TRANSPORTATION CONCURRENCY

Best Practices Guide

FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS

Acknowledgments

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This guide can be located on the Florida Department of Community Affairs website:
www.dca.state.fl.us/fdcp/DCP/publications

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About the Guide

This guide presents practical guidance for local transportation concurrency management systems based on a sampling of current and best practices. As such, it is an important first step toward greater understanding of how to implement transportation concurrency. However, further research is needed to advance the state of the practice, including more detailed study of the evolution of concurrency management systems and how best to accomplish concurrency as a local government transitions from simple to more complex systems and multimodal options.

The guide also provides technical assistance on strategies for addressing the changes to Florida's concurrency requirements made during the 2005 and 2007 legislative sessions. These changes include Florida Statutes Sections 163.3180(5) regarding transportation concurrency exception areas, 163.3180(6) regarding *de minimis* transportation impacts, 163.3180(10) regarding compatibility of level of service standards and coordination of methodologies, 380.06(24) regarding statutory exemptions from DRI requirements, and 163.3180(16) regarding transportation proportionate fair share.

The guide will also assist local governments in the evaluation and appraisal of local comprehensive plans. In particular, Section 163.3191(2)(p) requires "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 [the local government's] concurrency management system in coordination with the municipalities and counties." Guidance on evaluating the transportation impacts of comprehensive plan amendments is provided in the Appendix.

The guide begins in Chapter 1 with an overview of concurrency management in Florida and issues in current practice. Chapter 2 addresses the planning process for concurrency and considerations for establishing level of service standards, applying concurrency alternatives, and developing a concurrency management system. Chapter 3 includes a detailed look at the process for implementing transportation concurrency and the mechanics of a concurrency tracking system. Chapter 4 discusses transportation impact assessment, including the implications of various ways of measuring "impact area" and a suggested traffic impact assessment methodology for concurrency. The chapter concludes with a sample application of the methods presented.

Recognizing that transportation concurrency is best accomplished through coordination, Chapter 5 provides strategies for improved multi-jurisdictional coordination in establishing level of service standards and managing concurrency. The chapter also provides guidance on how to address the statutory exemptions from DRI requirements allowed under s. 380.06(24), Florida Statutes. The chapter concludes with a series of attachments providing guidance on implementing transportation concurrency in a multi-jurisdictional context. These include a sample methodology for evaluating and mitigating cross jurisdictional impacts, an example application illustrating the concepts discussed in the guide, and two model interlocal agreements for coordination in concurrency management.

Although it addresses multi-jurisdictional coordination, the sample methodology in Attachment 1 can also serve as a guide for any local government wishing to update its own concurrency management methods and procedures. A sample concurrency management spreadsheet to complement the guide is available on the Florida Department of Community Affairs website at *www.dca.state.fl.us*.

INTRODUCTION

Transportation concurrency is a growth management strategy aimed at ensuring that transportation facilities and services are available "concurrent" with the impacts of development. To carry out concurrency, local governments must define what constitutes an adequate level of service for the transportation system and measure whether the service needs of a new development exceed existing capacity and scheduled improvements for that period. If adequate capacity is not available, then the developer must provide the necessary improvements, provide a monetary contribution toward the improvements, or wait until government provides the necessary improvements. These general concepts are further defined through the rules and requirements of Florida's growth management statutes and administrative rules.

FLORIDA'S TRANSPORTATION CONCURRENCY REQUIREMENTS

Concurrency in Florida is tied to provisions in the state growth management act (Chapter 163, Florida Statutes), requiring the adoption of level of service (LOS) standards, elimination of existing service deficiencies, and provision of infrastructure to accommodate new growth reflected in the comprehensive plan. Plans and development regulations must aim at achieving and maintaining the desired level of service, and comprehensive plans are reviewed by the State for consistency between the capital improvement element and the various elements of the plan, including the future land use element.

Rule 9J-5.0055(3), Florida Adminstrative Code, sets forth the minimum requirements for satisfying concurrency. It also requires local governments to develop and implement a concurrency management system.

In addition to capacity that is available or provided through agreements, Rule 9J-5.0055(3), Florida Adminstrative Code, allows local governments to evaluate transportation concurrency against planned capacity in a five-year capital improvements schedule. That schedule must also reflect the metropolitan planning organization transportation improvement program in urbanized areas, per s. 163.3177(3)(a), Florida Statutes. The community must demonstrate that the necessary facilities will be available and adequate to address the impacts of the development within three years of issuing the building permit or its functional equivalent. The schedule must include the estimated date of commencement and completion of the project and this timeline may not be eliminated or delayed without a plan amendment approved by the Florida Department of Community Affairs (DCA). Changes to the schedule may be made outside of the regular comprehensive plan amendment cycle.

A "pay and go" option for concurrency, known as proportionate fair share mitigation, was added to Florida's growth management legislation in 2005. The proportionate fair share option allows developments to proceed under certain conditions, notwithstanding a failure to meet transportation concurrency, where applicants contribute their fair share of the cost of improving the transportation facility. Among the conditions was a requirement that any improvement be financially feasible at least within a 10 year period and be in or added to the local 5 year schedule of capital improvements. Developers are eligible for impact fee credits for their contribution "to the extent that all or a portion of the proportionate fair share mitigation is used to address the same capital infrastructure improvements contemplated by the local impact fee ordinance."

Exceptions from concurrency are provided under certain circumstances. Public transportation facilities, certain infill or redevelopment projects, and projects whose impacts may be considered insignificant or *de minimis* are exempted from concurrency, where certain criteria are met.

In 2007, the Florida legislature further modified concurrency requirements, in part to address issues arising from the 2005 legislation. Key changes included:

- Proportionate share mitigation "shall be limited to ensure that a development meeting the requirements of this section mitigates its impact on the transportation system but is not responsible for the additional cost of reducing or eliminating backlogs."
- Proportionate fair share mitigation "may be directed toward one or more specific transportation improvements reasonably related to the mobility demands created by the development and such improvements may address one or more modes of travel." This concept is commonly referred to as "pipelining."
- A new option called Transportation Concurrency Backlog Authorities was established.
- Airports and affordable housing in proximity to employment centers, (s. 163.3180a (17), Florida Statutes), were exempted from transportation concurrency.
- Any development of regional impact (DRI) may satisfy transportation concurrency through a proportionate fair share contribution, provided the location and mix of uses would help encourage alternative modes of travel, the applicant pays for one or more mobility improvements that benefit a regionally significant transportation facility, and meets other statutory conditions.
- The DCA must be consulted, in addition to Florida Department of Transportation, prior to local designation of a transportation concurrency exception area to determine whether it would impact level of service on the Strategic Intermodal System and if so to develop a mitigation plan.
- Provides for additional urban areas to qualify as transportation concurrency exception areas, provided the area is appropriate for compact contiguous urban development, must not exceed the amount of land needed to accommodate the project population growth at densities consistent with the adopted comprehensive plan within the 10-year planning period, and must be served or planned to be served with public facilities and services as provided by the capital improvement element.

TRANSPORTATION CONCURRENCY BACKLOG AUTHORITIES

Florida's 2007 growth management legislation created a new concept called transportation concurrency backlog authorities. Under the legislation, a county or municipality may create a transportation concurrency backlog authority to plan and finance improvements to a transportation facility with an identified concurrency backlog. A backlog is defined as an identified deficiency where existing traffic volume exceeds the adopted level of service standard for the facility. Backlog authorities may:

- execute contracts and other instruments;
- carry out transportation projects, including roadways, sidewalks, bikeways, and mass transit;
- borrow money, accept contributions or grants, and otherwise finance transportation improvements;
- invest reserve funds;
- prepare or contract with a consultant to prepare a transportation concurrency backlog plan; and
- appropriate funds, make expenditures, and enter agreements with other public bodies to carry out these functions.

Within six months after its creation, each backlog authority must adopt a transportation concurrency backlog plan as a part of the local government comprehensive plan. Adoption of the transportation concurrency backlog plan is exempt from state requirements governing comprehensive plan amendments (s. 163.3187(1), Florida Statutes). The plan must:

- identify all transportation facilities that have been designated as deficient and require the expenditure of moneys to upgrade, modify, or mitigate the deficiency;
- include a priority listing of all transportation facilities that have been designated as deficient and do not satisfy concurrency requirements pursuant to s. 163.3180, Florida Statutes, and the applicable local government comprehensive plan; and,
- establish a schedule for financing and construction of transportation concurrency backlog projects that will eliminate transportation concurrency backlogs within the jurisdiction of the authority within 10 years after the transportation concurrency backlog plan adoption. The schedule must be adopted as part of the local government comprehensive plan.

The legislation also directs backlog authorities to establish and administer a local transportation concurrency backlog trust fund. The trust fund is to be funded by proceeds of an ad valorem tax increment collected within each backlog area. The tax increment is determined annually and must be 25 percent of the difference between (a) the amount of tax levied each year by each taxing authority on taxable real property within the defined backlog area and (b) the amount of taxes that would have been produced by the rate levied each year on the total of the assessed value of the taxable real property within the transportation concurrency backlog area.

Certain public bodies or taxing authorities, such as metropolitan transportation authorities, community redevelopment areas, water management districts, and neighborhood improvement districts, may be exempted from participation in the backlog authority. Upon adoption of the transportation concurrency backlog plan, all backlogs within the jurisdiction are deemed financially feasible for purposes of calculating transportation concurrency. The authority is dissolved upon completion of all backlogs.

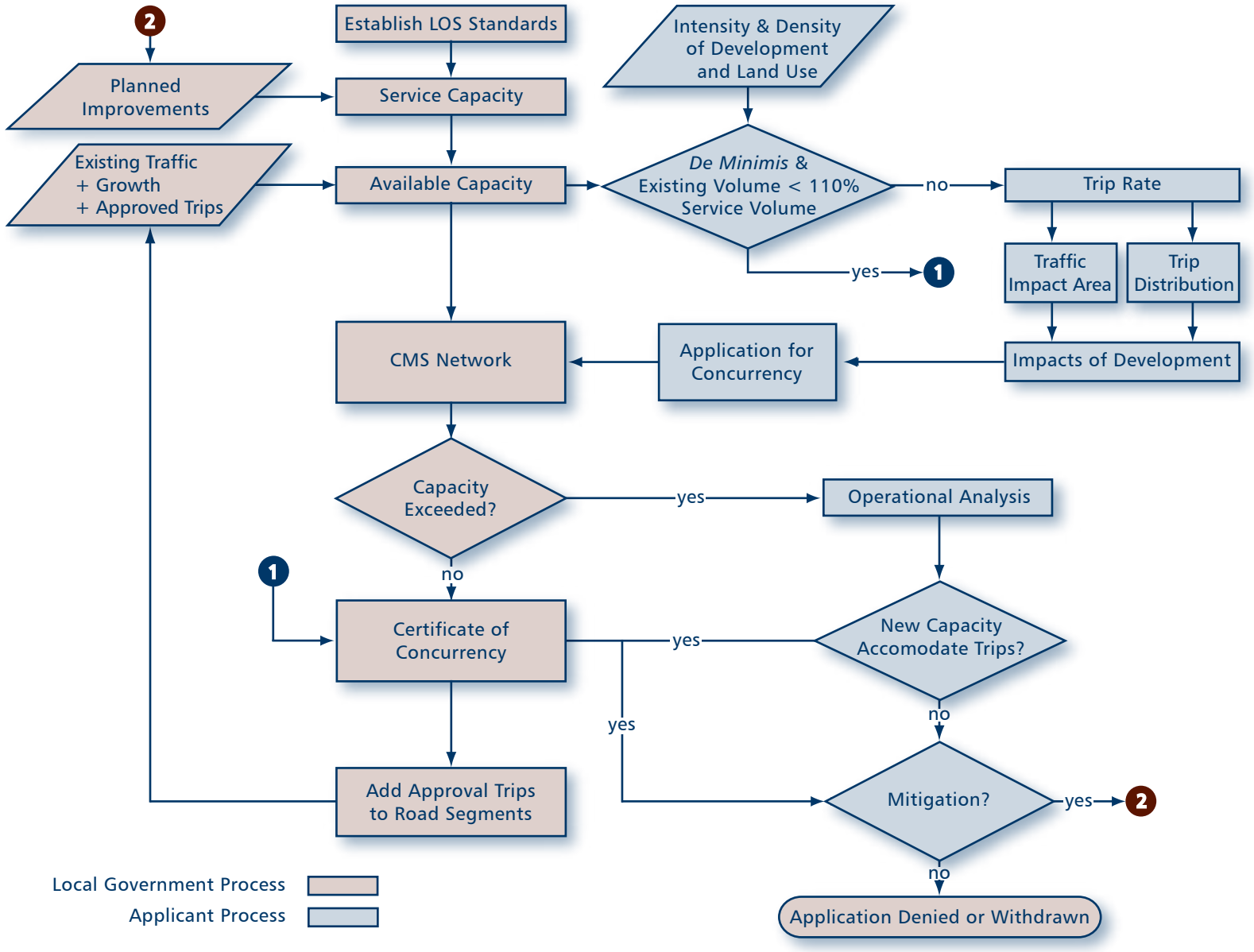


Figure 1: Transportation Concurrency Management Flow Chart

OVERVIEW OF A TRANSPORTATION CONCURRENCY MANAGEMENT SYSTEM

Transportation concurrency is administered through the establishment and maintenance of a concurrency management system or CMS. A CMS generally includes a concurrency tracking system and a transportation concurrency application and review process. The flow chart in Figure 1 is an overview of a typical concurrency management system and process. The left side of the flow chart illustrates the local government's role, and the right side illustrates the application process.

The process begins when a local government identifies what transportation facilities will be part of the regulated concurrency management system (CMS) network and then establishes level of service (LOS) standards for those facilities. LOS standards are a type of grading system that attempts to define user perceptions of travel conditions on a transportation facility. They may range from LOS A (least congested) to LOS F (most congested) (Figure 2). LOS standards may also be established for transit, bicycle and pedestrian facilities or services. These standards address the quality of service and are discussed further in Chapter 2.

The next step involves developing service volumes for each transportation facility in the CMS network. Service volumes reflect the maximum capacity of that facility at the adopted level of service standard and may include new capacity from planned improvements in the five year capital improvement schedule. Available capacity can then be determined by subtracting existing traffic volume, traffic growth, and approved development trips from the service volume of that facility (Figure 3).

During the development approval process, applicants must undergo a transportation concurrency review. The review determines if each impacted transportation facility has adequate capacity available to accommodate the traffic impacts of the proposed development. This is determined by adding estimated trips from the new development and any trips from previously approved developments to the existing traffic volume and then comparing that number to the service volume of the facility.

In some cases, the local government determines the development's impact, thereby ensuring consistency and adherence to local guidelines. In most cases, however, the impact of a proposed development is determined by the applicant and subject to local government review. Using the proposed land use, including the density and intensity of development, the applicant first determines if the proposed development trips are considered *de minimis* (i.e., having only minor impact) as defined in Florida law and local government regulations. If the trips qualify for a *de minimis* exception, then the application is processed and receives a certificate of concurrency. If not, the applicant deter-

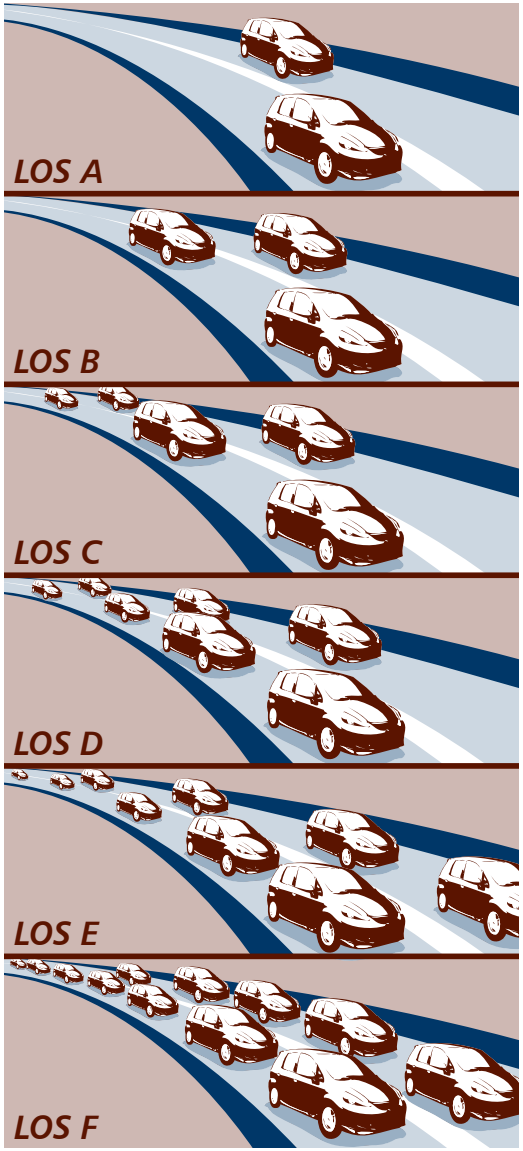


Figure 2: Level of Service (LOS) Standards

mines the impact of the development using the local government's methodology for trip generation, defining the traffic impact area, and trip distribution.

Next, the resulting impact of development trips on facilities in the concurrency network is compared to the available capacity. If all impacted facilities have adequate capacity, then a certificate of concurrency may be issued. If there is not adequate capacity on one or more of the concurrency facilities, the applicant may be required to perform an operational analysis on the deficient road link in accordance with the local government's traffic impact methodology.

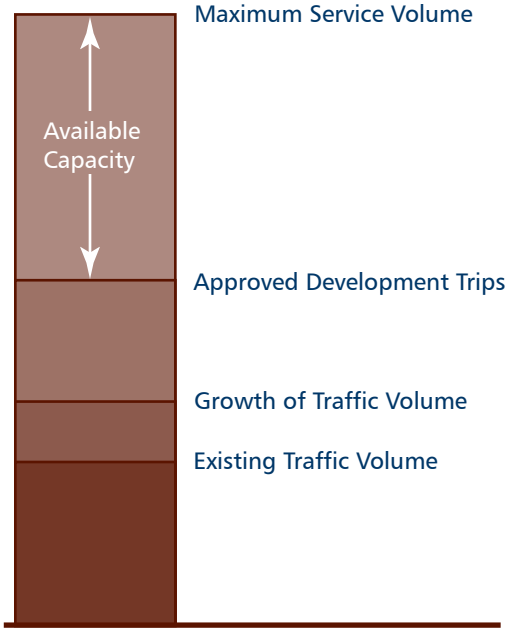


Figure 3: Determining Available Capacity

If the operational analysis concludes that the facility will operate at or above the adopted LOS with the proposed development trips, a certificate of concurrency may be issued. If not, the applicant may reduce the size of the development project such that the LOS standard is achieved, or the local government and the applicant may reach an agreement on improvements to mitigate the impact of the development trips. In this case a certificate of concurrency may be issued, pursuant to a binding development agreement or proportionate fair share agreement. If adequate capacity is not available and no improvements are scheduled, and no agreement can be reached on mitigation of the impact, the application for transportation concurrency would be denied. An applicant may also choose to withdraw the application.

ISSUES IN CURRENT PRACTICE

A variety of issues have surrounded the implementation of transportation concurrency in Florida. Key among these concerns is that many local governments have not adopted adequate policies regarding concurrency management, have not implemented a concurrency management system (CMS), or, as part of the CMS, have no systematic method for managing transportation concurrency. Attempting to implement concurrency through general policies and case-by-case decisions has led to less than effective results. In addition, a transportation concurrency management system is a necessary precondition to administering proportionate fair share programs.

In *A Review of Local Government Concurrency Practices in Florida* (Chapin 2005), Timothy Chapin analyzed the methods used by local governments to implement concurrency. Chapin noted significant variations in the concurrency policies and practices established by local governments on level of service (LOS) standards and timelines for providing facilities. The majority of local governments studied set LOS standards of "D" or below for interstates and major arterials in their jurisdiction. Many jurisdictions allowed the LOS standards for a road to vary by segment and time of day. Variations also existed based on road type, with at-grade arterials being assigned lower standards than limited access facilities.

Chapin also noted that unlike LOS standards, few variations existed for timelines to provide transportation facilities. Generally, jurisdictions allowed the maximum time allotted by state standards to provide transportation facilities (three years). Most required road improvements to begin one to three years after construction of the development. Chapin speculates that concurrency system variations cause developer frustration, as they face different processes in each jurisdiction. In addition, Chapin believes that residents across the state

receive "different service levels for key infrastructure systems and urban services."

These weaknesses in local concurrency management practices have become even more problematic with the added emphasis on concurrency and financially feasible plans in Florida's 2005 growth management legislation. Many local governments have neither the staff expertise nor the funds to retain a consultant to establish and maintain a transportation concurrency management system or to review complicated traffic impact analyses for large-scale developments. As a result, many local governments are seeking technical assistance in developing or refining their transportation concurrency management systems.

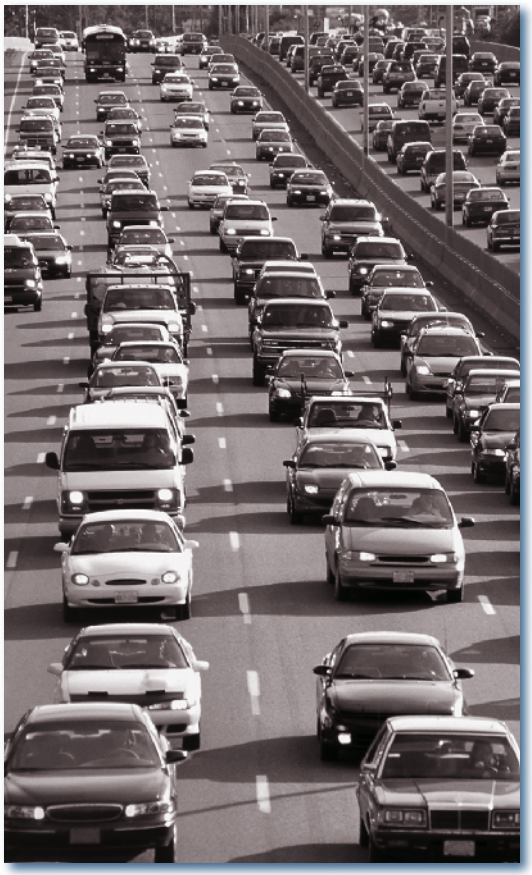
Local governments are also in need of better guidance on evaluating the transportation impacts of proposed amendments to their future land use plan—an advance planning activity that can make or break the concurrency management effort. Although Chapter 163, F.S. requires local governments to demonstrate that transportation capacity will be available to support the impacts of development authorized by proposed amendments to their future land use map, limited guidance is available regarding the type of data or analysis methods necessary to demonstrate compliance with these requirements.

In the absence of specific requirements or guidelines, the transportation impacts of comprehensive plan amendments may not be adequately evaluated. Typical problems have included inconsistent use of data and methodologies that do not reflect best practices or that underestimate impacts, and failure to consider the cumulative impacts of a series of concurrent land use plan amendments on the transportation system. It is not uncommon for a local government to submit several comprehensive plan amendments for compliance review in a given comprehensive planning cycle. Yet these comprehensive plan amendments tend to be evaluated individually, with transportation impact studies typically prepared separately for each land use change.

As a result, the overall transportation impacts of proposed land use changes are often poorly understood. The need for guidance on this issue is imperative in light of the strong emphasis in Florida's growth management legislation on ensuring that planned future growth is financially feasible and can reasonably be accommodated by the existing and planned transportation system.

Finally, the conventional approach to evaluating concurrency has raised a variety of issues and concerns. Issues related to transportation concurrency management in Florida include:

- The administration of concurrency on a link-by-link basis encourages incremental planning and moves agencies away from comprehensive solutions that focus on efficient operation of the overall transportation system.
- The application of traditional level of service analysis (volume to capacity ratios) results in an emphasis on road widening solutions to maintain roadway capacity and detracts from transit or multimodal solutions.
- The ability of local governments to develop financially feasible capital improvement plans has been limited by the backlog of roadway projects at the state and local level, resistance to



taxation, diminishing state funding, and the need for new revenue sources for transportation.

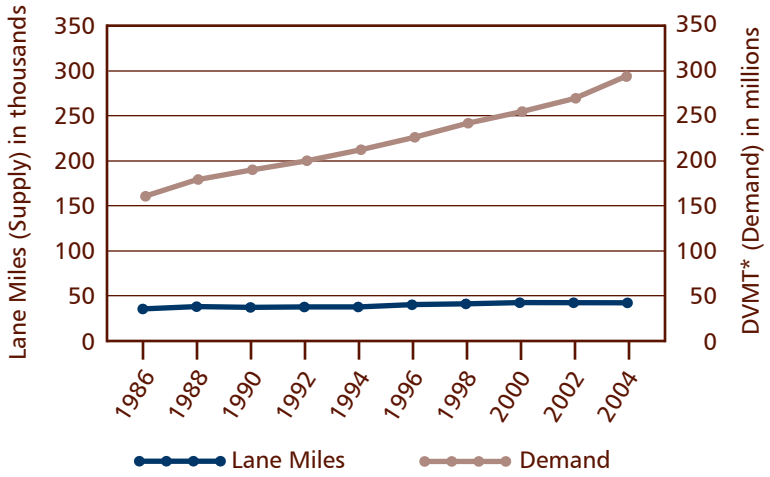
"We recognize the competition for limited financial resources and the reluctance to raise taxes or to include development contributions. However, as a community we can pay the piper now or later, and we can pay in dollars or in a reduced quality of life."

—Mayor's Growth Management Task Force Jacksonville,1997

- The systems for managing concurrency allow developers to reserve existing capacity and require no developer contribution for that capacity. Those that ultimately trigger a "concurrency deficiency" must then bear the burden of improvements necessitated in part by "free riders." This issue of the "last guy in pays," combined with continuing improvement backlogs and inadequate state and local funding, have raised fairness and equity concerns and arguments that current developers not be held responsible for the "sins of the past," including the lack of capacity resulting from earlier development.
- Local governments have considerable flexibility in what level of service (LOS) standard they choose to apply and how they administer certain exceptions. If a community sets a low LOS standard to avoid improving a facility or does not adequately maintain the required thresholds for redevelopment or *de minimis* exceptions, then the concurrency management system will be largely ineffective in accomplishing adequate public facilities.

Florida is also in need of more effective transportation concurrency alternatives for major urban areas. Local governments are increasingly establishing large transportation concurrency exception areas to reduce barriers to infill and redevelopment, and promote alternative modes of transportation. However, the required improvement plans, funding mechanisms, and systems management strategies to offset transportation impacts are not always developed or sufficient to meet transportation needs in the exception areas.

Overall, these issues reflect a broader problem—many local governments in Florida have not adequately planned for or funded their transportation infrastructure needs. And despite continuing issues surrounding transportation concurrency, it remains a worthwhile growth management activity. Transportation concurrency programs help local governments make better, more informed decisions about whether their transportation system can accommodate proposed development. The result is better comprehensive planning and more proactive attention to local and regional transportation needs.

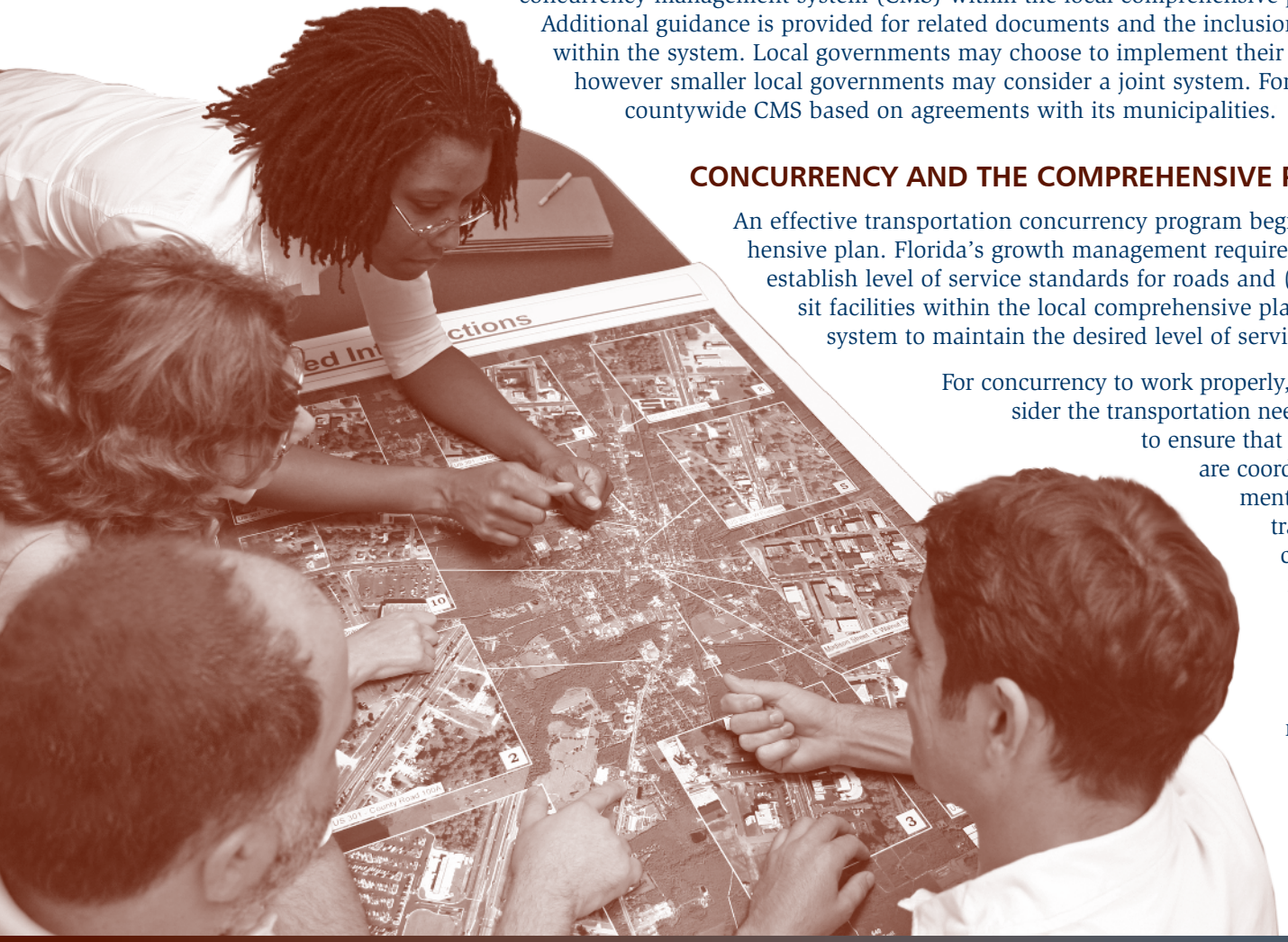


Source: Florida Transportation Commission, 15th Annual Performance and Production Review of the Department of Transportation, Fiscal Year 2005/06.
** DVMT=Daily Vehicle Miles Travelled*

Figure 4: State Highway System Demand Outpaces Supply

PLANNING FOR CONCURRENCY

Although the concept of transportation concurrency is relatively straightforward, applying it well requires extensive planning. This chapter addresses the basic planning considerations in developing a concurrency management process for transportation. It begins with steps for including level of service standards and a concurrency management system (CMS) within the local comprehensive plan and land development regulations. Additional guidance is provided for related documents and the inclusion of proportionate fair share mitigation within the system. Local governments may choose to implement their own concurrency management system; however smaller local governments may consider a joint system. For example, a county may maintain a countywide CMS based on agreements with its municipalities.



CONCURRENCY AND THE COMPREHENSIVE PLAN

An effective transportation concurrency program begins with the local government comprehensive plan. Florida's growth management requirements direct each local government to establish level of service standards for roads and (for larger local governments) public transit facilities within the local comprehensive plan, along with a concurrency management system to maintain the desired level of service.

For concurrency to work properly, local governments should first consider the transportation needs implied by the future land use plan to ensure that local land use and transportation plans are coordinated. Future land use map amendments can have a substantial impact on the transportation system, ultimately affecting concurrency. Therefore, it is important to measure the impacts of these amendments and determine if additional transportation improvements are needed. Guidance on evaluating the transportation impacts of proposed comprehensive plan amendments is provided in the Appendix.

Local governments will also need to determine the financial feasibility of carrying out the capital improvements program and maintaining a desired

level of service in view of competing resource demands. If the capital improvements element does not identify transportation improvements sufficient to handle the impacts of planned future growth, then concurrency will be virtually impossible to achieve. A guide for local governments entitled *Preparing the Five-Year Schedule of Capital Improvements* is available on the DCA website.

Recognizing that transportation improvements need to be phased over time, concurrency also has a timing component. The capital improvements element should specify when, how and where improvements will be provided. The permitting of development should generally coincide with the timing of planned transportation improvements and service expansion. Without strategies for managing the rate, timing, and location of development, the concurrency technique could backfire and encourage urban sprawl.

Roads, for example, typically have more capacity to accommodate new development as one moves away from the urban core. Phased development strategies, such as staged expansion of urban service areas and infill incentives, such as the concurrency alternatives discussed in this chapter, could be applied to encourage development on or adjacent to existing infrastructure. Development may then be phased outward from urban centers through a predetermined expansion plan to promote more compact growth patterns. Land use regulations could reinforce these strategies by restricting urban development outside the urban service area boundary and directing it in and around activity centers that can be more effectively served by roads and transit.

ESTABLISHING LEVEL OF SERVICE STANDARDS

PRACTICE TIP

Clearly establish level of service standards for roadways on the Strategic Intermodal System (SIS), including SIS Connectors, roadways on the Florida Intrastate Highway System (FIHS), and roadway facilities funded through the Transportation Regional Incentive Program (TRIP) based on Rule 14-94, F.A.C.

The 2005 amendments to Florida's growth management legislation changed the requirement for LOS standards on many state roads. Section 163.3180(10), Florida Statutes, now requires all local governments to adopt the level-of-service standard established by the Florida Department of Transportation on the Strategic Intermodal System (SIS), the Florida Intrastate Highway System (FIHS), and roadways funded under the Transportation Regional Incentive Program (TRIP). Prior to these changes, local governments were only required to apply FDOT minimum acceptable LOS standards to FIHS facilities.

Rule 14-94, Florida Administrative Code (F.A.C.) establishes LOS standards for state roads and has been modified to reflect the policy change and to reference the SIS and the TRIP. Table 1 shows the revised Statewide Minimum LOS Standards. To assure consistency with legislative and rule changes, it is a good idea for local governments to list and categorize roads by SIS (including SIS Connectors), FIHS, other state roads, and TRIP when establishing LOS standards. Below is model language that may be incorporated into the local comprehensive plan for generally establishing LOS standards for roads subject to Chapter 163, Florida Statutes, and subsequent revisions to Rule 14-94, F.A.C.:

> The level of service standard for roadways on the Strategic Intermodal System (SIS), including SIS Connectors, roadways on the Florida Intrastate Highway System (FIHS), and roadway facilities per Chapter 163, Florida Statutes, funded in accordance with Section 339.2819 Florida Statutes, the Transportation Regional Incentive Program, shall be as set forth in Rule 14-94, Florida Administrative Code, as amended and applied as follows:
>
> *[list and categorize roads by SIS, FIHS, other state roads, and TRIP with the corresponding LOS standard]*

The Florida Statewide Minimum Level of Service Standards (Table 1) may be included in the comprehensive plan, as well. Note that Rule 14-94, F.A.C., as

amended in 2005, no longer contains definitions for backlogged or constrained facilities; however, such designations may be recognized through the State's variance process. A variance to the State's minimum level of service standards may be sought (at the FDOT District level) through the procedures outlined in Section 120.542, Florida Statutes, which require illustration of a hardship and a strategy for mitigation.

PRACTICE TIP

Adopt level of service standards for other state and local transportation facilities that reflect the community's vision for the future, tolerance for congestion, desire for growth, and ability to fund transportation improvements.

Local governments may establish their own LOS standards for other state and local transportation facilities and services, including public transit, in their concurrency network. When establishing transportation LOS standards, the community sets its level of tolerance for congestion or the quality of service it is willing to accept, and its ability to fund transportation improvements. If a community sets a low LOS standard, such as LOS "E," more capacity may be available for development, but a higher level of congestion or reduced quality of service will occur. Conversely, establishing a higher LOS standard such as LOS "C" may provide better mobility (or operating) conditions, but

Table 1: Florida Statewide Minimum Level of Service Standards

	SIS AND FIHS FACILITIES		TRIP FUNDED FACILITES AND OTHER STATE ROADS[3]	
	Limited Access Highway[4] (Freeway)	Controlled Access Highway[4]	Other Multilane[4]	Two-Lane[4]
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 through 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.
3. Means the level of service standards for non TRIP facilities may be set by local governments in accordance with Rule 9J-5.0055, F.A.C.
4. It is recognized that certain roadways (i.e., constrained roadways) will not be expanded by the addition of through lanes for physical, environmental, or policy reasons. In such instances, a variance to the level of service may be sought pursuant to Section 120.542, Florida Statutes.

NOTE: Level of service letter designations are defined in the Department's 2002 Quality/Level of Service Handbook.

Source: Rule 14-94, Florida Administrative Code, Statewide Minimum Level Of Service Standards For The State Highway System, Roadways On The Strategic Intermodal System (SIS), Roadways On The Florida Intrastate Highway System (FIHS) And Roadway Facilities Funded In Accordance With Section 339.2819, Florida Statutes, The Transportation Regional Incentive Program (TRIP)

will minimize available capacity for new development and require increased revenues to maintain the higher standard. Local philosophy will, therefore, determine the appropriate LOS standard for the community.

LOS "F" has sometimes been used to indicate a failed roadway; however, it is not found as a standard in the FDOT Generalized Tables. Instead, a level of service standard lower than LOS "E" should be indicated using the amount of degradation below LOS "E" that will be allowed, such as 110% of LOS "E." This type of standard can only be adopted once, with new trips added in a cumulative fashion until the maximum service volume of the "revised" LOS standard is reached.

When setting LOS standards for other state and local roadways, local governments may use a combination of functional classification and area type, such as urban service area and/or development area (e.g., urban, rural or transitioning). This approach provides flexibility to allow more development and congestion in urban areas where drivers expect it and to restrict development in outlying areas. Therefore, it is in keeping with the basic intent of concurrency—to accommodate development in areas with adequate infrastructure and services and to discourage premature conversion of rural land for urban use.

For example, Tallahassee/Leon County uses a combination of urban service area and functional classification (arterial, collector, local), as shown in the inset. Although Tallahassee/Leon County also applies LOS standards to local streets, it is not common practice. Typically only arterial and collector roadways are included in a concurrency network. St. Johns County uses the following simple approach for applying LOS standards to roads based on the surrounding development area:

- Rural Area: C
- Transitioning Urbanized Area, Urban Area, or Community: D
- Urbanized Area: D

TALLAHASSEE/LEON COUNTY LEVEL OF SERVICE STANDARDS

"The peak hour roadway level of service for Tallahassee and Leon County is established as follows:

- Outside the Urban Service Area:

Interstate, Limited Access Parkways:	B
Principal Arterials:	C
Minor Arterials:	C
Major and Minor Collectors:	C
Local Streets:	D

- Inside the Urban Service Area:

Interstate, Limited Access Parkways:	C
Principal Arterials:	D**
Except Capital Circle NW from I-10 to SR 20	
Capital Circle NW from I-10 to SR 20:	E
Minor Arterials:	D / E*
Major and Minor Collectors:	D / E*
Local Streets:	D

* For Minor Arterials, and Major and Minor Collectors located inside the Urban Service Area and south of U.S. 90, the Level of Service shall be "D" for purposes of establishing priorities for programming transportation improvements, and "E" for meeting concurrency requirements, to support the Southern Strategy. Roads north of U.S. 90 shall be LOS D for both programming improvement and concurrency purposes.

** The Level of Service for Monroe Street from Gaines Street to Tennessee Street shall be "E."

Source: Tallahassee-Leon County Comprehensive Plan. Policy 1.4.1 [T], Revised Effective 7/25/03.

Local governments may also choose to designate certain roads (those roads that cannot be widened due to physical, political, or other constraints) as constrained and adopt individual LOS standards for these unique or problem locations. St. Johns County, for example, establishes a level of service standard for constrained roadways such that "level of service must be maintained." The County's policy requires that new development trips plus existing and approved trips must be less than or equal to 110% of the adopted LOS within the urbanized area and 105% of the adopted LOS outside the urbanized area.

Regardless of the LOS standard established, both short- and long-term mitigation strategies should be developed for any existing or proposed constrained facilities to relieve congestion on the facility. Mitigation may take the form of congestion management strategies to alleviate congested conditions through operational and small-scale physical improvements, as well as travel demand management strategies (e.g., ride-sharing, incentives for mass transit use). Roadway capacity improvement options include new reliever roadways, additional capacity on existing parallel routes, and improved connectivity through network additions. Multimodal options include new transit capital facilities (e.g., bus rapid transit corridor) or expansion of bus fleets to increase service frequency.

Local governments with a population of 50,000 or more are also required to establish LOS standards for public transit facilities and services where transit service is available (s. 163.3180(1)(a), Florida Statutes). Specific public transit policies vary widely among local government transportation concurrency management systems. Some local governments provide only transportation disadvantaged service and, therefore, limit their public transit LOS standards to that service. For example, the St. Johns County LOS standard requires that the county be able "to provide transportation disadvantaged services sufficient to accommodate 100,000 passenger trips per year" and applies only to residential development.

The Second Edition of the *Transit Capacity and Quality of Service Manual* (TCQSM), published by the Transportation Research Board in 2003, provides guidance to agencies that are establishing a new transit system, or evaluating or upgrading their current systems. The TCQSM recommends evaluating the transit systems by use of "Quality of Service" (QOS) measures using qualitative and quantitative performance measures.

The TCQSM discusses evaluation of both fixed route and demand-responsive bus transit systems. Evaluation is categorized into two groups of performance measures: 1) availability and 2) comfort and convenience. Table 2 is a matrix that combines

Table 2: Fixed Route Transit System with Two Performance Measures

Performance Measures	Service Measures		
	Transit Stop	Route Segment	System
Availability	Frequency	Hours of Service	Service Coverage
Comfort & Convenience	Passenger Load	Reliability	Transit - Auto Travel Time

Source: Transit Capacity and Quality of Service Manual, 2nd Edition. *Transportation Research Board.* 2003.

Table 3: Quality of Service Framework for a Demand Responsive System

Performance Measures	Service Measures		
Availability	Response Time	Service Span	
Comfort & Convenience	On-Time Peformance	Trips Not Served	DRT*-Auto Travel Time

*Demand Responsive Transportation

Source: Transit Capacity and Quality of Service Manual, 2nd Edition. *Transportation Research Board.* 2003.

three elements of a fixed route transit system with these two types of performance measures. Table 3 shows the quality of service framework for a demand responsive system. The performance measures illustrated in Tables 2 and 3 represent only a few categories or types of those provided in the TCQSM.

Although not required, level of service standards may also be established for bicycle and pedestrian networks. Bicycle and pedestrian networks are comprised of a system of interconnected and direct routes and can be measured by a connectivity index. Guidance on how to perform this measure is found in the Florida Department of Transportation *Multimodal Transportation Districts and Areawide Quality of Service Handbook*, 2004.

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.

DEVELOPING A TRANSPORTATION CONCURRENCY MANAGEMENT SYSTEM

PRACTICE TIP

Address the details of the concurrency management system in the land development regulations and easy-to-follow manuals or brochures to lead applicants through the concurrency review process.

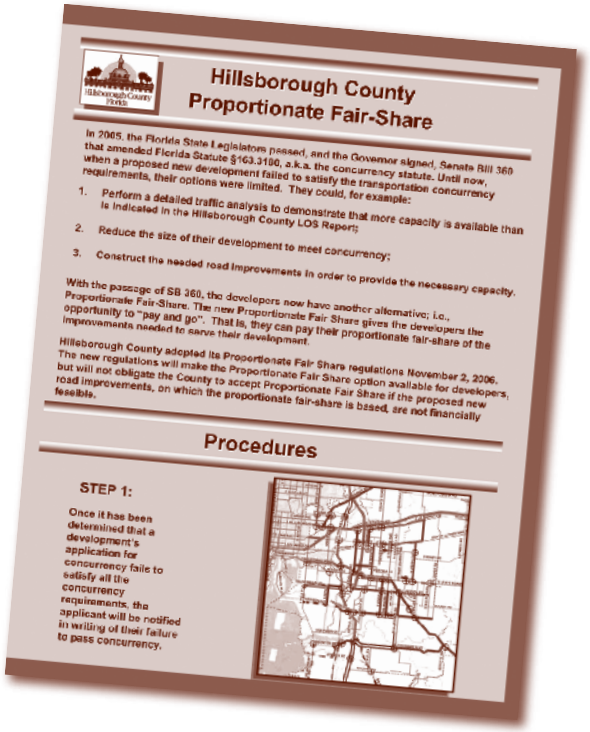
To carry out the objectives and policies for establishing a concurrency management system (CMS), local governments must: "adopt land development regulations which specify and implement provisions of the concurrency management system and, as a minimum, provide a program that ensures that development orders and development permits are issued in a manner that will not result in a reduction in the levels of service below the adopted level of service standards for the affected facility." (Rule 9J-5.0055(1)(e), F.A.C.)

Update Land Development Regulations

Because each concurrency management system is designed to work in conjunction with the local government's existing development approval process, an entire chapter or article of the local land development code is generally devoted to concurrency management. A sampling of current practices in Florida suggests that this part of the code should include, but is not limited to, the items identified on page 19.

Develop Guides and Brochures

Although the local comprehensive plan and land development regulations establish the legal and operational framework for a transportation concurrency management system, local governments often develop a variety of documents that provide general information and guidance through the process. These documents may be given to applicants that visit the local government offices seeking information or placed on the local government website for easy access.


Hillsborough County
Proportionate Fair-Share

In 2005, the Florida State Legislature passed, and the Governor signed, Senate Bill 360 that amended Florida Statute §163.3180, a.k.a. the concurrency statute. Until now, when a proposed new development failed to satisfy the transportation concurrency requirements, their options were limited. They could, for example:

1. Perform a detailed traffic analysis to demonstrate that more capacity is available than is indicated in the Hillsborough County LOS Report;
2. Reduce the size of their development to meet concurrency;
3. Construct the needed road improvements in order to provide the necessary capacity.

With the passage of SB 360, the developers now have another alternative; i.e., Proportionate Fair-Share. The new Proportionate Fair Share gives the developers the opportunity to "pay and go". That is, they can pay their proportionate fair-share of the improvements needed to serve their development.

Hillsborough County adopted its Proportionate Fair Share regulations November 2, 2006. The new regulations will make the Proportionate Fair Share option available for developers, but will not obligate the County to accept Proportionate Fair Share if the proposed new road improvements, on which the proportionate fair-share is based, are not financially feasible.

Procedures

STEP 1:

Once it has been determined that a development's application for concurrency fails to satisfy all the concurrency requirements, the applicant will be notified in writing of their failure to pass concurrency.

INCORPORATING TRANSPORTATION CONCURRENCY INTO THE LAND DEVELOPMENT CODE

Purpose and intent. A concurrency management chapter often begins with a purpose and intent. This section states the purpose the CMS will serve "to ensure that adequate public facilities are available with the impact of development" and may reference the state legislation mandating a CMS.

Geographic service area. The geographic service area of a CMS is typically defined here. If the geographic service area is different for the various public facilities or utilities governed by concurrency, each service area must be defined separately. In addition, local governments may list utilities and facilities addressed by the CMS.

Tracking and reporting systems. The description of and implementation process for monitoring and reporting systems are included in this section. It is recommended that local governments have separate tracking and reporting systems for transportation concurrency.

De minimis exceptions. As allowed by state legislation, this section includes a definition of developments that have a *de minimis* impact. Furthermore, most local governments list the developments or development activities considered to be *de minimis*. Developments with *de minimis* impacts may be exempted from the transportation concurrency determination process of local governments. However, there is a limit to *de minimis* impact on any given road link. If a road link is at or exceeds 110% of its service capacity, no further developments are to be approved on that link under the *de minimis* provision until the necessary improvements are in place and the roadway is operating within 110% of its service capacity.

Concurrency exemptions. In addition to *de minimis* exceptions, some local governments exempt specific types of development from concurrency, which would be listed in this section (e.g. improvements that would not add to the density or intensity of the existing land use such as any renovation to residential structures that do not increase the overall number of units or the type of units; and renovations to non-residential buildings that do not result in an increase in gross square footage for any use).

Concurrency certificates. Depending on the complexity of the CMS and the size of the local government, different types of certificates may be issued. This section establishes when a concurrency certificate is issued (usually along with other permits such as development permits, final plat approvals, or building permits), as well as the duration of the certificate and conditions for its extension.

Concurrency evaluation process. A key component of the concurrency management chapter of the land development regulations (LDRs) is the explanation of the concurrency evaluation process. General procedures and conditions to be applied to every facility and utility are described along with the administrative process to be followed. The administrative process may contain the responsibilities of local government departments, as well as the data reporting and maintenance methodology. The specific process for each utility and facility type is explained separately, with the transportation concurrency evaluation process often discussed in the greatest detail.

Traffic study methodology. A traffic study, typically required for large development applications, must follow specific methodology. Some local governments include traffic study methodology as a separate section in their LDRs while others provide supplementary documents for traffic study procedures and merely reference them here.

Adopted level of service standards. Adopted LOS standards for utilities and facilities contained in related elements of the local government comprehensive plan are either listed here or referenced.

Mitigation. If adequate public facilities are not available for a development, local governments may allow a developer to mitigate the impacts of the proposed development. Mitigation procedures including acceptable and unacceptable mitigation methods are listed here along with other options including alternatives to mitigation such as reducing the scale of the development and/or phasing the project.

Vested rights. Application and determination of vested rights are contained in this section. Vested rights usually include development approvals issued prior to the adoption of concurrency. This section outlines the process a developer must follow to receive a vested rights determination and, therefore, avoid the concurrency process.

Appeal process. This section explains the procedure for appealing a concurrency determination and identifies the responsible departments or officers.

The provision of this type of additional information takes many forms. For example, the City of Lakeland website includes both "Frequently Asked Questions" and a "Memorandum" that provides a general description of the city's concurrency and traffic review study requirements. Both documents are good practices for providing applicants with basic information regarding transportation concurrency and are available on the city's website, *http://www.lakelandgov.net/commdev/planning/transportation.html*. Materials provided to the public should include detailed instructions to ensure that applicants have enough information to submit complete applications.

Incorporate Proportionate Fair Share

PRACTICE TIP
Include provisions for proportionate fair share mitigation within local government comprehensive plans, land development regulations, and other documents.

Florida's 2005 growth management legislation directed local governments to enact concurrency management ordinances by December 1, 2006 that allow for proportionate fair share contributions from developers toward concurrency requirements (see s. 163.3180(16), Florida Statutes). FDOT produced a model proportionate fair share ordinance for use by local governments in enacting their ordinances (see inset).

Proportionate fair share requirements do not apply until a deficiency is identified through the local concurrency management system. Therefore, it is necessary for a local government to have a concurrency management system in place in order to equitably and systematically implement proportionate fair share requirements. Information on implementing the proportionate fair share process is provided in Chapter 4.

The following language is one example for generally establishing proportionate fair share mitigation in the local government comprehensive plan:

> OBJECTIVE: Establish a method whereby the impacts of development on transportation facilities can be mitigated by the cooperative efforts of the public and private sectors, to be known as the Proportionate Fair Share Program.
>
> POLICY: The [*City/County*] shall include within the [*Land Development Code*] the standards and guidelines under which the [*City/County*] shall permit the payment of proportionate fair share contributions to mitigate locally and regionally significant transportation impacts consistent with Chapter 163.3180(16), Florida Statutes and the [*Land Development Code*]. Such standards and guidelines shall provide that the County shall not rely on transportation facilities in place or under actual construction more than 3 years after the issuance of a building permit, except as provided in Chapter 163.3180(16), Florida Statutes.

FDOT MODEL PROPORTIONATE FAIR SHARE ORDINANCE

In accordance with s. 163.3180(16), Florida Statutes, the Florida Department of Transportation (FDOT) developed a model ordinance for proportionate fair share contributions for use by local governments. The model proportionate fair share ordinance is available on FDOT website at *http://www.dot.state.fl.us/planning/gm/pfso/*.

The model ordinance was crafted to tie to existing local government concurrency management systems and provides a series of options that are intended as a framework for proportionate fair share programs. The model ordinance also contains some optional features that a local government may consider depending upon their needs.

APPLYING TRANSPORTATION CONCURRENCY ALTERNATIVES

PRACTICE TIP

Use alternative approaches to transportation concurrency to accomplish local planning objectives, such as encouraging urban infill and redevelopment, emphasizing use of alternative modes of transportation, or addressing constrained facilities and concurrency deficiencies.

Florida's growth management legislation offers several alternatives to strict adherence to transportation concurrency. These alternatives appear in Section 163.3180, Florida Statutes, and include the transportation concurrency exception area (TCEA), the transportation concurrency management area (TCMA), the multimodal transportation district (MMTD), and the long-term concurrency management system. The intent of providing alternatives to "standard" concurrency is to provide local governments with the opportunity to advance local planning objectives such as promoting infill development in urban areas, advancing alternative modes, or overcoming major system deficiencies while still meeting the basic intent of concurrency.

The alternatives were adopted in recognition that applying concurrency only to road segments or intersections can be counterproductive to other growth management objectives for the following reasons:

- results in incremental planning: when the minimum level of service is exceeded, then development activity adding traffic to that link could not be approved until the link is widened. However, widening that road or intersection may not be the appropriate long-term solution for that community.
- exacerbates sprawl: may encourage development on the urban fringe where roadway capacity is typically still available, while discouraging infill development in urbanized areas where level of service deficiencies may exist.
- perpetuates dependence on the automobile: prevents the concentration of activity and travel necessary for supporting mass transit and ride sharing programs.
- constrains infill development: prevents infill development in cities where arterials already exceed acceptable levels of service during peak hours.

Use of these alternative approaches requires a comprehensive plan amendment and the approval of DCA, as well as concurrence from FDOT if affected facilities are governed by Rule 14-94, F.A.C. Local governments with existing or proposed TCEAs, TCMAs, or MMTDs must consult with FDOT and DCA to assess potential impacts on SIS facilities and, if impacts cause the facility to fall below the level of service required by Rule 14-94, F.A.C., to develop mitigation plans for those impacts. This section discusses application of these and other concurrency alternatives.

Transportation Concurrency Exception Areas (TCEAs)

The transportation concurrency exception area is the most widely used alternative. It allows local governments to reduce barriers to infill and redevelopment, and the incentive for urban sprawl, by allowing development to proceed within the designated area despite a deteriorating level of service on roadways. To use this option, the commu-

nity must demonstrate a commitment to increase mobility within the area through alternative transportation modes and urban form that will reduce single occupant vehicle trips.

The 2005 growth management legislation requires local government comprehensive plans to support and fund mobility strategies that promote the purpose of the concurrency exception. These strategies must address urban design, land use mix, and network connectivity within the TCEA. Revenue sources to fund these mobility strategies must also be identified and short-term improvements must be adopted into the capital improvement schedule of the financially feasible capital improvement element. Local governments must consult with both DCA and FDOT prior to the designation of TCEAs to assess any impact a TCEA may have on the SIS, as well as to develop plans in cooperation with DCA and FDOT to mitigate any impact.

DCA, in conjunction with the University of Florida, conducted a review of existing TCEAs in Florida with respect to the requirements of the 2005 growth management legislation. Model evaluation criteria for TCEAs were developed and applied in three pilot communities to test their effectiveness. Study results are published in "A Guide for the Creation and Evaluation of Transportation Concurrency Exception Areas" available on the DCA website.

In 2007, legislation was enacted indicating that an urban service area may be designated as a transportation concurrency exception area provided the area:

- includes lands appropriate for compact, contiguous urban development;
- does not exceed the amount of land needed to accommodate the projected population growth at densities consistent with the adopted comprehensive plan within the 10-year planning period; and
- is served or is planned to be served with public facilities and services as provided by the capital improvements element.

GAINESVILLE'S TRANSPORTATION CONCURRENCY EXCEPTION AREA

One example of a TCEA is in the City of Gainesville, Florida. The Concurrency Management Element of the Gainesville Comprehensive Plan advances the concepts of multimodal transportation, with a goal to "Establish a transportation concurrency exception area (TCEA), which promotes and enhances urban redevelopment, infill development [and] a variety of transportation choices and opportunities including automotive, pedestrian, bicycle and transit…" The TCEA covers a majority of the city limits and is broken into three sub-areas, Zones A, B and C. To encourage redevelopment of the eastern portion of the city and the area near the University of Florida (Zone A), development or redevelopment in Zone A must provide the following in order to meet the TCEA requirements:

- sidewalk connections from the development to existing and planned public sidewalks along the development frontage;
- cross-access connections/easements or joint driveways, where available and economically feasible;
- deeding of land or conveyance of required easements along the property frontage to the city, as needed for the construction of public sidewalks, bus-turn out facilities and/or bus shelters;
- closure of existing excessive, duplicative, or unsafe curb cuts or narrowing of overly wide curb cuts at the development site; and
- provide safe and convenient on-site pedestrian circulation such as sidewalks and crosswalks connecting buildings and parking areas at the development site.

Zone B must meet the same requirements as Zone A, plus additional development requirements depending upon the proportional impact of the new development on the roadway system. Those requirements will relate to the particular site and transportation conditions where the development is located. Multimodal requirements include, but are not limited to:

- construction of bus shelters;
- construction of bus turn-out facilities;

- provision of bus pass programs provided to residents and/or employees of the development;
- widening of existing public sidewalks to increase pedestrian mobility and safety;
- deeding of land for the addition and construction of bicycle lanes;
- provision of ride sharing or van pooling programs;
- provision of park and ride facilities;
- business operations that can prove to have limited or no peak hour roadway impact;
- provision of shading through awnings or canopies over public sidewalk areas to promote pedestrian traffic and provide protection from the weather so that walking is encouraged;
- enhancements to the City's greenway system which increase its utility as a multimodal transportation route;
- clustering of and design of the development for maximum density at the site which preserves open space, reduces the need for development of vacant lands, enhances multimodal opportunities, and provides transit-oriented densities or intensities; and
- construction of new road facilities which provide alternate routes to reduce congestion.

In Zone C, development and redevelopment must meet varying requirements based upon the transportation conditions net new average daily trip generation, as shown in Table 4:

Table 4: Trip Generation and Standards

Net, New Daily Average Trip Generation	Number of Requirements that must be met
Less than 50	At least 1
50 to less than 100	At least 3
100 to 400	At least 4.5
400 to 999	At least 7.5
Greater than 1,000 trips but less than 5,000	At least 12
Greater than 5,000 trips	At least 18 and either be on an existing transit route or provide funding for a new transit route

A variety of requirements are noted for Zone C similar to those for Zones A and B. Zone C requirements also include:

- the provision of roadway projects to provide a more interconnected transportation network in the area, provide alternate routes to reduce congestion, and reduce pressure on arterials; and
- intersection and/or signalization modifications to improve level of service and safety and address congestion management.

The City identifies specific roadway projects in Zone C that may be pursued, but allows for other projects including those outside the TCEA that would directly benefit the transportation system in the area of the TCEA. Developers may deed land for right of way and/or construct roadway extensions to City specifications. Prior to the donation of the right of way, the developer and the City must agree upon the fair market value of the land for the purposes of meeting this standard. In the event the parties cannot agree as to the value of the land, the developer may submit an appraisal acceptable to the City for purposes of establishing value, subject to review by the City.

The Gainesville TCEA also provides for additional regulation of automobile-oriented development such as drive-through facilities, surface parking lots, car washes and gas stations to minimize the impact of these land uses on the transportation system in the TCEA area. The TCEA also regulates the visual characteristics of roadways in the area through streetscaping and landscaping standards to create a more appealing environment that supports multimodal transportation opportunities.

Source: City of Gainesville Comprehensive Plan, Concurrency Management Element Goals, Objectives and Policies.

Transportation Concurrency Management Areas (TCMAs)

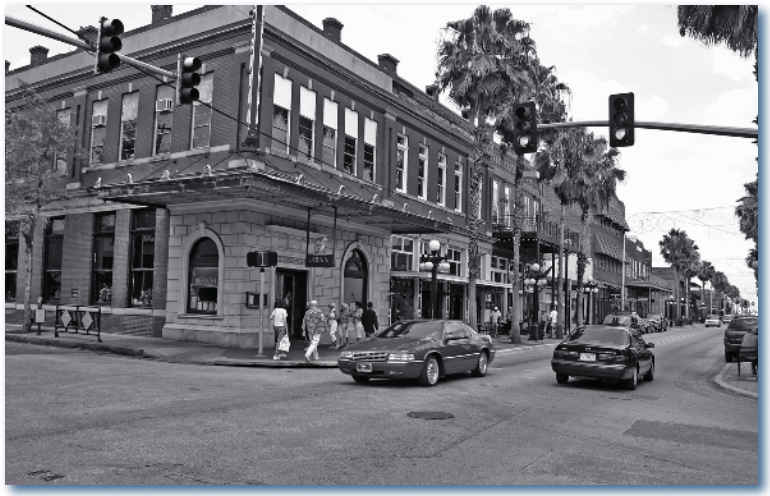
The second alternative, transportation concurrency management areas, are also designed to promote infill development and redevelopment. A TCMA "must be a compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips" (s. 163.3180(7), Florida Statutes). The TCMA allows an LOS standard to be applied area wide, rather than on individual road segments. The areawide LOS is determined by averaging the LOS on similar facilities within the designated area serving common origins and destinations. This alternative approach to strict concurrency should be used only where it is truly viable for trips to use alternative facilities.

A TCMA must be designated within the local government's comprehensive plan using data and analysis that support using an areawide LOS standard. The comprehensive plan must address the following:

- show that the TCMA supports and promotes the other elements of the comprehensive plan;
- justify the size and boundaries;
- demonstrate the interconnectivity of the roadway network and provision of multiple, viable paths or modes for common trips;
- present justification for the TCMA and determine current and future transportation service and facility requirements to maintain the areawide LOS standards;
- show that the LOS standards and transportation services and facilities will support infill development and redevelopment; and
- demonstrate that the planned roadway improvements and alternative transportation modes and programs will achieve mobility within and through each TCMA.

For the TCMA to adhere to the established areawide LOS standard, a local government's comprehensive plan must "adopt and maintain an integrated and internally consistent transportation, land use, and capital improvement planning program for each concurrency management area" (Rule 9J-5.0055(5)(c), F.A.C.). The areawide LOS standard for the TCMA must be set as a policy within the local government's comprehensive plan. Additionally, the boundaries of the TCMA must be outlined in future conditions maps. If a TCMA crosses jurisdictional boundaries, each local government must designate the TCMA in their comprehensive plans, and those plans must comply with the requirements discussed above.

TCMAs are less prevalent in Florida than TCEAs. The City of Hialeah, Pinellas County, the City of Miami Beach, and Palm Beach County (Westgate) are among those local governments with an established TCMA. In addition, the City of Orlando applies a similar concept called transportation management areas that led to the adoption of the TCMA approach in Florida (see p.25).



ORLANDO'S TRANSPORTATION MANAGEMENT AREA

The City of Orlando's transportation management area approach served as the impetus for the TCMA allowed by Section 163.3180(7), Florida Statute. The City adopted level of service measures that make use of traffic performance districts. Rather than evaluate the performance of individual roadway segments the district approach averages level of service for the various complementary facilities within a sizeable geographic district. Concurrency is evaluated based on the district-wide performance measure. Orlando's transportation concurrency management system monitors available capacity in each of 15 Transportation Performance Districts, (TPDs) three of which are designated as Transportation Management Areas (TMAs).

Orlando City Code, Chapter 59.308 Concurrency Evaluation for Roads, defines the TMAs as compact geographic areas that offer opportunities for higher-density, mixed-use development and alternative modes of transportation. Orlando's three designated TMAs must:

- further the goals, objectives, and policies of the State plan, comprehensive regional policy plan and the City's Growth Management Plan;
- encourage compact urban development, redevelopment, urban infill, and mixed use development;
- contain a complete, integrated network of arterial and collector roadways and include roads that serve related purposes;
- support concentrated mass transit services, and include transportation management and demand management programs; and
- qualify as geographically compact areas, and be supported by traffic performance district descriptions.

Orlando monitors LOS in the TMAs based on the percent of lane miles that meet established LOS standards. Eighty-five percent of lane miles or more must meet roadway LOS standards in each performance district. If a moratorium is required, it is established across that entire performance district until the level of service is restored through a transportation improvement. The Transportation Element of the city's Growth Management Plan establishes that, "The City shall permit development, consistent with the Trip Allocation Program, that will support the Future Land Use Element and which will further the goals, objectives and policies of the Growth Management Plan."

A detailed description of the Trip Allocation Program is found in Chapter 59.308 of the Orlando City Code. Characteristics of this program include:

- using a trip allocation model to monitor the proportion of trip ends allocated to traffic analysis zones within each performance district to determine available capacity;
- using a Transportation Primary Impact Area approach that involves a select roadway analysis to determine which zones in the region are contributing to a roadway deficiency and then reducing trip allocations by a proportionate fair share of the city's trips from those zones which are outside of the Transportation Primary Impact Area;
- basing concurrency on three capacity thresholds that reflect whether district capacity is (1) sufficient, (2) limited, and trips must be transferred from adjacent zones, or (3) extremely limited and a capacity improvement may be necessary; and
- revalidating the trip allocation model annually based on development permit data and trip allocation reservations.

Multimodal Transportation Districts (MMTDs)

The third alternative, the multimodal transportation district, is an area where primary priority is placed on "assuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit" (Section 163.3180(15)(a), Florida Statutes). Communities must incorporate community design features that reduce vehicular usage while supporting an integrated multimodal transportation system. Common elements include the presence of mixed-use activity centers, connectivity of streets and land uses, transit-friendly design features, and accessibility to alternative modes of transportation. Multimodal transportation districts (MMTDs) must include level of service standards for bicycles, pedestrians, and transit as well as roads.

The Florida Department of Transportation has developed a *Multimodal Transportation Districts and Areawide Quality of Service Handbook* (FDOT 2004) to provide guidance on the designation and planning of MMTDs.

Destin Establishes Florida's First MMTD

The City of Destin, Florida hosts an approved MMTD. The MMTD was established in 2001 through objectives in the Transportation Element of the City of Destin Comprehensive Plan. The MMTD is specifically established with the following objective:

> The City hereby designates …as a Multimodal Transportation District (MTD) pursuant to Florida Statutes - Chapter 163.3180(15)(a) and as designated on Map . . ., Multimodal District Boundaries of the Transportation Element and Map . . . of the Future Land Use Element. A MTD allows for a creative approach to concurrency by establishing performance measures for non-auto travel modes. In this district priority is placed on establishing a safe, convenient, and attractive pedestrian environment. Good pedestrian access and convenient connections to future transit service shall be promoted/required in this district.

Policies call for the establishment of performance measures within the district, development of design guidelines for pedestrian and transit facilities, consideration of impact fee credits as an incentive, establishment of non-auto LOS standards, and incorporation of bicycle parking standards in the land development regulations.

The handbook provides for MMTD designation in a downtown or urban core area, regional activity center, or traditional town or village in accordance with certain criteria. In these areas, planning efforts would focus on enhancing multimodal elements, guiding redevelopment, and encouraging appropriate infill. An MMTD could also be applied to a new or emerging area, where adopted plans and regulations would need to ensure the internal and external connectivity, mix of uses, densities, and urban design features necessary to support alternative modes of transportation.

Long Term Concurrency Management Systems

Many local governments have existing transportation concurrency deficiencies that require special attention and longer time frames to overcome. In such cases, local governments may adopt a long-term transportation concurrency management system with a planning period of up to 10 years (Rule 9J-5.0055(4), F.A.C). This allows local governments time to prioritize and fund projects to reduce the backlog of transportation projects. For severe backlogs and under specific conditions a local government may request approval from the Department of Community Affairs for a planning period of up to 15 years.

To implement a long-term transportation concurrency management system, a local government must designate in the comprehensive plan specific areas where significant backlogs presently exist. These areas must be delineated on an adopted comprehensive plan map and be consistent with other elements of the plan. The system must establish improvement priorities and be financially feasible based on currently available revenue sources to ensure that existing deficiencies are corrected within the planning period.

A long-term schedule of capital improvements must also be adopted that identifies improvements needed to correct existing deficiencies and accommodate new development. The schedule must indicate project commencement and completion dates and may be relied on as a basis for evaluating concurrency and issuing development permits. A plan amendment is required to eliminate, defer, or delay construction of any facility or service identified in the schedule and needed to maintain the adopted level of service standard.

As part of a long-term concurrency management system, a local government may adopt

Addressing Deficiencies on Capital Circle in Tallahassee

The City of Tallahassee and Leon County adopted special LOS standards for a major arterial ring road, with the inclusion of the following policies in the comprehensive plan outlining their intent to resolve LOS issues on the affected facility:

> Policy 1.4.1b. It is intended that the LOS standards of "E" for Capital Circle NW from I-10 to SR 20 be a temporary LOS standard for the purposes of allowing development to proceed on an interim basis. It is also intended that all road projects necessary to increase the LOS standard on this roadway from "E" to "D" remain a high priority and be accomplished as soon as possible, within the constraints of available revenues. When construction of the road projects necessary to provide a sufficient increase in capacity along any portion of Capital Circle NW between I-10 and SR 20 is within three years from the date a development order is issued, consistent with existing concurrency management procedures, a comprehensive plan amendment to change the adopted LOS Standard of "E" to an LOS Standard of "D" for the improved portion only shall be initiated during the next possible amendment cycle.
>
> Policy 1.4.1c. The LOS Standard of "E" for Capital Circle NW from I-10 to SR 20 shall be defined for concurrency purposes as the current maximum service volume for LOS "D" as indicated by the City or County concurrency system plus 10%.

policies to establish interim level of service (LOS) standards on certain facilities for the purpose of issuing development orders or permits. The interim LOS standards noted in the inset for Capital Circle in Tallahassee are one example of how this might be accomplished. A schedule may be established that shows when incremental improvements to the LOS standards are expected. Additionally, a plan should be developed to monitor the progress of scheduled improvements. If the improvements are not made as scheduled, an amendment must be made to the comprehensive plan to establish a default LOS standard by which to issue development orders or permits.

TRANSIT-ORIENTED CONCURRENCY IN BROWARD COUNTY

Transit-oriented concurrency is an alternative approach currently used by Broward County. This approach has been accepted by DCA and has merit for application by other urbanized areas. Specific justifications for the new system were that: (1) most non-vested new developments were having to mitigate for concurrency, unless within an exception area; (2) acceptable concurrency mitigation measures were becoming scarce in many areas, and (3) the standard concurrency system was not amenable to supporting transit improvements.

Broward County applied two types of concurrency districts—transit-oriented concurrency districts and standard concurrency districts. These districts are defined in the Broward County Code both geographically and conceptually. A Standard Concurrency District is defined as an area where roadway improvements are anticipated to be the dominant form of transportation enhancement. A Transit Oriented Concurrency District is a compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips (a Transportation Concurrency Management Area, or TCMA, under Florida Statutes).

The distinction is important, because each type of concurrency district carries with it a different set of standards for adequacy determination. The LOS standards for roadways are conventional, whereas, the relevant LOS standards for transit-oriented concurrency districts address transit headways and the establishment of neighborhood transit centers and additional bus route coverage, and are broken down on the individual district level. A sampling of the Broward County standards is provided in Tables 5 and 6.

The County charges an assessment, the Transit Concurrency Assessment, as a vehicle for meeting concurrency requirements in Transit Oriented Concurrency Districts. The Transit Concurrency Assessment is calculated as the total peak-hour trip generation of the proposed development, multiplied by a constant annual dollar figure for each District, that represents the cost per trip of all the enhancements in that District listed in the County Transit Program. Revenues from the assessments are used to fund enhancements to the County Transit Program (established by the County Commission) located in the district where the proposed development will occur. The County also uses revenues to fund up to three years of operating costs for these enhancements.

Under certain circumstances, a developer may opt not to pay some or all of the Transit Concurrency Assessment, and may instead implement or participate in implementing an alternative transit improvement. This alternative improvement must be intended to enhance transit ridership, and cannot focus predominantly on the occupants or users of the applicant's property. The alternative improvement must be determined to be beneficial to the regional transportation system within the relevant district.

Table 5: Selected Transit-Oriented Level of Service Standards, Broward County, FL

North Central District	Achieve headways of 30 minutes or less on 90% of routes. Establish at least one neighborhood transit center. Establish at least one additional community bus route. Expand coverage area to 53 percent.
Central District	Achieve headways of 30 minutes or less on 80% of routes. Establish at least one neighborhood transit center. Establish at least two additional community bus routes.
Port/Airport District	Establish at least one additional community bus route.
Overall	Increase number of bus stop shelters by 30 percent. Maintain the maximum service volumes on arterial roadways within each District.

Table 6: Peak Hour Two-Way Maximum Service Volumes, Broward County, FL

	Eastern Core District	All Other Districts
Two-lane Arterials	2,485	2,555
Four-lane Arterials	5,267	5,442
Six-lane Arterials	7,910	8,190
Eight-lane Arterials	10,342	10,605

Source: Broward County. Code of Ordinances. Chapter 5, Article IX. *Building Regulations and Land Use*; adopted April 26, 2005.

Implementing Concurrency

A variety of considerations go into establishing a workable concurrency management system. To begin, the system must be integrated into the appropriate stage of the development review process. Many communities charge fees to assist with the administrative costs of concurrency determinations. Some individual may wish to have a concurrency "test" performed before purchasing a site or moving forward with a development application. For this reason, some communities provide both informal and more formal steps in the concurrency review process, ranging from the conceptual non-binding review to a detailed and binding review. This chapter addresses these and other considerations in administering concurrency management programs.

DEVELOPMENT REVIEW AND ADMINISTRATION

Transportation concurrency applications should be submitted and processed along with development order applications. The growth management or planning department of a local government is typically responsible for receiving and processing all applications for development review, including concurrency. Applications are then routed through other departments responsible for part of the review (e.g., traffic engineering).

Generally, the timeline for receiving and reviewing a transportation concurrency application should also coincide with any application for development approval. Local governments typically provide a concurrency determination anywhere from ten to 30 days following receipt of a complete and sufficient application.

PRACTICE TIP
Incorporate transportation concurrency review into existing development review processes and charge appropriate application fees.

Administrative Review Fees

Because concurrency review incurs additional administrative costs, most local governments establish fees to help offset those costs. Fees charged by local governments to cover administrative costs for concurrency determinations vary widely. The fee often includes the review for each type of public facility tracked for concurrency by the local government.

Following are some examples of fees and fee structures used by local governments in 2006. Indian River County charges $50 for single family residences, $120 for any other type of concurrency determination, and $200 for a Concurrency Determination Appeal. The City of Tallahassee has different concurrency review fees for commercial and residential development. Review for commercial properties is $173 for the first 1,000 square feet plus $36 for each additional 1,000 square feet. Review for residential properties is $225 for the first dwelling unit plus $20 for each additional dwelling unit.

St. Johns County varies its concurrency review fees according to trip generation, as follows:

- Small Project (< 4 Peak Hour Trips) —No Fee
- Minor Project (4-29.9 Peak Hour Trips) —$250.00
- Minor Project reviewed in conjunction with other development review application—No Fee
- Major Project (30 + Peak Hour Trips) —$840.00
- Modification —$125.00

A few local governments do not charge a specific fee for concurrency review, but rather integrate those costs into other development review fees. Ormond Beach, for example, imposes a $110 fee for Non-Binding Concurrency letters, and fees for binding determinations are included within its development order fees. Bay County fees are included in the Development Order application fee of $600 for most developments; $665 for subdivisions. Bay County fees were updated in 2006 to include a fee for proportionate fair share mitigation review, estimated to be $575.

Likewise, Sarasota County has no specific fee for the concurrency determination per se. Rather, it is part of development plan review. The base fee in Sarasota County for plan review ranges from $1,500 for Subdivision Construction plans to $4,000 for Commercial Plans. The actual plan review fee is dependent on development type, size and review process and is specified in the fee calculation sheets, which are available on the Sarasota County website.

Informal and Formal Determinations

PRACTICE TIP
Provide both informal and formal concurrency determinations.

Most local governments provide two "levels" of concurrency that can be described as informal and formal. An informal concurrency determination is non-binding and may be either written or verbal. This informal determination merely estimates the availability of capacity for a proposed project; however, it does not guarantee that adequate capacity will be available at the time application for a formal concurrency determination is made. A formal concurrency review results in the issuance of a concurrency certificate concurrent with or prior to development permit approval. This concurrency certificate is binding and reserves projects trips for the applicant.

A few local governments have more complex systems. In Sarasota County, transportation concurrency is reviewed at each stage of the development review process. Although trips are entered into their system throughout the review process, trips generated from a development are considered reserved for concurrency only at the time of construction plan approval. The project trips continue to be reserved after approval of the construction plan, and for as long as the project is under construction.

The City of Tallahassee has a more formalized approach. A preliminary concurrency assessment must be made by the City within eight calendar days after receiving a complete and sufficient application. If a preliminary review indicates that the project meets the concurrency requirements a "Preliminary" Certificate of Concurrency is issued on the project. This "Preliminary" Certificate of Concurrency is good for 28 calendar days and enables the applicant to proceed with an application for development approval. A final concurrency review is conducted after final land use approval is received. If a project has been determined to meet the concurrency requirements, a "Final" Certificate of Concurrency will be issued to the applicant and capacity will be reserved for the project. The "Final" Certificate of Concurrency allows an environmental permit application and a building permit application to be accepted.

Indian River County issues the following three types of concurrency certificates:

- Conditional Concurrency Certificate: The purpose of this certificate is to satisfy the concurrency requirement for conceptual development orders and conceptual approval of initial development orders. This certificate does not guarantee availability of adequate facilities during the time of an initial or final development order.
- Initial (or Initial/Final) Concurrency Certificate: This certificate is valid for one year or five years depending on the applicant's preference. Prior to issuance of this certificate the applicant must pay all impact fees and utility capacity charges. To obtain a five year certificate, the applicant must sign a waiver of the right to receive a refund of traffic impact fees.
- Final Concurrency Certificate: This certificate is valid for six months after issuance. If the applicant obtains a building permit during that time period this certificate will not expire as long as the building permit is active.

Duration of Reservation

PRACTICE TIP
Concurrency reservations for unbuilt developments can tie up capacity indefinitely unless limits on the duration of concurrency reservations are established. Ensure that the duration of concurrency reservations meets local needs and does not distort the actual availability of capacity.

Concurrency reservations for unbuilt developments can tie up capacity indefinitely unless limits on the duration of concurrency reservations are established. Without these limits, a road may be operating at an acceptable level of service while "failing" on paper. For example, a concurrency certificate could be required to expire after one year, if construction has not commenced.

The duration of concurrency certificates in local government concurrency management systems varies widely. Common elements are that the duration is based on the type of development approval and the timeframe in which construction activity begins.

In Bay County, for example, a certificate of concurrency is valid until its accompanying development order expires. If the development order has no expiration date, the certificate is valid for six months from the development order issuance date. The certificate is automatically extended with any development order extensions up to one year.

Durations of concurrency certificates for the City of Ormond Beach are specific to the type of development approval, as follows:

- site plan approvals: one year from the date of sign-off approval;
- special exceptions: one year from the date of approval by the City Commission;
- preliminary plats: 18 months from the date of approval by the City Commission;
- final plats: 18 months from the date of approval by the City Commission if final plat is not recorded; (If the final plat is recorded but a development permit is not issued the certificate expires in two years from the date of recording. Time periods for expiration of certificates approved prior to the code, begin with the effective date of the code.);
- subdivision construction permits: one year from the date of issuance;
- planned developments: two years from the date of approval by the City Commission; and
- building permits: until the accompanying building permit expires.

Escambia County allocates new development trips to each impacted roadway segment during the issuance of a development order. Durations of certificates are as follows for different development types:

- preliminary plat (subdivision): capacity is allocated for a period of four years provided construction plans are submitted within two years. If the construction plans are not submitted within two years the certificate will expire;
- site plan (non-residential): capacity is allocated for a period of 18 months; and

- planned unit development (PUD), phased development, long term projects or developments of regional impact (DRI) capacity is allocated for the period established in an enforceable development agreement.

A few communities set duration of reservation in their development orders, rather than through the issuance of concurrency certificates. Sarasota County is one community that does not issue concurrency certificates. A land development construction plan approval is a "final development order" and can reserve trips for the time the development order is valid. Generally, construction authorization allows two years for construction activity to commence, and when construction has begun the project trips may be reserved for the duration of the project. Therefore, multi-phase developments could be vested for several years, as long as there is continuous construction activity on site.

Some local governments tie concurrency duration to the payment of impact fees. This ensures that the local government has received the impact fees necessary to support transportation improvements, although a developer has not started project construction. In St. Johns County, a final concurrency certificate is valid for two years after the date it is issued. During that time, if the applicant obtains construction plan approval, final subdivision plat approval, or a building permit, then the certificate is valid as long as those documents are valid. In addition, the certificate can be extended three years if the applicant pays the impact fees and waives the right to a refund of impact fees prior to the expiration of the final concurrency certificate.

Similarly, in Tallahassee an applicant who receives a concurrency certificate reserves capacity for up to two years prior to receiving a final development order, provided all impact fees and other infrastructure costs required for the development are paid up front. A concurrency certificate is valid for the term of the development order (site plan, plat, or permit) associated with the certificate or two (2) years from date of issuance if no term is specified. A request can be made to extend both the development order and the concurrency certificate up to six months unless development has not commenced or another applicant is waiting for the capacity.

TRACKING SYSTEMS FOR MONITORING CONCURRENCY

PRACTICE TIP
Establish a systematic method for monitoring capacity for concurrency purposes on transportation facilities.

A key element of a transportation concurrency management system is a method for tracking or monitoring concurrency—that is, tracking proposed trips along with existing traffic to compare estimated future traffic volume to the minimum acceptable level-of-service volume. For concurrency this is best done for the peak hour/peak direction. This tracking system enables a local government to determine whether the impact of proposed development trips on the transportation system will cause the level of service to drop below the adopted minimum acceptable level. Both state and local roads should be included in the concurrency network.

Local governments use various forms of tracking systems ranging from simple spreadsheets to web-based intranet sites. The simplest concurrency tracking system consists of a basic spreadsheet that is updated manually by local government staff. A spreadsheet tracking system is primarily used for the road system by segment or link and provides a "snapshot" of transportation concurrency. At a glance, both local government staff and applicants can observe the availability of capacity on any given road link.

The spreadsheet is set up with each link or segment of the road network as a "row" and each input variable as a "column", as illustrated in Figure 5. Table 7 comprises the input variables that are commonly used as recommended column headers along with a description of the information to be contained in the column and source for the information. The number of columns a local government may include in a spreadsheet tracking system is not limited; however, thought should be given to the printed appearance of the final product. Print-

outs can be simplified by the feature that enables the user to hide certain columns, thus limiting the amount of information viewed or printed.

Use of the spreadsheet enables local governments to increase the complexity of the tracking system as needed or wanted. The Bay County Planning and Zoning Department uses a spreadsheet to track concurrency. They also informally track other information pertinent to their spreadsheet tracking system. Separate "tabs" or worksheets are used to track concurrency on state and county road segments, development orders, intersection level of service, and future growth on state and county roads (through 2030). Worksheet entries or cells are linked to cells in other worksheets to automatically update information throughout the spreadsheet and make necessary calculations. The spreadsheet is manually updated as applications for development orders are reviewed and approved.

The City of Lakeland monitors transportation concurrency using a spreadsheet system in another way. Their system is based on data from the Polk County concurrency management system. Different than many basic spreadsheet tracking systems, this spreadsheet includes each road link on a separate "tab" or worksheet. Each pending or approved development is listed on the worksheet, as illustrated in the City of Lakeland CMS Summary. Trips are only encumbered on links when the development is approved.

TRAFFIC COUNT AADT	ANNUAL GROWTH FACTOR	LINK K FACTOR	2005 PK HR TRAFFIC	EXEMPT DEVEL TRAFFIC	APPRVD CONC. TRAFFIC	TOTAL COMMITTED PK. HR TRAFFIC	PERCENT SERVICE VOLUME UTILIZED	LINK STATUS
990	1.015	0.096	95	1	3	99	8.9%	OK
2,084	1.015	0.096	200	3	3	206	18.6%	OK
1,681	1.015	0.096	161	2		163	14.7%	OK
941	1.071	0.098	92	7	16	115	7.2%	OK
632	1.071	0.098	62	4	16	82	5.2%	OK
2,743	1.012	0.095	261	3	190	454	59.7%	OK
246	1.071	0.098	24	2		26	3.5%	OK
1,439	1.071	0.098	141	10		151	20.4%	OK
1,400	1.071	0.098	137	10	10	157	21.2%	OK
2,920	1.071	0.098	286	20	17	323	43.6%	OK
1,356	1.071	0.097	132	9		141	12.8%	OK

Figure 5: Example of a Spreadsheet Tracking System

INDIAN RIVER COUNTY'S COMPREHENSIVE CONCURRENCY TRACKING SYSTEM

Some local governments have complex concurrency tracking systems that track concurrency for transportation and other public facilities, such as sanitary sewer, solid waste, drainage, potable water, and parks and recreation. Indian River County, which uses a computerized database called CDPLUS, is one example. Each county department has access to the concurrency management system via their desktop computer.

The Planning Department "sets up" a project in the system and notifies the appropriate county departments. When all reviews are complete, the Chief of Planning issues the concurrency certificate. Upon this approval, the computer program automatically encumbers links in the transportation system with project trips. In addition, the system encumbers links with the "cumulative effect of all single-family permits" on a quarterly basis.

As projects are approved, traffic analysis zone (TAZ) socioeconomic data is updated and new vested traffic volumes are generated for each segment using the FSUTMS model. The system addresses all other facilities subject to concurrency as well. The benefit of this approach over spreadsheets is the automation of project tracking which can be particularly useful when a local government processes a large number of permits.

Table 7: Concurrency Management System Spreadsheet Column Headers

Column Header	Description	Source
Road Link #	Number assigned to a road link	Assigned by local government
Road	Name of the road	Official road name according to the agency with jurisdiction
From / To	Defines the start and end points of a road link	State road links are established by FDOT. County/city road links are established by the local government with jurisdiction over the road. Link limits coincide with other road links, traffic signals, and/or other notable intersections and are shorter in urban areas than rural areas.
# of Lanes	Number of road lanes; often includes a "U," "D," or "O" to indicate undivided, divided or one-way	From each road link; the number of lanes should be constant for the length of the link.
Area Type	Development area, e.g. urban, rural	As established by the local government comprehensive plan
Functional Classification	Functional classification of the road	FDOT for state and federal roads; as established by the agency with jurisdiction over the road
Length	Length of the road link in miles	Established by the link limits
Signal Spacing or Capacity Group	Number of signals per mile or FDOT capacity group	Signal locations or FDOT 2002 Quality/Level of Service Handbook
Count Station	Count station number associated with the link; may be FDOT, county, or city; used as an easy reference number for the link	FDOT has count stations for each link on state roads as well as other locations. The local government should establish regular count stations for roads under its jurisdiction.

Table 7: Concurrency Management System Spreadsheet Column Headers (cont'd)

Column Header	Description	Source
Source and Date of Count	Date the traffic count shown was taken and agency taking the count	As established by the agency responsible for the traffic count
Traffic Count AADT	Average annual daily traffic (AADT) count on link	As established by the agency responsible for the traffic count
Annual Growth Factor	Factor used to estimate annual growth	Calculated by agency with jurisdiction based on previous growth rate
K Factor	Factor used to convert AADT to peak hour traffic, K100 is 100th highest peak hour traffic divided by AADT and used for roadway LOS analysis	Calculated by agency with jurisdiction based on previous traffic counts
D Factor	Factor used to convert peak hour traffic to peak hour peak direction	Calculated by agency with jurisdiction based on previous traffic counts
Existing PH PD Volume	Annual daily traffic counts adjusted to determine the peak hour peak direction volume	(AADT x "K Factor" x "D Factor")
Approved Trips	Development trips approved and reserved on the link through a certificate of concurrency; does not include *de minimis* trips.	Compiled by the local government as trips are approved
De Minimis Trips	Trips generated by developments having *de minimis* impact as defined in the local government comprehensive plan and LDRs and s.163.3180, F.S.	Compiled by the local government as building permits are issued for projects with *de minimis* impact
Total Committed PH PD Traffic	Existing PH PD volume plus the total number of approved trips that are anticipated on the road network	(Existing PH PD Volume + Approved Trips + *De Minimis* Trips)

Table 7: Concurrency Management System Spreadsheet Column Headers (cont'd)

Column Header	Description	Source
LOS Standard	LOS standard adopted for the link by letters A-E	State roads per §14-92, F.A.C. as amended; For all other roads, as established in the local government comprehensive plan
PH PD Service Volume	Adopted service volume/capacity (min acceptable LOS) during the peak hour in the peak direction per the adopted LOS standard and the geometric characteristics of the road link	FDOT 2002 Quality/Level of Service Handbook. 2006 updates are available at *http://www.dot.state.fl.us/planning/systems/sm/los/default.htm*
Traffic Analysis Service Volume	New service volume for the link based on a detailed traffic analysis approved by the local government	This revised service volume is adopted by the local government (and FDOT, where appropriate) and is based on an accepted detailed traffic analysis.
Volume/Capacity Ratio	Total Committed PH PD traffic volume divided by either the PH PD Service Volume or approved Traffic Analysis Service Volume	(Total Committed PH PD Traffic) x100 (PH PD Service Volume or Traffic Analysis Service Volume)
Remaining Capacity	The remaining capacity available on the link	PH PD Service Volume (or Traffic Analysis Service Volume) – Total Committed PH PD Traffic Volume
Link Status	Existing LOS; may also include terms such as "Critical," "Deficient"	Determined by comparing the Total Committed PH Traffic with the PH PD Service Volume
110% Service Volume	110 % of the PH PD Service Volume or Traffic Analysis Service Volume	110 % x PH PD Service Volume
Hurricane Evacuation Route	Indicate whether or not the link is a Hurricane Evacuation Route with a "Y" or "N"	As established in the local government comprehensive plan
Planned Improvements	Planned improvements to deficient road links	Capital improvement element of local government comprehensive plan

MAINTAINING AND UPDATING TRAFFIC DATA

PRACTICE TIP

Identify sources of information to update and maintain critical traffic data and other information in the tracking system, including traffic from vested developments.

Regardless of the type of concurrency tracking system used by a local government, the traffic data used as basic inputs to the system must be maintained on a regular basis. Critical traffic data includes traffic counts, service volumes, and new capacity availability that may result from planned improvements.

Traffic counts are the most basic input variable to a transportation concurrency management system because they establish a basis for measuring road capacity for new development. Traffic counts for state roads are available from FDOT. Traffic counts on all other roads must be collected by the agency with jurisdiction over the road or a designee (e.g. the applicant/developer). Funding for traffic counts may be available through the local metropolitan planning organization.

FDOT annually conducts traffic counts on each segment of the state's highway system. The annual average daily traffic (AADT) is computed by multiplying the traffic by a seasonal adjustment factor that provides an adjustment for the week of the year that the count was taken. An axle correction factor is also used to adjust for the number of trucks using the road.

Many local governments conduct annual traffic counts on roads within their jurisdiction to use as an input to their transportation concurrency tracking system. In locations where traffic counts are not conducted annually, alternative methods are used, such as requiring applicants to provide traffic counts for those segments their development would impact as part of their transportation impact study.

In Escambia County, traffic counts are conducted only every two to three years on roads where existing and committed traffic consumes less than 50% of the available capacity.

Service volumes or capacities are established in the FDOT's Level of Service Tables (FDOT Tables) according to the functional classification of the road, its geometric characteristics, and the adopted LOS standard. Versions of the FDOT Tables, based on the TRB *Highway Capacity Manual*, have historically been used to establish level of service volumes by road segment or link. Local governments not only use the FDOT Tables to establish service volumes for state facilities as required; they also use these Tables to establish service volumes for

FDOT TRAFFIC STATISTICS

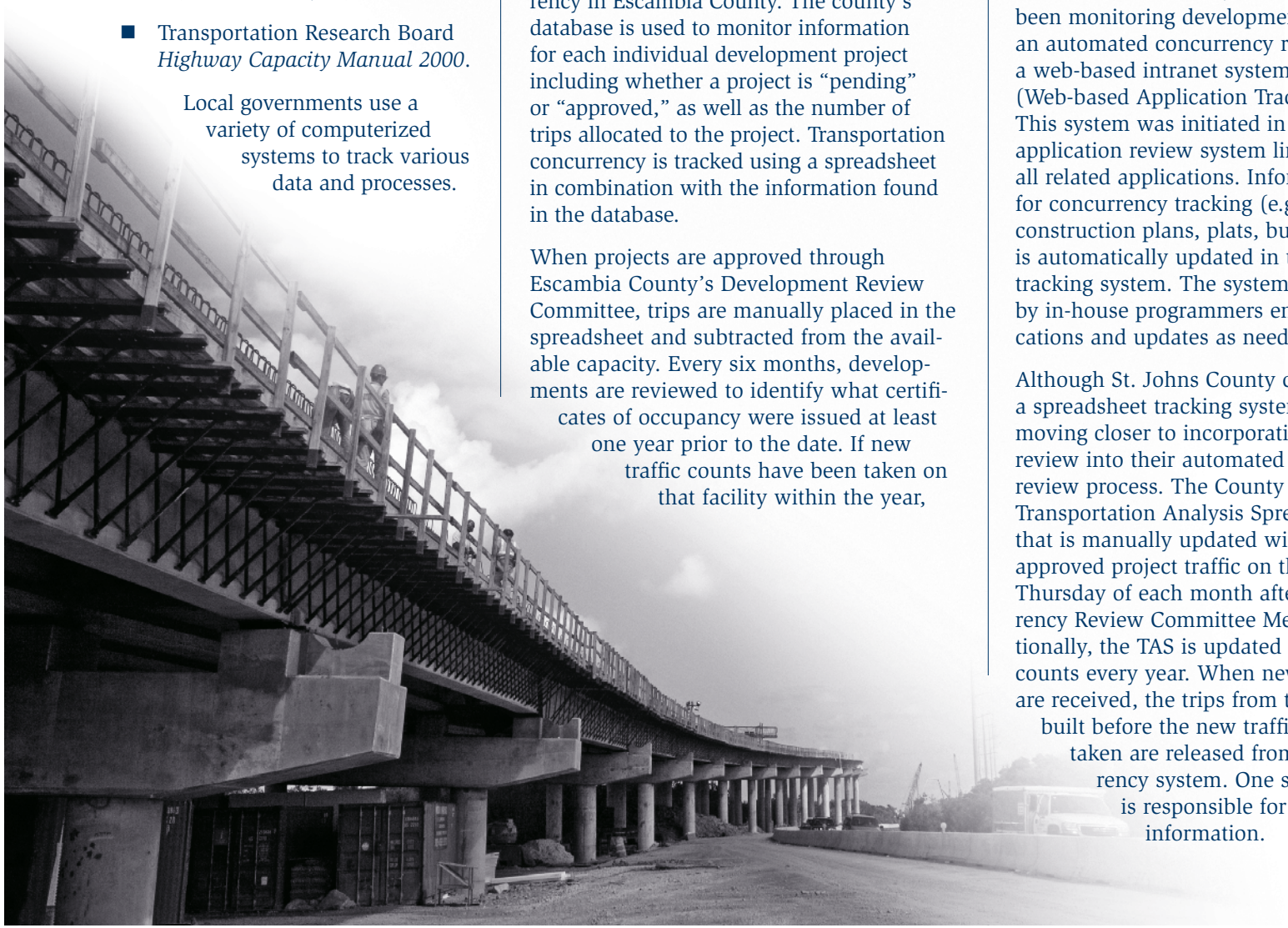
Average Annual Daily Traffic Reports are available annually by county from the FDOT Transportation Statistics Office and on their website: *http://www.dot.state.fl.us/Planning/statistics/trafficdata/*. The website describes the information provided in the report stating,

> "This report provides the Annual Average Daily Traffic . . . for every segment of Florida's State Highway System. Annual Average Daily Traffic (AADT) is the total volume of traffic on a highway segment for one year, divided by the number of days in the year. Both directions of traffic volumes are reported as well as total two-way volumes. Actual AADT, K, D, and T data are collected from permanent, continuous counters. AADT, K, D and T are *estimated* for all other locations using portable counters. The information collected from Traffic Adjustment Data Sources are used to determine the traffic adjustment factors: Axle Correction Factors, Percent Trucks, and Seasonal Volume Factors. These adjustment factors are applied to short-term traffic counts taken by portable axle and vehicle counters to estimate AADT, K, D, and T for every section break of the State Highway System."

county and city roads. The updated references for service volumes are:

- the FDOT *2002 Quality/Level of Service Handbook,* as amended, and
- Transportation Research Board *Highway Capacity Manual 2000*.

Local governments use a variety of computerized systems to track various data and processes.



Data contained in these systems can be used to augment the concurrency management system. For example, a combination of systems is used to track transportation concurrency in Escambia County. The county's database is used to monitor information for each individual development project including whether a project is "pending" or "approved," as well as the number of trips allocated to the project. Transportation concurrency is tracked using a spreadsheet in combination with the information found in the database.

When projects are approved through Escambia County's Development Review Committee, trips are manually placed in the spreadsheet and subtracted from the available capacity. Every six months, developments are reviewed to identify what certificates of occupancy were issued at least one year prior to the date. If new traffic counts have been taken on that facility within the year, the trips are assumed to be included in the traffic counts and "approved trips" are removed from the spreadsheet.

Since December 2004, St. Johns County has been monitoring development traffic using an automated concurrency review system, a web-based intranet system called WATS (Web-based Application Tracking System). This system was initiated in 2000 with an application review system linking together all related applications. Information needed for concurrency tracking (e.g., approved construction plans, plats, building permits) is automatically updated in the concurrency tracking system. The system was developed by in-house programmers enabling modifications and updates as needed.

Although St. Johns County currently uses a spreadsheet tracking system, they are moving closer to incorporating concurrency review into their automated development review process. The County maintains a Transportation Analysis Spreadsheet (TAS) that is manually updated with newly approved project traffic on the 2nd and 4th Thursday of each month after the Concurrency Review Committee Meetings. Additionally, the TAS is updated with new traffic counts every year. When new traffic counts are received, the trips from those projects built before the new traffic counts were taken are released from the concurrency system. One staff member is responsible for updating the information.

Another consideration relates to properties that are exempt from concurrency because vested development rights were obtained prior to the adoption of the state's growth management laws and local implementation of concurrency. This previously approved development can generate thousands of new trips which are often ignored in concurrency management systems. Failure to account for these trips results in an undercounting of approved trips and, ultimately, roadway deficiencies earlier than originally anticipated. Inclusion of previously vested trips is an important consideration in concurrency management.

Making "New" Capacity Available

The time at which "new" or planned road capacity from a programmed improvement is made available for concurrency determinations is an important consideration. Florida Statutes establish a minimum requirement that "transportation facilities needed to serve new development shall 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" (s. 163.3180(2)(c), Florida Statutes).

PRACTICE TIP

Determine when the "new" capacity from planned transportation improvements should be made available, recognizing that this determination can affect proportionate fair share contributions.

Rule 9J-5.0055(3), F.A.C. allows local governments to evaluate transportation concurrency against capacity that is available or provided through agreements and against planned capacity in a five-year capital improvement program (CIP). If this latter approach is used, the community must demonstrate that the necessary facilities will be available and adequate to address the impacts of the development within three years of issuing the building permit or functional equivalent. The CIP must include the estimated date of commencement and completion of the project and this timeline may not be eliminated or delayed without a plan amendment approved by the Florida Department of Community Affairs (DCA).

Most local government transportation concurrency management systems follow a three-year timeframe and allocate the "new" service volume in their tracking system when a project's construction is scheduled within the first three years of its capital improvement schedule. Local governments can, however, establish a more conservative policy. For example, planned capacity could be excluded

ADDING NEW CAPACITY TO A CMS

When a transportation facility is improved, new capacity becomes available. This new capacity becomes a free commodity for development permitting until it is ultimately consumed by the new trips from approved developments. This process creates certain inequities for the applicant and the local government. For the applicant, the timing of a development application in relation to scheduled transportation improvements affects whether or not a deficiency is triggered and mitigation payments are required. For the local government, the longer applicants are allowed to consume "free" capacity, the more public dollars must be used to cover the impacts of new development.

Some communities have tightened their allowances for "free" capacity, in recognition of this issue. Sarasota County regulations allow only the added capacity from a road or intersection improvement that is under construction or in the first year of the capital improvement program to be considered available for new development trips. An economic development exception is provided that allows improvement projects in the second or third year of the CIP to be considered available capacity if the development is located in a designated Major Employment Center.

Indian River County allows additional capacity for a road link to be taken into consideration:

- if the facility is in place or under construction at the time the development order or permit is issued, or
- transportation facilities will be under construction or in place not more than two years after a building permit for the development is issued per the county's CIP or the FDOT 5-year Work Program, or
- via a binding executed agreement or enforceable development agreement between the county and the developer.

from use for concurrency determinations or allowed only if the capacity improvement project is scheduled for construction within the first or second year of the capital improvement schedule, or only where a road construction contract has been executed. A more conservative policy increases the opportunity for local governments to collect proportionate fair share contributions on deficient roadways and to free up funds for use elsewhere on the system. All projects shown in the five-year capital improvements schedule must be financially feasible.

THRESHOLDS AND GUIDELINES FOR IMPACT ASSESSMENT

PRACTICE TIP
Establish a method for determining proposed development trip impacts on road segments and thresholds for requiring a detailed transportation impact study.

Each local government must establish what to require of applicants in order to determine the number of new trips from a proposed development that will impact road segments. Specific thresholds for review ensure that all applicants are treated equally. The traffic impacts of development may be considered *de minimis*, minor, or major (see Figure 6). Some development, such as a single-family home, has a *de minimis* impact—that is, an impact so minor it is exempt from concurrency review. Projects generating from 0 (or *de minimis*) to 99 trips during the peak hour generally require only a minor traffic review. Projects generating 100 or more peak hour trips generally require a detailed transportation impact study.

Local government staff often prepare transportation concurrency analyses for small and mid-sized developments with minor traffic impacts. Applicants for large developments are typically required to prepare traffic impact studies. A transportation impact study provides a method for determining whether a proposed development would cause a concurrency deficiency.

De minimis	defined by code
Minor	between *de minimis* and 99 trips
Major	≥ 100 peak hour trips

Figure 6: Thresholds of Transportation Impact

Transportation impact studies should address peak hour/peak season traffic in compliance with Rule 9J-5.019, F.A.C. A typical threshold to trigger a transportation impact study for concurrency determinations is 100 new vehicle trips during the adjacent roadway's peak traffic hour or the development's peak hour. However, each local government will need to establish its own threshold based on local needs and policy. For example, a local government may base its threshold on the overall availability of transportation system capacity. Those with a great deal of available capacity may consider a higher threshold based on the system's ability to accommodate additional traffic. If system capacity is limited, a local government may want to set a lower threshold to have greater control over impacts to the system.

In St. Johns County, small projects, generating less than four average weekday peak hour trips, are considered to have negligible impact on the transportation system. For minor projects, generating four to 30 average weekday peak hour trips, a minor traffic review is required.

In addition to trip generation, another helpful criterion for requiring a transportation impact study for concurrency is whether the LOS on a road or intersection in the vicinity of the proposed development is near or below the adopted LOS standard. This criterion would also apply to developments with a *de minimis* impact in the event the 110% LOS standard has been exceeded. A detailed discussion of how to conduct a transportation impact assessment for concurrency is provided in Chapter 4.

MONITORING *DE MINIMIS* TRIPS

Developments with *de minimis* (or very minor) impacts may be exempted from transportation concurrency. However, although *de minimis* trips may have little or no affect on roadway networks when considered individually, their cumulative impact may contribute to congestion and operational problems where traffic counts of roadways are not taken on an annual basis or where a road link has already reached its capacity. Therefore, a limit is set in Florida law as to the allowable *de minimis* impact on any given road link. Specifically, if a road link is at or exceeds 110% of its service capacity, no further developments impacting that link should be approved, including those with *de minimis* impact, until the necessary improvements are in place and the roadway is operating within 110% of its service capacity.

Unfortunately, many local governments have not kept accurate counts of approved *de minimis* impacts, even those with systematic concurrency tracking systems. In local governments where traffic counts are not performed on an annual basis, it cannot be determined if the 110 percent provision is exceeded. To counter this problem, Florida's 2005 growth management legislation now requires an accounting of *de minimis* trips and annual reporting of *de minimis* trips, stating, ". . . Each local government shall maintain sufficient records to ensure that the 110-percent criterion is not exceeded. Each local government shall submit annually, with its updated capital improvements element, a summary of the *de minimis* records...." (s. 163.3180(6), Florida Statutes).

Recording of *de minimis* trips might also be an issue of internal coordination between local government departments. Because they are exempt from the standard concurrency process, developments with *de minimis* impact might be permitted by the reviewing department without recording the trips from those developments. Therefore, local governments will need to establish a process to ensure that information on *de minimis* trips is recorded and provided to the concurrency administrator. For example, the department issuing building permits could be required to record approved *de minimis* trips by road link and send the necessary information to the department responsible for tracking transportation concurrency. In addition, the concurrency

> **PRACTICE TIP**
> To ensure accurate accounting of *de minimis* trips for reporting and monitoring purposes, establish a process to ensure that information on *de minimis* trips is recorded and provided to the concurrency administrator.

WHAT IS A *DE MINIMIS* IMPACT?

Florida law defines *de minimis* impact as "an impact that would not affect more than 1 percent of the maximum volume at the adopted level of service of the transportation facility as determined by the local government" (s. 163.3180(6), Florida Statutes). In addition, if a road link is at or exceeds 110% of its service capacity, no further developments with *de minimis* impact are to be approved until the necessary improvements are in place and the roadway is operating within 110% of its service capacity. Single family homes on existing lots are still deemed to have *de minimis* impact regardless of the level of deficiency of the roadway except if the impacted road is a hurricane evacuation route. No impact, including single-family homes may be considered *de minimis* if it would cause any designated hurricane evacuation route to exceed its adopted level of service capacity.

Jurisdictions quantify *de minimis* impact in a variety of ways. Most local governments use the statutory definition of *de minimis* impact, whereas some local governments define *de minimis* impact based on the type and density of development. Alternative methods include square footage of space, number of dwelling units, or the average daily trips measured. Sarasota County, for example, defines single family units and non-residential units up to 1500 square feet as developments having *de minimis* impact. Some local governments, such as St. Johns County, only consider the impact of single family units as *de minimis*.

administrator would need to inform the department issuing building permits of road links where *de minimis* trips are no longer permitted.

A more complex, but effective solution, would be to implement a system that automatically provides other departments with the necessary information if a building permit or other related approvals are issued. Those local governments that use a database for development permitting and concurrency review will more easily be able to account for *de minimis* trips.

Report Content and Format

The sample report content and format in Table 8 is provided to assist local governments with *de minimis* trip reporting, under the new legislative requirements. *De minimis* records must be submitted at the time of the capital improvement element annual update (s. 163.3180(6), Florida Statutes). Records may be submitted in a descriptive report with a table summary containing appropriate elements of the tracking system including the *de minimis* records. Important components of the report should include:

- definition and approval process of developments having *de minimis* impact;
- existing conditions and deficient road links;
- trips on all road links generated by developments having *de minimis* impact; and
- planned improvements included in the local government's capital improvement element that resolve existing deficiencies.

Regardless of the method a local government uses for tracking concurrency, a simple table or spreadsheet may be used to summarize all the information required by DCA including deficiencies on the road network and corresponding planned improvements. Records required for the report should be transferred from the concurrency tracking system. Table 8 indicates column headers for the spreadsheet.

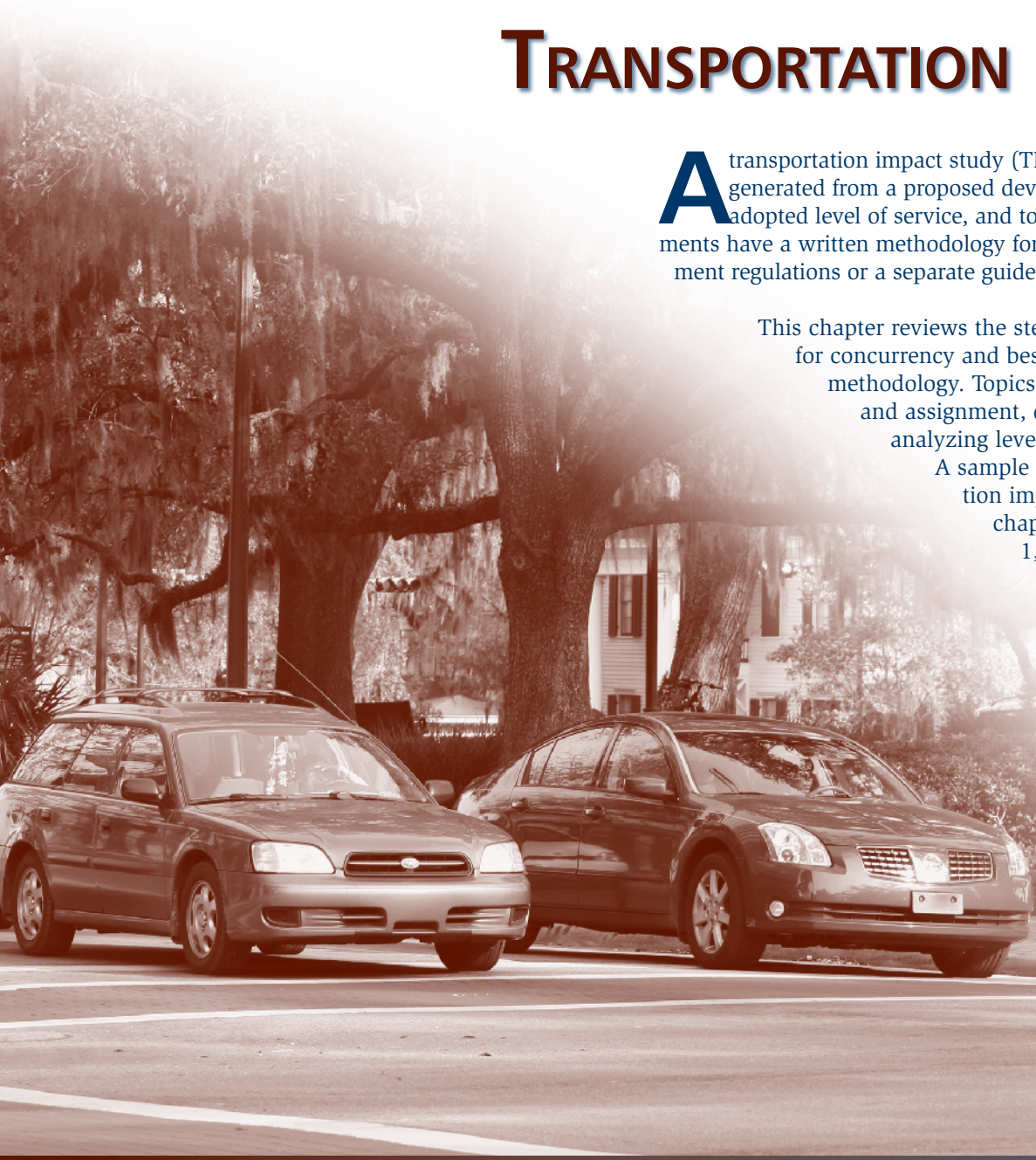
Table 8: De Minimis Trip Report Column Headers

Column Header	Description	Source
Road Link #	Number assigned to a specific road link	Created and assigned by local government
Road	Name of the road	Official road name according to the agency with jurisdiction
From / To	Defines the start and end points of a road link	County/city road links are established by the local government with jurisdiction over the road. Link limits often coincide with other road links, traffic signals, and/or other notable intersections and are shorter in urban areas than rural areas.
Existing PH PD Volume	Annual daily traffic counts adjusted to determine the peak hour peak direction volume	(AADT x "K Factor" x "D Factor")
Approved Trips	Development trips approved and reserved on the link through a certificate of concurrency; does not include *de minimis* trips	Compiled by the local government as trips are approved
De Minimis Trips	Trips generated by developments having *de minimis* impact as defined in the local government comprehensive plan and land development regulations in accordance with §163.3180, F.S.	Compiled by the local government as building permits are issued for projects with *de minimis* impacts
Total Committed PH PD Traffic	The existing traffic volume plus the total number of approved trips anticipated on the road link	(Existing PH PD Volume + Approved Trips + *De Minimis* Trips)
LOS Standard	LOS standard adopted for the link by letters A-F	State roads per Rule 14-92, F.A.C. as amended. For all other roads, as established in the local government comprehensive plan

Table 8: De Minimis Trip Report Column Headers (cont'd.)

Column Header	Description	Source
PH PD Service Volume	Service volume for the minimum acceptable LOS during the peak hour in the peak direction according to the adopted LOS standard and the geometric characteristics of the link	FDOT 2002 Quality/Level of Service Handbook. 2006 updates are available at *http://www.dot.state.fl.us/planning/systems/sm/los/default.htm*
Traffic Analysis Service Volume	New service volume for the link based on a traffic analysis	This revised service volume is adopted by the local government (FDOT, where appropriate) and is based on an accepted traffic analysis.
110% Service Volume	110 % of the PH PD Service Volume or Traffic Analysis Service Volume. Indicates availability of *de minimis* capacity	Calculation
110% Service Volume Exceeded?	If the Total Committed PH PD Traffic is greater than or equal to 110% Service Volume, indicate "Y" or "N"	
Hurricane Evacuation Route	Indicates if link is a Hurricane Evacuation Route with a "Y" or "N;" once Total Committed PH PD Traffic is equal to 110% of the PH PD Service Volume, no *de minimis* trips may be approved.	As established in the local government comprehensive plan
Planned Improvements	Planned improvements to road links	Capital improvement element of local government comprehensive plan

Transportation Impact Assessment



A transportation impact study (TIS) provides a method for determining whether the trips generated from a proposed development would exceed the available roadway capacity at the adopted level of service, and to identify the need for any improvements. Most local governments have a written methodology for preparing a transportation impact study in their land development regulations or a separate guideline or manual.

This chapter reviews the steps in evaluating the transportation impacts of developments for concurrency and best practices for developing a transportation impact study methodology. Topics include levels of analysis, trip generation, trip distribution and assignment, defining the study area or "traffic impact area" for analysis, analyzing level of service, and strategies for addressing multimodal needs. A sample application illustrating the process for assessing transportation impacts and determining mitigation needs is provided in the chapter attachment. The methodology in Chapter 5, Attachment 1, incorporates these considerations and may be adapted by local governments for use in concurrency management.

LEVELS OF ANALYSIS

A transportation impact study can generally be divided into two levels of analysis, depending on the purpose of analysis. The first level of the analysis is a quick, initial assessment of the impact of a development on the level of service (LOS) of impacted roadway segments. The second level of analysis is more comprehensive and involves detailed analysis of impacted intersections and roadway segments.

The first level of analysis compares the accumulated traffic volume of existing, vested and project trips on a roadway segment with the adopted maximum service volume (MSV) of the segment, using established generalized level of service tables. This comparison determines whether the development meets the transportation concurrency requirement. Because the MSV in the generalized level of service tables is based on default values, the first level of analysis may be considered preliminary and can be used to determine whether a second level of analysis may be appropriate. This level of analysis is simple, quick and cost effective. However, it provides only a reasonable estimate of LOS, not a precise analysis.

The second level of analysis is generally required for medium or large-scale development. It is also needed when a development barely meets or does not meet transportation concurrency based on the first level of analysis. This level of analysis may require applicants to collect recent intersection turning movement counts, obtain vested traffic assignment at impacted intersections, obtain existing signal timings at impacted signalized intersections, and perform detailed intersection and link analysis to determine whether the development meets the transportation concurrency requirement. The major advantage of the analysis is its level of accuracy. However, it usually requires intensive data collection and detailed analysis with assistance from transportation consultants.

TRIP GENERATION

Determining trip generation is the first step in analyzing the potential impact of any development. A professionally accepted practice to estimate proposed development trip generation is through the use of the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation* (currently the 7th Edition). Trip generation is determined by applying either average trip generation rates or trip generation equations of land uses based on regression analysis. Chapter 3 of the *Trip Generation Handbook*, Second Edition provides detailed discussions on the proper selection of rates or equations; however, equations are generally preferable because they provide a more realistic relationship between the development unit and generated trips.

Some applications may entail the use of information in addition to the *Trip Generation Handbook.* For example, if local trip generation rates for sites comparable to the proposed development are available, local governments may require the use of that data to determine if any adjustment is needed. 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.

Typically, peak hour congestion during the evening commute is the major concern. Therefore, the trip generation used for traffic impact studies would be the number of trips generated from a proposed development during PM peak hours of both directions of the roadway. However, trips generated during other peak hours may also be important to consider. Some areas experience more traffic problems during AM peak hours. Sometimes it is the development's peak hour that is the period of concern, such as for land uses that cause localized impacts during off-peak hours of the roadway (e.g., Saturday noon at a regional shopping center). Therefore, trips generated during these peak hours may also be considered for the purpose of analyzing that specific period. Table 9 is an example of typical peak traffic flow for different land uses.

To avoid overestimating the net new trips on adjacent roadways, pass-by trips and diverted linked trips are considered in trip generation rates for specific land uses, such as retail and service uses. A pass-by trip is an intermediate stop made on the way from an origin to a primary destination. Diverted linked trips are trips traveling on a nearby roadway that are diverted via another road to the trip generator. These trip rates must be applied using the appropriate land use when calculating trip generation. Pass-by and diverted linked trips are specifically addressed in Chapter 5 of the ITE *Trip Generation Handbook* and should be justified within the transportation impact study. These trips should not exceed the maxi-

mum allowable pass-by percentage of 10 percent of the adjacent roadway volumes, as noted in the ITE *Trip Generation Handbook* and the FDOT *Site Impact Handbook*.

Internal capture refers to those trips made among land uses internal to the site and is applied as a percentage reduction in trip generation. Most available trip generation rates and equation data have been developed based on single land uses and simply combining these data fails to reflect the potential for internal capture. Therefore, internal trip capture estimation for mixed-use developments is typically addressed by requiring applicants to propose a methodology for local review and approval.

A method to compute the internal capture percentage is addressed in the ITE *Trip Generation Handbook*. National Cooperative Highway Research Program (NCHRP) Project 8-51 will enhance internal trip capture estimation for mixed-use developments and is scheduled for completion in Fall 2007. The most accurate assessment of trip generation, internal capture, and pass-by trips may be accomplished through the use of FDOT TIPS software (see inset).

Table 9: Typical Peak Hour Traffic Flow

Land Use	Typical Peak Hours
Residential	7:00-9:00 AM weekday 4:00-6:00 PM weekday
Regional Shopping Center	5:00-6:00 PM weekday 12:30-1:30 PM Saturday 2:30-3:30 PM Saturday
Office	7:00-9:00 AM weekday 4:00-6:00 PM weekday
Industrial	Varies
Recreational	Varies
Hospital	Varies based on shift changes
School	Varies based on school starting and release time

FDOT TIPS SOFTWARE

Trip Generation, Internal Capture and Pass By Software (TIPS), Version 1.3.6 was developed by the Florida Department of Transportation (FDOT) and Reynolds Smith and Hills, Inc. The program is used to calculate trip generation, internal capture, and pass by trips for given land uses. The TIPS software was developed from three sources: the *Site Impact Handbook* developed by FDOT in 1997, and *Trip Generation*, 7th Edition and the *Trip Generation Handbook* (2001), both published by the Institute of Transportation Engineers.

The software uses a basic three-step process. The initial step is to calculate the traffic generated by the proposed development. The second step, for mixed-use developments, is to adjust the traffic generation for internal capture (traffic that is internal to the development). The final step is to modify the traffic generation for pass-by traffic, which is traffic already on adjacent streets that diverts into the proposed development.

One of the best features of TIPS is that it includes a graph of the raw data, along with tables containing the range in values of the data, the standard deviation, and the number of studies. This information allows the user to make judgments as to whether the regression equation or average rate is appropriate for each occurrence. The program's internal trip analysis is based on the unconstrained internal capture rates from the ITE *Trip Generation Handbook* (March 2001); however, FDOT recommends that maximum internal capture rates be negotiated at a methodology meeting.

TRIP DISTRIBUTION AND ASSIGNMENT

Trips expected to be generated from a proposed development must be distributed and assigned to the surrounding roadway system so that impacts on roadway links and intersections can be analyzed. Trip distribution methods estimate trip origins and destinations, whereas trip assignment estimates the number of trips that will take certain routes on the roadway network between origins and destinations.

How far a trip will be tracked on the network is based on the impact area thresholds a local government applies, as discussed later in this section. Peak hour trip distribution diagrams should be prepared by an applicant and provided to the local government for review. These diagrams illustrate trip distribution and the impacted roadway segments and intersections within the traffic impact area, including existing traffic, background traffic (existing traffic plus vested traffic), and total traffic (existing plus vested plus project traffic).

When determining the number of trips entering and exiting a site, it is common practice to include net new trips (also called primary trips in many guidelines and studies), diverted linked trips and pass-by trips. These trips are categorized as external trips to the development, and therefore must be evaluated in the link and intersection analysis conducted for a transportation impact study. Internal capture trips are excluded from the analysis.

Most metropolitan planning organizations and state departments of transportation (DOTs) maintain trip distribution projections for a base year and future years. These data are generally adopted by local governments with some modifications and can be used for trip distribution and assignment. Trip assignments can be accomplished either manually or with computer models.

The preferred approach to performing trip distribution and assignment for concurrency reviews is to use the Florida Standard Urban Transportation Model Structure Cube Voyager (FSUTMS/CUBE) software in conjunction with the most current socio-economic and network data maintained by the metropolitan planning organization. This data will need to be modified as necessary by transportation planning or growth management staff to incorporate new developments or planned improvements in the study area. The data must also be properly incorporated into the model to reflect the future roadway network at the time of completion of the proposed development. The trips generated by the proposed development can be properly distributed and assigned to the surrounding roadway system.

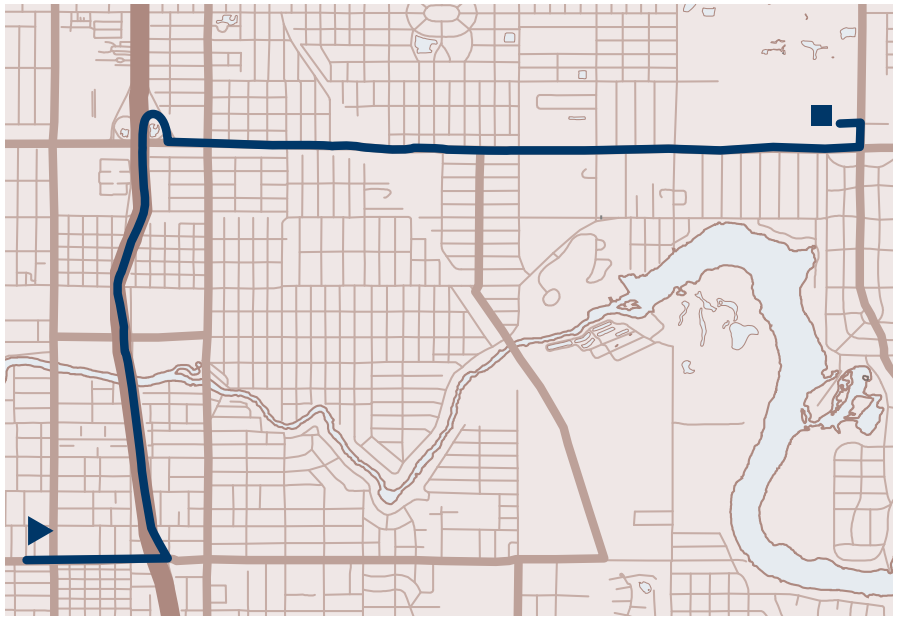


Figure 7: Trip Distribution

Areas outside of metropolitan planning organizations can use either the gravity model or other locally acceptable trip distribution models. The gravity model is based on the principle that the number of trips between two zones is proportional to the magnitude of each zone, and inversely proportional to the distance between two zones. Another simple method is to distribute the trips based on the proportion of traffic volumes.

Regardless of the method used for trip distribution, it should be analyzed for the horizon year of the proposed development. The trip distribution should be depicted as a percentage for each zone or direction of travel. If applicable, a detailed analysis should be performed to account for pass-by and/or diverted linked trips and separate trip assignments for net new trips (or primary trips).

The final trip assignment for the proposed development is the summation of these separately assigned trips. When there is more than one driveway for a development site, then logical routing and multiple paths should be used to ensure realistic driveway volumes.

DEFINING TRAFFIC IMPACT AREA

The traffic impact area (TIA) is the boundary of the study area for a transportation impact study, also known as the area of significant impact or traffic influence area. There are two main reasons to define an adequate traffic impact area. An excessively large traffic impact area may unnecessarily increase both the cost and time needed for study preparation and review. Alternatively, an inappropriately small traffic impact area may fail to include roadway segments and/or intersections that would need to be improved to accommodate the trips generated by a proposed development to maintain the adopted LOS standards.

PRACTICE TIP
Considering the pros and cons of various methodologies, select an appropriate approach to defining the "traffic impact area."

The traffic impact area should minimally include all site access drives, adjacent roadways and major intersections, plus the first signalized intersection in each direction from the site. Additional area may be added based on the size of the development, any site-specific or local policy issues, and sound judgment. Local governments in Florida use different approaches to determine the traffic impact area for a proposed development.

Whether an area is urban or rural is one factor to consider when choosing a traffic impact area approach, because traffic characteristics differ by area type. For example, in urban areas, the LOS standards are generally LOS C or D for less congested areas and LOS D or E for more congested areas. These LOS standards reflect not only the user's expectations of the roadways, but also the local government's desire to accommodate higher densities and constraints such as lack of right of way or limited financial ability to maintain a higher level of service. Peak hour congestion is the major concern in urban areas.

In rural areas, the LOS standard for arterials and collectors is commonly LOS C. Peak hour congestion is generally not serious and daily trips are often used for analysis rather than peak hour trips. Because rural areas do not have a dense road network, fewer facilities will be impacted, but often for greater distances.

The level of service (LOS) of a roadway segment is, for the most part, measured by average arterial speed and arterial type as addressed in the *Highway Capacity Manual* (HCM). Therefore, the vehicle capacity or maximum service volume for the adopted LOS standard of a roadway segment is mainly dependent on roadway facility type, segment length, and free flow speed of the segment.

The traffic impact area for a development in an urban or rural area can vary significantly based on the approach used. Following are some of the major approaches in current practice for determining traffic impact area, along with some advantages and disadvantages of each approach. Table 10 provides an overview of the pros and cons of various impact area approaches. Some local governments are also beginning to explore the use of average trip length as a determining factor.

APPROACH 1—Net PM peak hour project trips on roadway segments greater than or equal to 5% LOS C capacity

This approach is the same one used to determine if a proposed development of regional impact has a significant impact on a transportation facility. The traffic impact area is determined using a traffic volume that is greater than or equal to 5% of the LOS C PM peak hour capacity. If the number of net PM peak hour trips from a development distributed to a roadway segment is at least 5% of the segment LOS C capacity, the roadway segment is "significantly impacted" by the development and, therefore, subject to analysis for concurrency.

This approach has some disadvantages. In the circumstance where the development is served by roadways with multiple lanes and, therefore more overall capacity, the facility will exhibit a large LOS C service volume. As a result, few segments and intersections will appear to be significantly impacted. One way to compensate for this would be to decrease the percentage applied, for example, from 5% to 3%.

In addition, impacted roadway segments may not be continuous due to variations in LOS C capacity—for example, a segment between two impacted segments on the same roadway might be excluded due to different roadway capacities (e.g., 2-lane vs. 4-lane section of an arterial). This issue can be resolved by requiring an analysis of all road segments on a facility from the development site to the furthest significantly impacted segment. Another disadvantage of this approach is that it is based on link-by-link evaluation and therefore does not provide a systems perspective, nor does it recognize multimodal needs and options.

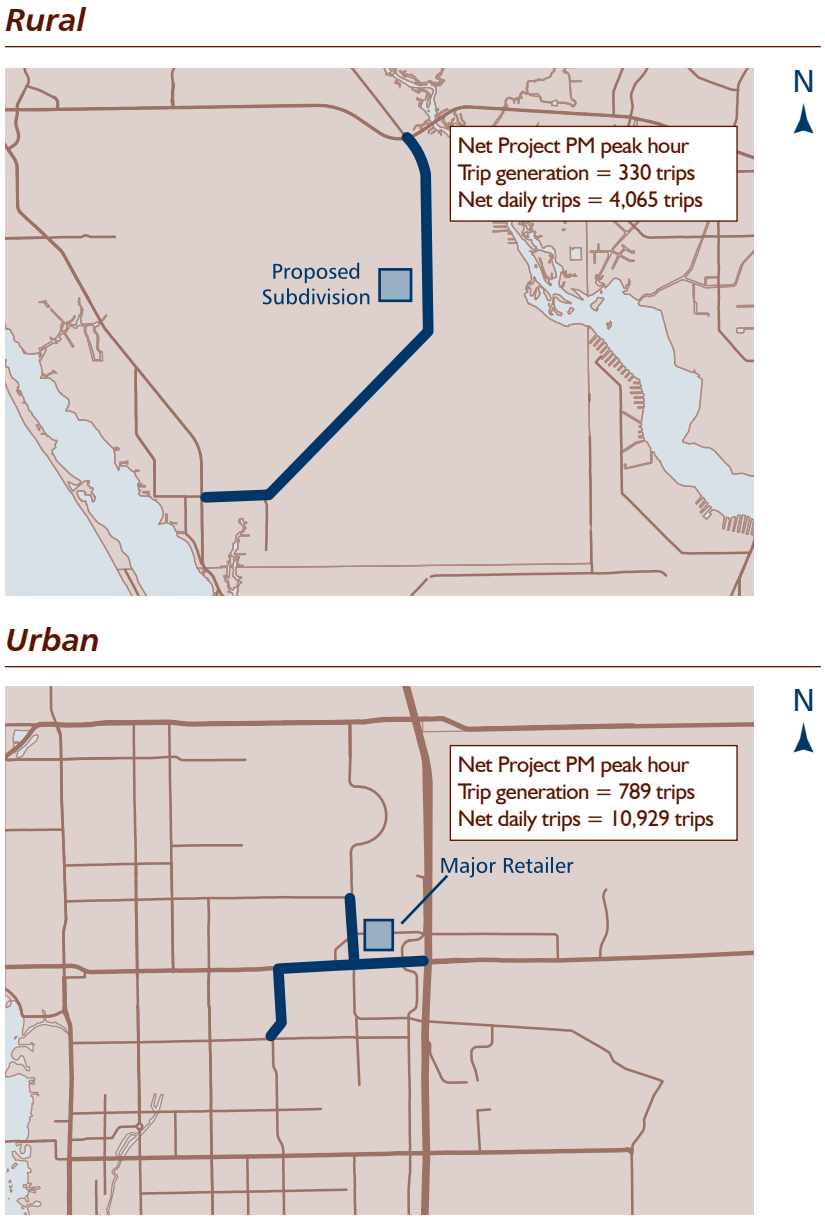


Figure 8: Rural and Urban Depiction for Approach 1

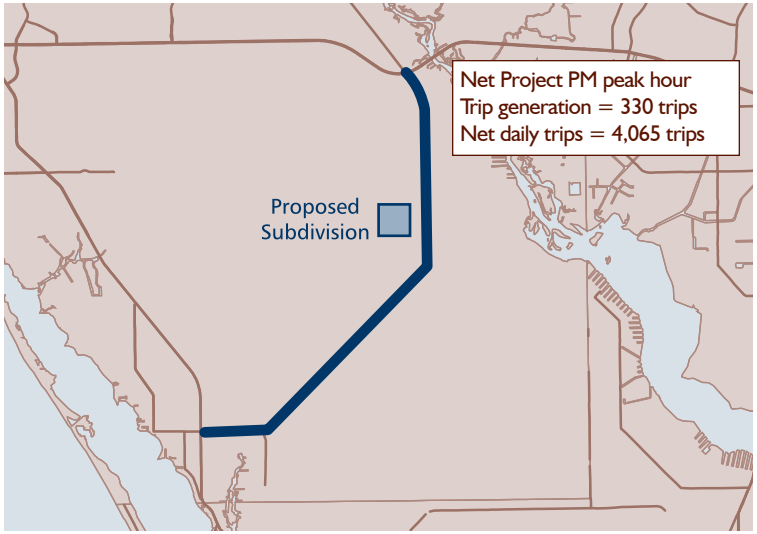
APPROACH 2—Net PM peak hour directional project trips on roadway segments greater than or equal to 5% of adopted LOS capacity and 1% for critically deficient roadway segments

Similar to Approach 1, this approach emphasizes PM peak directional volumes and applies a smaller impact threshold to critically deficient roads. What constitutes a critically deficient roadway segment is defined in local policy. For example, the City of Tallahassee defines critically deficient roads as those where the PM peak hour directional volume on the roadway segment exceeds the directional service volume (at the adopted LOS) based on existing traffic counts, OR the total (future) PM peak hour directional volume on the roadway segment will exceed 120% of the directional service volume (at the adopted LOS) based on projected traffic demands. The model methodology on page 61 of this guide defines this as a segment operating at more than 90% of the adopted LOS MSV.

Using this approach, a significant impact occurs when the PM peak hour vehicle trips from a proposed development project are projected to consume 5% or more of the directional service volume (at the adopted LOS) of a roadway segment. In addition, a significant impact occurs on a critically deficient roadway segment when the PM peak hour vehicle trips from a proposed development project are projected to consume 1% or more of the directional service volume (at the adopted LOS) of a roadway segment.

The specific advantage of this approach is that it provides for a stricter measure of potential impacts (1% versus 5%) to a critically deficient roadway segment or one that will be critically deficient based on projected traffic demand. In addition to sharing the disadvantages of Approach 1, this approach focuses only on the peak direction during the PM peak hours, thereby ignoring potential impacts of the proposed development in the non-peak direction and during the AM peak hour. The traffic impact area will also vary according to LOS standards. Because the service volume for LOS D or E is a greater number than the service volume for LOS C, a greater number of vehicles will consume capacity before the impact is determined significant.

Rural



Urban

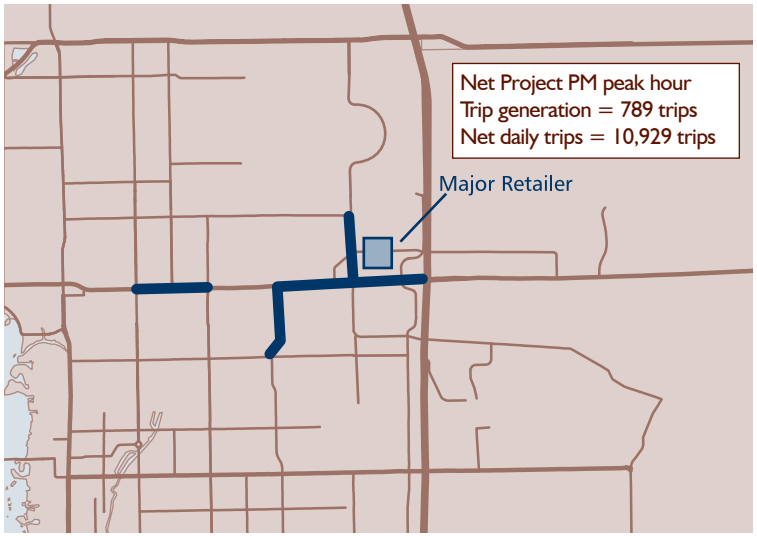


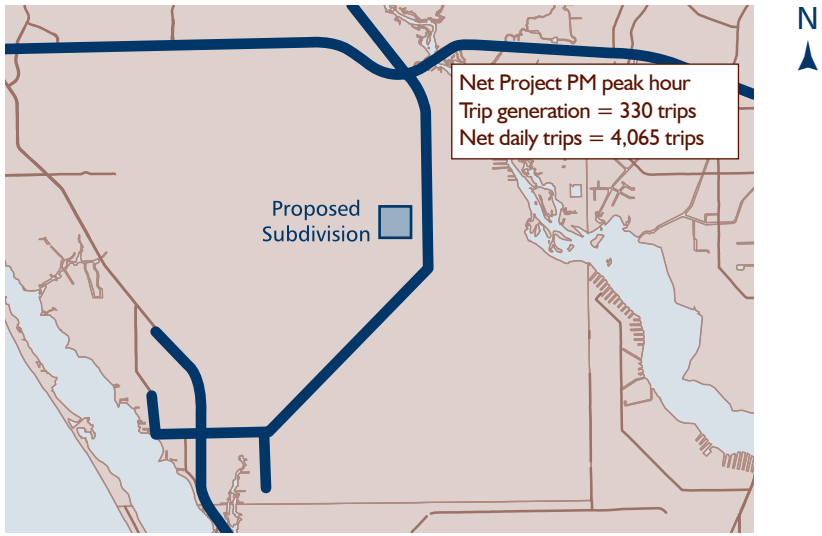
Figure 9: Rural and Urban Depiction for Approach 2

APPROACH 3—Roadway segments receiving at least 5% net project PM peak-hour trips

In this approach, all roadway segments that receive 5% or more of the net development PM peak hour trips are considered significantly impacted. The focus is on the percentage of net PM peak hour trips distributed on a roadway segment relative to the total net PM peak hour trips generated by the development, rather than the actual number of trips on the roadway segment. The resulting traffic impact area is relatively large when compared to other approaches; however, it may be beneficial to use where there are many potentially deficient facilities and the local government needs to curb development. This approach has the potential to track the impact of development far beyond just a few miles.

One advantage of this approach is it recognizes that large and small developments with similar types of uses may have similar traffic impact areas, regardless of the number of trips they generate. This can also be considered a disadvantage because a small office development may need to analyze the same area as a larger office development of similar type. As with most approaches currently in use, it does not provide a systems perspective, nor does it recognize multimodal needs and options.

Rural



Urban

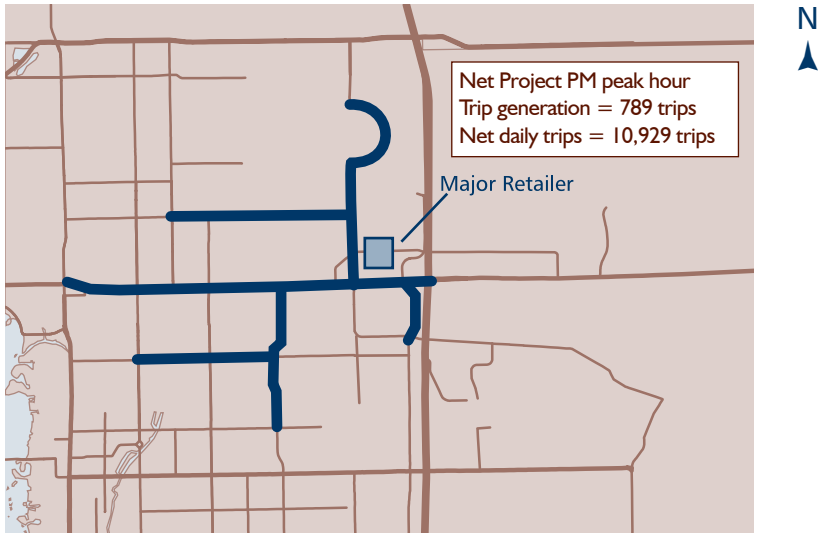


Figure 10: Rural and Urban Depiction for Approach 3

APPROACH 4—Roadway segments with net PM peak hour project trips accounting for at least 5% of the average daily traffic (ADT) generated by the development

This approach determines the traffic impact area based on the ratio of net PM peak hour development trips to the development's average daily traffic on roadway segments. If this ratio is greater than or equal to 5%, the segment is considered significantly impacted. As with Approach 3, a small development may have a similar traffic impact area as a large development.

There are several disadvantages to this approach. The traffic impact area is generally small because most distributed PM peak link trips from a development do not reach 5% of its ADT. As a result, few segments and intersections will appear to be significantly impacted. Neither the consumption of roadway capacity, nor the number of trips distributed to roadway segments, is considered. Finally, this is also a link-by-link approach that fails to recognize multimodal needs.

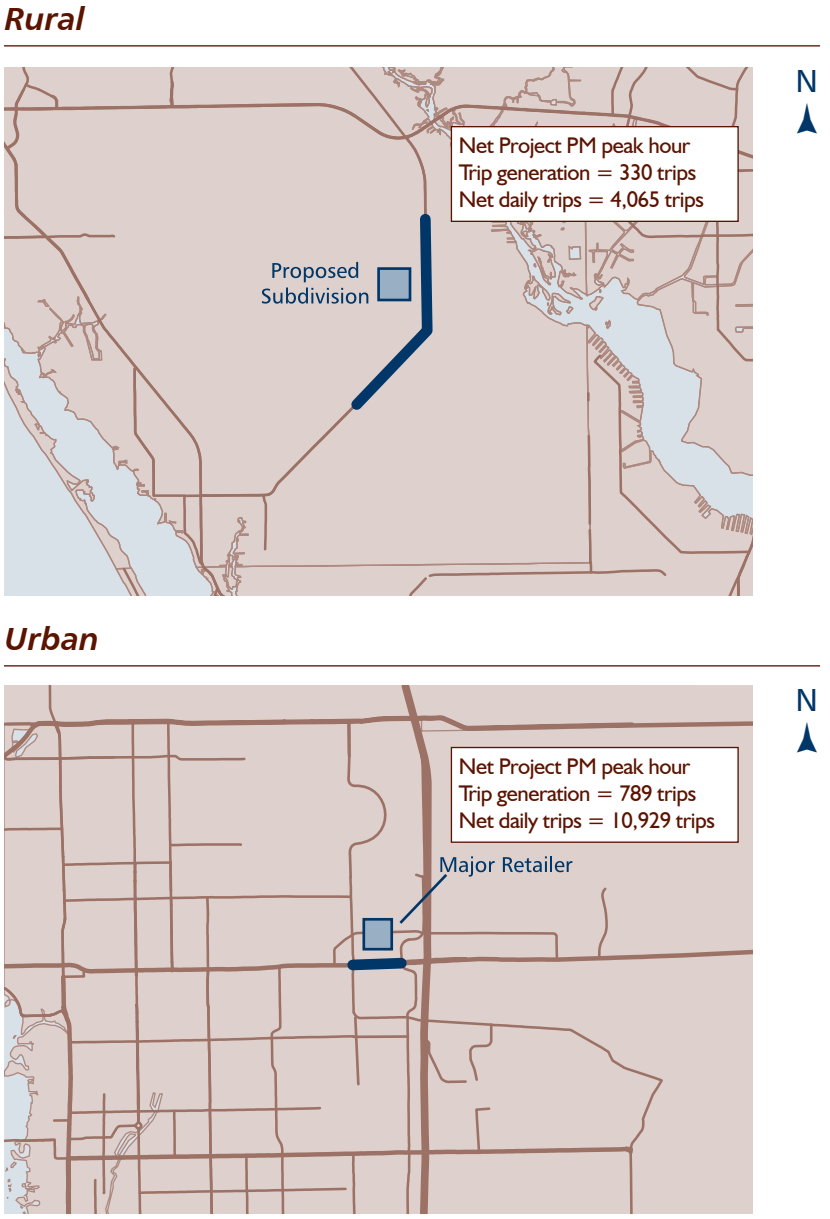
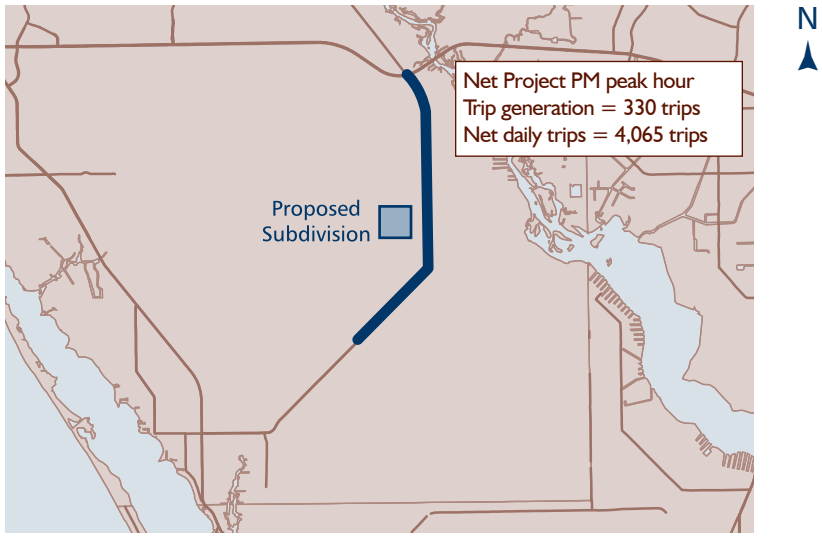


Figure 11: Rural and Urban Depiction for Approach 4

APPROACH 5—Daily project trips account for at least 10% of ADT in urban areas and at least 20% of ADT in rural areas

In this approach, a roadway segment is included in the traffic impact area if the daily development traffic on a segment accounts for at least 10% of a segment's average daily traffic in urban areas or 20% of a segment's average daily traffic in rural areas. This approach determines the traffic impact area based on the ratio of daily trips from a development to the total daily traffic of a roadway segment. This approach is useful when peak-hour traffic is not a concern, such as in rural areas. However, it does not provide a systems perspective, nor does it recognize multimodal needs and options.

Rural



Urban

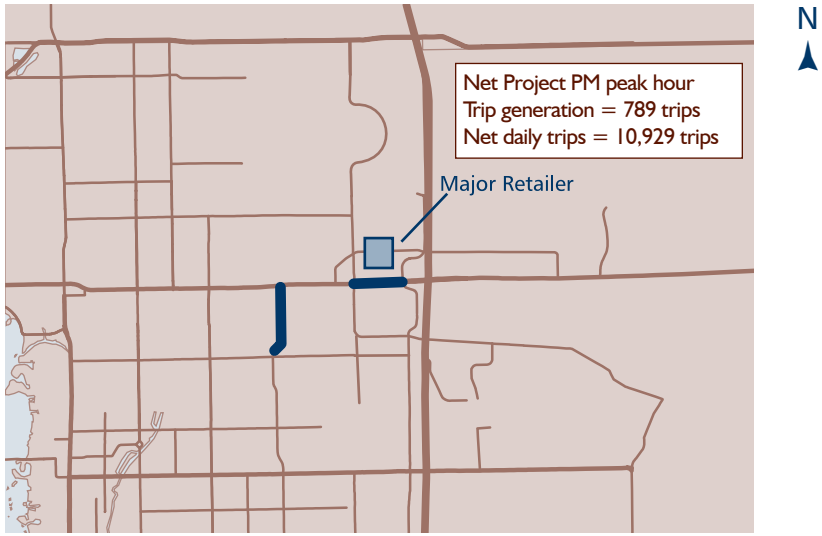


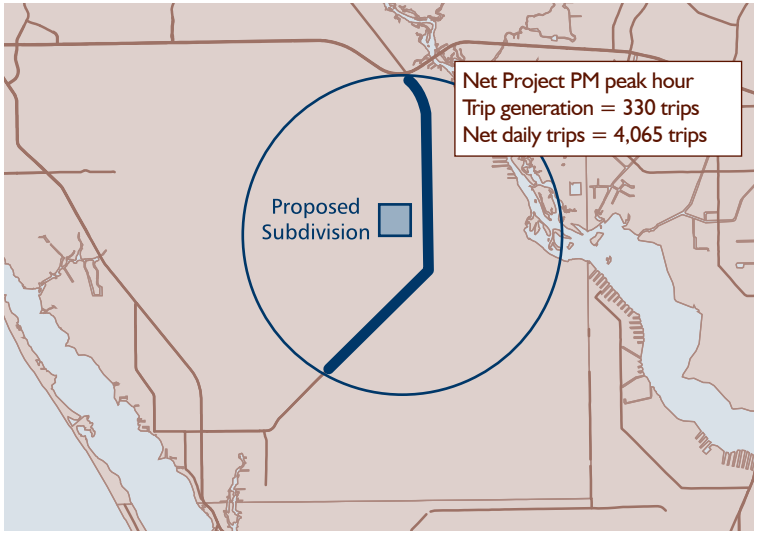
Figure 12: Rural and Urban Depiction for Approach 5

APPROACH 6—Influence area in terms of maximum radius from the project based on net development daily trip distribution

This approach determines the traffic impact area based on a radius from the development; each access point is considered a center of the maximum radius. All roads segments within the radius are subject to concurrency. Intersection review must be performed where, over the build-out period of the project, the net development trips would be greater than or equal to 10% of the Annual Average Daily Traffic (AADT) on any link that lies in whole or in part within the project's radius of influence and connects to a major intersection.

This approach provides more of a system-wide perspective because it requires every segment in the radius to be reviewed for concurrency. A disadvantage is that it limits the boundary for a transportation impact study even when development trips are mainly distributed along a major corridor possibly further than the required radius. Another disadvantage is that it may ignore a large number of corridor trips outside the maximum radius area if the influence area radii are too small.

Rural



Urban

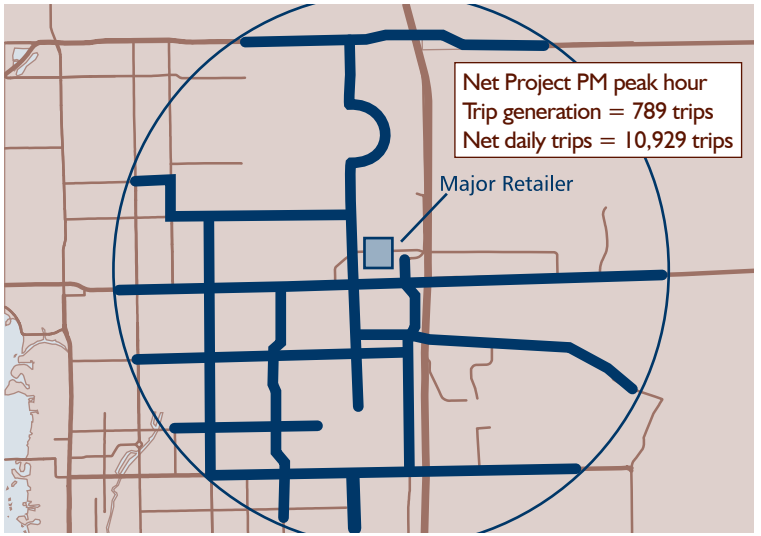


Figure 13: Rural and Urban Depiction for Approach 6

Table 10: Pros and Cons of Impact Area Approaches

No.	Approach	Pros	Cons
1	5% LOS C Capacity	• Considers roadway capacity consumed during peak hours • Relatively easy to determine traffic impact area	• May produce discontinuity in impacted roadway segments • May ignore some relatively large impacts on a major roadway
2	5% Adopted LOS Capacity and 1% for Critically Deficient Segments	• Considers roadway capacity consumed during peak hours • Relatively easy to determine traffic impact area • Recognizes critically deficient segments	• May produce discontinuity in impacted roadway segments • May ignore some relatively large impacts on a major roadway • Ignores the impact of development trips on non-peak direction
3	5% Development PM Peak Trips	• Easy to determine traffic impact area	• Produces a large impact area • Requires a small development to evaluate a relatively large impact area • Does not consider the roadway capacity consumed
4	5% Development ADT	• Easy to determine traffic impact area	• Produces small impact area • Does not consider the roadway capacity consumed
5	10% Roadway ADT in Urban Areas or 20% Roadway ADT in Rural Areas	• Considers the portion of development daily trips relative to roadway ADT • Relatively easy to determine traffic impact area	• Does not consider the roadway capacity consumed
6	Maximum Radius of Development's Area of Influence based on Net Daily Trip Generation	• Considers area-wide traffic impacts; more of a system perspective • Relatively easy to determine traffic impact area and intersections for review	• May ignore large corridor trips outside the area of influence • May produce large impact area • May require a large traffic impact study depending on the specified maximum radius

MODEL TRAFFIC IMPACT AREA CRITERIA

The detailed discussion of traffic impact area approaches provides some insight into the relative effectiveness of various approaches. Using this information, the following model is suggested as an effective approach for defining traffic impact area:

1. include each directly impacted collector or arterial (either directly or via a network of local or private streets) and intersections, both signalized and unsignalized, at each end;
2. include each segment where the PM peak hour project trips on the segment are greater than or equal to 3% of the LOS C capacity of the segment during the peak hour or if project trips on the segment are greater than or equal to 75 vehicles in the peak hour;
3. include each segment operating at more than 90% of the adopted LOS maximum service volume where the PM peak hour project trips are greater than or equal to 1% of the LOS C capacity of the segment during the peak hour or if project trips on the segment are greater than or equal to 25 vehicles in the peak hour; and
4. include all segments subject to these parameters regardless of jurisdiction.

There are several reasons to apply this approach. The study area parameters are comprehensive, in that they include all major roadways (freeways, arterials, and collectors) regardless of agency jurisdiction. Impacts to the Florida Strategic Intermodal System (SIS) should be noted as these are of particular interest to the Florida Department of Transportation. The PM peak hour is selected as this is when traffic congestion is most likely to occur. Of course, at a minimum the impact area would need to include the directly impacted segments, as noted in item (1). The parameters are also designed to highlight segments that would be impacted by a higher number of trips, regardless of the percent of capacity consumed. Finally, they are somewhat more conservative on already congested roadways.

In today's environment of rapid growth and rising transportation improvement costs, careful evaluation of traffic impacts is becoming increasingly important. The 5% of LOS C capacity or 5% of adopted LOS (C, D, or E) capacity commonly used in the past for determining traffic impact area, overlooks many impacts that may be significant. For example, the 2007 Generalized Q/LOS Table from FDOT shows that 5% of LOS C capacity can range from 25 vehicles/hour (Class III, 2-lane undivided state roadway segment) to 340 vehicles/hour (Class I, 8-lane divided state roadway segment in urban area). The ranges for LOS D and E will be even greater.

A Class II (2 to 4.5 signalized intersections per mile), 4-lane divided roadway segment represents a typical roadway segment in Florida. The 5% of LOS C capacity for a Class II, 4-lane divided roadway segment is about 125 vehicles/hour. With this traffic impact area criteria, a development could add up to 125 more vehicles per hour to a segment with no further evaluation required. Using 3% of LOS C capacity for this same segment, the minimum threshold value is about 75 vehicles/hour. This is a more reasonable threshold for concurrency evaluations. Using this same logic, the value of 75 can be treated as the maximum threshold value whereby development trips on a roadway segment may be allowed without further analysis.

For a segment operating near its adopted LOS maximum service volume, even closer examination of the roadway segment is necessary to avoid overloading the system. The proposed criteria would include each segment operating at more than 90% of the adopted LOS maximum service volume where the PM peak hour project trips are greater than or equal to 1% of the LOS C capacity of the segment; or if project trips on the segment are greater than or equal to 25 vehicles in the peak hour. (Note: The threshold value of 3% LOS C capacity is 75 vehicles in the peak hour, so 1% of LOS C capacity is 25 vehicles in the peak hour.)

ANALYZING LEVEL OF SERVICE

PRACTICE TIP
Establish a procedure for analyzing level of service for segments and intersections.

The analysis procedures of transportation impact studies are similar among the local governments evaluated for this guide. Most require analysis of both roadway segments and associated intersections within the traffic impact area, the only difference being that some have specific criteria to determine which intersections require detailed analysis. Most also determine transportation concurrency based on the LOS of each roadway segment within the traffic impact area under the "existing plus vested plus project traffic" scenario. Highway Capacity Software (HCS), SYNCHRO and ART-PLAN are commonly used for transportation impact analysis.

Based on a review of current practices and ITE guidelines on transportation impact analysis for site development, the following procedure is provided to help guide the analysis for transportation impact studies. The first step is to determine the boundaries of the traffic impact area. The previous section provides criteria for this task.

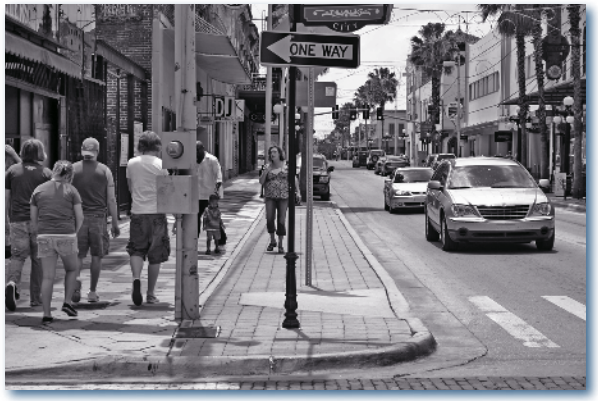
The second step is to conduct an initial LOS review of all roadway segments within the traffic impact area based on the local government concurrency management tracking system (via a spreadsheet, computer program, or generalized LOS table) to determine if capacity is available for the proposed development trips. If the segment's maximum adopted service volume will be exceeded or potentially be exceeded by adding the project trips to the existing plus background traffic volume, a segment analysis must be conducted.

For concurrency purposes, the existing volume typically means the peak hour volume during peak season. The background traffic volume includes previously approved development trips and any additional growth in traffic volume typically experienced in the area beyond the approved trips. For any deficient or constrained facility within the traffic impact area, a detailed analysis must be provided. Strategies must be in place to bring any deficient facility back to its adopted LOS standard.

The third step of the analysis procedure is to determine which signalized intersections must be analyzed—either based on the need to support the link analysis or specific local warrants for signalized intersection analysis within the traffic impact area. Because the segment LOS is highly dependent on the signalized intersection analysis, this analysis should be required for the intersections at both ends of the impacted link. Some local governments, such as Hillsborough County, require intersection reviews for specific intersections based on local criteria in the concurrency management system.

The fourth step is to perform a detailed analysis using HCS intersection analysis for the intersections at each end of the road segment and HCS arterial roadway analysis for the roadway segment. Pursuant to local government approval, other software, such as SYNCHRO and TRANPLAN, may also be used to perform intersection and roadway segment analysis. At least two scenarios should be analyzed for a development under consideration: (1) existing plus vested traffic conditions; and, (2) existing plus vested plus project traffic conditions. Depending upon local policy, the capacity from committed roadway and/or intersection improvements could also be considered in the detailed analysis.

The fifth step is to determine whether transportation concurrency can be met for each roadway segment, and intersection LOS standards can be met for each intersection. This step also includes the identification of any improvement required for the proposed development to meet transporta-



tion concurrency. From the transportation impact study, transportation concurrency can be determined by comparing each segment LOS from the analysis to its adopted segment LOS within the traffic impact area. Any required improvements and implementation strategy can also be identified through the transportation impact study.

This suggested analysis procedure can be modified by local governments as necessary to meet local needs. It is essential to conduct an adequate transportation impact study for a proposed development to ensure that the trips generated from a proposed development do not exceed the roadway capacity at the adopted LOS standard.

ADDRESSING MULTIMODAL NEEDS

PRACTICE TIP
Broaden the transportation impact study methodology to address multimodal needs and mitigation.

The majority of transportation impact study methodologies remain focused on the impact of automobile trips on the road network. The next logical step in advancing these methodologies is the inclusion of requirements to address multimodal needs and impacts. The City of Rockville, Maryland has done just that by enacting a Comprehensive Transportation Review (CTR) Methodology in September 2004 to evaluate the impacts of new development on the transportation system. This methodology, part of the City's concurrency management process, requires applicants to analyze site access and circulation, as well as impacts on pedestrian, bicycle, and transit facilities, in addition to the impact of automobile trips.

The transportation issues facing Rockville are comparable to those of many Florida communities. Rockville is located in the Washington D.C. metropolitan area and is characterized by lower density suburban style development. Given the regional context, the city experiences a significant amount of through traffic on its major thoroughfares. The transportation plan describes the city as follows:

> "The suburban nature of many areas in Rockville makes people dependent on the automobile. Residential neighborhoods are separated from commercial areas. Cul-de-sacs and dead end streets divide uses that are physically proximate. Some neighborhoods have no sidewalk or walkway system. There is competition between the automobile and pedestrians at intersections. All of these factors force many residents to disregard walking as a viable means of transportation."

As a result, Rockville is moving away from mitigation measures related primarily to providing additional roadway capacity through physical improvements and is encouraging mitigation for alternative modes (e.g., ridesharing programs, shuttles to transit stations, installation of pedestrian and bicycle facilities, etc.). Applicants may be obligated to contribute toward the improvement of offsite transportation and safety facilities to help address identified safety hazards for all modes.

Of particular interest is the city's methodology for determining mitigation for alternative modes and corresponding "trip" credits. Under this methodology, developments that generate 30 or more total peak hour site trips must conduct an off-site analysis for all transportation modes, as they are deemed to have a measurable traffic impact (see Table 11). Smaller developments must evaluate on-site multimodal access and circulation needs.

Off-site analyses include an assessment of major intersections that are impacted by the development and non-auto facilities that lead to the development. The goal of the off-site analyses is to "ensure that the site can be accessed safely and efficiently through various modes and that adequate transportation facilities are in place to support the subject development without detriment to the overall transportation system." Below is a summary of components of the Comprehensive Transportation Review:

- Component A—Introduction and Existing Conditions: Project description.
- Component B—Site Access & Circulation: Analysis of internal circulation, entrance configurations, vehicular access and other relevant access and on-site features; the Proposed Site

Access and Circulation Transportation Statement; and the Proposed Conditions Site Plan.

- Component C—Automobile Traffic Analysis (Off-Site): Analysis of auto traffic using the technical guidelines for traffic analysis in the traffic study area.
- Component D—Non-Auto Off-Site Analysis: Analysis of access to the development from activity centers via alternative modes of transportation using the guidelines for creating an inventory of pedestrian, bicycle, and transit facilities in the non-auto study area and for analyzing intersection safety ratings for these modes of transportation.
- Component E—Summary, Mitigation, and Credits: Summary of the report findings and impacts; recommended mitigation plans.

The Rockville procedures for on- and off-site analysis provide insight into how to evaluate multimodal needs for the purpose of determining appropriate improvements. A sample of this approach is integrated into the methodology on pages 85-86.

MITIGATION AND PROPORTIONATE FAIR SHARE

The final step in the concurrency evaluation is to determine what level of mitigation will be required. The analysis of transportation impacts will have uncovered deficiencies and identified potential improvement options. If previously unidentified transportation system improvements are needed as a result of the roadway or multi-modal analyses, the local government and the applicant must agree on whose responsibility it is to construct or implement the improvements. An applicant should prepare a mitigation report including what improvements are proposed, how the improvements will maintain adequate level of service, who will design and construct or implement the improvements, total project costs including right-of-way and construction, and a schedule for completing the improvement.

Florida's growth management legislation requires use of the following formula for determining each applicant's proportionate fair share mitigation:

> The cumulative number of trips from the proposed development expected to reach roadways during peak hours from the complete buildout 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.

$$\frac{\text{Cumulative number of trips}}{\text{Change in peak hour MSV}} \times \text{Construction Cost} = \text{Proportionate Share}$$

Table 11: Components Required Per Peak Hour Trips

Total Peak Hour Site Trips*	Required TR Components
Less than 30	Component A - Introduction Component B - Site Access and Circulation Component E - Summary, Mitigation and Credits
30 or more	All Components Required

Source: Comprehensive Transportation Review Methodology, Rockville, Maryland

Developers may contribute toward one or more specific transportation improvements (addressing one or more modes of travel) that are reasonably related to the mobility demands created by the development. Proposed mitigation of project impacts on the SIS or TRIP-funded facilities requires the concurrence of FDOT.

Many potential mitigation strategies can be considered for the required improvements. Based on the FDOT *Site Impact Handbook*, examples of mitigation measures include:

- construction of new facilities;
- addition of general-use lanes;
- implementing transportation system management strategies;
- access management strategies;
- enhancement for the use of high occupancy vehicle (HOV) facilities and transit;
- public transit improvements;
- implementing travel demand management strategies; and
- site plan or land use changes.

All proposed mitigation of impacts to the transportation system must be financially feasible and adopted into the capital improvement element of the local government comprehensive plan. It is important for local governments to plan for the 5- and 10-year horizon and to focus infrastructure and revenue where growth is occurring or is planned. In addition, as emphasized by the 2007 legislature, new development should not be burdened with the additional cost of reducing or eliminating backlogs. Adhering to the methodology in the FDOT proportionate fair share model ordinance, which calculates proportionate fair share mitigation for only those development trips that would trigger a concurrency deficiency, is one way to ensure that the mitigation is consistent with legislative intent.

The sample applications in this chapter and Chapter 5 provide a detailed look at the proportionate fair share methodology. After the applicant's proportionate fair share contribution is determined, agencies may use a variety of approaches in applying that contribution toward mitigating transportation impacts. Some examples of proportionate fair share mitigation in action are provided in the inset on pages 66-67.

Another effective approach to determining mitigation, particularly on the Strategic Intermodal System, is by developing a corridor management plan in coordination with FDOT. Such a plan should include a connected system of parallel and intersecting streets along controlled access highways on the Strategic Intermodal System, as well as interchange area access management plans for the limited access highway system. The resulting corridor management plans should set forth a list of improvements that are needed to achieve mobility along the corridor. This list of improvements can then be used to determine cost for proportionate fair share mitigation and to guide other developer contributions.

Mitigation for Concurrency Alternatives

The methodology established in statute to determine an applicant's proportionate fair share does not address mitigation in areas with established concurrency alternatives (e.g., transportation concurrency exception areas, transportation concurrency management areas, or multimodal transportation districts). A sample proportionate fair share methodology for areas designated as concurrency alternatives is provided below:

[*Name or Type of Area*] Proportionate Fair Share Assessments

A. Within [*Name or Type of Area*] proportionate fair share assessments shall be based on the expected costs and transportation benefits of all the required multi-modal improvements within the [*Name or Type of Area*].

B. The proportionate fair share assessment shall be based on the percentage of proposed development trips divided by the total number of trips projected for the [*District/Area*] times the cost to provide all needed mobility improvements.

Proportionate Fair Share =
[(Total Development Trips) / (Total [*Name or Type of Area*]] x Cost

Where

Development Trips = The total number of development trips, minus the percentage of pass-by, internal capture, and multi-modal trips;

Total [*Name or Type of Area*] Trips = The total number of projected trips for the [*Name or Type of Area*] based upon a reasonable build-out analysis, minus the percentage of pass-by, inter-

nal capture, and multimodal trips established for the [*Name or Type of Area*];

Cost = Adjusted cost of the needed mobility improvements within the [*District/Area*].

Mobility improvements shall include all roadway, bicycle, pedestrian, and transit improvements needed to ensure mobility. Cost shall include all improvements and associated costs, such as design, right-of-way acquisition, planning, engineering, inspection, stormwater facilities, turn lanes, traffic control devices, bicycle, pedestrian, and transit facilities, and physical development costs directly associated with construction at the anticipated cost in the year it will be incurred.

PROPORTIONATE FAIR SHARE IN ACTION

US 301—Proactive Developer Partnerships

US 301, which serves Sun City and Gibsonton in Hillsborough County, is congested due to substantial growth in those communities. Although much of the area between those communities is zoned for development, a substandard Level of Service (LOS) threatened to delay new construction for years, as only the design phase for widening of US 301 was funded, and not until FY 2008-09.

A coalition of nine property owners along the corridor proposed contributing funds and land for the design, permitting and construction of widening US 301 to meet concurrency requirements and entered into a development agreement with Hillsborough County in early 2005. The property owners agreed to donate all land needed for right-of-way (ROW), and contribute $34 million towards construction. The County leveraged these contributions to obtain $4.9 million in County Incentive Grant Program funds and $28 million in Transportation Regional Incentive Program funds from the State. The County also entered into a separate locally-funded agreement with FDOT to advance $5.7 million for design of the project into FY 2004-05. FDOT will repay the $5.7 million in FY 2008-09. These arrangements enabled FDOT to construct the $93 million project in FY 2006-07.

Benefits to the developers include vesting of their development rights with concurrency approvals and increased value of their property due to the transportation facility improvements and their vested status. Further, their contributions were based on 2005 construction cost estimates, providing a hedge against inflation. Although this effort was underway before Florida's proportionate fair share requirements were enacted in 2005, it is nonetheless an example of how proportionate fair share can help local governments maintain concurrency, meet community economic development objectives, and mitigate impacts to the Strategic Intermodal System (SIS).

SR 82—Interlocal and Regional Cooperation

SR 82 near I-75 serves some of the fastest growing areas of Fort Myers and Lee County and is designated an Emerging Strategic Intermodal System facility. The County's concurrency management system ranks the LOS as failing (F). Although an outdated Project Development and Environment (PD&E) study done years ago had indicated the need for widening the road to four lanes, a recent update, advanced by the City of Fort Myers as part of the design phase, determined that six lanes were needed. Until recently, the SR 82 corridor was not listed as a regional priority and no funding was programmed for major improvements. Citizen complaints about the road congestion and safety were on the rise and there seemed to be little hope for funding the $60 million construction project to widen SR 82 to six lanes between Ortiz Avenue and Lee Boulevard.

Using proportionate fair share as an impetus, the City of Fort Myers worked closely with three property owners, Lee County, the Lee County Metropolitan Planning Organization and FDOT to craft an agreement. Property owners are contributing land for ROW and $15 million, the City will contribute $10 million which may include funds from the County and the Lee County Metropolitan Planning Organization will prioritize and commit $15 million in future federal Urban Area (XU) funds. FDOT will program $10 million in TRIP funds and $10 million in SIS/Growth Management funds.

Because the XU funds will not be available until FY 2012-13 through FY 2014-15, FDOT will execute a State Infrastructure Bank loan for $15 million which will be paid back by the Metropolitan Planning Organization. Proportionate fair share and significant regional commitment to the project will enable construction of the project to begin in FY 2008-09. The City of Fort Myers will be responsible for construction of the project.

City of Tallahassee/Leon County—Pipelining Proportionate Fair Share Funds

Numerous arterial roads and State Highway System segments throughout Leon County are experiencing failing LOS. To address concurrency requirements, the local governments have jointly proposed a "Significant Benefit" improvement project for each of 5 zones within the County. Proportionate fair share funds are to be directed toward the significant benefit project with each zone based on the location of the impacted roadway segment. Each project is anticipated to substantially improve mobility within the designated zone. The significant benefit project could be a major road capacity project, or involve an alternate efficiency project such as transit, a parallel corridor, or diverting existing traffic away from a backlogged intersection to spread capacity onto under-used facilities off the state highway system.

The central zone is proposed as a future multi-modal district. Therefore, the "Significant Benefit" project for this zone has been designated to be transit, bike and pedestrian improvements. For the other zones, it is proposed that a large percentage of the collected funds will be pipelined to the designated "Significant Benefit" road improvement project within the zone. A smaller percentage will be applied to transit, bike and pedestrian improvement projects within the zone.

Currently, Tallahassee/Leon County does not collect impact fees on new development. It is anticipated that the proposed Proportionate Fair Share program will provide a new source of revenue for funding transportation infrastructure needs. At this time, the City/County governments are working with FDOT to reach consensus on the implementation of this proposal and the specific road improvements that are designated as "Significant Benefit" projects. Note that this proposal would apply only when there are no capacity projects in the CIP that would directly rectify the capacity deficiency of an impacted roadway segment. For impacts to road segments that do have a mitigation project in the CIP, proportionate share funds will be directed toward that project.

City of Gainesville—ITS Option for Smaller Developments

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.

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.

Source: Florida Department of Transportation, Office of Policy Planning, 2007

ATTACHMENT

SAMPLE APPLICATION

Following is a step-by-step example of how to perform two different levels of analysis in a transportation impact study for concurrency determinations. The example is accompanied by illustrations and tables that provide guidance on:

1. defining the traffic impact area using the example methodology;
2. performing the first level of analysis for initial assessment; and
3. performing the second level of analysis to determine final transportation concurrency and to identify locations requiring improvement based on the links identified in the first level of analysis.

The Hypothetical Development

The hypothetical development in Figure 14 is assumed to generate 200 net PM peak hour trips. It is located on the south side of link 2-3, with an access point at link 2-3. The adopted link level of service (LOS) standards for both roadway segments and intersections in the hypothetical jurisdiction are D. Links 1-2, 2-3, 1-4, 2-5, 3-6, 4-5, and 5-6 are roadway segments examined in this example. For each link, the existing traffic volume represented by the design hourly volume (DHV), vested or background traffic (approved trips not yet on the roadways), adopted maximum service volume (MSV), and maximum service volume for LOS C (LOS C capacity) are in Figure 14 and Table 12.

Defining the Traffic Impact Area

Using the sample methodology provided in this guide, the threshold value for determining traffic impact is the minimum value of three percent of LOS C capacity or 75 trips. If the roadway segment is operating at or above 90% capacity of the adopted maximum service volume, the threshold value for determining traffic impact is the minimum value of one percent of LOS C capacity or 25 trips.

The traffic impact area may be determined as follows:

1. compute the percentage of existing traffic to adopted maximum service volume;
2. determine trip distribution/assignment based on adopted methods in the jurisdiction, either through manual methods or models (e.g. FSUTMS, Cube Voyager); and
3. compare the values of distributed trips on roadway segments against the threshold values for traffic impact.

Based on the hypothetical traffic assignments for this development, the traffic impact area for this example includes links 1-2, 2-3, and 2-5 as shown in Table 12.

First Level of Analysis

The first level of analysis provides an initial check of which impacted links meet transportation concurrency based on the adopted generalized LOS analysis, and which links require further detailed intersection and link analysis. In this example, links 1-2, 2-3, and 2-5 are examined by comparing the total traffic (existing plus vested plus project trips) to the adopted maximum service volume. If the value of the total traffic of the impacted link is greater than or equal to the agency's analysis threshold, in this case 90% of the adopted maximum service volume, then a detailed intersection and link analysis is required.

The specific steps for the first level of analysis are as follows:

1. compute the total trips of each impacted link by summarizing existing traffic, vested trips and assigned project trips on the link;
2. compare the total trips on each impacted link with the defined threshold (90% of the adopted maximum service volume, or as otherwise defined in local policy); and
3. determine which links require a second level of analysis (detailed analysis). If the number of total trips on the impacted link is greater than or equal to the specified threshold value in step 2.

Based on the comparison of total trips of links 1-2, 2-3, and 2-5 against the 90% adopted maximum service volume, links 2-3 and 2-5 require the second level of analysis.

Second Level of Analysis

The second level of analysis provides a more detailed picture of which links and intersections require improvement to meet transportation concurrency requirements. This analysis compares the intersection LOS and link LOS under the total traffic condition with adopted LOS standards. Intersection analysis at both ends of an identified link is also required. The specific steps are follows:

1. identify links requiring detailed analysis and the intersections to be evaluated at each end of the identified links;
2. perform intersection LOS analysis and arterial LOS analysis using Highway Capacity Software (HCS) or other approved software;
3. analyze the existing condition, existing plus vested traffic condition, existing plus vested plus project traffic (total traffic) condition;
4. compare the result of the intersection LOS under the total traffic condition to the adopted intersection LOS to determine transportation concurrency and required improvements, if any; and
5. compare the result of the link LOS under total traffic conditions to the adopted link LOS, to determine transportation concurrency, and whether improvements are required.

Links 2-3 and 2-5 and associated intersections 2, 3, and 5 each require detailed analysis. These indicate that improvements are required at intersection 2 and at links 2-3 and 2-5. Although only intersection 2 fails the intersection analysis, intersections 3 and 5 may also potentially require improvement to ensure that the LOS for links 2-3 and 2-5 is maintained for transportation concurrency. In other words, the link LOS can be improved through the improvement of the intersections at both ends.

The detailed information and analysis of this sample is summarized in Figure 14 and Table 12.

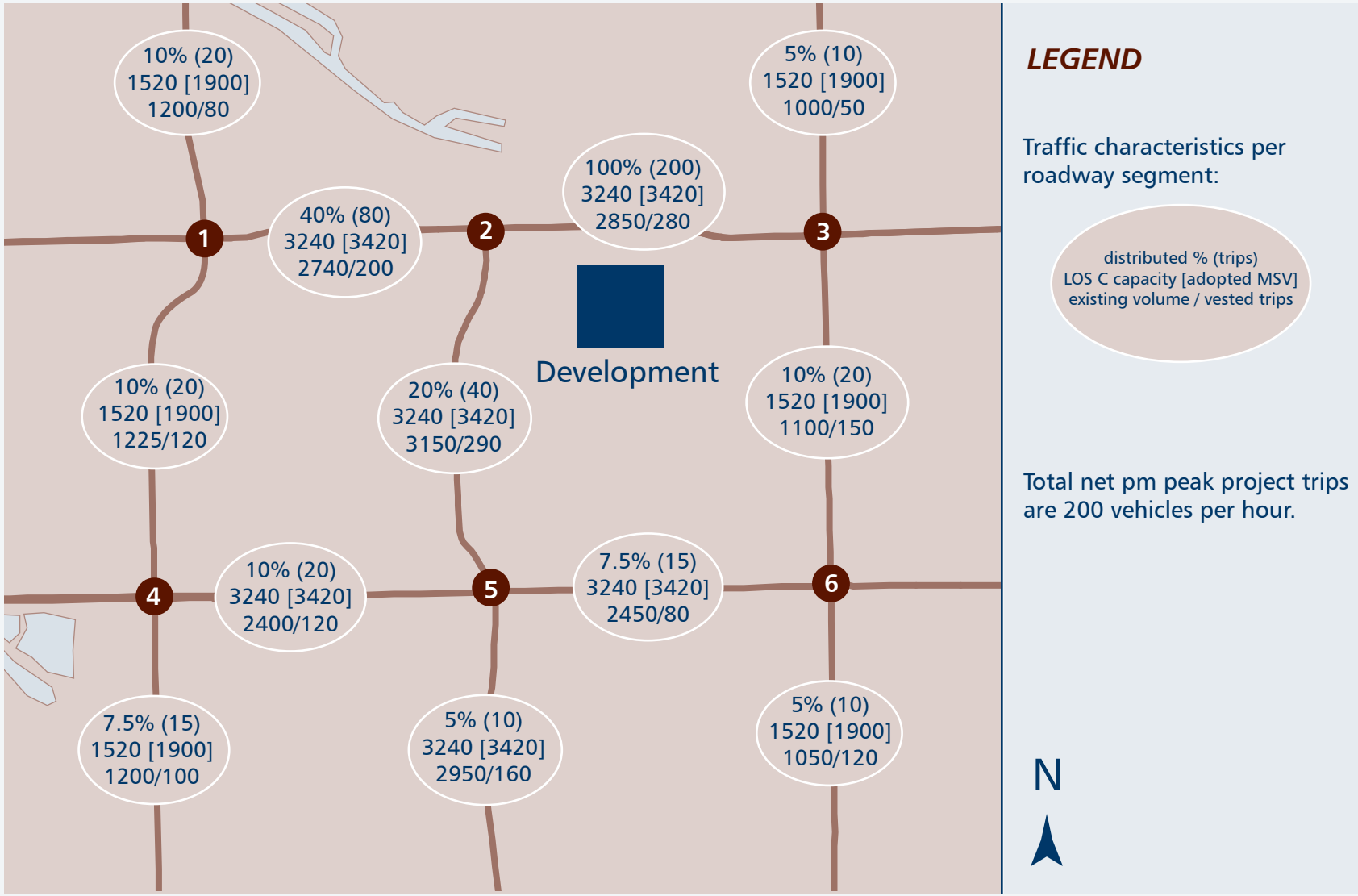
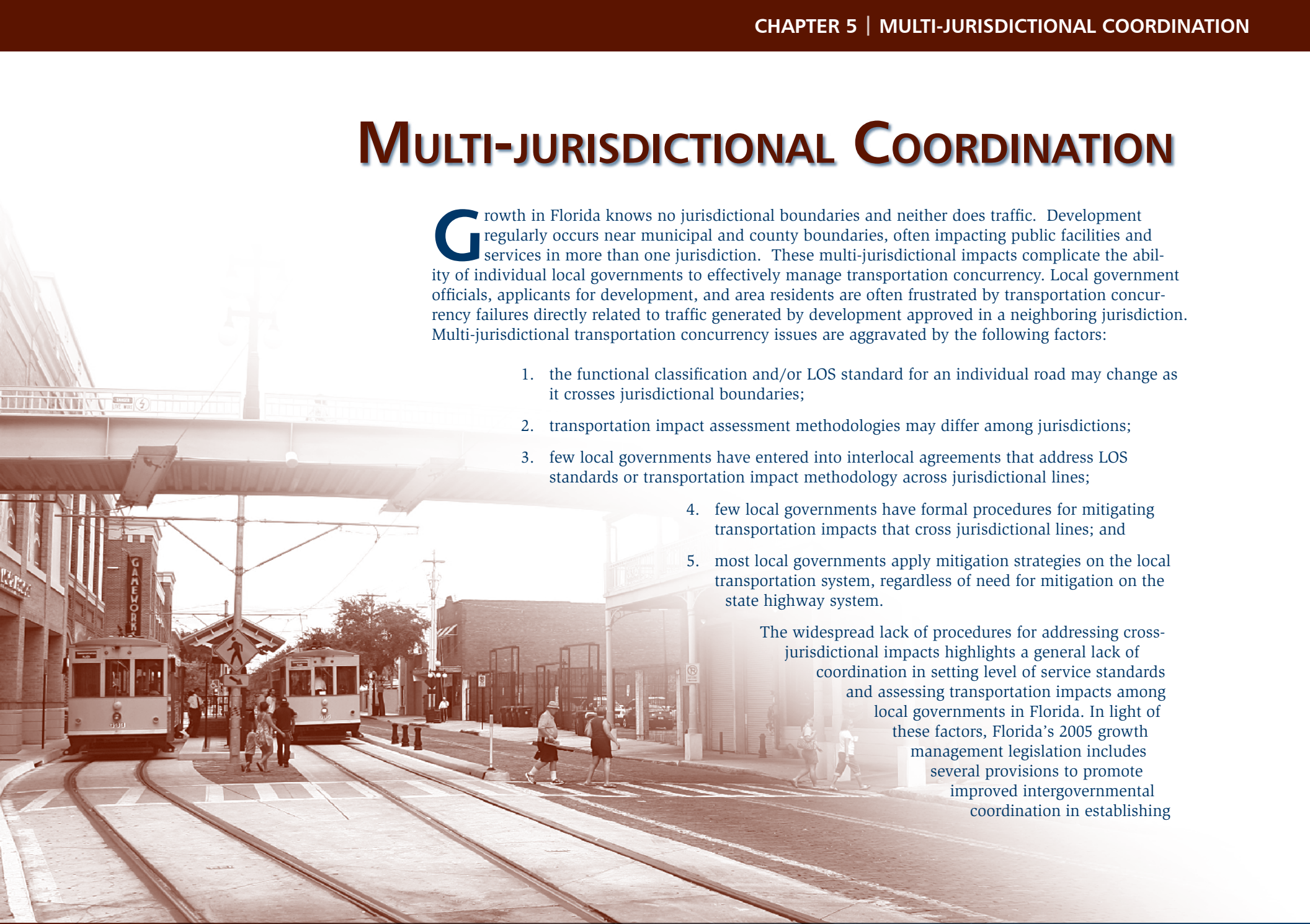


Figure 14: Determining Traffic Impact Areas

Table 12: Determination of Traffic Impact Area

	Roadway Segments						
	1 - 2	2 - 3	1 - 4	2 - 5	3 - 6	4 - 5	5 - 6
Determination of Traffic Impact Area							Adopted roadway segment LOS is D
Existing Traffic (DHV)	2740	2850	1225	3150	1100	2400	2450
Adopted MSV	3420	3420	1900	3420	1900	3420	3420
Percent of adopted MSV	80%	83%	64%	92%	58%	70%	72%
Vested (or background) Traffic	200	280	120	290	150	120	80
Project Trips on the segment	80	200	20	40	20	20	15
LOS C Capacity	3240	3240	1520	3240	1520	3240	3240
Min (3% LOS C Capacity, 75)	75	75	46	75	46	75	75
Min (1% LOS C Capacity, 25)	25	25	15	25	15	25	25
Significantly Impacted?	Yes	Yes	No	Yes	No	No	No
Note	80>75	200>75		40>25			
First Level of Analysis (Initial Analysis)							
Existing Traffic (DHV)	2740	2850		3150			
Vested (or background) Traffic	200	280		290			
Project Traffic	80	200		40			
Existing + Vested + Project	3020	3330		3480			
Adopted MSV	3420	3420		3420			
Detailed Analysis?	No	Yes		Yes			
Note		>90% MSV		>90%MSV	(based on a local policy)		
Second Level of Analysis (Detailed Analysis)							Adopted intersection LOS is D
Link Analysis							
LOS for Existing		C		C	Improvement is required at Segment 2-3		
LOS for Existing + Vested		D		C	and Segment 2-5. Potential improvement		
LOS for Existing + Vested + Project		E		E	is required at Intersections 2, 3, and 5.		
	Intersection Name						
Intersection Analysis	2	3		5			
LOS for Existing	C	C		C			
LOS for Existing + Vested	D	D		C			
LOS for Existing + Vested + Project	E	D		D	Improvement is required at intersection 2.		

Multi-jurisdictional Coordination



Growth in Florida knows no jurisdictional boundaries and neither does traffic. Development regularly occurs near municipal and county boundaries, often impacting public facilities and services in more than one jurisdiction. These multi-jurisdictional impacts complicate the ability of individual local governments to effectively manage transportation concurrency. Local government officials, applicants for development, and area residents are often frustrated by transportation concurrency failures directly related to traffic generated by development approved in a neighboring jurisdiction. Multi-jurisdictional transportation concurrency issues are aggravated by the following factors:

1. the functional classification and/or LOS standard for an individual road may change as it crosses jurisdictional boundaries;
2. transportation impact assessment methodologies may differ among jurisdictions;
3. few local governments have entered into interlocal agreements that address LOS standards or transportation impact methodology across jurisdictional lines;
4. few local governments have formal procedures for mitigating transportation impacts that cross jurisdictional lines; and
5. most local governments apply mitigation strategies on the local transportation system, regardless of need for mitigation on the state highway system.

The widespread lack of procedures for addressing cross-jurisdictional impacts highlights a general lack of coordination in setting level of service standards and assessing transportation impacts among local governments in Florida. In light of these factors, Florida's 2005 growth management legislation includes several provisions to promote improved intergovernmental coordination in establishing

LOS standards for major roadways, and in evaluating and mitigating transportation impacts that are anticipated to cross jurisdictional boundaries.

This chapter provides the following guidance to local governments on accomplishing those goals:

- a process and methodology that local governments can use for evaluating and mitigating cross-jurisdictional impacts, including impacts of major developments that qualify for an exemption from the development of regional impact review process (Attachment 1);
- a model interlocal agreement for multi-jurisdictional coordination in concurrency management (Attachment 2);
- a model interlocal agreement for addressing development of regional impact exemptions (Attachment 3); and
- a sample application illustrating the process and methodology for evaluating and mitigating cross-jurisdictional impacts (Attachment 4).

STATUTORY REQUIREMENTS

Roadway LOS standards vary by local government and Florida statutes do not mandate the use of a specific methodology or specific LOS standards for state or locally maintained roadways, except for those roadways on the Strategic Intermodal System (SIS), the Florida Intrastate Highway System (FIHS), and roadway facilities funded under the Transportation Regional Incentive Program (TRIP). Local governments are, however, required to establish "adequate" LOS standards for arterial or collector roadways that traverse multiple jurisdictions and in doing so to "consider compatibility" with the roadway facility's adopted level of service standards in adjacent jurisdictions.

This "good neighbor" provision in the 2005 growth management legislation further encourages counties sharing borders and local governments within counties to coordinate on a common methodology for measuring transportation impacts for the purposes of concurrency management. The legislation applies to county-county boundaries, county-city boundaries, and city-city boundaries.

Evaluation and Appraisal Reports (EARs) required by s. 163.3191, Florida Statutes, are the principal process for monitoring the effectiveness of local government comprehensive plans. The 2005 growth management legislation added the following requirement for Evaluation and Appraisal Reports,

> "F.S. 163.3191(p) 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 F.S. 163.3180(10)."

As a result, local governments are beginning to address this issue in the preparation of their Evaluation and Appraisal Reports.

FLORIDA'S GOOD NEIGHBOR LEGISLATION

"In establishing adequate level-of-service standards for any arterial roads, or collector roads as appropriate, which traverse multiple jurisdictions, local governments shall consider compatibility with the roadway facility's adopted level-of-service standards in adjacent jurisdictions. Each local government within a county shall use a professionally accepted methodology for measuring impacts on transportation facilities for the purposes of implementing its concurrency management system. Counties are encouraged to coordinate with adjacent counties, and local governments within a county are encouraged to coordinate, for the purpose of using common methodologies for measuring impacts on transportation facilities for the purpose of implementing their concurrency management systems. (s.163.3180(10), Florida Statutes)"

Another provision related to multi-jurisdictional coordination in concurrency management is s. 380.06(24), Florida Statutes, which established criteria whereby a proposed development within designated urban service boundary areas, rural land stewardship areas, or urban infill and redevelopment areas that meets development of regional impact (DRI) thresholds may be exempted from undergoing the DRI review process. These exemptions may be provided only where the local government having jurisdiction has also followed the steps established by the statute:

1. Establish one or more of the areas in accordance with the applicable Florida Statutes:
   - urban service boundary area (s. 163.3177(14), F.S.);
   - rural land stewardship area (s. 163.3177 (11)(d), F.S.); and/or
   - urban infill and redevelopment areas (s. 163.2517, F.S.);
2. Enter into a binding agreement regarding the mitigation of impacts on state and regional transportation facilities with adjacent jurisdictions and the Florida Department of Transportation (FDOT); and
3. Adopt a proportionate fair share methodology in accordance with s. 163.3180(16), Florida Statutes (see also Chapter 4).

DRIs are large-scale developments that, by definition, impact the transportation system within the permitting jurisdiction and adjacent jurisdictions. Therefore, applicants for DRI exemptions should analyze and, more importantly, mitigate the impact of the proposed development on the transportation system for concurrency purposes regardless of jurisdictional boundaries.

The statute further requires local governments to enter a binding agreement with their neighbors and FDOT. Such an agreement would likely contain a procedure for intergovernmental coordination, a transportation impact methodology for assessing impacts, and a method of mitigation. A sample traffic impact methodology and a model interlocal agreement for this purpose are provided in Attachments 1 and 3 of this chapter. Below are some additional considerations for each of these elements.

Figure 15: Development of Regional Impact Exemption

CURRENT STATE OF THE PRACTICE

A recent review of transportation concurrency best practices (CUTR 2006) revealed that few local governments have actively developed common LOS standards for roadways that cross jurisdictional boundaries, or common methods for assessing transportation impacts across jurisdictional boundaries (see Additional Resources). In addition, most local governments stop short of enacting a cooperative agreement or other formal administrative mechanism or process for such coordination.

Local government staff instead often use informal communication as a courtesy to adjacent local governments to convey information regarding a proposed development that is anticipated to have cross-jurisdictional impacts. Some local governments will invite the adjacent local government to participate in the transportation impact study (TIS) methodology meeting and, subsequently, to review the TIS and provide comments and recommendations. However, local governments are under no obligation to implement such recommendations and may not be inclined to do so if substantial road improvements are required of a developer.

THE NEED FOR INTERGOVERNMENTAL COORDINATION IN CONCURRENCY

The following excerpt from the Indian River County Comprehensive Plan clarifies the state of the practice in Florida and suggests future directions for specific coordination:

"Although the county has many written intergovernmental coordination agreements with municipalities and other entities, there are no formal agreements on planning related issues such as maintaining established level of service standards, addressing extra jurisdictional development impacts, providing up front coordination on land use amendments and rezonings, and establishing a dispute resolution process.

Formal intergovernmental coordination agreements could clearly identify issues, responsibilities, and important resources and facilities; define significant extra jurisdictional impacts; establish quantitative, qualitative, and locational criteria to measure significant impacts; develop measures to mitigate impacts; and establish a formal process to resolve disputes if an issue arises. There are advantages and disadvantages to having a formal intergovernmental coordination process.

It would be easier and less time consuming if each local government could approve all development projects, rezoning requests, and land use amendments within its jurisdiction without considering extra-jurisdictional impacts and without coordination with other jurisdictions…On the other hand, a formal intergovernmental coordination process which clearly defines what issues should be considered; which resources and facilities must be protected; which jurisdiction has the responsibility to notify others of development projects or land use amendment requests; which jurisdiction has review responsibility; and to what extent the comments must be addressed would be more beneficial.

It is inherent that this process will add to the time needed to review projects. Therefore, an efficient intergovernmental coordination process must define what is considered to be a significant impact and concentrate coordination efforts on those projects which create significant impacts, not all projects.

To complete the process, there is a need for an established way to resolve disputes. This would be a mechanism by which local governments can solve their differences. Due to anticipated future growth within the county, it would seem that issues and problems will become more complicated in nature. Therefore, there is a need for formal intergovernmental coordination agreements and procedures."

Source: Indian River County 2020 Comprehensive Plan, Chapter 11: Intergovernmental Coordination Element. Indian River County, Florida, 1998, p. 23.

There are several reasons for the ongoing lack of formal coordination on these matters including concerns regarding loss of local control over the timing and approval of development, variation in the capacity of local governments to plan for and fund needed transportation improvements, and intergovernmental competition for tax base in the development process. Despite such challenges, local governments are making an effort to improve coordination on transportation concurrency issues (see Bay County inset).

COORDINATING CONCURRENCY MANAGEMENT IN BAY COUNTY

Historically, some municipalities in Bay County have contacted the County if they are reviewing a proposed development that may impact a county road; however, in most cases, developments within municipalities are not required to mitigate county road impacts by the municipalities unless the developer seeks access to a county road. The FDOT access permitting office initiates meetings with the County regarding development projects in other local governments that may impact state or county roads within the county boundary.

To further strengthen coordination on these matters, the Bay County Transportation Planning Organization adopted Resolution 06-20 in March 2006 asking Bay County local governments to establish a formal Intergovernmental Coordination Committee for roadway concurrency management. The resolution was sent to each local government for review. The Technical Coordinating Committee (TCC) of the Transportation Planning Organization held a workshop in May 2006 at which time members agreed to work toward coordination. Staff from local governments met monthly to discuss options for the proposed draft interlocal agreement regarding transportation concurrency.

Options within the draft interlocal agreement include mitigation strategies, development review of projects for concurrency, LOS standards, and related items. The County has also agreed to maintain a concurrency management system on its website that displays transportation concurrency information provided from other municipalities wishing to participate in the interlocal agreement. After the adoption of the interlocal agreement, staff will continue to meet monthly to address any concerns and share any new information that might affect other municipalities.

ESTABLISHING COMPATIBLE LEVEL OF SERVICE STANDARDS

Establishing compatible LOS standards on arterial and collector roads that cross jurisdictional boundaries, as well as common LOS standards on roads that straddle jurisdictional boundaries, would further the state of the practice in roadway concurrency management. Below is a sample step-by-step process local governments can use to achieve these goals:

Step 1: Indicate intent

Local governments may indicate their intent to coordinate on these matters through a resolution or an objective in their comprehensive plan. Using a resolution, local governments may quickly establish their intent to engage in this process with adjacent local governments and provide direction for their staff. A model interlocal coordination agreement for concurrency management is provided in Attachment 2. Alternatively, local governments could incorporate the following policies into the appropriate sections of their comprehensive plan to serve this purpose:

(1) The [*City/County*] shall coordinate with [*identify the appropriate local government(s)*] in the establishment of compatible LOS standards and maximum service volumes (MSVs) on arterial and collector roads that cross jurisdictional boundaries in accordance with s. 163.3180(10), Florida Statutes, to the maximum extent feasible.

(2) The [*City/County*] shall coordinate with [*identify the appropriate local government(s)*] in the establishment of common LOS standards and maximum service volumes on arterial and collector roads that straddle or run along jurisdictional boundaries.

Step 2: Establish a list of applicable roads

Each local government should prepare a list of applicable arterial and collector roads that fall within the following parameters:

(1) non-SIS, non-FIHS, and non-TRIP-funded;

(2) traverses or crosses through more than one jurisdiction or straddles or travels along a jurisdictional boundary; and

(3) subject to concurrency (i.e., included in the network tracked for concurrency in the local government concurrency management system).

Include the following variables for each road by segment, if appropriate:

(1) Facility name—the name of the road;

(2) From/To—the limits of the segment;

(3) Area type—urban, transitioning, or rural;

(4) Functional classification—according to Federal Highway Administration (FHWA) Functional Classification Guidelines.

Commentary: To avoid inconsistency across jurisdictions in definitions for arterial and collector roads, it is recommended that local governments adopt the definitions for functional classification found in the FHWA Functional Classification Guidelines and the FDOT supplement entitled, "FHWA Urban Boundary and Federal Functional Classification Handbook" (FHWA 1989);

(5) LOS standard and maximum service volume—the adopted LOS standard for that segment of road;

(6) FDOT recommended LOS standard and maximum service volume—the recommended LOS standard per the FDOT *2002 Q/LOS Handbook*; and

(7) Jurisdiction—the local government establishing the LOS standard for the segment.

Step 3: Meet with each adjacent local government

Local governments should then meet with adjacent local governments to review the list of facilities, identify potential incompatibilities, and justify or seek resolution of those incompatibilities.

Commentary: For the purposes of this process, compatibility may be defined as no more than one letter-grade of difference between the LOS standard and corresponding maximum service volume on a transpor-

tation facility that crosses a jurisdictional boundary. Local governments may also choose to include a representative of the applicable FDOT District in this meeting.

(1) Review the list to verify data.

(2) Identify facilities with incompatible LOS standards.

(3) Review and identify variables that may explain the differing LOS standard and resolve, if possible.

(4) If LOS standards are still incompatible, negotiate compatible LOS standards and maximum service volumes, including appropriate limits or end-points for the LOS standard.

Step 4: Adopt and implement revised level of service standards

(1) Each local government should incorporate the revised LOS standards into their comprehensive plan and concurrency management system.

(2) Local governments should enter into an interlocal agreement establishing the compatible LOS standards.

Commentary: An interlocal agreement between adjacent local governments is the recommended mechanism for establishing compatible LOS standards (Attachment 2).

Negotiations may lead local governments to defer to either a higher or lower standard in order to establish compatible LOS standards for all roads that cross jurisdictional boundaries. However, circumstances and local preferences may make it difficult to reach an agreement. For example, conflicts over growth often occur at the boundary of urban and non-urban counties, particularly where a non-urban county desires to accommodate growth pressures at the border of a major metropolitan county that is attempting to limit growth at its boundaries. Where agreement cannot be reached on an adequate and compatible LOS standard for such facilities, local governments should pursue a dispute resolution process as discussed later in this chapter.

MULTI-JURISDICTIONAL COORDINATION PROCESS

A formal process is needed for local governments to inform and coordinate with their neighbors regarding the impacts of a proposed development at or near another jurisdictions border, particularly DRI exemptions. The sample process below is one means of managing the cross-jurisdictional impacts of development on arterials and collectors. To employ this method, each participating local government would first enter into an interlocal agreement to establish a transportation impact methodology that addresses multi-jurisdictional impacts, and incorporate the methodology and review procedure into their respective land development regulations.

The host (permitting) local government would then use the review procedure in this section to determine whether a development would impact the transportation system across its jurisdictional boundary. If so, other impacted jurisdictions would be offered an opportunity to evaluate the transportation impact study (TIS) of the proposed development to determine if project trips would cause any roads to exceed their adopted LOS standards. Where the proposed development would cause such an impact to a neighboring local government's roadway, the host local government would require appropriate mitigation from the developer.

The sample review procedure is as follows:

(1) the developer is required to provide preliminary trip distribution to determine if impacts cross jurisdictional boundaries along with a standard methodology meeting form;

(2) the host local government schedules a joint methodology meeting among impacted jurisdictions, including FDOT, if applicable, and developers;

(3) the host local government documents the transportation impact methodology agreed upon during the meeting which will be binding upon the applicant who must then analyze transportation impacts in accordance with the agreed-upon methodology;

(4) the host local government coordinates the transportation impact study review process, including distribution of the TIS to, and receipt of comments and

COORDINATING WITH A TRANSPORTATION CONCURRENCY EXCEPTION AREA

One issue that may give rise to the need for specific intergovernmental coordination in concurrency management is where a County roadway borders a city's transportation concurrency exception area. To ensure appropriate coordination on mitigation in this situation, a city could enact a policy or procedure providing the County with the opportunity to review larger developments for concurrency mitigation.

For example, the City of Gainesville's Concurrency Management Element contains language about coordinating review of concurrency impacts within the City's TCEA with Alachua County. Specifically, Policy 1.8.1 states,

> "For developments generating more than 100 net, new trips within ¼ mile of a County-maintained road or the unincorporated area, or for any projects within the TCEA that generate more than 1,000 net, new trips, County staff will be forwarded any development plans and associated traffic studies. County staff shall have the opportunity to comment on the proposed development and its impacts on County-maintained roads or State-maintained roads and any standards proposed/required to be met under Policy 1.1.6 or 1.1.7. County staff may raise the trip threshold for review of plans at any time by informing the City of such change, in writing."

recommendations from, impacted jurisdictions. Each impacted jurisdiction is then provided an opportunity to review the transportation impact study and provide comments and recommendations within the timeframe established by the host local government;

(5) if mitigation is required, the host local government requires the developer to mitigate capacity deficiencies caused by the proposed development through the mechanism established in the interlocal agreement in coordination with other impacted local government(s) and FDOT (where applicable) such as a proportionate fair share agreement;

(6) if the subject application is subsequently approved by the host local government, the approval would include a condition that the applicant provides, prior to the issuance of any building permit covered by that application, evidence that the obligation to the adjacent local government has been satisfied.

Dispute Resolution

Another element in the process is a method to help local governments resolve potential differences that may impede effective intergovernmental coordination on transportation concurrency management. Florida Statute 186.509 requires Florida's regional planning councils (RPCs) to establish a process to reconcile differences on planning and growth management issues between local governments, regional agencies, and private interests.

Toward that end, each regional planning council has established a dispute resolution process in their Strategic Regional Policy Plan. This process or some variation thereof could provide an effective forum for coordinating LOS standards and impact assessment methodologies across local governments in a region—particularly in areas that are facing significant challenges regarding cross-jurisdictional transportation impacts and that have been unable to forge agreement on how best to coordinate their efforts.

A typical process may begin with a pre-initiation meeting to encourage involved parties to start thinking about possible areas of consensus. This is followed by an initiation letter from the regional planning council that requires a response within a set time period. A settlement meeting may be held within 30 days of initiation. During this process, a situation assessment is conducted by a neutral party. Other activities may also be conducted, such as informal negotiations, bringing in a neutral expert to assess the situation, mediation and so on. If consensus cannot be achieved, then the process may proceed to more formal mechanisms, such as a joint public meeting.

SAMPLE DISPUTE RESOLUTION PROCESS

A sample dispute resolution process, adapted from a proposed conflict resolution process for the West Central Florida Metropolitan Planning Organization Chair's Coordinating Committee, might proceed as follows:

(1) One party sends a letter to the regional planning council with copies to affected parties requesting the regional planning council to initiate the conflict resolution process. The letter should outline the problem (LOS standard incompatibility/transportation impact methodology/mitigation of cross-jurisdictional impacts) and the parties involved.

(2) The regional planning council convenes a pre-initiation meeting to encourage involved parties to start thinking about possible areas of consensus, followed by an initiation letter from the regional planning council requesting a settlement meeting to address the problem. The initiation letter requires local governments to respond within a set time period (i.e., 60 days).

(3) Once each local government decides whether and how to consider the issue, they respond to the initiation letter stating whether they are willing to proceed with the settlement phase and sharing their views on the dispute.

(4) The regional planning council will schedule a settlement meeting, where all parties will explain their interests and constraints, explore options, and seek a mutually acceptable agreement. If complete agreement is not reached, some or all parties may agree to additional settlement meetings or may go outside the regional planning council conflict resolution process and seek a situation assessment, mediation, an advisory decision, or an administrative or judicial determination.

ATTACHMENT I

SAMPLE MULTI-JURISDICTIONAL IMPACT ASSESSMENT METHODOLOGY

This methodology is provided as technical assistance for local governments that do not have specific analysis requirements for transportation impacts that cross jurisdictional boundaries within their plan, land development regulations (LDRs), ordinances, or interlocal agreements. Other methods may also be acceptable within the guidelines of professionally accepted practice, provided they are consistent with Florida statutes and rules. Note: This methodology may also be modified for use in standard local government concurrency management by removing references to cross -jurisdictional review.

A. Purpose and Intent

(1) The purpose of performing a multi-jurisdictional transportation impact assessment is to ensure that adequate transportation facilities are available to accommodate the transportation impacts of proposed development that cross jurisdictional boundaries through intergovernmental coordination and cooperation.

(2) These guidelines define the requirements, procedures, and methodology for the submission of a transportation impact assessment. They provide an equitable, consistent, and systematic means of determining the transportation impacts and mitigation requirements of proposed development regardless of jurisdictional boundaries.

B. Applicability

(1) This transportation impact methodology shall apply to any proposed development that is projected to have a 50 or more total PM peak hour trips that cross jurisdictional boundaries, as determined by the transportation study area in Section F.

C. Pre-application Meeting

(1) Applicants must provide a proposed transportation impact methodology to [*City/County*] 14 business days prior to the pre-application meeting.

(2) All applicants must attend a pre-application transportation methodology meeting with the [*City/County*] and potentially impacted jurisdictions prior to the preparation of the applicant's transportation impact study (TIS) to discuss detailed transportation impact study requirements as they apply to the development site, including:

a. traffic impact area;

b. trip generation, trip distribution, and mode share, including internal capture and pass-by rate;

c. appropriate software for detailed analysis;

d. traffic counts from existing and vested developments as well as background growth rates, if applicable;

e. project phases and build-out dates;

f. non-auto study area to analyze transit, pedestrian, and bicycle access and facilities, including activity center locations and access routes; and

g. number of copies to be submitted.

(3) Following the pre-application meeting, the applicant will prepare a revised transportation impact methodology including all details agreed upon during the pre-application meeting. The revised transportation impact methodology must be returned to the [*City/County*] within 10 days of the pre-application meeting. The [*City/County*] will distribute the revised methodology to the affected jurisdictions.

Commentary: The local government may choose to prepare a summary of the transportation impact methodology for distribution to pre-application meeting participants.

D. Trip Generation

(1) Determine trip generation, both daily and peak hour (as established

in the transportation impact methodology—AM, PM or peak hour of the generator), using data and procedures contained in the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation* (7th Edition or most current). The formulas provided in *Trip Generation* should be used to calculate the project trip generation with one exception—when the R^2 value (coefficient of determination) is less than 0.5, the average trip rate may be used. Identify land use codes.

(2) Local or special trip generation rates based on comparable sites may be used if a substantial sample size is used and complete documentation is furnished. Guidance can be found in the ITE *Trip Generation Handbook* (2nd Edition or most current).

(3) For redevelopment sites, trips currently generated by existing development may be deducted from total new site trips.

(4) Internal trip capture rates and pass-by trip rates for multi-use developments may be used according to the recommendations in the ITE *Trip Generation Handbook* or the FDOT *Site Impact Handbook* and are subject to review and approval by the [*city/county engineer or designee*]. FDOT TIPS software that replicates ITE calculations may also be used. Provide the input and output tables from the software if this method is used. Internal capture rates shall not exceed 25 percent of trip generation. Pass-by trips shall not exceed 10 percent of adjacent street volumes.

(5) Where regular transit service is available, mode split may be considered. Provide documentation regarding routes and schedules as well as applicable portions of the adopted transit development plan.

E. Trip Distribution and Assignment

(1) Distribution and assignment of new trips to the roadway system may be accomplished by using the MPO's Florida Standard Urban Transportation Model Structure (FSUTMS/CUBE), equivalent software, or manual methods (only allowable for less than 1,000 new daily trips). The transportation network required for distribution and assignment of project traffic are delineated in the [*City/County*] transportation concurrency management system(s).

F. Study Area

(1) Include all segments and intersections subject to the following parameters within the study area, regardless of jurisdiction:

a. each directly impacted collector or arterial (either directly or via a network of local or private streets) and intersections, both signalized and unsignalized, at each end;

b. each segment where the PM peak hour project trips on the segment are greater than or equal to 3% of the LOS C maximum service volume (MSV) of the segment or if project trips on the segment are greater than or equal to 75;

c. each segment operating at more than 90% of the adopted LOS maximum service volume where the PM peak hour project trips are greater or equal to 1% of the LOS C maximum service volume of the segment or if project trips on the segment are greater than or equal to 25; and

d. other segments, intersections, and interchange ramps as deemed necessary by the [*City/County*] and affected jurisdictions.

Commentary: See p.61 for additional details on these study area criteria.

(2) Any project trips entering a transportation concurrency exception area (TCEA), a transportation concurrency management area (TCMA), or a multimodal transportation district (MMTD) must be indicated.

G. Impact Analysis

(1) For all trip distribution methods used, provide daily and peak hour directional trip distribution diagrams illustrating the impacted roadway segments and intersections within the traffic impact area including existing traffic, background traffic (existing traffic plus vested traffic), project traffic, and total future traffic (background plus project).

Commentary: If vested traffic information is not available, the growth of background traffic may be based on historical trends.

(2) Provide a table illustrating the peak hour impact of project trips on roadway segments that includes:

a. segment number, name, and limits;

b. area-type;

c. functional classification;

d. number of lanes;

e. existing traffic volumes (both daily and peak hour two-way);

f. project traffic volumes (both daily and peak hour two-way);

g. vested traffic volumes (both daily and peak hour two-way);

h. total future traffic volumes (both daily and peak hour two-way);

i. maximum service volumes for the segment at the adopted LOS standard (per the FDOT Generalized Tables); and

j. v/c ratios.

(3) [*City/County*] may require the inclusion of trips from projects pending approval that are not yet in the concurrency management system.

(4) The [*City/County*] transportation concurrency management system contains existing and vested traffic volumes, LOS standards and corresponding maximum service volume. The transportation network and associated maximum service volumes should include the existing network plus any project committed for construction within [*the first three or as defined in local concurrency management system*] years of the capital improvement schedule of the [*City/County*] capital improvement element.

H. Detailed Impact Analysis

(1) A detailed analysis may be required if new project trips cause a segment to fall below the adopted LOS standard according to the maximum service volume in the [*City/County*] concurrency management system (or FDOT Generalized Tables, if applicable) or exacerbate an existing LOS failure. All input assumptions for the analysis must be provided to the [*City/County*].

(2) Perform a detailed analysis using the latest version of Highway Capacity Software (HCS) intersection analysis for the intersections at each end of the segment and HCS arterial roadway analysis for the roadway segment in accordance with the parameters established in this Section. Intersection analysis of a non-signalized location should include a peak hour volume warrant study performed according to the procedures and specifications identified in the *Manual on Uniform Traffic Control Devices* (MUTCD).

(3) Pursuant to [*City/County and FDOT where applicable*] approval, other professionally-accepted software may also be used to perform intersection and roadway segment analysis. Signal optimization features of the software may not be used for this analysis. At least two scenarios should be analyzed:

a. existing plus vested traffic conditions; and,

b. existing plus vested plus project traffic conditions.

(4) traffic counts (e.g., intersection turning movement counts, etc.) used in any segment or intersection

analysis (e.g., ART-TAB, ART-PLAN, etc.) shall be no older than one year and be collected on average weekdays (preferably Tuesday-Thursday, no holidays). Weekly adjustment rates published by FDOT shall be used to seasonally adjust the counts to an annual average value.

(5) determine segment and intersection level of service (both directions) as part of the impact analysis and whether LOS standards can be met for each roadway segment and intersection.

(6) identify specific transportation network improvements needed to address project impacts including, but not limited to through lanes, turn lanes, and/or multi-modal improvements.

Commentary: Local governments commonly allow a more detailed analysis of roadway segments and intersections by project applicants. However, caution must be used in these circumstances. Many "adjustments" can be made in the software to make it appear as if additional project traffic will not cause the level of service to fall below the adopted standard; however, these adjustments often do not reflect field conditions. Local governments should consider establishing parameters for use of such software and ensure that the reviewer (whether staff or consultant) has a full understanding of the software application. It is not appropriate, for example, to use the results of the LOS Plan software to establish a "new" maximum service volume. The FDOT Systems Planning Office has developed recommended parameters for LOSPLAN software to supplement the 2002 Q/LOS Handbook, which are available at http://www.dot.state.fl.us/planning/systems/sm/los/default.htm.

I. Multimodal Analysis

The multimodal analysis focuses on non-auto facilities that lead to the development.

Table 13: Non-Auto Impact Area

New Peak Hour Site Trips	0 - 350	351 - 500	500+
Minimum Acvitivity Center Routes Evaluated	1	2	3
Accessibility to Activity Centers	.25 mile radius from access points	.35 mile radius from access points	.5 mile radius from access points

Source: Adapted from the Rockville, Maryland Comprehensive Transportation Review Methodology, September 2004

The goal of the multimodal analysis is to ensure that the site can be accessed safely and efficiently through various modes and that adequate transportation facilities are in place to support the subject development without detriment to the overall transportation system.

(1) Analyze existing conditions and evaluate potential impacts of the proposed development for pedestrian, bicycle, and transit modes for the non-auto impact area in accordance with the table below.

(2) Pedestrian and bicycle facilities analysis

a. Inventory and evaluate the degree of connectivity to activity centers, which are areas with destinations such as schools, shopping, recreational facilities, and other points of attraction.

b. Identify all pedestrian and bicycle facilities, including sidewalks shared roadways, signed-shared roadways, bike lanes, or shared-use paths that lie within the non-auto impact area, as designated in the [*City/County pedestrian/bicycle plan*].

c. Identify specific transportation network improvements needed to provide safe and efficient pedestrian and bicycle access

from the project to activity centers.

(3) Transit facilities analysis

a. Inventory the availability of public and private transit service along activity center routes, including the location of bus routes and frequency of service.

b. List specific transit facility improvements contained in the adopted [*transit development plan*] that address transit access from the proposed development to activity centers.

c. Identify specific transit-related facilities needed to provide access to existing or planned transit service.

Commentary: When appropriate, local governments may also require applicants to assess existing transportation demand management (TDM) strategies. For information, contact the National TDM and Telework Clearinghouse at http://www.nctr.usf.edu/clearinghouse or the Victoria Transport Institute at http://www.vtpi.org/tdm/.

J. Mitigation Report

(1) If transportation improvements, including improvements that are part of an adopted mitigation plan for a transportation concurrency exception area (TCEA), a transportation concurrency management area (TCMA), or a multimodal transportation district (MMTD), are required as a result of the roadway or multimodal analyses and the applicant or the [*City/County*] agrees to construct or implement the improvements, the applicant shall prepare a mitigation report that details what improvements are proposed, how the improvements will maintain adequate level of service, who will design and construct or implement the improvements, total project costs, including right-of-way and construction, and a schedule for completing the improvements.

(2) Mitigation may be subject to the [*City/County*] proportionate fair share mitigation program where the necessary criteria for qualification are met.

(3) The mitigation report will require review and approval by each affected jurisdiction including adjacent local governments and the Florida Department of Transportation (FDOT) where applicable. Proposed mitigation of project impacts on the SIS or TRIP-funded facilities requires the concurrence of FDOT.

(4) If the adopted level of service for each impacted roadway segment cannot be maintained and appropriate mitigation is not provided, then the development will not be approved.

Commentary: All proposed mitigation of impacts to the transportation system involving proportionate fair share contributions must be financially feasible and adopted into the capital improvement element of the local government comprehensive plan.

ATTACHMENT 2

MODEL INTERLOCAL COORDINATION AGREEMENT FOR CONCURRENCY MANAGEMENT

This sample interlocal agreement provides a framework for addressing multi-jurisdictional transportation impacts. The interlocal agreement language has been developed in a manner consistent with and as required by s. 163.3180(10), Florida Statutes. Because conditions vary throughout the state, it is not the intent that a local government would adopt the agreement verbatim as it does not address all issues that may arise within a particular context. Rather, the agreement is a technical assistance product that local governments will need to adapt to their situation. Local governments should obtain professional planning and legal assistance when adapting this agreement to fit local needs.

AN INTERLOCAL AGREEMENT FOR MULTI-JURISDICTIONAL COORDINATION IN TRANPSORTATION CONCURRENCY MANAGEMENT

THIS AGREEMENT is entered into effective as of the ___ day of _____, 20__, by and among [*name of participating local governments (the Agencies)*], all of said parties being referred to collectively herein as the "Agencies."

WITNESSETH:

WHEREAS, Part II, Florida Statutes and Rule 9J-5, Florida Administrative Code requires local governments to adopt and maintain comprehensive plans and concurrency management systems to ensure that transportation facilities are available concurrent with the impact of development; and

WHEREAS, Chapter 163, Florida Statutes was amended in 2005 to encourage local governments to establish compatible LOS standards for roadways that traverse multiple jurisdictions and to use common transportation impact methodologies for transportation concurrency review of impacts that cross jurisdictional boundaries; and

WHEREAS, intergovernmental coordination is essential to manage transportation impacts that cross jurisdictional boundaries; and

WHEREAS, it is mutually beneficial for the Agencies to adopt a common transportation impact methodology and review procedures to measure impacts of new development on transportation facilities for the purpose of implementing concurrency.

NOW THEREFORE, in consideration of the mutual terms, covenants and conditions contained herein, the Agencies agree as follows:

The recitals above are incorporated herein by reference and made a part hereof.

SECTION 1—Establishment of Compatible and/or Common LOS Standards

1. Through a cooperative process, the Agencies agree to maintain the LOS standards and corresponding maximum service volumes (MSVs) as indicated below:

   State Roads (not SIS, FIHS, or TRIP)

   [*Jurisdiction*] [*Facility name*][*from/to*] [*LOS Standard*] [*MSV*]

   Other Arterial and Collector Roads

   [*Jurisdiction*] [*Facility name*][*from/to*][*LOS Standard*] [*MSV*]

Commentary: Local governments will develop this list using the "Process for Establishing Compatible LOS Standards" described earlier.

2. The Agencies shall not issue a [*concurrency approval mechanism, e.g. Certificate of Concurrency*] per their respective Concurrency Management Systems for any project that has a Traffic Impact Area (per Section 2 of this Agreement) that crosses a shared jurisdictional boundary without obtaining concurrence from the other impacted Agency(s) that the issuance of the [*concurrency approval mechanism, e.g. Certificate of Concurrency*] will not cause the LOS on any transportation facility within the Traffic Impact Area to fall below the adopted LOS standard.

SECTION 2—Transportation Impact Methodology

1. The Agencies agree to apply the transportation impact methodology established in Appendix X to this Agreement.

Commentary: Using the guidelines and methodology established in Sections 4.0 and 5.0 in this chapter, the Agencies should agree upon a common transportation impact methodology for inclusion in this Agreement.

SECTION 3—Agency Roles and Responsibilities

1. Upon receipt of a development application subject to a transportation concurrency determination where trips from the proposed development cross a shared jurisdictional boundary as identified in the transportation impact methodology, the permitting Agency shall notify the other impacted Agency(ies) and host a joint transportation impact study methodology meeting;

2. The permitting Agency will coordinate the review and approval process, including distribution of the transportation impact study to, and receipt of comments and recommendations from, other impacted Agencies. Each Agency shall review the transportation impact study and provide comments and recommendations within [*timeframe established by the permitting agency*];

3. If mitigation is required, the permitting Agency will require the developer to mitigate capacity deficiencies caused by the proposed development through proportionate fair share mitigation established in Appendix XX to this agreement and/or a development agreement and any such mitigation shall be approved in the form of a binding agreement with FDOT (where applicable) and other impacted local governments;

4. Any such application that is approved by the permitting Agency shall include a condition that requires the applicant to provide evidence that the obligation to the other impacted Agency(ies) has been satisfied.

SECTION 4—Dispute Resolution

1. The Agencies shall attempt to resolve any dispute which shall arise regarding this Agreement with the [*regional planning council*].

IN WITNESS WHEREOF, the parties hereto, through their duly authorized representatives, have executed this Agreement on the date set forth below.

This sample interlocal agreement provides a framework for addressing the multi-jurisdictional transportation impacts of large-scale

ATTACHMENT 3

MODEL INTERLOCAL AGREEMENT FOR DEVELOPMENT OF REGIONAL IMPACT EXEMPTIONS

developments that are exempt from development of regional impact review per s. 380.06(24), Florida Statutes, and would otherwise be considered developments of regional impact. The interlocal agreement language has been developed in a manner consistent with and as required by s. 163.3180(10), Florida Statutes. Because conditions vary throughout the state, it is not the intent that a local government would adopt the agreement verbatim as it does not address all issues that may arise within a particular context. Rather, the agreement is a technical assistance product that local governments will need to adapt to their situation. Local governments should obtain professional planning and legal assistance when adapting this agreement to fit local needs.

AN INTERLOCAL AGREEMENT FOR REVIEW OF PROPOSED DEVELOPMENTS OF REGIONAL IMPACT THAT QUALIFY FOR EXEMPTION FROM THE DEVELOPMENT OF REGIONAL IMPACT PROCESS AND FOR CROSS-JURISDICTIONAL MITIGATION OF IMPACTS

THIS AGREEMENT is entered into effective as of the ___ day of _____, 20__, by and among [*FDOT and name of participating local governments (the Agencies)*], all of said parties being referred to collectively herein as the "Agencies."

WITNESSETH:

WHEREAS, Part II, Florida Statutes and Rule 9J-5, Florida Administrative Code requires local governments to adopt and maintain comprehensive plans and concurrency management systems to ensure that transportation facilities are available concurrent with the impact of development; and

WHEREAS, Chapter 163, Florida Statutes was amended in 2005 to allow an exemption from the Development of Regional Impact process for proposed developments that would otherwise be addressed through the DRI process and that lie within designated urban service boundary areas, rural land stewardship areas, or urban infill and redevelopment areas, provided the local government having jurisdiction has:

1. entered into a binding agreement regarding the mitigation of impacts on state and regional transportation facilitates with adjacent jurisdictions and the Florida Department of Transportation (FDOT), and

2. adopted a proportionate fair share methodology pursuant to s. 163.3180(16), Florida Statutes.

WHEREAS, [*name of local government*] has met these requirements by adopting a proportionate fair share methodology in its concurrency management system and through this agreement with FDOT and other impacted local governments; and

WHEREAS, it is necessary for the Agencies to adopt a common transportation impact methodology and review procedures to measure impacts of new development on transportation facilities for the purpose of implementing concurrency in order to clearly understand the mitigation needs of proposed DRIs that are exempt from the DRI process.

NOW THEREFORE, in consideration of the mutual terms, covenants and conditions contained herein, the Agencies agree as follows:

The recitals above are incorporated herein by reference and made a part hereof.

SECTION 1—Transportation Impact Methodology

1. The Agencies agree to apply the transportation impact methodology established in Appendix X to this Agreement.

Commentary: Agencies could use the guidelines and sample methodology in the guide to establish an agreed-upon transportation impact methodology for inclusion in this Agreement.

SECTION 2—Agency Roles and Responsibilities

1. Upon receipt of a development application for a DRI exemption project subject to a transportation concurrency determination where trips from the proposed development cross a shared jurisdictional boundary, as identified in the transportation impact methodology, the permitting Agency shall notify the other impacted Agency(ies) and host a joint transportation impact study methodology meeting;

2. The permitting Agency will coordinate the review and approval process, including distribution of the transportation impact study to, and receipt of comments and recommendations from, other impacted Agencies. Each Agency shall review the transportation impact study and provide comments and recommendations within [*timeframe established by the permitting agency*];

3. If mitigation is required, the permitting Agency will require the developer to mitigate capacity deficiencies caused by the proposed development through proportionate fair share mitigation established in Appendix XX to this agreement and/or a development agreement and any such mitigation shall be approved in the form of a binding agreement with FDOT (where applicable) and other impacted local governments;

4. Any such application that is approved by the permitting Agency shall include a condition that requires the applicant to provide evidence that the obligation to the other impacted Agency(ies) has been satisfied.

SECTION 3—Dispute Resolution

1. The Agencies shall attempt to resolve any dispute which may arise regarding this Agreement through the procedure for Dispute Resolution established by the [regional planning council] in accordance with s. 186.509, Florida Statutes.

IN WITNESS WHEREOF, the parties hereto, through their duly authorized representatives, have executed this Agreement on the date set forth below.

ATTACHMENT 4

SAMPLE APPLICATION FOR EVALUATING AND MITIGATING CROSS JURISDICTIONAL IMPACTS

This example illustrates how to evaluate the cross-jurisdictional transportation impacts of a major development and apply the proportionate fair share method and other mitigation measures, using the methodology provided in this guide. This hypothetical DRI exemption addresses the complexities of multi-jurisdictional coordination.

Step 1: Location of the DRI Exemption

The DRI exemption is located in a designated urban service area on State Road 2 in Jurisdiction One, as shown in Figure 16. The location of the DRI is near the border with Jurisdiction Two; therefore, a significant transportation impact on Jurisdiction Two is expected. State Roads 1 and 2 are both four-lane divided highways with two lanes in each direction.

Step 2: Identify Adopted Level of Service Standards

The adopted LOS standard for roadway segments in Jurisdiction One is LOS C except for state roads which are LOS D. The adopted LOS standard for roadway segments in Jurisdiction Two is D, except for two segments on State Road 2 which are LOS E. A common LOS standard of D has been adopted for the road along the jurisdictional boundary. The adopted LOS for Jurisdictions One and Two are shown in Figure 16.

Step 3: Determine of Traffic Impact Area

The jurisdictions have agreed to use the method set forth in this guide to determine the traffic impact area as follows:

- first impacted arterial or collector and intersections at each end;
- roadway segments with distributed PM peak project trips > Min (3% LOS C Capacity, 75 trips); and
- if carrying more than 90% of adopted maximum service volume, roadway segments with distributed PM peak project trips on > Min (1% LOS C Capacity, 25 trips).

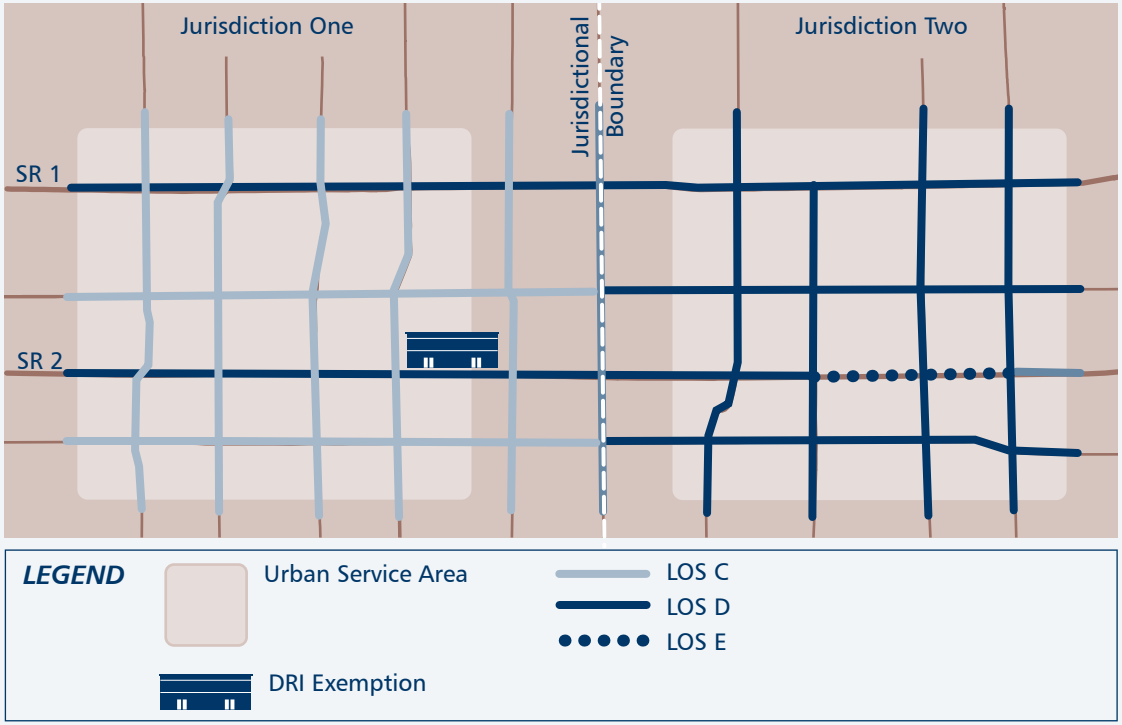


Figure 16: Adopted Roadway Level of Service in Two Hypothetical Jurisdictions

The traffic impact area is determined regardless of jurisdiction and is illustrated in Figure 17. The maximum service volume used for the illustrative analysis is based on the FDOT 2002 Quality/Level of Service Handbook. Table 4-4 of the Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas is used to determine the maximum service volume for the roadway segments, as shown in Figure 18.

Step 4: Analyze Segments and Intersections

An initial LOS review of all roadway segments within the traffic impact area is performed to determine if capacity is available for the proposed development trips. A detailed segment analysis including intersections is performed where the addition of project traffic may cause the facility to fall below the adopted LOS standard. The results of this analysis indicate where mitigation is needed.

Step 5: Identify Mitigation Strategies

In this example, roadway capacity improvements are recommended for mitigating the transportation impacts of the proposed DRI exemption; however, in many cases, multimodal strategies may offer more appropriate solutions. The roadway segments requiring capacity improvement include segments 1 through 10 as shown in Figure 19.

To use the proportionate fair share method, the proposed improvement must either be in or added to the five-year capital improvements element. Only Segments 1 and 2 in Jurisdiction One and Segments 6 and 7 in Jurisdiction Two would qualify. The capital improvements element for these four segments includes the widening of the existing four-lane roadway to a six-lane divided arterial. For the above four roadway segments, the applicant for the proposed DRI exemption can "pay and go", provided the capacity of the programmed improvements has not itself already been previously fully reserved by other proposed developments.

Step 6: Apply the Proportionate Fair Share Method

The methodology used to calculate an applicant's proportionate fair share (PFS) obligation is found in Section 163.3180 (12), F. S. and the FDOT Model Proportionate Fair Share Ordinance. The three major variables in the formula to compute the proportionate fair share mitigation required of applicants for a specific roadway segment are: 1) development trips on the segment,

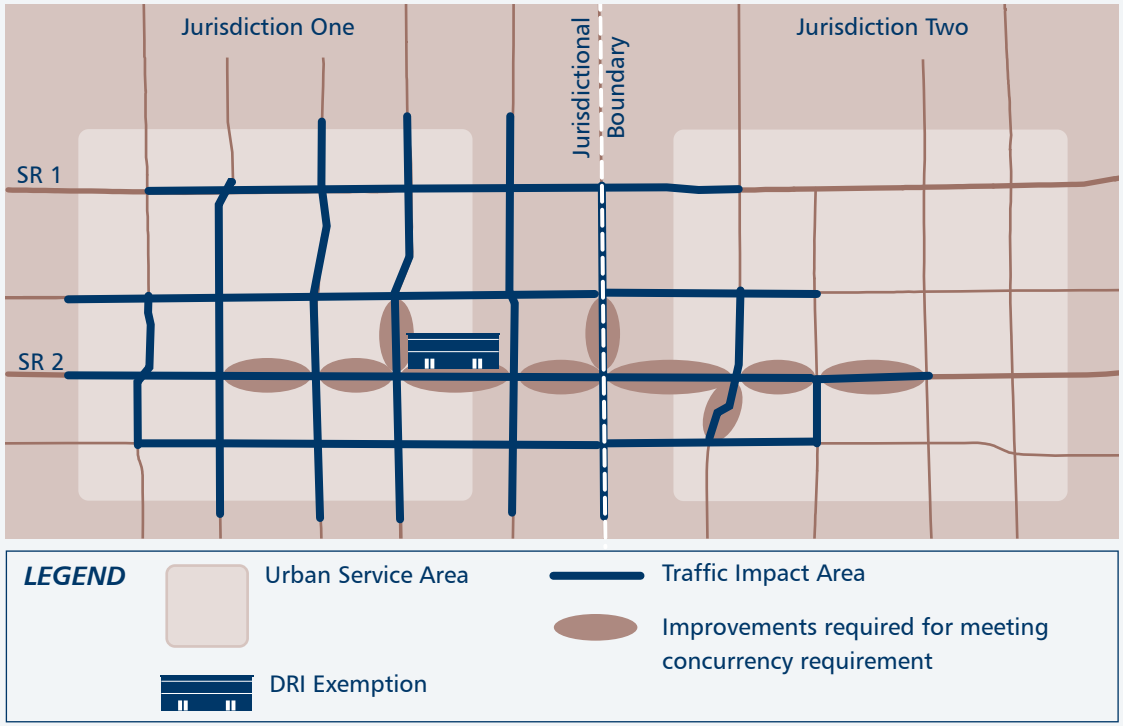


Figure 17: Traffic Impact Area and Improvement Required for Meeting Transportation Concurrency in a Hypothetical Example

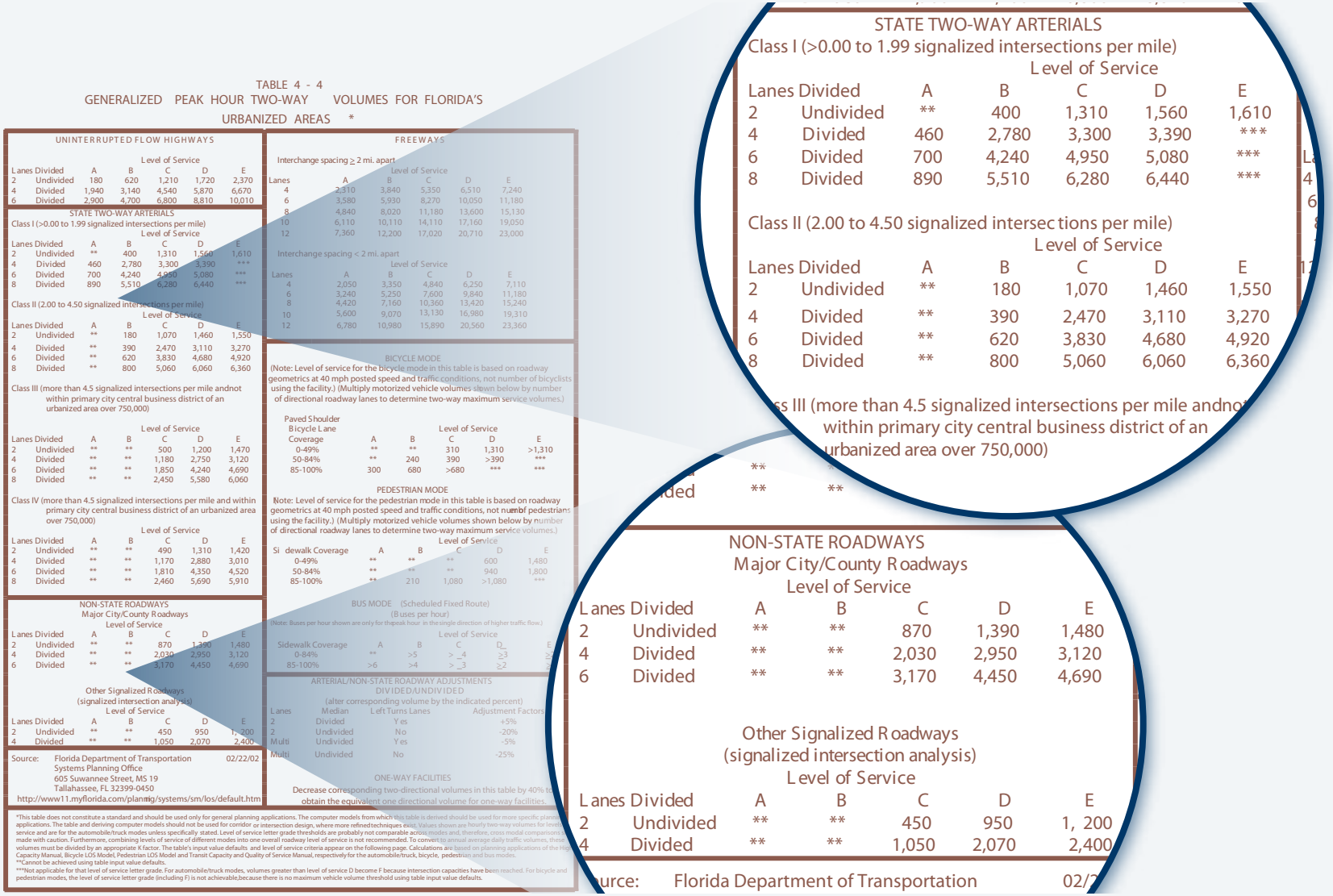


TABLE 4 - 4
GENERALIZED PEAK HOUR TWO-WAY VOLUMES FOR FLORIDA'S URBANIZED AREAS *

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Divided	A	B	C	D	E
2	Undivided	180	620	1,210	1,720	2,370
4	Divided	1,940	3,140	4,540	5,870	6,670
6	Divided	2,900	4,700	6,800	8,810	10,010

STATE TWO-WAY ARTERIALS

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes	Divided	A	B	C	D	E
2	Undivided	**	400	1,310	1,560	1,610
4	Divided	460	2,780	3,300	3,390	***
6	Divided	700	4,240	4,950	5,080	***
8	Divided	890	5,510	6,280	6,440	***

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes	Divided	A	B	C	D	E
2	Undivided	**	180	1,070	1,460	1,550
4	Divided	**	390	2,470	3,110	3,270
6	Divided	**	620	3,830	4,680	4,920
8	Divided	**	800	5,060	6,060	6,360

Class III (more than 4.5 signalized intersections per mile andnot within primary city central business district of an urbanized area over 750,000)

Lanes	Divided	A	B	C	D	E
2	Undivided	**	**	500	1,200	1,470
4	Divided	**	**	1,180	2,750	3,120
6	Divided	**	**	1,850	4,240	4,690
8	Divided	**	**	2,450	5,580	6,060

Class IV (more than 4.5 signalized intersections per mile and within primary city central business district of an urbanized area over 750,000)

Lanes	Divided	A	B	C	D	E
2	Undivided	**	**	490	1,310	1,420
4	Divided	**	**	1,170	2,880	3,010
6	Divided	**	**	1,810	4,350	4,520
8	Divided	**	**	2,460	5,690	5,910

NON-STATE ROADWAYS
Major City/County Roadways

Lanes	Divided	A	B	C	D	E
2	Undivided	**	**	870	1,390	1,480
4	Divided	**	**	2,030	2,950	3,120
6	Divided	**	**	3,170	4,450	4,690

Other Signalized Roadways
(signalized intersection analysis)

Lanes	Divided	A	B	C	D	E
2	Undivided	**	**	450	950	1,200
4	Divided	**	**	1,050	2,070	2,400

Source: Florida Department of Transportation 02/22/02
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450
http://www11.myflorida.com/planning/systems/sm/los/default.htm

FREEWAYS

Interchange spacing ≥ 2 mi. apart

Lanes	A	B	C	D	E
4	2,310	3,840	5,350	6,510	7,240
6	3,580	5,930	8,270	10,050	11,180
8	4,840	8,020	11,180	13,600	15,130
10	6,110	10,110	14,110	17,160	19,050
12	7,360	12,200	17,020	20,710	23,000

Interchange spacing < 2 mi. apart

Lanes	A	B	C	D	E
4	2,050	3,350	4,840	6,250	7,110
6	3,240	5,250	7,600	9,840	11,180
8	4,420	7,160	10,360	13,420	15,240
10	5,600	9,070	13,130	16,980	19,310
12	6,780	10,980	15,890	20,560	23,360

BICYCLE MODE

(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder Bicycle Lane Coverage	A	B	C	D	E
0-49%	**	**	310	1,310	>1,310
50-84%	**	240	390	>390	***
85-100%	300	680	>680	***	***

PEDESTRIAN MODE

Note: Level of service for the pedestrian mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not numbof pedestrians using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Si dewalk Coverage	A	B	C	D	E
0-49%	**	**	**	600	1,480
50-84%	**	**	**	940	1,800
85-100%	**	210	1,080	>1,080	***

BUS MODE (Scheduled Fixed Route)
(Buses per hour)

(Note: Buses per hour shown are only for thpeak hour in the single direction of higher traffic flow.)

Sidewalk Coverage	A	B	C	D	E
0-84%	**	>5	> _4	≥3	≥
85-100%	>6	>4	> _3	≥2	≥

ARTERIAL/NON-STATE ROADWAY ADJUSTMENTS
DIVIDED/UNDIVIDED
(alter corresponding volume by the indicated percent)

Lanes	Median	Left Turns Lanes	Adjustment Factors
2	Divided	Yes	+5%
2	Undivided	No	-20%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

ONE-WAY FACILITIES

Decrease corresponding two-directional volumes in this table by 40% to obtain the equivalent one directional volume for one-way facilities.

*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are hourly two-way volumes for level of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. To convert to annual average daily traffic volumes, these volumes must be divided by an appropriate K factor. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

**Cannot be achieved using table input value defaults.

***Not applicable for that level of service letter grade. For automobile/truck modes, volumes greater than level of service D become F because intersection capacities have been reached. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable,because there is no maximum vehicle volume threshold using table input value defaults.

Figure 18: Maximum Service Volumes for State Arterials in Hypothetical Example

2) service volume increase from the eligible improvement on the segment, and 3) the cost of the improvement on the segment. Simply,

$$\text{Proportionate Fair Share} = \Sigma[[(\text{Development Trips}_i) / (\text{SV Increase}_i)] \times \text{Cost}_i]$$

Where

$\text{Development Trips}_i$ = Those trips from the stage or phase of development under review that are assigned to roadway segment "i" and have triggered a deficiency per the concurrency management system;

SV Increase_i = Service volume increase provided by the eligible improvement to roadway segment "i";

Cost_i = Adjusted cost of the improvement to segment "i". Cost shall include all improvements and associated costs, such as design, right-of-way acquisition, planning, engineering, inspection, and physical development costs directly associated with construction at the anticipated cost in the year it will be incurred.

The following illustrations of proportionate fair share computations will focus on the segments requiring capacity improvements that qualify for this method, Segments 1, 2, 6, and 7. For illustration purposes, the trip distribution of the DRI exemption and background traffic volumes during the PM peak hour on roadway segments requiring improvements are shown in Figure 19, respectively. In this example, Segments 1, 2, 6 and 7 are Class II state arterials.

Segment 1

The LOS D peak-hour two-way maximum service volume for four-lane divided arterials in urbanized areas is 3,110 vehicles per hour. The maximum service volume for a six-lane divided arterial (the improvement) will be 4,680 vehicles per hour. Therefore, there will be an increased capacity of 1,570 vehicles per hour. The number of new development trips during the PM peak hour on Segment 1 is 400 vehicles per hour. The estimated cost for the improvement for Segment 1 is $1.5 Million. The applicant's proportionate fair share contribution will be $0.382 Million [= (400/1570) x 1.5].

Segment 2

There will be an increased capacity of 1,570 vehicles per hour, which is the same as Segment 1. The number of new development trips during the PM peak hour on Segment 2 is 380 vehicles per hour (= 240 + 260-120). The estimated cost for the improvement for Segment 2 is $1.4 Million. The applicant's proportionate fair share contribution will be $0.339 Million [= (380/1570) x 1.4].

Segment 6

The LOS E peak-hour two-way maximum service volume for four-lane divided arterials in urbanized areas is 3,270 vehicles per hour. The maximum service volume for a six-lane divided arterial will be 4,920 vehicles per hour. Therefore, there will be an increased capacity of 1,650 vehicles per hour. The number of new development trips during the PM peak hour on Segment 6 is 200 vehicles per hour. The estimated cost for the improvement for Segment 6 is $2.0 Million. The applicant's proportionate fair share contribution will be $0.242 Million [= (200/1650) x 2.0].

Segment 7

There will be an increased capacity of 1,650 vehicles per hour, which is the same as Segment 6. The new number of development trips during the PM peak hour on Segment 2 is 167 vehicles per hour. The estimated cost for the improvement for Segment 7 is $1.8 Million. The proportionate fair share amount will be $0.182 Million [= (167/1650) x 1.8].

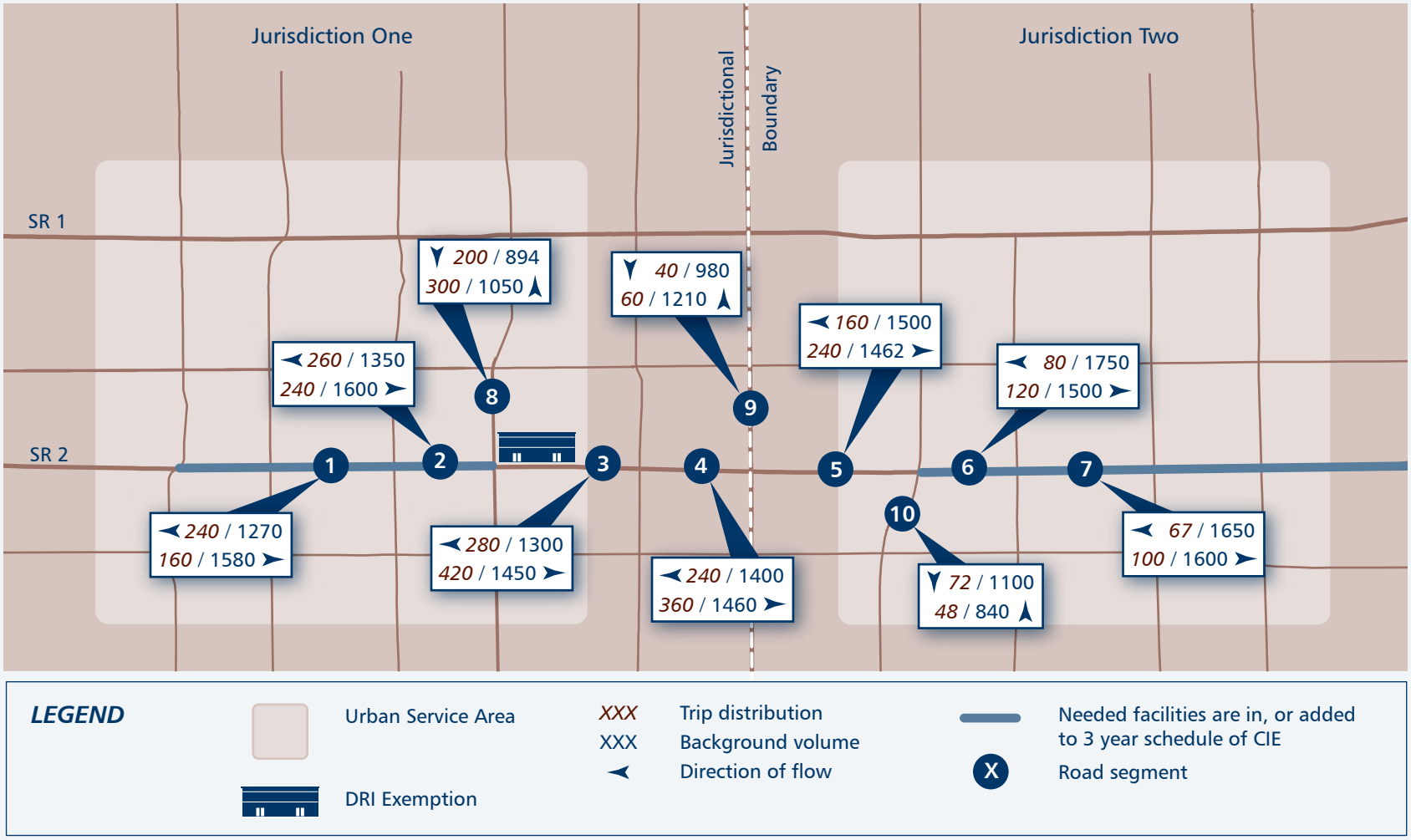


Figure 19: Trip Distributions and Background Volumes on Hypothetical Segments Requiring Improvements

Table 14: Two-way Analysis of Segments

Segment No. (two-way analysis)	1	2	6	7
Class		2002 LOS Class II		
Lanes (both directions)		4 lane divided		
Adopted LOS Standard	D	D	E	E
Total Development Traffic (veh/hr)	400	500	200	167
Max LOS C Service Volume	2,470	2,470	2,470	2,470
% of Max LOS C Service Volume	16.2%	20.2%	8.1%	6.8%
Significant	Yes	Yes	Yes	Yes
Pass-by Trips	0	120	0	0
New Traffic from Development (veh/hr)	400	380	200	167
Background Traffic (veh/hr)	2,850	2,950	3,250	3,250
Total Volume (veh/hr)	3,250	3,330	3,450	3,417
Max Adopted Service Volume (veh/hr)	3,110	3,110	3,270	3,270

Table 15: Development of Regional Impact Exemption Proportionate Fair Share

Segment No.	1	2	6	7
Max Adopted Service Volume	3,110	3,110	3,270	3,270
CIE Improvement		Widen from 4 to 6 lanes		
Max Adopted Service Volume after Improvement	4,680	4,680	4,920	4,920
DRI Cumulative Number of Trips	400	380	200	167
Construction Cost	$1,500,000	$1,400,000	$2,000,000	$1,800,000
Proportionate Fair Share $PS=\sum[[(\text{Development Trips}_i) / (\text{SV Increase}_i)] \times \text{Cost}_i]$	$0.382 M	$0.339 M	$0.242 M	$0.182 M
Total Proportionate Fair Share Obligation		$1.15 M		

Additional Resources

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Appendix: Evaluating the Impacts of Comprehensive Plan Amendments

Amendments to the future land use map of the local government comprehensive plan typically involve an increase in the density or intensity of use. Therefore, it is important to gauge the impacts of those proposed land use changes on the transportation system. This is not for the purpose of concurrency review, per se. Rather, it provides the community with an advance warning system of the potential need to improve the transportation system to accommodate future land use changes.

When a transportation need is identified, improvements or mitigation options can be added to the transportation element and programmed in the capital improvements element during the amendment cycle. This will help to ensure that the necessary transportation facilities or services will be available when development authorized under the amendment is ultimately permitted. These planned improvements can also form the basis for proportionate fair share mitigation later during later concurrency reviews of development applications.

With these goals in mind, s. 163.3187, F.S., establishes requirements for amendment of adopted comprehensive plans. Local governments are required to demonstrate that transportation capacity will be available to support the impacts of development authorized by proposed amendments to their future land use map. Such amendments must be consistent with the goals, objectives and policies of the adopted comprehensive plan and coordinated with the metropolitan planning organization (MPO) long range transportation plans.

With some exceptions, local governments may amend their comprehensive plan only twice per calendar year. During each amendment cycle, local governments may submit multiple future land use and text amendments. Proposed comprehensive plan amendments directly related to developments of regional impact (DRIs) may be proposed at any time along with the DRI application for development approval.

The transportation element of many local government comprehensive plans is updated as metropolitan planning organization plans are updated—approximately every five years. Because metropolitan planning organization plans are based on data available at the time the plan is prepared, changes to future land use and corresponding socio-economic data are not reflected in transportation needs until the plan is updated. Transportation impact analysis of comprehensive plan amendments, therefore, provides a mechanism to analyze the change in transportation system needs that may result from the amendment and a forewarning that additional transportation improvements are needed, thereby giving the local government time to address the needs.

CONSIDERATIONS IN EVALUATING COMPREHENSIVE PLAN AMENDMENTS

A 2006 review of transportation impact analysis requirements for comprehensive plan amendments conducted by the Center for Urban Transportation Research revealed several key areas where requirements differed. These areas include amendment size, study area, cumulative impact, trip generation, trip distribution, and future background traffic. Sample guidelines and methodology for evaluating the potential transportation impacts of comprehensive plan amendments, building on these considerations below, are provided at the end of this Appendix.

Amendment Size

The size of a proposed comprehensive plan amendment will dictate to some extent the analysis required. Although small scale amendments are unlikely to result in a dramatic trip generation increase, these applications should still include a basic transportation impact study when applicable. Each application for a large scale amendment should also include a transportation impact study.

Study Area

A variety of approaches may be applied for determining the study area or transportation impact area of comprehensive plan amendments. Some local governments define the study area in terms of the percent of capacity or maximum service volume of the LOS standard. Others define it in terms of a specific distance from the subject property based on trip generation.

When using percent of capacity to define study area, it may be desirable to limit the extent of the study area. Trips on some facilities may be long, particularly if the property is not located within a well-developed network or is located some distance away from employment, shopping, and services. Limiting the study area in terms of distance from the access points of the subject property (e.g., up to five miles) would eliminate the tracking of trips for long distances on interstate highways or similar facilities. The use of study area distance limits should be used with caution to ensure significant impacts to SIS, FIHS, and TRIP facilities are assessed.

The study area method for evaluating comprehensive plan amendments need not differ substantially from that used for concurrency evaluations. Study area approaches are discussed in detail in Chapter 4 and include model traffic impact area criteria that could readily be applied to comprehensive plan amendments, as well. These study area parameters are:

1. each directly impacted collector or arterial (either directly or via a network of local or private streets);
2. each roadway where the PM peak hour project trips on the roadway segments are greater or equal to 3% of the LOS C maximum service volume (MSV) of the segment during the peak hour, or if project trips on the segment are greater than or equal to 75 peak hour trips;
3. each segment operating at more than 90% of the adopted LOS maximum service volume where the PM peak hour project trips are greater or equal to 1% of the LOS C maximum service volume of the segment during the peak hour; or if project trips on the segment are greater than or equal to 25 peak hour trips; and
4. include all segments subject to these parameters regardless of jurisdiction.

The above study area parameters are comprehensive, in that they include all major roadways (freeways, arterials, and collectors) regardless of agency jurisdiction. Impacts to the Florida Strategic Intermodal System should be noted as these are of particular interest to the Florida Department of Transportation in their review of comprehensive plan amendments. The parameters are also designed to highlight segments that would be impacted by a higher number of trips, regardless of the percent of capacity consumed. Finally, they are somewhat more conservative on already congested roadways and include a limit on distance from the subject site.

Cumulative Impact of Amendments

Local governments often submit numerous future land use map amendments in a given amendment cycle. Although each applicant may be required to provide a transportation impact analysis of the proposed land use change, the cumulative impacts of all amendments in a cycle are typically not analyzed. Failure to analyze cumulative impacts can result in inadequate planning for future transportation system needs and improvements. It is, therefore, a good idea for each local government to consider the cumulative impacts of proposed comprehensive plan amendments.

A cumulative analysis is best accomplished by aggregating or grouping proposed comprehensive plan amendments into specific geographic areas, as in the Marion County example (see inset). These geographic areas may be subarea, neighborhood, sector or other planning areas, impact fee districts, transportation corridors, or specific traffic

analysis zones. The local government must determine both the entity responsible for the analysis and the timing of analysis. Below, for example, are two possible approaches:

1. **Applicant performs cumulative study.** Require each applicant to submit a transportation impact study for the proposed comprehensive plan amendment. The local government would provide traffic analysis zone (TAZ) data from all other proposed comprehensive plan amendments within the designated area for modeling trip distribution for modeling trip distribution. The advantages of this approach are that the burden of the analysis is born by each applicant and impacts to the transportation system are accumulated as each application is submitted. Disadvantages may be ensuring that each subsequent analysis includes all data from the previous analyses and difficulty in determining impacts between subareas.

2. **Local government performs cumulative study.** Require each applicant to submit an application that includes a fee that the local government uses to fund a cumulative traffic study using its own technical staff or contracting with a consultant. The advantage of this approach is the ability to ensure all data from proposed comprehensive plan amendments is included in the analysis. A disadvantage would be assessing which proposal or proposals contribute to system deficiencies and how to adjust densities/intensities to eliminate deficiencies or how to allocate appropriate costs to each proposal.

Each of these methods could be supplemented with some type of threshold criteria aimed at uncovering the potential for significant cumulative impacts. For example, one approach might be to require that a cumulative analysis be performed when three or more developments impact the same transportation facilities or critical links over a three to five mile segment of a facility.

In addition to the cumulative analysis for proposed comprehensive plan amendments, the local government should also

BALANCING LAND USE AND TRANSPORTATION PLANS IN MARION COUNTY

A Stipulated Settlement Agreement between DCA and Marion County, executed in 2004, resulted in text amendments to the Marion County Comprehensive Plan, which established the following goal and related objective and policies: "Goal 4. Ensure coordination between Future Land Use Element and Transportation Elements." The text amendment addressed the need for Marion County to strive for balanced growth in future development and to show the relationship between proposed future land use amendments and antiquated plats. Particularly, data and analysis must be provided to support future land use changes and illustrate their potential impact on the transportation system.

One of the key elements included the designation of "specific planning communities" to assist the County in determining public facility needs and future land use balance, and in preventing urban sprawl. A policy specified requirements for the transportation impact analysis of proposed comprehensive plan amendment, as follows:

Policy 12.4: Based on demonstrated need for the additional land use in the specific planning district, Marion County will assess the impact from this additional need on the transportation network. The transportation analysis shall include the following:

- delineation of the area of transportation impact by the additional land use;
- existing conditions analysis;
- assessment of the increase in trips generated by the additional land use;
- background traffic including committed projects, data collection and analysis;
- distribution of the increased trips along with trips from existing and committed land use;
- future conditions analysis, based on a five year and ten year analysis;
- mitigation analysis; and
- site access analysis.

Source: State of Florida Department of Community Affairs v. Marion County. 03-0613GM. (FL 2004).

consider the land use precedent that may be established for the area. One land use change may lead to many subsequent changes, thereby impacting all public facilities.

Trip Generation

Transportation impact analyses for comprehensive plan amendments are based on the change in transportation impact between the existing and the proposed future land use map category. For future land use map amendments, trip generation should be based on the development potential of the proposed land use category.

If the subject property has been developed, trip generation for the existing use would be used as the existing trip generation. If the land is vacant, trip generation may be based on the maximum development potential under the proposed future land use category.

Trip generation for undeveloped land is generally based on dwelling units per acre for residential land uses and floor area ratios (FAR) for commercial land uses. The recommended practice to estimate trip generation for future land use is in accordance with the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation* (currently 7th Edition).

Trip Distribution and Assignment

The preferred approach to performing trip distribution and assignment in Florida is to use FSUTMS/CUBE (model) or equivalent software in conjunction with the most current socio-economic and network data maintained by the local metropolitan planning organization or FDOT. The model can distribute trips in two ways:

1. A selected zone analysis may be performed by using socio-economic data specific to the proposed future land use to determine the project trip distribution; or
2. The model may be used to determine the trip distribution percentages for each segment or link. The percentages are applied to proposed project trips which are then manually assigned to the network.

Other acceptable trip distribution methods include either a gravity model or locally acceptable trip distribution model. Manual methods include the distribution of proposed project trips based on the proportion of traffic volumes or by using the D factor (directional factor) from FDOT counts.

The transportation network and socio-economic data obtained from the local MPO will need to be reviewed and modified as necessary to include previously approved comprehensive plan amendments, DRIs, and planned transportation improvements in the study area. Internal capture and pass-by trip rates for multi-use developments should be used only in accordance with ITE's *Trip Generation Handbook*. Under these guidelines, the internal capture rate should not exceed 25% of trip generation; the pass-by trip rate should not exceed 10% of trip generation.

Future Background Traffic

Most local governments require applicants to analyze the transportation impacts of the proposed future land use map amendment for two analysis periods: 1) short-term or five years, and 2) long-term or 10 years. It is also appropriate to analyze 20 years or the plan horizon year for the long-term analysis.

The future background traffic (the amount of traffic anticipated on each facility in the transportation network) is a key factor in the analysis. For the short-term analysis, the future background traffic can be developed using reasonable background traffic growth based on methods found in FDOT's *Site Impact Handbook*, and then adding vested traffic from approved but unbuilt development (i.e., trips in the concurrency management system and recently adopted and proposed comprehensive plan amendments and DRIs).

The future background traffic for the long-term analysis should be determined using the latest adopted version of the metropolitan planning organization's regional transportation model (if not available, use FDOT's regional model). Previously adopted future land use amendments, DRIs, and all trips vested in the local government concurrency management system should be included in the background traffic. If a cumulative analysis is being prepared, trips generated by proposed comprehensive plan amendments in the current cycle should also be added to the background traffic.

EVALUATING COMPREHENSIVE PLAN AMENDMENTS IN PALM BEACH COUNTY

Palm Beach County's traffic data and analysis requirements for comprehensive plan amendments are contained in the application to amend the comprehensive plan. Applicants are required to use the most recent available traffic data and to conduct a traffic analysis for two scenarios—proposed density and/or floor area ratio (FAR) and maximum density and/or floor area ratio. If the applicant commits to a proposed floor area ratio/density, which will become binding in the ordinance adopting the comprehensive plan amendment, it may be used instead of the maximum floor area ratio/density. Applicants may also be required to consider other proposed amendments which affect the same roadway segments as the proposed amendment.

Tables are provided to help applicants determine the maximum floor area ratio or dwelling units/acre for various zoning categories. Trip generation rates must be determined for the current future land use category and the proposed future land use. The difference between the traffic generation of current and proposed uses or maximum potential build out is deemed the traffic impact of the amendment. The net trip generation can be reduced if there is an existing, active use on the site. However, if the land is vacant, the trip generation rate for the proposed land use is considered as net trip generation.

The traffic impact area is determined using the criteria in Table 16. Trips are distributed to all the impacted roadway segments which are located within the specified distance from the future development. The existing level of service is determined for each impacted roadway segment using existing traffic volumes and by adding the project traffic.

The County also requires both a short term (5 year) and long term (20 year, 2025) traffic analysis for proposed comprehensive plan amendments. The short term analysis requires consideration of historic growth rates. The traffic volumes for the five-year range are determined with growth rates. Project traffic is added and LOS is calculated for impacted roadway segments. The long term analysis requires traffic projections which must be acquired from the MPO with appropriate documentation. Future traffic is calculated using these traffic projections and project traffic.

Table 16: Palm Beach County Traffic Impact Area Criteria

Net Trip Generation**	Distance
1 - 50	No significant impact
51 - 1,000	Only address directly accessed link on first accessed major thoroughfare*
1,001 - 4,000	One (1) mile*
4,001 - 8,000	Two (2) miles*
8,001 - 12,000	Three (3) miles*
12,001 - 20,000	Four (4) miles*
20,001 - up	Five (5) miles*

* A project has significant traffic: (1) when net trips increase will cause the adopted LOS for FIHS facilities to be exceeded; and/or (2) where net trips increase impacting roads not on the FIHS is greater than one percent (1%) for volume to capacity ratio (v/c) of 1.4 or more, two percent (2%) for v/c of 1.2 or more and three percent (3%) for v/c of less than 1.2 of the level of service "D" capacity on an AADT basis of the link affected up to the limits set forth in this table. The laneage shall be as shown on the MPO's 2025 Long Range Transportation Plan dated March 18, 2002.
** When calculating net trip increase, consideration will be given to alternative modes of transportation (i.e., bicycle lanes, bicycle paths, bus lanes, fixed rail, and light rail facilities) in reducing the number of net trips. These alternative modes must either be operating at the time of the change to the Future Land Use Atlas or be included in both the Transportation Element (Mass Transit) and the Capital Improvement Element of the Comprehensive Plan.

Source: Palm Beach County. Planning Division, Current Planning Section. Future Land Use Atlas Amendment Application. Palm Beach County, FL 2006

GUIDELINES FOR EVALUATING COMPREHENSIVE PLAN AMENDMENTS

The guidelines and methodology below are provided as technical assistance for local governments that do not have specific analysis requirements for comprehensive plan amendments within their plan or land development regulations (LDRs) or that may want to update existing requirements. Other methods may also be acceptable within the guidelines of professionally accepted practice and provided they are consistent with Florida statutes and rules.

A. Purpose and Intent

(1) The purpose of performing a transportation impact study for comprehensive plan amendments is to ensure that the proposed change in future land use can be supported by the available and planned infrastructure and the elements of the comprehensive plan, as amended, retain internal consistency. The study shall review the transportation system impacts of the change in travel demand that will result from the proposed land use change along with impacts from other proposed comprehensive plan amendments. These studies serve as a valuable tool for assessing future transportation system needs and identifying solutions that must also be addressed as an integral part of the comprehensive plan amendment.

(2) These guidelines define the requirements, procedures, and methodology for the submission of a transportation impact study. They provide an equitable, consistent, and systematic means of determining the future impact of proposed comprehensive plan amendments. This, in turn, provides a necessary foundation for short- and long-range transportation planning.

B. Applicability

These guidelines are applicable to both small scale and large scale comprehensive plan amendments as defined in s. 163.3187, F.S.

C. Pre-Application Meeting

(1) All applicants must attend a pre-application meeting with [*City/County and appropriate transportation agencies*] prior to the preparation of a comprehensive plan amendment application. Transportation impact assessment requirements as they apply to the subject property will be addressed, including:

a. traffic study area and non-auto study area;

b. trip generation, trip distribution, and mode share;

c. traffic count data;

d. analysis years;

e. programmed or planned improvements; and

f. cumulative analysis determination.

Commentary: If there is potential for a state road (particularly a Strategic Intermodal System facility or facilities funded through the Transportation Regional Incentive Program (TRIP)) to be impacted by the proposed comprehensive plan amendment, the local government should include the Florida Department of Transportation (FDOT) in the pre-application meeting. Mitigation plans for impacts to SIS or TRIP facilities require the concurrence of FDOT.

(2) Cumulative Analysis Criteria

a. A cumulative analysis must be performed by the applicant when three or more future land use map amendments would impact the same transportation facilities or critical links over a 3- to 5-mile segment of a roadway.

b. The cumulative analysis will group proposed comprehensive plan amendments into a specific geographic area (e.g. a sub-area, neighborhood, sector, or other planning area, impact fee district, transportation corridor, or specific traffic analysis zones) as agreed upon by the [*City/County*] and the applicant.

c. The [*City/County*] will provide the applicant with appropriate traffic analysis zone data (including all proposed comprehensive plan amendments in the current cycle) for running the trip distribution model within the sub-area.

Commentary: As an alternative, a local government may choose to prepare a cumulative analysis using its own technical staff or contracting with a consultant. In this case, the application fee will include a fee to cover the applicant's share of the cost of a cumulative sub-area transportation study.

In addition to the cumulative analysis for proposed comprehensive plan amendments, the local government should also consider the land use precedent that may be established for the area. One land use change may lead to many subsequent changes, thereby impacting all public facilities.

D. Overview of Proposed Comprehensive Plan Amendment

(1) Description and location:

a. Include a brief description of the proposed land use change along with a detailed map illustrating the location.

b. If the land use change involves a specific project, describe the project and any proposed access points in relation to the transportation system.

E. Development Potential

(1) Determine the potential development allowable for both the existing and proposed future land use map (FLUM) designations using the maximum density/intensity of the existing and proposed land use classification in accordance with the following:

a. For residential land use designations:

1) Existing Future Land Use Map designations: Multiply the maximum permitted density under the property's current Future Land Use (FLU) designation by the size of the property in hundredths of an acre.

2) Proposed Future Land Use Map designation: Multiply the maximum permitted density under the property's proposed Future Land Use designation by the size of the property in hundredths of an acre.

b. For non-residential land use designations:

1) Existing Future Land Use Map designations: Provide the square footage at maximum floor area ratio by multiplying the size of the property in hundredths of an acre by the square feet in an acre (43,560) and by the maximum floor area ratio for the current Future Land Use designation.

2) Proposed Future Land Use Map designation: Provide the square footage at the maximum floor area ratio by multiplying the size of the property in hundredths of an acre by the square feet in an acre (43,560) and by the maximum floor area ratio for the proposed Future Land Use Map designation.

c. OPTIONAL PROVISION—For all designations: If the applicant voluntarily commits to a proposed number of dwelling units or a floor area ratio through the comprehensive plan amendment ordinance, then the proposed number of dwelling units or floor area ratio may be used in place of the maximums.

Commentary: This process for determining maximum development potential is adapted from the approach used in Palm Beach County. Local governments may provide applicants with tables indicating the maximum floor area ratio or dwelling units per acre for each zoning district per the local government comprehensive plan or land development regulations.

F. Trip Generation

(1) Using the potential maximum development allowable, determine the daily and peak hour (AM, PM, or peak hour of generator, whichever is applicable) trip generation for both the existing and proposed future land use in accordance with data and procedures contained in the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation* (7th Edition or most current). The formulas provided in *Trip Generation* should be used to calculate the project trip generation with one exception—when the R^2 value (standard deviation) is less than 0.5, the average trip rate may be used. Identify land use codes.

(2) Local or special trip generation rates based on comparable sites may be used if a substantial sample size is used and complete documentation is furnished. Guidance can be found in the ITE *Trip Generation Handbook* (2nd Edition or most current).

(3) Internal trip capture rates and pass-by trip rates for multi-use developments may be used according to the recommendations in the ITE Trip Generation Handbook or the FDOT *Site Impact Handbook* and are subject to review and approval by the [*city/county engineer or designee*]. FDOT TIPS software that replicates ITE calculations may also be used. Provide the input and output tables from the software if this method is used. Internal capture rates shall not exceed 25 percent of trip generation. Pass-by trips shall not exceed 10 percent of adjacent street volumes.

(4) Where regular transit service is available, mode split may be considered. Provide documentation regarding routes and schedules as well as applicable portions of the adopted transit development plan.

(5) Provide the difference in trip generation between the proposed land use category and the existing land use category or existing, active land use.

Commentary: It is also acceptable to use the FSUTMS/CUBE model trip generation for comprehensive planning; however, if a development agreement is necessary to secure a commitment from a developer, a detailed transportation analysis should be performed.

G. Trip Distribution and Assignment

(1) Distribution and assignment of new trips to the roadway system may be accomplished by using the MPO's Florida Standard Urban Transportation Model Structure (FSUTMS/CUBE), equivalent software, or manual methods (for less than 1,000 new daily trips). The transportation network required for distribution and assignment of project traffic are delineated in the [*City/County*] transportation concurrency management system(s).

H. Study Area

(1) Include all segments subject to the following parameters within the study area, regardless of jurisdiction:

a. each directly impacted collector or arterial (either directly or via a network of local or private streets);

b. each roadway where the PM peak hour project trips on the roadway segments are greater than or equal to 3% of the LOS C maximum service volume (MSV) of the segment or if project trips on the segment are greater than or equal to 75; and

c. each segment operating at more than 90% of the adopted LOS maximum service volume where the PM peak hour project trips are greater than or equal to 1% of the LOS C maximum service volume of the segment, or if total project trips on the segment are greater than or equal to 25.

Commentary: In some cases, local governments include a limit on the study area in terms of distance from the access points of the subject property (e.g., five miles). Trips may travel a long way on some facilities, particularly if the property is not located within a well-developed network or is located some distance away from employment, shopping, and services. The use of study area distance limits should be

used with caution to ensure significant impacts to SIS, FIHS, and TRIP facilities are assessed and agreed upon during the pre-application meeting.

At this level, only roadway segments, not intersections, should be analyzed. The goal is to determine long-range transportation needs. Short-term needs, such as intersection improvements, will be determined at the concurrency review stage. Applicants should use LOS standards and maximum service volumes (maximum service volumes) adopted by the local governments; LOS standards and maximum service volumes for state roads must be in accordance with Rule 14-94, F.A.C. maximum service volumes may be found in the FDOT 2002 Quality/Level of Service Handbook.

I. Roadway Analysis Scenarios

(1) Provide a table illustrating existing, short-term, and long-term traffic conditions that includes:

a. segment number, name, and limits;

b. area-type;

c. functional classification;

d. number of lanes;

e. volumes (both daily and peak hour two-way);

f. maximum service volumes for the segment at the adopted LOS standard (per the FDOT Generalized Tables); and

g. v/c ratios.

(2) The [*City/County*] transportation concurrency management system contains existing and vested traffic volumes, LOS standards and corresponding maximum service volume. The transportation network and associated maximum service volumes should include the existing network plus any project committed for construction within the first [*three or as defined in local concurrency management system*] years of the capital improvement schedule of the [*City/County*] capital improvement element.

J. Short-term analysis (Five-year)

(1) Provide both daily and peak hour two-way trip distribution (on diagrams or maps) illustrating all roadway segments within the study area.

(2) Develop future background traffic developed using reasonable background traffic growth (not less than two percent) based on methods found in FDOT's *Site Impact Handbook*.

(3) Provide the following additional information in the aforementioned table:

a. project trips per segment;

b. future background traffic;

c. vested traffic (approved but unbuilt development including concurrency management system trips, recently adopted and proposed comprehensive plan amendments and developments of regional impact);

d. if cumulative analysis, pending trips (from comprehensive plan amendments pending approval); and

e. total future traffic.

K. Long-term analysis (10-year)

(1) Provide daily and peak hour two-way trip distribution (on diagrams or maps) illustrating all roadway segments and intersections within the study area. The transportation network should include the existing network plus any projects committed for construction in the capital improvement schedule of the financially feasible capital improvement element.

(2) Develop future background traffic using the latest adopted version of the MPO's or FDOT's regional transportation model, if applicable, that includes all adopted future land

use amendments, developments of regional impact (DRI), and all trips vested in the local government concurrency management system (CMS).

(3) Provide the following additional information in the aforementioned table:

a. project trips per segment;

b. future background traffic;

c. vested traffic (approved but unbuilt development including concurrency management system trips, recently adopted and proposed comprehensive plan amendments and DRIs);

d. if cumulative analysis, pending trips (from comprehensive plan amendments pending approval); and

e. total future traffic.

Commentary: For a cumulative analyses, the FSUTMS/CUBE model will, in most cases, be the best tool for analyses, particularly if 10 or more amendments are being proposed in one cycle. When using the model, ensure that model productions and attractions are calibrated to ITE trip generation rates. The table of trip generation rates for each development should be provided even when the model is used to determine cumulative impacts. To calibrate, the user will enter the ITE trip rates into the productions and attractions file in the model.

Raw model volumes should not be used as the sole determination of future volumes on roadway links. Because the model will begin to divert trips once it gets closer to equilibrium, the model volumes will always be lower than the trend analyses. The trend analyses should be used as a guide to determine the reasonableness of future model volumes. The appropriate Model Output Conversion Factor (provided in FDOT Traffic Data) should also be applied. A plot of the model results should be provided to identify trip distribution.

L Multimodal Analysis

(1) Analyze existing conditions and evaluate potential impacts of the amendment for pedestrian, bicycle, and transit modes for the non-auto impact area in accordance with Table 17.

(2) Pedestrian and bicycle facilities analysis

a. Inventory and evaluate the degree of connectivity to activity centers, which are areas with destinations such as schools, shopping, recreational facilities, and other points of attraction.

b. Identify all pedestrian and bicycle facilities, including sidewalks shared roadways, signed-shared roadways, bike lanes, or shared-use paths that lie within the non-auto impact area, as designated in the [*City/County pedestrian/bicycle plan*].

c. Identify specific transportation network improvements needed to address pedestrian and bicycle access from the project to activity centers.

Table 17: Non-Auto Impact Area

New Peak Hour Site Trips	0 - 350	351 - 500	500+
Minimum Acvitivity Center Routes Evaluated	1	2	3
Accessibility to Activity Centers	.25 mile radius from access points	.35 mile radius from access points	.5 mile radius from access points

Source: Adapted from the Rockville, Maryland Comprehensive Transportation Review Methodology, September 2004

(3) Transit facilities analysis

a. Inventory the availability of public and private transit service along activity center routes including the location of bus routes and frequency of service.

b. List specific transit facility improvements contained in the adopted [*transit development plan*] that address transit access from the proposed comprehensive plan amendment to activity centers.

Commentary: When appropriate, local governments may also require applicants to assess existing transportation demand management (TDM) strategies. For information, contact the National TDM and Telework Clearinghouse at http://www.nctr.usf.edu/clearinghouse or the Victoria Transport Institute at http://www.vtpi.org/tdm/.

M. Mitigation Report

(1) If previously unidentified transportation system improvements are needed as a result of the roadway or multi-modal analyses and the applicant or the [*City/County*] agrees to construct or implement the improvements, the applicant shall prepare a mitigation report including what improvements are proposed, how the improvements will maintain adequate level of service, who will design and construct or implement the improvements, total project costs, including right-of-way and construction, and a schedule for completing the improvements.

(2) The mitigation report will require review and approval by each affected jurisdiction including adjacent local governments and the Florida Department of Transportation (FDOT) where applicable. Proposed mitigation of project impacts on the SIS or TRIP-funded facilities requires the concurrence of FDOT.

(3) If the adopted level of service for each impacted roadway segment cannot be maintained and appropriate mitigation is not provided, then the proposed comprehensive plan amendment will not be transmitted until additional or other mitigation strategies are proposed.

Commentary: All proposed mitigation of impacts to the transportation system must be financially feasible and adopted into the capital improvement element of the local government comprehensive plan. It is important for local governments to plan for the 5- and 10-year horizon and to focus infrastructure and revenue where growth is occurring or is planned.

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