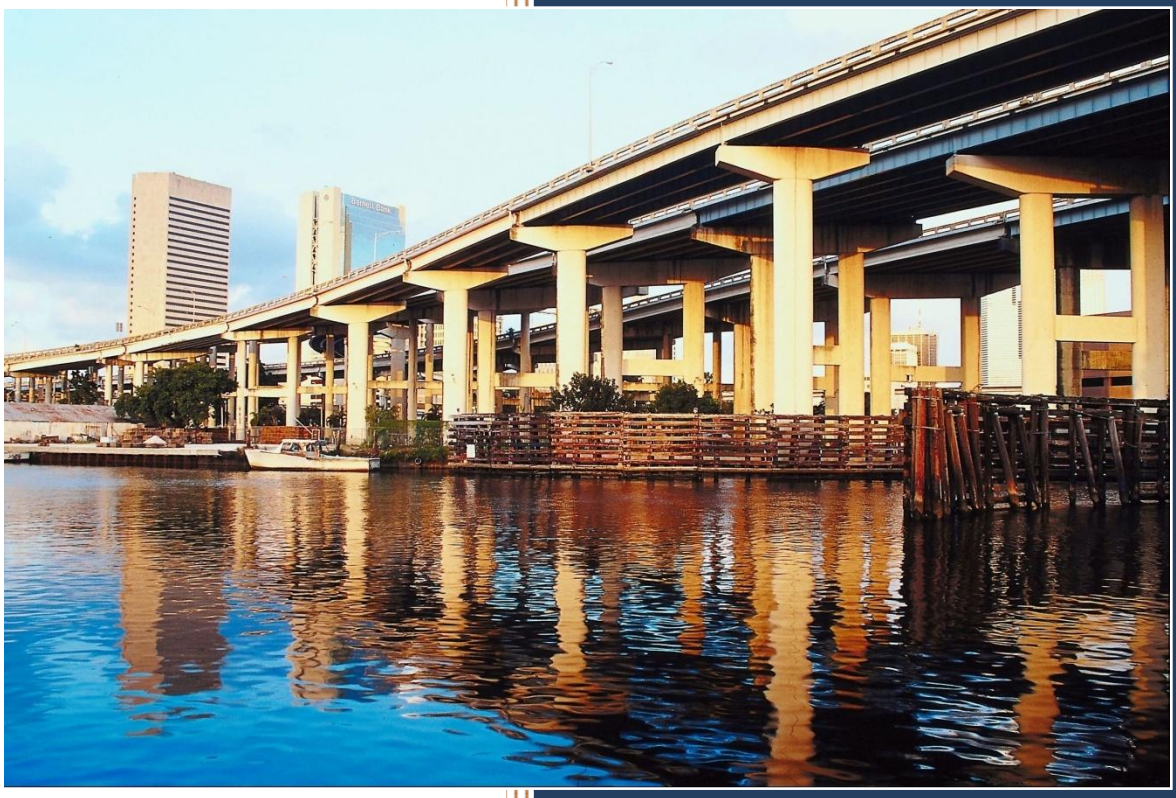
Mobility Review Guide



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Mobility Review Guide

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Foreword

This guide and the accompanying checklist were developed by the Center for Urban Transportation Research under a grant from the Florida Department of Transportation (FDOT), Systems Planning Office. They are intended for use by FDOT District staff in their review of local government comprehensive plan amendments in relation to the state transportation system, and by local government planners in the preparation of multimodal transportation plans and strategies. This proposed guidance sets forth a voluntary practice and represents one of several tools that may be used by FDOT for this purpose. The checklist is designed to be adapted by the user to reflect the needs and characteristics of a particular community or region. FDOT staff and local governments should also refer to FDOT Procedure Topic No. 525-010-101-d: *Review of Local Government Comprehensive Plans*, as well as applicable sections of Chapter 163, Florida Statutes, and related guidance from the Florida Department of Economic Opportunity, Division of Community Development (State Land Planning Agency) to ensure that all State of Florida requirements regarding comprehensive plan amendments are met.

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1 Introduction

Many local governments in Florida are seeking to amend their comprehensive plans to increase the relative emphasis on walking, bicycling and transit use and to integrate these strategies with future land use plans. Examples include corridor management plans that integrate bus rapid transit (BRT) with transit oriented development, and systemwide bicycle and pedestrian network enhancements. Some areas have enacted multimodal mobility plans and fees, while others have adopted "complete streets" policies or guidelines to increase attention to non-auto modes of transportation in roadway planning and design.

These trends are transforming how local governments plan for transportation and land use, with corresponding implications for state agency review of comprehensive plans. Through its role in the comprehensive plan amendment (CPA) review process, the Florida Department of Transportation (FDOT) must assess the impact of proposed CPAs on the Strategic Intermodal System (SIS) and other state transportation facilities. FDOT may suggest measures to eliminate, reduce, or mitigate potential adverse impacts of CPAs and may provide technical assistance to local governments on effective multimodal transportation planning strategies.

One issue that often arises in this review process is the difficulty of measuring the value of corridor management and multimodal strategies for improving or maintaining mobility on applicable portions of the state highway system. Some local governments also lack the technical expertise or resources to prepare effective multimodal transportation plans. Guidance regarding what may constitute effective corridor management and multimodal transportation planning will support FDOT CPA review and technical assistance efforts. This Guide and checklist was developed for that purpose.

1.1 Objective of the Guide

The objective of this Guide and Checklist is to provide the Florida Department of Transportation (FDOT) with a framework for review of local government multimodal transportation strategies submitted through the CPA review process as they relate to the function of the state transportation system. The Guide and Checklist, with appropriate modifications, may also be useful for reviewing proposed SIS mitigation plans or corridor management plans for major highway corridors. In addition, local governments may find the Guide and Checklist a useful resource in developing effective multimodal transportation strategies for improved local and regional mobility.

This Guide is not a required practice. It is proposed as a framework for use by District staff in the CPA review and technical assistance process. The framework offers a systematic way to identify effective strategies among those proposed, as well as to uncover potential strategies that may have been overlooked and to point local staff to professionally accepted resources for further information. Additional technical support could be offered by FDOT staff on specific topics of interest.

The proposed framework depicts options that are considered best practices for multimodal (mobility) planning, rather than specific statute and rule requirements. These options could be used by local governments to advance mobility objectives for the SIS and other major highway corridors, while

supporting growth management efforts to increase use of non-automobile modes, reduce vehicle miles of travel (VMT), and enhance the multimodal environment. FDOT's role in the review of CPAs is defined in statute and by FDOT procedure and subject to change from time to time.

In addition, opportunities for FDOT staff to develop corridor management plans for the state highway system in cooperation with local governments continue to arise throughout the state. Such plans may form the basis for Strategic Intermodal System mitigation agreements and may also be a prominent component of local transportation plans. Additional guidance on the review of local government corridor access management plans and policies is provided in Guide for Analysis of Corridor Management Plans and Policies.

1.2 Issues in Evaluating Multimodal Strategies

Although it may not be difficult to determine if mitigation is needed, it is difficult to determine if mitigation is adequate. Traditional traffic modeling may not show system relief due to the tendency of the transportation models to draw traffic to facilities with the most capacity. In addition, merely offering alternative modes to transportation system users does not necessarily result in changes in travel behavior. Measuring that mode change is even more difficult. Jurisdictions that have chosen to promote alternatives to the automobile as mitigation for system impacts often do so based on planning and policy objectives, rather than a one-to-one trade-off of trips.

The relationship between land use measures and transportation outcomes is complex and still not well understood. Studies are sometimes contradictory and use a variety of measures and approaches, making it difficult to generalize findings to a specific strategy or feature. This is particularly true for small scale strategies, such as sidewalks, parking lot connectivity, and bicycle racks. [1] A number of studies indicate that there are transportation system benefits to providing multimodal facilities and to compact urban forms, such as transit-oriented or traditional neighborhood development, particularly in advancing non-auto modes of transportation. This benefit is not always easy to quantify, however, as it varies considerably based on a range of variables, such as the size of the developed area, the compatibility of the land use mix, the degree of connectivity in the built environment, location and accessibility of the development, socioeconomic characteristics of the affected population, and the density or intensity of uses.

TRB Special Report 298 summarized dimensions of the built environment thought to influence travel demand (aka the five "Ds"), as follows:[2]

1. *Density*: population and employment by geographic unit (e.g., per square mile, per developed acre).

[1] Impact Fee Credits for Livable Communities Improvements. Technical Memorandum #1, Literature Review and Alternative Approaches. Center for Urban Transportation Research. January 2005

[2] *TRB Special Report 298: Driving and the Built Environment: The Effects of Compact Development on Motorized Travel, Energy Use, and CO2 Emissions*, Prepared by the Committee for the Study on the Relationships Among Development Patterns, Vehicle Miles Traveled, and Energy Consumption, National Research Council of the National Academies, 2009, p. 52.

2. *Diversity*: mix of land uses, typically residential and commercial development, and the degree to which they are balanced in an area (e.g., jobs–housing balance).
3. *Design*: neighborhood layout and street characteristics, particularly connectivity, presence of sidewalks, and other design features (e.g., shade, scenery, presence of attractive homes and stores) that enhance the pedestrian- and bicycle-friendliness of an area.
4. *Destination accessibility*: ease or convenience of trip destinations from point of origin, often measured at the zonal level in terms of distance from the central business district or other major centers.
5. *Distance to transit*: ease of access to transit from home or work (e.g., bus or rail stop within ¼ to ½ mile of trip origin).

Although the specific relationship between trip making and land use characteristics or site design features varies by the context, some conclusions can be drawn. These are as follows:[3]

- providing a mix of uses can increase internal capture and reinforce alternative modes, but these impacts are highly dependent on context and other factors, such as land use compatibility and network connectivity;
- connectivity of local street networks can reduce local trips on arterials;
- vehicle miles traveled (VMT) is most strongly related to measures of accessibility to destinations and secondarily to street network design variables;
- walking is most strongly related to measures of land use diversity, intersection density, and the number of destinations within walking distance;
- bus and train use are equally related to proximity to transit and street network design variables, with land use diversity a secondary factor; and
- improving transit, pedestrian, and bicycle facility quality of service, including the frequency and hours of operation of transit service, attracts more users.

Given the many variables that influence results and the variation in existing study findings, most communities do not have specific data to support their plans and policy incentives aimed at advancing non-auto modes. Instead, observation, community desire for increased livability, and the fact that research to date indicates a trend toward multimodal benefits, have become the basis for policy changes. Communities are adopting multimodal quality of service and other performance measures so they may monitor the actual results of their mobility planning strategies and adapt their plans accordingly.

FDOT's chief responsibility is to maintain mobility on the state transportation system.

NOTE: *Florida's growth management process continues to evolve and new legislation may result in additional changes to agency roles and planning requirements. Local governments are encouraged to contact the State Land Planning Agency to ensure that all pertinent requirements have been met prior to plan submittal.*

[3] R. Ewing and R. Cervero, "Travel and The Built Environment: A Meta Analysis," Journal of the American Planning Association, Vol. 76, Issue 3, 2010, pp. 265-294.

Therefore, this practice proposes that FDOT CPA review staff should assess and offer technical assistance comments on local government multimodal transportation and corridor management strategies as they pertain to mobility on the state system. A comprehensive menu of possible criteria is provided to assess and gauge the adequacy of proposed local strategies and to aid the user in identifying additional strategies that could strengthen the effectiveness of multimodal plans.

1.3 Methodology

The criteria included in this Guide and Checklist are based on planning strategies relevant to mobility. The selected criteria embody transportation and land use planning best practices that support the use of non-automobile modes, advance corridor management objectives for major highway corridors, reduce vehicle miles of travel (VMT), and enhance the multimodal environment. The criteria were selected through a comprehensive review of the literature and current practice in multimodal planning and corridor management, as well as relevant findings from previous research and a review of Florida transportation and growth management legislation. A technical working group of knowledgeable persons in the public and private sector was also assembled to guide the project.

The resulting criteria were grouped into the following general categories by topic as illustrated in Figure 1:

- Supporting Plans and Guidelines,
- Multimodal Environment,
- Network Improvement,
- Operations and Safety, and
- Implementation.

Each category contains specific elements and criteria that relate to the category. For example, the Network Improvement Category includes the following Elements: Major Roadway Network, Local Street Network, Bicycle and Pedestrian Networks, and Transit Network. The Categories, Elements, and Criteria are summarized in the accompanying Checklist to aid users in analyzing the range and depth of multimodal and corridor management strategies contained in a proposed comprehensive plan amendment.

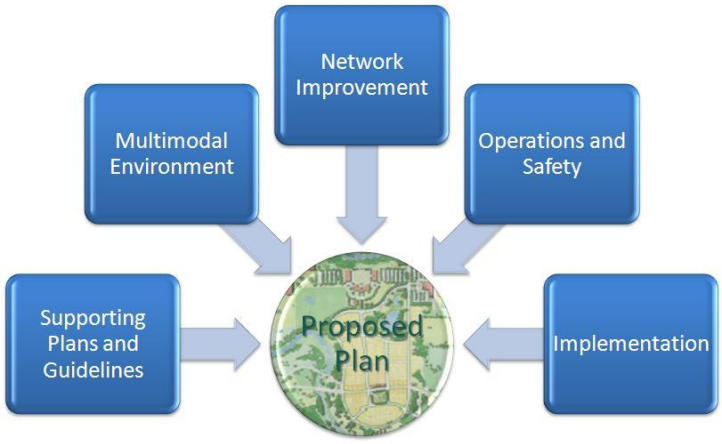


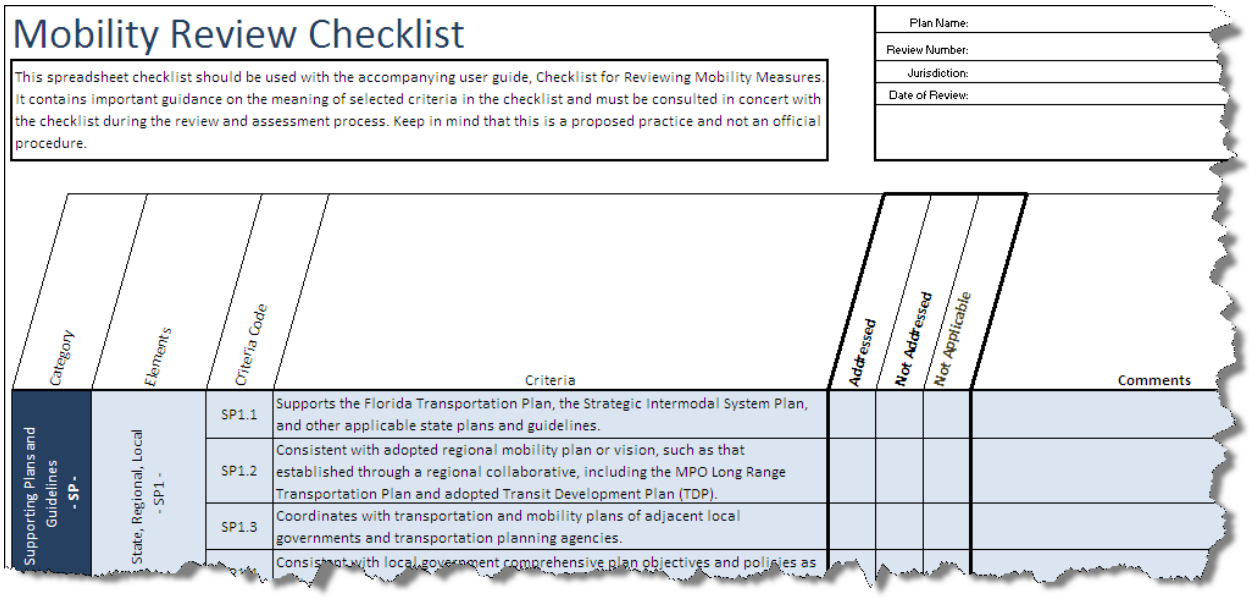
Figure 1: Key categories of criteria in the review of mobility or corridor management plans.

The Mobility Review Guide and Checklist may be used in the review process to highlight Categories and Elements that are effectively addressed and those that would benefit from additional or more complete strategies. These resources guide the agency reviewer in the assessment process and may also be used to guide local governments in developing effective strategies. Application of the Mobility Review Guide and Checklist acknowledges the value of such strategies to increased mobility on the SIS and other state transportation facilities and the difficulty of measuring the benefit of certain land use and transportation best practices known to increase mobility and/or reduce VMT.

2 Using the Checklist

This Mobility Review Guide is a user guide that accompanies the Mobility Review Checklist. This Guide includes important details about the criteria in the Checklist and must be consulted in concert with the Checklist during the review and assessment process. Keep in mind that this is a proposed practice and not an official procedure; criteria depict transportation and land use planning best practices that may be used in accomplishing improved mobility, rather than specific statutory requirements. Local governments are referred to the applicable sections of Chapter 163, F.S. and related guidance from the State Land Planning Agency to ensure that all state requirements regarding the comprehensive plan amendments are met. In addition, the FDOT Transportation Impact Handbook contains specific guidance for determining the potential impacts of local government comprehensive plan amendments on the state transportation system.

The Checklist combines the suggested land use and transportation review criteria into the following broad Categories: Supporting Plans and Guidelines, Multimodal Environment, Network Improvement, Operations and Safety, and Implementation. Figure 2 is an example. It is recommended that local governments include appropriate performance measures for proposed strategies so progress may be tracked. Keep in mind that individual criteria as well as locally proposed strategies may relate to more than one Criterion in more than one Element or Category. For example, street network connectivity strategies and criteria also have implications relative to the pedestrian network, as well as to access management and the multimodal environment.



Mobility Review Checklist

This spreadsheet checklist should be used with the accompanying user guide, Checklist for Reviewing Mobility Measures. It contains important guidance on the meaning of selected criteria in the checklist and must be consulted in concert with the checklist during the review and assessment process. Keep in mind that this is a proposed practice and not an official procedure.

Plan Name:
Review Number:
Jurisdiction:
Date of Review:

Category	Elements	Criteria Code	Criteria	Addressed	Not Addressed	Not Applicable	Comments
Supporting Plans and Guidelines - SP -	State, Regional, Local - SP1 -	SP1.1	Supports the Florida Transportation Plan, the Strategic Intermodal System Plan, and other applicable state plans and guidelines.				
		SP1.2	Consistent with adopted regional mobility plan or vision, such as that established through a regional collaborative, including the MPO Long Range Transportation Plan and adopted Transit Development Plan (TDP).				
		SP1.3	Coordinates with transportation and mobility plans of adjacent local governments and transportation planning agencies.				
			Consistent with local government comprehensive plan objectives and policies as				

Figure 2: Mobility Review Checklist.

Proposed comprehensive plan amendments containing strategies that correspond to Criteria within each of the Categories are those with the greatest potential to advance the following general mobility objectives: 1) improve operations and safety of the major highway system, 2) increase opportunities for walking, bicycling, and transit use, and 3) promote a built environment conducive to use of non-automobile transportation modes. The combined application of strategies found in the Mobility Review

Guide criteria may over time help to reduce dependence on single occupant vehicle travel and the corresponding energy use and greenhouse gas emissions attributable to transportation. The following sections provide specific direction on how to use the Mobility Review Guide and Checklist and interpret the results.

2.1 Suggested Review and Submittal Process

As part of the general transportation planning process, local governments typically conduct an analysis of existing land use and transportation conditions that affect mobility. Ideally, results of this existing conditions analysis will be used as supporting documentation and in developing appropriate multimodal strategies, as well as in determining applicability of the Mobility Review Checklist Criteria. This will help focus the review process on those issues most important within the local context. Appendix A includes a sample outline based on the Checklist that may be useful for documenting results of the existing conditions analysis.

By completing the checklist, District staff will be well positioned to identify measures the local government may take to eliminate, reduce, or mitigate any identified adverse impacts of the CPA and to highlight potential strategies that may have been overlooked, as well as to identify professionally accepted resources for further information. Additional technical support could then be offered on specific topics of interest.

Before submitting a comprehensive plan amendment for FDOT review, local governments are encouraged to complete a self review of their proposed comprehensive plan amendment using this Guide and Checklist. This will help highlight strengths and potential shortcomings of proposed multimodal and corridor management strategies in light of current best practices. If specific Criteria, Elements, and Categories are not addressed, then strategies to address them should be considered and included, unless they are deemed not applicable in the given context. It is important to include strategies within each Mobility Review Element and Category to maximize the potential effectiveness of the plan in accomplishing mobility objectives.

Prior to beginning their review, FDOT District staff should coordinate with State Land Planning Agency (SLPA) regional staff in tailoring the Review Checklist to the local context. This Checklist should be provided to the local government as early as possible so it may be used both in their planning and self-review process. Local governments are advised to submit their final self review to the FDOT District along with their comprehensive plan amendment. In doing so, local governments should note specific policies or other information in the Comments column of the Checklist to aid FDOT staff reviewers in identifying local strategies that relate to specific Criteria when reviewing the proposed comprehensive plan amendment. Where differences in assessments occur, FDOT staff could discuss these items with the local government and determine if additional information is available that may be pertinent to the assessment. For example, some Criteria may already be addressed in the adopted local comprehensive plan and, therefore, not appear in the proposed amendment. If so, these items could be identified as such in the Comments column.

Checklist users must apply reasonable discretion in determining whether Checklist Criteria are applicable or not in the given context. For example, major urban areas have extensive multimodal needs

involving a diversity of modes and strategies. Needs and strategies in small towns without transit may focus more on highway access management, local street connectivity, gaps in the sidewalk network, and ridesharing programs. In addition, FDOT reviewers should understand that while their expertise and scope of review lies in the state transportation system realm, land use strategies are often inextricably connected to transportation. Therefore, reviewers should assess both land use and transportation strategies in close coordination with SLPA regional staff. Although needs and methods to advance the Criteria may differ, every local government should be encouraged to seek all opportunities to connect land use and transportation planning objectives and address as many Criteria as possible.

2.2 Checklist Directions

The Mobility Review Checklist contains specific Criteria within Categories and Elements to be reviewed along with columns for input specific to the plan under review. A copy of the Checklist is provided in Appendix B. The contents of each column may be described as follows:

1. *Category* - indicates the overall Category that best describes the supporting Elements and Criteria. (e.g. "Network Improvements" relates to Elements and Criteria for improving the multimodal transportation network)
2. *Elements* - breaks down each Category into core elements that relate to the Category (e.g. Local Street Network is one element in the Category "Network Improvement.")
3. *Criteria Code* – a code number for each Criterion to aid in cross referencing.
4. *Criteria* – states selected Criteria that reflect planning strategies relevant to that Category and Element (e.g. "Includes network-enhancing local and minor collector street projects" is a criterion in the Local Street Network element of the Network Improvement Category).
5. Columns 5 – 8 provide space for the reviewer to indicate the extent which each Criterion has been addressed by proposed strategies, using the terms noted below. Double-clicking in each column produces an "X" in the space.
    - *Addressed* - a strategy or strategies addresses the Criterion; in some cases, more detailed strategies would provide greater benefit and the reviewer should indicate this in the "Comments" column.
    - *Not addressed* – no strategies address the Criterion.
    - *Not applicable* – the criterion is not applicable within the local context.
6. *Comments* – for staff comments related to the Criteria.

Below is an explanation of the Categories, Elements, and Criteria contained in the Checklist to guide both plan preparers and reviewers. The "Notes" located adjacent to each Criterion in the following tables describe how the Criterion may be addressed and/or pertinent considerations and resources.

NOTE: *Transportation system and land use strategies should be evaluated relative to the criteria on this checklist. While all criteria may not be desirable for each community, it is important to seek all opportunities to connect land use and transportation planning objectives. Items not relevant to local government objectives may be designated "not applicable."*

2.3 Category SP: Supporting Plans and Guidelines

2.3.1 Element SP: State, Regional, Local

As partners in maintaining regional mobility, local government multimodal and corridor management strategies should be coordinated and consistent to the extent feasible with adopted plans of adjacent local governments, as well as with state and regional plans. The same is true for proposed mitigation strategies and corridor management plans. Where local governments have previously established corridor management policies and mitigation plans for SIS facilities, such policies and programs should be incorporated into the overall comprehensive plan. Table 1 illustrates criteria for consideration in the review and development of proposed multimodal plans, as well as corridor management plans.

The efficiency of local and regional transportation systems and the effectiveness of growth management efforts are directly influenced by the degree of coordination in state, regional, and local government planning. Urbanized areas designated for additional growth and urban infrastructure/services (e.g., within urban service boundaries) in regional vision plans, MPO long range transportation plans, transit development plans, and local comprehensive plans are more conducive to development because infrastructure and services are already in place or planned. Locating development and transportation projects in these areas improves the ability of government agencies to provide cost-effective and efficient transportation service. Such location may also reinforce multimodal strategies resulting in a reduction in vehicle miles of travel.

Table 1: Supporting Plans and Guidelines (SP1) Criteria

	CRITERIA	NOTES
SP1.1	Supports the Florida Transportation Plan, the Strategic Intermodal System Plan, and other applicable state plans and guidelines.	Ensure the proposed plan is consistent to the extent feasible with adopted state transportation plans including the Florida Transportation Plan, Transit 2020, and the 2010 Strategic Intermodal Plan. Identify specific strategies aimed at advancing state transportation plans.
SP1.2	Consistent with adopted regional mobility plan or vision, such as that established through a regional collaborative, including the MPO Long Range Transportation Plan and adopted Transit Development Plan.	Identify applicable regional, MPO, and transit agency plans. Identify (possibly with an asterisk or other simple indicator) plan policies and strategies that advance applicable regional plans. These plans will vary according to location.
SP1.3	Coordinates with transportation, corridor management, and mobility plans of adjacent local governments and transportation planning agencies.	Identify how planned projects and policies are consistent with and coordinate with transportation and mobility plans of adjacent local governments and transportation planning agencies. Identify any sub-area studies that may be located in whole or in part within the mobility or mitigation planning area and how those plans are incorporated.
SP1.4	Consistent with local government comprehensive plan objectives and policies as well as specialized plans.	Identify applicable plans. Identify comprehensive plan policies supported and advanced by the proposed plan amendment. Again, a simple, yet unique, indicator may be used.

2.4 Category ME: Multimodal Environment

The multimodal environment relates to the organization and location of land uses, the land use mix, the density and intensity of development, and related multimodal policies. The FDOT 2009 Trends and Conditions Report on Impact of Transportation: Transportation and Land Use describes land use trends and conditions in Florida and the implications for transportation and the environment. The Criteria in this Category relate to these issues and are interdependent with the Major Roadway, Local Street, Transit, and Bicycle and Pedestrian Network Improvement Criteria later in this Guide. Carefully promoting these Criteria through planning will contribute to an environment conducive to walking, bicycling, and transit use. This may also help to reduce vehicle miles of travel (VMT) and the need to use major arterials for short local trips.

Figure 1 illustrates the relationship between network, land use mix, and trip making on major roadways. The top example reveals how separate, stand alone land uses require use of the arterial for even short local trips due to the absence of network connections. This increases the need to drive among uses, rather than walk or bike, due to longer local travel distances. The bottom example shows how land uses can be organized on a connected network to create an environment that supports non-automobile modes, reduces VMT, and internalizes local trips.

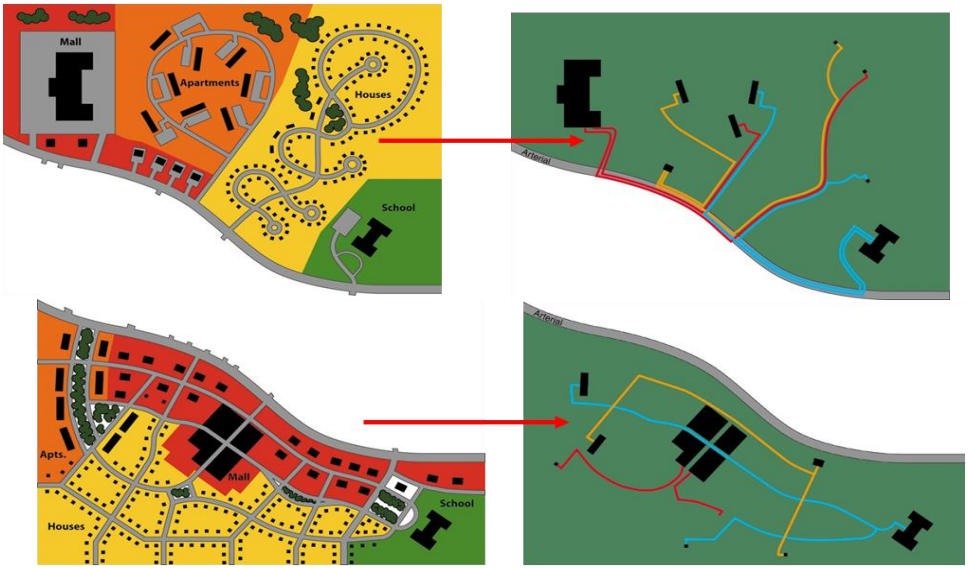


Figure 1: Land use organization, network connectivity and arterial traffic.

A challenge in mobility and corridor management planning is how to promote a multimodal environment appropriate to the context and level of urbanization. This is particularly true in counties that may have a variety of urban, suburban, and rural environments. The transect concept, as applied to human settlements, is described by the town planning firm Duany Plater-Zyberk & Co: “The Transect arranges in useful order the elements of urbanism by classifying them from rural to urban. Every urban element finds a place within its continuum. For example, a street is more urban than a road, a curb more urban than a swale, a brick wall more urban than a wooden one, and an allee of trees more urban than a cluster…” The Center for Applied Transect Studies elaborates, “The six Transect Zones … provide the

basis for real neighborhood structure, which requires walkable streets, mixed use, transportation options, and housing diversity."

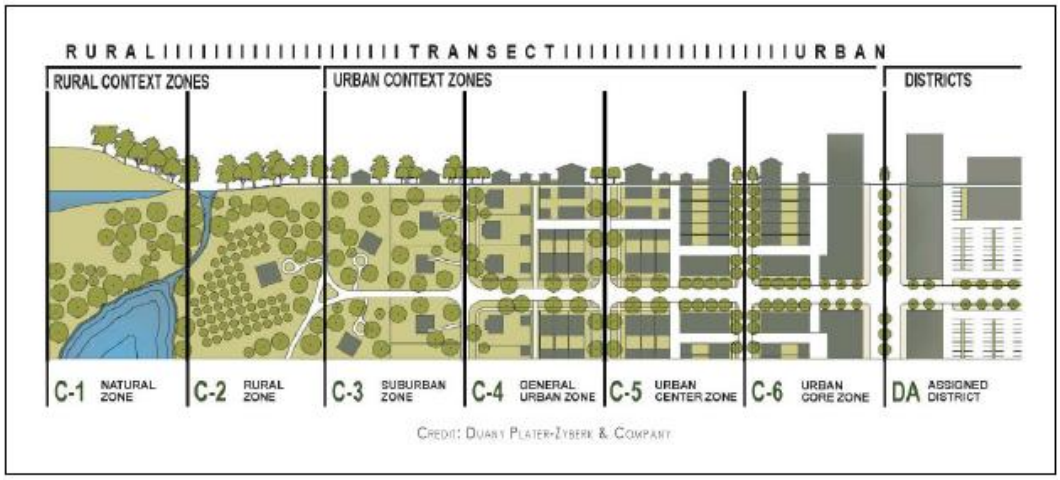


Figure 2: Corridor transect

Source: Duany Plater-Zyberk and Company

The transect concept is discussed in terms of "Context Zones" in Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (ITE 2010) where it provides the transect illustration (Figure 2) and a table of characteristics for each context zone to aid users in establishing appropriate sets of land use and transportation strategies across varying levels of urbanization. This recommended practice discusses features that create context including land use, site design and urban form, and building design.

Marlon G. Bournet explores transportation investments that may provide alternatives to automobile travel in his research and article, "Transportation Infrastructure and Sustainable Development."[4] His research suggests that it is important to focus on establishing livable urban cores and activity centers through both land use mix and walkability.

Available resources that address transportation and land use include FHWA's Livability in Transportation Guidebook and FDOT's A Framework for Transit Oriented Development in Florida. In addition, many publications are available on the market that address transportation and land use as the elements that determine community livability. These include New Urbanism: Comprehensive Report and Best Practices Guide, SmartCode, Sprawl Repair Manual, and Sustainable Urbanism.

Rather than establish specific parameters for the multimodal environment, this Guide invites the reviewer to work with individual local governments to determine what may be right for each community in concert with guidance provided in the various resources. The following sections provide specific details regarding Elements of the Multimodal Environment Category.

[4] M. Boarnet, "Transportation Infrastructure and Sustainable Development: New Planning Approaches for Urban Growth," *Access*, No. 33, Fall 2008, pp. 27-33.

2.4.1 Element ME1: Organization and Location

The organization and location of land uses directly affects local and regional mobility and the efficiency of non-automobile modes. Focusing non-residential development into activity centers, rather than in strips along major roadways, creates destinations that can be more efficiently served by transit, cycling, and walking. An activity center may be generally defined as a compact node of development containing uses and activities which are supportive of and have a functional relationship with the social, economic, and institutional needs of the surrounding area.

> "Transit compatible land use decisions are one way to build transit ridership and ultimately reduce headways, without the risk and uncertainty of major capital outlays. "
>
> - FDOT, *Impact of Transportation: Transportation and Land Use*, 2009

Proximity of shopping, services, and employment centers to each other and to the surrounding residential uses facilitates walking, bicycling, and transit use and reduces the number and length of auto trips. This same principle can be translated on a smaller scale to a neighborhood level. Neighborhoods that include a greater mix of land uses within reasonable proximity not only have greater choice of travel alternatives, they also afford residents greater convenience in meeting daily needs.

Table 2: Multimodal Environment (ME1) Organization and Location Criteria

	CRITERIA	NOTES
ME1.1	Designates and reinforces strong urban core(s) and urban activity centers of varying sizes and compositions.	Focuses on reducing VMT through strong urban cores and activity centers. Plans should focus employment and commercial activities into such cores and centers surrounded by relatively high density and intensity residential development. Networks should provide high connectivity of the residential areas with the activity centers (see NI). Larger cities and counties may also have regional activity centers outside of this core. Locate smaller employment centers and commercial/service nodes of varying sizes in proximity to residential neighborhoods.
ME1.2	Transit-compatible land uses are defined and required to locate on existing or planned transit corridors with direct access to transit. This should include but is not limited to transit-oriented developments (TOD).	A detailed description of transit compatible land uses is contained in Model Regulations and Plan Amendments for Multimodal Transportation Districts. See also the FDOT Framework for Transit Oriented Development in Florida for detailed guidelines on varying types of TOD depending on context (e.g. urban core, urban general, suburban, and rural). The report Mixed Income Housing Near Transit offers strategies for increasing the affordable housing supply as part of transit oriented developments to offset the tendency to cater only to high income markets in these locations.
ME1.3	Ensures that industrial and other freight-related uses locate in proximity to and have direct access to major transportation routes and intermodal stations or other freight transfer locations.	Proper location and direct access to and between major transportation routes and/or ports and airports help reduce impacts on the surface street system and increase the speed of freight movement.

When activity centers and other major land uses that generate transit ridership are located along existing transit routes, then route productivity increases and transit service may potentially be increased. Conversely, locating such land uses outside an existing transit service area may result in the need to alter or extend routes leading to longer headways and less convenient service. Locating large residential subdivisions at the urban fringe and focusing goods and services onto strips along arterial roadways requires residents to make more auto trips, longer trips, and focuses these local trips onto the arterial system. These development patterns preclude transit and walking, increase VMT, and increase travel demand for single occupant vehicles on the arterial system.

2.4.2 Element ME2: Mix

Transit use, walking, and bicycling are more feasible modes of transportation in communities with a diverse mix of land uses and services on an interconnected street system (*see also* **NI2**). Core areas and urban activity centers should contain a complementary mix of office, retail, government, residential, entertainment, restaurants, grocery stores, and related uses that promote activity, during both peak and non-peak hours. Mixing uses vertically in multi-story buildings encourages walking by providing more activities at the street level (e.g. office, parking, or residential above retail/service uses, etc.). The goal is a mixed use environment that attracts people and allows them to walk and interact with their environment outside of an automobile.

Table 3: Multimodal Environment (ME2) Mix Criteria

	CRITERIA	NOTES
ME2.1	Provides for a complementary mix of retail, services, residential, institutional, cultural, recreational, and employment opportunities within urban cores and major activity centers.	Sample objectives and policies for achieving a complementary land use mix in varying types of activity centers or service nodes are contained in Model Regulations and Plan Amendments for Multimodal Transportation Districts (pp. 18-20). An additional resource is New Urbanism: Comprehensive Report & Best Practices Guide (Steuteville, et.al.). This criterion also encompasses strategies such as workforce housing in proximity to employment. Providing a mix of uses can increase internal capture and reinforce non-automobile modes. However, these benefits are highly dependent on context and factors such as land use compatibility and network connectivity as indicated in the FDOT Community Capture Methodology.
ME2.2	Provides for a vertical mix of uses within urban cores and major activity centers to encourage active uses at the street level.	Avoiding long vacant or blank block fronts contributes to pedestrian-friendliness. An example policy might require at least 50% of the ground-floor street frontage, excluding driveway entrances and elevators, to accommodate pedestrian-oriented uses such as retail or neighborhood services. For example policies and regulations, see Section 9.3 of Model Regulations and Plan Amendments for Multimodal Transportation Districts. This Criterion is most appropriate for high-intensity urban cores and major activity centers.
ME2.3	Provides for compatible food, education, retail and service uses on a neighborhood level within or in close proximity to residential areas.	Strict separation of residential and other uses into large single use areas increases auto dependence. Policies should provide opportunities to integrate service centers within existing single-use residential neighborhoods.

2.4.3 Element ME3: Density

Future land use plans and zoning ordinances typically establish only maximum development densities using dwelling units per acre or floor area ratios (FAR). The resulting densities in Florida cities are often far less than the maximum allowed – particularly in commercial centers or along corridors where higher densities are desirable. In addition, efforts to increase density in established areas are often opposed by neighborhood residents due to concerns over motor vehicle traffic impacts. However, establishing minimum density and intensity policies may be necessary in some areas to achieve optimal densities for economically vibrant urban cores and major activity centers. As noted by the Victoria Transport Policy Institute: "Commercial centers should be medium- to high-density, with multi-story buildings. Densities of 50 employees or more per gross acre are desirable."[5]

It is essential that efforts to increase density in designated areas be combined with urban design criteria aimed at ensuring a livable, walkable environment. For example, Miami adopted a citywide form-based code in 2009 based on the transect concept (Miami 21) in an effort to better integrate infill and redevelopment into the existing urban context and enhance the character and livability of urban neighborhoods.

Table 4: Multimodal Environment (ME3) Density/Intensity Criteria

	CRITERIA	NOTES
ME3.1	Establishes minimum density and intensity requirements for urban core and major activity center areas.	Minimum density and intensity should be established for development in urban cores, major activity centers, and along corridors to ensure a dense built environment that supports non-auto travel. Policy examples may be found in some form-based codes that include a combination of minimum and maximum building height and number of stories.
ME3.2	Establishes appropriate densities and intensities within walking distance of transit stops.	Densities needed to support transit in various environments (e.g. urban core, urban general, suburban, rural) are identified in FDOT Framework for Transit Oriented Development in Florida.
ME3.4	Establishes urban design criteria for urban cores and major activity centers to preserve or improve livability.	Plans should include policies relative to adoption or refinement of urban design criteria. Urban design standards and/or form based codes enhance the character of activity centers and compatibility of infill development with surrounding land uses.

2.4.4 Element ME4: Multimodal Policy (other)

Improving the multimodal environment in urban cores, activity centers, and along designated corridors requires a shift in transportation and development policy. Greater emphasis must be placed on improving the pedestrian and bicycle environment and promoting a diverse, compatible mix of land uses to support transit service in these areas.

This Element assesses the degree to which local governments have enacted the necessary multimodal transportation and development policies in the comprehensive plan. In addition, it looks at whether transportation impact assessment procedures have been expanded to address three basic concerns:

[5] Victoria Transport Policy Institute, "Strong Commercial Centers," TDM Online Encyclopedia, January 25, 2010.

can people travel to and from a proposed development conveniently and safely on foot, by public transportation, and by car. The Florida Department of Transportation has enacted multimodal level of service analysis tools and is increasingly assessing the ability to serve developments by transit. Further information on these tools is available at http://www.dot.state.fl.us/planning/systems/sm/los/default.shtm.

Table 5: Multimodal Environment (ME4) Multimodal Policy Criteria

	Criteria	Notes
ME4.1	Establishes priority on enhancing bicycle and pedestrian mobility within existing and proposed activity centers, including urban core areas.	Plans should identify centers with the greatest potential to accommodate non-automobile modes and focus investment on enhancing the multimodal environment for those centers. Policies, regulations and funding mechanisms should reflect the higher priority on enhancing the multimodal environment in these areas. Strategies may include connecting gaps in the network and full accommodations for bicycle and pedestrian access and movement, including shaded sidewalks, benches, water fountains, enhanced crossings, and bicycle parking.
ME4.2	Includes automobile parking management strategies for urban cores, activity centers and transit corridors to reduce surface area parking and promote non-automobile travel.	Large parking lots are generally unattractive and uninviting to pedestrians. In addition, parking lots increase the overall length of a pedestrian trip thereby discouraging walking as a non-automobile mode. Parking management includes strategies such as parking maximums, shared use parking, increasing capacity of existing parking facilities, remote parking/shuttle services, pricing and other strategies. For more information see Parking Management Best Practices (T. Littman, ©American Planning Association, 2006.)
ME4.3	Provides for, and requires new development to contribute to, pedestrian-friendly amenities on the public streetscape.	An attractive street environment with trees and other amenities increases the willingness of people to walk to their destination. Examples include benches, lighting, street trees, covered walkways, trash cans, and pedestrian entrances and windows at the street level. For one example, see Policy 12 of Model Regulations and Plan Amendments for Multimodal Transportation Districts.
ME4.4	Provides for, and requires new development to contribute to, amenities at existing and proposed transit stations and stops including covered shelters, trash receptacles, benches, landing pads, lighting, and bicycle parking.	Transit station amenities can be determinants of transit use. For example, a potential user may be more likely to use transit if the station provides shelter from the sun and rain, is clean and is well lit to increase safety. See the resources above for detailed guidance regarding transit station and stop amenities.
ME4.5	Transportation impact assessment procedures are in place that address development impacts on all modes of transportation and minimize vehicular, transit, bicycle, and pedestrian conflicts.	See the multimodal transportation impact assessment (TIA) methodology in the Florida Department of Community Affairs, Transportation Concurrency Best Practices Guide and Montgomery County, Maryland's Local Area Transportation Review and Policy Area Mobility Review Guidelines for ideas on procedures and requirements for multimodal TIAs.

Many resources containing design guidelines and policy examples are available for non-automobile modes including, but not limited to, the following:

- The Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highway (The Florida Greenbook), FDOT
- Manual on Uniform Traffic Control Devices, FHWA
- Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (ITE 2010)
- Guide for the Planning, Design and Operation of Pedestrian Facilities, AASHTO
- Guide for the Development of Bicycle Facilities, AASHTO
- Accessing Transit Design Handbook for Florida Bus Passenger Facilities (statewide)
- LYNX Central Florida Mobility Design Manual
- LYNX Central Florida Customer Amenities Manual
- FDOT District I and 7 Transit Facility Handbook
- FDOT District 4 Transit Facilities Guidelines
- Palm Tran Transit Design Manual

2.5 Category NI: Network Improvement

This Category involves a range of strategies for improving the balance, connectivity, and capacity of the multimodal transportation network. Balance is considered in relation to the availability of local, collector, and arterial roadway networks, as well as networks for transit and bicycle and pedestrian travel. Connectivity is addressed through Criteria in each Element as a means of increasing mobility as well as system capacity by providing multiple alternative routes for all modes.

The existing conditions analysis discussed in Section 2.1 above and Appendix A forms the basis for network planning. Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (ITE 2010) discusses planning urban transportation networks. “The thoroughfare network should be planned to support the needs generated by the planned land uses (including intensity) while at the same time being compatible with the characteristics of the resulting neighborhoods and community—areas that may have widely varying needs, features and activity levels.” In addition, the resource addresses street connectivity and spacing, indices for connectivity and accessibility, and performance measures.

2.5.1 Element NI1: Major Roadway Network

The Criteria in this Element address the adequacy of local mobility planning for the major roadway network, including those that are part of the SIS. Considerations include whether plans are in place to preserve and manage future rights of way for major roadway corridors, the availability of relievers and alternate routes, methods to address bottlenecks, and addition of new lanes. Note that in the absence of adequate and connected supporting networks, the capacity from adding new lanes may be counteracted by excessively long signal cycles and delay at major intersections. Long signal cycles at intersections indicate a need for other corrective actions such as grade separations, rerouting left turns or improving the density, and connectivity of the secondary street system to reduce arterial left-turn volumes.

Table 6: Network Improvement (NI1) Major Roadway Network Criteria

	CRITERIA	NOTES
NI1.1	Transportation corridors requiring additional right of way and/or corridor management are designated for preservation and management as provided in §337.273, F.S.	Florida law requires local governments to designate transportation corridors in their comprehensive plan prior to adopting corridor management ordinances. See Managing Corridor Development: A Municipal Handbook for further information. See also Model Corridor Management Plan Amendments.
NI1.2	Includes transportation corridor management policies to preserve right-of-way needed for all transportation modes and provides for dedication of land or conveyance of easements to local governments for planned transportation projects as provided in §337.273(6), F.S.	See Corridor Preservation Best Practices for details on how local governments in Florida are preserving and managing transportation right-of-way in the context of Florida law. Methods include thoroughfare right-of-way needs maps and regulations. Ensure that sufficient right-of-way is reserved to accommodate future cross-section needs for all modes and utilities. See also Model Ordinance for Corridor Protection and Rights of Way.
NI1.3	Provides for construction of parallel relievers or service roads along major highway corridors or within interstate interchange quadrants.	These roads may be established through designation of a corridor and adoption of a corridor management plan as provided in NI1.1&1.2. Parallel relievers or service roads along congested highways tend to attract motor vehicle traffic and may require more than one travel lane in each direction. Service roads within interchange quadrants provide alternative access, while enhancing the ability to accommodate development near interchanges.
NI1.4	Provides for construction of new interstate highway overpass crossings to connect local street networks.	New interstate overpasses increase local roadway connectivity and may relieve congestion at interstate interchanges by providing additional routes for all modes to cross interstate highways.
NI1.5	Includes grade separated intersection improvement(s).	This strategy was used on US Highway 19 to recapture system capacity that had been lost due in part to inadequate access management.
NI1.6	Provides for construction of additional travel lanes and/or turn lanes to address existing or anticipated motor vehicle traffic volume where appropriate.	Plans should note the location of planned roadway lanes and turn lanes. FDOT access management guidelines for right- and left-turn lanes into driveways are provided in the FDOT Driveway Information Guide. Note that adding new lanes can serve as a barrier to bicycle and pedestrian mobility and should therefore always be evaluated in relation to other modal needs.
NI1.7	Includes new arterial or major collector roadways to relieve motor vehicle traffic congestion and increase network connectivity.	Many urban areas in Florida lack a balanced network of arterial, collector and local streets. Potential strategies include master street plans with right-of-way policies, street network standards, and limiting right-of-way vacation and/or requiring replacement of those proposed for abandonment. See also NI2.1. Network connectivity is addressed in Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (ITE 2010).
NI1.8	Includes design elements to increase bicycle and pedestrian safety and mobility.	This should include safe crossings at roadway intersections and appropriate mid-block locations. See Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (ITE 2010).
NI1.9	Includes network enhancements and design elements in support of managed lanes.	Managed lanes involve the application of one or more of the following: tolling, technology, express transit, and telecommuting. New or reconstructed lanes, and possibly off highway improvements may be needed to support the strategy. FDOT is increasing use of this strategy on congested freeways, expressways, and freight routes and port access. See also OS1.

Major roadway network projects listed in the FDOT Five-Year Work Program, as well as those in the applicable MPO LRTP and Transportation Improvement Program (TIP), should also be included in a mobility or corridor plan. FDOT provides guidance for roadway facilities in the FDOT Plans Preparation Manual (PPM), FDOT Design Standards, and the Florida Traffic Engineering Manual (TEM).

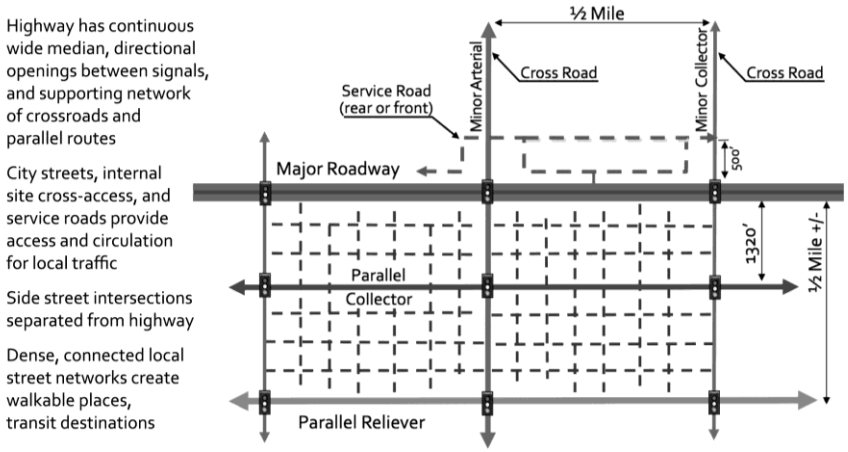


Figure 3: Corridor network and access management concepts

2.5.2 Element NI2: Local Street Network

Local network density and connectivity is a primary determinant of the quality of the multimodal environment. People can walk and bike more easily where streets provide relatively short blocks and multiple connections to shops and services from the surrounding residential areas. Enhancing street network connectivity can be applied as a technique to provide highway system users alternatives to major roadways, particularly for short trips. Local and collector street networks are often underdeveloped and major highways such as SIS facilities are used as the only means of access to and from many land uses. Fragmented local street systems also increase the number and length of automobile trips and also impede emergency access. A connected road network advances the following mobility objectives:

- fewer vehicle miles traveled;
- decreased congestion;
- alternative routes for short, local trips;
- improved accessibility of developed areas;
- facilitation of walking, bicycling, and use of transit;
- reduced demand on major thoroughfares;
- more environmentally sensitive layout of streets and lots;
- interconnected neighborhoods foster a sense of community;
- safer school bus routes; and
- safer walking and bicycling routes to schools.[6]

Figures 3 and 4 provide network development concepts and strategies for both the major roadway network and the local street network. In addition, arterial congestion in many areas of Florida is

[6] Safe Routes to School. http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT_BD545_32_rpt.pdf

exacerbated by sparse and discontinuous supporting local and collector street networks. This Element includes Criteria aimed at improving the connectivity and availability of local and collector street networks and promoting increased connection of activity centers to surrounding neighborhoods to enhance local mobility and reduce local trips on major roadways.

Table 7: Network Improvement (NI2) Local Street Network Criteria

	CRITERIA	NOTES
NI2.1	Includes network-enhancing local and minor collector street projects.	Such projects are designed to address gaps in the street network, increase network connectivity, and provide alternate routes to reduce congestion on arterials.
NI2.2	Promotes direct connections between activity centers and surrounding residential areas.	See Section 4.3.1 of the Guide for Analysis of Corridor Management Policies and Practices for sample policies and regulations. The intent is to reduce vehicular trips on major roadways.
NI2.3	Includes policies and strategies to increase street network connectivity.	Pertinent policies and strategies may include the continuation of existing streets, limits on cul-de-sacs, and connectivity indices. See sidebar entitled *Network Connectivity Measures* for sample connectivity indices. See Section 4.3 of the Guide for Analysis of Corridor Management Policies and Practices for sample street network plans and regulations and Appendix A & B of Implementing Multimodal Transportation Districts: Connectivity, and the FIHS for numerous examples of street network policies and standards across the U.S.

Network Connectivity Measures

Establishing a connectivity index in the land development code is one method of increasing local network density and connectivity. The Victoria Transport Policy Institute (www.vtpi.org) provides the following succinct description of various types of connectivity indices. (Another method, not noted below is to establish maximum block perimeter standards. An example of this method may be found in the Alachua County Mobility Plan.)

"A Connectivity Index can be used to quantify how well a roadway network connects destinations. Indices can be measured separately for motorized and non-motorized travel. Several methods can be used:

1. The number of roadway links divided by the number of roadway nodes or intersections (Ewing, 1996). A higher index that travelers have increased route choice, allowing more direct connections for access between any two locations.
2. The ratio of intersections divided by the sum of intersections and dead ends, expressed on scale from zero to 1.0 (USEPA, 2002). The closer the index is to 1.0, the more connected the network.
3. The number of surface street intersections within a given area, such as a square mile, a measure of intersection density. The more intersections, the greater the degree of connectivity.
4. An Accessibility Index as the ratio of direct travel distances to actual travel distances. Well connected streets result in a high index. Less connected streets with large blocks result in a lower index."

The most common connectivity index in Florida is #1 above - the number of links divided by nodes. It is typically set at a desirable index of 1.4 links to nodes. Another approach is to evaluate "polygons per square mile" as suggested in the FDOT Multimodal Handbook. The desirable index using this approach is a system of interconnected and direct routes with a connectivity index of 50 or more polygons per square mile.

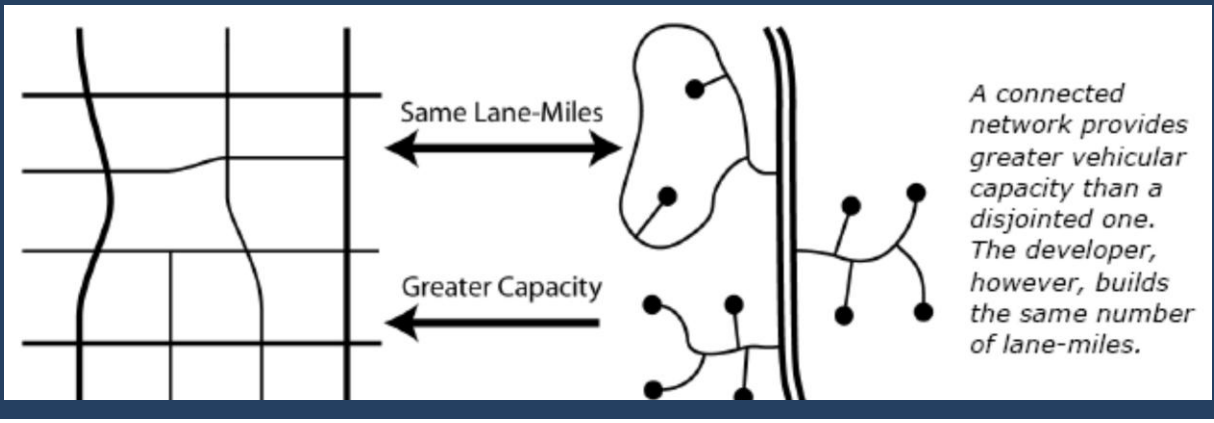


Figure 4: Network connectivity and system capacity

Source: Georgia Regional Transportation Authority DRI Review Checklist Users Guide

2.5.3 Element NI3: Bicycle and Pedestrian Network

Creating bicycle and pedestrian-friendly environments is key to encouraging choice of these modes over the automobile, particularly for short-distance trips. Bicyclists are capable of traveling greater distances; however, sidewalks are essential to pedestrian travel within urban cores and activity centers. Those not using motor vehicles should be able to circulate throughout the planning area and access land uses. Ample bicycle and pedestrian connections within and between residential areas and supporting community facilities and services, such as shopping areas, employment centers, transit stops, neighborhood parks, and schools provide for this circulation. Such connections may be sidewalks, bicycle facilities, and/or shared use paths provided throughout and extended beyond the planning area creating tangible non-automobile mode choices.

A bicycle and pedestrian network comprised of a system of interconnected and direct routes can be measured by a connectivity index. Missing links or gaps in the bicycle and pedestrian network should be identified and eliminated where appropriate through the development process. Missing links may include locations between cul-de-sacs, through walls or fences, mid-block where block length exceeds 660 feet, or where bicycle pedestrian routes would otherwise be "excessively" circuitous. Highest priority for improvements should be given to locations with high concentrations of pedestrian activity and where connections are needed to ensure easy access between transportation modes, with particular attention to bicycle and pedestrian access to schools, transit stops and regional greenway or trail systems. Model comprehensive plan amendment and land development regulation language can be found in Model Regulations and Plan Amendments for Multimodal Transportation Districts.

FDOT provides guidance for bicycle and pedestrian facilities in the FDOT Plans Preparation Manual (PPM), FDOT Design Standards, and the Florida Traffic Engineering Manual (TEM). The Florida Pedestrian Facilities Planning and Design Handbook is available as an aid to the FDOT guidelines. Additional resources include:

- The Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highway (The Florida Greenbook), FDOT
- Guide for the Planning, Design and Operation of Pedestrian Facilities, AASHTO
- Guide for the Development of Bicycle Facilities, AASHTO

Table 8: Network Improvement (NI3) Bicycle/Pedestrian Network Criteria

	Criteria	Notes
NI3.1	Requires bicycle lanes and sidewalks of appropriate width on or near all new or reconstructed major collector and arterial routes where appropriate.	Such policies encourage bicycle use as an non-automobile mode. The American Association of State Highway and Transportation Officials (AASHTO) developed the Guide for the Development of Bicycle Facilities. In addition, the Florida DOT provides guidance in the Florida Bicycle Facilities Planning and Design Handbook and Florida Pedestrian Facilities Planning and Design Handbook.
NI3.2	Includes planned projects to address bicycle and pedestrian network connectivity.	Mobility planning efforts should include bicycle and pedestrian networks and strategies. Projects should be programmed to address network gaps. New network needs should be identified for preservation on the local transportation right of way needs or thoroughfare map. (Right of way preservation for transportation corridors is addressed in NI1.1) Options may include multi-use paths to provide for bicycle and pedestrian circulation between neighborhoods to reduce need for automobile travel on arterials.
NI3.3	Addresses the continuation of, or establishes new, shared use paths.	Shared use paths that shorten the distance between two uses encourage non-automobile mode travel in addition to facilitating active recreation.
NI3.4	Requires new development to maintain continuous pedestrian networks, including connections to transit stops, adjacent lots, and between building entrances and the internal and external sidewalk network.	Pedestrian connections should be more convenient and direct than those provided for motor vehicles, particularly on transit corridors or in activity centers. Example policies may be found in Model Regulations and Plan Amendments for Multimodal Transportation Districts (pp. 11-13). Additional information may be found at the Pedestrian and Bicycle Information Center. Strategies may also seek commitments from existing development to retrofit or provide new pedestrian infrastructure.
NI3.5	Requires new development to maintain continuous bicycle networks, including connections to transit stops and adjacent properties, and to provide bicycle parking at all non-residential uses, multi-family uses and other key destinations.	A complete network and abundant parking encourages bicycle use. Guidance on policies and regulations may be found in Model Regulations and Plan Amendments for Multimodal Transportation Districts (pp. 29-31). Additional information may be found at the Pedestrian and Bicycle Information Center. Strategies may also seek commitments from existing development to retrofit or provide new bicycle infrastructure.

Bicycle boulevards are another option. These are bicycle priority streets where people can feel safe bicycling, even if they do not feel comfortable bicycling adjacent to motor vehicle traffic on ordinary streets. They are intended to have low motor vehicle traffic volumes and speeds and contain clear signage indicating that priority is given to bicycle traffic. The existing conditions analysis performed as a precursor to developing land use and transportation strategies to support mobility should include analyses of bicycle and pedestrian facility connectivity. A number of tools have also recently been developed to analyze the quality and level of service of these facilities.

Local governments are encouraged to develop a bicycle and pedestrian circulation plan and use this as the basis for their capital improvement program for bicycle and pedestrian infrastructure. Adopting a long-term plan will allow the community to prioritize and fund projects in well-defined increments,

rather than relying on an ad hoc approach. A system approach with a clearly defined plan will also set the stage for proportionate fair share negotiations and other mitigation actions.

2.5.4 Element NI4: Transit Network

This Element addresses modifications to the transit network and is interrelated with Section 3.6.3: Transit Operations and Safety. The transit network is integral to the major roadway and local network, yet has specific Criteria that should be addressed.

The term transit is synonymous with public transportation and mass transportation. It refers to transportation by bus, rail, or other conveyance, either publicly or privately owned, providing general or special service to the public on a regular and continuing basis. Transit includes various modes for air, water, and ground transportation (e.g. air craft, ferries, water taxies, high speed rail, trolleys/streetcars, light rail, subways, commuter rail, monorail, buses, bus rapid transit, jitneys, van pool services, paratransit services, etc.).[7] Figure 5 provides a comparison of transit modes commonly integrated into mobility plans including bus, bus rapid transit (BRT), streetcar, light rail, commuter rail, and heavy, high speed rail. Each type of transit is assessed regarding travel market, economic development impact, speed, right of way, and construction disruption.

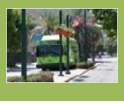
Criteria	Bus	BRT	Streetcar	Light Rail	Commuter Rail	Heavy Rail/ High Speed Rail
						
Travel Market (Trip market served)	Local/ Commuter	Local/ Commuter	Local	Local/ Commuter	Commuter	Long Distance (Intercity)
Economic Development (Impact on business)	Minimal	Moderate	Significant	Significant	Significant	Significant
Speed (Operating speed in MPH)	10 - 25	20 - 50	7 - 15	20 - 30	30 - 50	30 - 70
Right of Way (Shared/dedicated)	Shared	Dedicated	Shared/ Dedicated	Dedicated	Dedicated	Dedicated
Construction Disruption (Impact on traffic and business during construction)	Minimal	Minimal	Minimal	Significant	Significant	Significant
• Density is a critical concern in transit planning – min 7 dwelling units per acre or 50-60 employees per acre are required to support 30 min bus headway • Rail investment is generally more capital intensive as compared to bus investment						

Figure 5: Comparison of transit modes

Source: HDR, "Public Transportation Resource Guidebook," June 2007, slide overview.

Rail transit provides a sense of permanency for its riders as well as for real estate developers. The construction of transit rails and supporting stations anchors transit service within a community. Supporting land development regulations establish an environment for new development to occur near the stations. Bus transit is important for mobility, but may have less impact on land development.

[7] HDR, "Public Transportation Resource Guidebook," June 2007, slide overview. http://www.cfgis.org/trafficdata/files/Resource/D5_Public_Transportation_Resource_Guidebook.pdf

Developers tend to be less aggressive in developing along bus routes given that service could move from that location due to changing ridership or budget demands.

Detailed transit plans may be found in regional transportation/transit authority plans or local transit development plans (TDPs) and transportation disadvantaged service plans (TDSPs). Any transit system projects appearing in such adopted plans should be a part of mobility or mitigation plans. Users are referred to the District 5 Public Transportation Resource Guidebook for further information. Additional resources for transit planning are available at:

- National Center for Transit Research, http://www.nctr.usf.edu
- National Bus Rapid Transit Institute, http://www.nbrti.org

Table 9: Network Improvement (NI4) Transit Network Criteria

	CRITERIA	NOTES
NI4.1	Addresses statewide/regional transit traveling through or with endpoints within plan boundaries.	Identifies corridors with existing and/or planned regional transit service including high speed rail and commuter rail or light rail and transit system modifications addressed in regional transit authority plans and MPO long range transportation plans. Addresses local bus and shuttle services and circulators at existing and planned rails stations.
NI4.2	Addresses express transit service.	Identifies new and/or expands existing express bus routes, bus rapid transit (BRT) routes or express rail routes on existing or specialized travel lanes, including managed lanes. May include other modes, such as ferries or streetcars.
NI4.3	Addresses existing and planned local transit within plan boundaries, including route locations, headways and infrastructure.	Identifies new local bus and shuttle routes and services and expands existing routes and service. Establishes measures to achieve shorter bus headways, increased frequency, extended service hours. May include other modes, such as ferries or streetcars

2.6 Category OS: Operations and Safety

Key to the performance of the existing transportation system is the relief of congestion along with the safe movement of goods and people. This Category includes a variety of strategies known to improve transportation system operations and safety. Such strategies can maintain or improve travel time reliability, provide viable options to improve mobility on congested corridors, and reduce the potential for crashes. The Criteria are organized in relation to demand management, roadway access management, and bicycle and pedestrian strategies. Congestion management projects and strategies identified through the MPO federally-mandated congestion management process should be included in a local mobility plan.

The 2006 FDOT Strategic Highway Safety Plan (SHSP) established the emphasis areas of aggressive driving, intersection crashes, vulnerable road users, and lane departure crashes and provided a comprehensive framework for addressing each area. Strategies to improve safety may include engineering, education, enforcement, and emergency services.

2.6.1 Element OS1: Demand Management

Demand management strategies foster increased efficiency of the transportation system by influencing travel behavior by mode, time of day, frequency, trip length, regulation, route, or cost. Such strategies include but are not limited to public transit services, carpooling and vanpooling, compressed work weeks, telecommuting, limited parking, and provision of bike and locker facilities by employers. A strategy that is gaining popularity to improve mobility on limited access freeways is the use of managed lanes.

Another set of strategies for managing demand and improving operations falls under the heading of intelligent transportation systems (ITS). Examples include advanced public transportation systems, advanced traveler information systems, advanced crash avoidance systems, automated vehicle location, machine vision, and electronic toll and traffic management systems. For example, the communication of key information through a variable message board allows drivers to select a less congested route. Transit signal priority increases the travel time reliability of the transit system thereby encouraging ridership.

Table 10: Operations and Safety (OS1) Demand Management Criteria

	CRITERIA	NOTES
OS1.1	Provides for high quality transit service and/or managed lanes.	Includes express bus, bus rapid transit (BRT), light rail as well as alternative travel routes. This option may include operation of transit on hard shoulder or bus rapid transit (BRT) lanes. Availability of transit service outside of peak travel hours.
OS1.2	Incorporates intelligent transportation systems (ITS) strategies.	Includes a wide range of tools for managing motor vehicle traffic and providing services for travelers including signal coordination systems, commercial vehicle operations, advanced public transportation systems (e.g. transit signal priority, queue jumpers), advanced motor vehicle traffic management systems, advanced traveler information systems, advanced crash avoidance systems, automatic vehicle location.
OS1.3	Establishes institutional strategies.	These may include, but are not limited to, transportation management organizations (TMOs) and TDM programs or policies (e.g. carsharing, ridesharing, vanpooling, telecommuting, and/or compressed work week and non-peak hour work hours).
OS1.4	Establishes commuter financial incentives.	These may include, but are not limited to, parking cash out, travel allowance, or transit and rideshare benefits.
OS1.5	Provides infrastructure designed to encourage alternatives to single occupant vehicle travel.	Includes high-occupancy vehicle (HOV) facilities, special use lanes, park-and-ride facilities, and vehicle-free zones.
OS1.6	Establishes pricing strategies.	This may include congestion pricing measures (e.g., variably priced lanes, variable tolls, cordon charges, and area-wide charges).
OS1.7	Provides for safer travel for all modes.	Includes safety in planning and design, particularly in crash locations, coordination with other agencies, and safety education and training.

Managed lanes are another demand management strategy. This strategy is actively advanced by the Florida Department of Transportation. Managed lanes are defined by FDOT as "highway facilities or sets of lanes within an existing highway facility where operational strategies are proactively implemented and managed in response to changing conditions with a combination of tools. These tools may include accessibility, vehicle eligibility, pricing, or a combination thereof."[8] FDOT considers managed lanes as part of all added capacity improvement projects on highways, and seeks to ensure that the potential for managed lanes not be precluded in the planning and project development process.

Effective demand management involves selecting the right set of complementary strategies based on analysis of local conditions. Detailed information about TDM strategies and existing programs can be found at the National TDM and Telework Clearinghouse and the Victoria Policy Institute Online TDM Encyclopedia.

2.6.2 Element OS2: Access Management

Access management involves the coordinated planning, regulation, and design of access between roadways and land development. Limiting access along major roadway corridors reduces traffic conflicts and flow interruptions, while improving safety for drivers, pedestrians, and bicyclists. This Element addresses policies and strategies that local governments can apply to advance access management objectives for major roadways and around freeway interchanges. Some access management strategies, such as supporting street networks and auxiliary lanes, are included in the Network Improvement Category.

> "Access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. It also involves roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals. "
>
> -TRB Access Management Manual, 2003

Local governments should assess existing access characteristics on state highway corridors in the planning area in relation to the FDOT access classification and spacing standards. Discussions with FDOT District planning and access permitting staff are also suggested to obtain a clear picture of the challenges and opportunities for managing development and access on planning area corridors. See Guide for Analysis of Corridor Management Policies and Practices for details on assessing and upgrading local corridor management policies and practices. Additional resources are available at the TRB Access Management Committee Website.

[8] Florida Department of Transportation, "Managed Lanes." *Transportation System Management and Operations*, (undated). Web. March 5, 2013. <http://floridamanagedlanes.com/>.

Table 11: Operations and Safety (OS2) Access Management Criteria

	CRITERIA	NOTES
OS2.1	Includes policies and strategies to provide alternative access to development on arterial roadways.	Examples include service roads, parking lot cross access, joint driveways, unified access and circulation plans, outparcel regulations, lot split controls and overlay requirements. See Model Land Development and Subdivision Regulations that Support Access Management for sample local regulations and policies for alternative access. Promote connection of as many properties and interests as possible to traffic signals via internal cross access or service roads.
OS2.2	Includes policies and strategies to close excessive or unsafe driveway connections or to redesign overly-wide or poorly designed connections.	For sample policy language, see Section 13 of Model Land Development and Subdivision Regulations that Support Access Management. See also the FDOT Driveway Information Guide.
OS2.3	Includes policies and strategies to replace continuous two-way left turn lanes with medians on multi-lane arterials.	Medians increase safety by organizing the left turn movement and reducing traffic conflicts. See the FDOT Median Handbook for further information on the safety implications of medians versus TWLTLs and for FDOT's median policy in Section 2.2.2.
OS2.4	Requires conformance of new signals with signal coordination plans and FDOT signal spacing standards for the state highway system.	Poor signal location and placement creates motor vehicle traffic congestion that cannot be solved by signal coordination systems. The goal of signal spacing is to limit signals to locations where the progressive movement of motor vehicle traffic will not be impeded and to maintain the "window" for motor vehicle traffic progression at desired speeds.
OS2.5	Restricts access in the functional area of highway interchanges.	Signalized intersections too close to ramp termini can cause heavy volumes of weaving motor vehicle traffic, complex traffic signal operations, crashes, congestion, and motor vehicle traffic backing up the ramps on to the main line. Curb cuts and median openings near the ramp termini further compound these problems. See Land Development and Access Management Strategies for Florida Interchange Areas and Access Management on Crossroads in the Vicinity of Interchanges for policies and strategies.
OS2.6	Restricts access in the functional area of roadway intersections.	Driveways too close to street intersections create a variety of safety and operational problems. Strategies include requiring access at the edge of property lines and promoting shared and cross access with adjacent sites.
OS2.7	Requires adequate, uninterrupted throat length for driveways and frontage roads that connect to arterial roadways.	Inadequate throat length produces a complex pattern of closely spaced conflicts, causing high collision potential and low capacity. See Chapter 6 of the FDOT Driveway Information Guide.
OS2.8	Includes measures to close or redesign inadequately designed median openings.	Directional median openings have far fewer conflicts and much lower crash potential than full movement median openings. See the FDOT Median Handbook for guidance and strategies.

2.6.3 Element OS3: Pedestrian and Bicycle Operations and Safety

The operation and safety transportation facilities in light of pedestrians and bicyclists should be addressed in mobility and mitigation plans. Pedestrian safety is of great concern, particularly in Florida where pedestrian-related crashes are among the highest in the nation. While continuous pedestrian and bicycle networks (previously addressed in this Guide) are important to safety, safe roadway crossings are essential. In addition, obstructions within the roadway pose safety concerns for bicycles.

The Florida DOT provides guidance for safe bicycle and pedestrian facilities in the FDOT Plans Preparation Manual (PPM), FDOT Design Standards, and the Florida Traffic Engineering Manual (TEM). The Florida Pedestrian Facilities Planning and Design Handbook is available as an aid to the FDOT guidelines. Florida has taken additional precautions to provide safe pedestrian travel to schools through its Safe Routes to School Program. Targeted pedestrian safety actions may be developed using the FHWA Pedestrian Safety Action Plan or A Technical Guide for Conducting Pedestrian Safety Assessments from the University of California Berkeley. Safe and pedestrian-oriented intersections encourage pedestrian usage of sidewalks along roadway corridors. Additional resources include a Federal Highway Administration (FHWA) on Tools to Diagnose and Solve the Problem as well as the following:

- The Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highway (The Florida Greenbook), FDOT
- Manual on Uniform Traffic Control Devices, FHWA
- Guide for the Planning, Design and Operation of Pedestrian Facilities, AASHTO
- Guide for the Development of Bicycle Facilities, AASHTO

Table 12: Operations and Safety (OS4) Pedestrian and Bicycle Operations and Safety Criteria

	CRITERIA	NOTES
OS3.1	Includes measures to increase pedestrian safety at intersections and mid-block crossings, and while walking along the road.	Identifies high crash locations for pedestrians and addresses these proactively, while increasing overall pedestrian safety through countermeasures such as provision of sidewalks, lighting, marked roadway crossings, curb extensions, median refuges, raised crosswalks, and pedestrian actuation devices. Provides for mid-block pedestrian crossings where block lengths are long and pedestrian volumes are high. Gives special consideration to pedestrian safety in areas with concentrations of students, seniors, low-income families, or persons with disabilities. May also include motor vehicle traffic calming measures.
OS3.2	Includes measures to increase bicycle safety.	Identifies high crash locations for bicyclists and addresses these proactively, while increasing overall bicycle safety through modifications to existing bicycle lanes, new bicycle lanes, signing and pavement striping changes, modifications at crossings and off road facilities. May include bicycle safety education or similar measures to increase public awareness.
OS3.3	Includes measures to provide safe routes to schools.	The FDOT Safe Routes to School Program suggests a number of measures that may be appropriate. http://www.dot.state.fl.us/Safety/SRTS_files/SRTS.shtm

2.7 Category IM: Implementation

The best laid plans are of little value unless they are implemented. Implementation strategies specific to a given Element are addressed throughout the Mobility Review Guide and Checklist. This Category addresses whether the basic funding and other key implementation strategies are included in the mobility plan.

2.7.1 Element IM1: Coordination

It is in the interest of local governments, FDOT, and other transportation agencies to support mobility and recognize that transportation facilities and impacts on those facilities do not end at jurisdictional boundaries. Building relationships and partnerships among agencies and regular communication create an environment where agencies can work together to meet mobility needs. In the absence of such efforts, the separation of planning functions and compartmentalized funding will impede the ability to achieve lasting mobility solutions. Therefore, the importance of this element cannot be overstated.

Table 13: Implementation (IM1) Intergovernmental Coordination Criteria

	CRITERIA	NOTES
IM1.1	Includes strategies to forge partnerships and effectively coordinate with modal providers, state and regional agencies, and other local governments in mobility planning and project development.	Describe strategies, specific agencies affected and their involvement in planning and project development. See A New Vision of Mobility: Guidance to Foster Collaborative Multimodal Decision Making.
IM1.2	Includes policies and strategies for coordinating with FDOT in access management and permitting on the state highway system.	See Intergovernmental Coordination in Access Management for a review of issues and strategies relative to FDOT and local coordination in access management and permitting. See also Effective Strategies for Comprehensive Corridor Management.

This Mobility Review Guide and Checklist can complement intergovernmental coordination by providing FDOT, the SLPA and local government agencies with a common set of planning strategies for consideration. Early guidance to local governments from the FDOT District on state highway corridor conditions is another useful step toward greater coordination in mobility and mitigation planning and transportation corridor management. Below are a few coordination strategies that may be considered.

1. *Host a mobility management workshop with area agencies and jurisdictions*. The workshop would provide an opportunity for the District to engage area jurisdictions and modal agencies in a dialogue on mobility conditions relative to the SIS and other state highway corridors and potential strategies for addressing those conditions. Such a workshop would be a logical first step to preparing a state of the system report and identifying possible strategic areas for improvement.[9]
2. *Perform a "state of the system" review for each jurisdiction within the District*. The review would determine existing and anticipated deficiencies on SIS and TRIP-funded facilities and other major roadways based on anticipated motor vehicle traffic growth, approved development trips, adopted QLOS standards, and committed projects. Participants could identify strategic areas for additional

[9] K. Seggerman, et al., "Documenting Improved Mobility Techniques on SIS and TRIP Facilities," *FDOT LOS Issue Paper 13*, CUTR, 2007, p. 49.

projects including multimodal alternatives to new roadway capacity for addressing anticipated deficiencies. A summary report of the review would 1) identify potential multimodal strategies for further exploration; 2) identify corridors that would benefit from a corridor management and/or mitigation plan; and/or 3) set forth informal guidelines for development of local plans relative to these corridors. The report could then serve as an informational resource for local governments and the District.

3. *Prepare a District-wide Mobility Management Plan.* Consider establishing a District-wide plan to help guide local and regional planning efforts as they relate to SIS corridors. The plan would identify strategic focus areas, address the system from a multimodal perspective, and advance comprehensive corridor management strategies. The workshop and state of the system report could serve as intermediary steps in that direction.

2.7.2 Element IM2: Incentives

Infill costs in urban areas can be an impediment to accomplishing the density and mix of uses necessary for a successful multimodal environment. Local governments can help reduce the cost of urban infill and redevelopment through financial incentives, such as reduced impact fees (*see also* Section 3.7.3 Funding) or offsets based on reduced vehicle miles of travel generated by locating development in these areas and/or meeting certain multimodal criteria (e.g. transit oriented development on transit lines, network connectivity, etc.).

Other incentives that can be explored include expedited development application procedures for development that advance multimodal objectives, community redevelopment areas and tax increment financing (TIF) districts and publicly funded infrastructure and streetscape projects. For example, the Cities of Chicago, Illinois, and Portland, Oregon have used tax increment financing extensively to support redevelopment in and around transit station areas, as well as for streetscape and sidewalk projects. The City of Portland designated a tax increment financing district for the purpose of revitalizing neighborhoods affected by the new Interstate MAX light rail line and developed a direct TIF loan program to assist new and existing small businesses in designated areas to finance gaps that occur between project costs and private financing.[10]

Table 14: Implementation (IM2) Incentives Criteria

	CRITERIA	NOTES
IM2.1	Provides incentives to achieve the desired results.	Examples of incentives include expedited review and approval for desired types and intensities of development (e.g. TOD on transit corridors) and targeted public infrastructure investments.

2.7.3 Element IM3: Monitoring

Performance measures provide indicators of progress toward the completion of an objective or objectives to accomplish a goal. Because they can steer the actions taken to complete an objective (i.e., what gets measured is what gets accomplished), measures must be carefully selected. Performance measures may be applied to evaluate a process, on-going long-range planning, or a particular program

[10] Portland Direct TIF Loan Program. Available online: http://www.pdc.us/bus_serv/finance-pgms-detail/direct-tif.asp

with a discrete end time and may also reflect priorities established through a political process. To measure performance, baseline conditions must be established to determine a starting point followed by a means to track progress. The ability to use performance measures is often tied to the availability of appropriate data and analysis methods. Because it takes time, effort, and resources to monitor performance, actual measures should be limited to the most useful measures. Guidance and examples for use by agencies in selecting measures appropriate to their multimodal transportation goals and resources are provided in Expanded Transportation Performance Measures to Supplement Level of Service (LOS) for Growth Management and Transportation Impact Analysis.

This Category also acknowledges the importance of estimating the potential effectiveness of mobility planning efforts (**OS1.1**). Current measures of service levels include quality of service (QOS) and level of service (LOS). QOS is measured using traveler perception of facility operation while LOS is measured quantitatively using volume to capacity ratios. The 2009 FDOT Quality/Level of Service (QLOS) Handbook "provides tools to quantify multimodal transportation service inside the roadway environment (essentially inside the right-of-way)."[11] These tools measure the QLOS of each mode but do not measure the diversion of trips from one mode to another. Travel demand modeling for future years may be performed using the Florida Standard Urban Transportation Model Structure (FSUTMS).

Another tool for estimating plan effectiveness is TRIMMS© - a spreadsheet application that estimates the impacts of a broad range of transportation demand management (TDM) initiatives in terms of emission reduction, crash reduction, congestion reduction, excess fuel consumption, and adverse global climate change impacts. The model also assesses program cost-effectiveness in relation to Federal Highway Administration Congestion and Air Quality (CMAQ) Improvement Program requirements for program effectiveness assessment and benchmarking. The TRIMMS© model and supporting guidance are available at http://www.nctr.usf.edu/abstracts/abs77805.htm.

Table 15: Implementation (IM3) Monitoring Criteria

	CRITERIA	NOTES
IM3.1	Includes policies for adoption of regulations, including design criteria, into appropriate land development regulations by a specified date.	A specific policy (not to exceed two years) should be established for implementing regulations.
IM3.2	Includes a performance measurement system.	Quality/level of service for all modes may be evaluated using the 2009 FDOT Quality/Level of Service (QLOS) Handbook. For example, plan amendments may specify QLOS for both vehicular and non-vehicular modes as well as non-SOV mode share/split goals. Travel demand modeling may performed using FSUTMS through the appropriate metropolitan planning organization, a professional consultant, or FDOT.

2.7.4 Element IM4: Funding

Perhaps the most crucial implementation element is funding. Funding should be appropriately addressed in a financially feasible capital improvement element (CIE). Local governments and FDOT reviewers should obtain specific guidance on funding and related CIE requirements from their SLPA representative.

[11] "2009 Quality/Level of Service (QLOS) Handbook," Florida Department of Transportation, 2009. Web. 03 Feb. 2010.

The scarcity of transportation funding in Florida has resulted in the use of a variety of funding mechanisms to fund transportation systems strategies and projects. They include:

Motor Fuel Tax Options

- Federal Gas Tax
- State Gas Tax
- Constitutional Gas Tax
- County Gas Tax
- 1st Local Option Gas Tax
- 2nd Local Option Gas Tax
- Ninth Cent Motor Fuel Tax

Other Tax Options

- Local Government Infrastructure Surtax
- Local Option Sales Tax
- Ad Valorem Tax
- Municipal Services Benefit District (MSBU)
- Municipal Services Taxing Unit (MSTU)
- Tax Increment Financing (TIF)

Other Options

- Tolls
- Public/Private Partnerships
- Transportation Regional Incentive Program (TRIP): The TRIP provides matching funds for regionally significant facilities (Section 339.2819, F.S.) included in regional transportation plans. To qualify, the facilities must be developed within regional transportation areas established by interlocal agreement (Section 339.155[5], F.S.) and subsequently included in participating local government comprehensive plans. Eligible projects must support transportation facilities that serve national, statewide, or regional functions, be included in the capital improvements element, be consistent with the SIS goals, and have a commitment for local, regional, or private matching funds. Priority will be given to projects that, among other things, provide connectivity to the SIS, support economic development and the movement of goods in rural areas of critical economic concern, and are subject to corridor management regulations.

- Site-Related Mitigation: Local governments may require developers to make certain "site-related" transportation system modifications as a condition of development approval, based on adopted land development regulations and design standards. Such modifications may include provision of right-turn lanes, changes needed to bring existing roads up to current design standards, dedication of easements for parking lot cross access, and dedication of right-of-way for construction of local service roads. Other projects may focus on site-related modifications for non-automobile modes of transportation including sidewalks, bicycle parking, and transit stops.

- Transportation Concurrency and Proportionate Share Mitigation: Local governments in Florida may choose to adopt transportation concurrency requirements as part of their comprehensive plan. Mitigation and proportionate share agreements that result from these requirements are

another opportunity for implementing mobility through the development process. For example, in situations where a development would cause transportation facilities to operate below locally adopted level of service standards, then the applicant could be required to mitigate those impacts as a condition of development approval. The projects identified in an adopted corridor management or mobility plan could form the basis for mitigation and proportionate share agreements.. The Florida Department of Economic Opportunity provides guidance on the proper application of concurrency on its website Transportation Planning. For example, if a local government elects to maintain transportation concurrency, then it must adhere to the following requirements:

  - Studies and techniques must be professionally accepted when evaluating potential impacts of a proposed development.
  - Consult with the Florida Department of Transportation when proposed amendments affect the Strategic Intermodal System.
  - Exempt public transit facilities from concurrency.
  - Allow an applicant for a Development of Regional Impact development order, rezoning, or other land use development permit to satisfy the transportation concurrency requirements and Development of Regional Impact review requirements, when applicable, if the applicant enters into a binding agreement to pay for or construct its proportionate share of required improvements.

- Transportation Development Authorities: Local governments may establish a transportation development authority to plan, finance and implement transportation projects for transportation facilities designed to relieve transportation deficiencies within the authority's jurisdiction. Transportation projects may include transportation facilities that provide for alternative modes of travel including sidewalks, bikeways, and mass transit which are related to a deficient transportation facility. Each transportation development authority must adopt a transportation sufficiency plan as a part of the local government comprehensive plan within 6 months after the creation of the authority. The plan must identify deficient facilities, prioritize improvements, and establish a financing and construction schedule for adoption in the comprehensive plan. The authority may then establish a trust fund to be funded by a portion of the increased tax revenue in the designated area (i.e. tax increment financing). The authorities may also issue bonds, backed by trust fund revenues.
- Transportation Impact Fees: Local governments may assess an impact fee on new development for its share of the costs of constructing or expanding off-site transportation infrastructure necessitated by and benefitting the new development. Fees are based on standardized formulas and may be satisfied by cash payments, in-kind contributions (e.g., right-of-way, construction of needed infrastructure), or some combination.
- Mobility Fees: An impact fee mechanism of growing interest to local governments in Florida is a mobility fee on new development. It is a variation of the traditional transportation impact fee that includes unique characteristics. Characteristics of mobility fees include sensitivity to

development location and vehicle miles of travel (VMT) generated by a development and the ability to use the fee for all transportation modes as well as system operations and transportation demand management projects. Further information on mobility fees is available at http://www.dot.state.fl.us/planning/policy/growthmgt/mobility.shtm.

Table 16: Implementation (IM4) Funding Criteria

	CRITERIA	NOTES
IM4.1	Capital improvement program addresses all modes of transportation.	Include the itemized capital improvement program.
IM4.2	Clearly identifies committed and anticipated funding sources for the capital improvement program and reasonably anticipated funding for future years.	Local governments should maximize use of available local funding options, fees, and development agreements.

3 Summarize and Apply Findings

Upon initial completion of the Mobility Review Checklist, the FDOT reviewer will have an understanding of the relative strengths and potential shortcomings of the comprehensive plan amendment (CPA) as it relates to the transportation system. As noted in Section 2.1, it is also suggested that local governments be advised to complete a self review and provide this along with their CPA submittal for FDOT staff review. FDOT staff are strongly encouraged to discuss the results of their review with the appropriate local government contact prior to completing the final staff report. This will ensure accuracy of the assessment and offer the opportunity for FDOT to provide technical assistance to local governments.

3.1 Complete Staff Report

Using the results of the Checklist, the FDOT or other agency reviewers may identify the need for specific strategies to be more clearly defined or the need for additional planning measures. District staff should meet with the appropriate local government representatives and/or share their Checklist results in advance of completing the staff report to identify concerns relative to specific Categories, Elements or Strategies. Reviewers should identify perceived deficiencies of the plan based on the Checklist and ask local governments to revise the plan amendment, SIS mitigation, or corridor plan with a strengthened approach as to how specific Elements will be accomplished. Resources and technical assistance for accomplishing these measures should be identified or provided. The FDOT reviewer should also work with the submitting local government and other agencies to lend support in implementation of the plan. Support may include technical support, expedited programming of state funded projects, and other appropriate incentives.

3.2 A Final Word on the Guide and Checklist

This report represents a proposed practice for use by FDOT and other reviewing agencies in the review of proposed land use and transportation strategies to support and fund mobility submitted through the CPA review process as they relate to the function of the state transportation system. The Mobility Review Guide and Checklist may also be used in the review of proposed SIS mitigation plans or corridor management plans for major highway corridors. This practice is not an official policy, procedure. It is suggested as a technical assistance tool for use by FDOT reviewers and local governments.

Appendix A: Sample Mobility Analysis & Plan Report Contents

PART 1 – Existing Conditions Analysis

I. Introduction
II. Existing Conditions Analysis
    A. Study area boundaries
    B. Review supporting state, regional, and adjacent local plans and guidelines
        1. Identify areas of inconsistency
    C. Analysis of Multimodal Environment
        1. Land use organization/location efficiency (e.g., jobs to population ratio, land use separations)
        2. Land use mix/balance (e.g., significant land uses, land use ratios)
        3. Density/intensity (e.g., residential, employment density)
        4. Multimodal policy (e.g., identify where to place priority on non-automobile modes)
    D. Network Analysis
        1. Major roadway network (e.g., balance, ROW policy, level of service, intermodal connections)
        2. Local street network (e.g., connectivity index, continuation of streets, etc.)
        3. Bicycle/pedestrian network (e.g., quality of service, connectivity index, availability, width, etc.)
        4. Transit network (i.e., types of service, quality of service, network coverage, mode split, convenience of modal connections)
    E. Operations/Safety Analysis
        1. Roadway operations and safety (e.g., bottlenecks, high crash locations)
        2. Demand management programs/policy
        3. Access management (e.g., spacing, alternative access, design, retrofit)
        4. Pedestrian and bicycle operations and safety (e.g., crash locations, intersection crossings)
III. Principal Findings/Strategic Areas of Improvement
    A. Supporting Plans and Guidelines Review
    B. Multimodal Environment
    C. Network Improvement
    D. Operations and Safety

PART 2 – Mobility/Mitigation Plan

IV. Proposed Mobility/Mitigation Strategies (policy, capital, and systems/corridor management)
    A. Supporting Plans and Guidelines
    B. Multimodal Environment
    C. Network Improvement
    D. Operations and Safety
V. Projected Results
    A. Increased use of modal alternatives and reduced VMT
    B. Reduced congestion and delay
    C. Improved safety
VI. Funding and Implementation Strategies
    A. CIP
    B. Policy/Ordinance Updates (e.g., land development regulations)
    C. Intergovernmental Agreements
    D. Other

Appendix B: Mobility Plan Assessment Checklist

Mobility Review Checklist

This spreadsheet checklist should be used with the accompanying user guide, Checklist for Reviewing Mobility Measures. It contains important guidance on the meaning of selected criteria in the checklist and must be consulted in concert with the checklist during the review and assessment process. Keep in mind that this is a proposed practice and not an official procedure.

Plan Name:	
Review Number:	
Jurisdiction:	
Date of Review:	

Category	Elements	Criteria Code	Criteria	Addressed	Not Addressed	Not Applicable	Comments
Supporting Plans and Guidelines - SP -	State, Regional, Local - SP1 -	SP1.1	Supports the Florida Transportation Plan, the Strategic Intermodal System Plan, and other applicable state plans and guidelines.				
		SP1.2	Consistent with adopted regional mobility plan or vision, such as that established through a regional collaborative, including the MPO Long Range Transportation Plan and adopted Transit Development Plan (TDP).				
		SP1.3	Coordinates with transportation and mobility plans of adjacent local governments and transportation planning agencies.				
		SP1.4	Consistent with local government comprehensive plan objectives and policies as well as specialized plans.				
	Organization & Location - ME1 -	ME1.1	Designates and reinforces strong urban core(s) and urban activity centers of varying sizes and compositions.				
		ME1.2	Transit-compatible land uses are defined and required to locate on existing or planned transit corridors with direct access to transit. This should include but is not limited to transit-oriented developments (TOD).				
		ME1.3	Ensures that industrial and other freight-related uses locate in proximity to and have direct access to major transportation routes and intermodal stations or other freight transfer locations.				
	Mix - ME2 -	ME2.1	Provides for a complementary mix of retail, services, residential, institutional, cultural, recreational, and employment opportunities within urban cores and major activity centers.				
		ME2.2	Provides for a vertical mix of uses within urban cores and major activity centers to encourage active uses at the street level.				
		ME2.3	Provides for compatible food, education, retail and service uses on a neighborhood level within or in close proximity to residential areas.				

Multimodal Environment - ME -	Density and Intensity - ME3 -	ME3.1	Establishes minimum density and intensity requirements for urban core and major activity center areas.				
		ME3.2	Establishes appropriate densities and intensities within walking distance of transit stops.				
		ME3.3	Establishes urban design criteria for urban cores and major activity centers to preserve or improve livability while increasing densities to support multimodal objectives.				
	Multimodal Policy - ME4 -	ME4.1	Establishes priority on enhancing bicycle and pedestrian mobility within existing and proposed activity centers, including urban core areas.				
		ME4.2	Includes automobile parking management strategies for urban cores, activity centers and transit corridors to reduce surface area parking and promote non-automobile travel.				
		ME4.3	Provides for, and requires new development to contribute to, pedestrian-friendly amenities on the public streetscape.				
		ME4.4	Provides for, and requires new development to contribute to, amenities at existing and proposed transit stations and stops including covered shelters, trash receptacles, benches, landing pads, lighting, and bicycle parking.				
		ME4.5	Transportation impact assessment procedures are in place that address development impacts on all modes of transportation and minimize vehicular, transit, bicycle, and pedestrian conflicts.				
	Major Roadway Network - NI1 -	NI1.1	Transportation corridors requireing additional right of way and/or corridor management are designated for preservation and management as provided in §337.273 F.S.				
		NI1.2	Includes transportation corridor management policies to preserve right-of-way needed for all transportation modes and provides for dedication of land or conveyance of easements to local governments for planned transportation projects as provided in §337.273 (6) F.S.				
		NI1.3	Provides for construction of parallel relievers or service roads along major highway corridors or within interstate interchange quadrants.				
		NI1.4	Provides for construction of new interstate highway overpass crossings to connect local street networks.				
		NI1.5	Includes grade separated intersection improvement(s).				
		NI1.6	Provides for construction of additional travel lanes and/or turn lanes to address existing or anticipated motor vehicle traffic volume where appropriate.				
		NI1.7	Includes new arterial or major collector roadways to relieve motor vehicle traffic congestion and increase network connectivity.				

Network Improvement - NI -		NI1.8	Includes design elements to increase bicycle and pedestrian safety and mobility.				
		NI1.9	Includes network enhancements and design elements in support of managed lanes.				
	Local Street Network - NI2 -	NI2.1	Includes network-enhancing local and minor collector street projects.				
		NI2.2	Promotes direct connections between activity centers and surrounding residential areas.				
		NI2.3	Includes policies and strategies to increase street network connectivity.				
	Bicycle and Pedestrian Network - NI3 -	NI3.1	Requires bicycle lanes and sidewalks of appropriate width on or near all new or reconstructed major collector and arterial routes where appropriate.				
		NI3.2	Includes planned projects to address bicycle and pedestrian network connectivity.				
		NI3.3	Addresses the continuation of, or establishes new, shared use paths.				
		NI3.4	Requires new development to maintain continuous pedestrian networks, including connections to transit stops, adjacent lots, and between building entrances and the internal and external sidewalk network.				
		NI3.5	Requires new development to maintain continuous bicycle networks, including connections to transit stops and adjacent properties, and to provide bicycle parking at all non-residential uses, multi-family uses and other key destinations.				
	Transit Network - NI4 -	NI4.1	Addresses statewide and regional transit traveling through or with endpoints within plan boundaries.				
		NI4.2	Addresses express transit service.				
		NI4.3	Addresses existing and planned local transit within plan boundaries, including route locations, headways and instrastructure.				
	Demand Management - OS1 -	OS1.1	Establishes viable mobility options for congested roadway corridors.				
		OS1.2	Provides operational strategies including intelligent transportation systems (ITS).				
		OS1.3	Establishes institutional strategies (e.g. TDM programs).				
		OS1.4	Establishes commuter financial incentives.				
		OS1.5	Provides infrastructure designed to encourage alternatives to single occupant vehicle travel.				
		OS1.6	Establishes pricing strategies.				

Operations and Safety - OS -	Access Management - OS2 -	OS2.1	Includes policies and strategies to provide alternative access to development on arterial roadways.				
		OS2.2	Includes policies and strategies to close excessive or unsafe driveway connections or to redesign overly-wide connections or poorly designed connections.				
		OS2.3	Includes policies and strategies to replace continuous two-way left turn lanes with medians on multi-lane arterials.				
		OS2.4	Requires conformance of new signals with signal coordination plans and FDOT signal spacing standards for the state highway system.				
		OS2.5	Restricts access in the functional area of highway interchanges.				
		OS2.6	Restricts access in the functional area of roadway intersections.				
		OS2.7	Requires adequate, uninterrupted throat length for driveways and frontage roads that connect to arterial roadways.				
		OS2.8	Includes measures to close or redesign inadequately designed median openings.				
	Transit Operations and Safety - OS3 -	OS3.1	Provides for transit signal priority and/or queue jumpers.				
		OS3.2	Provides for exclusive transit lanes.				
		OS3.3	Provides for availability of transit service outside of peak travel hours.				
		OS3.4	Requires major office, retail, or mixed-use developments to provide appropriate transit-supportive facilities and services (i.e., such as on-site bus shelter, park and ride, bus or shuttle service).				
	Ped and Bicycle Operations and Safety - OS4 -	OS4.1	Includes measures to increase pedestrian safety at intersections and mid-block crossings, and while walking along the road.				
		OS4.2	Includes improvements and measures to increase bicycle safety.				
		OS4.3	Includes improvements and measures to provide safe routes to schools.				
	Coordination - IM1 -	IM1.1	Includes strategies to forge partnerships and effectively coordinate with modal providers, state and regional agencies, and other local governments in mobility planning and project development.				
		IM1.2	Includes policies and strategies to coordinate with FDOT in access management and permitting.				

Implementation - IM -	Incentives - IM2 -	IM2.1	Provides incentives to achieve the desired results.				
	Monitoring - IM3 -	IM3.1	Includes policies for adoption of all necessary implementing regulations and design standards by a specified date.				
		IM3.2	Includes a performance measurement system.				
	Funding - IM4 -	IM4.1	Capital improvement program addresses all modes of transportation.				
		IM4.2	Clearly identifies committed and anticipated funding sources for the capital improvement program and reasonably anticipated funding for future years.				

	Addressed	Not Addressed	Not Applicable
Supporting Plans and Guidelines	0	0	0
Multimodal Environment	0	0	0
Network Improvement	0	0	0
Operations and Safety	0	0	0
Funding and Implementation	0	0	0
Total	0	0	0