



# A FRAMEWORK FOR TRANSIT ORIENTED DEVELOPMENT IN FLORIDA

Prepared for:

Florida Department of Transportation and  
Department of Community Affairs



MARCH 2011

# A FRAMEWORK FOR TRANSIT ORIENTED DEVELOPMENT IN FLORIDA

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MARCH 2011

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We would also like to acknowledge the numerous participants of our 10 regional workshops



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# 1.0 INTRODUCTION

## Why develop this framework and how can it be used?

The Florida Department of Transportation (FDOT), in partnership with the Florida Department of Community Affairs (DCA), developed A Framework for Transit Oriented Development (TOD) in Florida to address how TOD can be a part of transforming Florida's existing auto-oriented, largely suburban patterns of development into more compact, livable patterns that support walking, biking, transit, and shorter-length auto trips. This effort was initiated as local governments in Florida increasingly encountered TOD concepts and projects characterized as "TOD" for adoption in their comprehensive plans, land development codes, and development review processes. A working group composed of agency and local government representatives was formed to develop Florida-specific TOD design guidelines and implementation strategies. FDOT held a series of ten workshops across the state to present draft TOD materials. In response to input received during those workshops, the scope of the effort was expanded to also address broader transit planning, interagency coordination, and TOD implementation issues.

The purpose of this framework is to provide planners, developers, elected officials, and the general public with a Florida-specific resource for TOD and transit planning. As a framework document, it does not provide a how-to guide but rather illustrates the key considerations and questions to be addressed when embarking on TOD and transit planning in the Florida context.



*Ybor City Light Rail, Tampa, Florida*



*Mixed use, high density neighborhood in downtown Orlando, Florida*

The framework includes TOD place types that address land use and urban design considerations for transit station areas. Presented with both qualitative and quantitative information, they can help planners and developers assess how transit-ready existing development patterns are and help guide decision making in the direction of creating more compact and transit supportive development patterns in the future. Additionally, the framework is intended to assist local governments in defining TOD areas as part of their local government comprehensive plans and to implement recommended development standards for TODs to better support local transit services.

Notably, TOD and transit planning and implementation are at an early stage in the Sun Belt compared to other parts of the nation with long-established transit systems. While guidance and best practices in TOD are readily available, data and analysis pertinent to the implementation of newer transit systems into communities with existing suburban type of development patterns are still being compiled. Retrofitting these places for transit provides a host of new considerations relative to expectations on transit ridership, phasing of TOD, redevelopment and economic development potential. Active research related to redevelopment is underway by the Transit Cooperative Research Program and Reconnecting America's Center for TOD, and other organizations. Guidance for TOD and transit planning in Florida will continue to evolve as research is completed, more case studies and best practices emerge, and more experience is gained implementing TOD in Florida.



*Bus station, downtown Tallahassee, Florida*



*Bicycles parked outside Metrorail station in Miami, Florida*



## What is TOD?

In the simplest terms, TODs are compact, moderate to high intensity and density, mixed use areas within one half mile of a transit stop or station which is designed to maximize walking trips and access to transit. They also are characterized by streetscapes and an urban form oriented to pedestrians to promote walking trips to stations and varied other uses within station areas. One-quarter mile and one-half mile distances represent a 5 to 10 minute walk time, which is the amount of time most people are willing to walk to a destination. The most intense and dense development is typically located within the one-quarter mile radius (transit core). Intensities and densities gradually decrease out to the one-half mile radius (transit neighborhood) and the one mile radius (transit supportive area). The transit core, the transit neighborhood, and the transit supportive area are depicted in Figure 1. An example of the TOD diagram applied to the Ballston Metro Station in Arlington County, Virginia is provided in Figure 2. A TOD station area for purposes of this framework document is composed of the transit core and the transit neighborhood.

What is a Transit Station? For purposes of this framework document, a transit station, as distinct from a bus stop, is defined as a station serving a premium type or types of transit (e.g., commuter rail, light rail, or bus rapid transit) or a station that functions as a local bus hub. A local bus hub or transfer station is considered to be a premium transit station if it serves a minimum of three fixed routes operating with headways of 21-30 minutes or less (consistent with the Level of Service D standards in the Transportation Research Board, Transit Capacity and Quality of Service Manual, 2nd Edition). Transit stations also serve as intermodal hubs, typically connecting two or more modes of transportation. Park and ride lots adjacent to transit stations and local buses serving rail transit stations are part of the mix. Effective TODs provide for seamless transitions between modes (i.e., walking, biking, or automobile to rail or bus and vice versa).

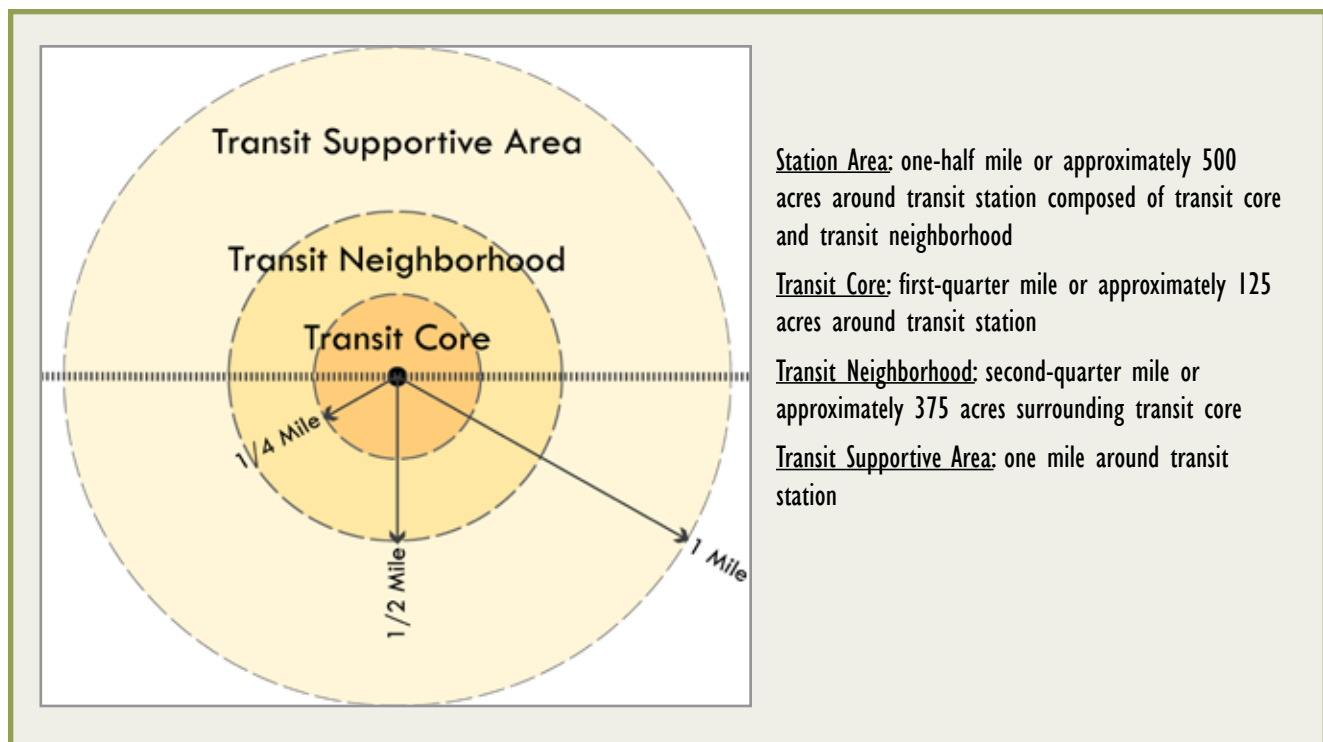
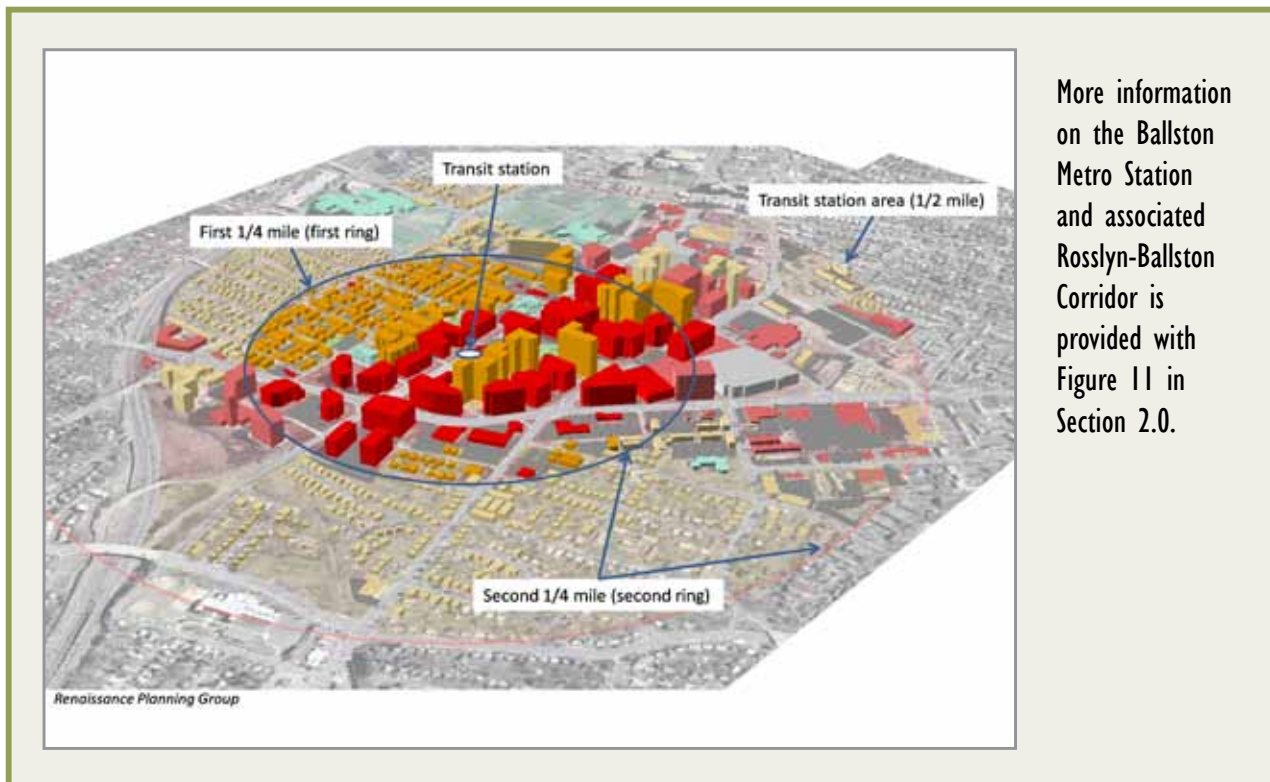


Figure 1: TOD Diagram

The mix of uses in TODs, such as residential, office and retail, is influenced by the location of a station relative to the surrounding community context, the role of the transit corridor as part of the larger transit system, and the type or types of transit serving the station (e.g., heavy rail, commuter rail, light rail, modern streetcar, bus rapid transit, local/express bus). Increasing recognition is being given to the importance of ensuring that housing in and around TODs is affordable to households with a mix of incomes. The mix of uses and intensities and densities of development directly translate into transit ridership potential and trip-making patterns at each station area. With specific corridor level ridership goals or transportation mode split goals, individual station area characteristics can be adapted to reflect the surrounding community context and achieve mobility goals.

In addition to the diversity of land uses, the design of the TOD is also important. The infrastructure to support walking, bicycling and easy access to transit is important to the success of the transit system and community. In Florida, where extreme climate conditions of heat and thunderstorms are a factor, the quality of the walking environment is a major design consideration. A typical walk time of 5 to 10 minutes in moderate climates could be cut in half in Florida's climate extremes. As a consequence, TODs in Florida need to incorporate a range of features that enhance the walking environment or shorten walking trip lengths. Examples of such features are creating shaded walking conditions, providing shelters, maintaining natural breezeways, and further concentrating uses within the one-quarter mile radius of a station entrance to reduce walk times to destinations.



More information on the Ballston Metro Station and associated Rosslyn-Ballston Corridor is provided with Figure 11 in Section 2.0.

Figure 2: Ballston Metro Station, Arlington County, Virginia

## What are the benefits of TOD?

First and foremost, the goal of TOD is to create compact, walkable development that will maximize transit ridership potential, which, in turn, will create a strong revenue return (i.e., farebox receipts) from transit investments. When combined with other land use and transportation strategies that support more compact, walkable development patterns, TODs can help change travel behaviors by making the walking trip or the transit trip as desirable as an auto trip to reach a destination. The full benefits of TOD typically occur over a period of time, as each station area evolves in response to market conditions. This evolution can take decades, but many of the benefits can be realized incrementally. Such benefits often align with other community livability goals relevant to the Florida context, including opportunities for the following:



*Mixed use development with residential in downtown Gainesville, Florida*

- Encouraging a more sustainable transportation system over the long-term by creating viable options for people to get to destinations other than by automobile.
- Reducing reliance on the traditional strategy of building new roadways or widening existing roadways to meet transportation needs as Florida continues to grow.
- Providing a design and development strategy that will help convert suburban, auto-dominated patterns into more urban, compact, walkable patterns in post-World War II Florida cities.
- Reducing the costs of delivering public services by encouraging infill and redevelopment in existing urban areas with existing infrastructure.
- Creating incentives, such as reduced parking requirements and increased intensities or densities, to promote private sector investment in existing urban areas and economic development.
- Creating opportunities for diverse housing options with a range of prices located within walking distance, an easy transit ride, or a shorter-length auto trip to a variety of destinations.
- Reducing combined housing and transportation costs for households by providing options to auto travel.
- Providing new locations for housing options that reflect Florida-specific demographic trends.
- Encouraging more healthy lifestyles by creating a pattern of development in which walking and biking are a part of everyday travel behaviors.
- Reducing vehicle miles traveled (VMT), dependence on fossil fuels, and associated greenhouse gas emissions through increases in walking and biking trips, transit trips, and shorter-length auto trips.
- Providing a more compact development pattern overall that preserves open space and natural resources and protects Florida's critical groundwater recharge areas and wildlife habitats.



*Walkable streetscapes and public open space, Tallahassee, Florida*



*Housing diversity, Avalon Park, Orange County, Florida*

“Market trends reveal a growing demand for smaller houses in walkable communities. According to a forthcoming ULI study on the future of housing, two groups will exert the most impact on housing in the coming decades: the baby boomers and the equally large group of young adults forming new households. As they age, baby boomers will be seeking smaller homes with nearby conveniences, but they will face weakened markets for their large homes in the suburbs. For younger adults, homeownership competes with other objectives such as living in vibrant urban settings, staying connected, and a greater sense of community. These trends indicate that there will be an excess of large-lot, single-family houses; demand for new housing will be defined by smaller houses on smaller lots, townhomes, and apartments. National trends are also taking hold in Florida: as compared to previous decades, the 25-to-44 age group and the 65-and-up age group are both projected to increase significantly in the coming decades.”

Excerpt from: Urban Land Institute: Connecting Florida: Transit and Florida’s Economy.

Washington, D.C.: Urban Land Institute, 2010.

## What Is Compact Development?

“Successful compact development is a land use settlement pattern that features most or all of the following:

- concentrations of population and/or employment;
- medium to high densities appropriate to context;
- a mix of uses;
- interconnected streets;
- innovative and flexible approaches to parking;
- pedestrian-, bicycle-, and transit-friendly design; and
- access and proximity to transit.

Compact development can be built anywhere. It encompasses residential and commercial development and can be adapted to urban, suburban, and rural settings. Single-family houses, townhomes, and apartments all have a place in compact development. Employment centers are also important candidates for compact development.”

Excerpt from: *Land Use and Driving: The Role Compact Development Can Play in Reducing Greenhouse Gas Emissions*  
Washington, D.C.: Urban Land Institute, 2010.

## Federal Interagency Sustainable Communities Partnership - Livability Principles

In June 2009 the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA) formed a new partnership to help American families in all communities—rural, suburban and urban—gain better access to affordable housing, more transportation options, and lower transportation costs. The three agencies are working together to ensure that these housing and transportation goals are met while simultaneously protecting the environment, promoting equitable development, and helping to address the challenges of climate change. Through their partnership, HUD, DOT and EPA are coordinating federal housing, transportation, and environmental protection investments and identifying strategies supportive of the following six livability principles:

Provide more transportation choices. Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce the nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

Promote equitable, affordable housing. Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

Enhance economic competitiveness. Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services, and other basic needs by workers, as well as expanded business access to markets.

Support existing communities. Target federal funding toward existing communities—through strategies like transit oriented, mixed-use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.

Coordinate and leverage federal policies and investment. Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.

Value communities and neighborhoods. Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

## Why is it important to plan for TOD at the system, corridor and station levels?

TODs are broad one-half mile areas centered on transit stations as defined in a local government comprehensive plan or individual development sites located within the designated TOD. However, when planning for TOD it is important to recognize that transit stations connect with transit corridors, which together form a transit system. This transit system, in turn, is part of a multimodal transportation system. The set of schematics in Figure 3 shows the three levels of transit planning and the links between them. Figure 4 provides an example of transit planning at the system, corridor and station level in the Denver region.

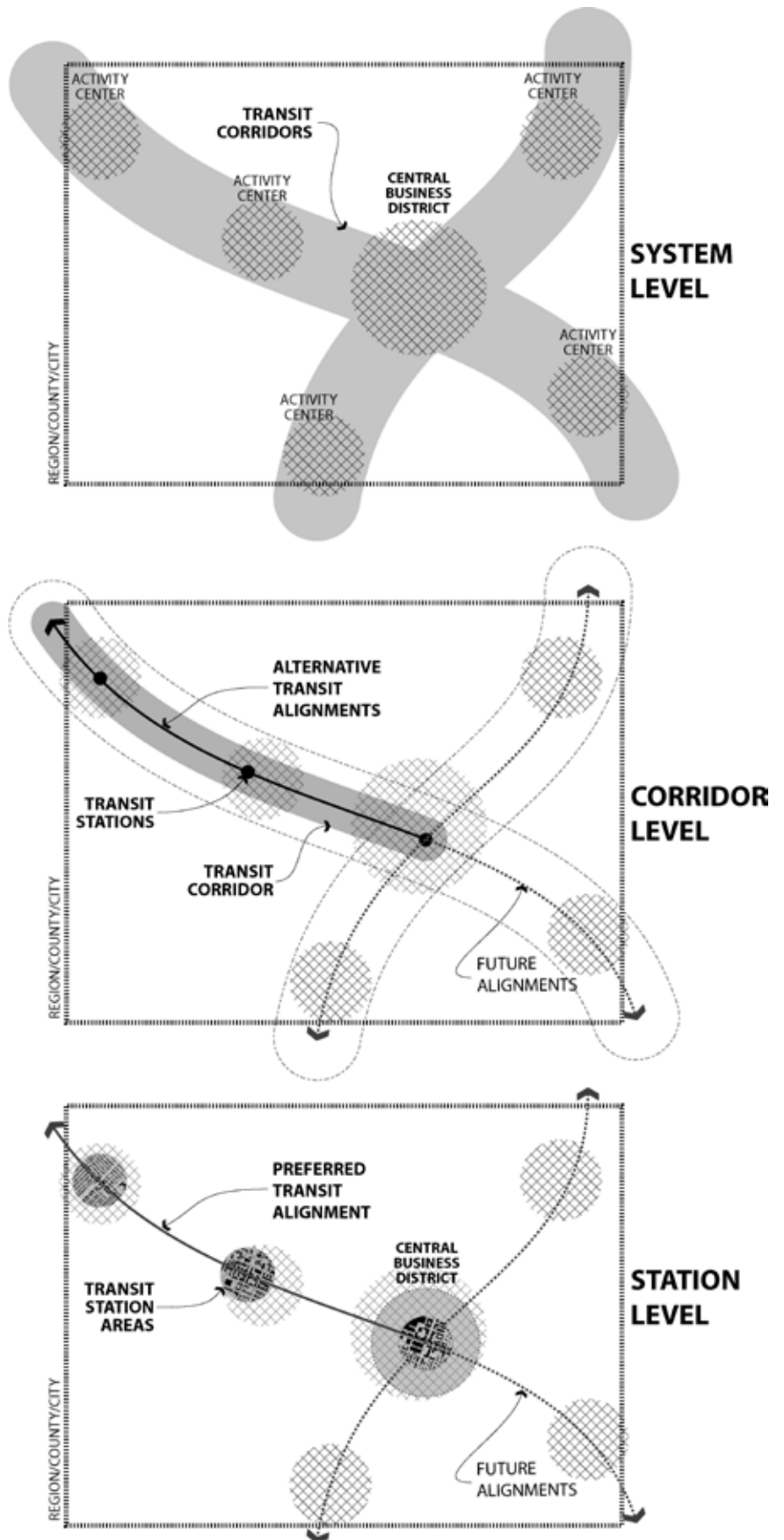
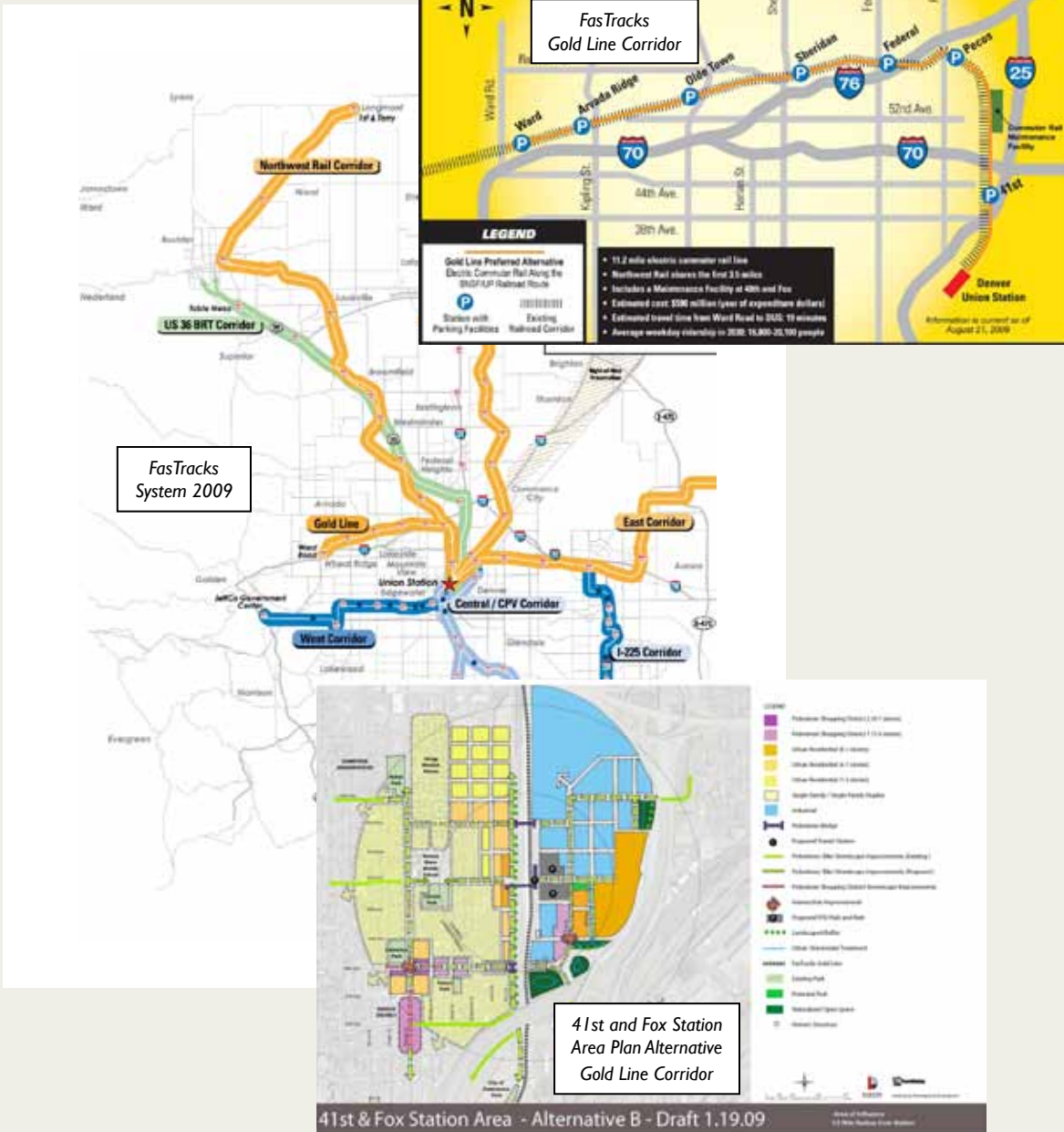


Figure 3: System, Corridor and Station Level Planning

## Denver FasTracks



Since the late 1990s, the greater Denver region has advanced its integrated planning efforts in support of a new, more compact growth vision and multimodal transportation strategy. A cornerstone of these efforts is the FasTracks Program, with implementation of a multi-billion dollar comprehensive transit expansion plan underway. This plan provides for 122 miles of new commuter rail and light rail, 18 miles of bus rapid transit, 21,000 new parking spaces at light rail and bus stations, and enhanced bus service to create seamless bus/rail connections across the eight-county region. The Denver Regional Council of Governments, the Regional Transit District of Denver, and several jurisdictions continue to coordinate and implement plans at the system, corridor, and station levels.

Figure 4: System, Corridor and Station Level Planning in Denver Region

When planning for TOD within larger corridor and system contexts, it is important to understand the travel dynamics of the transit system given existing conditions and potential future development or redevelopment opportunities. Where are people going to or coming from? Which stations currently do or will serve as major origin points for travel, which ones currently do or will serve as major destinations, and which ones currently do or will serve as both? Where do the greatest economic development opportunities exist? Which station areas can maximize access to transit by walking trips? TODs need to be designed to optimize the prospects of achieving corridor or system level transit ridership goals.

The mix of uses and intensities and densities of development within TODs will vary depending on the transit types present or planned (e.g. heavy rail, commuter rail, light rail, modern streetcar, bus rapid transit, local/express bus), station spacing and phasing along a transit corridor, community context, and transit ridership goals. For example, a TOD at the end of a commuter rail line connecting outer neighborhoods to a downtown job center may be residentially rich, moderately dense, and have an ample supply of parking. In contrast, a TODs at the downtown end of that line may be jobs rich, have much higher intensities and densities of development, and contain little parking in the station area. As another example, TODs along a suburban corridor retrofitted for a light rail line may have similar intensities and densities of development, but the mix of uses in each station area may vary based on the specific neighborhood or commercial zone in which the station area is located.

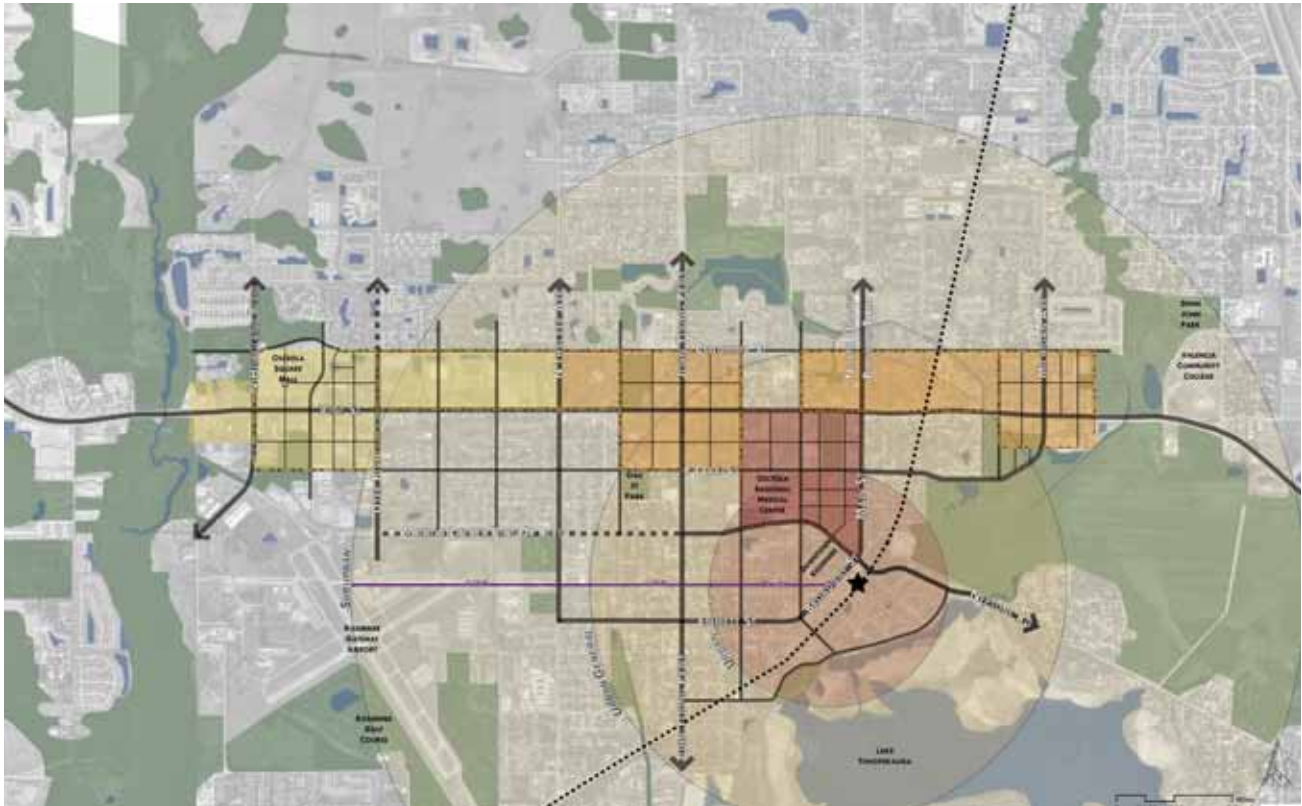
In Florida, existing station areas are typically located in developed areas. The process of phasing in TOD through redevelopment in such station areas to achieve maximum transit ridership potential can take years to complete due to the varying time frames associated with the implementation of individual development sites. The timing and phasing of individual developments is highly dependent on real-estate market trends and overall economic conditions. Therefore, when considering the location of TOD relative to transit corridor alignments, careful thought needs to be given to selecting station areas with the greatest potential to meet transit ridership goals, as well as economic development and other community or regional goals, over the desired period of time.



*Downtown Lymmo Bus Transfer Station, Orlando, Florida*



Targets for measures of intensity, density, mix of use, urban form, street networks, and parking for station areas by TOD place type are presented in Section 3.0, Station Area Planning. Among other things, these targets reflect an understanding of existing development patterns in Florida, a review of available literature on TOD, and consideration of transit ridership goals. Integrated TOD and transit planning allows for an iterative give and take planning process to balance system, corridor, and station level dynamics relative to transit ridership goals, mode split targets, cost-benefit analyses, economic development potential, and community livability goals.



*Redevelopment Framework Plan with TOD, Vine Street Corridor, Kissimmee, Florida*

The above map illustrates the overlay district created by the City of Kissimmee, Florida for the Vine Street Corridor. The purpose of the overlay district is to encourage redevelopment at transit-ready densities and intensities. The vision of the City includes the potential for a regional bus rail transit (BRT) or light rail system along the corridor that will ultimately connect with the new SunRail Commuter rail station located in the historic downtown. The red, orange and yellow shading on the map designates different station area placetypes and corresponding intensities including urban center, urban general and suburban respectively.

## What are the key opportunities and challenges for implementing TOD in Florida?

Implementing TOD in the Florida context presents both opportunities and challenges. One commonly cited opportunity is the growing consensus that long-term mobility challenges in the state cannot be solved through a continued emphasis on travel by automobile alone. With growing societal interest in creating livable and more sustainable communities, implementation of TOD concepts in support of transit investments is garnering more public support. One commonly cited challenge is finding an answer to the question of which comes first, TOD or the transit investment? Planning for TOD and transit concurrently, and considering the phasing elements associated with each, is the answer.

Some of the other key opportunities and challenges for implementing TOD in Florida are highlighted in the boxes below. This framework document does not attempt to provide solutions for all of the challenges. It does, however, provide insights and guidance that can help communities and regions position themselves to pursue the opportunities and deal effectively with the challenges.

### **TOD Opportunities**

- The benefits of TOD go beyond helping to maximize transit ridership potential. TOD supports a variety of community livability goals such as increasing transportation choices, contributing to more compact and energy-efficient development patterns, encouraging reinvestment and redevelopment in existing urban areas, reducing VMT, and supporting placemaking.
- Florida statewide demographic trends show an increase in baby boomers, echo boomers, and foreign-born populations. Retiring baby boomers are increasingly seeking lower maintenance housing with more amenities located nearby. Echo boomers are seeking housing options located in vibrant, mixed use urban centers. Foreign-born populations are often accustomed to utilizing transit.
- State and federal investments in commuter rail, intercity passenger rail, and high speed rail systems provide an impetus for more local and intra-regional transit system planning and TOD to support those systems. Transit systems also can provide reliever mobility for congested Strategic Intermodal System (SIS) roadway facilities.
- Federal policy and investment trends indicate a growing emphasis on community livability and sustainability, which aligns well with the design principles of TOD.
- Implementing land use strategies, such as TOD, that support more walking trips and shorter-length auto trips is a cost-effective way to address transportation needs stemming from new growth.
- TOD and complementary multimodal transportation system planning can provide a template for developing integrated land use and transportation strategies that support mobility as part of local government comprehensive plans.
- Overall heightened interest in implementing land use and transportation strategies to help reduce VMT and greenhouse gas emissions.
- Given their potential for higher density, more compact housing, TODs can provide an opportunity for creation of housing that is diverse in type, size, and price and affordable to households with a mix of incomes. Access to housing within walking distance of transit can reduce or eliminate the need for auto ownership and its associated cost.

## TOD Challenges

- Land use is locally controlled in Florida, but transit planning and funding often involves several county and regional transportation entities. Integrated, coordinated planning for TOD and transit requires new intergovernmental cooperation, joint funding from all levels of government including public-private partnerships, and planning models for the Florida context.
- Market conditions and economic cycles influence the rate at which Florida communities grow or redevelop over time. This situation creates challenges for implementing TOD when short-term market dynamics cannot support the mix of uses and intensities and densities of development desired by local jurisdictions. Phasing of TODs also requires careful planning to manage parking supply and demand as areas transition from auto-oriented to multimodal places.
- Increasing transit ridership in Florida requires not only changes in land use patterns to promote compact development but also providing more comfortable, efficient and convenient transportation alternatives and stronger marketing by transit agencies to attract choice riders (those who have access to other means of transport but choose transit as their preferred mode of transportation).
- TODs need to be coordinated with the availability of transit services. The provision of such services requires capital investments (e.g., to purchase transit vehicles) and funding for operation and maintenance costs. Without long-term reliable revenue sources to fund operation and maintenance costs, transit services central to the functionality of TODs could be reduced or discontinued.
- Florida climate extremes (high heat and thunderstorms) are often cited as an obstacle to encouraging walking, biking, or transit as primary modes of transportation.
- Retrofitting Florida suburbs to support TOD presents unique challenges in addressing physical barriers to walkability such as gated communities, cul-de-sac roadway networks, high speed and wide roadway rights-of-way, land availability and ownership, and public concerns with increased densities.
- TOD has the potential of creating more and diverse housing options with walk or bike access to transit. Adoption and implementation of strong mixed-income housing policies combined with developer incentives may be needed to ensure delivery of a balance of market rate and affordable housing in TODs.
- The institutional and jurisdictional frameworks that influence land use and transportation policy in Florida are not traditionally integrated or regional in nature. As a consequence, planning for TOD across jurisdictional boundaries is typically a challenge.



*Florida rainstorm*



*Typical low density suburban highway commercial arterial*

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## 2.0 INTEGRATED TRANSIT AND LAND USE PLANNING

### Planning Considerations at Different Levels and Time Horizons

As indicated in Section 1.0, planning for TOD requires consideration of transit and land use issues at the system, corridor, and station levels. It also requires coordination across various planning processes conducted at municipal, county, regional, or statewide scales by local governments, transit agencies, Metropolitan Planning Organizations (MPOs), Regional Transportation Authorities (RTAs), Regional Planning Councils (RPCs), and FDOT. The planning requirements and time horizons used for these various planning processes vary. MPOs typically use a 20 to 25-year planning horizon for their multimodal long range transportation plans. The planning horizon for transit development plans produced by Florida transit agencies is 10 years. Each local government chooses the long range planning horizon for its comprehensive plan so long as it extends out at least 10 years. Comprehensive plans are composed of multiple elements (e.g., future land use and transportation) that are required to be internally consistent. Integrated planning, with an emphasis on integrated transit and land use planning, is needed to ensure that transit investments are optimized as community goals for TOD are met. This requires a review of available and planned transit services identified in various transportation and transit plans and analyzing how future land use plans of local governments can better support future transit service in the area. It also requires involvement of various agencies at all levels of government, bringing resources together to accomplish a similar goal in building more sustainable communities and making transit a more viable travel option.



*Multiple modes accommodated in an urban setting, downtown Jacksonville, Florida*

Successful TODs at the station level build upon sound planning and policy decisions made at the system and corridor levels. Linked corridor and station level planning attempts to maximize station area potential, in terms of total development and walking trips to access transit, while taking into account corridor feasibility and cost considerations. See Figure 5 for an example. Decisions made regarding transit corridor alignments, can have a profound impact on TOD potential and transit ridership. The engineering and cost factors considered when locating a transit corridor can often take priority over other factors such as proximity to high populations or activity centers or suitable land uses with potential for future TOD development. As such, the long term benefits of TOD potential and other community livability considerations should be quantified to the greatest extent possible to ensure a balanced approach to benefit costs analyses conducted during corridor alternative studies.

An additional factor in the mix is real estate economics. The timing and amount of development or redevelopment within a station area have a significant impact on transit ridership. An understanding of regional and sub-market growth trends, including predicting pricing supply and demand, is needed to gauge how quickly individual station areas may attract new growth or redevelop. Understanding these factors can help communities assess how much of the growth potential for a region or sub-market can reasonably be expected to be captured within specific TODs and help inform decision making regarding transit investment priorities.

The subsections that follow include sets of questions appropriate to pose and repeat, as applicable, when planning at the system, corridor, and station levels. Some of the questions fall outside the traditional emphasis areas for transit system and corridor planning. Together they form a sort of blueprint for a broader, more integrated approach to TOD and transit planning.

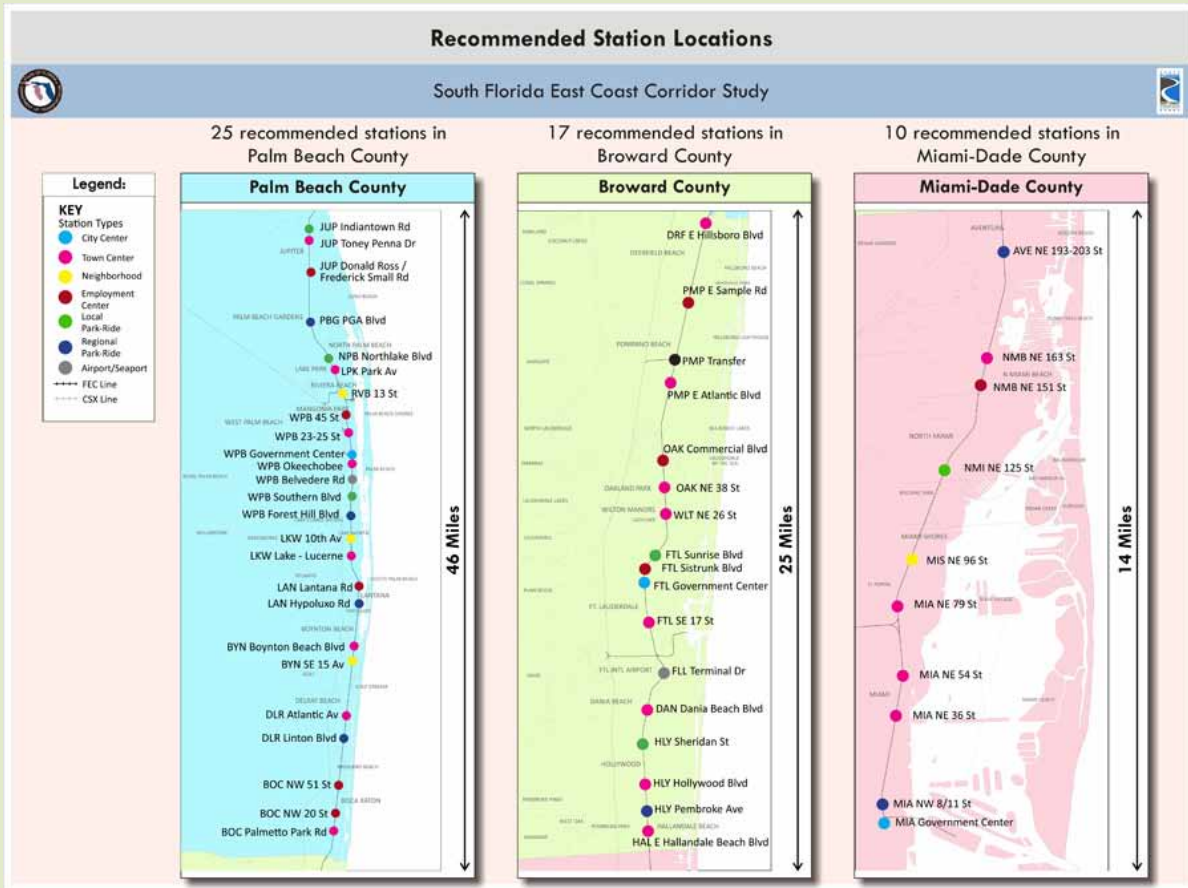
### South Florida East Coast Corridor Transit Analysis

A group of transportation partners initiated the South Florida East Coast (FEC) Corridor Transit Analysis in 2005 in response to an identified need for passenger transit service along the east side of Miami-Dade, Broward, and Palm Beach counties. The 85-mile long corridor under study represents the historic economic core of Southeast Florida that developed along the FEC railroad. Station planning has been an integral part of the corridor planning process from the start. A three-step evaluation process was used to narrow the field of potential station locations from 98 to 52. This process considered 18 factors such as existing and future land use, access, economic development potential, demographics, land availability, and environmental impact.

Local government, RPC, MPO, transit agency, and other partners have been and remain actively engaged in the study, including as members of a Station Working Group. The current focus of the working group is on drafting a model Station Area Land Use Ordinance providing for TOD around stations with intensities and densities consistent with FTA New Starts program land use criteria. The intent is to have regulations in place reflecting future land uses favored by FTA in its rating process prior to submission of a FTA application. Prioritization of the potential station locations and continued engagement with local governments on station area planning will take place in the third phase of the study. That phase started in late 2010.

The station typology developed for the corridor identifies eight station types which accommodate the range of communities along the corridor and different functions to be served. The station types are City Center, Town Center, Neighborhood, Employment Center, Local Park-Ride, Regional Park-Ride, Airport/Seaport, and Special Event Venue. The station typology reflects a detailed analysis of existing conditions and is tailored to the specific community context. Design guidelines are available for each station type. The corridor-specific guidance provided by the station typology is compatible with the target ranges of development intensity and density identified for station areas by TOD place type in this framework document.

# South Florida East Coast Corridor Study



The maps above illustrate the corridor level analysis to identify the recommended station locations. The illustration to the right shows a prototypical Town Center Station along the SFECC.

### Town Center Stations

**STATION TYPE DESCRIPTION**  
 Located in the traditional town centers of smaller urban areas, these stations serve local residents and commuters and provide access to downtown retail. There is some dedicated parking possible at the station, though shared parking will be explored at each Town Center station.

**STATION STATISTICS**

Parking Requirements	
Spaces / Structures	50-200 spaces; Shared structure parking a possibility
Station Access	
Transit Connections	Local, express services. Line-haul routes at minor intermodal transfer
Pedestrian Access	Primary means of access, contiguous 8 ft sidewalks
Vehicular Access	Urban Collector
Land and Land Use	
Size of station site	1/2 - 2 acres. May be incorporated into joint development
Zoning	Commercial: FAR >2.5 Residential: >15 du/acre Parking: <1.5 spaces/1,000 sf



Figure 5: South Florida East Coast Corridor Transit Analysis

## System Level

Looking at a municipal, county, or regional scale, transit planning at the system level involves examining existing and future development patterns to identify activity centers. This examination involves mapping existing and future development patterns and evaluating community or regional development goals or visions to identify concentrations of population and employment at a macro scale. Identified activity centers can then be connected by potential transit corridors. As indicated in Figure 6, the activity centers and connecting transit corridors are components of the overarching transit system. This system level analysis can be used to support analysis and decision making regarding how transit-ready existing development patterns are and what might be required in terms of growth management or economic development policies to make TOD a viable option now or in the future.

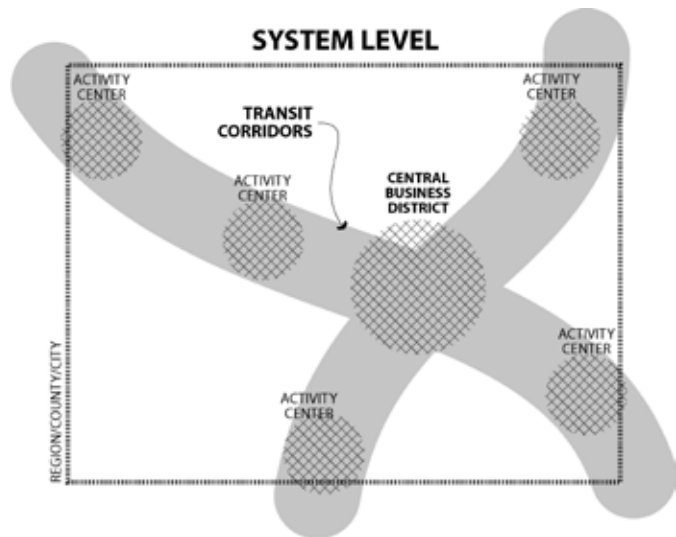


Figure 6: System Level Emphasis

Key questions that should be asked at the system level include the following:

- How transit supportive are existing concentrations of population and employment and what is the potential for them to change in the future? What is the community or regional vision for these centers?
- Where are the major clusters of trip origins and destinations?
- What are the existing and potential transit corridors? Is the character of those corridors (land use, population, employment, trip origins and destinations) such that they are suitable or may be suitable for premium transit and the location of transit stations? Are the corridors in public rights-of-way or on privately-owned lands? What are the public right-of-way constraints? What is needed to make the privately-owned corridors viable?
- What opportunities exist to improve transit accessibility and connectivity to other modes of transportation?
- What economic impacts have resulted from or are expected to result from transit and other transportation investments (e.g. on land values, development values, employment growth)?
- What transit types (e.g., commuter rail, light rail, bus rapid transit) should be considered, taking into account existing and future activity centers in the community or region and capital investment costs?
- What opportunities exist for the transit system to extend or connect beyond local or regional jurisdictional boundaries? What type of interlocal mechanisms would be needed to pursue such opportunities? Are joint funding opportunities to support intra-regional or inter-regional transit systems in the picture?

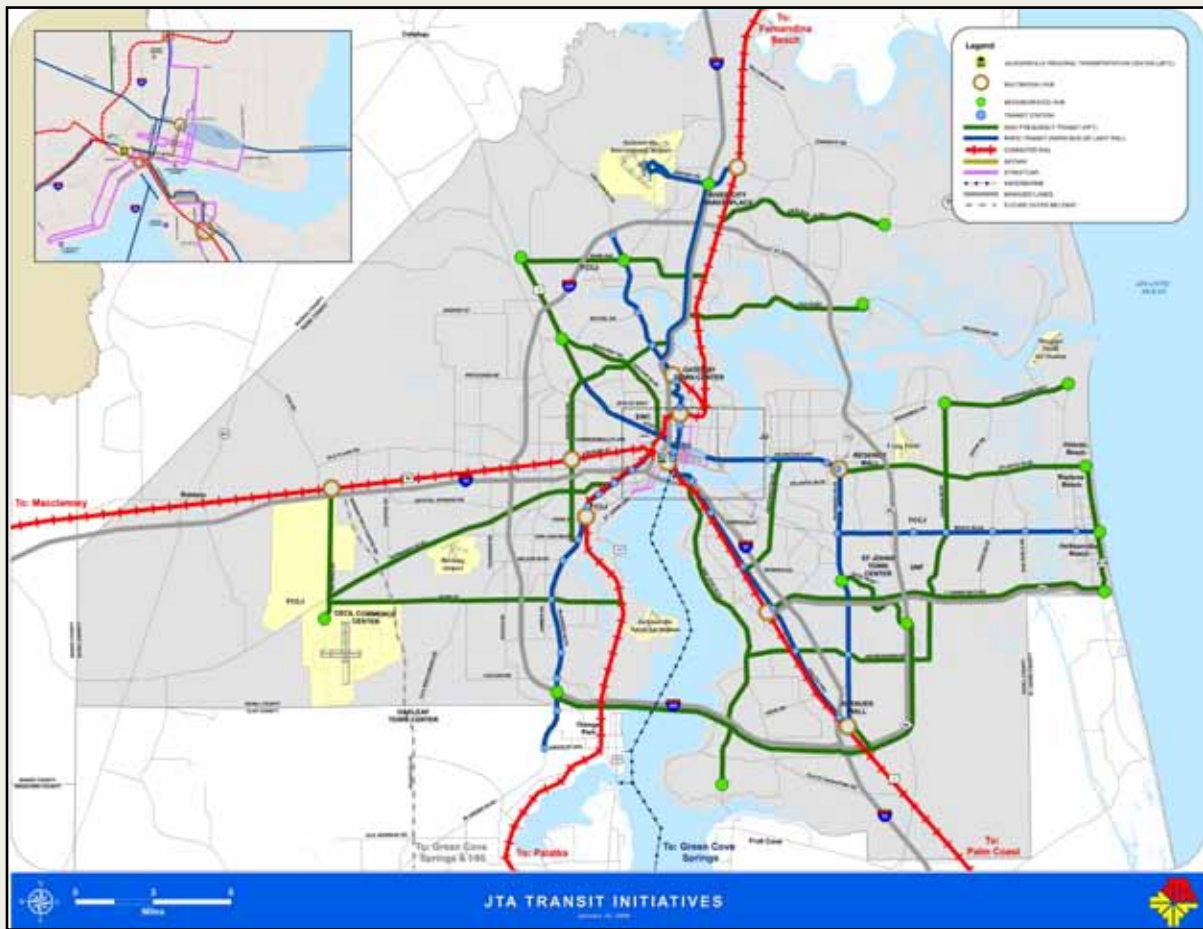


## System Level Measures

When planning for transit at the system level, calculating overall densities of population and employment at a multijurisdictional or regional scale can be helpful in assessing future ridership potential. The Land Use Measures below are easily calculated by totaling the number of persons and employees per square mile within a one mile buffer of all the proposed transit corridors composing a proposed transit system. The higher the densities present within this buffer, the stronger the potential for attracting transit riders. Based on current FTA policy on New/Small Starts transit funding, these measures provide an indication of how different population and employment densities might score relative to the high, medium, or low rankings associated with this federal program. Higher densities would likely lead to higher scores for land use in the New/Small Starts application process.

Land Use Measures within one mile buffer of all proposed transit corridors:

- Population Density (persons per square mile): greater than 15,000=High, less than 3,333=Low
- Total Employees: greater than 250,000=High, less than 75,000=Low



This map is from the Jacksonville Transportation Authority's system level multimodal transportation plan, which was developed in concert with other regional visioning efforts to identify a conceptual regional framework for transit. The transit corridors identified on the map served as the basis for development of corridor-specific TOD policies by the City of Jacksonville. Regional transit system plans can provide the framework for more detailed TOD land use policies and land development code revisions as well as more detailed transit corridor level planning and alternatives analysis work.

Figure 7: Jacksonville Transportation Authority Multimodal System Map

## Corridor Level

System level analysis helps to narrow down the transit planning focus to the corridor and station levels. Once a conceptual system level transit plan is in place, the questions listed above should be posed again for each transit corridor (Figure 8). Consideration should be given to development potential, travel behaviors, appropriate transit types, and station spacing to help inform the identification of preferred transit corridor alignments. It is at the corridor level that specific transit ridership goals can be evaluated against existing development and development or redevelopment potential around existing or potential transit stations.

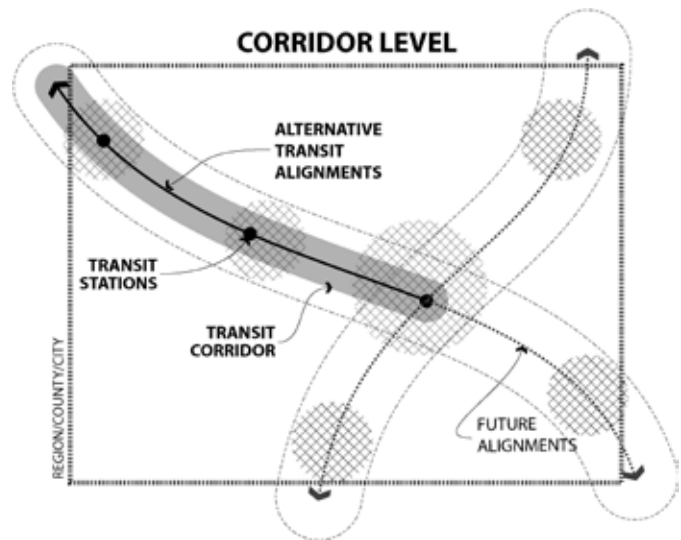
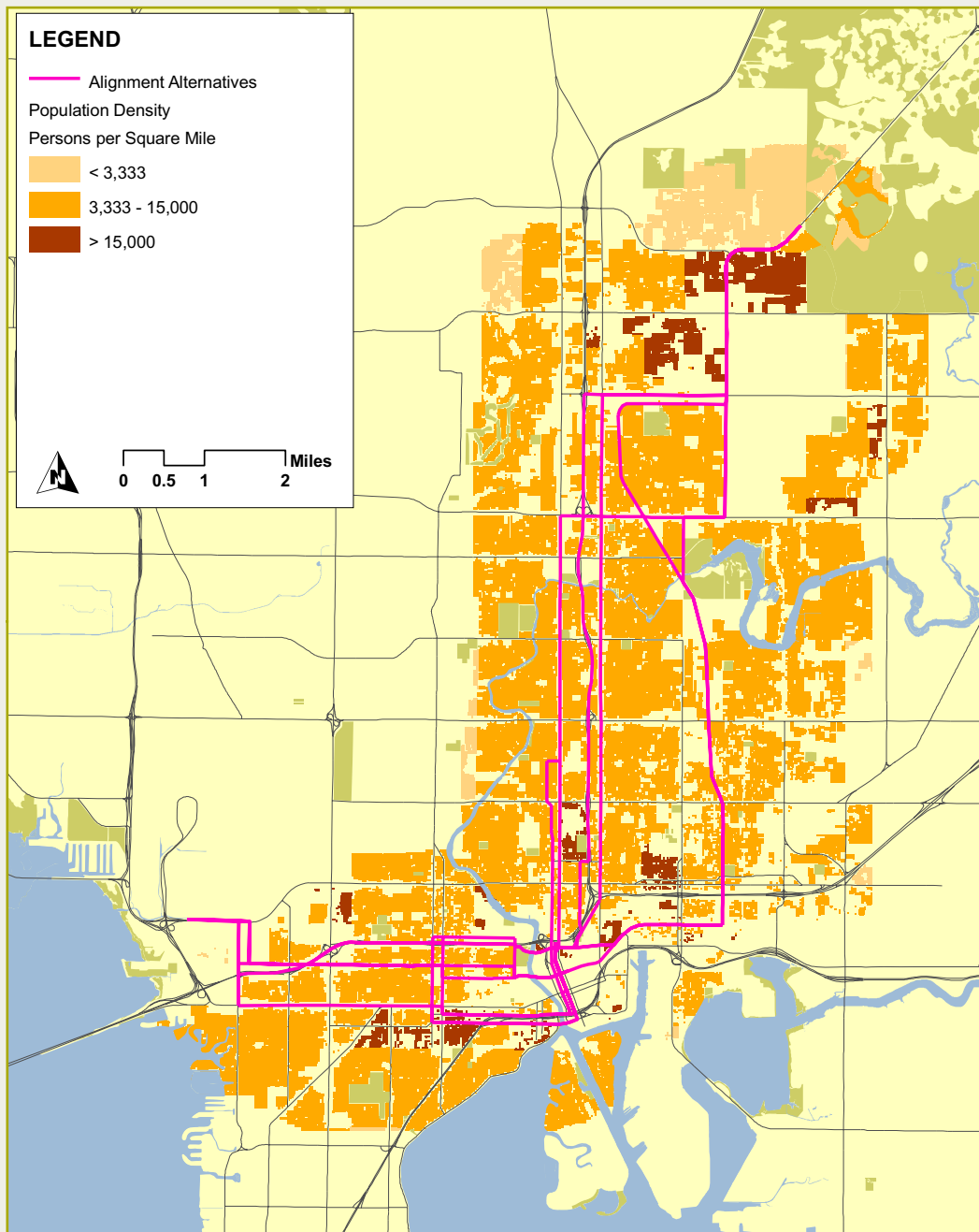


Figure 8: Corridor Level Emphasis

Additional questions, such as the following, apply at the corridor level:

- Where are the major clusters of trip origins and destinations along the corridor, and what are the primary trip purposes?
- What is the development or redevelopment potential in terms of land availability and allowable land uses?
- What opportunities exist for intermodal connectivity along the corridor (e.g. connections with trail networks, local bus routes, other premium transit)?
- What type of transit is desired? What is the level of transit service anticipated?
- How many transit stations are needed and how far apart should they be along the corridor?
- What are the ridership goals in terms of persons per mile or mode split?
- What are the physical constraints and opportunities for each alternative transit alignment in the corridor?
- How transit-ready or transit supportive are current land use policies? What would need to change?
- What are the existing multimodal conditions in terms of pedestrian and bicycle infrastructure, vehicular speeds, and transit connectivity? What future multimodal opportunities exist?
- Are there transit-dependent or otherwise transportation disadvantaged people located within the corridor or nearby?
- What economic development potential exists in the corridor relative to housing and employment demand and land availability?



**Alternatives Analysis  
Northeast and West Corridors**

This map demonstrates the corridor level geographic information system (GIS) analysis conducted by the Hillsborough Area Regional Transit (HART) agency as part of a 2010 Alternatives Analysis. It shows the varying degrees of population density along proposed transit corridor alignments. Additional GIS analyses were undertaken to look at employment densities, land availability, locations of major trip origins and destinations, and the like.

Figure 9: HART Alternative Analysis

The table below contains data from New Starts applications awarded FTA funding. It demonstrates the relative station spacing, riders per mile, and ridership per station for different transit types (commuter rail, light rail, bus rapid transit). By setting corridor level ridership goals and taking into account station spacing considerations, planners can analyze the development potential (quantified by building square footage) for each station area and refine individual station area plans accordingly. Focusing ridership goals at the corridor level allows flexibility desirable at the individual station level regarding mix of uses, population and employment ratios, parking, and so forth. Rather than duplicating a single TOD prototype for every station along a corridor, integrating TOD at the corridor planning level can help create TODs that respond better to local economic conditions, surrounding community context, special uses, and other considerations while not sacrificing overall corridor ridership goals

Federal Transit Administration New Starts Application Statistics							
	Length (miles)	Number of Stations	Ridership (000)	New Riders (000)	Station Spacing (miles)	Ridership per mile	Ridership per station
<b>COMMUTER RAIL</b>							
Tri-Rail (South Florida)	71.1	19	68	30	3.7	1,000	3,600
Harrisburg Corridor One Rail	37.4	7	1.6	NA	5.3	NA	200
Orlando Commuter Rail	31.0	12	7.4	3.7	2.6	200	600
Minneapolis North Star	40.0	6	5.6	1.3	6.7	100	900
Salt Lake Weber County	43.0	8	11.8	6.1	5.4	300	1,500
Nashville East Corridor	32.0	6	1.9	1.9	5.3	100	300
Raleigh-Durham Regional Rail	28.1	12	NA	NA	2.3	NA	NA
<i>Average Commuter Rail</i>	<b>40.4</b>	<b>10.0</b>	<b>16.1</b>	<b>8.6</b>	<b>4.5</b>	<b>340</b>	<b>1,183</b>
<b>LIGHT RAIL TRANSIT (LRT)</b>							
Sacramento South Corridor	4.3	4	11.3	2.6	1.1	2,600	2,800
St Paul/Minneapolis Central Corridor	11.0	16	43.3	6	0.7	3,900	2,700
Charlotte Northeast Corridor	10.7	14	10.5	3.5	0.8	1,000	800
Salt Lake Mid-Jordan	10.6	9	9.5	3.7	1.2	900	1,100
Norfolk, VA	7.4	11	6.5	1.6	0.7	900	600
Los Angeles Exposition Corridor	9.6	8	NA	NA	1.2	NA	NA
Orange County, CA Centerline	9.3	16	NA	NA	0.6	NA	NA
Denver West Corridor	12.1	12	28.7	4.7	1.0	2,400	2,400
Tampa Bay Regional Rail	20.1	26	NA	NA	0.8	NA	NA
Portland South Corridor	8.3	15	46.5	9.4	0.6	5,600	3,100
Dallas Northwest/Southeast	20.9	16	45.9	10.7	1.3	2,200	2,900
<i>Average LRT</i>	<b>11.3</b>	<b>13.4</b>	<b>25.3</b>	<b>5.3</b>	<b>0.9</b>	<b>2,438</b>	<b>2,050</b>
<b>BUS RAPID TRANSIT (BRT)</b>							
Houston North Corridor	5.4	8	11.4	3.1	0.7	2,100	1,400
Houston Southeast Corridor	6.0	11	13.9	3.3	0.5	2,300	1,300
Kansas City Troost Corridor	9.0	25	9	1.2	0.4	1,000	400
Springfield Pioneer Parkway	7.8	14	3.7	0.4	0.6	500	300
King County Pacific South	10.4	14	8.2	NA	0.7	800	600
Fort Collins Mason	5.3	17	5.9	1.1	0.3	1,100	300
Kansas City South town	9.7	33	4.4	NA	0.3	500	100
<i>Average BRT</i>	<b>7.7</b>	<b>17.4</b>	<b>8.1</b>	<b>1.8</b>	<b>0.5</b>	<b>1,186</b>	<b>629</b>

Table 1: Summary of FTA New Starts Statistics by Corridor

Source: Federal Transit Administration New Starts Applications

## Station Level

At the corridor level, the goal is to identify the preferred transit corridor alignment, the transit type, and potential transit station locations, setting the stage for more detailed planning at the station level (Figure 10). When planning at the station level, land use, transit accommodations, accessibility and connectivity, and physical design become the focus. Figure 11 provides an example of land use analysis at the station level.

Once potential transit station locations are identified, the following questions become the driving factors in identifying preferred areas for TOD:

- What is the development or redevelopment potential of the surrounding area in terms of land use, land availability and housing and employment demand, with an emphasis on the area within one-half mile of a potential station?
- How connected is the surrounding street network?
- How walkable is the surrounding area? Are there any major barriers such as wide roadways or other constraints that limit or discourage walk access?
- How much future development intensity and density are appropriate given the surrounding community context and public sentiment?
- What existing growth management strategies and zoning tools and techniques supportive of TOD are available to the community?
- How jobs rich or housing rich is the surrounding area? What forces are affecting household and business location decisions?
- How affordable is nearby housing? How much mixed-income housing can be supported?
- How much parking capacity exists?
- What opportunities are there to connect to other transit services or other modes of transportation?
- What sort of station is most appropriate given the transit type or types, transit ridership goals, and other transit system or corridor dynamics?
- Will there be park-and-ride lot or feeder bus components?
- Are there any joint development opportunities?
- What are the demographic characteristics of the surrounding area in terms of income levels and auto ownership to identify transit-dependent populations?
- What is rate of growth and economic development is expected in the short-term and in the long-term?

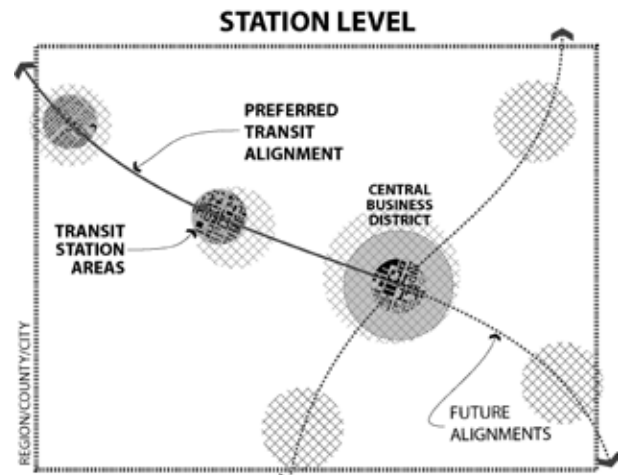


Figure 10: Station Level Emphasis

## Joint Development

Joint Development (JD) is a form of TOD that involves development of real property purchased with FTA funds. Typically, this real property is developed while maintaining its original public transportation purpose. Residential, commercial, or community service development is placed on, above, or adjacent to the real property purchased with FTA funds. To be eligible for FTA funds, JD improvements must satisfy certain economic criteria, provide a public transportation benefit, and generate revenue for public transportation. Specific guidance on JD opportunities is available through FTA. Several new ideas relative to JD policies have emerged through the HUD, DOT, and EPA partnership for sustainable communities (see box in Section 1.0). The agencies are exploring opportunities for better leveraging of FTA dollars with other federal dollars for JD and other public-private development ventures to support sustainability and livability principles.



*Example of joint development project in Morristown, New Jersey*

The Highlands at Morristown Station is a mixed use development on more than three acres of New Jersey Transit owned property located across the street from the historic train station, consisting of 218 residential units, 10,400 square feet of retail space and 736-space parking deck. [www.njtransit.com](http://www.njtransit.com)

## Rosslyn-Ballston Corridor, Arlington, Virginia

The Rosslyn-Ballston Corridor in suburban Arlington County, Virginia, located just outside of Washington, D.C., represents one of the nation's best examples of successful integrated land use and transit planning. In the late 1960s and early 1970s, the corridor was dominated by strip commercial development with stable single-family and moderate density multi-family housing located nearby. When the Washington Area Metropolitan Planning Authority extended the Orange Line of its Metrorail system through Arlington County, it aligned the new heavy rail line directly under the corridor. With the active engagement of its citizens, the County responded by creating a growth management and economic development strategy to direct new growth to five Metro stations along the corridor. Under this strategy, redevelopment has occurred in a 'bulls eye' pattern with the tallest and most intense or dense development adjacent to Metro stations quickly tapering to lower buildings and single-family neighborhoods within one-quarter mile from station entrances. The TOD within this corridor is still building out after more than four decades of redevelopment.

Figure 11 shows an analysis (by acreage) of existing land uses around the Ballston Metro Station, which has approximately 22,000 riders per day. That ridership represents a transit mode split of over 50% for the corridor (as percentage of person trips using transit). Notably, several surface parking lots and other underutilized parcels remain within the station area. Even so, transit ridership and the transit mode split are strong.

### TRANSIT ORIENTED DEVELOPMENT (TOD) LAND USE ANALYSIS



Renaissance Planning Group

Use	Acres	Land Cover
<b>First 1/4 Mile</b>		
Streets	26	21%
Civic	1	1%
Parks	2	2%
Residential	46	37%
Non-Residential	50	40%
<b>Total</b>	<b>126</b>	<b>100%</b>
<b>Second 1/4 Mile</b>		
Streets	49	16%
Civic	36	12%
Parks	0	0%
Residential	136	44%
Non-Residential	89	29%
<b>Total</b>	<b>310</b>	<b>100%</b>
<b>Total Area</b>		
Streets	75	17%
Civic	37	9%
Parks	2.4	1%
Residential	182	42%
Non-Residential	139	32%
<b>Total</b>	<b>436</b>	<b>100%</b>

Figure 11: Land Use Analysis for Ballston Metro Station, Arlington County, Virginia



## 3.0 TOD PLANNING AND DESIGN

### TOD Place Types and Station Area Planning

This section introduces three TOD place types that can be used as guidance in developing TOD policies and station area plans. These place types represent different typologies of TOD at the station area scale. As noted in Section 1.0, a station area scale is composed of the transit core (first-quarter mile) and the transit neighborhood (second quarter-mile) around a transit station. Specific guidance and measures for the transit supportive areas (the second one-half mile around a transit station) are not identified in this framework document, however these areas should reflect similar characteristics to the transit core and transit neighborhood including compact, mixed uses of moderate density, grid street networks and strong bicycle and pedestrian design considerations to create walkable, transit-friendly conditions.

The TOD place types reflect consideration of levels of activity and accessibility, transit type, and community context. Each TOD place type comes with targets for measures of intensity, density, mix of use, urban form, street networks, and parking. The targets focus on the goal of creating optimal TODs that maximize walking trips to access transit, reflect community context, and position station areas to help achieve transit ridership goals. The TOD place types provide a starting point for detailed station area planning but are not a substitute for that process.



*Urban park in Florida with canopy shaded walkways and water features*



*Strong landscape buffers help separate pedestrian and vehicular traffic*



*Example of breezeway design in City Place, West Palm Beach, Florida*

### Rural Transit and TOD

The higher intensity and density development pattern and premium transit services associated with TODs, as presented in this framework document, do not fit in the rural context. Transit serving rural areas, however, can play a key role in helping to meet local and regional mobility needs. For example, the intercity bus routes that serve several small municipalities in the rural Glades area in South Florida get people to local destinations and connect them to Palm Tran fixed route bus service, which connects to Tri-Rail commuter rail service. Planning for transit services and transit stations (such as Amtrak stations) in a rural context warrants use of a careful approach designed to match existing and planned transit services with desired community development patterns as articulated in community visions or comprehensive plans. Planning in rural station areas would be similar to planning for the transit supportive areas which involves creating compact, walkable station areas. Rural transit station areas should also contain a moderate mix of uses, development forms appropriate to the rural character, walkable connections to surrounding areas and consideration of design factors to ease transfer between different modes.

## Design Factors and Scale for TOD

Station area planning involves consideration of multiple factors that influence the design and scale of TOD. These factors include the transit types to be served (e.g., heavy rail, commuter rail, light rail, modern streetcar, bus rapid transit, local/express bus), design requirements for station facilities, station location, surrounding community context, existing or desired levels of activity, and connectivity to other modes of transportation. One overarching goal of TOD is to maximize walk access to the transit station by locating a critical mass of development within the station area. Since every transit trip starts as a walking trip, this equates to locating as many “front doors” as close as possible to the station entrance. The more intensity, density, and mix of uses in TODs, the higher the level of activity and the greater the number of origins and destinations that can be accessed by walking trips.

An additional consideration is building placement, form, and design relative to creating great public spaces that support walkability and street-level activity. Supporting walkability also involves having a dense network of streets with smaller, more walkable block sizes and implementing the design principles of “complete streets” and “context sensitive” street design. These design principles also support bicycle use and recognize the importance of pedestrian and bicyclist safety. Creating great streets applies not only to the transit core and the transit neighborhood but also to the larger (one mile) transit supportive area that encompasses them (see Figure 1). Designing streetscapes with features to help mitigate Florida climate extremes, such as shade, breezeways, landscaping and covered walkways, is another component of good TOD planning.

TODs with desirable walking environments and multiple destinations in close proximity to one another create conditions for maximizing transit ridership potential. Transit ridership is measured by daily passenger boarding per mile or daily passenger boarding per station. The total amount of development (jobs and housing) and the percentage mix of jobs and housing located within a station area are key determinants of transit ridership potential. Other determinants include the quality of the transit service (e.g., frequency of service and travel times), how parking supply is managed, and utilization of transportation demand management (TDM) strategies. Another important factor is the extent to which the transit system as a whole is able to connect people to where they need or want to go. It is the combination of all these things that ultimately helps change travel behaviors to enhance transit ridership.

Given the effect of market conditions on the timing of growth and redevelopment, TOD planning also involves consideration of how development or redevelopment can be phased in over time. An example might be to consider identifying shared surface parking lots that can be transitioned into building space or converted into structured parking when market conditions are more supportive. The key challenge in phasing in TOD is to create enough flexibility to encourage development or redevelopment without sacrificing the maximum development potential that can be achieved at build out.

This framework document addresses macro scale design factors associated with planning successful TOD for station areas located within a range of community contexts. As a supplement to this framework, DCA, in partnership with FDOT, are developing more in depth resources for local governments. Those resources will include a web-based library of TOD best practices, a typology of model transit stations and detailed TOD master plans, model comprehensive plan policies and land development regulations, and a TOD implementation guidebook.

Complete Streets: Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and transit riders of all ages and abilities must be able to safely move along and across a complete street.

Excerpt from web site with resources on context sensitive solutions, [www.contextsensitivesolutions.org](http://www.contextsensitivesolutions.org)

## TOD Place Types

For purposes of developing a statewide framework, three TOD place types were identified: Regional Center, Community Center, and Neighborhood Center. These place types reflect an understanding of existing development patterns in Florida, a review of available literature on TOD and other examples of TOD typologies, consideration of transit ridership goals, an analysis of FTA New/Small Starts program criteria, and consideration of stakeholder input from across Florida. The typologies are meant to serve as a tool to help with analyses of existing and future development conditions against optimal conditions for TOD and transit ridership, and evaluations of the general relationship between intensities and densities of development and transit investments. These place types also are meant to serve as a reference for evaluations of the transit-readiness of particular development proposals or site plans and for development of policies and land development codes supportive of TOD.

The place type nomenclature identified for the framework is intended to address the wide range of community types and sizes across the state along with type of accessibility. Two key considerations are whether TOD serves a transit system that is providing regional accessibility or local accessibility and whether a transit station serves as a hub for multiple transit routes and other modes of transportation. What is deemed to be “regional” in cities such as Miami, Tallahassee and Lakeland may be different from a community form standpoint, but the regional or local accessibility considerations are similar.

In Figure 12, the three TOD place types are aligned with different types of transit to help illustrate relationships among cost, ridership, and development—the higher the cost of the transit investment, the higher the desired ridership and the more intense and dense the level of development. The figure also illustrates how characteristics can be similar across TOD place types (e.g., a Community Center in larger region served by commuter/light rail compared to a Regional Center in a smaller region served by bus rapid transit). When using this framework document for guidance in planning for TOD at the local level, communities should calibrate the content to local conditions and create nomenclature that best suits their character and goals.



*Transit oriented development, Miami, Florida*



*Mixed use redevelopment with ground floor retail, upper story office and adjacent high density residential located near a proposed new SunRail commuter rail station in downtown Kissimmee, Florida*

1. Regional Center with Heavy Rail/ High Speed Rail
2. Regional Center with Light Rail
3. Regional Center with Bus Rapid Transit
4. Community Center with Heavy Rail
5. Community Center with Light Rail
6. Community Center with Bus Rapid Transit
7. Neighborhood Center with Heavy Rail
8. Neighborhood Center with Light Rail
9. Neighborhood Center with Bus Rapid Transit

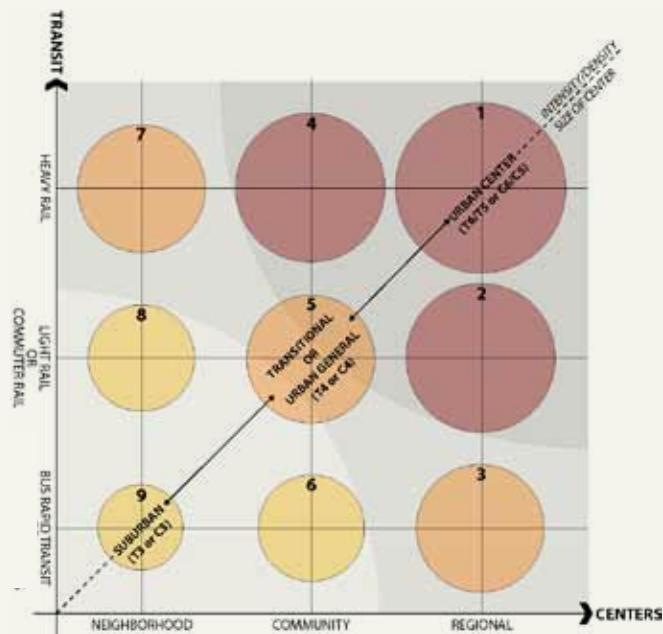


Figure 12: TOD Place Type, Transit Type, and Center Intensity/Density

The TOD place types consider three major areas of influence: activity and accessibility, transit type, and community context.

- **Activity and Accessibility** - Understanding the existing or desired level of activity within a station area can help determine which TOD place type or place types to apply. Level of activity and type of accessibility are major determinants of the scale of TOD that can be supported around a transit station. The level of activity is defined by how a station area fits within a region, how many and what trip origins and destinations are present or expected, and what type and quality of transit service is being or will be provided and their connections to other modes. A Regional Center typically has a high concentration and mix of uses that serve regional functions and require regional accessibility. A Neighborhood Center typically has a more modest concentration and mix of uses that serve more local functions and have limited regional accessibility.
- **Transit Type** - Transit technology and transit service characteristics will influence ridership potential as well as station area design. This framework document does not attempt to provide guidance for the full range of transit types. Instead, it illustrates the relationships between several transit types and TOD considerations. The types of transit addressed in the TOD place types are heavy rail, high speed rail commuter/light rail, and bus rapid transit/bus. Together they represent a higher to lower range of transit investment cost. The frequency of transit service, the cost of the transit investment, station spacing, station design, and mode split assumptions all influence the intensity, density, and mix of uses needed in station areas to achieve transit ridership goals. TOD place types for station areas that develop in response to special regional or local transit needs (e.g. sports venues, water taxis, airports) are outside the purview of the statewide framework.

- **Community Context** - The location of station areas within urban, suburban, or transitional (mix of urban and suburban characteristics) settings can be a strong determinant of the design and development or redevelopment potential of station areas. The physical layout of a station area with respect to the street network, block size, and building massing/form can influence accessibility as well as development or redevelopment potential. Surrounding community context can also be a factor, influencing public sentiment regarding the level of development and the urban form change desired within TODs.

### Transit Types

Transit technology and transit service characteristics influence the type, spacing, and intensity of station areas. For example, transit corridors identified for light rail or bus rapid transit result in lower intensity station areas located closer together (more frequent stops) while transit corridors identified for commuter rail result in higher intensity station areas located farther apart (less frequent stops). See Figure 13. While the type of transit is often determined by transit system needs, capital costs, ridership estimates, and corridor right-of-way attributes, factors associated with TOD around stations can heavily influence ridership potential for the transit system as a whole. Therefore, transit system design and technology decisions also need to consider plans for future development and redevelopment in station areas.

Transit technology encompasses vehicle type, energy source, size and adaptability, right-of-way requirements, and capital costs. Transit service characteristics include operational factors such as travel shed (total distance efficiently served by transit type based on speed and optimal travel time), station spacing (optimal spacing between stations based on speed and start/stop efficiency of vehicle), and station service area (distance from station that people are willing to walk, bike, or drive to access transit). Innovations in transit technology are influencing some of these factors relative to station design, station spacing, and right-of-way requirements. The descriptions below are meant to provide generalized, relative comparisons to assist planners in understanding the relationship between transit types and station area planning.



*Tri-Rail Commuter Rail, West Palm Beach, Florida*



*METRO Light Rail, Phoenix, Arizona*

Heavy Rail and Commuter Rail — This rail-based technology consists of large, high passenger capacity cars and typically realizes operational efficiency through large passenger volumes. Both heavy rail and commuter rail require exclusive, dedicated rail right-of-way. The capital cost for heavy rail infrastructure, which relies on power provided by an electrified track, is very high. The capital cost for commuter rail infrastructure is typically less because it can be powered by diesel train engines or overhead electrical cantilevers. The travel shed for heavy rail and commuter rail is regional in nature, spanning many miles, and stations tend to be located farther apart. Consequently, station service areas tend to be large, allowing for more driving access to stations.

Light Rail — This rail-based technology consists of smaller cars with lower passenger capacity compared to heavy rail and commuter rail. Light rail can operate in dedicated rail or shared right-of-way. The capital cost for light rail infrastructure is medium to high. Light rail stations tend to be located closer together and emphasize walk access. The optimal travel shed for light rail varies depending on regional and local transit connectivity needs, but it is typically less than the commuter rail travel shed.

Modern Streetcars — This electric vehicle-based technology runs on rails typically located in existing rights-of-way. Modern streetcars often function as urban circulators oriented toward shorter trips. Stations are located closer together with a heavy emphasis on walk access. Streetcar alignments are often located in shared traffic lanes but also can be located in dedicated rail right-of-way. Because streetcar infrastructure can be more easily integrated into the existing urban environment, its capital cost tends to be lower than light rail infrastructure. According to the American Public Transportation Association, there is no comprehensive source of recommended practice guidance for modern streetcars in North America. However, research is under way as demand for the technology increases nationwide. For the purposes of this framework document, modern streetcars can be viewed as functioning on the continuum between bus rapid transit and light rail.

Bus Rapid Transit or Local/Express Bus — This rubber wheel-based technology is the most flexible in terms of a need for right-of-way exclusivity. While operational efficiency is maximized in dedicated right-of-way, buses can operate efficiently in mixed traffic/shared lanes assisted by transit signal priority and other means that help them maintain reasonable travel speeds. The size and expandability of bus vehicles are limited, but the capital cost for infrastructure for this transit type is low compared to other types of premium transit.

High-Speed Rail and Express Intercity Passenger Rail. High speed rail in the U.S. is envisioned primarily as high passenger volume, high speed (90 to 150 mph) service located in dedicated rail right-of-way connecting centers of population and employment located approximately 80 to 500 miles apart. The capital cost for high speed rail is very high. High speed rail stations tend to be located far apart and sited within regional urban centers or at locations serving as major regional intermodal hubs. They are likely to incorporate design features that facilitate the ease of transfer between high speed rail and other modes of transportation. High speed rail is a relatively new concept in the U.S., and best practices in TOD for high speed rail stations is an emerging area of study. However, it is reasonable to assume that the basic design principles for TOD would apply to and around high speed rail stations. Additionally, given the capital costs and passenger volumes anticipated, development patterns surrounding high speed rail stations would ideally reflect the most dense and intense patterns within a region.



*Amtrak's Acela Train North East Corridor*

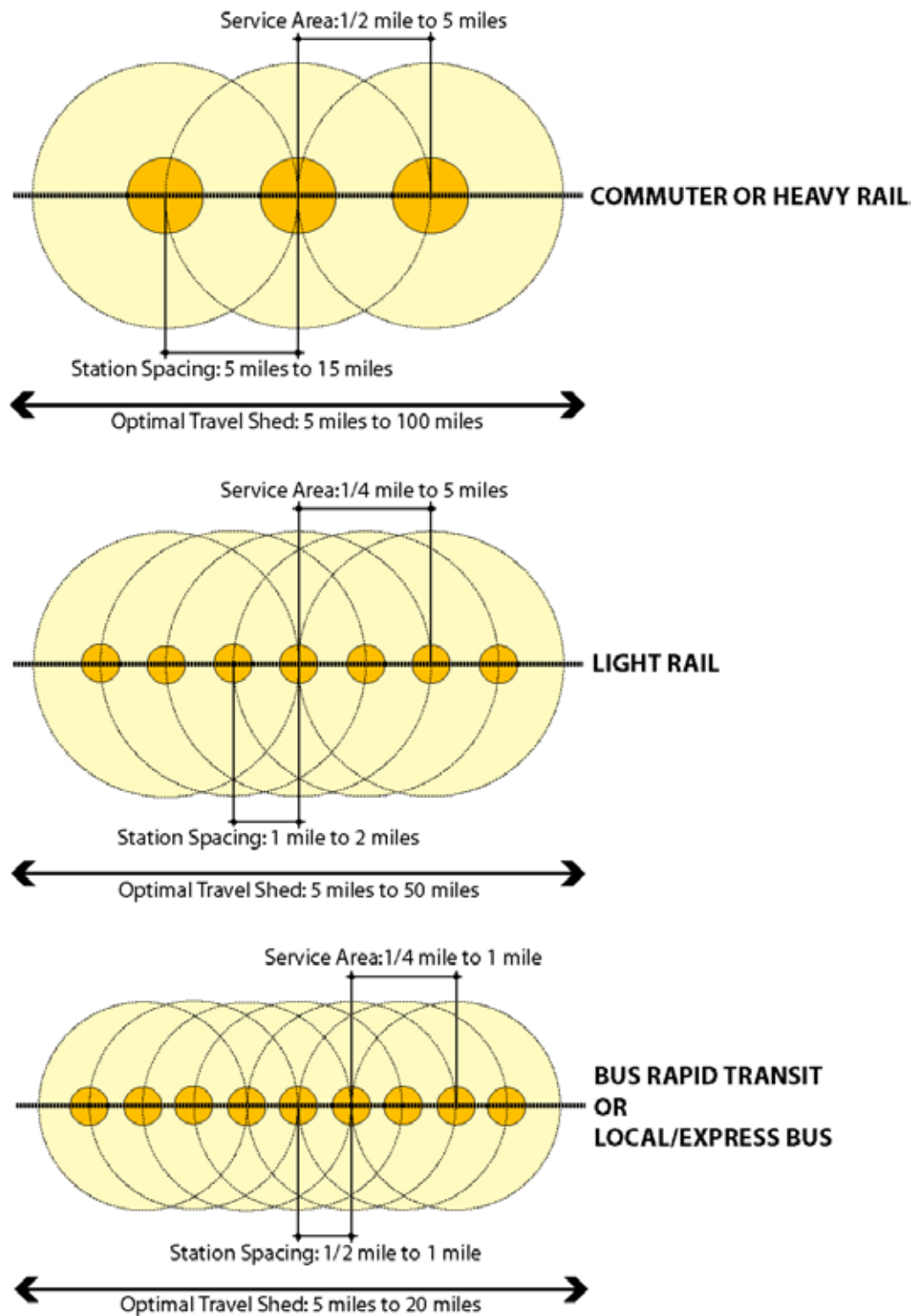
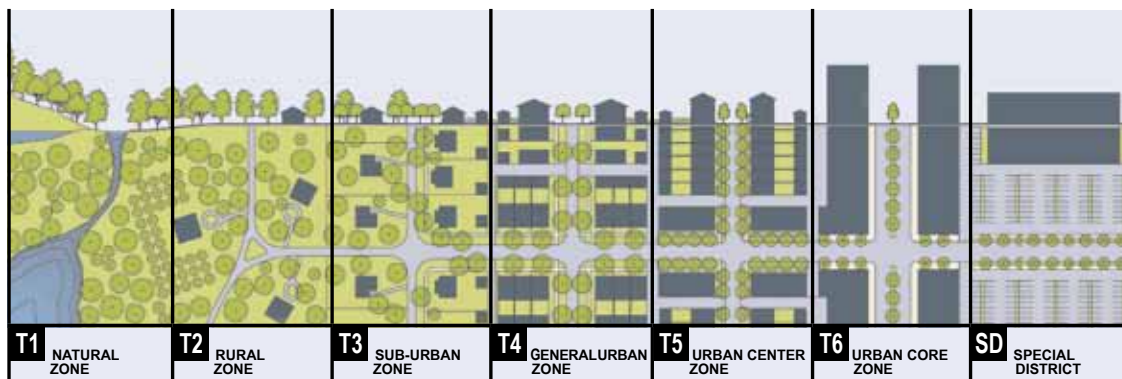


Figure 13: Transit Types and Station Spacing

## TOD Place Types, the Transect, and Context Zones

The “transect” is a term commonly used by New Urbanists to describe the continuum of the built environment from rural to urban. “Context zones” is a term commonly used by transportation professionals to describe that continuum as applied in the use of a Context Sensitive Solutions (CSS) approach to thoroughfare planning. As indicated in Figure 14, transect zones (T zones) and context zones (C zones) relate to the intensity of human settlement patterns. At one end of the continuum, the T-1 and C-1 zones represent the natural landscape. At the other end of the continuum, the T-6 and C-6 zones represent the most intensely developed areas (urban cores).



A TYPICAL RURAL-URBAN TRANSECT, WITH TRANSECT ZONES

Context Zone	Distinguishing Characteristics	General Character
C-1 Natural	Natural landscape	Natural features
C-2 Rural	Agricultural with scattered development	Agricultural activity and natural features
C-3 Suburban	Primarily single family residential with walkable development pattern and pedestrian facilities, dominant landscape character	Detached buildings with landscaped yards
C-4 General Urban	Mix of housing types including attached units, with a range of commercial and civic activity at the neighborhood and community scale	Predominantly detached buildings, balance between landscape and buildings, presence of pedestrians
C-5 Urban Center	Attached housing types such as townhouses and apartments mixed with retail, workplace and civic activities at the community or sub-regional scale.	Predominantly attached buildings landscaping within the public right of way substantial pedestrian activity
C-6 Urban Core	Highest-intensity areas in sub-region or region, with high-density residential and workplace uses, entertainment, civic and cultural uses	Attached buildings forming sense of enclosure and continuous street wall landscaping within the public right of way, highest pedestrian and transit activity
Districts	To be designated and described locally, districts are areas that are single-use or multi-use with low-density development pattern. These may be large facilities such as airports, business parks and industrial areas.	

The illustration above demonstrates the transect as defined by the Congress for New Urbanism. The table to the left illustrates the general descriptions and characteristics of context zones from the Institute of Transportation Engineers.

Figure 14: Smartcode Transect and CSS Context Zones



The TOD place types identified in this framework document reflect application of a center-based approach rather than a linear zone-based approach to establishing place types as illustrated in the transect zones. The center-based approach directly addresses how land use and community context relate to the provision of transit services (e.g., extent of transit system, location of transit corridors, transit type, transit service characteristics) and larger community and economic dynamics. Also, TOD place types as centers match up with a geographic area relevant to station area planning, namely the one-half mile area around transit stations.

In Table 2, the relative relationships among TOD place types, transect zones, and CSS context zones are shown. The lack of exclusivity between TOD place types and transit types also is shown. For example, a Regional Center place type could match up with a T-6/C-6 zone served by heavy rail, or it could contain clusters of T-5/C-5 and T-4/C-4 conditions served by other types of transit ranging from heavy rail to fixed route bus. Considering TOD place types and transit types together in a planning process provides a context for understanding how varying levels of transit investment relate to the different functions and characteristics of the TOD place types and how the TOD place types relate to the urban design and transportation facility design perspectives represented by the transect and CSS context zones.

<b>TOD PLACE TYPES</b>	<b>COMMUNITY CONTEXT</b>	<b>SMARTCODE TRANSECT ZONE</b>	<b>CSS CONTEXT ZONES</b>
Regional Center – Heavy Rail	Urban	Urban Core (T6) Urban Center (T5)	Urban Core (C6) Urban Center (C5)
Regional Center – Light Rail			
Community Center – Heavy Rail			
Regional Center – BRT/Bus	Transitional	Urban General (T4)	General Urban (C4)
Community Center – Light Rail			
Neighborhood Center – Heavy Rail			
Community Center – BRT/Bus	Suburban	Suburban (T3)	Suburban (C3)
Neighborhood Center – Light Rail			
Neighborhood Center – BRT/Bus			

Table 2: TOD Place Types, Smartcode Transect Zones, and CSS Context Zones

## Station Area Targets by TOD Place Type

To assist with station area planning, two sets of targets for key measures are provided for each of the three TOD place types. The station area measures for gross intensity and density targets applies to the whole station area (transit core and transit neighborhood) or the approximately 500 acres of land within a one-half mile radius of a station entrance. The site level measures of net intensity and density targets applies to individual developments within a station area. See Figure 15. As indicated in more detail below, the station area targets focus on the total number of jobs and residential units, gross floor area ratio (FAR), and the balance of uses within a station area. The site level targets focus on net FAR, residential density, the street network, building height, lot coverage, street frontage, and parking.

### Station Area Targets

- Gross Intensity and Density: combined employment and residential units, total residential units, gross residential density (dwelling units per acre), total employment, gross employment density (jobs per acre), and jobs to housing ratio.
- Mix of Uses: percentages of residential and non-residential uses

### Site Level Targets

- Net Intensity and Density: net total FAR for non-residential uses and residential density (dwelling units per acre)
- Street Network and Building Design: grid density, building height (in floors), maximum lot coverage, and minimum street frontage
- Parking: maximum residential parking, maximum non-residential parking, and park-and-ride

The gross intensity and density targets for the greater TOD area are lower than the net targets for individual developments because they account for utilization of land for roadways, open space, stormwater management, and so forth within the larger station area. The net intensity and density targets are higher because they apply to individual development sites.

Best practices research indicates walk access to transit is at its highest in the transit core or the approximately 125 acres of land within a one-quarter mile radius of a station entrance. Because walk access to transit declines sharply beyond the first-quarter mile, station area planning and design should maximize development and redevelopment potential in the transit core.

The tables on the following pages provide targets for station areas and site level development within station areas by TOD place type. The station area targets can be used by communities to monitor development in TODs over time, help develop policies and land development codes supportive of TOD, or as a starting place for developing station area plans. The site level targets can be used to evaluate or produce individual development proposals. More detailed information on this subject is provided in Section 5.0, Appendix.

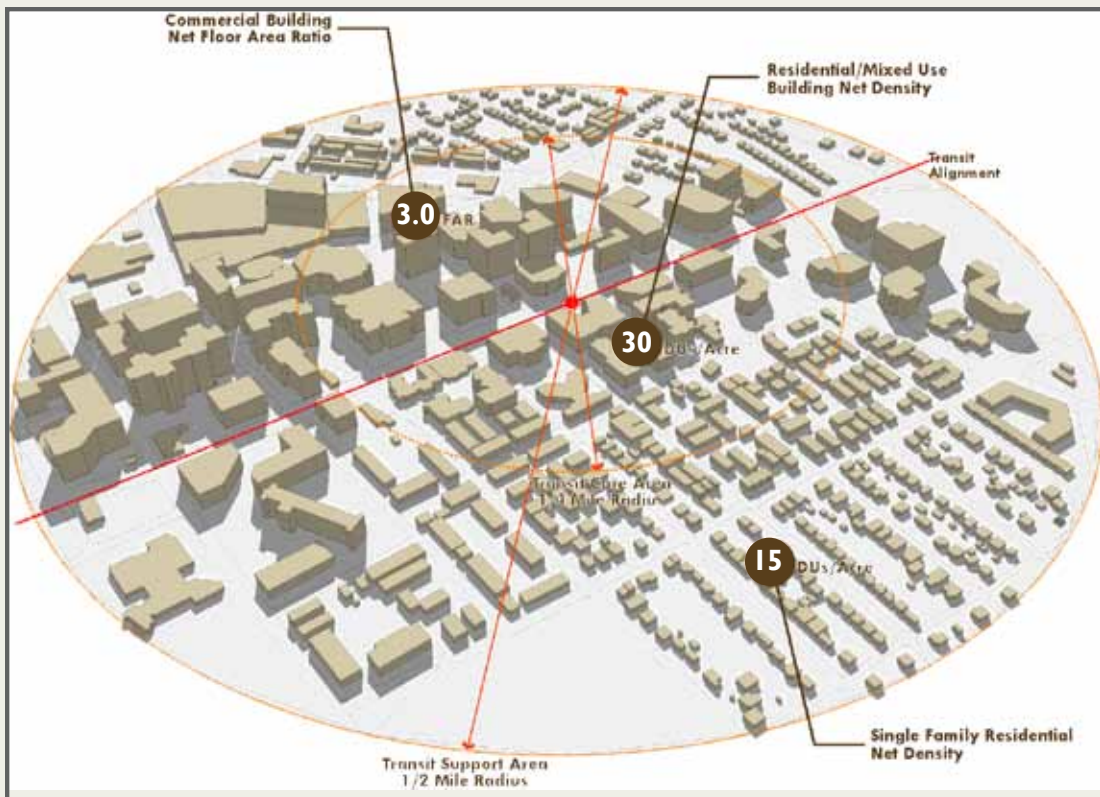
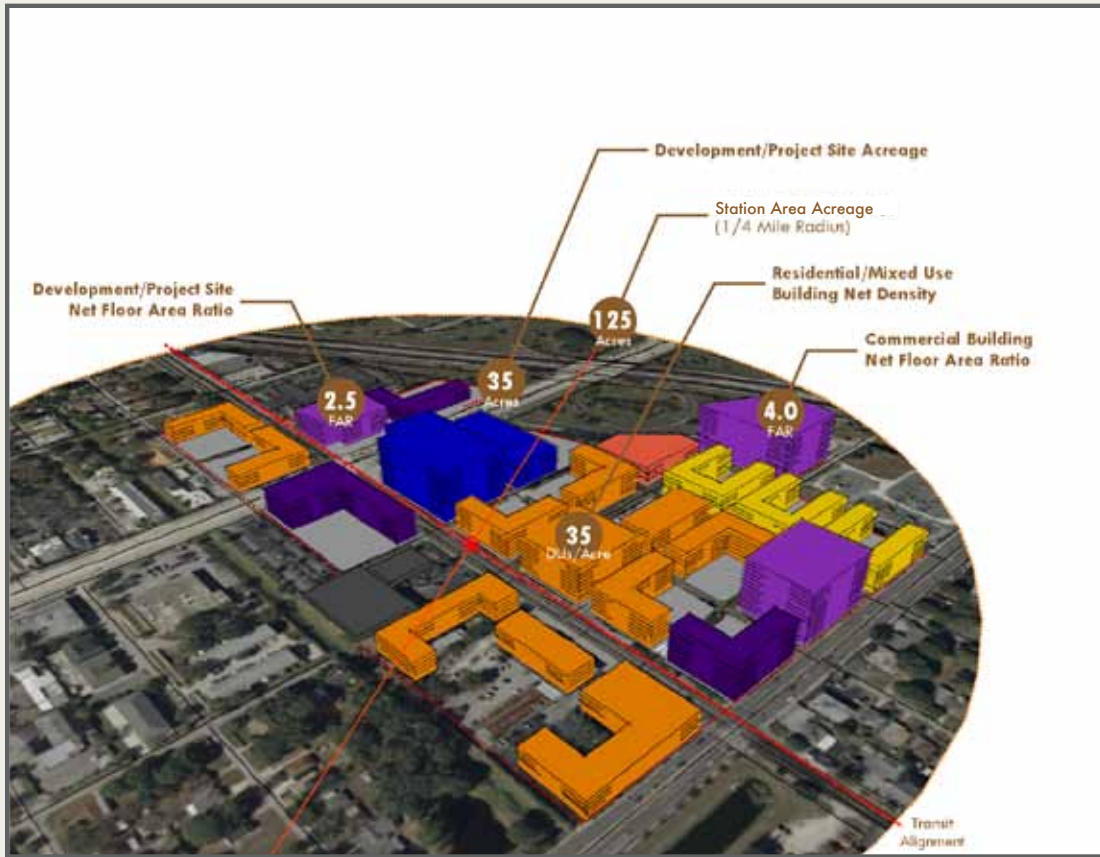


Figure 15: Example of TOD Place Type Measures applied to Existing Conditions

## REGIONAL CENTER

Regional Centers are centers of economic and cultural significance, including downtowns and central business districts, which serve a regional travel market and are served by a rich mix of transit types ranging from high speed, heavy or commuter rail to BRT to local bus service. Usually emphasizing employment uses, Regional Centers increasingly are being sought out for residential uses in response to changing demographics and housing preferences. Regional Centers are larger in size than Community Centers or Neighborhood Centers and tend to contain more than one transit station and multiple bus stops. Small block sizes, more lot coverage, higher intensities and densities of development, civic open spaces, and minimal surface parking result in a highly urban development pattern in Regional Centers. Figure 16 illustrates a prototypical Regional Center urban form that reflects application of the station area and site level targets identified for the Regional Center TOD place type (Table 3).

		1	2	3
		Regional Center		
		Heavy Rail	Commuter/Light Rail	Bus Rapid Transit/Bus
STATION AREA MEASURES	<b>Gross Intensity/Density</b>			
	Station Area Employment and Residential Units	70,000 - 95,000	45,000 - 70,000	23,000 - 45,000
	Station Area Total Residential Units	10,000 - 15,000	5,000 - 10,000	3,000 - 5,000
	Gross Residential Density (Dus/Acre)	55 - 75	35 - 55	20 - 35
	Station Area Total Employment	60,000 - 80,000	40,000 - 60,000	20,000 - 40,000
	Gross Employment Density (Jobs/Acre)	200 - 250	100 - 200	50 - 125
	Jobs/Housing Ratio (Jobs:Residential Units)	6 : 1		
	<b>Mix of Uses</b>			
	Mix of Uses - % Residential / % Non-Residential	35% / 65%		
	SITE LEVEL MEASURES	<b>Net Intensity/Density</b>		
Net Commercial Floor Area Ratio (FAR)		4.0 - 6.0	2.0 - 4.0	1.5 - 3.0
Net Residential Density (Dwelling Units per Acre)		85 - 115	55 - 85	30 - 55
<b>Street Network and Building Design</b>				
Grid Density - Blocks per Square Mile for Vehicular, Bicycle, and Pedestrian Street Network		> 350	> 350	>230
Building Height (in Floors)		> 4	> 3	> 2
Maximum Lot Coverage		80% - 90%	80% - 90%	60% - 70%
Minimum Street Frontage		80% - 90%	80% - 90%	70% - 80%
<b>Parking</b>				
Maximum Residential Parking - Spaces per Residential Unit		1	1	1.5
Maximum Non-Residential Parking - Spaces per 1,000 square feet	1	1	2	
Park & Ride	No	No	No	

Table 3:TOD Place Type Targets - Regional Center



Downtown Jacksonville, Florida



METRO Light Rail, Phoenix, Arizona



Metrorail Station, Downtown Miami, Florida



Thornton Park Neighborhood, Downtown Orlando, Florida

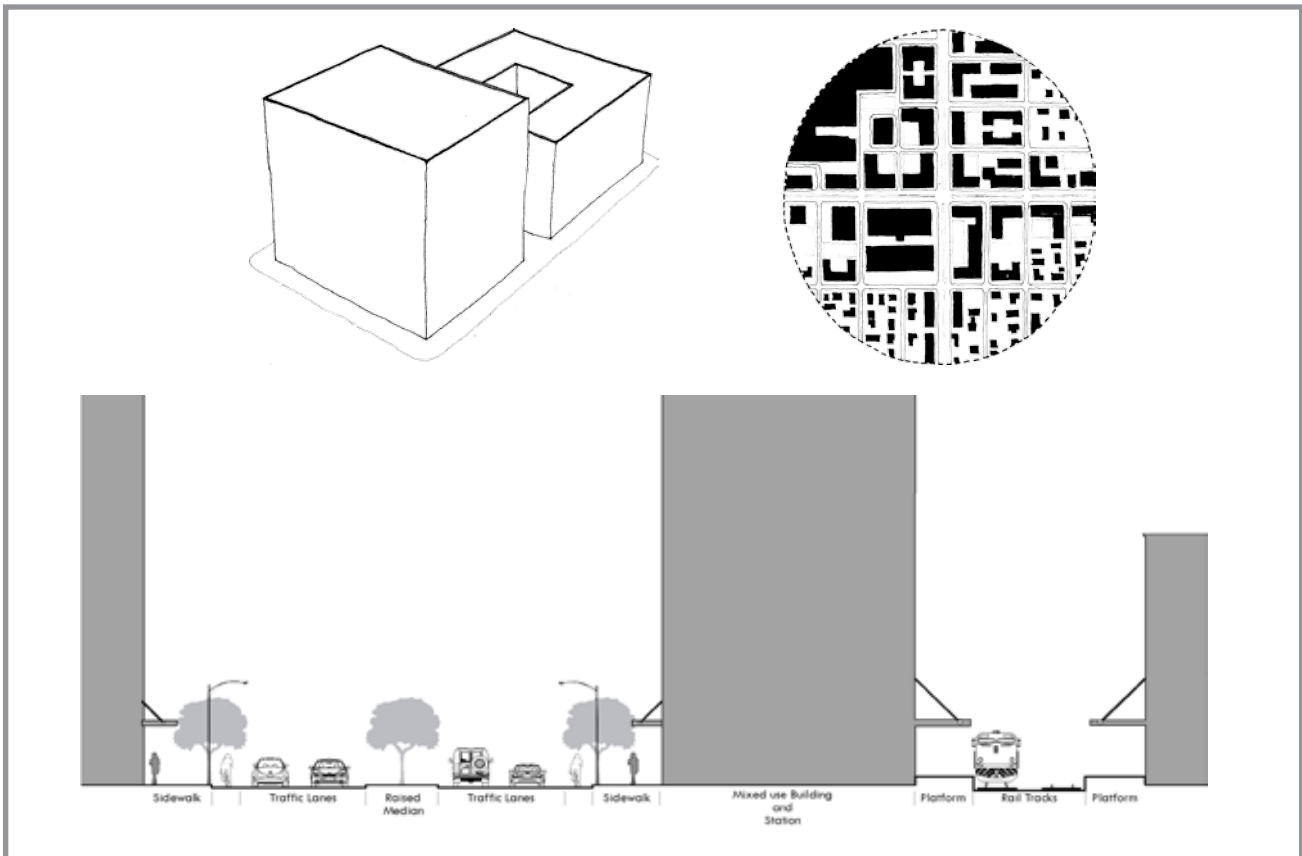


Figure 16: Regional Center Urban Form

## COMMUNITY CENTERS

Community Centers function as sub-regional or local centers of economic and community activity and include urban and town centers served by one or more transit types. Residential densities in Community Centers are typically lower than residential densities in Regional Centers, but the mix of uses in them is more balanced between residential and employment uses. More intense or dense development in Community Centers tends to be concentrated within walking distance of the transit station. The pattern of development in Community Centers ranges from urban to suburban. Block sizes, lot coverage, and development intensities and densities all tend to be moderate. Parking is typically structured and located close to the transit station. Figure 17 illustrates a prototypical Community Center urban form that reflects application of the station area and site level targets identified for the Community Center TOD place type (Table 4).

		4	5	6
		Community Center		
		Heavy Rail	Commuter/Light Rail	Bus Rapid Transit/Bus
STATION AREA MEASURES	<b>Gross Intensity/Density</b>			
	Station Area Employment and Residential Units	23,000 - 30,000	15,000 - 23,000	7,000 - 15,000
	Station Area Total Residential Units	5,000 - 6,000	3,000 - 5,000	1,000 - 3,000
	Gross Residential Density (Dus/Acre)	35 - 65	25 - 35	10 - 20
	Station Area Total Employment	18,000 - 24,000	12,000 - 18,000	6,000 - 12,000
	Gross Employment Density (Jobs/Acre)	65 - 90	45 - 65	20 - 45
	Jobs/Housing Ratio (Jobs:Residential Units)	3 : 1		
	<b>Mix of Uses</b>			
	Mix of Uses - % Residential / % Non-Residential	45% / 55%		
	SITE LEVEL MEASURES	<b>Net Intensity/Density</b>		
Net Commercial Floor Area Ratio (FAR)		4.0 - 6.0	2.0 - 4.0	1.0 - 2.0
Net Residential Density (Dwelling Units per Acre)		60 - 80	40 - 60	20 - 40
<b>Street Network and Building Design</b>				
Grid Density - Blocks per Square Mile for Vehicular, Bicycle, and Pedestrian Street Network		> 350	>230	>150
Building Height (in Floors)		> 3	> 2	> 2
Maximum Lot Coverage		80% - 90%	60% - 70%	40% - 50%
Minimum Street Frontage		80% - 90%	70% - 80%	60% - 70%
<b>Parking</b>				
Maximum Residential Parking - Spaces per Residential Unit		1	1.5	2
Maximum Non-Residential Parking - Spaces per 1,000 square feet		1	2	3
Park & Ride	No	No	No	

Table 4: TOD Place Type Targets - Community Center



Civic plaza, west coast of Florida



Light Rail, St. Kilda, Melbourne, Australia



Bus Rapid Transit, Public Square in Cleveland, Ohio



Downtown Tallahassee, Florida

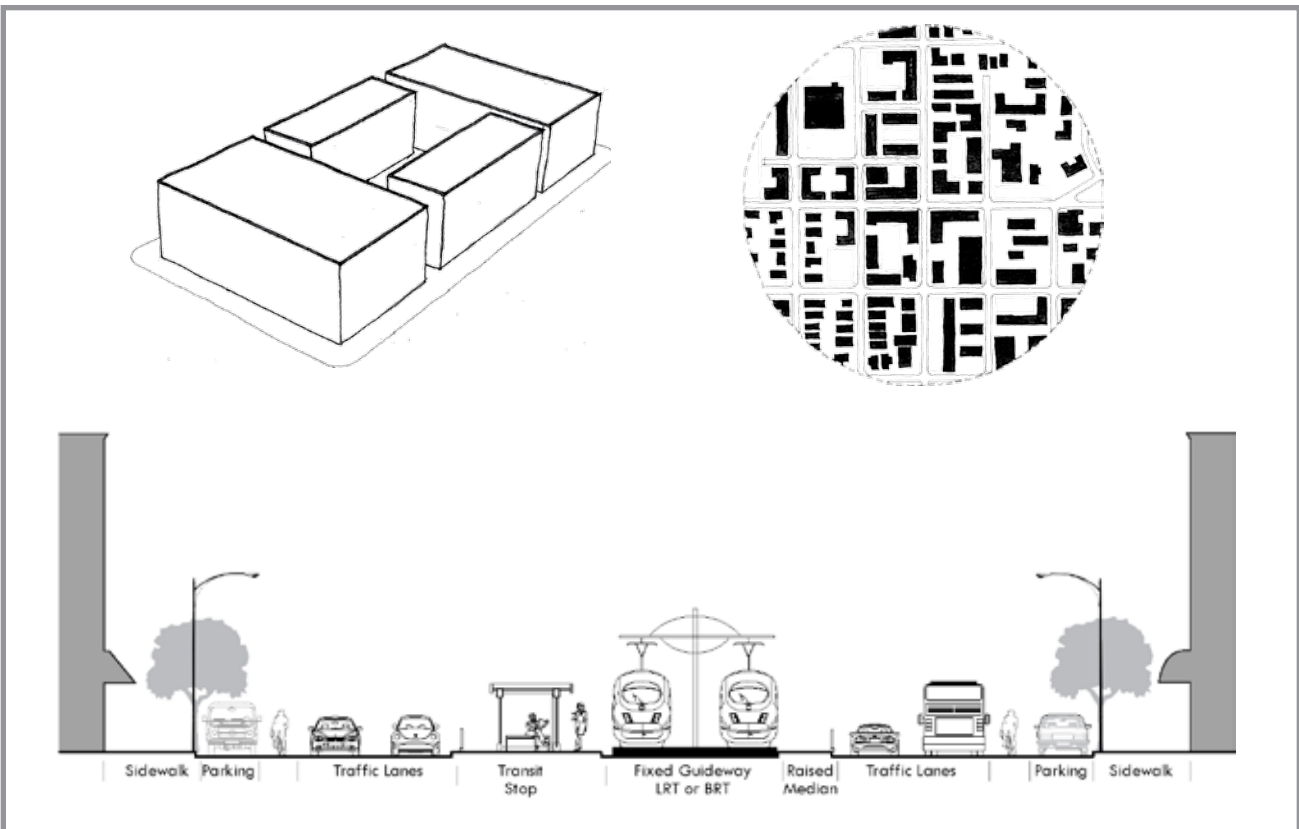


Figure 17: Community Center Urban Form

## NEIGHBORHOOD CENTERS

Neighborhood Centers are dominated by residential uses and are served by some type of premium transit. Non-residential uses in them are limited to local-serving retail and services. Residential densities in Neighborhood Centers tend to be lower than in Community Centers and at their highest within walking distance of the transit station. Neighborhood Centers are found in older urban areas and newer suburban developments. Open space is usually abundant in them, and parking is mostly in surface lots. Figure 18 illustrates a prototypical Neighborhood Center urban form that reflects application of the station area and site level targets identified for the Neighborhood Center TOD place type (Table 5).

		7	8	9
		Neighborhood Center		
		Heavy Rail	Commuter/Light Rail	Bus Rapid Transit/Bus
<b>STATION AREA MEASURES</b>	<b>Gross Intensity/Density</b>			
	Station Area Employment and Residential Units	5,000 - 8,000	4,000 - 6,000	2,000 - 4,000
	Station Area Total Residential Units	3,000 - 4,500	2,000 - 3,000	1,000 - 2,000
	Gross Residential Density (Dus/Acre)	12 - 15	9 - 12	7 - 9
	Station Area Total Employment	2,000 - 3,500	2,000 - 3,000	1,000 - 2,000
	Gross Employment Density (Jobs/Acre)	20 - 30	15 - 20	10 - 15
	Jobs/Housing Ratio (Jobs:Residential Units)	1 : 1		
	<b>Mix of Uses</b>			
Mix of Uses - % Residential / % Non-Residential	75% / 25%			
<b>SITE LEVEL MEASURES</b>	<b>Net Intensity/Density</b>			
	Net Commercial Floor Area Ratio (FAR)	1.5 - 2.0	1.0 - 1.5	0.5 - 1.0
	Net Residential Density (Dwelling Units per Acre)	15 - 20	12 - 15	10 - 12
	<b>Street Network and Building Design</b>			
	Grid Density - Blocks per Square Mile for Vehicular, Bicycle, and Pedestrian Street Network	> 230	> 150	> 150
	Building Height (in Floors)	> 2	> 2	> 1
	Maximum Lot Coverage	60% - 70%	40% - 50%	40% - 50%
	Minimum Street Frontage	70% - 80%	60% - 70%	60% - 70%
	<b>Parking</b>			
	Maximum Residential Parking - Spaces per Residential Unit	1.5	2	2
	Maximum Non-Residential Parking - Spaces per 1,000 square feet	2	3	3
Park & Ride	Yes	Yes	Yes	

Table 5: TOD Place Type Targets - Neighborhood Center





Downtown Stuart, Florida



Metro Rail in South Pasadena, California



Metra La Grange Road commuter rail station, La Grange, Illinois



San Marco Neighborhood, Jacksonville, Florida

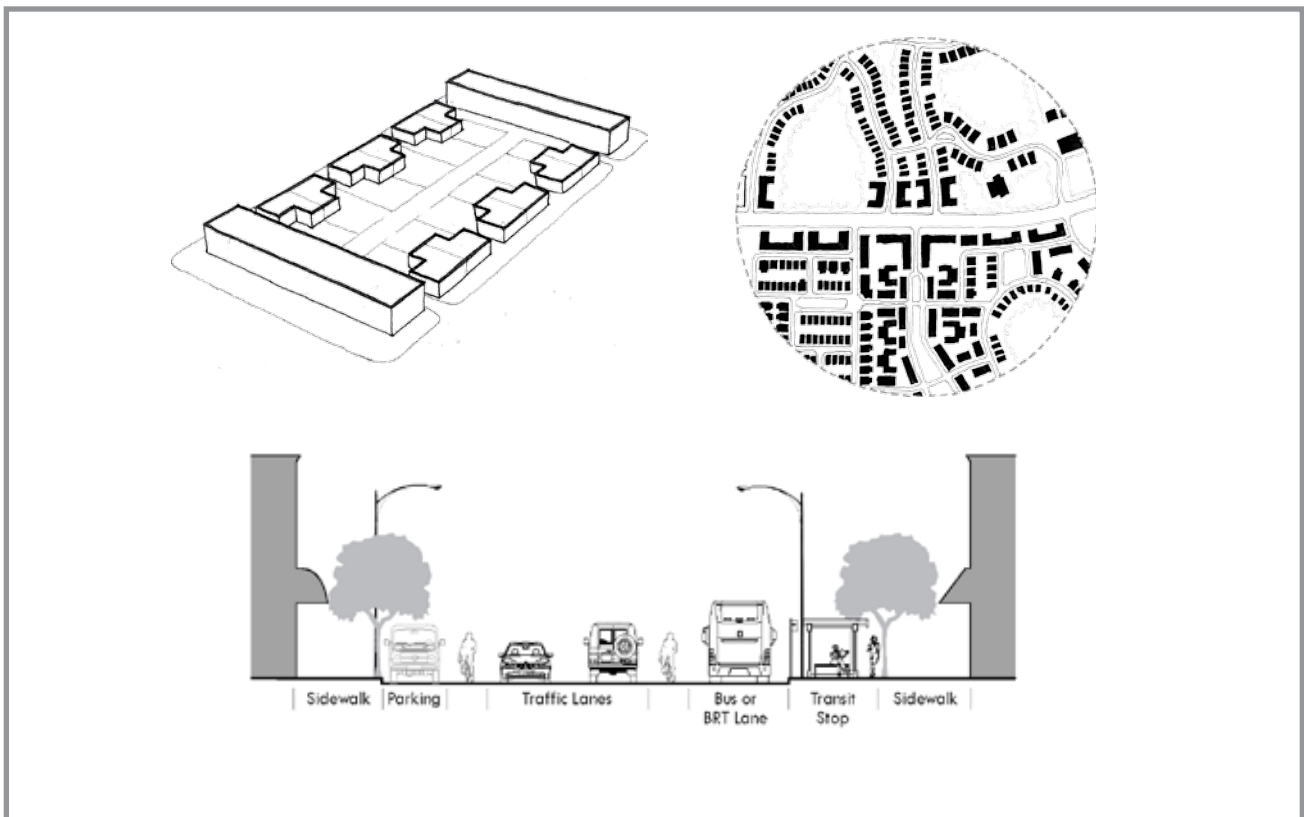


Figure 18: Neighborhood Center Urban Form

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# 4.0 KEY PLAYERS FOR EFFECTIVE TOD PLANNING AND IMPLEMENTATION

Effective coordination among multiple agencies and interests in the public and private sectors is needed to effectively plan for and implement TOD. The level of involvement from federal, state, regional, and local agencies varies depending on how far along a community, a region, or the state is in planning, implementing, or expanding a transit system and the funding partners anticipated. Some of this involvement may be advisory in nature, while some may require establishing formal interagency partnerships to ensure integrated land use and transportation planning. The primary objective is for all agencies to work together to encourage and guide local governments in identifying and implementing TODs in their local government comprehensive plans as a method of promoting and supporting multimodal transportation options. Figure 19 identifies key public players and highlights the roles they play, which range from plan development at the system level to the application of land development codes at the station level.

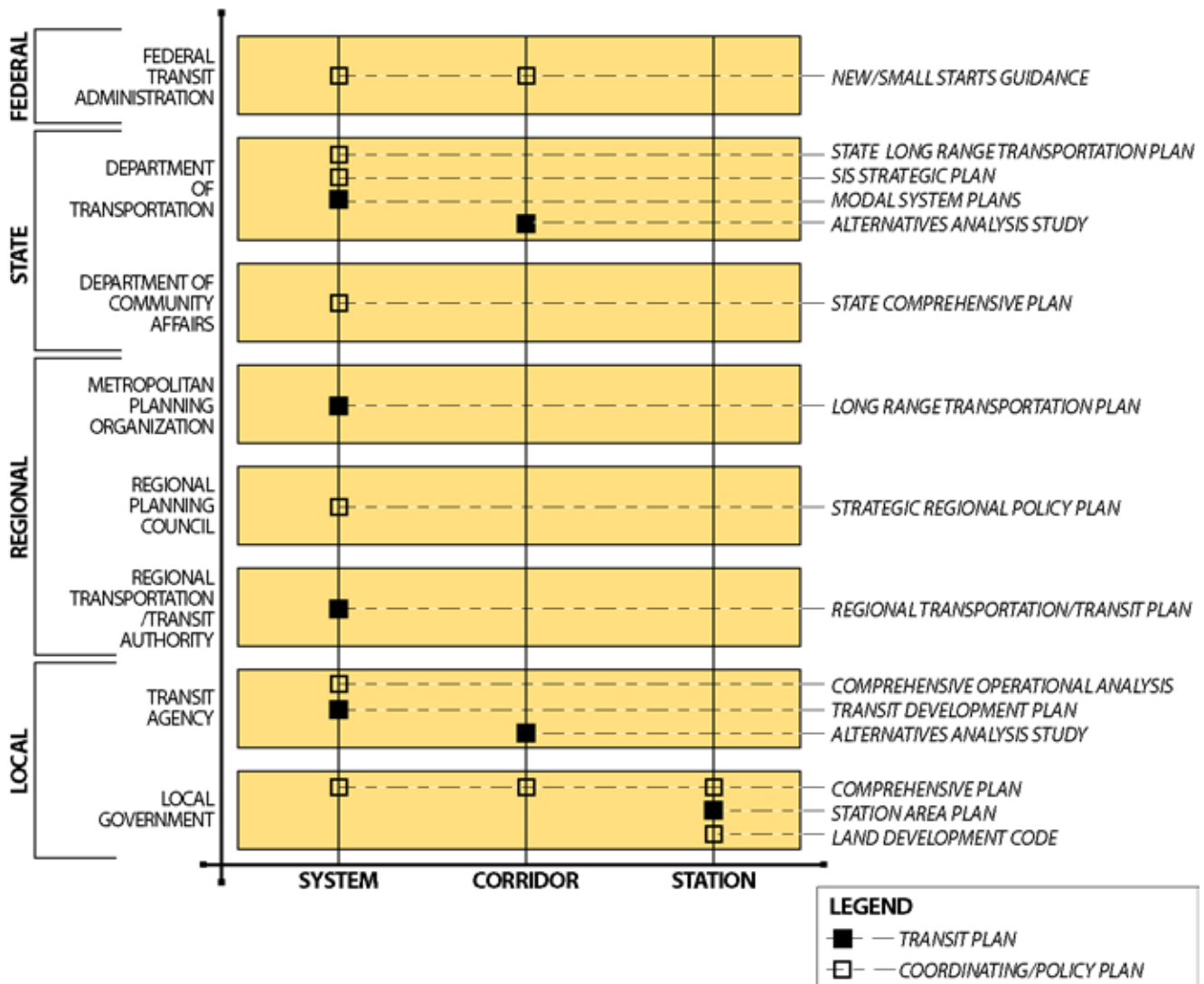


Figure 19: Interagency Coordination

## System Level

FDOT works with public, private, and civic partners to develop and implement the state long range transportation plan, called the Florida Transportation Plan (FTP). As a plan for all of Florida, the FTP considers the needs of the entire transportation system and the use of all modes of transportation to meet them. It identifies goals, objectives, and strategies that address the long range needs of the state transportation system and guide the expenditure of federal, state, and local transportation funds. The FTP is linked to other FDOT statewide plans, including the SIS Strategic Plan and related modal system plans (e.g., highway, rail, aviation, transit, seaport, waterway).

The state's 26 MPOs, with boards representing multiple local governments, lead the development of multimodal long range transportation plans (LRTPs). These plans focus on the metropolitan planning areas for MPOs, which can cover a part of a county, a whole county, or a multi-county area. LRTPs typically have a 20 to 25-year planning horizon and analyze future transportation needs based on population and employment trends, land use considerations, and community goals. Local government planners and agency representatives are among the members of technical advisory committees that participate in the LRTP development process. LRTPs identify cost feasible transportation projects using forecasted federal, state, local, and private revenues. They also may identify illustrative transportation projects, which become cost feasible if additional revenues are secured. Alliances of MPOs in Florida develop regional LRTPs to reflect abutting metropolitan planning area boundaries and shared travel patterns.

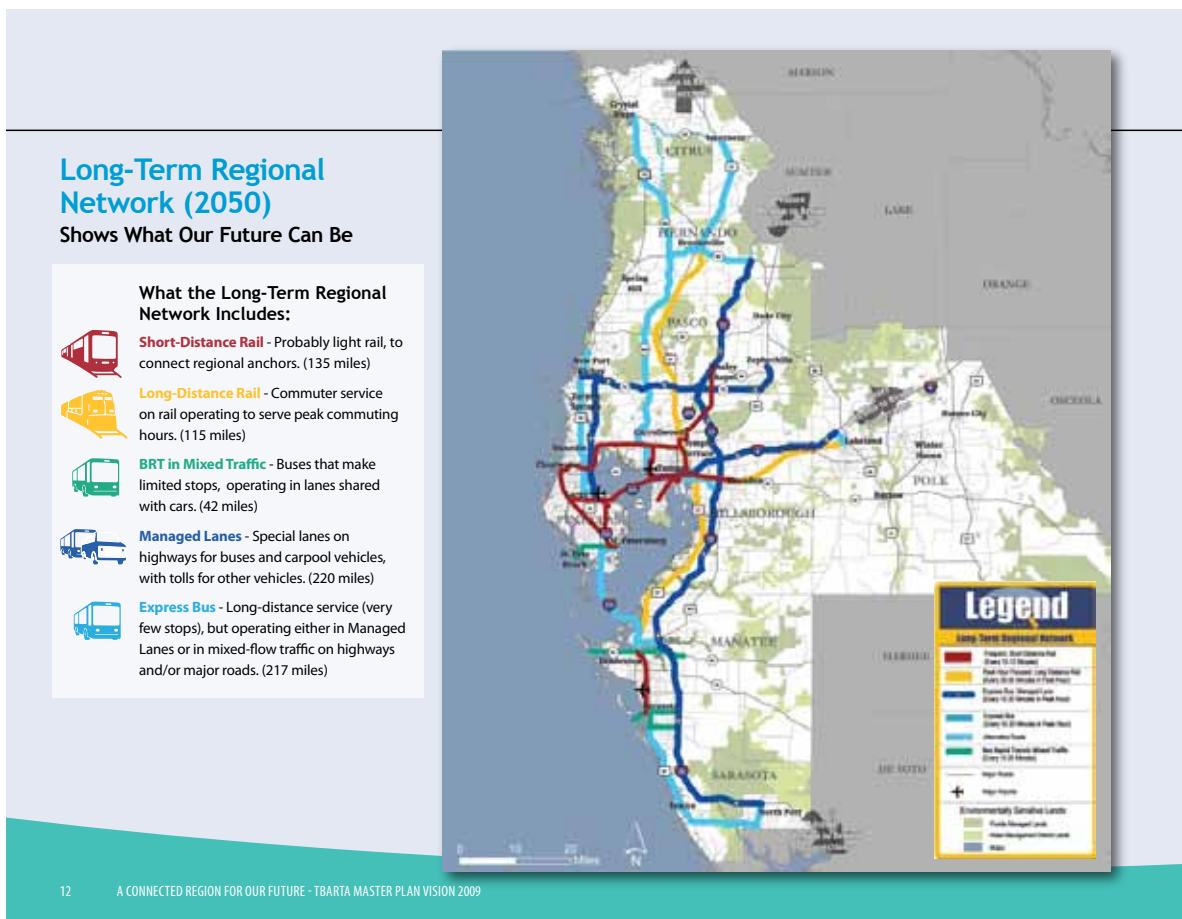


Figure 20: TBARTA Long-Term Regional Transit Network

Regional Transportation Authorities (RTAs) and local transit agencies work closely with MPOs on the transit aspects of LRTPs. In addition, RTAs develop regional transportation or transit plans (see Figure 20), and some RTAs and local transit agencies produce and maintain transit development plans (TDPs). TDPs have a 10-year planning horizon and address transit needs, coordinating agency requirements, transit system plan elements, funding, and monitoring programs. Because TDPs are the primary documents in identifying transit agency needs, available funding and affordable service options for implementation over the next 5 to 10 years, all TOD planning in Florida must be consistent with the existing and planned services identified in the TDP.

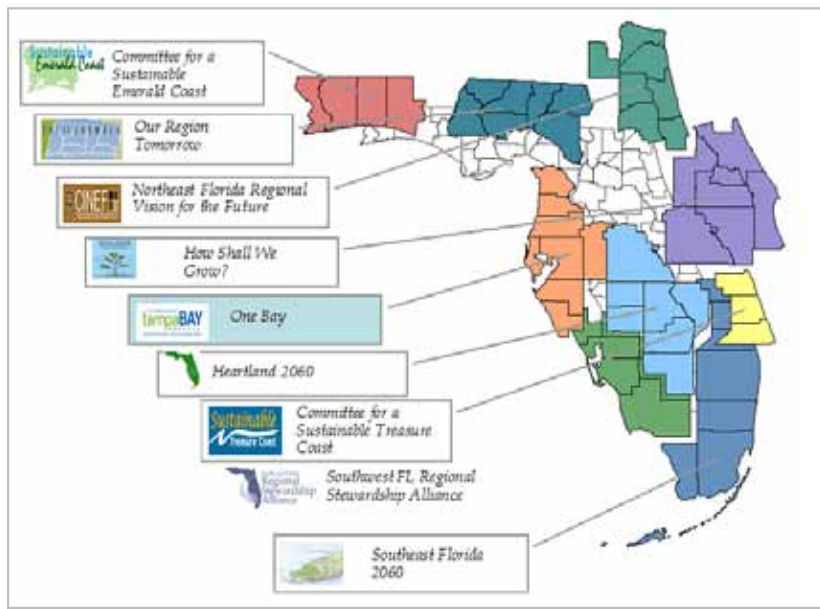


Figure 21: Florida Regional Visioning Initiatives

System level transportation plans, whether focused on transit or with a transit component, need to be consistent with the desired futures (e.g., community visions) embodied in local government comprehensive plans. As the importance of effectively integrating land use and multimodal planning becomes better understood, these two types of plans are increasingly informing one another. Comprehensive plans typically have long-term planning horizons of 10 to 20 years. Policies, future land use map designations, and transportation maps need to reflect transit corridors and transit/intermodal hubs or stations identified in transportation plans or studies. The geography of TOD, with its focus on the transit core and the transit neighborhood and consideration of the larger transit supportive area, needs to be recognized. Strategies, such as TOD land use overlays, can be used to establish the policy framework for specifying the mix of uses, intensity and density of development, and building form needed in station areas to support transit. Strategies, such as density bonuses and inclusionary housing, can be used to ensure availability of housing opportunities for households with a mix of incomes in TODs. Such strategies can also help local governments meet requirements for housing elements relating to provision of adequate sites and distribution of sites for affordable workforce housing and housing for lower and moderate income families.

DCA plays a review and oversight role with regard to the compliance of comprehensive plans with state growth management statutes and rules. These statutes and rules recognize the linkage between land use and transportation and provide for a multimodal approach to transportation. The RPCs and FDOT play a review role focused on the consistency of comprehensive plans with policy and other direction established in Strategic Regional Policy Plans (SRPPs) and statewide transportation plans and programs. Comprehensive plans and SRPPs are required to be consistent with the State Comprehensive Plan. Multiple agencies are available to provide technical assistance to local governments in their efforts to address transportation-related needs, issues, and opportunities in and crossing their jurisdictions.

An added dimension at the system level is the emergence of regional visioning in Florida as a mechanism for creating longer-term, holistic, and shared frameworks for the planning and plan implementation efforts of agencies and local governments. Regional visioning provides an opportunity to look across issues and jurisdictional boundaries and, in particular, view the possibilities for transit in the context of alternative future growth scenarios at a regional scale. It also provides an opportunity to engage broad constituencies, including the private sector, which can help build early buy-in for future policy changes and investments, including ones supportive of TOD and transit.

The following boxes and associated figures (Figures 22 and 23 ) highlight integrated planning efforts aimed at enhancing system level plans in support of TOD and transit, improving the coordination among system level plans, and addressing differences in planning horizons. They provide both process and product examples of how to align long range planning with short range plans to create optimal conditions for delivering the best return on community and transit investments.

#### Broward County Premium Transit Corridors and Mobility Hubs

Most of the developable area of Broward County is built out. As a consequence, future mobility is being viewed in multimodal rather than auto-focused terms. The Broward MPO's 2035 LRTP pursues a targeted approach to accommodate future growth through infill and redevelopment tied to transit. The 2035 LRTP, branded as "Transformation," outlines a framework of Premium Transit Corridors and Mobility Hubs, places with high development potential and critical areas of trip generation that intersect with the existing and proposed transit system. Within these Mobility Hubs, TOD is a commercially viable development approach given the higher intensity land uses allowed, reduced parking requirements, and market trends which demonstrate a desire for people and businesses to locate in vibrant mixed use communities with multiple transportation choices.

The Mobility Hubs are a focus for targeted multimodal transportation investments, including a robust network of Premium Transit connecting the Mobility Hubs. The 2035 LRTP Cost Feasible Plan identifies Premium Transit Projects as Premium High Capacity (Bus Rapid Transit) in dedicated transit lanes and Premium Rapid Bus with high frequency service with modern, distinctive vehicles in mixed traffic. Beyond the Cost Feasible Plan, the LRTP explores other types of Premium High Capacity transit investments, including the potential for Light Rail Transit, Streetcar, People Mover, or Commuter Rail Transit technologies operating in dedicated transit lanes, and stipulates that innovative funding sources would be necessary to proceed with them.

Broward County Transit's TDP was a key resource for development of the 2035 LRTP. As the boundaries of Mobility Hubs are determined, they will be coordinated with and incorporated into Broward County's Comprehensive Plan. This effort is being addressed as a part of the Broward MPO's Livability Planning Initiative and Broward County's Evaluation and Appraisal Report (EAR) process. The experience in Broward County offers an example of integrated land use and transportation planning at the system level.



Exhibit 23–2035 Cost Feasible Transit Projects & Mobility Hubs Map

LEGEND

PREMIUM TRANSIT PROJECTS

- █ Premium Rapid Bus
- █ Premium High Capacity
- ▤ Service in Neighboring Counties

BROWARD COUNTY TRANSIT SERVICE

- █ Existing Local Bus Route
- █ New Local Bus Route

MOBILITY HUBS

- Community Hub
- Anchor Hub
- Gateway Hub

ILLUSTRATIVE PROJECTS

- █ The Wave (City of Fort Lauderdale Downtown Circulator)
- █ Peplemover-SunPort (Airport/Seaport)
- ▤ Central Broward Transit (not final routing)
- ▤ South Florida East Coast Corridor (FEC)

Notes:

Illustrative projects are shown for context and are not part of the 2035 Cost Feasible Plan.

50% of the existing transit service's operating and maintenance are funded with existing sources. Local bus services that are partially funded may be restructured to better serve mobility hubs and Premium Transit corridors.

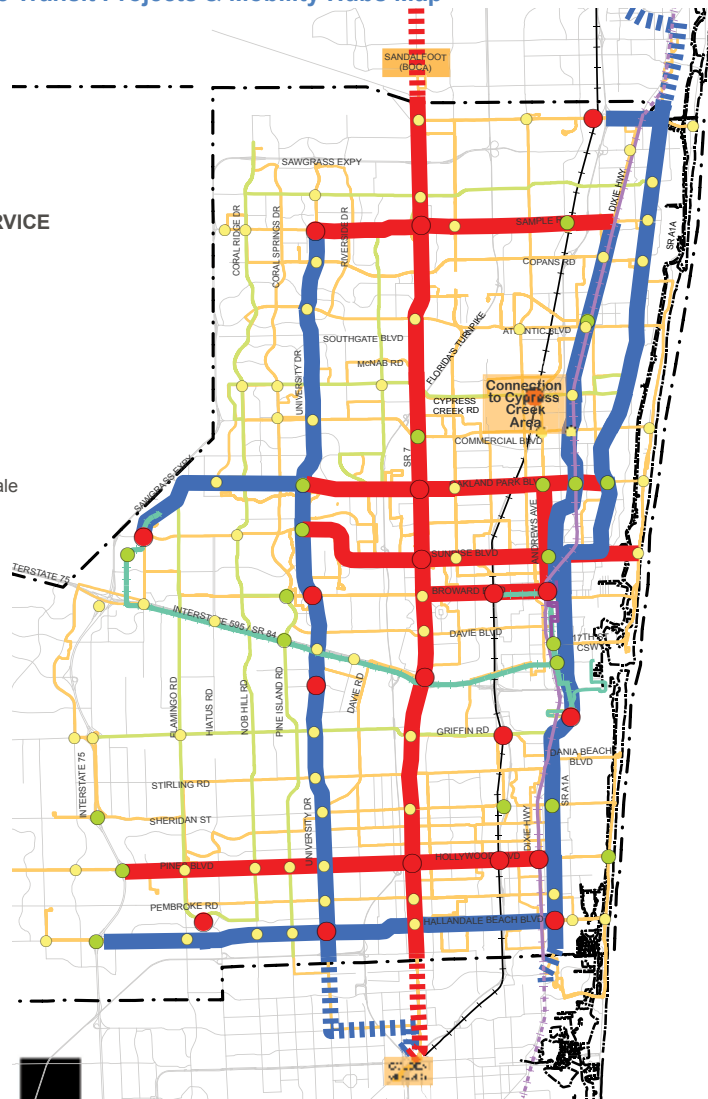


Figure 22: Broward Transit Projects & Mobility Hubs Map

## Alachua County Mobility Plan

In 2010, Alachua County amended its Comprehensive Plan to incorporate a Mobility Plan that promotes compact, mixed use developments interconnected by a multimodal transportation system. The Mobility Plan recognizes that congestion will occur and that it is not financially feasible or desirable to address future mobility by adding roadway capacity alone. Among other features, it identifies four corridors with dedicated rapid transit lanes that will allow transit to compete effectively with the automobile. In a number of instances, the County elected to plan for dedicated rapid transit lanes in lieu of widened roadways. These transit lanes will connect future TODs and Traditional Neighborhood Developments (TNDs) with major employment, medical, and educational centers in the County.

The Future Land Use Element was amended to create TOD policies and greatly expand TND policies. Under them, development is to be approved, designed, and built in a manner that supports multimodal mobility. As an incentive to developers, the policies allow TODs and TNDs by right within the designated Urban Area with no comprehensive plan amendment or rezoning required. TODs and TNDs located within the Urban Service Area established by the County are exempt from the Development of Regional Impact process. Also, the County streamlined its concurrency management system by adopting a multimodal transportation mitigation program that includes a simplified look-up table and allows developers to make a one-time contribution to mitigate for transportation impacts. The mitigation program significantly reduces the monetary contribution required for TODs and TNDs.

The Transportation Mobility Element sets district-wide pedestrian, bicycle, transit, and roadway level of service standards. Amendments to the Capital Improvements Element (CIE) established a 20-year horizon for the Mobility Plan and identified capital and operations funding to begin implementing it. The amended CIE also provides a framework for creation of Transportation Concurrency Backlog Authorities and Transportation Special Districts which, if created, would allow a percentage of future tax revenues to be set aside for capital infrastructure and transit operations identified in the Mobility Plan.

The 2010 Comprehensive Plan amendments adopted by the County represent a significant shift in long-term growth management and transportation strategies to support a more sustainable pattern of mobility and development. The planning process leading to them involved extensive coordination among the County, the City of Gainesville, the Regional Transit System (operated by the City), and the Metropolitan Transportation Planning Organization for the Gainesville Urbanized Area (MPTO). This coordination is reflected in funding of the first Bus Rapid Transit corridor (16 miles long) as a joint project of the County, the City, and the MTPO through its 2035 LRTP.





Figure 23: Alachua County Mobility Plan Poster

## Corridor Level

Corridor level planning allows for a more detailed analysis of the costs and benefits necessary to select station locations, the transit type, and the ultimate transit alignment within a transit corridor. Multimodal corridor studies and other early planning efforts can aid in the iterative planning process aimed at evaluating alternative transit alignments and development or redevelopment options at the station level within a given transit corridor.

For communities seeking federal funding for transit investments, FTA's Alternatives Analysis (AA) Study process includes analyses and conceptual design at the corridor level to demonstrate cost effectiveness, transit user benefits, transit supportive land uses and policies, and economic development potential. This iterative study process can help to identify a locally preferred alternative that includes the transit alignment, the transit type, and station locations. In Florida, an AA Study is typically led by a local transit agency or FDOT. An MPO, a RTA, or a municipality may also serve in the lead role. The study process is collaborative and involves federal, state, regional, and local agencies which serve in a policy guidance or advisory role. The FTA also serves in a technical review role to ensure the reliability of the project justification information provided in support the locally preferred alternative.

An emerging planning process for FDOT is the "Transit" Project Development and Environmental (PD&E) Study. This process, which involves FTA as well as the Federal Highway Administration, gives greater emphasis to transit and land use considerations than traditional PD&E Studies for corridor level transportation planning.

## Station Level

Planning for station areas involves addressing a combination of policy and design considerations to ensure that TOD does its part in maximizing the transit ridership potential for a given area and in supporting community livability goals. The considerations include the balance of jobs and housing, development intensity and density, the design of streets and places to maximize walk access and circulation, provision of opportunities for mixed-income housing, parking supply and management, and other public infrastructure needs. Because addressing these considerations can involve development or refinement of local plans, policies and codes, the station area planning process is typically led by a local government. However, as part of the development of SunRail, a commuter rail project in the Orlando area, and the High Speed Rail corridor, FDOT has taken the lead in coordinating with local governments and funding station area plans. This process should involve early and continuing coordination with the local transit agency and, as applicable, the MPO, the RTA, and FDOT. Local governments also are typically key players in the station planning that occurs at the corridor level and leads to the selection of station locations.

Coordination with local government engineering and building departments and FDOT is also needed to ensure that the design of intersections and crossings, sidewalks, parking facilities and transit stations adheres to local and state standards. One particular focus is on ensuring the safety of pedestrians, including the young, the elderly, and the mobility impaired. The street design within and around station areas should give priority to the needs of pedestrians, bicyclists, and transit users over the convenience of automobile drivers.

To implement TOD, refinements to the local land development code may be required to provide the regulatory basis needed to, for example, achieve the desired mix of uses within and around station areas, meet mixed-income housing goals, provide for open space, and set building design standards. Use of a form based code that designates the appropriate form and scale for development is an option for communities seeking to achieve an integrated built form within station areas.

Additional consideration should be given to exploring public-private development opportunities as well as joint development opportunities within station areas. Both of these options provide the potential for introducing new investment dollars at the local level to advance TOD.

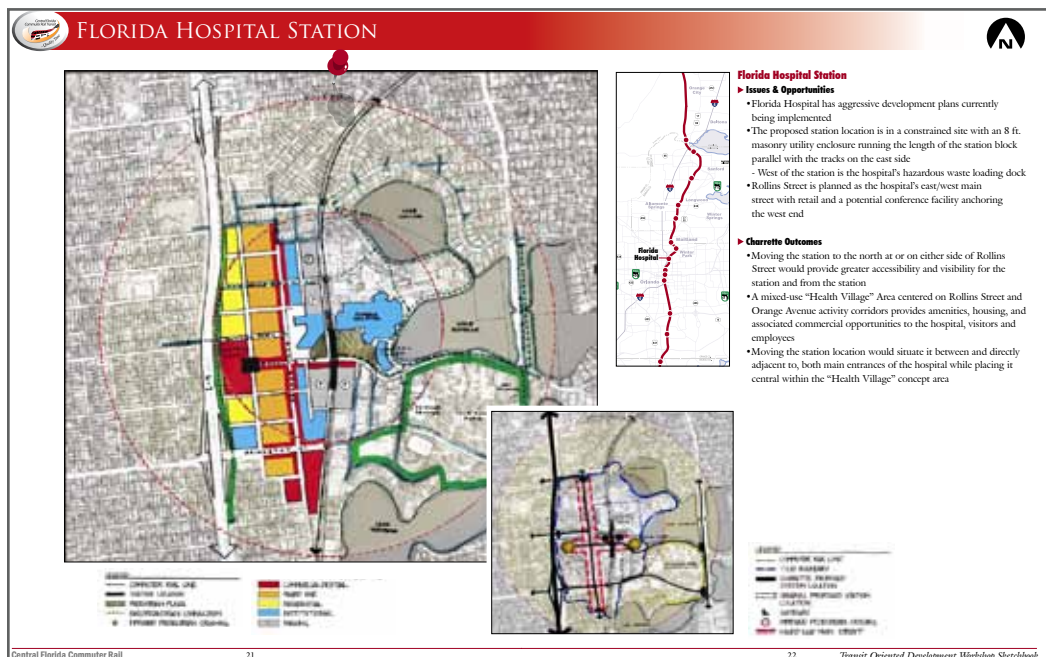


Figure 24: Sunrail Station Area Plan, Orlando, Florida

## Expanded Interagency Coordination

Planning for TOD and transit in Florida is an evolving process. Several of the urban areas across the state are transitioning from fixed route bus systems to larger systems including premium transit. With the expansion of transit systems, cross-agency interest in maximizing the benefits of TOD and transit is expanding as well. Local governments, transit agencies, MPOs, RTAs, RPCs, and FDOT are being asked to further integrate their planning efforts to ensure that multiple community and regional goals can be met. Transit agencies with constrained operating budgets are being asked to help find ways to increase transit ridership and attract choice riders as well as transit-dependent riders. Local governments are looking for opportunities to leverage transit investments to position station areas for major redevelopment or catalyst projects to further economic development and other community goals. Means of more effectively engaging citizens and businesses on transit-related issues and opportunities are being sought and used. These broadening focus areas present an advanced context for interagency coordination that provides a platform for more integrated land use and transportation planning at the local, regional, and statewide scales.

Several current and ongoing planning-related efforts present opportunities for expanded coordination and consideration of the transit system planning and implementation, TOD, growth management, and economic development issues covered in this framework document. At the state scale, they include the following:

- Implementation of the 2060 Florida Transportation Plan which includes more intermodal connectivity strategies and policies
- Update of the Transit 2020: State Transit Strategic Plan for Florida
- Application of Florida's SIS Strategic Plan and Updates of the SIS Multimodal Needs Plan and the SIS Multimodal Cost Feasible Plan which now includes funding for regional premium transit projects
- Continued Evolution of Florida's Growth Management System in requiring comprehensive mobility strategies in areas where transportation concurrency is exempt

Expanded coordination and consideration of the same issues are appropriate as a part of regional visioning or planning efforts that typically involve multiple local governments, multiple agencies, and multiple focus areas.

### 2060 Florida Transportation Plan

The FTP was updated to a visionary 50-year planning horizon with approval of the 2060 FTP in December 2010. The longer planning horizon recognizes that change can take time. For example, recent initiatives to create a statewide passenger rail system with connections to regional and local commuter rail and transit systems will take longer than 20 years to implement. Three of the plan's six goal areas address Florida in 2060: Economic Competitiveness, Community Livability, and Environmental Stewardship. The importance of statewide and regional visioning, particularly as it relates to significant transportation decisions, is emphasized in the plan. The 2060 FTP will provide a framework for future updates of the statewide modal system plans, including the state transit plan.

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# 5.0 APPENDIX

## Expanded Discussion on Station Area Targets by TOD Place Type

This subsection provides more detailed definitions of the TOD station area measures presented in Section 3.0 and outlines an approach for applying the TOD place types to local conditions and meeting or exceeding targets for the measures. The targets identified for the three TOD place types (see Tables 3, 4, and 5) are presented as ranges, with the lowest value or percentage serving as a minimum, a ratio or comparative percentages, a minimum value (e.g., for grid density), or a maximum value (e.g., parking). As prototypes, the place types present a starting point for the development of TOD policies or station area plans. Adapting the place type targets into specific TOD policies or detailed station area plans requires calibration to local conditions. These adjustments involve design and GIS-based analysis to account for the existing intensity, density and mix of uses, land availability (vacant or redevelopment), public infrastructure, and open spaces.

The applicability of the site level targets will vary depending on the size of a site, the location of the site relative to the station entrance, the design of streets and public spaces, and existing or proposed multimodal access. At the station area scale, intensities and densities should fall within the targets established for each placetype and should be at their highest within the transit core, tapering off in the transit neighborhood and further within the transit supportive (last half-mile) area. .

Planners can also use the TOD place type targets to approximate transit ridership potential for each station area. Based on total existing or proposed development (as expressed in population and jobs), they can estimate the associated total number of person trips, apply a transit mode share assumption, and then estimate the potential passenger boarding per station. FDOT also has an automated tool, the Transit Boarding and Estimation Simulation Tool (TBEST), to assist with estimating transit ridership based on future land uses. Understanding the relationship between transit ridership potential and development intensities/densities can help to further calibrate TOD place types to the specific locale and transit type desired.

## Station Area Measures

### GROSS INTENSITY AND DENSITY MEASURES (FIGURE 25)

The gross intensity and density measures address population, employment, and the jobs to housing ratio. Mix of uses is a related measure. The targets set for each TOD place type apply to the whole station area and are derived from estimating the residential and employment densities most likely to support specific transit ridership goals at the station and corridor levels.

#### Station Area Residential and Employment Densities

These measures identify the targeted number of residential units and jobs for a station area. The assumptions used to derive the values for total residential units and total employment are described below.

- Station Area Total Residential Units and Gross Residential Density** - Total residential units are measured as the total number of dwelling units in the station area, and gross residential density is measured as dwelling units per acre. Residential units are computed based on total FAR (gross) and percent of mix of uses allocated to residential. Dwelling unit square footage is assumed to be 1,200 square feet in Regional Centers, 1,500 square feet in Community Centers, and 1,800 square feet in Neighborhood Centers.
- Station Area Total Employment and Gross Employment Density** - Total employment is measured as the total number of jobs in the station area, and gross employment density is measured as jobs/employees per acre. Employment is derived from total FAR (gross) and percent mix of uses allocated to non-residential. Employment is calculated based on Planners Estimating Guide standards for square feet per employee for office, retail/services, and industrial uses (350 square feet for Regional Centers, 500 square feet for Community Centers, and 750 square feet for Neighborhood Centers).

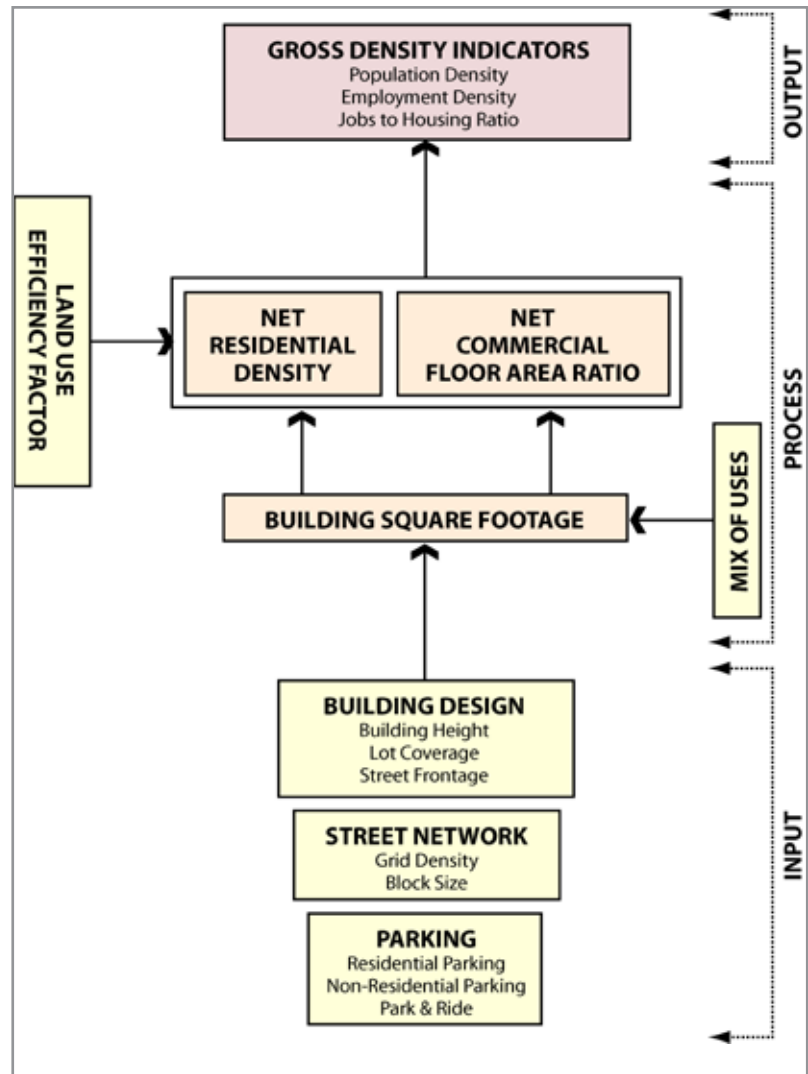


Figure 25: Gross Intensity and Density

### Station Area Jobs to Housing Ratio

The jobs to housing ratio is a measure of the proportion of total employees and total dwelling units within a station area. The jobs to housing ratio helps to estimate the number of trips that can be produced by or attracted to each station area. More jobs rich station areas serve as trip destinations, whereas more housing rich stations serve as trip origins. A balanced jobs to housing ratio within a station area creates efficiencies for transit service and increases the likelihood of people being able to access a range of destinations (retail, employment, cultural facilities, and the like) within the station area walking shed.

### Mix of Uses

Mix of uses is measured as the percentage of residential and non-residential uses. The mix of uses ranges from 35% residential and 65% non-residential in Regional Centers to 75% residential and 25% non-residential in Neighborhood Centers. Best practices research indicates that optimal TODs should contain a minimum of 30% residential uses.

### **Site Level Measures**

#### **NET INTENSITY AND DENSITY MEASURES (FIGURE 26)**

Net intensity and density measures address site-level design considerations for development or redevelopment within a station area. The targets set for each TOD place type are intended to encourage context appropriate building massing/form and a transit supportive mix of uses. Pedestrian-scaled building massing and form, complemented by the appropriate mix of uses (horizontal and vertical), encourage walkability, reduce vehicle trips per person, and enhance transit ridership potential. Intensity (measured by FAR) and density (measured by dwelling units per acre) are critical measures that need to be well coordinated with building design measures such as building height, lot coverage, and street frontage. Optimal TODs contain the highest intensity and density within the transit core (first-quarter mile). As minimums, it is likely that sites within the transit core could well exceed the targets and thereby reduce the intensities or densities needed in the transit neighborhood (second-quarter mile) to achieve the same transit ridership goals. Therefore, planning at the site level for TOD requires consideration of each site relative to meeting targets for the station area as a whole.

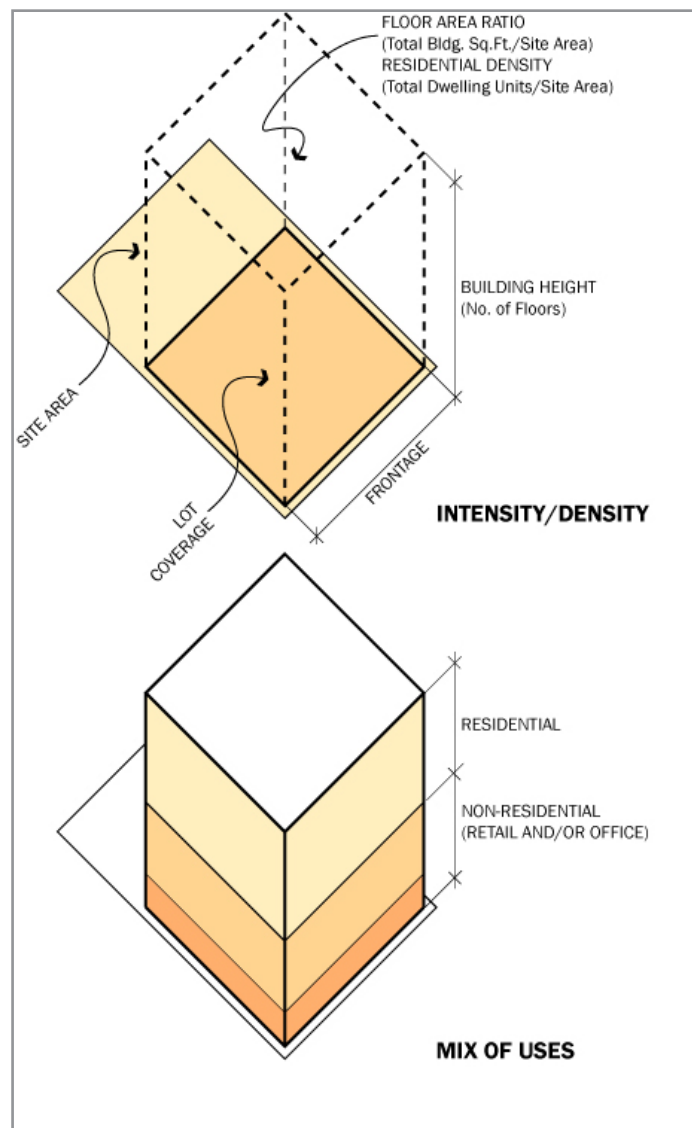


Figure 26: Net Density and Intensity

- **Net Non-Residential Floor Area Ratio** - Net Non-residential FAR includes all non-residential building square footage. Distinct from the Gross FAR measure for the station area, it excludes land utilization features (e.g., roadways, open space, stormwater management).
- **Net Residential Density** - Residential density is measured as dwelling units per net acres and is computed based on net total FAR and percent mix of uses allocated to residential. Dwelling unit square footage is assumed to be 1,200 square feet in Regional Centers, 1,500 square feet in Community Centers, and 1,800 square feet in Neighborhood Centers.

### NET TO GROSS CONVERSION FACTORS

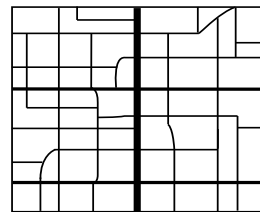
The gross intensity and density and mix of use measures for each TOD place type serve as a guide for determining the net intensity and density needed at the site level given existing land use efficiency within station areas. Land use efficiency is the percentage of land available for building square footage after excluding roadways, open space, stormwater management, and so forth. Since the gross measures for the TOD place types do not exclude land utilization features, the net intensity and density targets need to be calibrated to local conditions. This calibration could result in even higher site level targets within the station area. This conversion factor is best addressed by analyzing local conditions.

### STREET NETWORK AND BUILDING DESIGN (FIGURE 27)

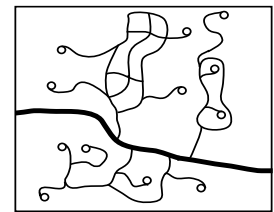
Street networks and building design help define the pattern of urban form within each TOD place type. For TOD, the goal is to create the ‘bones’ of urban form that will support a high concentration of vertically and horizontally mixed uses and walkable public spaces within the station area. Higher street grid density and smaller block sizes, combined with appropriately scaled and permeable building frontages, improve street-level activity, pedestrian connectivity and accessibility.

- **Grid Density** - Grid density is measured as the number of blocks (polygons) per square mile. A block is defined as a contiguous piece of land bounded by street network connections that include vehicle, bicycle, and pedestrian pathways. Grid density is a proxy measure for connectivity (links/nodes or intersection density) and accessibility (intersection spacing). Grid density ranges from 350 blocks per square mile in Regional Centers to 150 blocks per square mile in Neighborhood Centers.

### CONNECTED NETWORKS

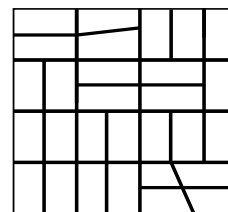


High Connectivity

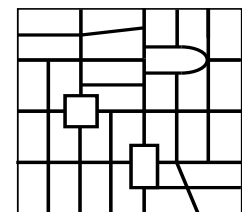


Low Connectivity

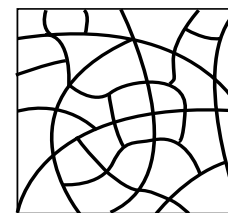
### TYPES OF CONNECTIVITY



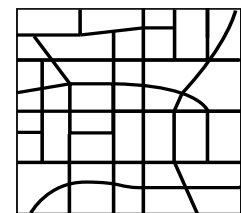
Grid



Grid & Square



Curvilinear



Irregular

Figure 27: Street Networks and Connectivity



- **Building Height** - Building height is measured as the number of floors in a building. Total FAR is a calculated by looking at total building height to lot coverage. Building heights range from four or more floors in Regional Centers to one or more floors in Neighborhood Centers.
- **Lot Coverage** - Lot coverage is measured as the percentage of a site that can be built on. Computation of lot coverage includes structured parking and other accessory structures, but it does not include open stormwater management or surface parking. Lot coverage targets range from 80 to 90% in Regional Centers to 40 to 50% in Neighborhood Centers.
- **Street Frontage** - Street frontage is measured as the percentage of primary building frontages built to the lot-line or sidewalk. The targets for street frontage within the TOD place types assume a small percentage (25-30%) of the frontage set back no more than 5'-10' from the parcel line. However, this factor should be calibrated to reflect existing building massing/form and development character. Street frontages range from 80-90% in Regional Centers to 60-70% in Neighborhood Centers.

## **PARKING**

Generally, parking within TODs should be limited. Parking targets by TOD place type establish parking caps for sites within station areas with the intention of discouraging vehicle trips and encouraging walking or transit trips. However, phasing in the parking caps over time should be considered based on the type of transit system implementation and connectivity to more regional systems. Other strategies such as shared parking facilities or utilization of surface parking lots as land banks for future redevelopment should also be considered. Parking caps are limited to on-site parking and public/private parking facilities (surface or structured) and exclude on-street parking.

- **Residential Parking** - Residential parking is defined as the maximum number of parking spaces per dwelling unit. This number represents an average for single-family and multi-family dwelling units. Residential parking caps range from one space per dwelling unit in Regional Centers to two spaces per dwelling unit in Neighborhood Centers.
- **Non-Residential Parking** - Non-residential parking is defined as the maximum number of parking spaces per 1,000 square feet of office, retail, or industrial space. Non-residential parking caps range from one space per 1,000 square feet in Regional Centers to three spaces per 1,000 square feet in Neighborhood Centers.
- **Park and Ride** - Station areas that include park-and-ride lots to allow for greater drive access to transit will require exemptions from parking caps. Park-and-ride lots are typically located in less densely developed areas where TOD potential is not as strong, or in areas where they can serve as a temporary land bank until development conditions are more conducive to TOD. Generally, park-and-ride lots are not desirable for use in a Regional Center or a Community Center. However, transit system and corridor level planning often involves some level of tradeoff analysis to determine which stations are appropriate for park-and-ride lots and which ones are not. This analysis involves consideration of factors such as the auto-trip and walk-trip access ridership catchment potential, parking fee revenue potential, adjacent development and market conditions, and travel markets to determine the best location for park-and-ride facilities within a larger transit system.

## Acronyms

CSS – Context Sensitive Solutions

DCA – (Florida) Department of Community Affairs

FAR – Floor Area Ratio

FDOT – Florida Department of Transportation

FTA – Federal Transit Administration

FTP – Florida Transportation Plan

GIS – Geographic Information System

HART – Hillsborough Area Regional Transit (Agency)

JD – Joint Development

LRTP – Long Range Transportation Plan

MPO – Metropolitan Planning Organization

MTPO – Metropolitan Transportation Planning Organization

RPC – Regional Planning Council

RTA – Regional Transportation or Transit Authority

SIS – Strategic Intermodal System

SRPP – Strategic Regional Policy Plan

TAD – Transit Adjacent Development

TBARTA – Tampa Bay Area Regional Transportation Authority

TOD – Transit Oriented Development

TDP – Transit Development Plan

TDM – Transportation Demand Management

VMT – Vehicle Miles Traveled

## Glossary

### **Accessibility**

Accessibility refers to the ability to reach desired goods, services, activities and destinations and generally reflects the generalized costs (time, money, discomfort and risk) associated with doing so. People often evaluate accessibility in terms of convenience, that is, the ease with which they can reach what they want considering the cost factors noted.

### **Affordable Housing**

Affordable housing is typically described as housing units for income-eligible households (very low, low and moderate) with a monthly cost not exceeding 30% of a household's income. Affordable housing rates are typically established by cities and counties by looking at median income and poverty levels within a specific area.

### **Baby Boomer**

A baby boomer is a person born in the baby boom from the end of World War II to the 1960s, or more particularly, a person born between the years 1944 and 1964.

### **Comprehensive Plan**

A comprehensive plan is an adopted municipal or county plan that guides future growth and development. In Florida, comprehensive plans are comprised of chapters or "elements" with goals, objectives, and policies addressing future land use, housing, transportation, public schools, infrastructure, coastal management, conservation, recreation and open space, intergovernmental coordination, and capital improvements.

### **Commercial Uses**

Commercial uses are activities within land areas which are predominantly connected with the sale, rental, and distribution of products, or the performance of services.

### **Context Sensitive Solutions**

CSS is a theoretical and practical approach to transportation decision-making and design that takes into consideration the communities and lands which streets, roads, and highways pass through ("the context"). CSS seeks to balance the need to move vehicles efficiently and safely with other desirable outcomes, including historic preservation, environmental sustainability, and the creation of vital public spaces. In transit projects, CSS generally refers to context sensitive planning, design, and development around transit stations.

### **Density**

Density is an objective measurement of the number of people or residential units per unit of land, such as residents or employees per acre.

### **Dwelling Unit**

A dwelling unit is an apartment, house, condominium, or other similar living structure. A household refers to an occupied dwelling unit.

### **Echo Boomer**

An echo boomer, or Generation Y (Gen Y), is a person born to a baby boomer, most often cited as those born between the years of 1982 and 1995.

### **Floor Area Ratio**

FAR is the floor area of all buildings permitted on a lot divided by the area of the lot. For example, a FAR of 2.0 would allow construction of 20,000 square feet of floor space on a 10,000 square foot lot. For the purposes of this framework document, gross FAR refers to the total FAR of a given area minus civic uses (roads, parks, open space, and the like). Net FAR refers to the specific site FAR minus setbacks, stormwater management, and parking.

### **FTA New Starts Program**

FTA's New Starts discretionary grant program is the federal government's primary financial resource for supporting locally-planned, implemented, and operated transit "guideway" capital investments, from heavy to light rail, from commuter rail to bus rapid transit systems.

### **FTA Small Starts Program**

FTA's New Starts discretionary grant program has a project category called "Small Starts." These transit projects are low cost projects that qualify for a highly simplified project evaluation and rating process by FTA. In order to qualify as a Small Start, the total project cost must be less than \$250 million, with no greater than \$75 million in requested grant funding.

### **Future Land Use Element**

The future land use element in a local government's comprehensive plan defines categories of land use (e.g., residential, commercial, office, industrial), applies those categories to land using a map, and specifies the amount of development (intensity and density) that may be built on land over the plan's long-term planning horizon.

### **Infill Development**

Infill development is the development or redevelopment of underutilized or vacant lands in existing urban areas.

### **Intensity**

Intensity is an objective measurement of the extent to which land may be developed or used, including the use of the space above, on, or below ground. It is typically measured by FAR and lot coverage.

### **Intermodal**

This term relates to the connection between any two or more modes of transportation.

### **Land Use**

A land use is the type of activity or development that occupies a parcel of land, or how the land is used. Common individual land uses are residential, retail, commercial, industrial, recreation, and public or institutional. A combination of land uses, or mix of use, is one of the necessary attributes for TODs.

### **Livable Communities**

Livable communities is a general term used to describe communities with common goals aimed at creating more transportation choices; providing equitable, affordable housing; improving economic competitiveness and resiliency; supporting existing community character and values; and advancing environmental stewardship goals.

### **Metropolitan Planning Organization**

The agency designated by the governor to administer the federally required transportation planning process in a metropolitan area. A MPO must be in place for every urbanized area, which is defined as a geographic area with 50,000 or more people.

### **Mixed-Income Housing**

Developments with mixed-income housing contain affordable and market rate housing units. Such developments typically have at least 20% of the housing units dedicated to affordable housing. Affordable housing is typically described as housing units for income-eligible households (very low, low and moderate) with a monthly cost not exceeding 30% of a household's income. Affordable housing rates are typically established by cities and counties by looking at median income and poverty levels within a specific area.

## **Mixed Use Development**

A mixed use development combines two or more land uses, such as residential, office and commercial, in a single development project.

## **Mobility**

Mobility is the degree to which the demand for the movement of people and goods can be satisfied. Mobility is measured in Florida by the quantity, quality, accessibility, and utilization of transportation facilities and services.

## **Mode**

A mode is any one of the following means of moving people or goods: aviation, bicycle, highway, paratransit, pedestrian, pipeline, rail, transit, space, and water.

## **Mode Split**

A mode split, typically measured as a percentage, identifies the predicted trips from each origin zone to each destination zone into distinct modes of transportation.

## **Multimodal**

Multimodal means transportation options using different modes are available within a system or a corridor.

## **Place Types**

A place type refers generally to the characteristics of density, diversity, and design present for a specific geography. For the purposes of this framework document, different TOD place types are identified to reflect the range of transit supportive community development patterns in Florida.

## **Redevelopment**

Redevelopment is the reconstruction, rehabilitation, or replacement of existing development with residential, commercial, industrial, retail, or other uses.

## **Regional Planning Councils**

RPCs are quasi-governmental organizations that are designated by Florida law to address problems and plan solutions that are of greater-than-local concern or scope, and are to be recognized by local governments as one of the means to provide input into state policy development. There are 11 RPCs in Florida.

## **Regional Transportation or Transit Authorities**

RTAs are public bodies with the authority to provide public transportation services, such as bus transit and commuter rail.

## **Strategic Intermodal System**

The SIS was established in 2003 to enhance Florida's economic competitiveness by focusing state resources on the transportation facilities most critical for statewide and interregional travel. It is a statewide network of high priority transportation facilities, including the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways, and highways.

## **Sun Belt**

The Sun Belt or Sunbelt is the southern tier of the United States, focused on Florida, Texas, Arizona, and California, and extending as far north as Virginia.

## **Sustainability**

Sustainability means the ability to meet the needs of the present without compromising the ability to meet the needs of the future, from a social, economic, and environmental perspective.

### **Transit Adjacent Development (TAD)**

TAD is development that is in close proximity to transit but with a design that has not been significantly influenced by it. This is in contrast to TOD, where transit is a central design feature.

### **Transit Mode Split**

This term can be used to describe either the percentage of person trips using transit, or the percentage of trips using a particular type of transit.

### **Transportation Demand Management**

TDM involves use of strategies and techniques to increase the efficiency of the transportation system. Demand management focuses on ways of influencing the amount and demand for transportation by encouraging alternatives to the single-occupant automobile and by altering local peak hour travel demand. Examples of TDM strategies and techniques are ridesharing programs, flexible work hours, telecommuting, shuttle services, and parking management.

### **Transit**

Transit refers to any means of publicly available travel by which a significant number of persons are transported at a single time. Transit includes fixed route bus, bus rapid transit, ferry stations, trolleys, streetcars, light rail, commuter rail, inter-regional rail, and high-speed rail.

### **Transportation Disadvantaged**

As defined in s. 427.011, FS, transportation disadvantaged means those persons who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase transportation and are, therefore, dependent upon others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped or high-risk or at-risk as defined in s. 411.202, FS.

### **Value Capture**

Value capture means capturing land value gains for public purposes. Empirical evidence that transit and TOD create significant value is mounting. They offer net benefits, in part because TOD concentrates development and the tax base, allowing for value capture strategies. Value capture means redirecting tax base revenues to pay for construction and operation of transit or expensive TOD components, such as structured parking or infrastructure. Value capture strategies include tax increment financing, negotiated investments or contributions, and special assessment districts.

### **Vehicle Miles Traveled**

VMT is a measure of the extent of motor vehicle operation; the total number of vehicle miles traveled within a specific geographic area over a given period of time.

### **Zoning**

Zoning regulates the use of land consistent with the land use categories adopted in future land use elements in local government comprehensive plans. These regulations restrict and define the types of land uses and development that can occur on each parcel of land in a community.

## References and Resources

### References

- Deriving Economic Development Benefits of Transit Projects from Integrated Land Use Transportation Models, Review of Models Currently Used in the U.S. and Recommendations. Cambridge Systematics for Federal Transit Administration, 2009.
- South Florida East Florida Corridor Study, Station Area Guidelines. EDSA for Florida Department of Transportation, 2009.
- SmartCode Version 8.0 and 9.0. Andres Duany, Sandy Sorlien, and William Wright, New Urban Publications, 2006 and 2008.
- TOD 202: Station Area Planning. U.S. Department of Transportation and Reconnecting America, 2008.
- FY 2009 New Starts and Small Starts Evaluation and Rating Process. Federal Transit Administration, 2007.
- Visualizing Density. Julie Campoli and Alex MacLean, Lincoln Institute of Land Policy, 2007.
- Hillsborough MPO Transit Study Summary Report. Renaissance Planning Group for Hillsborough MPO, 2007.
- Station Area Planning Manual. Metropolitan Transportation Commission and Reconnecting America Center for TOD, 2007.
- New Places, New Choices: Transit Oriented Development in the San Francisco Bay Area. Metropolitan Transportation Commission, 2006.
- Transit Oriented Development: Developing a Strategy to Measure Success. National Cooperative Highway Research Program, 2005.
- Transit Cooperative Research Program (TCRP) Report 102: Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects. 2004.
- Guidelines and Standards for Assessing Transit-Supportive Land Uses. Federal Transit Administration, 2004.
- Transit Cooperative Research Program (TCRP) Report 100: Transit Capacity and Quality of Service Manual, 2nd Edition. 2003.
- The New Transit Town: Best Practices in Transit Oriented Development. Hank Dittmar and Gloria Ohland, Island Press, 2003.
- Measuring the Success of Transit-Oriented Development. John Niles and Dick Nelson, American Planning Association, 1999.

### Web Resources

- Federal Transit Administration – [www.fta.dot.gov](http://www.fta.dot.gov)
- American Public Transportation Association – [www.apta.com](http://www.apta.com)
- Complete Streets – [www.completestreets.org](http://www.completestreets.org)
- Context Sensitive Solutions (CSS) – [www.contextsensitivesolutions.org](http://www.contextsensitivesolutions.org)
- Mixed income housing for TODs – [www.mitod.org](http://www.mitod.org)
- Modern Streetcars – [www.modernstreetcar.org](http://www.modernstreetcar.org)
- Reconnecting America – [www.reconnectingamerica.org](http://www.reconnectingamerica.org)

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Page 29: Mixed use redevelopment with ground floor retail, upper story offices and adjacent high density residential located near proposed new SunRail commuter station in downtown Kissimmee, Florida – photo courtesy of Renaissance Planning Group

Page 31: Tri-Rail Commuter Rail, West Palm Beach, Florida – photo courtesy of [www.seefloridago.com](http://www.seefloridago.com)

Page 31: METRO Light Rail, Phoenix, Arizona – photo courtesy of Flickr by [www.lightrail.com](http://www.lightrail.com).

Page 32: Amtrak's Acela Train, Northeast Corridor – photo courtesy of Federal Rail Association.

Page 39: Downtown Jacksonville, Florida – photo courtesy of Renaissance Planning Group

Page 39: METRO Light Rail, Phoenix, Arizona - photo courtesy Flickr by [www.lightrail.com](http://www.lightrail.com).



Page 39: Metrorail Station, Downtown Miami, Florida – photo courtesy of [www.seefloridago.com](http://www.seefloridago.com)

Page 39: Thornton Park Neighborhood, Downtown Orlando, Florida – photo courtesy of Renaissance Planning Group

Page 41: Civic plaza, west coast of Florida – photo courtesy of Renaissance Planning Group

Page 41: Light Rail, St. Kilda, Melbourne, Australia – photo courtesy of Renaissance Planning Group

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Page 43: Metro Rail in South Pasadena, California – photo courtesy of Flickr

Page 43: Metra La Grange Road commuter rail station, La Grange, Illinois – photo courtesy of Flickr by Edward Kwiatkowski

Page 43: San Marco Neighborhood, Jacksonville, Florida – photo courtesy of Renaissance Planning Group





