination of sufficiency based on the initial ADA submittal does not occur very often. Also, the FDOT reviewer should identify the need for traffic monitoring studies (if necessary) to the applicant if the issue has not been agreed upon during the methodology development process.

The FDOT reviewer should be familiar with the deadlines for review and comment of the RPC. Pursuant to Rule 9J-2.022(3)(c)FAC, the ADA review period is 30 calendar days. A comment by the FDOT after the legal deadline of 30 calendar days, which starts from the RPC's receipt of the ADA, can technically be ignored by the applicant. Although there is usually some flexibility in this area, it is limited and should not be assumed. The FDOT reviewer should not assume more than 30 days for review. Close coordination with the RPC is encouraged to ascertain whether or not flexibility in the schedule exists.

Different RPCs have different policies and procedures for summarizing and transmitting comments to the applicant. For that reason and to ensure comments are distributed to all parties, it is suggested that the reviewer find out and follow the procedure established by the RPC in charge of the review. DRI Checklist 2 prepared to correspond to the format of Question 21, summarizes both formal and informal areas of review for the ADA. The FDOT reviewer should use this list as a general guide in the DRI review process.




## Guidelines for FDOT Reviewers

The FDOT reviewer is encouraged to first browse the ADA document to gain an overall understanding of the project and how transportation relates to other proposed development considerations. In general, the FDOT reviewer should not try to review any area beyond his/her technical capability. Based on the initial reading, if additional expertise is needed to complete a thorough submittal review, it should be sought immediately. It is not unusual to request comments from FDOT staff in the areas of traffic operations, permitting, right-of-way, design, public transit, bicycle/pedestrian and estimating.

FDOT District staff should provide thorough comments regarding whether or not the information provided in the ADA is sufficient to analyze project impacts on the transportation system. This includes multimodal concerns such as existing



conditions, trip generation, land use and site design, and modal facilities among others. Sample comments taken verbatim from sufficiency review letters may serve as guidance for particularly for multimodal concerns. These comments are found in Appendix D. In addition, District 4 uses a compilation of ADA review comments taken from several DRI developments and grouped by category as guidance for developing comments (See Appendix F.)

In order to sustain a professional and constructive review process, FDOT reviewer comments should be professional and concise. The FDOT reviewer should also provide suggested action by the applicant to address specific comments, and reference FDOT procedures, manuals and handbooks in the methodology agreement, where applicable, including any District procedures, Florida Statutes and Administrative Rules.

### 4.2.5 2nd Sufficiency Determination/2nd Request for Additional Information

**Applicant Requirements**

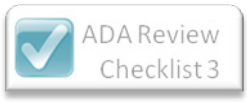
*Make sure the information needed to make decisions has been provided by the applicant*

The applicant will provide written responses to agency comments (the agency's 1st Request for Additional Information) and provide the responses for agency review. Agencies will then have no more than 30 days to provide comments on the responses (2nd Sufficiency Determination/2nd Request for Additional Information). Similar to the ADA Review/1st Request for Additional Information, the RPCs have the responsibility to coordinate with all affected agencies with regard to both the notification and coordination of the review.

**FDOT Reviewer Role**

The FDOT reviewer's responsibility upon receipt of the applicant's responses is to determine whether the applicant has:

1. Provided a complete submittal. Due to the time constraints associated with reviews, it is very important to check that the submittal contains all pages (including technical appendices) and all requested supplemental information (such as analysis and model files) for a review to be completed.
2. Addressed the comments made in the 1st Request for Additional Information.
3. Made any changes that were not requested as part of the agency comments. If changes were made, the FDOT reviewer needs to review the changes for accuracy and impacts the changes may have to conclusions.
4. Provided sufficient detail and support documentation to enable the FDOT reviewer to adequately assess project impacts on the SIS/SHS.
5. Proposed impact mitigation measures which adequately protect LOS on SIS/SHS/FIHS facilities.




DRI Checklist 3 provides guidance for the review. It is modeled on DRI Question 21 (F). The checklist questions assume the FDOT reviewer has performed thorough and timely reviews of all earlier submittals and therefore, focuses on the substance of the applicant's responses.

In DRI Question 21 (F), applicants are asked to identify improvements to the highway network needed to accommodate impacts of the proposed DRI that cause facility LOS to fall below adopted standards. As an alternative to only focusing on roadway capacity, the applicant may consider proposing multimodal solutions as mitigation for DRI impacts.

Elements of the checklist pertaining to sufficient densities and intensities to support transit refer the reviewer to applicable local or regional regulatory mechanisms for specific parameters; however, if these parameters are not available, the applicant should be asked to justify proposed densities and intensities if transit is a proposed mode of accommodating person trips generated by the DRI.

At this point in the review many of the technical issues should be resolved and focus should be on the critical issues that may affect project approval. The reviewer should make sure that the information needed to make decisions regarding the need and type of mitigation has been provided by the applicant. If the FDOT reviewer anticipates issues associated with making a sufficiency determination (i.e. methodology issues such as trip generation and background growth are still unresolved), they should contact the RPC and request a meeting with the applicant before submitting written comments. The product of the review will be a written set of comments requesting the applicant to provide additional information. This is often referred to as either the *2nd Sufficiency Determination* or *2nd Request for Additional Information.*

### 4.2.6 Review of Applicant Response to 2nd Request for Additional Information

**Applicant Requirements**

The applicant will provide written responses to agency comments (the agency's 2nd Request for Additional Information) and provide the responses for agency review. After responding to the second request for additional information from the RPC, the applicant has satisfied the statutory requirements for an ADA submittal (380.06(10)(b))FS and has the ability to declare themselves sufficient (most frequent occurrence). Other options for the applicant may include indicating that they will participate in an additional round of sufficiency review and seeking additional feedback from the review agencies outside of the formal sufficiency process.

## FDOT Reviewer Role

If the applicant has allowed an additional round of sufficiency review, the FDOT reviewer should follow the guidance in CH 4.2.5. Focus should remain on the critical issues that impact study conclusions and close coordination should be maintained with the applicant, the RPC, and the local government. The product of the review will be a written set of comments requesting the applicant to provide additional information.

*If applicant declares sufficiency but the FDOT disagrees, prepare written comments clearly outlining the unresolved issues*

In cases where the applicant declares sufficiency but the FDOT disagrees, it is recommended that the FDOT prepare written comments clearly outlining the unresolved issues. The FDOT should quickly notify the RPC and local government and communicate that the FDOT does not find the study sufficient and inform the agencies of the FDOT's planned next steps. Next steps should include:

- Coordinating with other reviewing agencies, particularly DCA and the RPC and continuing to keep them apprised of the situation.
- Contacting the applicant to see whether the applicant is willing to provide additional information to resolve the outstanding issues. If the applicant is willing to provide additional information, the FDOT reviewer should follow the guidance in Section 4.2.5.
- In instances where the applicant will not provide additional information, the FDOT reviewer may need to conduct specific analysis procedures to determine the impacts to the study conclusions if the requested changes were made.
    - It is recommended that the FDOT reviewer meet with FDOT management to clearly outline the issues and the anticipated effort needed in conducting the specific analysis before initiating the work.
    - If it is found that the study conclusions would change, the FDOT reviewer should summarize the results of the additional analysis and present the different conclusions to the RPC and local government for inclusion in the RPC Assessment Report and the Local Government Development Order.
    - The FDOT reviewer should also be prepared to present the results of the analysis at the RPC Hearing and at the Local Government Public Hearings.

### 4.2.7 Recommendations and Conditions Development

Upon completion of the DRI ADA review, the FDOT reviewer should develop recommendations to ensure the developer mitigates the impact of the DRI on the transportation system. Chapter 5 of this document is devoted entirely to mitigation.

The development of recommendations and conditions is intended to document the agreements discussed during the ADA review process. For example, if transportation or traffic monitoring studies were agreed to during the study process, the requirement that the applicant conduct those studies needs to be documented and included in the RPC Assessment Report and as conditions in the local government's draft Development Order. This document may also be used to present FDOT concerns that remain after the sufficiency iterations which may change the conclusion of project impacts.


Examples of FDOT multimodal recommendations can be found in Appendix D **Sample Proposed Transportation Methodology Comments (Orchard Park)**.

**FDOT Reviewer Role**

The FDOT reviewer should work closely with the RPC, DCA, and local government to ensure that FDOT concerns are incorporated into the RPC Assessment Report and as conditions in the local government's DO. The FDOT reviewer should also work toward having an agreed upon mitigation package in the RPC Assessment Report.

If the FDOT reviewer believes that the agreements made during the ADA Review process fail to adequately ensure the integrity of the SIS/SHS, the District Secretary or Designee should be notified immediately.

The FDOT reviewer is encouraged to contact the RPC and local government to determine the format, delivery, and time frame of FDOT comments. At a minimum, a letter to the RPC containing a list of key issues, a summary of the commitments agreed to by the Applicant, and a listing of general DO conditions should be issued. Depending on the RPC and local government, detailed recommendations in language ready to be included in the DO may be requested.

### 4.2.8 RPC Assessment Report (Also referred to as Regional Report and Recommendations 9J-2.024)

The RPC has 50 days after receipt of the notice of public hearing (9J-2.024) 380.06(12), Florida Statutes, to prepare and submit a formal **Assessment Report** detailing recommendations to the local government, the Developer, and DCA on the regional impact of the proposed development. Ideally, though not required, the RPC makes the necessary review modifications and submits the adopted report to the local government and applicant at least 10 days in advance of the public hearing.

**FDOT Reviewer Role**

*Make sure FDOT recommendations and conditions are properly documented*

The FDOT reviewer should review this report to make sure FDOT recommendations and conditions are properly documented. This is important since this report will often be used to develop and subsequently adopt the binding DO between the applicant and the local government. The FDOT's review will be solicited by the RPC for incorporation into the **RPC Assessment Report** typically allowing less than 30 days for response.

### 4.2.9 Local Government Draft Development Order Review

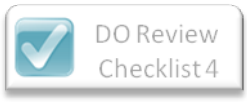
The Local Government Development Order (LGDO) is issued a maximum of 30 calendar days from the day of the public hearing.

**FDOT Reviewer Role**

*Ensure that mobility on SIS/SHS segments has been adequately addressed*

The LGDO Review is the FDOT's final opportunity to ensure that mobility on SIS/SHS segments located in the project impact area has been adequately addressed. The reviewer should work to obtain a draft DO from the local government no later than 15 days before the hearing date. The purpose is to resolve any outstanding issues before the DO is rendered, minimizing the chance of an appeal to the DO once it is issued.

The LGDO Review checklist (DRI Checklist 4) has been designed to address these points:




- preservation of mobility on FDOT's SIS/SHS
- the transportation implications of land use densities
- the continued involvement of the FDOT in the annual/biennial reporting
- the review of project implementation

The FDOT reviewer should also assure that the agency remains informed about the status of the project as it is implemented. Using the biennial report, the FDOT has a continuing opportunity to require periodic monitoring of the project's impacts on the SIS/SHS.

## 4.2.10 Rendered Development Order Review

*Once the development order is rendered by the local government, it is the FDOT's responsibility to ensure that all commitments are contained within the LGDO*

FDOT should ensure that all commitments are contained in the final development order. If the FDOT reviewer believes the LGDO fails to adequately ensure the integrity of the SIS/FIHS/SHS, the District Secretary or Designee should be notified immediately. While objections to conditions of the LGDO must be appealed in writing to DCA within 45 days of the issuance of the LGDO, the FDOT reviewer actually has much less time. Upon identifying an issue that may require an appeal, the FDOT reviewer should immediately contact DCA, the RPC, and the local government to initiate communication about the issue. The FDOT reviewer should have all the support information gathered and clear direction about the need for an appeal no later than 30 days after the issuance of the LGDO so that DCA has adequate time to process the information and move forward with the appeal if necessary.

# 4.3 Modification of Approved DRIs

## Notice of Proposed Change (NOPC)

PDF link

*NOPC*

A Notification of Proposed Change (NOPC) is required to be submitted by the applicant to the local government, the RPC and DCA when a change is proposed to a previously approved DRI. The NOPC should be submitted following 380.06(19), Florida Statutes and use the standard form provided by DCA (see PDF). A NOPC may be filed for many reasons such as to extend the project build out date or modify the land use program.

## Substantial Deviation Determination

*A change request requires formal determinations from DCA, the RPC and the local government*

A change request to a previously approved DRI requires formal determinations from DCA, the RPC and the local government as to what level of further review will be required. Often, a traffic study is submitted with a NOPC to request that the deviation not be classified as substantial (i.e. rebut the presumption of a substantial deviation). Guidance on what types of changes are considered substantial may be found in Chapter 380.06(19)(a-e), Florida Statues. It is recommended that a methodology meeting be established by all parties prior to the submittal of documentation supporting the proposed changes. The review process for traffic studies associated with rebutting the presumption of a substantial deviation varies depending on the magnitude and scope of the deviation requested. For example, in some cases a trip generation comparison may be sufficient while in other cases a detailed assessment similar to an ADA may be necessary.

The local government conducts a public hearing to determine if the proposed change constitutes a substantial deviation. Thresholds for substantial deviation determination can be found in 380.06(19) FS. Once the local government makes a determination, it is subject to the appeal provisions of 380.07 FS. Site impact review at this stage is not required.

If it is determined that the changes submitted by the applicant constitute a substantial deviation, Section 4.2 of this handbook applies.

## FDOT Reviewer Role

FDOT should review NOPC applications to assess potential transportation-related impacts. Written FDOT comments on the NOPC are typically required within 30 days.

The FDOT may also be asked to review traffic studies associated with a rebuttal of the thresholds established for Substantial Deviations (the thresholds are listed in 380.06(19) FS) supporting a request by the applicant that the deviation not be classified as substantial. The reviewer should ensure that any mitigation proposed in the NOPC is consistent with the original LGDO.


The FDOT has a role in review of all NOPC and Substantial Deviation Determinations for approved DRI LGDO processes by RPCs. Several factors should be considered in determining the FDOT's response to these notifications. DRI Checklist 7 identifies these critical issues.


As greater emphasis is being placed on multimodal mitigation strategies, the reviewer should be versed in these approaches. To provide guidance, samples of multimodal responses in NOPC reviews can be found in Appendix G Examples of Mulitmodal Notice of Proposed Change (NOPC) and Substantial Deviation Determinations.

If a substantial deviation is determined, the FDOT should provide comments to the RPC which in turn will summarize the comments and provide to the applicant. Once the local government issues an amended and restated DO, it is subject to the appeal provisions of 380.07 FS

In summary, the FDOT should be in agreement with the methodology, assessment of proposed changes, and conclusions supporting the amended and restated DO.

# 4.4 DRI Reporting

## 4.4.1 Annual or Biennial Reports

Annual or biennial reports are a requirement of 380.06(18) FS and Rule 9J-2.025(7) FAC . Annual or biennial reports include information describing any changes that have been made to the development plan during the reporting period, information about the master plan, lands purchased, permitting, and local government, and a summary of each development order condition and when each commitment has been complied with. The formal requirements for annual and biennial reports are summarized by DCA (see PDF link). As an impacted reviewing agency, the FDOT will often receive copies of these reports.


*Annual Reports*

**FDOT Reviewer Role**

The FDOT reviewer should ensure that mobility on SIS/SHS is addressed throughout project implementation. If concerns arise, the FDOT reviewer is instructed to contact the RPC, local government, and the applicant to discuss. This discussion process should be guided by the relationships between the FDOT and the other local parties. It is the responsibility of the local government to cease issuing building permits for this project until appropriate written approvals are obtained and any needed mitigation requirements are complied with.

The FDOT reviewer should also ensure that conditions included as part of the LGDO are being met. For example, if a condition stipulating the addition of a traffic signal once it is warranted is included as a condition in the LGDO and the FDOT reviewer determines that the signal is now warranted, then it should be brought to the attention of all parties.

## 4.4.2 Transportation Monitoring Studies

*Transportation monitoring studies are being included more frequently in DO agreements*

Transportation monitoring studies (see Rule 9J-2.045(4), (5)FAC) differ from the statutory requirement of annual/biennial reports. They usually require the applicant to collect and analyze transportation data to verify assumptions associated with internal capture (or community capture if applicable), background growth rates, and other assumptions made during the ADA. A similar process to that of an ADA (i.e. methodology development, study review, and sufficiency determinations) is often used in the review of transportation monitoring studies. FDOT participation throughout the process is essential. The RPCs have the responsibility to coordinate with all affected agencies with regard to both the notification and coordination of the review.

### FDOT Reviewer Role

*The FDOT is a reviewing agency for the Traffic Monitoring study*

The FDOT should have it stipulated as a condition of the LGDO that it is a reviewing agency for the Transportation Monitoring study. FDOT reviewers are strongly encouraged to review annual monitoring studies and provide written comments when necessary. The review of the study provides an opportunity to ensure that LGDO-mandated transportation improvements are realized in a timely manner. Depending on the specifics of the study, the FDOT Review role will likely be very similar to the review of an ADA. In addition FDOT staff should recommend appropriate monitoring for single occupancy vehicle use such as applicable measures in DRI Checklist 5.

Transit Guidelines

In Guidelines and Performance Measures to Incorporate Transit and Other Multimodal Considerations into the FDOT DRI Review Process: "Research revealed concerns that although many DRI applications indicate that the use of internal shuttles and ridesharing will be encouraged, no such actions are undertaken by the developer. If such situations were uncovered by FDOT staff or consultants reviewing the report, a letter could be sent to the local government alerting them of the omission. Such a letter may also include an offer of technical assistance if appropriate. In most cases, this review can be accomplished by reviewing information submitted by the developer; however, field observation may occasionally be warranted. Active FDOT participation in supporting development order conditions through DRI monitoring may make it easier for local governments to ensure compliance."

## 4.4.3 Transportation Monitoring and Modeling Studies (M & M)

*An M&M Schedule identifies required actions for each phase of a development.*

In *Guidelines and Questions for Transportation Monitoring and Modeling Studies* (September 2000),the ECFRPC advocates the monitoring and modeling (M & M) schedule as a method of ensuring the traffic impacts to any regional roadway affected by a development of regional impact (DRI) do not fall below its adopted level of service (or other performance standard). Although not required for the DRI review process, M & M may be included in a development order to satisfy a minimum condition to show that adequate provisions are made for public transportation facilities and maintenance of LOS at the end of each project phase or phase subset (Rule 9J-2.045(7)(a), F.A.C.).

An M & M schedule must identify the actions or measures necessary to mitigate significant and adverse impacts to the transportation system in order to proceed to the next phase of a project's development. It must also identify the amount of development that will adversely impact the roadway, as well as when the impacts are scheduled to be mitigated subsequent to each phase or phase subset of a project. If roadway improvements together with timing of such improvements are

not identified in the M & M schedule, building permits will be withheld for that project phase or subset until written approval is obtained and compliance with any needed roadway improvements can be demonstrated.

A study period consisting of the next stage of development, and traffic study for the existing peak hour LOS and projection of the next phase's LOS for all impacted roadways listed on the M & M schedule help exhibit compliance with the development order. The study must include estimated traffic for all background developments and the project during the next study period, as well as the end-of-study period LOS for the impacted roadways. The project traffic is to include all existing project developments, permitted project development building permits during the next study period

**FDOT Reviewer Role**

*The FDOT is a reviewing agency for the M & M study*

The FDOT is a reviewing agency for the M & M study. The reviewer should ensure that all transportation studies are performed accurately. If the reviewer finds that the development transportation impacts are not in compliance with the M & M schedule, the reviewer should contact the local government to discuss. If a solution is not found, then the reviewer should contact the RPC to initiate formal action.

### 4.4.4 Community Capture Monitoring

**Commitment to Transportation or Traffic Monitoring**

Expanded traffic monitoring beyond the current basic requirements of the DRI annual/biennial report will be a required provision in accepting Community Capture rates. While the detailed needs of the traffic monitoring program will be determined through the traffic study process, elements such as origin and destination studies, trip generation studies, and an evaluation of land use mixes in the community and surrounding the community will usually be included in the monitoring program. At a minimum, monitoring will be necessary before the development enters a new phase. If appropriate, trip characteristic assumptions and impact mitigation requirements will be revised, based on the monitoring. Traffic monitoring at a frequency greater than by phase may be required for more aggressive development programs or if significant changes are made to the planned development program.

## DRI Pre-Application Checklist

1 of 3

| Information to be Provided to Applicant | | |
|---|---|---|
| **Area Specific** | | |
| A. Recommended transportation site impact methodologies used and/or required by the Department including: | 1. Software programs | |
| | 2. Traffic modeling techniques | |
| | 3. Trip generation methodologies | |
| | 4. Other software may be used if agreed to be all parties | |
| Information on: | 1. Relevant existing or proposed rights-of-way, | |
| | 2. Proposed or current Major Investment Studies (in urbanized areas | |
| | 3. SIS action or master plans | |
| | 4. Any corridors designated in the Florida Transportation Plan within the study area | |
| Work Program | 1. How information regarding facilities programmed for improvement in the first three years of the Department's Five-Year Adopted Work Program may be obtained. | |
| LGCP | 1. Local Government Comprehensive Plans (LGCP) (*as applicable*) | |
| LRTP | 1. MPO Long Range Transportation Plan (LRTP) (*as applicable*) | |
| Transit Development Plan | (*as applicable*) | |
| Transportation Disadvantaged Service Plan | 1. or other locally developed, coordinated public transit-human services transportation plan as required by the Jobs Access and Reverse Commute (JARC) and New Freedom Programs (*as applicable*) | |
| **Resources for Applicant** | | |
| **General Guidance** | | |
| FDOT's Quality/Level of Service Handbook | 2009 Handbook | PDF |
| | QLOS software: http://dot.state.fl.us/planning/systems/sm/los | |
| | Additional resources from FDOT research on multimodal LOS analysis: http://fdottransportationimpacthandbook.com/ | |
| Interchange Handbook | Procedures and requirements for new or modified access to interchanges on limited-access facilities | PDF |
| Multimodal Transportation Districts and Areawide Quality of Service Handbook | (November 2003) http://teachamerica.com/tih/PDF/MMAreawideQOS1211.pdf | PDF |
| Transportation Demand Management Resources | http://www.nctr.usf.edu/clearinghouse/ | |
| TDM | Incorporating TDM into the Land Development Process http://www.nctr.usf.edu/pdf/576-11.pdf | PDF |
| LEED Certification | Leadership in Energy and Environmental Design (LEED) Certification http://www.usgbc.org/DisplayPage.aspx?CategoryID=19 | |
| Commuter Assistance Programs | (as applicable) | |
| Multimodal Transportation Districts (MMTDs) | Model Regulations and Plan Amendments for MMTDs http://www.nctr.usf.edu/pdf/527-07.pdf | PDF |

| **Transit Information** | | 2 of 3 |
|---|---|---|
| Transit Design | Accessing Transit Design Handbook for Florida Bus Passenger Facilities (statewide) dot.state.fl.us/transit/Pages/AccessingTransitHandbookLow.pdf | PDF |
| LYNX Mobility Design Manual | LYNX Central Florida Mobility Design Manual golynx.com/assets/userfiles/media/pdf/lynxdocs_mobility_manual.pdf | PDF |
| LYNX Customer Amenities Manual | LYNX Central Florida Customer Amenities Manual golynx.com/assets/userfiles/media/pdf/lynxdocs_Amenities_Manual.pdf | PDF |
| Transit Facility Handbook | FDOT District I and 7 Transit Facility Handbook dot.state.fl.us/Transit/Pages/FDOT_D1_D7_Transit_Facility_Handbook.pdf | PDF |
| Transit Facilities Guidelines | FDOT District 4 Transit Facilities Guidelines www.dot.state.fl.us/transit/Pages/UpdatedD4TransitFacilitiesGuidelines.pdf | PDF |
| Palm Tran Transit Design Manual | Palm Tran Transit Design Manual www.pbcgov.com/palmtran/marketing/pdf/library/transit-design-manual.pdf | PDF |
| Mobility Access Handbook | Jacksonville Transportation Authority Mobility Access Program Handbook | PDF |
| Developer Participation | Developer Participation in Providing for Bus Transit Facilities/Operations http://teachamerica.com/tih/PDF/Land%20Developer.pdf | PDF |

## Multimodal Access Information to be Included in the ADA

| **DRI Study Area** | | Y | N |
|---|---|---|---|
| A. High-occupancy vehicle lanes | 1. Availability | ○ | ○ |
| | 2. Location | ○ | ○ |
| | 3. Usage | ○ | ○ |
| B. Transit service (rail and/or bus) | 1. Availability | ○ | ○ |
| | 1. Location | ○ | ○ |
| | 2. Level of service | ○ | ○ |
| | 3. Duration | ○ | ○ |
| | 4. Frequency | ○ | ○ |
| | 5. Connectivity | ○ | ○ |
| | 6. Ridership | ○ | ○ |
| | 7. Are services limited to certain populations such as the elderly or disabled | ○ | ○ |
| C. Bus rapid transit | 1. Availability | ○ | ○ |
| | 2. Location | ○ | ○ |
| | 3. Level of service | ○ | ○ |
| | 4. Ridership | ○ | ○ |
| D. Multi-use trails, local and regional (off-road) | 1. Availability | ○ | ○ |
| | 2. Location | ○ | ○ |
| | 3. Standard of facility design | ○ | ○ |
| | 4. LOS, connectivity | ○ | ○ |
| | 5. Parking locations | ○ | ○ |
| | 6. Usage | ○ | ○ |
| E. Bicycle lanes (on-road) | 1. Availability | ○ | ○ |
| | 2. Location | ○ | ○ |
| | 3. Standard of facility design | ○ | ○ |
| | 4. Los | ○ | ○ |
| | 5. Connectivity | ○ | ○ |
| | 6. Usage | ○ | ○ |
| | 7. Bicycle facility sweeping and maintenance | ○ | ○ |

| | | 3 of 3 |
|---|---|---|
| **DRI Study Area continued** | | Y N |
| F. Sidewalks/pedestrian facilities | 1. Availability | ○ ○ |
| | 2. Location | ○ ○ |
| | 3. Standard of facility design | ○ ○ |
| | 4. LOS | ○ ○ |
| | 5. Connectivity | ○ ○ |
| | 6. Usage | ○ ○ |
| G. Parking management | 1. Parking management | ○ ○ |
| H. TDM Transportation demand management | 1. Commuter assistance services (i.e., vanpools,* guaranteed ride home) | ○ ○ |
| | 2. Availability | ○ ○ |
| | 3. Usage | ○ ○ |
| I. Broadband/wireless | 1. Availability (to allow telework, teleconferencing, etc.) | ○ ○ |
| J. Modal Split | 1. Baseline modal split of alternative modes | ○ ○ |
| K. Multimodal facility improvements | 1. Planned, programmed or committed improvements to existing or new multimodal facilities | ○ ○ |
| | 2. Documentation of designated corridor space for transit or multimodal options | |
| L. Existing LOS | 1. The existing level of service for transit or multimodal alternatives, if the local government or transit agency has adopted such LOS standards | ○ ○ |
| * Many developments restrict parking for vehicles with logos or do not have a public parking space to handle a 15-22 person van. Allowance for overnight parking for vanpool vans is critical to implementing this TDM strategy. | | |
| **Land Use/Site Design** | | |
| Discuss how development is consistent with local government comprehensive plans, land development regulations, special area plans, or other applicable mechanisms. For multimodal purposes, the information should include the following: | 1. Variety of land uses, including both employment and residential | ○ ○ |
| | 2. Land uses that promote pedestrian, bicycle, and transit use | ○ ○ |
| | 3. Sufficient densities to support transit ridership | ○ ○ |
| | 4. Sufficient intensity along major transit corridors | ○ ○ |
| | 5. Sufficient intensities in and around core areas | ○ ○ |
| | 6. Connectivity to adjacent properties, surrounding communities, and the surrounding street network; include multimodal connectivity analysis | ○ ○ |
| | 7. Appropriate numbers of connections within the street network | ○ ○ |
| | 8. Support of pedestrian environment including shorter block lengths, traffic calming measures, traffic enforcement programs, etc. | ○ ○ |
| | | **3 of 3** |

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## DRI Checklist 1 | Methodology Meeting



| *Project* | *Reviewer* | *Date of Review:*<br>*Comments Due:* |
|---|---|---|

| **Project Information** | | Y | N | N/A |
|---|---|---|---|---|
| A. Site relative to the surrounding roadway network shown? | 1. In map format? | ○ | ○ | ○ |
| B. Project phasing shown? | 1. Single phase project? | ○ | ○ | ○ |
| | 2. Multiple phases? | ○ | ○ | ○ |
| C. Proposed buildout year(s) of project phase(s) identified? | | ○ | ○ | ○ |
| D. Development defined in acceptable manner for each phase of implementation? | 1. Number dwelling units (DUs) for residential land uses? | ○ | ○ | ○ |
| | 2. Square feet (SF or GLSF) for commercial, office, retail, industrial land uses? | ○ | ○ | ○ |
| E. Acceptable study area limits identified? | 1. Critical roadway segments identified? | ○ | ○ | ○ |
| | 2. Critical intersections identified? | ○ | ○ | ○ |
| **Data Collection and Existing Conditions** | | | | |
| A. Stated how data on existing conditions will be collected? | 2. Acceptable locations and durations for traffic data collection identified? | ○ | ○ | ○ |
| | a. 3 consecutive days for 24-hr counts in urban areas? | ○ | ○ | ○ |
| | b. Five consecutive days in rural areas? | ○ | ○ | ○ |
| | 3. Measures identified for collecting transit, bicycle and pedestrian volumes and facilities info? | ○ | ○ | ○ |
| | 4. TMOs, TDMs and other special considerations appropriate are identified? | ○ | ○ | ○ |
| B. Measures included to account for previously adopted development agreements including other DRIs? | | ○ | ○ | ○ |
| C. WP or TIP projects used in existing conditions analysis? | 1. Project(s) listed in first three years of the WP/TIP? | ○ | ○ | ○ |
| | 2. Funding source(s) identified? | ○ | ○ | ○ |
| D. Traffic characteristics to be used in the analysis identified? | 1. Each characteristic within range accepted by Department for facility and area type? | ○ | ○ | ○ |
| **Project Approach** | | | | |
| A. Site Impact analysis to use primarily manual calculation mechanisms? | 1. Manual approach appropriate for project scale and location? | ○ | ○ | ○ |
| | 2. Acceptable methodology described for determining future year roadway network volumes? | ○ | ○ | ○ |
| | a. Growth rates reasonable based on historical/current development activity? | ○ | ○ | ○ |
| B. Site impact analysis to use computer-based calculation mechanism? | 1. Latest FSUTMS model for the area to be used? | ○ | ○ | ○ |
| | 2. Project site extracted as separate TAZ? | ○ | ○ | ○ |
| | 3. Zdata files for project TAZ appropriate? | ○ | ○ | ○ |
| | 4. Buildout year(s) of project coincidental with future years of the approved FSUTMS model? | ○ | ○ | ○ |
| | a. If not, acceptable methodology proposed for determining interim year conditions? | ○ | ○ | ○ |
| | 5. Described measures for project level validation of the model? | ○ | ○ | ○ |
| | a. Will local roadways need to be added to analyze traffic behavior at project level? | ○ | ○ | ○ |

## DRI Checklist 1 | Methodology Meeting



| Project Approach | | Y | N | N/A |
|---|---|---|---|---|
| C. Any transportation network improvements not included in first three years of the WP or TIP proposed in future year network conditions? | 1. Listed improvements included in MPO's adopted long-range plan? | ○ | ○ | ○ |
| | 2. Listed improvements consistent with LGCP Transportation Element for year(s) shown? | ○ | ○ | ○ |
| | 3. Listed improvements consistent with other recent Department -approved plans (i.e., action plans, master plans, MISs, AISs)? | ○ | ○ | ○ |
| D. Provided source for seasonal and, if appropriate, model output conversion factors from the Department to derive AADT volume? | | ○ | ○ | ○ |
| **Trip Generation** | | | | |
| A. Trip generation rates based on ITE: *Trip Generation* (latest edition data)? | 1. If land use under reported in ITE: *Trip Generation* report is acceptable alternative means of determining project trip generation characteristics identified? | ○ | ○ | ○ |
| B. Proposes to analyze the "critical hour" (highest hour of project + adjacent) roadway traffic? | | ○ | ○ | ○ |
| C. Internal trip capture characteristics proposed? | 1. Internal capture rates reasonable, based on proposed land uses and location? | ○ | ○ | ○ |
| D. Pass-by trip characteristics assumed? | 1. Pass-by rates reasonable, based on proposed land uses and location? | ○ | ○ | ○ |
| E. Means of determining truck/heavy vehicle volumes described? | | ○ | ○ | ○ |
| F. If using a model-based trip generation method, prepared to show TAZ maps and project Zdata files? | | ○ | ○ | ○ |
| **Trip Distribution** | | | | |
| A. If using a manual methodology, proposed a method for trip distribution? | 1. Method acceptable, based on proposed and other area land uses? | ○ | ○ | ○ |
| | 2. Site traffic trip length curve and average trip length data provided? | ○ | ○ | ○ |
| B. If using a computer model methodology, compare model to manual estimates? | 1. Expressed understanding of documentation requirements for average trip length, friction factors or trip length frequency? | ○ | ○ | ○ |
| | 2. External/internal trip assumptions documented? | ○ | ○ | ○ |
| **Mode Split** | | | | |
| A. Split of vehicle trips to alternate travel modes proposed? | | ○ | ○ | ○ |
| B. Documentation supporting mode split provided? | | ○ | ○ | ○ |
| **Trip Assignment** | | | | |
| A. Will show both daily and peak-hour assignments for each project phase? | | ○ | ○ | ○ |
| B. If using FSUTMS, are trip assignments shown, by purpose, for each phase of the project? | | ○ | ○ | ○ |
| C. If using FSUTMS, is single assignment method proposed for calculating background traffic volumes? | | ○ | ○ | ○ |
| **Analysis Procedures** | | | | |
| A. Identified acceptable minimum LOS standard for study area roadway links? | | ○ | ○ | ○ |
| B. Identified tools for performing LOS determinations? | 1. Tools appropriate to the types of facilities analyzed? | ○ | ○ | ○ |
| | 2. Department-approved tools identified? | ○ | ○ | ○ |
| | a. Location(s) of possible queue analyses identified? | ○ | ○ | ○ |
| C. LOS for each critical roadway segment and intersection by phase? | | ○ | ○ | ○ |

| DRI Checklist 1 \| Methodology Meeting | | 3 of 3 |
|---|---|---|
| **Other Considerations** | | Y N N/A |
| A. Recognized need to adhere to Department standards for SHS access controls? | | ○ ○ ○ |
| B. Applicant aware of any local maximum number of lanes policy? | | ○ ○ ○ |
| C. Applicant aware that any project phase depending upon an approved IJR/IMR shall not be approved until request approved? | 1. IJR/IMR such approval request cannot be initiated until at least 45 days following the issuance of a Development Order? | ○ ○ ○ |
| D. Applicant indicated the need to adhere to Department's access management standards? | | ○ ○ ○ |
| E. Applicant defined method to determine left-turn queues into the site? | | ○ ○ ○ |
| F. Is applicant aware of requirement to address multimodal site access and connectivity? | | ○ ○ ○ |
| | | **3 of 3** |

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## DRI Checklist 2 | ADA Sufficiency Review

*Project* *Reviewer* *Date of Review:* *Comments Due:*

| | | Y | N | N/A |
|---|---|---|---|---|
| A. Adequate explanation of existing conditions, data collection, and analysis procedures for all transportation modes? (Section A) | | ○ | ○ | ○ |
| B. Adequate discussion of trip generation data, modal split, assumptions, and methods from a multimodal perspective provided? (Section B) | | ○ | ○ | ○ |
| C. Adequate discussions and analysis results for each project phase? (Section C) | | ○ | ○ | ○ |
| D. Adequate documentation for each project phase? (Section D) | 1. Forecasting of daily background traffic, by phase, graphically depicted? | ○ | ○ | ○ |
| | 2. Analysis of peak-hour traffic distribution and assignment for Section D review | ○ | ○ | ○ |
| E. Adequate documentation for each project phase regarding distribution and analysis of daily and peak-hour traffic volumes? (Section E) | 1. Project trips graphically depicted for each project phase? | ○ | ○ | ○ |
| | 2. Percentage of project traffic in traffic stream at buildout documented? | ○ | ○ | ○ |
| | 3. Project study area boundary maintain adherence to study "significantly impacted" SHS facilities requirement? | ○ | ○ | ○ |
| F. Recommended impact mitigation improvements, including TSM and alternate mode improvements, discussed and analyzed in sufficient detail? (Section F) | | ○ | ○ | ○ |
| G. Adequate discussion of project's contribution to planned transportation corridors, regardless of mode, as shown in local plans through protection and/or development? (Section G) | | ○ | ○ | ○ |
| H. Adequate discussion of project's contribution to designated transportation corridor improvements? (Section H) | | ○ | ○ | ○ |
| I. Sufficient discussion of provisions for the movement of people other than the private automobile? (Section I) | 1. Internal design | ○ | ○ | ○ |
| | 2. Site planning | ○ | ○ | ○ |
| | 3. Parking provisions (or limits) | ○ | ○ | ○ |
| | 4. Location | ○ | ○ | ○ |
| | 5. Other | ○ | ○ | ○ |
| J. Map H, master development plan indicates: (Section J) | 1. Proposed land uses and locations | ○ | ○ | ○ |
| | 2. Development phasing | ○ | ○ | ○ |
| | 3. Major public facilities | ○ | ○ | ○ |
| | 4. Utilities | ○ | ○ | ○ |
| | 5. Preservation areas | ○ | ○ | ○ |
| | 6. Easements | ○ | ○ | ○ |
| | 7. Right-of-way | ○ | ○ | ○ |
| | 8. Roads | ○ | ○ | ○ |
| | 9. Transit stops | ○ | ○ | ○ |
| | 10. Bicycle/pedestrian ways | ○ | ○ | ○ |

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## DRI Checklist 3 | ADA Review

1 of 5

*Project* | *Reviewer* | *Date of Review:* *Comments Due:*

| | | Y N N/A |
|---|---|---|
| **Section A: Existing Conditions** | | |
| A. (Reference Section E response) Study area boundaries adjusted, if necessary, to include all SIS/FIHS/SHS segments and intersections where project traffic is five percent or more of adopted minimum LOS volumes? | | ○ ○ ○ |
| B. Existing conditions adequately shown using Map J or in a table? | 1. AADT shown? | ○ ○ ○ |
| | 2. Peak-hour directional trips shown? | ○ ○ ○ |
| | 3. Existing segment and intersection volumes and LOS and maximum LOS Volumes shown? | ○ ○ ○ |
| | a. LOS standards exceeded? | ○ ○ ○ |
| C. Traffic characteristic assumptions stated? | 1. K, D | ○ ○ ○ |
| | 2. Facility type necessary for analysis | ○ ○ ○ |
| | 3. Lanes | ○ ○ ○ |
| | 4. Traffic composition | ○ ○ ○ |
| | 5. Within accepted ranges per MLOU? | ○ ○ ○ |
| D. Planned and programmed transportation network improvements identified? | 1. Agency documentation provided which substantiates project(s)' status? | ○ ○ ○ |
| E. Data collection and analysis performed per MLOU? | | ○ ○ ○ |
| F. Reviewer performed spot verification of roadway and intersection volumes and LOS analysis assumptions to confirm findings? | | ○ ○ ○ |
| **Multimodal Supplement** | | |
| A. Within an existing transportation concurrency exception area (TCEA), transportation concurrency management area (TCMA), or multimodal transportation district (MMTD) and complies with local government requirements | | ○ ○ ○ |
| B. High-occupancy vehicle lanes | 1. Availability, location, and usage | ○ ○ ○ |
| C. Pricing strategies | 1. Transit subsidies, parking fees, parking discounts for ride sharers, parking cash out, travel allowances, tax benefits | ○ ○ ○ |
| D. Transit service | 1. Location, level of service, span of service, frequency, coverage, connectivity, loading reliability, ridership, and transit auto travel time ratio | ○ ○ ○ |
| E. Bus rapid transit | 1. Location, level of service, span of service, frequency, coverage, connectivity, loading, reliability, ridership, and transit/auto travel time ratio | ○ ○ ○ |
| F. Multi-use trails | 1. Local and regional (off-road) – availability, location, standard of facility design, LOS, connectivity, parking, and usage | ○ ○ ○ |
| G. Bicycle lanes | 1. Availability, location, standard of facility design, LOS, connectivity, usage, and connectivity to transit | ○ ○ ○ |
| H. Sidewalks/pedestrian facilities | 1. Availability, location, standard of facility design, LOS, connectivity, usage, and connectivity to transit | ○ ○ ○ |
| I. Parking management | | ○ ○ ○ |
| J. Transportation Demand Management | | ○ ○ ○ |

## DRI Checklist 3 | ADA Review



| **Multimodal Supplement *continued*** | | Y N N/A |
|---|---|---|
| K. Broadband internet access | 1. Availability of broadband internet access | ○ ○ ○ |
| L. Baseline modal split of alternative modes | | ○ ○ ○ |
| M. Multimodal Improvements | 1. Planned, programmed or committed improvements to existing or new multimodal facilities including documentation of designated corridor space for transit or multimodal options | ○ ○ ○ |
| N. Existing Transit LOS | 1. Existing level of service for transit or multimodal alternatives, if the local government or transit agency has adopted such LOS standards | ○ ○ ○ |
| O. Land Use | 1. Land use mix, including both employment and residential, within the context of the DRI and the surrounding community | ○ ○ ○ |
| | 2. Land uses within the DRI that promote pedestrian, bicycle, and transit use | ○ ○ ○ |
| P. Sufficient Density/Intensity | 1. Sufficient densities to support transit ridership* | ○ ○ ○ |
| | 2. Sufficient intensity along major transit corridors* | ○ ○ ○ |
| | 3. Sufficient intensities in and around core areas* | ○ ○ ○ |
| Q. Connectivity | 1. Connectivity to adjacent properties | ○ ○ ○ |
| | 2. Connectivity to transit | ○ ○ ○ |
| | 3. Appropriate numbers of connections within the street network | ○ ○ ○ |
| | 4. Shorter block lengths to support pedestrian environment.* | ○ ○ ○ |
| R. Data | 1. Assessment of the reliability of selected trip generation rates to predict the number of trips from the new development | ○ ○ ○ |
| | 2. Identification of alternative sources of data, if applicable | ○ ○ ○ |
| **Section B: Trip Generation** | | |
| A. Trip generation projections by land use and phase provided? | | ○ ○ ○ |
| B. Trip generation calculations performed per MLOU? | | ○ ○ ○ |
| C. Reviewer performed spot verification of trip generation rates, by land use, to confirm phase and project totals? | | ○ ○ ○ |
| **Section C: Internal/External Split by Phase** | | |
| A. Internal/external project trips calculated using internal capture and pass-by characteristics per MLOU? | 1. Master Plan map depicting internal circulation to support internal capture shown? | ○ ○ ○ |
| B. Reviewer performed spot checks of project-based external trips applying approved and documented internal capture and pass-by trip rates to project trips shown in Section B? | | ○ ○ ○ |

* Criteria are found in applicable local or regional plans and regulatory mechanisms

| DRI Checklist 3 \| ADA Review | | 3 of 5 |
|---|---|---|
| **Section D: Projections** | | Y N N/A |
| A. Forecasts of total peak-hour trips, with and without project, identified by phase? | | ○ ○ ○ |
| B. Distribution methodology described and assumptions fully documented? | | ○ ○ ○ |
| C. For computer-based distribution method, has FSUTMS model validation or modification at project level documented? | | ○ ○ ○ |
| D. Trip distribution method shown per MLOU? | | ○ ○ ○ |
| E. Reviewer performed random spot checks of forecasts per analysis method used? | 1. For manual calculation analysis, approved growth rates per year applied to existing traffic volumes? | ○ ○ ○ |
| | 2. For model-based analysis, future year ZDATA files reviewed for reasonableness and inclusion of other development? | ○ ○ ○ |
| F. Proper documentation provided for any new transportation system improvements reflected in the future year(s) network? | | ○ ○ ○ |
| G. Maps or tables provided showing total traffic with and without the project, by development phase? | | ○ ○ ○ |
| **Section E: Development's Trip Assignments** | | ○ ○ ○ |
| A. Assignment of AADT project trips | 1. Assignment of AADT project trips, by phase, to surrounding transportation network performed? | ○ ○ ○ |
| | 2. Assignment also performed at directional peak-hour level? | ○ ○ ○ |
| B. Comparison of average trip length for project and no-project scenarios performed? | | ○ ○ ○ |
| C. Reviewer verified that project trip assignments account for 100 percent of external project trips, as documented into Sections B and C responses? | | ○ ○ ○ |
| D. If splits to alternative modes assumed, supporting documentation from service agencies and modal plans been included? | 1. Service feasibility verified? | ○ ○ ○ |
| | 2. Auto occupancy adjustment factors by trip purpose verified? | ○ ○ ○ |
| E. For model-based assignment methods, full documentation of manual model adjustments provided? | | ○ ○ ○ |
| F. LOS for regionally significant roadways' segments, SIS/FIHS/SHS facilities and critical intersections calculated, with and without project? | | ○ ○ ○ |
| G. Trip assignments and LOS analyses performed per MLOU? | | ○ ○ ○ |
| H. Maps or tables provided which summarize LOS by phase, with and without project? | | ○ ○ ○ |
| I. Merge, diverge, weaving and ramp queuing analyses performed for study area freeway segments? | | ○ ○ ○ |
| J. Reviewer performed spot checks of LOS analyses to verify appropriateness of analysis technique and accuracy of reported results? | | ○ ○ ○ |

| DRI Checklist 3 \| ADA Review | | 4 of 5 |
|---|---|---|
| **Section F: Recommended Road and Intersections' Improvements** | | Y N N/A |
| A. Transportation system improvements which will result in acceptable LOS on SIS, FIHS and SHS facility segments identified? | 1. Improvements been identified for each project phase? | ○ ○ ○ |
| | 2. Improvements include measures other than addition of roadway lanes or new roadway facilities? | ○ ○ ○ |
| | a. Documentation from appropriate agency(ies) included to verify improvement feasibility? | ○ ○ ○ |
| B. Measures required to mitigate for increased percentage of trucks from project? | 1. Intersection design at critical intersections and accesses required? | ○ ○ ○ |
| | 2. Intersection left-turn and right-turn channelization modifications required? | ○ ○ ○ |
| C. Mitigate for Noise Impacts? | 1. Measures for dealing with noise impacts adequately addressed? | ○ ○ ○ |
| | 2. Proposed improvements to SIS, FIHS and SHS facilities avoid noise impacts to study area segments or need to study potential noise impacts and associated mitigation for noise-sensitive sites adjacent to these segments? | ○ ○ ○ |
| D. Proposed improvements do not have a negative impact on the air quality conformity status of the overall network? | 1. Alternative improvement scenarios proposed if air quality conformity cannot be maintained? | ○ ○ ○ |
| | 2. Detailed air quality modeling required on study area segments during project implementation? | ○ ○ ○ |
| E. Identified where additional rights-of way including intersection flareouts, may be required for proposed improvements? | | ○ ○ ○ |
| **Section G: Access Management and Median Openings** | | |
| A. Number and general location of proposed points of access identified? | 1. Access points conform to Department access and driveway spacing standards? | ○ ○ ○ |
| B. Joint access and connectivity improvements with neighboring non-project parcels evaluated? | 1. Potential for shared access among commercial developments, including alternate access roads sometimes referred to as "fringe roads" or "backage roads" | ○ ○ ○ |
| C. Reasonable connections between internal project parcels proposed to provide complete project traffic circulation system and minimum demands for external driveways or access points? | | ○ ○ ○ |
| D. Can some proposed access points be relocated to side (non-SHS) streets? | | ○ ○ ○ |
| E. Maps provided which show existing median openings and major driveways? | | ○ ○ ○ |
| F. Proposed location(s) of access points relative to existing (or proposed) median openings that may require signals? | 1. Potential signal locations conform to Department signal spacing standards for the SHS facility type and area type? | ○ ○ ○ |
| G. Access Management Standards | 1. Review independently verified Access Management Standards applied in the study area are appropriate? | ○ ○ ○ |

| DRI Checklist 3 \| ADA Review | | 5 of 5 |
|---|---|---|
| **Section H: Corridor Management Strategies** | | Y N N/A |
| A. Commitment to assisting Department or local government in establishment of improved corridor management strategies? | 1. Measures to be taken in promoting corridor development form described? | ○ ○ ○ |
| | 2. Measures taken to minimize ROW impacts of future improvements to the corridors? | ○ ○ ○ |
| **Section I: Public Transit** | | |
| A. If mode split assumed per Section E response, measures to be incorporated in development's design and implementation supporting these mode choices identified? See sections A, J and K | | ○ ○ ○ |
| **Section J: Multimodal Access to Surrounding Community** | | |
| A. Connectivity | 1. Inventory and document the degree of connectivity to activity centers (areas with destinations such as schools, shopping, recreational facilities, and other points of attraction). | ○ ○ ○ |
| | 2. Include crossing features | ○ ○ ○ |
| | 3. Other features (lighting, visibility, medians, pavement markings) related to pedestrian/bicycle safety at each intersection | ○ ○ ○ |
| B. Pedestrian and Bicycle Facilities | 1. Identify all pedestrian and bicycle facilities, including sidewalks shared roadways, signed-shared roadways, bike lanes, or shared-use paths that lie within the site access area, as designated in the [City/County pedestrian/bicycle plan]. Identify gaps in the system | ○ ○ ○ |
| C. Identify specific transportation network improvements needed to provide safe and efficient pedestrian and bicycle access from the project to activity centers | | ○ ○ ○ |
| D. Transit Service<br>Inventory and document the availability of public and private transit service along routes to activity centers within the study area or a minimum of 5 miles from the DRI, whichever is further, including: | 1. Location of bus routes | ○ ○ ○ |
| | 2. Frequency of service | ○ ○ ○ |
| | 3. Hours of operation | ○ ○ ○ |
| | 4. Existing peak hour load factors | ○ ○ ○ |
| | 5. Bus stops | ○ ○ ○ |
| | 6. Amenities (concrete pad, bench, bus shelter and connectivity to the sidewalk network) at existing and programmed bus stops. | ○ ○ ○ |
| | 7. The inventory must also include lighting features (overhead streetlights) at transit stops, crosswalks and nearby parking areas, as well as availability | ○ ○ ○ |
| | 8. Posting of schedules or real-time transit information | ○ ○ ○ |
| E. Transit Facility Improvements | 1. List specific transit facility improvements contained in the adopted [long range transportation plan, transit development plan or public transit-human services coordinated transportation plan] that address safe and efficient transit access from the proposed development to activity centers | ○ ○ ○ |
| F. Identify specific transit-related facilities needed to provide access to existing or planned transit service | | ○ ○ ○ |
| G. Minimizes vehicular, transit, bicycle, or pedestrian conflicts | | ○ ○ ○ |
| **Section K: Concurrency Alternatives** | | |
| A. Is the project within a transportation concurrency exception area (TCEA) and in compliance with the requirements of the TCEA? | | ○ ○ ○ |
| B. Is the project within a multimodal transportation district (MMTD) and in compliance with the requirements? | | ○ ○ ○ |
| | | **5 of 5** |

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# DRI Checklist 4 | DO Review

| *Project* | *Reviewer* | *Date of Review:*<br>*Comments Due:* |
|---|---|---|

Local Government Development Order Review

| | | Y N N/A |
|---|---|---|
| **Concerns Related to Approved Land Uses** | | |
| A. Approved land use categories intensities and densities comparable to Question 21 of the DRI-ADA analysis? | | ○ ○ ○ |
| B. Approved land use intensities and densities support internal capture, pass-by mode splits and project internal/external characteristics of DRI-ADA Question 21 analyses? | 1. Is change(s) in project traffic assignments reasonable given land use changes? | ○ ○ ○ |
| C. LOS standards achieved on segments which the Department sets the standard for, at each development phase, with improvements proposed under adopted land use scenario(s)? | | ○ ○ ○ |
| D. Public transit, TDMs, TCMs or TSM measures proposed, remain feasible under approved land use scenario(s)? | | ○ ○ ○ |
| E. Internal traffic circulation plan and access points and transportation system connectivity revised to reflect approved land scenario(s)? | | ○ ○ ○ |
| **Concerns Related to SHS Access and LOS Standards** | | |
| A. LGDO provides for phased implementation of full site access contingent upon project-generated background traffic volumes? | | ○ ○ ○ |
| B. Where appropriate, LGDO provides procedures for suspending project implementation should LOS on roadway segments which the Department sets standards for fall below minimum standards as a direct result of project traffic? | | ○ ○ ○ |
| **Involvement in Project Monitoring** | | |
| A. LGDO mandates submittal of a periodic Project Monitoring Report? | 1. LGDO identifies Department as a reviewing agency for the Project Monitoring Report? | ○ ○ ○ |
| | 2. Project Monitoring Report call for annual LOS, noise and air quality determinations for significant impact areas SHS facilities? | ○ ○ ○ |

If the Department Reviewer believes the LGDO fails to adequately ensure the integrity of the SIS or SHS, the District's Director for Planning and Programming should be notified immediately. Objections to conditions of the LGDO must be appealed in writing to DCA within 45 days of the issuance of the LGDO. Objections expressed by the Department after this 45-day appeal period has no legal standing with DCA, RPC or the applicant.

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## DRI Checklist 5 | Project Monitoring & Report Review

*Project* | *Reviewer* | *Date of Review:* *Comments Due:*

| (Transportation Impact) | | Y N N/A |
|---|---|---|
| A. Trip generation rates determining project-to-date and total project impacts consistent with rates and trip generation procedures identified in DRI-ADA and LGDO? | | ○ ○ ○ |
| B. Internal capture and pass-by trip characteristics used in reporting of project-to-date conditions appropriate for land use mix and locations currently in development? | | ○ ○ ○ |
| C. Is the distribution of project traffic on the transportation network consistent with the methodology approved for use in the DRI-ADA analysis? | | ○ ○ ○ |
| D. Background traffic volume annual growth rates consistent with forecasts used in DRI-ADA analyses? | | ○ ○ ○ |
| E. LOS for project area SHS segments determined? | 1. Field counts collected to record current project and without-project volumes? | ○ ○ ○ |
| | 2. LOS analysis procedures consistent with techniques used in DRI-ADA response? | ○ ○ ○ |
| | 3. Facility type, area type and laneage of SHS segments analyzed reflect current year conditions? | ○ ○ ○ |
| F. Status of projects within the project impact area identified as programmed or under construction in the DRI-ADA updated? | | ○ ○ ○ |
| G. Other transportation network improvements affecting use of project impacts area SHS facilities identified? | | ○ ○ ○ |
| H. Status of LGDO-mandated improvements to be undertaken by the developer provided? | 1. Status consistent with the amount of project development that has occurred per the LGDO? | ○ ○ ○ |
| I. Noise and air quality data collected and consistency with Department criteria, as set forth in the LGDO, ascertained? | | ○ ○ ○ |
| J. All Department review comments detailed and transmitted to RPC Coordinator for transmittal to the developer? | 1. Duplicate set of Department comments transmitted directly to the developer (or its authorized representative)? | ○ ○ ○ |

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## DRI Checklist 5 | Project Monitoring & Report Review

| Multimodal Criteria | | Y | N | N/A |
|---|---|---|---|---|
| A. Bus Stop Locations and Facilities | 1. Bus stops - Increase in bus stops with emphasis on true ¼ mile accessibility to the population (factoring in good sidewalk connectivity rather than simple distance) | ○ | ○ | ○ |
| | a. With shelters | ○ | ○ | ○ |
| | b. With bicycle parking | ○ | ○ | ○ |
| B. Transit Revenue Miles and System Access | 1. The number of miles the transit vehicle is actually in service. | ○ | ○ | ○ |
| | 2. Intersecting transit routes | ○ | ○ | ○ |
| | 3. Park and ride locations | ○ | ○ | ○ |
| | 4. Traffic signals with transit priority | ○ | ○ | ○ |
| C. Bicycle & Pedestrian Facilities | 1. Multiuse path miles | ○ | ○ | ○ |
| | 2. Bike lane miles | ○ | ○ | ○ |
| | 3. Sidewalk miles | ○ | ○ | ○ |
| | 4. Well designed pedestrian crosswalks | ○ | ○ | ○ |
| | 5. Enhanced pedestrian crossings at bus stops | ○ | ○ | ○ |
| D. Increases | 1. Increase in transit peak hour capacity | ○ | ○ | ○ |
| | 2. Increase in transit rides per capita | ○ | ○ | ○ |
| | 3. Increase in ridesharing | ○ | ○ | ○ |
| | 4. Increase in telecommuting | ○ | ○ | ○ |
| | 5. Increase in use of alternative work hours | ○ | ○ | ○ |
| | 6. Increase in walking | ○ | ○ | ○ |
| | 7. Increase in bicycling | ○ | ○ | ○ |
| E. Decreases | 1. Decrease in growth rate of VMT per person | ○ | ○ | ○ |
| | 2. Decrease in growth rate of single occupant vehicle (SOV) mode share | ○ | ○ | ○ |

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## DRI Checklist 6 | Conceptual Site Access Review

| *Project* | *Reviewer* | *Date of Review:*<br>*Comments Due:* |
|---|---|---|

| **Access Management Standards** | | Y N N/A |
|---|---|---|
| A. Appropriate access management standards for median openings and major driveway connection spacing? | | ○ ○ ○ |
| B. If exceptions to standards proposed, supporting documentation provided? | | ○ ○ ○ |
| C. Reviewer evaluated effect of number and location of proposed driveways and median openings on adjacent SHS roadway segment(s) operations? | 1. Sufficient information on number of lanes, geometric conditions and internal site circulation provided for evaluation of impacts to the public roadway system? | ○ ○ ○ |
| **Site Specific Issues** | | |
| A. Can surrounding roadway system serve high left turn movements? | | ○ ○ ○ |
| B. Potential sight distance problems? | | ○ ○ ○ |
| C. Potential Pedestrian conflicts? | | ○ ○ ○ |
| D. Relationship of internal circulation facilities to public streets. | | ○ ○ ○ |
| E. Sufficiency of driveway length at major entrances? | | ○ ○ ○ |
| F. On-site circulation as it impacts the public roadway system or access to public transportation and bicycle/pedestrian network? | | ○ ○ ○ |
| G. Access treatments for out parcels? | | ○ ○ ○ |
| H. Potential for shared access among commercial developments, including alternate access roads sometimes referred to as “fringe roads” or “backage roads”? | | ○ ○ ○ |

***Approval of the Conceptual Agency Access Review Submittal does not constitute permit approval.***

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## DRI Checklist 7 | Notice of Proposed Changes/Substantial Deviation Determination

*Project* | *Reviewer* | *Date of Review:* *Comments Due:*

| Evaluation Criteria | | Y | N | N/A |
|---|---|---|---|---|
| A. Proposed changes result in transportation impact reductions from original approved DRI? | | ○ | ○ | ○ |
| B. Background traffic increased beyond original analysis projections for phase(s) or buildout years? | 1. Increase sufficient for classification of application as Substantial Deviation? | ○ | ○ | ○ |
| | 2. Increases raise LOS issues on these links? | ○ | ○ | ○ |
| | a. Willing to consider mitigation on LOS-deficient links to avoid Substantial Deviation classification? | ○ | ○ | ○ |
| C. Time extensions for application cumulatively exceed seven years extension for project? | | ○ | ○ | ○ |
| D. Reductions in land use densities proposed? | 1. Reductions in densities result in less internal capture and lower pass-by capture rates, offsetting reductions in transportation impacts? | ○ | ○ | ○ |
| E. Same methodologies and assumptions used in analyzing transportation, noise, and air quality impacts as used in initial ADA submittal? | | ○ | ○ | ○ |
| F. Proposed changes constitute new development? | 1. New development? | ○ | ○ | ○ |
| | 2. Proposed changes constitute minor changes only? | ○ | ○ | ○ |
| G. Original ADA authorization data shown? | 1. Original ADA authorized after January 20, 1987 and prior to March 23, 1994? | ○ | ○ | ○ |
| | 2. Authorized after March 23, 1994 or one with significant amounts of new development? | ○ | ○ | ○ |
| | a. Mitigation consistent with local concurrency management system regulations and mitigation provisions in 9J-5.045 FAC? | ○ | ○ | ○ |
| H. Qualifies as a Substantial Deviation and involves new or modified interchange? | 1. Re-evaluation of IJR/IMR per Interchange Handbook acknowledged? | ○ | ○ | ○ |
| | 2. Need to adhere to IJR/IMR methodology and review process as detailed in Interchange Handbook acknowledged? | ○ | ○ | ○ |
| I. Reviewer consultation with RPC and/or DCA to reach consensus on specific methodologies to be applied during the review of the NOPC performed? | | ○ | ○ | ○ |

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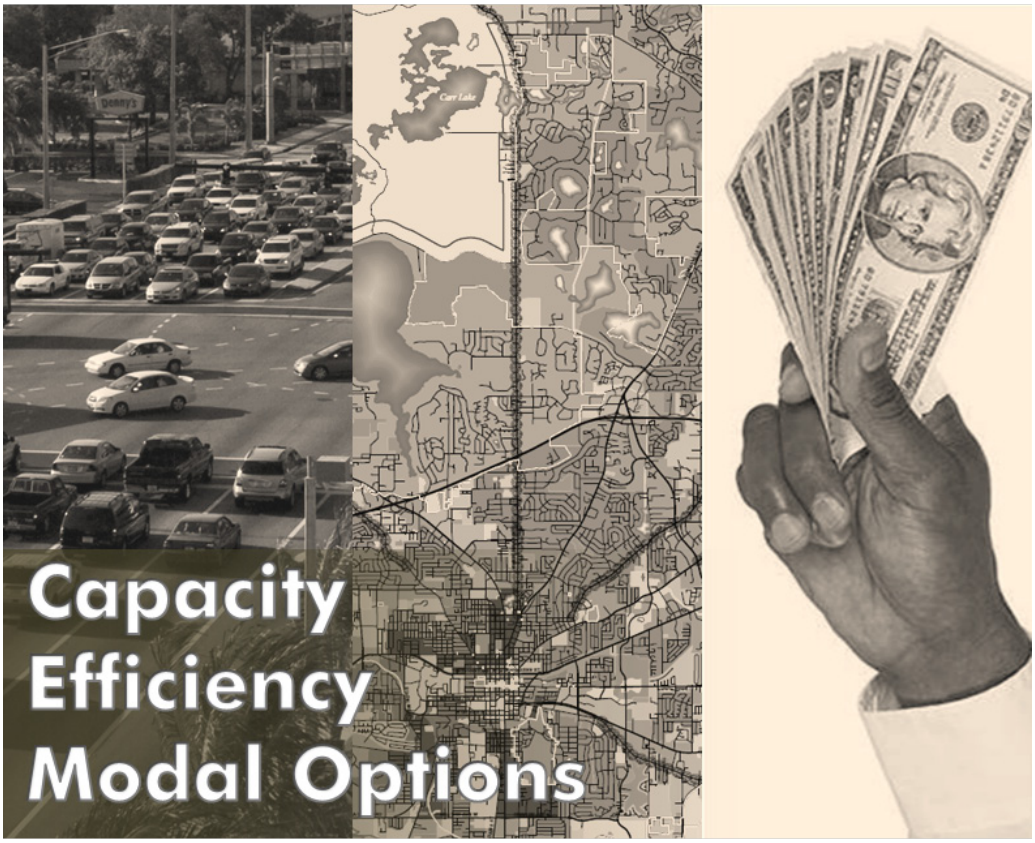


5

# Mitigation

## 5.1 Introduction

*This chapter provides guidance on strategies and funding mechanisms for mitigation.*

Decisions about how to meet community visions for development and transportation options are a key responsibility of local government planning, and should be coordinated with neighboring jurisdictional, MPO, and other agency plans to ensure that local and regional mobility goals are met in a proactive, comprehensive way. When development is expected to impact SIS facilities, local entities should also coordinate with FDOT on mitigation plans. FDOT reviewers should therefore be aware of how local government comprehensive plans align with regional and statewide mobility goals through a number of planning documents so that the mitigation options chosen are consistent with adopted plans. Mitigation efforts should be consistent with local government comprehensive plans and future land use maps, as well as the Metropolitan Planning Organization's (MPO) Transportation Development Plan (TDP), Transportation Improvement Plan (TIP), the Unified Planning Work Program/Budget, and the Long-Range Transportation Plan (LRTP).

Mitigation should be relative to the scale of the expected transportation impacts. For example, while two developments might initially seem similar, a mall would expect to generate more traffic and have a greater impact to the existing transportation network than a warehouse even when both developments consists of an equal amount of commercial or retail square footage.

Transportation impact analysis has traditionally focused on a few basic factors to identify expected automobile level of service impacts on the transportation system and the associated costs of addressing these impacts. While this traditional analysis still holds true for many traditional suburban developments and undeveloped areas, newer community strategies like TCEAs, TCMAs, and MMTDs involve additional factors that are not effectively measured in automobile level of service calculations alone. In these cases, consideration of transit needs, bicycle and pedestrian needs, and mitigation efforts to reduce automobile dependence are also necessary. In addition to the traditional level of service considerations, some questions to consider in analyzing impacts include:

- Does the design of the proposed development work to reduce impacts on adjacent arterials?
- Are there factors in the proposed development that are expected to reduce automobile trip generation?
- Will the proposed development support higher rates of internal capture?
- Will the proposed development produce more trips by alternative transportation modes?
- Does the proposed development support more trip chaining that may affect the activity patterns on the transportation system?

See Resource Guide 5 for information on how multimodal quality of service can be utilized to assess how well these questions are addressed.

- In addition, different transportation impacts may be expected depending upon development type. Developments that are designed to include an interconnected street network, support high density mixed-use development, or otherwise embrace transit-oriented design practices, serve to reduce reliance on adjacent arterials through design features that promote bicycle and pedestrian accessibility and the ability to move along local streets for daily trips. The transportation impacts for these developments are therefore less than conventional low density suburban developments that separate land uses and promote automobile use due to insufficient bicycle and pedestrian facilities accessibility, and vast distances to traverse.

FDOT reviewers should also recognize and look for opportunities to reduce impacts to the SIS, FIHS, and TRIP-funded facilities. For instance, some local

governments and MPOs have developed **roadway constraint ordinances or policies** to guide transportation investment priorities, promote community mobility goals, and offer less expensive options for enhancing regional transportation networks. These policies should be consulted along with other local and regional planning documents, and will have a significant impact on mitigation opportunities. For instance, the Lake Sumter MPO Roadway Constraint Policy defines maximum number of lanes for several federal, state, and county roads within their jurisdiction in an effort to maintain and enhance the overall transportation network in a cost-effective way that considers long-term community mobility goals.


*Lake Sumter Policy*

Another method for reducing impacts on the SIS, FIHS, and TRIP-funded facilities is in the use of **parallel reliever roads**, nearby parallel roads that serve common destinations and run in the same direction as a major arterial. In the City of Destin, for example, parallel reliever roadways operate to preserve existing capacity on US 98 (the main east-west arterial running through the city) while contributing to the overall multimodal transportation goals and policies of the community. In conjunction with the City's recent adoption of a MMTD, various transportation options have been developed to improve roadway connectivity and reduce single occupant vehicle trip making in an overall effort to create a multimodal environment. When employing this strategy, particular attention should be paid to safety considerations in the improvement of parallel relievers to address operational issues and unfamiliar movements that can lead to increased crash rates.

As more options become available to meet the mobility needs of the transportation network, the analysis of mitigation options becomes more complex. In general, reviewers should utilize both quantitative and qualitative methods of analyzing the transportation impacts of new development.

FDOT reviewers should recognize the limitations of travel demand modeling in multimodal analyses so that transportation impacts are assessed effectively. For example, the use of traffic analysis zones (TAZs) as a unit of analysis does not consider trips within those zones, like the ones that constitute the majority of walking trips, a significant portion of bike trips, and most trips to access transit. In addition, existing land use models do not consider differences in land use configurations that may occur as a result of changes in the transportation network. FDOT reviewers may wish to consult FDOT's Multimodal Tradeoff Analysis in Traffic Impact Studies for more detailed information on multimodal considerations.


*Multimodal Tradeoff*

### 5.1.1 Context-Sensitive Solutions (CSS)

FDOT's Topic 000-650-002-a defines Context Sensitive Solutions as, "a proactive, collaborative, interdisciplinary approach to transportation decision making, project development, and implementation, taking into account, the views of stakeholders, and the local area where a project will exist, be operated, and be maintained." CSS strategies support a broad view of the modal transportation network to enhance local planning goals and conserve important environmental resources, while also addressing safety and mobility issues. Conventional approaches to capacity enhancement focus on widening lanes and creating more continuous roadways. This leads to the unintended result of hindering specific community and environmental objectives as well as aesthetics, accessibility and safety. A CSS strategy requires the implementation of solutions tailored to the specific community and takes multimodal and intermodal connections into account when addressing capacity needs.

Local and regional plans provide the directive for meeting concurrency standards through CSS. Early and continuous coordination between FDOT, local governments, and the public is imperative in order to define community and environmental goals to establish long-term mobility on the transportation network. Examples of new capacity improvements using CSS include: streetscape improvements, traffic calming design elements, as well as road space reallocation to increase right of way for alternative modes such as transit or bicycle/pedestrian improvements. CSS may be combined with Transportation Demand Management (TDM) solutions that seek to increase efficiency on the existing system by considering design elements that influence travel behaviors.

### 5.1.2 Development or Land Use Changes

Changes in the development plan initially proposed by the applicant may ultimately be required if there are no other feasible alternatives to mitigate for the traffic impacts or to reduce the magnitude of impacts by modifying the assignment of traffic by the development.

Examples of changes to site plans could include:

- Reduce development land uses
- Change proposed land uses
- Modify development phasing
- Revise internal circulation
- Limiting the number of trips that a site can generate through Comprehensive Plan policy

Recommendations for changes to site plans should be coordinated through the local government.

The successful implementation of mitigation strategies will require increased and continuous intergovernmental coordination, and as such, the final section of this chapter provides guidance on developing mitigation agreements to help facilitate coordination with local governments and other transportation agencies.

## Mitigation Agreements

The key outcome of all mitigation discussion and negotiation is a formal mitigation agreement. The mitigation agreement is entered into by the applicant and the reviewing agencies. Mitigation agreements are legally binding documents and should be thoughtfully and carefully prepared. At a minimum, the agreements need to address the following key issues:

- What are the project impacts?
- A clear summary of project impacts should be included.
- What is the cost to mitigate the project impacts and what is the applicant's proportionate share responsibility of the needed mitigation?
- This is usually shown in tabular form.
- What type of mitigation is the applicant proposing?
- Options include paying a sum to the maintaining agency (i.e. write a check), participating in a needed study, donation of right of way, constructing a project, or a combination of strategies.
- When should mitigation be secured?
- Usually prior to starting project or entering phase.
- May have 'trigger' in DO (such as number of trips).
- Who is party to the agreement?
- What should local governments commit to and when should commitments be made?
- How does the agreement satisfy concurrency (DRIs)?

## 5.2 Strategies

This section provides guidance on mitigation strategies and alternatives that should be considered in maintaining long-term mobility on the transportation system.

*Long term strategies which are also regional in nature are presented first within each sub section. These mitigation strategies typically apply to DRIs, regional activity centers or other large development. Following these long term, large scale strategies, short term more project specific strategies are presented. Though the scales of these strategies differ, they are not necessarily mutually exclusive.*

### Keys to Successful Mitigation

*Involvement of Partners*

When a development negatively impacts the SHS or if it causes a SIS, FIHS, or TRIP-funded facility to fall below the LOS standard required by Rule 14-94, F.A.C., a number of mitigation alternatives may be considered in the review process to lessen these transportation impacts. It is important to note, however, that FDOT reviewers should verify that mitigation strategies are codified by the local government comprehensive plan and land development codes, consistent with the mitigation practices outlined below. Close involvement with transportation and land use partners can help assure that mitigation strategies proposed will effectively address the impacts of development.

Two general needs have emerged as districts and local governments attempt to meet the requirements of growth management legislation in a systematic way:

1. Regional perspective
2. Land Use and Transportation strategies to support and fund mobility or "Mobility Plans"

### Regional Perspective

It has become clear that transportation impacts to FIHS, SIS and TRIP-funded facilities often cross traditional jurisdictional boundaries, and in order to meet the long term needs of the transportation system, a **regional perspective** is needed. In addition, the consideration of other transportation modes such as, bicycle, pedestrian, and transit will help accomplish long term mobility needs on the transportation system, and present new opportunities for partnering and funding. As part of the partnering process, FDOT planners and decision makers will need to coordinate with DCA staff, regional planning councils (RPCs), metropolitan planning organizations (MPOs), and local governments, to maximize long term approaches of achieving mobility goals.

## Land Use and Transportation

*Mobility Plans*

Strategies that embrace the connection between **land use and good transportation service** should be included in local government comprehensive plans and land development codes to meet community goals. These strategies may be found throughout the various elements of a comprehensive plan or they may be consolidated into a single **mobility plan**. It will be key for FDOT staff to coordinate with transportation partners in developing mobility plans to accommodate future traffic on the impacted corridors based on solutions other than adding lanes to existing roads. This is particularly important particularly if no roadway improvement projects are programmed on deficient facilities. Examples of these and other strategies are discussed in the following sections, and include context sensitive solutions, corridor access management solutions, transportation demand strategies, and transit oriented development. Guidance for TCEAs in DULA areas can be found in sections 3.8.3 and 3.8.4 of this document and s. 163.3180(5)(a)4, F.S. As of this writing DCA is in the rulemaking process of 9J-5 FAC with the intent of providing additional guidance.

## Early and Continuous Involvement


*Prop Share Agreement*

Perhaps most importantly, initial efforts of FDOT staff will require establishing **early and continuous involvement** between FDOT and transportation partners. Transportation partners may include local governments, MPOs, RPCs, as well as DCA staff. Typically an interlocal agreement or memorandum of agreement is first established to identify the roles and responsibilities of all affected parties, and to ensure proper coordination and documentation of mitigation. Documentation should include a detailed description of the proposed improvement(s), identify funding responsibilities, and demonstrate that improvements are in compliance with local, regional, and state LOS and other requirements. In addition, an "umbrella" agreement may be established by FDOT and the local government to streamline the mitigation approval process. An example of this approach by District 3 and Walton County can be found in their Transportation Proportionate Share Agreement.

## 5.3 Three Basic Categories of Mitigation Strategies

As funding needs for new capacity improvements greatly exceed available funding resources, the focus of transportation impact mitigation has shifted to a more systematic approach to consider enhancing operational efficiency and increasing options for alternative modes of travel in addition to increasing roadway capacity. A variety of the following strategies may be chosen relative to the transportation impacts of the proposed development, transportation system long-term goals/plans, and applicable state and local requirements. Both short-term and long-term mitigation options should be considered to coordinate achieving long-term mobility goals. Mitigation strategies will be discussed in the following section within the framework of three general categories to provide reviewers with a range of options, specific to local and regional needs and goals:

1. Enhancing Operational **Efficiency** on Existing Transportation System
2. Increasing Other **Modal Options**
3. Increasing System **Capacity**

### 5.3.1. Enhancing Operational Efficiency on Existing Transportation System


Mitigation strategies designed to enhance operational efficiency on the existing system and reduce greenhouse gas emissions may include:

- Congestion Management Processes
- Corridor Access Management Plans
- Street Network Connectivity
- Transportation Demand Management (TDM)
- Transportation System Management (TSM)
- Enhancements for use of high occupancy vehicle lanes or Transit
- Public Transit Operational Improvements

**Congestion Management Process (CMP)**

Federal Regulation, Titles 23 U.S.C. 134(k) (3) and 49 U.S.C. 5303(k) (3) require that all MPOs maintain a Congestion Management Process using travel demand reduction and operational management strategies to identify and address congestion issues on the transportation network. Partnering with MPOs through this CMP can help identify and prioritize mitigation options that address long-term mobility on the SIS, FIHS, and TRIP-funded facilities. Employing this strategy can both aid in identifying low-cost operational and management improvements and present an opportunity for partnering in costly, large-scale needed improvements.

## Corridor Access Management Strategies

Comprehensive corridor access management planning provides an excellent way to increase efficiency and safety on the impacted roadway systems. Good corridor access management practices can assist with orderly development patterns, increased safety, and efficiency on roadways. The management of driveways also ensures a safer environment for pedestrians and cyclists. FDOT has many resources to help with the important strategy.

Comprehensive corridor access management incorporates coordination of land use decisions within the corridor. Comprehensive corridor access management planning may be considered as part of a long term concurrency management system. It should define improvement projects, and should evaluate corridors beyond the roadway right of way to address land use, street networks, and right of way. Examples of proposed improvements resulting from the strategy may include:

- Median improvements
- Signal location and spacing
- Auxiliary lanes
- Right of way needs and requirements
- New standards for site access, connectivity and circulation design
- Effective location of commercial and transportation activity centers
- Improvements to the supporting roadway network
- Improvements involving access for other transportation modes (e.g. bus pullouts, transitions for special use transit lanes or bus rapid transit, pedestrian crossing treatments)
- Better design and integration of bicycle lanes and sidewalk facilities.

In order to implement Corridor Access Management Plans, each implementing agency (e.g. FDOT, MPOs, and local governments) should adopt the plan. State and local governments should approve these plans. Implementation is typically achieved by combining regulations, interagency or public/private agreements, design standards, and road improvement projects. Detailed guidance and resources on evaluation techniques, best practices are available in

1. Documenting Improved Mobility Techniques on SIS and TRIP Facilities.
2. Corridor Preservation Best Practices
   (Hillsborough County Corridor Study) CUTR 2003
3. Effective Strategies for Comprehensive Corridor Management
4. Managing Corridor Development
   CUTR 1996

## Street Network Connectivity Strategies

In a number of areas around Florida, the SIS, FIHS, TRIP-funded facilities are being used as the primary means for transportation between developments, while local and collector street networks remain underdeveloped and/or fragmented. In addition to the strain this puts on the ability of these facilities to maintain adequate LOS and provide adequate emergency access, the use of major highways results in negative impacts to the community. The higher speeds and turning movements associated with traffic on major highways create unsafe conditions for bicyclists and pedestrians. In addition, these safety issues, combined with trip length and lack of connectivity produce a greater dependence upon the automobile as the sole means for transportation.

Mitigation to address transportation impacts to these facilities involves promoting activity centers, providing alternative routes for local trips, focusing on connecting existing roads, as well as considering street network connectivity as new development emerges. Long-term Corridor Access Management Plans can use the existing local street system to identify where preferred alternative routes are located, and mitigation efforts can be focused on promoting connectivity over time. Continuous coordination with local governments is needed to implement this strategy successfully, and reviewers should consult applicable land development codes for street spacing or connectivity requirements for developments impacting FIHS, SIS, or TRIP-funded facilities. TRB's Paper, Accomplishing Alternative Access on Major Transportation Corridors provides further examples of street network connectivity strategies and sample regulatory language.


*Alternative Access*

## Transportation Demand Management Techniques

TDM consists of strategies that foster increased efficiency of the transportation system by influencing travel demand by mode, time of day, frequency, trip length, regulation, route or cost. TDM discourages peak hour drive alone travel through better management of existing transportation infrastructure, services and resources. TDM strategies include, for example, public transit services, carpooling and vanpooling, compressed work weeks, telecommuting, limited parking, and provision of bike and locker facilities by employers. Detailed information about TDM strategies and existing programs can be found at the National TDM and Telework Clearinghouse.


*TDM Clearinghouse*

FDOT staff unfamiliar with local government land development processes will find guidance on measures that can be used to influence the incorporation of TDM into the land development process in Incorporating TDM into the Land Development Process. National Center for Transit Research at CUTR, August 2005. The report documents efforts to secure TDM strategies as part of development approvals, summarizes the long range planning groundwork that frames the land

development process, includes several case study examples from Florida and other states and identifies institutional barriers to the use of TDM as part of the land development process.

Transportation partners interested in using TDM in land development should start their involvement early. This requires participation in review and updates of the MPO long range transportation plan and transportation improvement program as well as local government comprehensive plans. The reviewer should ensure that the TDM measures are consistent with the MPO's CMP and traffic analysis methodology. These activities will begin the integration of TDM principles and strategies into the land use and transportation planning process resulting in physical infrastructure and regulatory tools to support TDM as land development proceeds.

> *TDM methodologies can also utilize state of the art transportation system management and operations strategies (TSM) such as displaying real time duration of congestion information vs. travel times on rail or bus rapid transit.*

TDM strategies can also be site specific if they are part of a larger regional effort.

## Transportation System Management Strategies (TSM)

TSM strategies are improvements intended to utilize the existing transportation system's capacity to the greatest extent possible. These improvements consist of geometric improvements or traffic control strategies rather than increasing the number of general use lanes.

**Examples of TSM improvements include:**

- Add intersection turning lanes
- Improve intersection channelization
- Modify traffic signals phasing or timing
- Improve signal progression
- Implement Ramp metering
- Add an auxiliary lane along a freeway
- Modify an interchange (If an interchange with a freeway is proposed, these improvements require compliance with the analysis process, criteria, policies and standards set forth in FDOT's Interchange Handbook)
- Implement incident management programs
- Implement traveler information systems
- Implement intelligent transportation systems (ITS)


*Interchange Handbook Website*

TSM methodologies such as developing an advanced traffic management system can be considered a regional large scale mitigation strategy, which individual developments participate in funding.

### Enhancements for Use of HOV or Transit

Enhancements for the use of transit or high occupancy vehicle (HOV) lanes can alleviate traffic impacts by resulting in an increase in transit use and reducing the number of single occupant vehicle trips (SOV) thereby reducing the number of primary vehicle trips on the roadway system. These improvements should be evaluated carefully by FDOT and changes in mode split should be supported by the developer based on data collected on projects of similar intensity and use. In addition FDOT should work with local governments and MPOs to build these strategies into local and regional plans. HOV and transit operations improvements can be considered as either localized or regional mitigation strategies depending on the scale of the projects.

Some of the strategies that may be appropriate for mitigation include:

- Construction of park and ride lots
- Construction of bus shelters, turn-outs, etc.
- Construction of HOV access ramps
- Implementation of HOV priority lanes at ramp metering and intersections
- Operational funding for transit
- incorporating site design principles to facilitate transit
- Add passing lanes so that transit vehicles can bypass congestion hotspots

### Public Transit Operational Improvements

Public transit operational improvement strategies are also strategies that are intended to reduce the amount of primary-trip vehicles on the transportation network by changing the mode split. These strategies are encouraged; however, they should be carefully evaluated to ensure that the proposed changes in mode split are realistic. Additionally, it should be ensured that local transit agencies support the change in transit service and are committed to the proposed changes associated with the proposal. Examples of public transit operational improvements that may be appropriate for mitigation include new or more frequent service and employer subsidized transit.

## 5.3.2. Increasing Other Modal Options


Another strategy for ensuring the long-term viability of the transportation network is mitigation that increases mode choice. All mitigation options utilizing non-automobile modes must be firmly rooted in local government comprehensive plans. Options for increasing mode choice are discussed below, and include:

- Transit Oriented Development (TOD)
- Providing Better Transit Options
- Bicycle/Pedestrian Connectivity

### Transit Oriented Development

Another method for addressing congestion on FIHS, SIS, and TRIP-funded facilities is through the promotion of land uses that are supportive of transit. To implement these strategies, local governments should refine comprehensive plans land development codes to include transit supportive design criteria, such as density and intensity ranges, as part of the development standards. FDOT planners and decision makers can then support these efforts in partnership with local governments. FDOT's Transit Oriented Development Design Guidance and Accessing Transit Design Handbook for Florida Bus Passenger Facilities contain guidance on design features, safety issues, and land use strategies that promote TODs.

### Provide Transit Options

Transit options are an important consideration in developing any mitigation strategy in urbanized areas whether they are DULAs, TCEAs, TCMAs, MMTDs or other transportation concurrency exceptions. All transit options should be included in transit agency TDPs and LGCPs. Implementing this strategy requires early and continuous coordination with transit agency representatives, such as MPOs in addition to local governments, in the development of the mobility plan. Consideration of funding mechanisms to maintain operational costs of the system is needed to create cost feasible solutions.


*Transit Operations*

The report, Land Developer Participation in Providing for Bus Transit Facilities/Operations documents various strategies that Florida's local governments and transit agencies can use to generate public transportation funding through the involvement of private developers. Local and national case studies highlight application of these strategies. Suggestions are designed for use within the framework of local government comprehensive plans, land development codes, and transit development plans, and call for increased coordination and cooperation between local governments and transit. FDOT planners and decision makers may also become involved in this process as development impacts FIHS, SIS, and TRIP-funded facilities, and should work on establishing coordination efforts to plan for transit options for mitigation.

### Bicycle/Pedestrian Connectivity

To foster the use of alternative transportation modes, connectivity for bicycle and pedestrian movement should be an integral part of any mobility plan. Although often considered the realm of local government alone, FDOT planners and decision makers should be prepared to share technical expertise in this area. Ample bicycle and pedestrian connections within and between residential areas and activity centers, such as shopping areas, employment centers, transit stops, neighborhood parks, and schools may reduce the number of short automobile trips.


*Multimodal Transportation Districts*

A bicycle and pedestrian network comprised of a system of interconnected and direct routes can be measured by a connectivity index. One method to perform this analysis is found in FDOT's Multimodal Transportation Districts and Area-wide Quality of Service Handbook. Missing links or gaps in the bicycle and pedestrian network should be identified and eliminated where appropriate through the development process. Missing links may include locations between cul-de-sacs, through walls or fences, mid-block where block length exceeds 660 feet, or where bicycle pedestrian routes would otherwise be "excessively" circuitous. Highest priority for improvements should be given to locations with high concentrations of pedestrian activity and where connections are needed to ensure easy access between transportation modes, with particular attention to bicycle and pedestrian access to schools, transit stops and regional greenway or trail systems. Model comprehensive plan amendment and land development regulation language can be found in Model Regulations and Plan Amendments for Multimodal Transportation Districts.


*Model Regulations*

## 5.3.3. Increasing System Capacity


Options for increasing roadway capacity may include:

- Construction of new transportation facilities, such as new roads or transit
- Addition of new through lanes
- Improving the support system for main roadways –Improvements that support the main highways, such as connectivity, parallel facilities, or increased transit service

### Construction of New Facilities

The Construction of new facilities is one strategy to address transportation impact needs resulting from new development, and is encouraged when new facilities help meet long-range transportation goals and policies, such as regional connectivity. Applicable considerations when proposing new facilities include impacts to regional community and environmental objectives, congestion management system goals and policies, and air-quality planning requirements. As

such, features in roadways that aid future transportation system management (TSM) strategies (e.g., Intelligent Transportation Systems), enhance the use of transit (e.g., geometric and operational improvements to accommodate bus travel) and future travel demand management strategies (e.g., access to park and ride lots) can be part of this strategy.

In addition, new roadway facilities on the SHS should be consistent with all FDOT standards and policies. Transportation facilities on the FIHS are required to meet standards and limitations set forth in FDOT's Procedure on Development of the Florida Intrastate Highway System, Topic 525-030-250-f. Construction of new facilities to the SIS and Emerging SIS are governed by Section 339.63, F.S and construction plans should be developed in coordination with local governments, regional planning councils, transportation providers, and affected public agencies. Requirements for new facilities to SIS or Emerging SIS facilities are based upon FDOT's Adopted Criteria and Thresholds of July 2008. Construction of new facilities should reflect the principles of functional hierarchy and systems connectivity addressed in *A Policy on the Geometric Design of Streets and Highways, (AASHTO, 2004).*


*Adopted Criteria*

## Add Lanes

The addition of new through lanes on existing facilities is another way of addressing the impacts resulting from new developments. However, the lane additions should be consistent with regional goals and policies for SOV travel, FDOT Topic 525-030- 250-f Procedure on Development of the Florida Intrastate Highway System, and Adopted Criteria and Thresholds for the SIS. The selection of corridors for new general use lanes should be coordinated with FDOT. Features that facilitate future transportation system management strategies, enhancements for the use of transit and future travel demand management strategies are part of this strategy

## Alternatives to SIS Roads

Improvements made to arterial or collector roads running parallel to a SIS facility and serving common destinations may be considered as an option for mitigation of transportation impacts to SIS facilities at or near capacity. This strategy creates an opportunity to partner with appropriate transportation agencies and/or MPOs to meet mutually beneficial, cost effective transportation improvements. FDOT staff play a key role in approving relievers as SIS mitigation


*Growth Management Training*

Developing these reliever roads may take the form of new road development as well as expansions to existing roads. Because of the expense and complexity associated with obtaining right of way for new roads, the designation of existing roads as a parallel reliever may be desirable where travel demand evaluations warrant such designation. Where service roads are designated as parallel

relievers, opportunities exist to integrate corridor development with local street networks and enhance the ability of smaller areas to establish service roads on the state highway system. Examples of mitigation options for parallel relievers include improving access from the main facility to these reliever roads, connecting a number of existing reliever roads into one interconnected road, adding lanes to the parallel road to increase capacity, as well as improvements to signal timing, turn lanes, and medians.

The opportunities for partnering between FDOT, local governments, and other transportation agencies to establish parallel reliever roads offer viable options for meeting FDOT objectives of maintaining levels of service on the SIS and FIHS and local visions for mobility; however, reviewers should be aware of known design issues to ensure safety and mobility in the creation of these facilities. Continuous frontage roads, for example, are known to lead to crashes and operational problems due to unfamiliar movements and where connecting too close to a major roadway intersection. In addition, one of the lessons learned from Destin's parallel reliever has been the need to create bicycle and pedestrian facilities in conjunction with these parallel relievers to develop a connected, multimodal environment. Close coordination between FDOT and local governments can help in ensuring that community and safety needs are met on a project by project basis.

# 5.4 Other Mitigation Strategies: Land Use and Transportation Strategies to Enhance Mobility

In addition to the approaches referenced above, the following additional mitigation options may be considered in reducing transportation impacts. With the exception of a LOS variance these options are longer term planning strategies that require adoption into local government comprehensive plans.

## 5.4.1 Transportation Concurrency Alternatives (TCEAs, TCMAs, and MMTDs)

In some cases, the strict application of transportation concurrency requirements may conflict with important area planning objectives such as urban infill, redevelopment, or the promotion of public transportation. In these cases, local governments are able to designate geographic areas into their comprehensive plans as Transportation Concurrency Exception Areas (TCEAs), Transportation Concurrency Management Areas (TCMAs), and Multimodal Transportation Districts (MMTDs), subject to requirements in Section 163.3180, F.S. In 2005, these requirements were strengthened to also require local governments to consult with FDOT prior to the designation of these areas. Impacts to LOS standards for SIS and TRIP facilities are to be determined by FDOT and local government, and mitigation plans for alleviating impacts to the SIS are to be coordinated between FDOT and the local governments. TCEAs, TCMAs, and MMTDs are used to implement transit system improvements and supporting pedestrian/bicycle infrastructure as a viable mitigation strategy, and proportionate fair share contributions may be used to fund these mitigation efforts. FDOT reviewers should consult **Chapter 3** of this handbook for further information and resources on LOS analysis, funding mechanisms, and monitoring requirements for TCEAs, TCMAs, and MMTDs.

It is also important to note that in 2009, the Florida Legislature passed SB 360 (known as the “Community Renewal Act”) which has important impacts on coordination efforts with regard to TCEAs. A major change to law was the creation of "Dense Urban Land Areas." "Dense urban land areas" are defined as municipalities that have an average of 1000 people per square mile and a minimum population of at least 5000, a county (including the cities therein) which has an average of 1000 people per square mile, or a county (and its cities) which has a population of at least 1 million people. Transportation concurrency exception areas (TCEA) are automatically created in 1) cities that qualify as such; 2) within the urban service areas of counties that qualify as dense urban land areas; and 3) in counties that have a population of at least 900,000 and qualify as dense urban land areas but don't have an urban service area. Increased

coordination between FDOT, DCA and local governments will be necessary to ensure that designation of these areas and mitigation plans comply with applicable state statutes and rules. In addition FDOT staff should work with their DCA counterparts and anticipate additional guidance from DCA as the changes to law are implemented. Miami-Dade County and Broward County are exempt for the automatic TCEA designation by the legislation due to special circumstances related to special existing urban infill and existing mechanisms that fund multi-modal options.

## 5.4.2 Long Term Concurrency Management Systems (LTCMS) and Variances to FDOT LOS Rule

Sometimes in long-term plans to address LOS standards under Rule 14-94, F.A.C. it is necessary to temporarily allow facilities to fall below established LOS standards in order to implement such plans. In these cases where other transportation concurrency strategies do not apply there are two other tools which can be employed.

A long term concurrency management system (LTCMS) can be developed which sets interim LOS standards until improvements can be implemented. See 163.3180(9), F.S. These standards on certain facilities rely on the local government's schedule of capital improvements for up to 10 years as a basis for issuing development orders. The concurrency management system must be designed to correct existing deficiencies and set priorities for addressing backlogged facilities. The concurrency management system must be financially feasible and consistent with other portions of the adopted local plan, including the future land use map. In certain cases a 15 year long term schedule of capital improvements can be developed.

In cases of demonstrated substantial hardship, variances to LOS standards may be requested at the FDOT district level through Section 120.542, F.S. by providing a strategy for mitigation within a set time period. For a list of case examples where FDOT has approved variance to LOS standards under Rule 14-94, F.A.C., please consult the 2009 FDOT Report, *Integrating Corridor Management, Growth Management and Concurrency: Literature and Current Practice Review.*

Keys to a successful variance process, as outlined in Growth Management Implementation: A Work Plan for the FDOT District 4 Office of Modal Development, include:

1) There must be a real substantial hardship and/or unfairness in the application of the LOS rule.
2) A variance to the LOS rule will apply to the adopted LOS for a SIS or TRIP

highway, or a SIS connector, and so will affect all pending and future development that will impact the facility to which the variance applies.

3) It takes time to create proper conditions for a variance. Variances should contain binding obligations for the local government and these obligations should be publicly discussed. Variances can be granted for a limited amount of time and may contain conditions upon which the variance is granted. Such conditions could include consideration of multimodal performance measures.
4) Variances are not limited to changing LOS letter grades. Although not yet implemented, variance options include changing when concurrency is measured from the 100th highest peak hour to some other time period, either a different peak hour or some off-peak period.
*5)* A variance is a remedy of last resort. Variances present enforcement challenges that should be carefully considered. Revoking a variance will likely mean a development moratorium along the area served by the facility for which the variance was granted.

### 5.4.3 Funding of Mitigation Improvements

Transportation mitigation needs vary by project and have the potential to impact the viability of a proposed development. As a result, the funding of mitigation options can be challenging.

The methodology for determining the developer's share funding of mitigation improvements should be identified in the methodology phase of the development. The share is determined in relationship to the number of trips generated by the development and the capacities on an affected roadway segment. The final mitigation fee is typically negotiated among the applicant, local governments, RPC and the FDOT (if state highway improvements are involved) following the mitigation analysis that demonstrates the proposed improvements will result in an acceptable operating condition along the roadway. This negotiation should occur before or concurrent with the drafting of the development order for DRIs.

#### Transportation Cost Resources

Determining accurate mitigation costs is an essential component to developing an equitable mitigation package. The FDOT maintains several cost estimating and documentation resources to assist with the determination of:

- Highway construction costs
- Right of way costs
- Bridge costs
- Transit costs
- Inflation factors (for converting present day costs to future years)
- Construction cost indicators


*Transportation Costs*

FDOT's Transportation Costs online site contains a full list of cost estimates and documentation resources. The on-line resource page includes several key staff contacts for cost information. In reviewing the on-line resources, it should be noted that much of the information is general. Many, if not all, of the cost factors are situation specific and will vary from District to District within the FDOT based on local circumstances. In many situations, costs will vary even within a given district. This is particularly true with right of way costs due to the price of right of way acquisition in dense urban areas.

Because of the wide cost variation, all costs and adjustment factors relating to specific transportation projects should be addressed with the district office where the project will be located and all assumptions and cost estimating methodologies should be reviewed and approved by the FDOT. It is noted that the generalized costs available from the FDOT may not be accepted for use in mitigation calculations. Where available, cost estimates based on design, PD&E, or feasibility/corridor studies should be used. Tools such as the FDOT's long-range estimating (LRE) software may also be used to determine a more location specific cost as compared to generalized costs. Because of the significant differences that can exist between a cost estimate based on generalized costs and a cost estimate based on more site specific information, the use of site specific costs in mitigation agreements is preferred by the FDOT.

## Cautionary Considerations

The funding of transportation improvement projects is often key to satisfying local concurrency requirements and FDOT operating standards, allowing development to move forward. Proportionate share mitigation, proportionate fair-share mitigation, pipelining, and other options may be considered as tools through which development applicants can contribute their share of the cost of improving the impacted transportation facility and thereby mitigate their impact. When properly developed and administered, these funding mechanisms effectively generate funding for future transportation improvements in an equitable manner while allowing development to continue. To be effective, it is essential that cost-sharing mitigation plans:

- Be developed based on correct application of site related traffic
- Be developed based on accurate and reliable cost estimates
- Have an applicant's or agency's commitment to deliver a funded transportation improvement adopted into the local capital improvements element

Development and administration of cost-sharing mitigation plans can be complicated by:

- Cost uncertainties such as:

  - Lack of detailed design or cost estimates for future improvements
  - Right of way acquisition costs
  - Potential for large fluctuations in construction costs due to unanticipated changes in material availability (particularly shortages), fuel costs, and other inflationary considerations
- Developments that are obligated to contribute but do not because the development is unable to move forward (no development = no contribution)
- Potential lack of consistency between a project identified for proportionate share and other adopted planning documents (that may not include the project needed)
- Funding shortfalls if insufficient funds are collected to fully pay for a given proportional share mitigation project

It should be noted that cost-sharing contributions may be in the form of funds, right of way, or the construction of improvements. The FDOT should concur with projects that involve the SIS in order to ensure impacts on these facilities are addressed.

### 5.4.4 Proportionate Share (DRI) Mitigation

*The next two sections provide an overview of proportionate share (DRI) and proportionate fair-share mitigation.*

Proportionate share is a commonly exercised option to mitigate project impacts associated with DRIs. Section 163.3180(12), F.S. identifies the parameters under which a proportionate share assessment can be offered as mitigation for the transportation impacts of a DRI. These parameters include:

- The local government with jurisdiction over the property has adopted a local comprehensive plan that is in compliance
- The proposed development would be consistent with the future land use designation for the specific property and with pertinent portions of the adopted local plan, as determined by the local government
- The local plan includes a financially feasible capital improvements element that provides for transportation facilities adequate to serve the proposed development, and the local government has not implemented that element
- The local government has provided a means by which the landowner will be assessed a fair share of the cost of providing the transportation facilities necessary to serve the proposed development
- The landowner has made a binding commitment to the local government to pay the fair share of the cost of providing the transportation facilities to serve the proposed development

With respect to DRIs, Section 163.3180(12), F.S. states:

"A development of regional impact may satisfy the transportation concurrency requirements of the local comprehensive plan, the local government's concurrency management system, and s. 380.06, F.S., by payment of a proportionate-share contribution for local and regionally significant traffic impacts, if:

a) The development of regional impact which, based on its location or mix of land uses, is designed to encourage pedestrian or other non-automotive modes of transportation;
b) The proportionate-share contribution for local and regionally significant traffic impacts is sufficient to pay for one or more required mobility improvements that will benefit a regionally significant transportation facility;
c) The owner and developer of the development of regional impact pays or assures payment of the proportionate-share contribution; and
d) If the regionally significant transportation facility to be constructed or improved is under the maintenance authority of a governmental entity, as defined by s. 334.03(12), F.S., other than the local government with jurisdiction over the development of regional impact, the developer is required to enter into a binding and legally enforceable commitment to transfer funds to the governmental entity having maintenance authority or to otherwise assure construction or improvement of the facility."

Both the Florida Statutes (s. 163.3180(12)(a)4), F.S., and Florida administrative code provide a definition of the proportionate share formula. Per Florida Administrative Code 9J-2.045(2)(h): "Proportionate share contribution means, only in the context of this rule, a contribution from a developer or owner of a DRI to the local government or government agency having maintenance responsibilities for those facilities, which make adequate financial provision for the public transportation facilities needed to accommodate the impacts of the proposed development on roadways outside the local government of jurisdiction's Concurrency Management System area. The proportionate share contribution shall be deemed to make adequate financial provision for such facilities if it is equal to or greater than the sum of the costs of improvements attributable to the proposed development derived from the application of the formula below. The costs of improvements attributable to the proposed development are based upon the sum of the cost of improving each significantly impacted state and regional roadway which will operate at worse than the level of service standard in the local government's approved comprehensive plan or the FDOT level of service standards for roads on the Florida Intrastate Highway System at each project stage or project phase and at project build out. The proportionate share of the cost of improvements of each such roadway is

calculated according to the following formula:

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*Where:*

DRI Trips: cumulative number of the trips from the proposed development expected to reach the roadway during the peak hour from the complete build out of a stage or phase being approved

SV Increase: the change in peak-hour maximum service volume of the roadway resulting from construction of the improvement necessary to maintain the adopted level of service

Cost: Cost of construction at the time of developer payment of an improvement necessary to maintain the adopted level of service. Construction cost includes all improvement associated costs, including engineering design, right of way acquisition, planning, engineering, inspection and other associated physical development costs directly required and associated with the construction of the improvement, as determined by the governmental agency having maintenance authority over the roadway.

## Considerations

Both the number of DRI trips and the SV increase are typically determined through a traffic study. Care should be taken to ensure the correct application of trip generation and trip distribution estimates within the traffic study to properly assess the number of DRI trips. Similarly, correct application of highway capacity and LOS analysis is needed to estimate the SV increase using analysis tools such as the Generalized Tables, ARTPLAN, or HCS.

Cost is a critical factor and should be determined through coordination with the maintaining agency responsible for the facility to be mitigated. Because proportionate share funding may play a key role in the overall project funding plan, it is essential that project cost estimates be as accurate as possible. Underestimation of improvement costs will result in a project funding shortfall that will need to be made up when the project gets delivered.

Proportionate share payments are based on costs at the time of developer payment. As a result, the payment timing can significantly influence the actual amount of payment required. If payment will be made in the near term, current cost estimates and inflation factors can be used. If future payment is desired by the applicant, then the proportionate share should be determined as a percentage of overall project cost and the actual cost to the applicant will be determined at the time of payment. Given the time value of money and the potential for significant cost increases over time, it is important that applicants

understand the potential for cost escalations associated with future payment.

It is essential that the language included in the project Development Order is clear in stating that project costs are at the time of payment. Due to the many factors that influence the timing of a development program, Development Order language should avoid binding an agency to a present day project cost for a future year improvement.

A developer may be presented with options by the FDOT for the payment of the proportionate share determined using the DRI formula or other accepted methodology. The options for payment could include other transfer payments such as right of way donation, in addition to or in combination with options such as having the developer construct the actual improvement.

### 5.4.5 Example Proportionate Share (DRI) Calculations

Three examples are provided below to highlight proportionate share calculations for a range of circumstances.

**Example #1:**
Fictional Highway Widening Situation

A proposed development will significantly impact an existing two-lane roadway by adding 750 peak-hour directional trips. The background traffic on this roadway is 710 directional vehicles per hour during the peak. The MSV at the LOS standard of C for this facility (Class Ia1, divided with bays) is 790 directional vehicles per hour. As a result of the proposed development, the proposed mitigation improvement for this roadway will be to widen the facility to a four-lane roadway with a median and turn bays at a cost of $1,366,000. The MSV for the proposed facility (Class Ia1 divided with bays) is 1,610 directional vehicles per hour, an increase of 820 directional vehicles per hour. Applying the DRI proportionate share formula, the developer will be responsible for the following costs:

$$\text{Proportionate Share} = \frac{750}{820} * \$1{,}366{,}000$$

Resulting in a cost of $1,249,290 to the developer.

**Example #2:**
Fowler's Grove DRI

Fowler's Grove is located in the City of Winter Garden. The project proposal involved a single phase DRI supporting 60,000 square feet of office space and 100 multi-family residential units. The DRI determined the project would have a significant and adverse impact on a 5.3-mile segment of SR 50 impacting Orange County and the Cities of Winter Garden and Ocoee

Exhibit 27
**Prop Share Calculation**

**Exhibit 27** below illustrates the proportional share calculations prepared for Fowlers Grove.

| Segment From - To | DRI PM Pk Hr Pk-Dir Traffic | Service Volume Increase | Cost per Mile | | | | Improvement Cost | DRI Trips/Ser. Vol. Increase | DRI Proportionate Share Cost 2005 |
|---|---|---|---|---|---|---|---|---|---|
| | | | ROW | Bridge | Const. | Total | | | |
| CR 545 - Vineland Rd | 129 | 1,080 | 3,004,545 | 0 | 8,536,970 | 11,541,515 | $ 14,311,479 | 11.9% | $ 1,709,427 |
| Vineland Rd - Dillard St | 139 | 1,080 | 3,004,545 | 0 | 8,536,970 | 11,541,515 | $ 2,769,964 | 12.9% | $ 356,505 |
| Dillard St - 9th St | 208 | 1,080 | 3,004,545 | 0 | 8,536,970 | 11,541,515 | $ 5,770,758 | 19.3% | $ 1,111,405 |
| 9th St - Western Beltway | 148 | 1,080 | 3,004,545 | 0 | 8,536,970 | 11,541,515 | $ 12,580,252 | 13.7% | $ 1,723,960 |
| Western Beltway - Turnpike | 205 | 950 | 2,930,313 | 0 | 8,005,416 | 10,935,728 | $ 2,843,289 | 21.6% | $ 613,552 |
| Turnpike - Maguire Rd | 180 | 950 | 2,930,313 | 0 | 8,005,416 | 10,935,728 | $ 7,326,938 | 18.9% | $ 1,388,262 |
| Maguire Rd - Old Winter Garden Rd | 171 | 950 | 2,930,313 | 0 | 8,005,416 | 10,935,728 | $ 2,733,932 | 18.0% | $ 492,108 |
| Old Winter Garden Rd - Clarke Rd | 87 | 950 | 2,930,313 | 5,668,390 | 8,005,416 | 16,604,118 | $ 17,434,324 | 9.2% | $ 1,596,617 |
| TOTAL SEGMENT IMPROVEMENT COSTS | | | | | | | $ 65,770,934 | | $ 8,991,835 |

## 5.4.6 Proportionate Fair Share (Sub-DRI) Mitigation

Proportionate fair share mitigation is also defined by Section 163.3180(16), F.S. and applies to smaller, sub-DRI level developments. As in proportionate share for DRIs, proportionate fair share provides options to mitigate development impacts through cooperative efforts between the public and private sector. This option provides a way for developers to satisfy transportation concurrency requirements by funding a *specific* road segment or segments falling below LOS standards set for in Rule 14-94, F.A.C. Examples of proportionate fair-share mitigation may include the contribution of private funds, contributions of land, and/or construction and contribution of facilities. Proportionate Fair-Share may be employed when a roadway fails to meet concurrency standards, for small scale developments (non-DRI), and where adequate funding exists to build the entire project.

By statute, proportionate fair share mitigation is limited for use in assuring that development pays for its share of transportation impact costs, and may not be used to reduce or eliminate concurrency backlogs, as defined in Section163.3182(d), F.S. Developers have the option of paying into a fund, and in such cases the local government is responsible for addressing backlogs.

If a roadway that requires concurrency mitigation is on the SIS, the FDOT should concur with, and be a party to, the agreement. The FDOT may also be party to other proportionate share mitigation agreements impacting the SIS where FDOT funds will be received. By signing an agreement, FDOT is not guaranteeing the project will be under construction within 10 years, but is agreeing with the local government that sufficient funding is reasonably anticipated within that timeframe.

Projects identified for funding for proportionate fair-share contributions must: be included in the 5-year schedule of capital improvements in a local government's Capital Improvements Element (CIE), identified in the next update of the local government's CIE, or identified in an adopted long-term Concurrency Management System (CMS). Under the current legal requirements, local governments must have a CMS in place prior to the adoption of a proportionate fair-share ordinance (s. 163.3180(16)(b)1, F.S.). If a local government adopts a long-term CMS, it must:

- Concurrently adopt a long-term CIE covering up to a 10 or 15-year period
- Update the long-term capital schedule annually
- Demonstrate that progress to achieve concurrency is being made over the course of the long-range planning period.

If shortfalls in federal or state funding outlined in the long-term CIE exist, the circumstances of the funding shortfall should be documented and vested development is allowed to proceed. Where shortfalls to improvements are expected outside of the first 3-year period, the local government should do one of the following: cease issuance of development orders, identify other funding sources, or otherwise amend the comprehensive plan to ensure financial feasibility.


*Working with Prop Fair-Share*

Proportionate fair-share mitigation may be based on multimodal projects as long as the local government has adopted multimodal strategies and improvements into its comprehensive plan for alleviating concurrency issues, and a financial plan that is adopted in the CIE (s. Ch 163.3180(16)(c), F.S.). Each proportionate fair-share agreement will differ depending upon the variables involved; however, FDOT's Working with Proportionate Fair-Share outlines the key components each agreement should include:

(a) **Description of Project and Need** – Each proportionate fair-share agreement should have a detailed description of the project toward which subsequent funds will be applied. The transportation improvement itself should be coordinated with future land use through a corridor management or build-out plan. The corridor plan will allow the local government to calculate costs for the transportation improvement and form a basis for distributing those costs to future developers who wish to access the capacity created by the transportation improvement. The corridor plan will also assist the local government in determining financial feasibility for the transportation improvement by estimating funds resulting from future proportionate fair-share development agreements within the corridor. Finally, the corridor plan will act as a framework to balance and allocate trips to the land uses planned along the corridor.

(b) **Identification of Future Funding Partners** – Each proportionate fair-share agreement should specifically obligate the local government to require that subsequent developments within the corridor participate in the funding of the transportation improvement by signing a separate proportionate fair share agreement. In this manner, FDOT will have some assurance that there will be additional funds available to complete the project as the development is permitted by the local government. The corridor management plan should provide an indication of what level of funds a local government can be expected to provide. This should provide FDOT with a greater level of certainty and confidence in relation to entering into development agreements with local governments.

(c) **Identification of Each Partner's Commitments** – Development agreements that are entered into with FDOT for proportionate fair-share purposes should be seen as a commitment by that local government to plan the corridor in a comprehensive manner. It should be noted that the option to enter into a Development Agreement for a State facility that is not in the FDOT Five-Year Work Program is at the option of FDOT and is not a mandatory action. Each agreement should specifically outline the

actions for which each partner is responsible in regards to the planning and construction of the transportation improvement. Time frames associated with specific actions should be included to ensure implementation. Contingent plans or agreements should also be addressed in case unforeseen circumstances occur.

(d) **Responsibility for Fiscal Management** – Each agreement should specifically outline which entity is responsible for managing funds resulting from present and future proportionate fair-share agreements within the corridor. At a minimum, an accounting process which delineates fund balances should be available prior to the beginning of the annual planning of the local government's capital improvements budgeting process and the annual development of the FDOT Work Program.

(e) **Policies for Intergovernmental Coordination** – Intergovernmental coordination should be addressed, especially in terms of how transportation improvements identified in the agreement will be coordinated with any long-range transportation plan of an applicable MPO. Agreements to support the prioritization of the transportation improvement within the MPO process should be included. A coordination process with other adjacent local governments should be in place as a result of the corridor planning process.


In addition, FDOT has also developed a Model Ordinance for Proportionate Fair-Share Mitigation of Development Impacts on Transportation Corridors to aid local governments in the development of these ordinances.

## Considerations

When impacts to a SIS facility necessitate the coordination of FDOT in proportionate fair-share agreements, FDOT planners and decision makers will need to review both the local government comprehensive plan and other documents to determine concurrency requirements. District 5's *Local Government Comprehensive Planning Review Guidelines* outlines key documents that a local government or developer will need to provide to FDOT staff. These include:

a) Local government proportionate fair-share ordinance
b) Concurrency analysis that identified the proposed development was initially denied due to the lack of transportation concurrency
c) Description of proposed mitigation sufficient to determine capacity added and likely cost
d) Draft proportionate fair-share agreement

## Cost Calculations

The calculation for proportionate fair-share must meet the same standards set forth in Section 163.3180(12), F.S. for proportionate share (see formula in Proportionate Share Section), based on: "the cumulative number of trips from the proposed development expected to reach roadways during the peak hour from the complete build-out of a stage or phase being approved, divided by the change in the peak hour maximum service volume of roadways resulting from construction of an improvement necessary to maintain the adopted level of service, multiplied by the construction cost, at the time of developer payment, of the improvement necessary to maintain the adopted level of service." This formula is the same as the one employed for proportionate share (DRIs). Once the proportionate fair-share contribution is determined, agencies can determine a mix of mitigation strategies to apply these contributions.

Although proportionate fair share mitigation for transportation concurrency alternative areas (e.g. TCEAs, TCMAs, MMTDs) is not directly addressed by statute, the typical formula is based on the percentage of proposed development trips divided by the total number of trips projected for the area multiplied by the cost to provide mobility improvements, or:

$$\text{Proportionate Fair Share} = \left(\frac{\text{Total Development Trips}}{\text{Total Trips}}\right) * \text{Cost}$$

*Where:*

Development Trips: The total number of development trips, minus the percentage of pass-by, internal capture, and multimodal trips

Total Trips: The total number of projected trips for the district/area based upon a reasonable build-out analysis, minus the percentage of pass-by, internal capture, and multimodal trips established for the area

Cost: The adjusted cost of the needed mobility improvements within the district/area

Source: Florida Department of Community Affairs *Concurrency Best Practices Guide*, 2007.

For example: Project – State Road 555 – Segment 1

| | | |
|---|---|---|
| Development Impacts (Trips) | = | 151 |
| Available Capacity (Trips) | = | 100 |
| Service Volume Increase from RSI | = | 1,100 |
| RSI Cost | = | $2,500,000 |
| [(151-100)/1100] x $2,500,000 | = | $115,909 |

Therefore, the applicant's proportionate fair-share contribution is $115,909.

## 5.4.7 Examples of Proportionate Fair-Share (Sub-DRI) Mitigation

The following examples are provided by FDOT's Office of Policy Planning and DCA's Transportation Concurrency Best Practices, and serve to alert reviewers to some unique mitigation options available through proportionate fair share funding.

**Example 1:**
ITS Options for Smaller Developments (City of Gainesville)

Transportation levels of service are failing on road corridor links throughout the City of Gainesville and the costs of traditional capacity improvements needed to meet concurrency are high. Smaller "Mom and Pop" developments may not be cost-feasible if the City requires them to bear the full cost of addressing backlogs.

To address this issue, the City identified an alternate capital transportation project to address concurrency in the backlogged corridors—a system-wide Intelligent Transportation System (ITS) program to link traffic signals and provide traffic management capabilities. Implementation of ITS will "create" capacity through improved efficiency on a city-wide basis and will benefit the regional transportation network.


*Growth Management Training PowerPoint slides*

Small-scale developers will be allowed to contribute their proportionate fair share based on the ITS capital plan, which will cost substantially less than construction of large capacity, backlog-based projects. In sum, concurrency issues of smaller developments will be addressed through an equitable mechanism that provides relief to smaller developments, and proportionate fair share revenue will be generated for the needed ITS project and transit service.

**Additional Guidance**

Additional guidance on developing Concurrency Management Systems can be found in DCAs Transportation Concurrency Best Practices. In addition, FDOT has published a Model Ordinance for Proportionate Fair-Share Mitigation of Development Impacts on Transportation Corridors that may be used by local governments in enacting an ordinance.


*Concurrency Best Practices*


*Model Ordinance*

## Impact/Mobility Fees

Enacting impact fees, one-time charges imposed on new development as a condition of approval, is another funding strategy that may be used by county and municipal governments to ensure that new development pays its proportionate share of the costs to expand transportation system capacity. The "Florida Impact Fee Act", Section 163.31801, F.S ., permits local governments to adopt impact fee ordinances as long as these charges are consistent with the local government's land development code and comprehensive plan, and meet the minimum requirements stated in the statute.

In addition, Section 163.2417(3)(j), F.S. requires urban infill and redevelopment plans to contain a package of financial incentives, which may include strategies to lower impact fees for developments that promote the use of alternative transportation modes. These types of incentives recognize the differences in travel demand generated by different land use types, and should be considered in the impact review process.

Another strategy that is currently being developed to assure that new development pays for its share of transportation impacts involves the use of mobility fees. Mobility fees would be assessed by vehicle and people-miles traveled, and serve to promote compact, mixed use, and energy efficient development. This funding mechanism could be combined with Corridor Access Management Plans, Transit Oriented Development, GHG Emissions Reduction Strategies, and other strategies to make sure that transportation impact mitigation is funded to support long-term mobility needs.

# APPENDIX A

## DRI Stages FDOT Review Participation Reference Chart

*Sources:* Primarily Chapter 380, FS and Rule 9J-2, FAC

| Review | Product | Agency | Review Time | Statutory Guidelines | Rules, Procedures, Directives, Policies and Topics |
|---|---|---|---|---|---|
| **Binding Letter *** | Written Comments | DCA | < 15 days | 380.06(4), FS | Rule 9J-2.016, FAC<br>Rule 9J-2.045, FAC |
| **Pre-application Methodology** | One or more Meetings | RPC | As set by RPC | 380.06(7)(b), FS | Rule 9J-2.021, FAC<br>Topic # 525-030-115 |
| **Methodology Letter of Understanding (MLOU)** | Written Comments | | | | |
| **ADA Sufficiency** | Written Comments | RPC | < 30 days | 380.06(10), FS | Topic # 525-030-115<br>Rule 9J-2.045, FAC |
| **PDA *** | Written Comments | RPC | < 45 days | 380.06(8), FS | Rule 9J-2.018, FAC<br>Topic # 525-030-115 |
| **DRI DO *** | Written Comments | RPC DCA | < 45 days | 380.06(15), FS | Rule 9J-2.025,<br>FAC Rule 9J-2.045, FAC<br>Topic # 525-030-115 |
| **DRI Annual Report** | None | LG | None | 380.06(18), FS | Rule 9J-2.025(3)(b)14, FAC |
| **Annual Traffic Monitoring Study and the Modeling and Monitoring Schedule** | Written Comments | DCA & LG | As set in DO<br><br>DO review <45 days | | Rule 9J-2.045(7)(a)4.b ,FAC<br>Topic # 525-030-115 |
| **NOPC *** | Written Comments | DCA | < 30 days | 380.06(19), FS | Rule 9J-2.045, FAC<br>Topic # 525-030-115 |

# **APPENDIX B –** Questions 21 & 22

## Question 21 – Transportation

*See State Comprehensive Plan (Chapter 187, FS)*

*Goal (11); Policy (2) Goal (12); Policies (3), (4) Goal (16); Policy (1) Goal (18); Policies (1), (3), (4), (6) Goal (20); Policies (2), (3), (8), (9), (10), (12), (13), (15) Goal (25); Policy (5)*

*Road Link/Intersection: Existing Level of Service: Adopted Level of Service Standard: Level of Service After Project Buildout:*

A. Using Map J or a table as a base, indicate existing conditions on the highway network within the study area (as previously defined on Map J), including annual average daily traffic (AADT), peak-hour trips directional, traffic split, levels of service (LOS) and maximum service volumes for the adopted LOS. Identify the assumptions used in this analysis, including "K" factor, directional "D" factor, facility type, number of lanes and existing signal locations. (If LOS are based on some methodology other than the most recent procedures of the Transportation Research Board and FDOT, this should be agreed upon at the preapplication conference stage). Identify the adopted LOS standards of the FDOT, appropriate Regional Planning Council (RPC) and local government for roadways within the identified study area. Identify what improvements or new facilities within this study area are planned, programmed or committed for improvement. Attach appropriate excerpts from published capital improvements plans, budgets and programs showing schedules and types of work and letters from the appropriate agencies stating the current status of the planned, programmed and committed improvements.

B. Provide a projection of vehicle trips expected to be generated by this development. State all standards and assumptions used, including trip end generation rates by land use types, sources of data, modal split, persons per vehicle, etc. as appropriate. The acceptable methodology to be used for projecting trip generation (including the Florida Standard Urban Model Structure (FSUTMS) or the Institute of Transportation Engineers (ITE) trip generation rates) shall be determined at the preapplication conference stage.

C. Estimate the internal/external split for the generated trips at the end of each phase of development as identified in (B) above. Use the format below and include a discussion of what aspects of the development (i.e., provision of on-site shopping and recreation facilities, on-site employment opportunities, etc.) will account for this internal/external split. Provide supporting documentation showing how splits were estimated, such as the results of the FSUTMS model application. Describe the extent to which the proposed design and land use mix will foster a more cohesive, internally supported project.

## Question 22 – Air

*See State Comprehensive Plan (Chapter 187, FS)*

*Goal (6); Policy (19)*

*Goal (11); Policies (1), (2), (3), (4)*

*Goal (22); Policy (3)*

A. Document the steps which will be taken to contain fugitive dust during site preparation and construction of the project. If site preparation includes demolition activities, provide a copy of any notice of demolition sent to the Florida Department of Environmental Regulation (FDER) as required by the National Emission

*Standards for Asbestos, 40 CFR Part 61, Subpart M.*

B. Specify structural or operational measures that will be implemented by the development to minimize air quality impacts (e.g., road widening and other traffic flow improvements on existing roadways, etc.). Any roadway improvements identified here should be consistent with those utilized in Question 21 - Transportation.

C. Complete Table 22-1 for all substantially impacted intersections within the study area, as defined in Map J and all parking facilities associated with the project. Using the guidance supplied or approved by FDER, determine if detailed air quality modeling for carbon monoxide (CO) is to be completed for any of the facilities listed in the table.

Table 22-1

| PHASE: _____ YEAR OF PHASE: _____ COMPLETION: _____<br>One table for each phase | | | | |
|---|---|---|---|---|
| Source Type (1) | Peak-Hour Traffic | | Maximum Hourly Service Volume (2) | |
| | Projected | Existing | Projected | Existing |
| | | | | |

(1) Specify source type as either intersection, surface parking area or parking deck. For each intersection, provide an approach volume for each link. For each parking facility, provide the total (incoming and outgoing) volume.

(2) These should be compatible with maximum service volumes utilized in Question 21 - Transportation.

D. If detailed modeling is required, estimate the worst-case, one-hour and eight-hour CO concentrations expected for each phase through buildout for comparison with the state and federal ambient air quality standards. Utilize methodology supplied or approved by FDER for making such estimates. Submit all air quality modeling input and output data along with associated calculations to support the modeling and explain any deviations from guidance. Provide drawings of site geometry and coordinate information for each area modeled. Show the location of the sources and receptor sites. Modeling assumptions should consider federal, state and local government programmed link and intersection improvements

with respect to project phasing. Any roadway improvements utilized in the model should be consistent with those used in Question 21 - Transportation. Provide verification of any assumptions in the modeling which consider such programmed improvements. It is recommended that air quality analyses be completed concurrently and in conjunction with the traffic analyses for the project.

E. If initial detailed modeling shows projected exceedance(s) of ambient air quality standards, identify appropriate mitigation measures and provide assurances that appropriate mitigating measures will be employed so as to maintain compliance with air quality standards. Submit further modeling demonstrating the adequacy of such measures.

# **APPENDIX C –** Generic Transportation Impact Methodology

## **FDOT District Two –** Generic Transportation Impact Analysis Methodology

### Question 21 – Transportation

All of the information in Question 21 will be provided unless the applicant has been specifically instructed in writing that the information does not need to be submitted.

FDOT District Two does not support the use of a Land Use Trip Matrix.

## I. Project Trip Generation

### Trip Generation

The applicant will use the latest edition of the *Institute of Transportation Engineers (ITE) Trip Generation Handbook* and will provide all necessary input data for agency review and verification purposes. The applicant will provide both daily and PM peak hour trip generation estimates by ITE land use and by development phase. The applicant shall also provide PM peak hour trip generation by ITE land use and by development phase. If a school is to be proposed, the applicant shall also provide AM peak hour trip generation by ITE land use and by development phase.

### Internal Capture Estimation

The determination of internal capture rates will be guided by *ITE Trip Generation Handbook*, latest edition. These rates shall not exceed the guidelines specified in the *FDOT Site Impact Handbook* and not exceed a 25 percent maximum of total trip generation. For purposes of the internal capture analysis, the Applicant will combine all like uses into retail, office and residential.

Internal capture trips will be balanced using the latest *ITE Trip Generation Handbook* and supporting calculation tables will be provided for review. Also, capture rates will be determined by phase and consistent with the trip generation table. Other internal capture considerations include the following:

a. Residential and employment centers should be compatible (with respect to income levels) to allow internal capture.
b. Job estimations in other parts of the application shall match up to the employment land use proposed in Question 21.
c. On-site employment may not attract work trips from on-site homes for several years (if applicable).
d. Mixed use development should be constructed to optimize internal capture at each phase of build-out.
e. Internal circulation roadways must be in place to accommodate internal capture trips.
f. Trips that cross or use public roads are not internal capture trips.

It should also be noted, depending on model project setup, that FSUTMS will internally capture project trips. Because ITE procedures will be used by the Applicant to determine capture rates, before modeling the project, internal capture calculated with a model is not acceptable. Concern with this modeling issue is the double counting of internal

project trips, once when determining external trip production and again via the model assignment.

Model reported distribution rates for project related traffic shall be adjusted to account for those trips internally captured by a TAZ or between project TAZs. The total model project trip generation produced by the model shall be determined by performing a screen line analysis around the project TAZs. The total project traffic that leaves a project TAZ, and does not traverse from one project TAZ to another, is the project traffic number used to calculate project share on the roadway links

### Pass-by Trips

Pass-by trips for all phases will be calculated consistent with ITE methodology. However, pass-by trips shall not exceed 10 percent of the main adjacent street traffic during the peak hour. Consistent with ITE and FDOT methodology, internal trips will be subtracted before calculating the number of pass-by trips.

## II. Existing Conditions

### Existing Level of Service (LOS)

For all roadways on FDOT's Strategic Intermodal System (SIS), the applicant must adhere to the FDOT's adopted level of service standards and corresponding maximum service volumes (MSVs) consistent with information provided in *FDOT District Two Level of Service Report*, latest edition. Other state roads shall use the locally adopted LOS, however the corresponding MSV for that adopted LOS shall be determined using the *FDOT Generalized Tables*, latest edition.

### Traffic Count Procedures

The Applicant will use <Last Full Year> or newer traffic counts. FDOT District Two provides the latest counts in the FDOT District Two Level of Service Report. The applicant should contact FDOT to ensure that newer traffic counts are not available. If the applicant performs traffic counts on state roads in support of this application, the counts must conform to the FDOTs *Quality Level of Service Handbook*, latest edition including posted addendums and corrections. Special note is made that volume counts shall be a minimum of three days on Tuesday through Thursday, turning movements shall be eight hours with four hours during the AM peak and four hours in the PM peak. All documentation, including the raw counts and factors used shall be included in the applicant's technical appendix.

### Peak Hour Factors

The determination of K and D factors, will follow FDOT's guidelines established in the *Quality Level of Service Handbook*, latest edition including posted addendums and corrections. A "measured K" is not acceptable unless it is within FDOT's recommended minimum K factors. All sources of existing traffic counts will be provided in the analysis tables and actual counts, as well as calculations, will be provided in the applicant's technical appendix.

Peak hour counts shall be calculated by multiplying the AADT by the K100 factor pursuant to the *FDOT Quality Level of Service Handbook*, latest edition including posted addendums and corrections. Turning movement counts shall be used for purposes of determining the percentage of turning vehicles at an intersection. Turning movements shall not be used to calculate existing or future traffic, the practice of growing turning movements to arrive at future traffic is an unacceptable methodology and often

underestimates actual demand. All sources of existing turning movement counts will be provided in the analysis tables and actual counts, as well as calculations, will be provided in the applicant's technical appendix.

### Study Area

The study area shall be determined using the Transportation Planning Organization's (TPO) adopted model. The study area limits will be adjusted based upon the extent of the substantially impacted segments defined as the roadway segments where the project traffic share is 5 percent or more of the maximum service volume. Maximum service volumes used to determine the study area shall be based on the *FDOT's Generalized Tables*, latest edition. Facility and area type shall be determined using the *FDOT District Two Level of Service Report*, latest edition.

All supporting tables and maps shall identify significant roadway segments and at least one segment beyond the 5 percent significance threshold.

### Roadway Segmentation

All state roadway segmentation shall conform to the segmentation as provided in the *FDOT District Two Level of Service Report*, latest edition. The applicant shall provide maps and tables that document the existing level of service based on this segmentation.

### Existing Intersection Analysis

The applicant shall provide existing LOS for all intersections on any roadway determined to be significant (A general list of intersections shall be agreed to at the pre-application meeting). The applicant shall perform the analysis using the *Highway Capacity Manual* procedures using existing signal timings at signalized intersections. The applicant shall provide maps and tables that document the intersection existing level of service.

All interchange ramps, ramp terminals and adjacent intersections shall be modeled in Synchro software, latest edition, using existing signal timings for signalized intersections. The applicant shall provide the HCM long form printouts and Synchro output with V/C ratio and queuing analysis in the technical appendix. The applicant shall also provide the electronic files for the HCM and Synchro analysis.

## III. Future Years Analysis

### Roadway Network Modifications

Transportation system modifications, scheduled for construction and funded, located within the project study area and specified in the latest adopted FDOT Five-Year Work Program shall be identified and mapped. Only those projects identified for construction within the first three years of the FDOT Five-Year Work Program shall be considered for the future roadway network as applicable. Also, any roadway modifications committed by other approved developments (if applicable), and incorporated in the future networks of the applicant's project, may create a condition that would require these improvements to be in place before this applicant's project can move forward. The applicant can make network additions to the phase models with the understanding that they must be in the first three years of the FDOT Five-Year Work Program, or the applicant will be required provide full cost for the improvements proposed.

### Adopted Model

The applicant shall obtain the latest adopted model from the TPO. No modifications by the applicant to the factors used for validating the adopted model are acceptable. The applicant shall use the model as validated.

## Developing Background Traffic

The applicant shall develop background traffic as follows:

1. Applicant shall run the <base year> model and the model for the first phase of their development.
2. For any given link as defined by the maintaining agency, the applicant shall select the model link with the highest number of background trips for analysis.
3. The difference between the <base year> model and the applicant's first phase model on any given link (minus the applicant's traffic), adjusted to the number of years between the existing count year and the applicants first phase, shall be added to the existing count for that link.
4. The number from step 2 shall be checked against a minimum growth rate of 2 percent per year for the number of years between the existing counts year and the applicant's first phase year.
5. The applicant shall select the higher of the two (model difference number added to existing count or 2 percent per year growth rate) as the background traffic number.
6. The applicant shall calculate background traffic for any phase after Phase I by taking the difference on any given link between the phase models and adding it to the previous phase calculated. All background traffic for phases after Phase I shall be checked against a 2 percent minimum growth rate and the higher of the two (model difference number added to existing count or 2 percent per year growth rate) shall be reported as the background traffic number.

## Developing Project Traffic

The applicant shall determine the project trip assignment as follows:

1. The applicant shall determine the socio-economic (SE) data for each phase of the proposed project.
2. The applicant shall input the SE data in the model for each phase and shall provide documentation for the SE changes in the technical appendix.
3. The applicant shall ensure that the number of trips external to the project TAZ(s) (excluding those trips that are internal to the model or travel from a project TAZ to another project TAZ) are within 10 percent of the ITE total external project trips the applicant has calculated for the project trip generation.
4. For any phase model, the applicant shall determine by screen line the actual number of trips to leave the project Transportation Analysis Zones (TAZ).
5. For any given link the applicant shall select the model link with the highest number of project trips for analysis.
6. The number calculated from step 4 shall be used to determine the percentage of project traffic on any given link by dividing the project traffic by the number from step 4.
7. The percentage from step 6 is applied the applicants PM peak hour ITE external trip generation to determine the trip number used for calculating proportionate share.

## Model Results

The applicant shall provide maps and tables that detail the background and project trips for each phase. The applicant shall also provide **all** modeling files. The applicant shall provide a DVD of the complete model folder structure with completed model runs.

## Future Level of Service Analysis

Roadway segments that carry peak hour project trip volumes greater than five percent of the adopted LOS standard maximum volume will be identified. Segments that meet this criterion, and whose peak hour traffic exceeds the adopted LOS standard maximum volumes, will be considered adverse (deficient). These segments will be analyzed to determine what modifications are needed to correct those deficiencies. To determine the adverse links within the study area, the Applicant will use the maximum service volumes (MSVs) contained in *FDOT's Generalized Tables* for the adopted level of service standard.

The analysis shall be provided for the following scenarios:

1. Existing (Base) year;
2. Future year (Base + Growth + Project) without modifications (for each phase); and
3. Future year with modifications (as needed, for each phase).

## Intersection Analysis

Where roadway segments have been determined to be significant, the signalized intersections along significant segments are deemed to be significant. The Applicant will be responsible for analyzing all critical intersections identified and will provide graphics indicating project, background, and total volumes by movement.

Intersections shall be analyzed using HCM or Synchro software. The applicant shall perform the analysis using the Highway Capacity Manual procedures using existing signal timings at signalized intersections. The applicant shall provide maps and tables that document the intersection existing level of service.

All future year analyses shall maintain the adopted level of service and the volume to capacity ratio (v/c) shall not exceed 0.99 on all approach movements. The intersection level of service shall be based on the most restrictive level of service standard for the intersecting roadways.

All interchange ramps, ramp terminals and adjacent intersections shall be modeled in Synchro software, latest edition. The applicant shall provide the HCM long form printouts and Synchro output with v/c ration and queuing analysis in the technical appendix. The applicant shall also provide the electronic files for the HCM and Synchro analysis.

For State roadways, the percent trucks shall be 50 percent of the T-factor included in the most recent FDOT Florida Traffic Information (FTI) DVD.

The analysis shall be provided for the following scenarios:

1. Existing (Base) year;
2. Future year (Base + Growth + Project) without modifications (for each phase); and
3. Future year with modifications (as needed, for each phase).

To determine turning movement volumes for future background traffic, the existing peak hour link volumes and the future year link volumes without the project shall be multiplied by the percent turns obtained from the present day turning movement counts. Peak hour link volumes shall be obtained consistent with the procedures previously identified in this methodology.

Project traffic will be added to all intersection movements once the future year intersection volumes have been determined. The analysis shall be performed for the PM peak hour. Intersection turning movement illustrations shall be provided for existing and future year scenarios. For the future year, the illustrations shall clearly indicate the breakdown of existing traffic, background growth, project traffic and total traffic.

Adequate turn lane storage must be provided where needed to accommodate the average back of queue. Supporting documentation shall be provided that shows that adequate turn lane storage has been provided. Intersection modifications will include the provision of receiving lanes where needed.

The Applicant shall provide concept sketches that illustrate any proposed intersection geometric modifications.

## IV. Proportionate Share Analysis

### Proportionate Share Calculations

All proportionate share calculations shall conform to F.A.C. Transportation Uniform Standard Rule 9J-2.045 (h). All cost estimations shall be calculated using the latest FDOT Transportation Costs per mile models, inflation factors, rights-of-way, and engineering costs from the FDOT website. The applicant shall detail all proportionate share cumulatively by phase. The applicant shall contact the District for any costs not included in the FDOT Transportation Cost models.

# **APPENDIX D –** Sample Proposed Transportation Methodology Comments

## Orchard Park DRI[1]

1. The coordination of land uses with adjacent uses is not apparent since the surrounding uses are not included on Map H or other maps in the ADA. Coordination of land uses as well as internal street connectivity are important provisions in order to make progress towards providing traveler choices other than by single occupant vehicles.
2. In order to foster desirable characteristics that result in sustainable development, including access to various modes of travel to and from adjacent land uses, the DRI applicant should be required to develop design guidelines that demonstrate how urban design, land use, and roadway characteristics will result in optimal mobility for the project and beyond.
3. The DRI claims to be encouraging non-vehicular forms of travel. However, no maps are provided which demonstrate the accessibility of land uses to bicycles, pedestrians, and future transit facilities. The applicant should consider providing a transportation map for the DRI that overlays the vehicular, bicycle, pedestrian, and transit facilities and services that are expected to serve the DRI. Key parking areas and parking strategies should also be identified to aid in assessing how this infrastructure affects the encouragement of alternative modes of travel. The ADA indicates bicycle facilities will be provided to connect to other greenways. It is important that bicycle and pedestrian facilities be created throughout the area to foster forms of mobility other than the single-occupant vehicle. The project will not be marketed as retiree or second homes, and nearby and on-site research and development employment opportunities will abound. As such, the project will draw families with children to the community and therefore bicycle and pedestrian access between residential areas, commercial areas, and community facilities, such as parks and schools, should be included with the development.
4. Many of the previous comments also relate to making the community "Transit Ready." The application proposes clustered development with residential densities of nine to fifteen units per acre. These densities are sufficient to support fixed route transit service and should be located on Map H of the ADA as well as the transportation map requested above. Although transit does not

[1] "Orchard Park (formerly West St. Lucie Farms) ADA-OMD Comments," Florida Department of Transportation, District 4 Office of Modal Development, Ft. Lauderdale, October 2005, unpublished data.

service the area at this time, the application should not only make a commitment to accommodate future service but also to maximize it through supportive land uses, urban design, and connectivity. The demand between the research and development uses to the north and the commercial/mixed use areas along SR-70 will also support transit service. The applicant should coordinate with the St. Lucie Council on Aging to discuss the potential for future extension of existing transit service on Okeechobee Road from east of the Turnpike to the development. Such discussion should also be documented and reported as part of the ADA.

5. Local governments must adopt the LOS standards set by the Department for Strategic Intermodal System (SIS) facilities. As such, the applicant and County will need to ensure the level of service set for State Road 70/Okeechobee Road is not exceeded. Consideration should be given to increasing the grid pattern of local and regional roads to provide alternate routes. To address potential congestion, the applicant also could commit to the development and implementation of transportation demand management strategies to reduce project related peak hour automobile trips. The applicant might consider integrating a park and ride lot with the commercial development along SR-70. This will enable commuters to accommodate various trip purposes from one location and will thus reduce vehicles miles traveled and impacts to area roadways, including the SIS.
6. Much of the above information is necessary to enable the Department to conduct a thorough review of the DRI for Question 21(I) of the ADA. The information will also aid in the review of anticipated comprehensive plan amendments for consistency with the following County policies:

    - establish bicycle and pedestrian facilities;
    - ensure sidewalk connectivity and completion of missing sidewalk segments;
    - review all future development plans for compatibility with transit

# **APPENDIX E –** Sample Proposed Transportation Methodology Comments

*Florida Department of Transportation*

CHARLIE CRIST
GOVERNOR

PLANNING AND ENVIRONMENTAL MANAGEMENT – DISTRICT 4
3400 West Commercial Boulevard, Fort Lauderdale, Florida 33309-3421
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STEPHANIE C. KOPELOUSOS
SECRETARY

July 3, 2007


Ms. Jo Sesodia, AICP
DRI Coordinator
South Florida Regional Planning Council
3440 Hollywood Boulevard, Suite 140
Hollywood, FL 33021

Dear Ms. Sesodia:

SUBJECT: **Lauderhill City Center Development of Regional Impact (DRI)**
**City of Lauderhill, Broward County**
**Proposed Transportation Methodology Comments**

As requested, the Department has reviewed the proposed transportation methodology for Lauderhill City Center DRI ADA, dated June 12, 2007.

The proposed mix-use development is currently occupied by the Lauderhill Mall located on the west side of SR-7/US-441, between 12th Street and 16th Street, north of Sunrise Boulevard. The development is to include approximately 2,500 multi-family residential units, 650,000 square feet of retail, and 425,000 square feet of office. The DRI is proposed to be built through three phases, by 2018, 2023, and 2033.

We have the following concerns regarding the methodology and its supporting documentations:

- Typically, only "transit" reduction is considered, not "multimodal" reduction. Of the claimed multimodal reduction of 15.5% and 11.4% for the AM and PM peak hours, respectively, only approximately 4% is associated with transit trips. Also, the surveys included in the *Multi-Modal, Trip-Reduction, Justification Methodology* memo can be difficult to verify.

- The discussed 30% internal capture is unusually high for the proposed development.

- The approximate claimed 58% AM and 53% PM total development trip reductions include multimodal, internalization, and pass-by reductions. These exceed the maximum trip reduction attainable using methodologies outlined in the Site Impact Handbook.

However, we offer conditional acceptance of the proposed trip reductions based on the following:

1. In the Application of Development Approval (ADA) document, the applicant shall commit to identify transit shelters, and other enhanced transit amenities based on the guidance contained in the District Four's Transit Facility Guidelines and guidance as provided through documented coordination with FDOT, Broward County MPO, and Broward County Transit.

   a. The first two objectives in the Broward 2030 Long Range Transportation Plan Update (March 2005) include 1. Provide efficient, frequent, convenient, competitive transit service; and 2. Enhance bicycle and pedestrian mobility. Additionally, one of the major issues identified in the Broward County Comprehensive Plan Evaluation & Appraisal Report relates to "Implementing Transit Oriented Land Use Patterns" and it is clearly evident based on the County's Transit Oriented Concurrency System and Comprehensive Plan that the County's future transportation system will rely heavily on alternative modes of transportation. As such, the ADA document should establish a modal split objective as a benchmark to evaluate transit, bicycle, and pedestrian features proposed as part of the DRI.

   b. The applicant should include maps that identify the proposed master development plan land uses, street configuration, bus stop locations, and bicycle and pedestrian networks. This information is essential in assessing the degree to which land uses and transportation work together to maximize the use of transit, bicycle, and pedestrian facilities.

   c. The applicant should include guidelines for placement and composition of shuttle/transit stops within the proposed development.

   d. The applicant should address guidelines for locating kiosks that enable the posting of TDM program information in locations within the development that are readily visible to both employees and commuters.

      - The posting of TDM information can vary based on the use of the property. This may include hanging wall kiosks, standing kiosks, table displays, etc.
      - The purpose of posting the information is to provide commuters with information on the various transportation programs and services available at the development.
      - Kiosks should be placed in readily visible locations such as public open spaces, lobby's, break rooms, cafeterias, elevator bays, building entrances, etc.

   e. The applicant should elaborate on the use of a Designated individual to act as the employee development TDM coordinator known as the Employee Transportation Coordinator (ETC). The role of the ETC is to develop, implement, and administer a TDM program at the development. The ETC works closely with the various transportation providers in the region to accomplish goals set for the development

   f. The applicant should commit to coordination with South Florida Commuter Services (SFCS) to discuss the various elements of available TDM programs and services. SFCS will provide the development with recommendations regarding TDM program elements that are appropriate for the site and steps to assist in implementing these initiatives.

g. The applicant should commit to a protocol to introduce new owners or property management to the SFCS upon sale or lease of the development or properties within the development. This will allow SFCS an opportunity to inform them on TDM strategies, programs, and services.

h. The applicant should identify monthly subsidies and/or incentives (e.g., discounted transit passes, gas card for car pools, gift certificates, etc.) that will be considered for individuals participating in the use of alternative transportation modes.

- Providing subsidies and/or incentives equates to added benefits to commuters utilizing alternative transportation. These subsidies and/or incentives often reduce transportation costs and may encourage a commuter to begin utilizing an alternative mode of transportation or continue to motivate their use.
- Providing subsidies and/or incentives also benefits the employers in terms of employee recruitment and retention.

i. The applicant should specify the ability of the Master Plan to include ancillary uses for commuters such as day care, banking, dry cleaning and other on-site services that would eliminate external trips.

j. Demonstrate how bicycle could be accommodated onsite. It is generally recommended that bicycle storage for both the long term (e.g., bicycle lockers) and short term (e.g., bicycle rack) be provided. The substantial deviation document should include guidelines for determining the placement of bicycle facilities and appropriate facility type based on adjacent land uses. Provides storage options for employees who may be working at the development to have a secured/covered location to store their bicycles in addition to providing a location for visitors to store their bicycle for a limited time.

k. Provide shower and locker facilities for buildings which employ more than 50 employees. Provides a location for bicyclists to store equipment necessary for biking, to shower, and to dress for work.

l. The applicant should account for modifications to the external roadway network that will improve the safety and attractiveness of pedestrian crossings at intersections along SR7/US441. This will help to maximize access to transit at stops on the opposite side of thoroughfares by creating a better environment for pedestrians.

m. It should be noted that the DRI documentation did not satisfactorily address parking provisions in line with the Transit Oriented Development. Large amounts of parking can have undesirable impacts on the pedestrian environment and increase the convenience of single occupant vehicles at the expense of using other modes of transportation. To be effective to reach the desired automobile trip reduction as projected on Page 1 of this letter, parking provision should be proportionally lowered below the city's minimum requirement. The applicant should consider orienting parking behind rather than in front of buildings and also consider more parking structures with pedestrian-oriented facades and first floor retail uses.

2. The applicant shall include, as a condition in the Development Order, the provision of annual/biannual performance measures to ensure stated trip reductions occur. If trip reduction goals are not achieved, a traffic reassessment shall be required.

Please don't hesitate to give us a call if you have any questions or concerns.

Sincerely,

Gustavo Schmidt, P.E.
District Planning and Environmental Engineer

GS:kai/lh/cw

cc: D. Ray Eubanks, Community Program Administrator, FDCA
Bob Romig, Director, Office of Policy Planning, FDOT
Gerry O'Reilly, Director of Transportation Development, FDOT
Steve Braun, Assistant Planning and Environmental Engineer, FDOT
Shi-Chiang Li, Systems Planning Manager, FDOT
Chon Wong, Senior Transportation Specialist, FDOT

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# **APPENDIX F –** FDOT District 4 Example

Office of Modal Development (OMD) Multimodal Sufficiency Comments

*The following sample sufficiency comments have been used in District 4 as general guidance on writing sufficiency comments.*

## Alternative Transportation Modes

The projected mode split of 3% is consistent with the projected total number of PM Peak Hour trips (96) and Daily trips (977). This number of trips would support a "Hub" stop, which should be at locations with over 50 average daily boardings and serve multiple transit routes. (Gulfstream)

The applicant should more clearly define the bicycle, pedestrian, and transit facilities and services that are expected to serve the DRI so that the planning and provision of these facilities and services can be addressed in a comprehensive manner, rather than wait for future piecemeal site plan review as indicated on page ... Key parking areas and parking strategies should also be identified to aid in assessing how this infrastructure affects the encouragement of alternative modes of travel. (Provences)

- The applicant should coordinate with the St. Lucie Council on Aging, to discuss the potential for future extension of existing transit service to the development and the future establishment of a transit transfer and ridesharing facility, if this is determined to be needed. Such discussion should be documented and reported as part of the ADA. (Provences)

## Transportation Demand Management Strategies (TDM)

A commitment to use Transportation Demand Management (TDM) strategies and related details regarding those strategies should be included in Question 21(i) of the application. Some strategies include, but are not limited to the following: (Gulfstream)

- An Employee Transportation Coordinator employed on-site who will actively coordinate with South Florida Commuter Services and offer them the opportunity to review and comment on TDM activities.
- Identification and designation of specific areas with close access to particular jobsites for employees who carpool/vanpool to work.
- Location and installation of kiosks within the facility to provide transportation related information and options on carpooling, vanpooling, bus/transit schedules, and maps.
- Management of a "Guaranteed Ride Home Program" for car/vanpoolers.

## Attainable/Affordable Housing Located in Close Proximity to Accessible Travel Choice Options

Not yet applied. [*Although this has not yet been applied in the District, there is a direct connection. Affordable housing should be located within close proximity to existing transit options rather than being built with the expectation that transit agencies will make the service available after the housing in built.*]

## Parking Provisions

It should also be noted that there appears to be a large amount of surface parking shown in … This can have undesirable impacts on the pedestrian environment, discourage a "park once" approach to reducing auto trips, and increase the convenience of single occupant vehicles at the expense of using other modes of transportation. The applicant should consider orienting parking behind rather than in front of buildings and also

consider more parking structures with pedestrian oriented facades and first floor retail uses. (Provences)

## Site Planning/Balanced Land Uses

Seminole Pratt Whitney Road runs through the middle of a land use focal point (town center), which functions as a major attractor of trips and will discourage potential internalization of trips within the site. This project in large part relies on Seminole Pratt Whitney road as the major north/south artery for movement of trips. This road is projected to fail. Alternate land use scenarios should be considered to internalize trips to a greater extent. (Gallery-Judge Grove)

The spatial relationship between the proposed multiple family residential and other proposed uses such as the school and the Traditional Neighborhood Development (TND) should be depicted on Map H as part of the Master Development Plan to justify claims in Question 21i that this scenario complies with the characteristics of a TND. (Indrio Groves)

The realignment of Koblegard Road, by protruding to such an extent within the DRI in lieu of bordering the property, may preclude the ability of future development on adjacent vacant land to the east from having access to distribute traffic in an efficient manner. Maximizing roadway connectivity aids in the distribution of traffic. (Indrio Groves)

The applicant should consider a redistribution of commercial land use to be located at the intersection of the spine road and Spanish Lakes Boulevard. Do to the substantial number of residents in the Spanish Lakes Fairways development, providing commercial land uses at this location to serve the home-based shopping trip purposes of this community and lndrio Groves will help to reduce trips on lndrio Road by shorten trip lengths due to its closer proximity. (Indrio Groves)

## Internal Design

In order to foster desirable characteristics that result in sustainable development, including access to various modes of travel from adjacent land uses, the DRI applicant should be required to develop design guidelines that demonstrate how urban design, land use, and roadway characteristics will result in optimal mobility for the project and beyond. Such design guidelines should function to illustrate how development will aid in the provision of pedestrian, bicycle, and transit infrastructure as well as convenient connectivity for a quality experience sufficient to capture choice participants. Some components of design guidelines include, but are not limited to: (Indrio Groves)

- building design
- building scale
- density/intensity
- street patterns
- street widths
- landscaping
- activity centers that are attractive, pedestrian-friendly, and serve surrounding neighborhood-level
- residential areas
- parking
- activity nodes with higher density/intensity
- healthy mix of uses within easy walking distance of each other
- sidewalks
- pedestrian-friendly block sizes (e.g., block face no more than 500 ft, average block perimeter 1,350 ft)
- traffic calming measures
- transit, pedestrian, and bicycle infrastructure & access to those facilities

# **APPENDIX G –** Examples of Multimodal NOPC

Notice of Proposed Change (NOPC) and Substantial Deviation Determinations

*The following verbatim examples illustrate issue areas from development order recommendations related to an NOPC and may serve as guidance:*

## LP Integrated Development Order

In response to a Notice of Proposed Change (NOPC), the City Commission of the City of Tallahassee drafted an integrated development order (DO) with a variety of specific conditions to be met by the developer, St. Joe Towns & Resorts, LP. Within the set of conditions, six transportation demand management (TDM) strategies were issued for the developer, making provisions for:

- Capital development transit including bus stops and shelters, and a satellite transfer facility
- Pedestrian and bicycle facilities, with criteria for constructing shower and locker facilities within the buildings of the DRI
- A transportation coordinator, as appointed by the developer
- Preferential parking for high-occupancy vehicles, visitors, and the handicapped
- Pedestrian-friendly community design for areas within designated Pedestrian Primary Areas
- Resumption of a shuttle bus service to operate between this and an adjacent DRI, with connections to the local Tallahassee transit service

*"LP Integrated Development Order," City Commission of the City of Tallahassee, St. Joe Towns & Resorts, 1999-2004, Florida, pages 29-31.*

## Quillen DRI

In a response to the Treasure Coast Regional Planning Council regarding the Quillen DRI, FDOT District Four addressed the modal and design issues the applicant needed to take into consideration for approval. The following comments are excerpted from the memorandum:

1) Residential clusters shown in the Master Plan … appear to reflect a traditional suburban environment. Coordination of land uses as well as internal street connectivity are important provisions in order to make progress towards providing travel choices other than by single occupant vehicles. Consideration should be given to increasing the grid pattern of local and regional roads to provide a variety of alternate routes.
2) The ADA indicates bicycle and pedestrian facilities will be provided; however, no maps are provided that demonstrate the accessibility of land uses to a bicycle/pedestrian system. It is important that bicycle and pedestrian facilities be created throughout the area to foster forms of mobility other than the single-occupant vehicle. In particular, bicycle and pedestrian access between residential areas, commercial areas, and community facilities, such as parks and schools, should be included.
3) To address potential congestion, the applicant should also consider committing to the development and implementation of transportation demand management/commute trip reduction strategies to reduce project related peak hour automobile trips. The

neighborhood center, in particular, provides an opportunity to support these types of programs. A park and ride lot for ridesharing/car pooling could be provided for to support future transit access. The objective is to relieve the regional roadway from local automobile trips that would otherwise be there.

4) Many of the previous comments also relate to making the community "Transit Ready." Transit service is available in Indiantown and expansion to the project should be considered. Many of the design principles described in the Indiantown Community Redevelopment Plan and Indiantown Design Regulations assist in promoting alternate modes of travel and establishing transit-ready and transit/pedestrian/bicycle-friendly communities. These principles include providing parking in the rear, locating buildings closer to the street, creating front porches to promote safety, providing pedestrian linkages, and establishing neighborhood greens or meeting areas.

*"Quillen DRI, Martin County; Application for Development Approval (ADA)," (interagency memorandum), Florida Department of Transportation, Planning and Environmental Management – District Four, Ft. Lauderdale, May 11, 2006, pages 3-4.*

# **APPENDIX H –** GLOSSARY

Note: *Italicized words and phrases* are defined in this glossary.

Access Management – The control and regulation of the spacing and design of driveways, medians, median openings, traffic signals and intersections on arterial roads to improve safe and efficient traffic flow on the road system.

Accessibility – The dimension of *mobility* that addresses the ease in which travelers can engage in desired activities.

Accuracy – The degree of a measure's conformity to a true value.

ADA Review – A thorough review of the applicant's estimate of transportation impacts anticipated by the proposed DRI. The most comprehensive opportunity for the FDOT reviewer to let other review agencies know about transportation concerns.

Adverse Impact – When a roadway is significantly impacted and the LOS on the roadway with the development trips is below the adopted LOS standard.

Analysis Period – The analysis period should be related to expected peaking patterns of demand on the roadway and anticipated development traffic. (usually a peak-hour analysis)

Analysis Years – The years agreed to analyze transportation impacts. They should be clearly defined in the report and agreed to during the methodology process.

Annual average daily traffic (AADT) – The volume passing a point or segment of a roadway in both directions for 1 year divided by the number of days in the year.

Application for Development Approval (ADA) – The applicant provides review agencies with the information needed to make a sufficiency determination. After reviewing the submittal, the agency can either determine that the submittal is sufficient (no additional information is needed) or request additional information *Rule 9J-2.022.*

Area type – In this Handbook a general categorization of an extent of surface based primarily on the degree of urbanization.

Arterial – 1) A signalized roadway that primarily serves thru traffic with average signalized intersection spacing of 2.0 miles or less.
2) A state facility that is not on *freeway*.
3) A type of roadway based on FDOT functional classification.

ARTPLAN – FDOT's arterial planning software for calculating *level of service* and *service volume tables* for interrupted flow roadways.

Assignment – The various trips are placed on the transportation network, including the number of trips, their origins and destinations, and travel mode.

Auto – Same as *automobile*.

Automobile – 1) A motorized vehicle with 4 or less wheels touching the pavement during normal operation.
2) In this Handbook, all motorized vehicle traffic using a roadway, except for *buses*.

Auxiliary lane – An additional lane on a *freeway* connecting an on ramp of one interchange to the off ramp of the downstream interchange.

Average daily traffic – The total traffic volume during a given time period (more than a day and less than a year) divided by the number of days in that time period.

Background Traffic – The traffic that includes the expected increase from overall growth in through traffic as well as traffic from other developments in the study area.

Base year – The model is calibrated to accurately represent the current conditions.

Bicycle – A mode of travel with two wheels in tandem, propelled by human power.

Bicycle lane – A portion of roadway or path for bicycles.

Bicycle LOS Model – The *operational methodology* from which this Handbook's bicycle quality/level of service analyses are based.

Blended Methods – The use of model methods to determine distribution percentages of vehicles is common in combination with manual assignment processes.

Boundaries – In this Handbook the geographical limits associated with *FDOT's Statewide Minimum Level of Service Standards* for the *State Highway System* or its MPO Administrative Manual.

Build-Up Method – Identifies all trips associated with vested developments in the study area, assigns those trips to the study area transportation system, and then adds the background through traffic

Bus – A self-propelled, rubber-tired roadway vehicle designed to carry a substantial number of passengers and traveling on a scheduled fixed route.

Bus stop – An area where *bus* passengers wait for, board, alight, and transfer.

Capacity – The maximum number of vehicles that can pass a point in a one hour time period under prevailing roadway, traffic and control conditions.

Capital Improvements Element (CIE) – Adopted and updated to reflect the timing and funding of capital projects to meet and maintain adopted LOS standards for all infrastructure.

Class – Same as *roadway class*.

Collector – A roadway providing land access and traffic circulation with residential, commercial and industrial areas.

Community – In this Handbook outside of an urban or urbanized area, an incorporated place or a developed but unincorporated area with a population of 500 or more identified in the appropriate *local government comprehensive plan*.

Community Capture – Extends the application of internal capture to include potential trip interactions and reductions within the boundaries of large scale, multi-use developments.

Community Capture Monitoring – Detailed needs of elements such as origin and destination studies, trip generation studies, and an evaluation of land use mixes in the community and surrounding the community

Conceptual planning – Same as *preliminary engineering*.

Concurrency – A systematic process utilized by local governments to ensure that new development does not occur unless adequate infrastructure is in place to support growth.

Concurrency Backlog Authorities – Identified deficiency where the existing extent of traffic volume exceeds the LOS standard adopted in a local government comprehensive plan for a transportation facility.

Concurrency Management Areas (CMA) – Designated in a local government comprehensive plan and must be a compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips.

Concurrency Management Systems (CMS) – Official government plan to manage & pay for growth.

Congestion – Condition in which traffic demand approaches or exceeds the available capacity of the transportation facility(ies).

Context-Sensitive Solutions (CSS) – Proactive, collaborative, interdisciplinary approach to transportation decision making, project development, and implementation, taking into account, the views of stakeholders, and the local area where a project will exist, be operated, and be maintained.

Corridor – A set of essentially parallel transportation facilities for moving people and goods between two points.

Critical hour – The period that has the highest combination of development and background traffic.

CUBE Voyager FSUTMS – The Cube Voyager Modeling software used by Florida to forecast travel demand.

D factor – Same as directional distribution factor.

Daily tables – In this Handbook, *Service Volume Tables* presented in terms of *annual average daily traffic*.

Data Collection – The collection, assembly, analysis and presentation of all data. Includes proposed site development characteristics, existing transportation systems data, existing traffic counts and land use and demographic data.

Demand – The number of persons or vehicles desiring service on a roadway.

Demographic Data – Intensity, population, employment, comprehensive plan data and zoning requirements.

Dense Urban Land Area – a) A municipality that has an average of at least 1,000 people per square mile of land area and a minimum total population of at least 5,000;
b) A county, including the municipalities located therein, which has an average of at least 1,000 people per square mile of land area; or
c) A county, including the municipalities located therein, which has a population of at least 1 million. Miami-Dade and Broward Counties are the exceptions.

Development of regional impact (DRI) – A development which, because of its character, magnitude, or location, would substantially affect the health, safety, or welfare of citizens of more than one county in Florida, as defined in Section 380.06(1), Florida Statutes, and implemented by Rule 9J-2, Florida Administrative Code

Directional distribution factor (D) – The proportion of an hour's total *volume* occurring in the higher volume direction.

Diverted trips – Similar to pass-by trips, however, vehicles use a segment of the roadway system that they previously were not using.

Divided – As used in the *Generalized Tables*, a roadway with a *median*.

DRI Amendments – An amendment to a development which, because of its character, magnitude, or location, would substantially affect the health, safety, or welfare of citizens of more than one county in Florida, as defined in Section 380.06(1), Florida Statutes, implemented by Rule 9J-2, Florida Administrative Code, and coordinated by the regional planning agency.

DRI Reports – Required reports that summarize information describing any changes that have been made to the development plan during the reporting period, information about the master plan, lands purchased, permitting, and local government, and a summary of each development order condition and when each commitment has been complied with.

Evaluation and Appraisal Report (EAR) – An audit of a local government's successes and failures in implementing its comprehensive plan. The EAR is prepared every seven years to evaluate and update a LGCP (s.163.3191, F.S.). It is the first step in updating the comprehensive plan.

Existing Conditions – The analysis developed to assess current conditions and establish a basis for comparison to future conditions.

Factor – A value by which a given quantity is multiplied, divided, added or subtracted in order to indicate a difference in measurement.

Fair Share – Provides options to mitigate development impacts through cooperative efforts between the public and private sector.

FDOT – Florida Department of Transportation.

FHWA – Federal Highway Administration.

Florida Intrastate Highway System (FIHS) – An interconnected statewide system of *limited access* facilities and *controlled access* facilities developed and managed by FDOT to meet standards and criteria established for the FIHS. It is part of the *State Highway System*, and is developed for high-speed and high-volume traffic movements. The FIHS also accommodates high occupancy vehicles (HOVs), express bus transit and in some *corridors*, interregional, and high-speed intercity passenger rail service. Access to abutting land is subordinate to movement of traffic and such access must be prohibited or highly regulated.

Future Land Use Map (FLUM) – Community's visual guide to future planning.

Freeway – A multilane, divided highway with at least 2 lanes for exclusive use of traffic in each direction and full control of ingress and egress.

FSUTMS – Florida Standard Urban Transportation Modeling System.
Florida's software that forecasts travel demand.

Functional classification – The assignment of roads into systems according to the character of service they provide in relation to the total road network.

Future Conditions Analysis – Determines if the transportation system will operate acceptably with the additional site-generated trips and, if not, what mitigation may be required.

Future Land Use Element – Includes goals, objectives and policies and a Future Land Use Map that implement the jurisdiction's desired land use pattern.

Future Year Conditions – The Future Background Conditions for a future horizon year that does not include the proposed development.

General Transportation Factors – Include: Analysis periods, Trip Generation, Current traffic conditions, Future traffic conditions, current and future development, and comprehensive plans.

Generalized planning – A broad type of planning application such as statewide analyses, initial problem identification, and future year analyses; typically performed by use of the *Generalized Tables*.

Generalized Service Volume Tables – *Maximum service volumes* based on areawide *roadway, traffic* and *control* variables and presented in tabular form.

Generalized Tables – Same as *Generalized Service Volume Tables*.

Growth management concepts – The ideas necessary for use in planning for urban growth so as to responsibly balance the growth of the infrastructure required to support a community's residential and commercial growth with the protection of its natural systems (land, air, water).

Growth Rate/Trend Method – Uses historic trends to predict future growth.

Guideline – Based on FDOT's Standard Operating System (Topic No: 025-020-002-d), a recommended process intended to provide efficiency and uniformity to the implementation of policies, procedures, and standards; a guideline is intended to provide general program direction with maximum flexibility.

HCM – Same as *Highway Capacity Manual*.

Heavy vehicle – A FHWA vehicle classification of 4 or higher, essentially vehicles with more than 4 wheels touching the pavement during normal operation.

High-occupancy vehicle (HOV) lane – A *freeway* lane reserved for the use of vehicles with a preset minimum number of occupants; such vehicles often include buses, taxis, and carpools.

Highway – 1) A generic term meaning the same as *roadway*.
2) A *roadway* with all the transportation elements within the right-of-way.

Highway Capacity Manual (HCM) – The Transportation Research Board document on highway capacity and quality of service.

Highway Capacity Software (HCS) – A software package faithfully replicating the *Highway Capacity Manual*.

Internal Capture – The number of trips that occur inside the development and don't impact existing roads outside the development.

Internal Circulation – Good internal circulation of a land development is designed with respect to highway access point(s) rather than the building(s).

Land Use – Future land use classification.

Large Scale Plan Amendment – Any change in text to the Comprehensive Plan or any change in the future land use map.

Large Scale Transportation Model – In Florida, the FSUTMS Model is used.

Large urbanized area – An *MPO urbanized area* greater than 1,000,000 population; in Florida these 7 areas consist of the following central cities: Ft. Lauderdale, Jacksonville, Miami, Orlando, St. Petersburg, Tampa, and West Palm Beach.

Level of service (LOS) – A quantitative stratification of the *quality of service* to a typical traveler of a service or facility into six letter grade levels, with "A" describing the highest quality and "F" describing the lowest quality; a discrete stratification of a *quality of service* continuum.

Level of service (LOS) analysis – A quantitative examination of traveler *quality of service* provided by a transportation facility or service.

Level of Service Standards – Same as *Statewide Minimum Level of Service Standards* for the *State Highway System*.

Link Volume Factor Method – Uses a combination of ITE Trip Generation and FSUTMS.
Project trips distribution is generated using socioeconomic data and the percentages are applied to ITE Trip Generation.

Local Government Comprehensive Plan (LGCP) – Any county or municipal plan that meets the requirements of subsections 163.3177 and 163.3178 of the Florida Statues.

Local Government Draft Development Order Review – FDOT's final opportunity to ensure that mobility on SIS/SHS segments located in the project impact area has been adequately addressed. The purpose is to resolve any outstanding issues before the DO is rendered.

LOS – Same as *level of service*.

LOS Software – FDOT's ARTPLAN, FREEPLAN, and HIGHPLAN preliminary engineering computer programs.

LOS standards – Same as *Statewide Minimum Level of Service Standards* for the State Highway System.

LTCMS – Long Term Concurrency Management Systems.
Sets interim LOS standards until improvements can be implemented and is designed to correct existing deficiencies and set priorities for addressing backlogged facilities.

Maintain – Continuing operating conditions at a level that prevents significant degradation.

Manual Methods – Manual methods of trip distribution that provide the analyst with a basic understanding of the travel patterns associated with the development.

Maximum service volume – The highest number of vehicles for a given *level of service*.

Median – Areas at least 10 feet wide that are restrictive or non-restrictive that separate opposing-direction mid-block traffic lanes and that, on arterials, contain turn lanes that allow left turning vehicles to exit from the thru traffic lanes.

Methodology Development – The first step in any traffic impact analysis. It defines the data, techniques, practices, and assumptions that will be used while preparing a transportation impact analysis.

Mitigation – Specific design commitments made during the environmental evaluation and study process that serve to moderate or lessen impacts deriving from the proposed action. These measures may include planning and development commitments, environmental measures, right-of-way improvements, and agreements with resource or other agencies to effect construction or post construction action.

Mixed-Use Developments – Same as multi-use developments. Contain a mix of land uses.

MMTDs – Multimodal Transportation District: An area in which secondary priority is given to vehicle mobility and primary priority is given to assuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit (F.S. 163.3180(15)).

Mobility – The movement of people and goods.

Mode – Particular form of transportation, such as automobile, transit, carpool, ship, and bicycle.

Mode Split – The travel mode percentages (automobile, transit, walking, etc.) used by site-generated trips.

Mode Split/ Alternative Travel Forecasts – Separating the predicted trips from each origin zone to match each destination zone into distinct travel modes (walking, biking, driving, train, bus).

Model Method – Involves the use of a computerized large scale travel demand model, such as FSUTMS.

Model Volumes – The number of vehicles, and occasionally persons, passing a point on a roadway during a specified time period, often 1 hour; a volume may be measured or estimated, either of which could be a constrained value or a hypothetical demand volume.

MPO – Metropolitan Planning Organization.

Multimodal – In this Handbook more than one highway *mode*.

Multimodal Mobility Options – Same as *multimodal transportation*.
Alternatives to the single-occupant vehicle. Some alternatives include walking, cycling, carpooling, boating, paratransit, taxi, light rail and transit.

Multimodal Transportation District – An area in which secondary priority is given to *vehicle* mobility and primary priority is given to assuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit (F.S. 163.3180(15)).

Multi-Use Developments – Same as mixed-use developments. Contain a mix of land uses.

Neo-Traditional Developments – Provides a mix of land uses to serve residential needs and by providing a community design that supports walking and alternative modes of travel.

Non-state roadway – A roadway not on the *State Highway System*.

NOPC – Notice of Proposed Change: A report that is required to be submitted by the applicant to the local government, the RPC and DCA when a change is proposed to a previously approved DRI.

Off peak – The course of the lower flow of traffic.

OMD – Office of Modal Development.

Operational analysis – A detailed analysis of a roadway's present or future level of service, as opposed to a generalized planning analysis or preliminary engineering analysis.

Operational Efficiency – Occurs when the right combination of people, process, and technology come together to enhance the productivity and value of any business operation, while driving down the cost of routine operations to a desired level.

Pass-by Trips – Currently on the roadway system and pass directly by a generator on the way to the primary destination.

Peak direction – The course of the higher flow of traffic.

Peak hour – In this Handbook a 1 hour time period with high volume.

Peak season – The 13 consecutive weeks with the highest daily volumes for an area.

PSWADT – Peak Season Weekday Average Daily Traffic:
The *average daily traffic* for Monday through Friday during the peak season.

Pedestrian – An individual traveling on foot.

Pedestrian LOS Model – The operational methodology from which the Q/LOS Handbook's pedestrian quality/level of service analyses are based.

Performance measure – A *qualitative* or *quantitative* factor used to evaluate a particular aspect of travel quality.

Planning application – In this Handbook the use of default values and simplifying assumptions to an *operational model* to address a roadway's present or future level of service.

Pre-application Conference – Conducted to identify issues, coordinate appropriate State and local agency requirements, promote a proper and efficient review of the proposed development, and ensure that RPC staff are aware of all the issues to which reviewing agencies will require the applicant to respond.

Precision – The range of accurate and acceptable numerical answers.

Primary trips – Trips made for the specific purpose of visiting the generator.

Proportionate Share – Provides a way for developers to satisfy transportation concurrency requirements by funding a specific road segment or segments falling below LOS standards set for in Rule 14-94, F.A.C. Examples of proportionate fair-share mitigation may include the contribution of private funds, contributions of land, and/or construction and contribution of facilities.

QOS – Same as *quality of service*.

Quality of service (QOS) – A user based perception of how well a service or facility is operating.

Quality/level of service (Q/LOS) – A combination of the broad quality of service and more detailed level of service concepts.

Recommendations and Conditions – Upon completion of the DRI ADA review, the FDOT reviewer should develop recommendations to ensure the developer mitigates the impact of the DRI on the transportation system. The development of recommendations and conditions is intended to document the agreements discussed during the ADA review process.

Rendered Development Order Review – Once the development order is rendered by the local government, it is the FDOT's responsibility to ensure that all commitments are contained within the LGDO.

Roadway – A general categorization of an open way for persons and vehicles to traverse; in this Handbook it encompasses streets, arterials, freeways, highways and other facilities.

Roadway class – Categories of arterials and two-lane highways; arterials are primarily grouped by signal density; two-lane highways are primarily grouped by area type.

Route – As used in the *Transit Capacity and Quality of Service Manual*, a designated, specified path to which a bus is assigned.

RPC Assessment Report – Formal Assessment Report detailing recommendations to the local government, the Developer, and DCA on the regional impact of the proposed development.
(Also referred to as Regional Report and Recommendations 9J-2.024)

Scheduled fixed route – In this Handbook bus service provided on a repetitive, fixed-schedule basis along a specific route with buses stopping to pick up and deliver passengers to specific locations.

Service measure – A specific performance measure used to assign a level of service to a set of operating conditions for a transportation facility or service.

Service volume – Same as *maximum service vol*ume.

Service Volume Table – *Maximum service volumes* based on roadway, traffic and control variables and presented in tabular form.

Sidewalk – A paved walkway for pedestrians at the side of a roadway.

Signal – A *traffic control device* regulating the flow of traffic with green, yellow and red indications.

Significance Testing – Determined by considering the percentage of traffic on a roadway segment that is generated by the development during the peak hour in relationship to the maximum service volume at the LOS standard for the facility during the same period.

Site Access – Accommodation of automobiles, buses, pedestrians, bicycles and other modes of transportation to a given site.

Site Development Characteristics – The location of the proposed development, site boundaries and other site related characteristics.

Special Generator Method – Uses a combination of ITE Trip Generation and FSUTMS.
The trips in the model are adjusted to match the ITE trip generation rate.

Special or Unusual Generator – One that cannot be adequately described by ITE Trip Generation Report.

Standard – A Florida Department of Transportation formally established criterion for a specific or special activity to achieve a desired level of quality.

Standards – Same as Statewide Minimum Level of Service Standards for the State Highway System.

State Highway – All roadways that the Florida Department of Transportation operates and maintains; the State

| | | |
|---|---|---|
| System (SHS) | | Highway System consists of the Florida Intrastate Highway System and other state roads. |
| Statewide Minimum Level of Service Standards for the State Highway System | – | FDOT's Rule Chapter No. 14-94 to be used in the planning and operation of the State Highway System. |
| Statute | – | A written law enacted by a duly organized and constituted legislative body. |
| Strategic Intermodal System (SIS) | – | Florida's system of transportation facilities and serves of statewide and interregional significance. |
| Study Area | – | Same as "traffic impact area" or simply the "impact area."<br>The area affected by a new development. |
| Study period | – | An hour period on which to base quality/level of service analyses of a facility or service.<br>A length in time including a future year of analysis. |
| Sufficiency | – | The determination that the applicant has supplied all of the necessary information in order to assess the development's regional impacts. Sufficiency can either be declared by an applicant (after responding to two requests for additional information by the RPC) or by the reviewing agencies. |
| System | – | A combination of facilities or services forming a *network*.<br>A combination of facilities selected for analysis. |
| System Capacity | – | The maximum number of vehicles that can reasonably be expected to pass over a lane or a roadway during a given time period under prevailing roadway and traffic conditions. Typically, the maximum expressway capacity for automobiles is 2,000 vehicles per lane per hour. |
| Traffic | – | A characteristic associated with the flow of vehicles. |
| Traffic Analysis Zone (TAZ) | – | A geographic unit of analysis used to aggregate socioeconomic data (household and employment data). |
| Traffic Attenuation | – | As traffic from a specific site travels longer distances, the number of those site generated trips attenuate (drop) because more and more people reach their final destinations. |
| Traffic Counts | – | Annual Average Daily Traffic (AADT) counts. |
| Transit | – | In this Handbook, the same as *bus*. |
| Transit Capacity and Quality of Service Manual (TCQSM) | – | The document and operational methodology from which the Q/LOS Handbook's bus quality/level of service analyses are based. |
| Transit system structure | – | The Transit Capacity and Quality of Service Manual's analytical methodology of transit stops, route segments, and system. |
| Transitioning | – | In the text of this Handbook, the same as *transitioning area*. |
| Transitioning area | – | An area that exhibits characteristics between *rural* and *urbanized/urban*. |
| Transitioning/urban | – | The grouping of transitioning areas and urban areas into one analysis category in the *Generalized Tables* and software. |
| Transit-Oriented Developments | – | A mixed-use residential or commercial area designed to maximize access to public transport. |

**Transportation Concurrency Exception Areas (TCEA)** – An urban area delineated by a local government where infill and redevelopment are encouraged, and where exceptions to the transportation concurrency requirement are made, providing that alternative modes of transportation, land use mixes, urban design, connectivity, and funding are addressed.

**Transportation Concurrency Management Area (TCMA)** – A geographically compact area designated in a *local government comprehensive plan* where intensive development exists, or is planned, so as to ensure adequate mobility and further the achievement of identified important state planning goals and policies, including discouraging the proliferation of urban sprawl, encouraging the revitalization of an existing downtown and any designated redevelopment area, protecting natural resources, protecting historic resources, maximizing the efficient use of existing public facilities, and promoting public transit, bicycling, walking, and other alternatives to the single-occupant automobile. (Rule 9J-5.0057, F.A.C.)

**Transportation demand data** – Includes current and historical traffic volumes, turning movement counts, traffic characteristics such as peaking and directional factors, ridership data, and bicycle and pedestrian activity.

**Transportation Element** – Goals, objectives and policies creating the jurisdiction's transportation system.

**Transportation Methodology Meeting** – Technical discussions take place regarding the details of the applicant's methodology to answer Question 21 of the ADA. Before the Transportation Methodology meeting, the applicant prepares a detailed transportation methodology to be submitted to the reviewing agencies.

**Transportation Monitoring and Modeling Studies** – (M & M) A method of ensuring the traffic impacts to any regional roadway affected by a development of regional impact (DRI) do not fall below its adopted level of service (or other performance standard).

**Transportation Monitoring Studies** – These studies usually require the collection and analysis of transportation data to verify assumptions associated with internal capture (or community capture if applicable), background growth rates, and other assumptions made during the ADA. The studies are usually required by a condition in the development order.

**Transportation System Data** – Include the physical and functional characteristics of the transportation system.

**Travel time** – The average time spent by vehicles traversing a roadway.

**TRIP** – Transportation Regional Incentive Program:
Created to improve regionally significant transportation facilities.

**Trip Assignment** – Determines the amount of traffic that will use each access point and route on the roadway network and determines the number of site-generated turning and through movements at each intersection and roadway segment of the study area network.

**Trip Distribution** – Trip-making characteristics between the proposed development and off-site areas to determine trip origins and destinations.

**Trip Generation** – The number and type of trips associated with site development.

**Trip Generation Equations** – Trip generation fitted equations based on data collected.

**Trip Generation Rates** – Weighted average trip generation rate based on one unit of independent variable.

**Trip Types** – Three types of trips generated by ITE trip generation:

1) Primary trips
2) Pass-by trips
3) Diverted trips

**Truck** – In this Handbook the same as *heavy vehicle*.

**Two-way** – Movement allowed in either direction.

**Undivided** – As used in the Generalized Tables, a roadway with no *median*.

**Urban area** – a) A place with a population between 5,000 and 50,000 and not in an *urbanized area*.
b) A general characterization of places where people live and work.

**Urban infill** – A land development strategy aimed at directing higher density residential and mixed-use development to available sites in developed areas to maximize the use of adequate existing infrastructure; often considered an alternative to low density land development.

**Urbanized area** – An area within an MPO's designated urbanized area boundary. The minimum population for an urbanized area is 50,000 people.

**v/c** – The ratio of *demand flow rate* to *capacity* of a signalized intersection, segment or facility.

**Vehicle** – A motorized mode of transportation.

**Volume** – In this Handbook usually the number of vehicles, and occasionally persons, passing a point on a roadway during a specified time period, often 1 hour; a volume may be measured or estimated, either of which could be a constrained value or a hypothetical demand volume.

**ZDATA** – Socioeconomic data input to FSUTMS.

**100th highest hourly volume** – The 100th highest traffic volume hour of the year.

**1st Request for Additional Information** – After a review to determine if an ADA is sufficient, a request for the applicant to provide additional information.

**1st Sufficiency Determination** – Sufficiency is the determination that the applicant has supplied all of the necessary information in order to assess the development's regional impacts. Sufficiency can either be declared by an applicant or by the reviewing agencies.

**2nd Request for Additional Information** – Similar to the ADA Review/1st Request for Additional Information, the applicant will provide written responses to the agency's 1st Request for Additional Information and provide the responses for agency review.

**2nd Sufficiency Determination** – RPCs have the responsibility to coordinate with all affected agencies with regard to both the notification and coordination of the review.