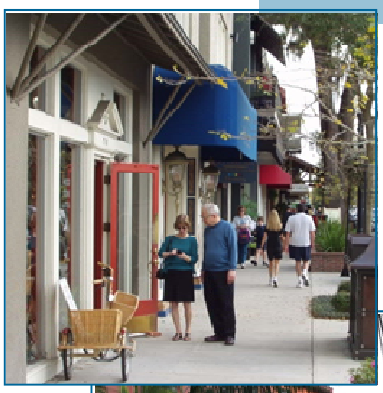
Office Of Roadway Design
Tallahassee, FL

TRADITIONAL NEIGHBORHOOD DEVELOPMENT HANDBOOK

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION



2011

TRADITIONAL NEIGHBORHOOD DEVELOPMENT HANDBOOK

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TRADITIONAL NEIGHBORHOOD DEVELOPMENT HANDBOOK

A INTRODUCTION

This Traditional Neighborhood Development Handbook (TND) is intended to supplement Chapter 19 Traditional Neighborhood Development of the Florida Greenbook and to provide best practices to facilitate proper design of TND communities. While Chapter 19 of the Florida Greenbook has regulatory authority for use in design of TND's, this Handbook is intended to be more instructional to those who have not designed these types of developments. A fundamental principle in designing TND is to be guided by the context of the built environment established or desired for a portion of the communities, as TND communities rely on a stronger integration of land use and transportation than seen in Conventional Suburban Development (CSD) communities. TND has clearly defined characteristics and design features necessary to achieve the goals for compact and livable development patterns reinforced by a context-sensitive transportation network.

This Handbook provides guidance for planning and designing greenfield (new), brownfield or urban infill, and redevelopment projects within the compact urban context. It also clearly differentiates between CSD and TND communities to maximize the possibility that proper design criteria are used to create well executed TND communities. This is important, as the street geometry, adjacent land use, and other elements must support a higher level of transit, pedestrian, and bicycle activity than seen in a CSD.

To facilitate clearer discussion, this document establishes a series of definitions for transportation facilities with the overall category name of thoroughfares. Specifically, the term thoroughfare includes streets, which should be reserved for the more urban context and the term road, which should be reserved for the more rural context. Other facilities such as highways (higher volume, higher speed facilities in more rural settings) and drives (streets with a natural setting on one side) are also categorized as thoroughfares. Greater precision in naming thoroughfare types will greatly facilitate planning and engineering communication regarding transportation facilities and their appropriate context.

Differences between Conventional and Traditional Neighborhood Development:

The characteristics of CSD typically include separated land uses, where housing, retail, office and industrial uses are isolated from one another in separate buildings, areas of a development or areas of a community. Housing is usually further separated into neighborhoods, such that apartments, condominiums and other higher density housing are separate from single family housing. Parks, schools, post offices, health facilities, and other community resources are at a large scale and separated from other uses to

the degree that they can only be reached by motor vehicle.

In CSD, the scale of big box retail, office parks and other commerce can only be sustained in an auto-dominant environment, since they must have a regional market to succeed. Their site design includes land parcels so large that walking to a building from the adjacent thoroughfare or other buildings is not likely.

Finally, the CSD thoroughfare system is hierarchal and very much like a plumbing system, where “local” streets with lower traffic volumes feed into “collector” streets with higher levels of traffic, then finally onto the “arterial”, where speeds and volumes are typically much higher. Block sizes in CSD are large to minimize the number of intersections. This type of thoroughfare network puts essentially all trips onto the arterial with few to no alternate routes for travelers.

In CSD, design speeds for thoroughfares outside subdivisions are rarely less than 35 mph and may be as high as 50 mph. Thus, longer distance through traffic is mixed with shorter trip traffic accessing local services. Higher volume, high speed streets fronted by the walls of subdivisions or surface parking lots of commercial developments result in a built environment that impedes pedestrian, transit and bicycle due to long distances between signals, difficulty crossing wide roadways, lack of shade, and other accommodations for bicyclists and pedestrians.. See the top of Figure 1 for an illustration of CSD.

Figure 1 Comparison of CSD and TND
(Source: DPZ/Treasure Coast Regional Planning Council)

TND, illustrated in the bottom of Figure 1, in contrast, is very supportive of pedestrian, bicycle and transit modes. Land uses are mixed, with retail, office, civic buildings, and residential interwoven throughout the community, often located in the same buildings. Block sizes are a smaller scale to improve walkability and to create a fine network of streets that accommodate bicyclists and pedestrians, providing a variety of routes for all users. Multi-family and single family residential is located in close proximity or adjacent to each other, and residential of various sizes and price points are mixed into neighborhoods.

Due to the differences in the desired context of the community and the desired goal to

create appropriate speeds for pedestrian and bicyclists, there are differences in the design practice for TND thoroughfares and CSD thoroughfares. In an infill or redevelopment TND site, designers have to be more flexible in the application of design criteria since existing conditions such as building placement create limited space to accommodate all modes. This is because constrained environments (limited right-of-way, buildings close to the street) are often the best design envelope for creating great walkability. Most observed pedestrian activity occurs in compact, “constrained” development patterns. Constrained spaces occurring in CSD usually limit the opportunity to meet motor vehicle based “minimum standards.” Within the TND context, the focus of the designer should be to ensure that speeds are managed for pedestrian comfort and safety rather than purely on the movement of motor vehicles.

Likewise, designers should recognize that where TND streets transition into CSD streets, the design criteria such as intersection sight distance, use of on-street parking, and other features should be evaluated to ensure they provide safety for users. This is due to the higher speeds on most CSD streets.

B APPLICATION

Context is the environment in which the thoroughfare is built and includes the placement and frontage of buildings, adjacent land uses and open space, historic, cultural, and other characteristics that form the built and natural environments of a given place. ITE's **Designing Walkable Urban Thoroughfares: A Context Sensitive Approach** is one of the documents included in the listing of reference material at the end of this chapter. The ITE Guide uses the term Context Zone in lieu of the term Transect Zone to describe the same characteristics of community. Transect Zones are used in this document due to their widespread use in the planning and urban design profession.

It is essential for the urban context to inform transportation design, and transportation planners and designers should understand the form and scale of urban development to best serve its traveling population. As noted in the Planning Criteria section below, a broader perspective is needed to move beyond the planning and zoning classification of land by use and the transportation classification of travel mode as motor vehicle dominant. There is an inherent need to create a walkable environment which cannot be adequately dealt with by traditional engineering or planning tools.

For application in walkable communities, the context through which the thoroughfare passes must be identified. For this document, context can defined at three levels as described in the Planning Criteria section:

- The Region
- The Community
- The Block

Regional planning identifies an area's existing and desired patterns of development, conserving some lands and encouraging development in other areas. Community planning occurs within areas encouraged for development by the local vision plans. Regional and community elements are defined in **Section C. Planning Criteria**, below.

Each block within the compact urban communities can be quantified by its mix of land uses, finer grained thoroughfare networks and development intensity. Transect Zones have been clearly defined to quantify the context of each community, block by block. To demonstrate the three planning levels; one can ride between regional sectors, bicycle between communities and walk between transect zones. Block by block transect zones, within community types provide designers the most direct guidance for thoroughfare design.

Rural-Urban Transect

The transect zones (T-Zones) within each community type define the human habitats, ranging from the very rural (T1) to the very urban (T6). All T-Zones allow some mix of

uses, from home occupations and civic spaces/buildings allowed in otherwise residential T3, to the most intense mixed use in T5 and T6. The mix of T-Zones in a community offers a greater diversity of building types, thoroughfare types, and civic space types than conventional zoning allows, providing greater walkability.

In the least-intensive T-Zones of a community, T1 and T2, a rural road or highway is appropriate. Open space outside the community types, whether preserved or reserved, is guided by its regional sector designation, not by a T-Zones. All T-Zone designations occur inside community types.

By definition, the urban T-Zones T3 through T6 do not exist as “stand alone” zones, but rather are organized in relationship to each other within a community. Each T-Zone is highly walkable and assumes the pedestrian mode as a viable and often preferred travel mode, especially for the ¼ mile, five minute walk.

The T3 Sub-urban zone defines the urban to rural edge. Of all the T-Zones, T3 appears most like conventional sprawl. It has single-family dwellings, a limited mix of uses and housing types, and tends to be more automobile-oriented than T4, T5 or T6. To be a walkable transect zone, it must be located within the same pedestrian shed as T4, T5 and/or T6. The 5-minute test of walkable distance (¼ mile radius) limits the overall size of a T3 transect zone. The T3 zone often defines the edge of the more developed urban condition, so is sometimes called “neighborhood edge”.

Transect zones T4 through T6 are relatively simple to recognize and assign properly.

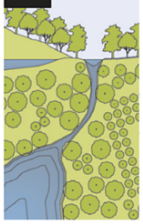
For example, knowing that a particular area is a T5, Town Center, defines the context for the built environment including the street design criteria and elements such as the , width of sidewalks, the presence of on-street parking and use of tree wells instead of planting strips. Buildings built to the sidewalk with parking on street and behind, for instance, are appropriate in T5 and T6. Referring to a set of tables and design recommendations correlated to the transect helps the designer determine how a thoroughfare should function in each T-Zones.

To further define the T-Zones used throughout the document, the T-Zones and their related characteristics are listed in Figure 2.

Figure 2 Transect Zone Descriptions

(Source SmartCode 9.2)

T1



T-1 NATURAL

T-1 Natural Zone consists of lands approximating or reverting to a wilderness condition, including lands unsuitable for settlement due to topography, hydrology or vegetation.

General Character:	Natural landscape with some agricultural use
Building Placement:	Not applicable
Frontage Types:	Not applicable
Typical Building Height:	Not applicable
Type of Civic Space:	Parks, Greenways

T2

T-2 RURAL

T-2 Rural Zone consists of sparsely settled lands in open or cultivated states. These include woodland, agricultural land, grassland, and irrigable desert. Typical buildings are farmhouses, agricultural buildings, cabins, and villas.

General Character:	Primarily agricultural with woodland & wetland and scattered buildings
Building Placement:	Variable Setbacks
Frontage Types:	Not applicable
Typical Building Height:	1- to 2-Story
Type of Civic Space:	Parks, Greenways

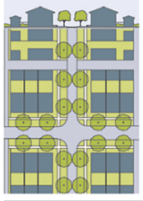
T3

T-3 SUB-URBAN

T-3 Sub-Urban Zone consists of low density residential areas, adjacent to higher zones that some mixed use. Home occupations and outbuildings are allowed. Planting is naturalistic and setbacks are relatively deep. Blocks may be large and the roads irregular to accommodate natural conditions.

General Character:	Lawns, and landscaped yards surrounding detached single-family houses; pedestrians occasionally
Building Placement:	Large and variable front and side yard Setbacks
Frontage Types:	Porches, fences, naturalistic tree planting
Typical Building Height:	1- to 2-Story with some 3-Story
Type of Civic Space:	Parks, Greenways

T4

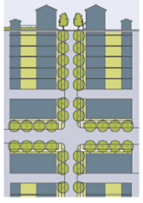


T-4 GENERAL URBAN

T-4 General Urban Zone consists of a mixed use but primarily residential urban fabric. It may have a wide range of building types: single, sideyard, and rowhouses. Setbacks and landscaping are variable. Streets with curbs and sidewalks define medium-sized blocks.

General Character:	Mix of Houses, Townhouses & small Apartment buildings, with scattered Commercial activity; balance between landscape and buildings; presence of pedestrians
Building Placement:	Shallow to medium front and side yard Setbacks
Frontage Types:	Porches, fences, Dooryards
Typical Building Height:	2- to 3-Story with a few taller Mixed Use buildings
Type of Civic Space:	Squares, Greens

T5

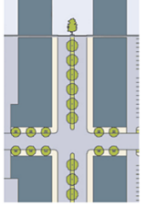


T-5 URBAN CENTER

T-5 Urban Center Zone consists of higher density mixed use building that accommodate etail, offices, rowhouses and apartments. It has a tight network of streets, with wide sidewalks, steady street tree planting and buildings set close to the sidewalks.

General Character:	Shops mixed with Townhouses, larger Apartment houses, Offices, workplace, and Civic buildings; predominantly attached buildings; trees within the public right-of-way; substantial pedestrian activit
Building Placement:	Shallow Setbacks or none; buildings oriented to street defining a street wall
Frontage Types:	Stoops, Shopfronts, Galleries
Typical Building Height:	3- to 5-Story with some variation
Type of Civic Space:	Parks, Plazas and Squares, median landscaping

T6



T-6 URBAN CORE

T-6 Urban Core Zone consists of the highest density and height, with the greatest variety of uses, and civic buildings of regional importance. It may have larger blocks; streets have steady street tree planting and buildings are set close to wide sidewalks. Typically only large towns and cities have an Urban Core Zone.

General Character:	Medium to high-Density Mixed Use buildings, entertainment, Civic and cultural uses. Attached buildings forming a continuous street wall; trees within the public right-of-way; highest pedestrian and transit activity
Building Placement:	Shallow Setbacks or none; buildings oriented to street, defining a street wall
Frontage Types:	Stoops, Dooryards, Forecourts, Shopfronts, Galleries, and Arcades
Typical Building Height:	4-plus Story with a few shorter buildings
Type of Civic Space:	Parks, Plazas and Squares; median landscaping

C PLANNING CRITERIA

Planning for TND communities occurs at several levels, including the region, the community, the block and finally, the street and building. Planning should consider the context of development patterns, looking carefully at the relationship between land use, buildings and transportation modes in an integrated fashion. As noted by Chris Leinberger in his book, *Option of Urbanism,* context in urbanized areas generally falls into two major categories; walkable urban and drivable suburban. This context based approach and the use of form based zoning codes can create development patterns that balance pedestrian, transit and bicycling with motor vehicle modes of transportation. The following sections help to define considerations for developing communities at different scales to increase the potential for creating TND patterns.

Planners should determine the applicable regional plans that guide their area. Plans can be generated for or coordinated with the Metropolitan Planning Organization planning process for urbanized areas. Sector planning and comprehensive planning at the city, county and regional level, i.e., any level above that of the individual community, also yield documented regional plans.

Regional planning practice varies by jurisdiction. Clear definitions of regional sectors or districts will identify where development is encouraged and discouraged by local and state policy. Only then can regional sectors guide the development and location of community types. Existing comprehensive plans should be reviewed to determine areas for planned future growth.

One example of regional sector definitions can be found in the SmartCode, a model form based code available for use in any region. SmartCode documents define the following regional sectors; also shown in the center of **Figure 3.**

O-1 Preserved Open Sector - Permanently set-aside open space, such as park or wilderness area, or lands set aside via easements or land grants. Communities are not located in O-1.

O-2 Reserved Open Sector - Comprised of lands that are currently open, but may be expected to develop at some point in the future, such as land for agriculture or silviculture. Communities are not located in O-2. O-2 is a temporary designation.

G-1 Restricted Growth Sector and **G2 Controlled Growth Sector** - These are undeveloped areas with little existing development at the beginning of the planning period, thus, any development will be new development. The less-intensive G1 Sector is intended for hamlets only, and the more-intensive G2 sector, anticipates more intense development. These Sectors might be farmland, forests, or fields at the edge of existing urban development.

G-3 Intended Growth Sector and **G-4 Infill Growth Sector** - G-4 is developed, G-3 is not. Locations for G-1, G-2, and G-3 depend on terrain, thoroughfares and rail lines.

Regardless of the regional comprehensive plan terms and definitions, once the regional sectors/areas are mapped, then refined planning is possible at the community level with the designation of community types.

Each community type is made up of transect zones to further define its character. The jurisdiction's existing comprehensive plan should again be reviewed to identify available community type definitions. If none are adopted, the SmartCode offers a set of definitions. As an example, **Figure 3** describes the community types, in order from least to most intensive:

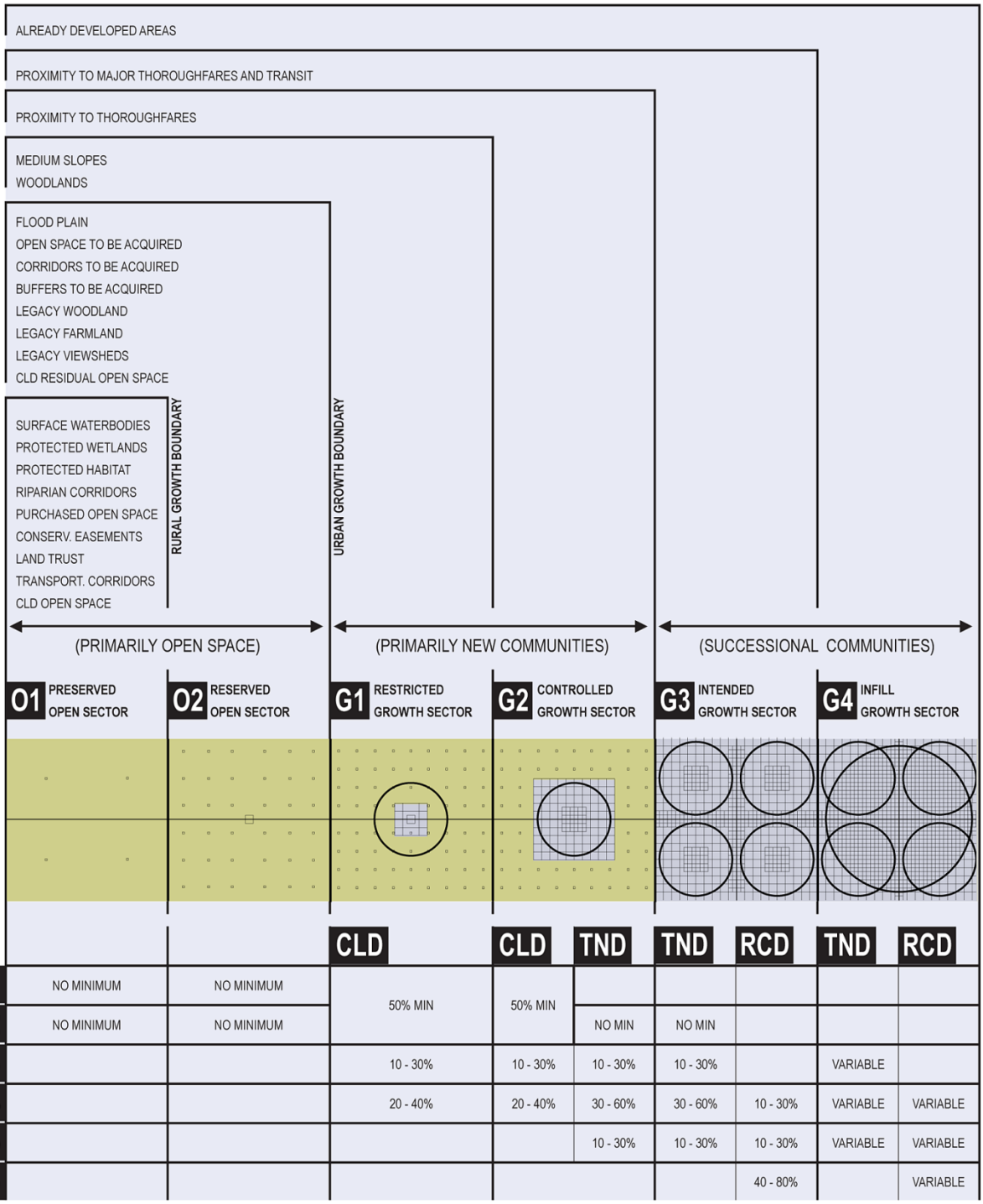
CLD – Clustered Land Development – an incomplete neighborhood standing alone in the countryside. (Syn: hamlet)

TND – Traditional Neighborhood Development –a village or small town composed of one or more neighborhoods (Infill TND occurs in the G-4 Sector.)

RCD – Regional Center Development – a large town or part of a city with regionally significant development. (Infill RCD occurs in the G-4 Sector.)

Figure 3 Context Levels – Region, Community & Transect Zone

(Source SmartCode 9.2)



			CLD	CLD	TND	TND	RCD	TND	RCD
T1	NO MINIMUM	NO MINIMUM	50% MIN	50% MIN					
T2	NO MINIMUM	NO MINIMUM			NO MIN	NO MIN			
T3			10 - 30%	10 - 30%	10 - 30%	10 - 30%		VARIABLE	
T4			20 - 40%	20 - 40%	30 - 60%	30 - 60%	10 - 30%	VARIABLE	VARIABLE
T5					10 - 30%	10 - 30%	10 - 30%	VARIABLE	VARIABLE
T6							40 - 80%		VARIABLE

As noted in the following Community Guiding Principles section, planning for a specific community type focuses the scale of land pattern and the transportation facilities.

The principles for defining or creating the context should be considered based on the scale of the area that is being evaluated, developed, or redeveloped. Regional scale considerations yield the recommended locations of cities and towns in areas where growth is encouraged. Then, cities and towns can be planned.

The City/Town – Guiding Principles

- The city should retain its natural infrastructure and visual character derived from its location and climate, including topography, landscape and coastline.
- Growth strategies should encourage infill and redevelopment.
- New development should be structured to reinforce a pattern of neighborhoods and urban centers, with growth and higher density focused at transit nodes rather than along corridors.
- Transportation corridors should be planned and reserved in coordination with land use.
- Green corridors should be encouraged to enhance and connect the urbanized areas.
- The city should include a framework of transit, pedestrian, and bicycle systems that provide alternatives to automobile use.
- A diversity of land use should be distributed throughout the city to enable a variety of economic activity, workplace, residence, recreation and civic activity.
- Affordable and workforce housing should be distributed throughout the city to match job opportunities and to avoid concentrations of poverty.

The Community - Guiding Principles

- Neighborhoods and urban centers with a mix of uses should be the preferred pattern of development; single-use area should be the exception.
- Neighborhoods and urban centers should be compact, bicycle and pedestrian-oriented and mixed-use. Density and intensity of use should relate to the degree of existing or planned transit service.
- The ordinary activities of daily living should occur within walking or bicycling distance within a half mile of most dwellings, allowing independence to those who do not drive.
- Interconnected networks of thoroughfares should be designed to disperse and reduce the length of automobile trips and to encourage transit use, walking and bicycling. A range of open space, including parks, squares and playgrounds, should be distributed within neighborhoods and urban centers.

- Appropriate building densities and land uses should occur within walking or bicycling distance of transit stops.
- Civic, institutional and commercial activity should be embedded in mixed-use urban centers, not isolated in remote single-use complexes.
- Schools should be located to enable children to walk or bicycle to them. Programs such as Florida's Safe Routes to Schools may be referenced for additional information. Note that this program is intended for retrofitting CSD communities and many of the recommendations may not apply to properly designed TND communities.
- Within neighborhoods, a range of housing types and price levels should accommodate diverse ages and incomes.

The Block and the Building - Guiding Principles

- Buildings and landscaping should contribute to the physical definition of thoroughfares as civic places.
- Development should adequately accommodate automobiles, while respecting the pedestrian, bicyclist and transit user in the spatial form of public space.
- The design of streets and buildings should reinforce safe environments, while ensuring access is provided in a way that walking and bicycling are encouraged and that neighborhoods have multiple access points either through streets or pathways.
- Architecture and landscape design should grow from local climate, topography, history, culture and building practice.
- Civic buildings and public gathering places should be located to reinforce community identity and support self-government.

D NETWORK

Urban network types are frequently characterized as either traditional or conventional. Traditional networks are typically characterized by a relatively non hierarchical pattern of short blocks and straight streets with a high density of intersections that support all modes of travel in a balanced fashion.

Figure 4 Traditional Network
(Source: VHB)

New York, NY **Savannah, GA**

The typical conventional street network, in contrast, often includes a framework of widely-spaced arterial roads with limited connectivity provided by a system of large blocks, curving streets and a branching hierarchical pattern, often terminating in cul-de-sacs.

Figure 5 Conventional Network
(Source: VHB)

Walnut Creek, CA

Traditional and conventional networks differ in three easily measurable respects: (1) block size, (2) degree of connectivity and (3) degree of curvature. While the last does not significantly impact network performance, block size and connectivity create very different performance characteristics. Advantages of traditional networks include:

1. Distribution of traffic over a network of streets, reducing the need to widen roads;
2. A highly interconnected network providing a choice of multiple routes for travel for all modes, including emergency services;
3. More direct routes between origin and destination points, which generate fewer vehicle miles of travel (VMT) than conventional suburban networks;
4. Smaller block sizes in a network that is highly supportive to pedestrian, bicycle and transit modes of travel;
5. A block structure that provides greater flexibility for land use to evolve over time.

It is important in TND networks to have a highly interconnected network of streets with smaller block sizes than in conventional networks. There are various ways to ensure these goals are achieved. Two approaches for evaluation of effective network are included below. One consideration in the evaluation process is the size of the area being evaluated. The primary criterion is the need to create an area of high walkability since the intent of these evaluation tools is to assist in providing a means for evaluating the connectivity of a given network.

One method is based on the physical dimensions used to layout streets and blocks. The following list identifies those parameters:

1. Limit block size to an average perimeter of approximately 1,320 feet.
2. Encourage average intersection spacing for local streets to be 300-400 feet.
3. Limits maximum intersection spacing for local streets to about 600 feet.
4. Limits maximum spacing between pedestrian/bicycle connections to about 300 feet (that is, it creates mid-block paths and pedestrian shortcuts).

There are various ways to evaluate the density of networks which provide an indicator of walkability. Two approaches for evaluation of effective network are included below.

First, a simple method of determining the number of intersections per square mile yields an indication of walkability. This indicator informs the LEED-ND system (Leadership in Energy and Environmental Design – Neighborhood Design) of the degree of walkability and compactness in community design projects. Fundamentally, smaller block size is a vital component of walkable communities. It encourages walking through greater land use mix, managed traffic speeds, richer pedestrian route selection and other features. Greater than 100 intersections per square mile indicates an area has potential for walking as a viable travel mode, especially if finer design details are applied, such as bridges crossing barriers such as canals and rail lines. Through empirical observation, block sizes of 400 to 600 feet on edge experience easy walking environments. Chicago

has many 660 foot block edges and community life is sustained by walking, transit and motor vehicle mobility.

A theoretical 100 intersection square mile would have ten blocks per mile at its edge, which yields block edges of 528 feet between centerlines. LEED-ND uses 120 intersections per square mile as one of its indicators which equals roughly 440 feet per block edge. A rigid grid is not required and is, in fact, discouraged as it encourages fast vehicle speed and creates less interest for the traveler. Less than a full square mile can be easily prorated to achieve the necessary measured values. Several Florida examples of intersections per square mile include Key West at 212, Miami Lakes at 141, Seaside at 393 and Celebration at 366 (parts of Rome, Italy have 800).

Another network walkability measure is called the Connectivity Index (Reid Ewing, 1996) which can be used to quantify how well a thoroughfare network connects destinations. Links are the segments between intersections, and intersections are the nodes. Cul-de-sac heads are treated as a node. A higher index means that travelers have increased route choice, providing more connections available for travel between any two locations. The Connectivity Index is calculated by dividing the number of links by the number of nodes. A score of 1.4 is the minimum needed for a walkable community.

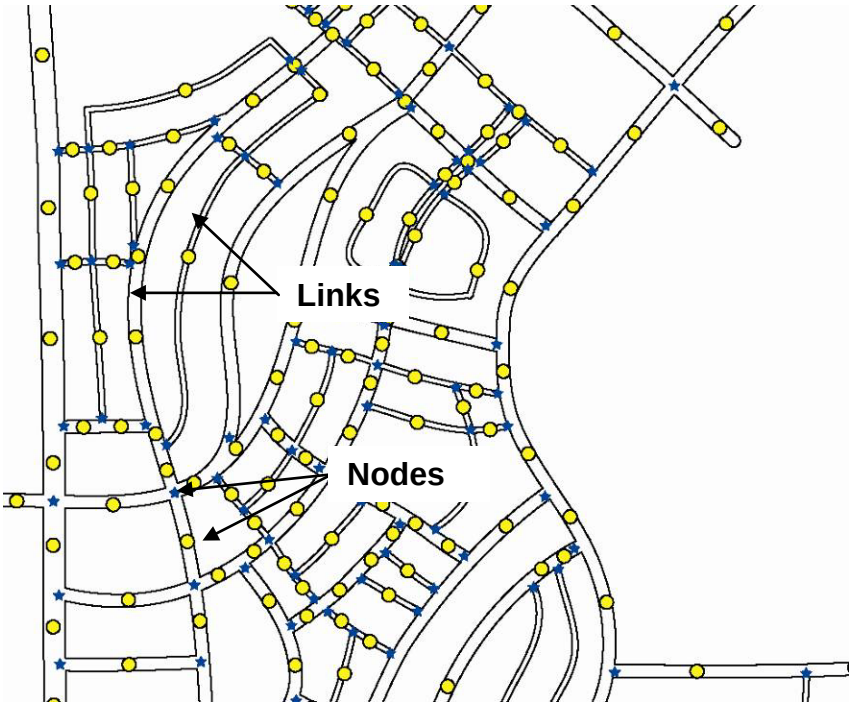
An example illustrating how to calculate a Connectivity Index is included below:

To establish a Connectivity Index, using a map of the network under consideration, first establish the area to be evaluated. Identify and count the number of intersections, cul-de-sacs and street segments between intersections/cul-de-sacs within the study area.

The Starkey Ranch project, a portion of which is shown in Figure 6, illustrates the identification of nodes and links. For the entire community, there were a total of 242 road segments, or links, and 146 intersections/cul-de-sacs or nodes identified. The calculation for this community yielded a Connectivity Index of 1.66, which is greater than 1.4, therefore, based on the Connectivity Index, the Starkey Ranch should be considered walkable.

Connectivity Index = 242 Links/146 Nodes = 1.66

Figure 6
Connectivity Index, Odessa, FL
(Source: AECOM, Project: Starkey Ranch)



E THOROUGHFARE TYPES

Florida Greenbook Section C, Highway Function and Classification in CHAPTER 1 PLANNING contains the conventional classification system that is commonly accepted to define the function and operational requirements for thoroughfares. These classifications are also used as the primary basis for geometric design criteria.

Traffic volume, trip characteristics, speed and level of service, and other factors in the functional classification system relate to the mobility of motor vehicles, not bicyclists or pedestrians, and do not consider the context or land use of the surrounding environment. This approach, while appropriate for high speed rural and suburban roadways, does not provide designers with guidance on how to design for a Traditional Neighborhood Development or in a context sensitive manner.

The thoroughfare types described here provide mobility for all modes of transportation with a greater focus on the pedestrian. The functional classification system can be generally applied to the thoroughfare types in this chapter. Designers should recognize the need for greater flexibility in applying design criteria, based more heavily on context and the need to create a safe environment for pedestrians, rather than strictly following the conventional application of functional classification in determining geometric criteria.

General Principles

- The thoroughfares are intended for use by motor vehicle, transit, bicycle, and pedestrian traffic and to provide access to lots and open spaces.
- The thoroughfares consist of travel lanes and public frontages. The lanes provide the traffic and parking capacity. Thoroughfares consist of travel lanes in a variety of widths for parked and for moving vehicles. The public frontages contribute to the character of the transect zone. They may include swales, sidewalks, curbing, planters, shared use paths and street trees.
- Thoroughfares should be designed in context with the urban form and desired design speed of the transect zones through which they pass. The public frontages that pass from one transect zone to another should be adjusted accordingly.

The terms for thoroughfare types that are used in Traditional Neighborhood Development include:

RD-Road

A road is a local, slow-movement thoroughfare suitable for more rural transect zones. Roads provide frontage for low-density buildings with a substantial setback. Roads have narrow pavement and open swales drained by percolation, with or without sidewalks. The landscaping may be informal with multiple species arrayed in naturalistic clusters.

Olson Road, Tallahassee, FL

(Photo - Billy Hattaway)

Since roads are located in more rural transect zones where larger setbacks are created, there is normally no provision for on-street parking. Lot size and driveways should be designed to provide for parking on-site so that parking will not occur on sidewalks.

ST-Street

A street is a local, multi-movement thoroughfare suitable for all urbanized transect zones and all frontages and uses. A street is urban in character, with raised curbs, drainage inlets, wide sidewalks, parallel parking, and trees in individual or continuous planters aligned in an allee. Character may vary in response to the commercial or residential uses lining the street.

It is important to note that, for entirely different purposes than the definitions in this handbook, many municipalities use the terms “avenue” and “street” in combination with the thoroughfare name as a way to differentiate streets running north and south from those running east and west (e.g. 1st Street, 1st Avenue).

East 1st Street, Sanford, FL

(Source: AECOM Project, Photo - Billy Hattaway)

DR-Drive

A drive is located along the boundary between an urbanized and a natural condition, usually along a waterfront or park. One side has the urban character of a thoroughfare, with sidewalk and buildings, while the other has the qualities of a road or parkway, with naturalistic planting and rural details.

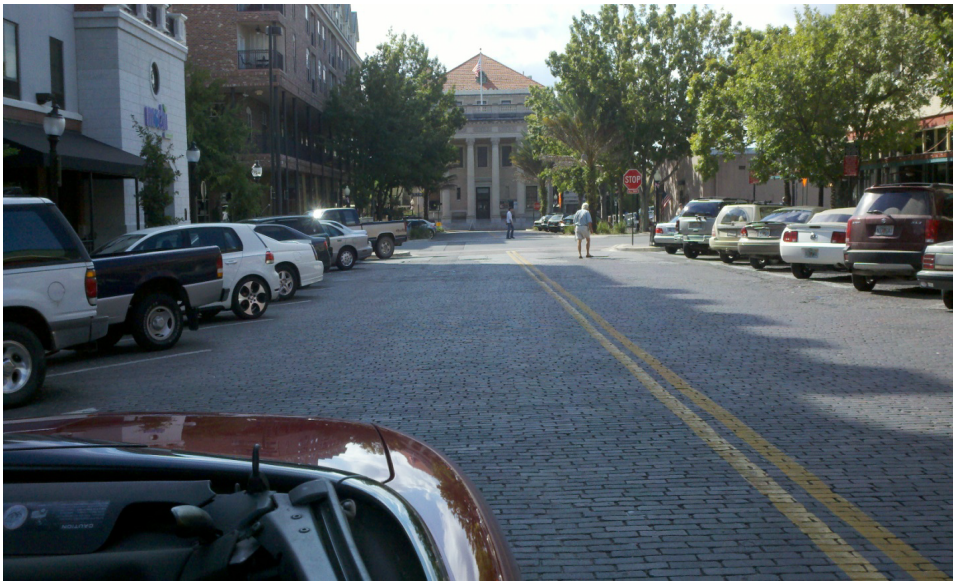
Drive, Franklin, TN

(Source: DPZ Project: Westhaven, Photo - Billy Hattaway

AV-Avenue

An avenue is a thoroughfare of high vehicular capacity and low to moderate speed, acting as a short distance connector between urban centers and usually equipped with a landscaped median.

It is important to note that many municipalities use the terms, “avenue” and “street” in combination with the thoroughfare name as a way to differentiate streets running north and south from those running east and west. (e.g. 1st Street, 1st Avenue)



SE 1st Street, Gainesville, FL

(Source: Photo – Rick Hall)

BV-Boulevard

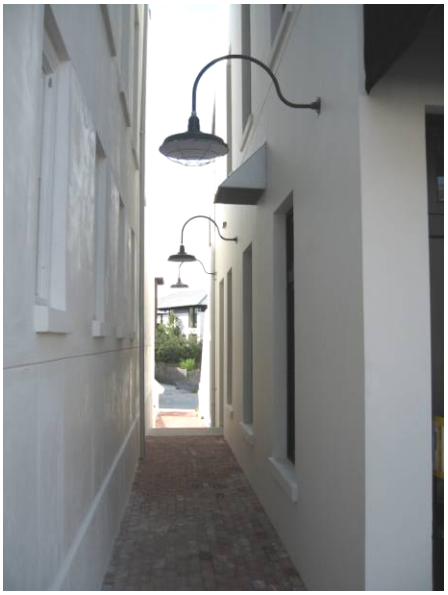
A boulevard is a thoroughfare designed for high vehicular capacity and moderate speed, traversing an urbanized area. Boulevards are usually equipped with side access lanes buffering sidewalks and buildings.

Octavia Boulevard, San Francisco, CA

(Source: Alan Jacobs & Elizabeth McDonald Project, Photo – sfcityscape)

PP-Pedestrian Passage

A pedestrian passage is a narrow connector restricted to pedestrian use and limited vehicular use that passes between buildings or between a building and a public open space. Passages provide shortcuts through long blocks and connect rear parking areas with frontages. In T3, Pedestrian Passages may be unpaved and informally landscaped. In T4, T5 and T6, they should be paved and landscaped and may provide limited vehicular access. When in civic zones, passages should correspond with their context and abutting transect zones.



Pedestrian Passage, Rosemary Beach, FL

(Source: DPZ Project: Rosemary Beach, Photo – Billy Hattaway)

Pedestrian Passage, Franklin, TN

(Source: DPZ Project: Westhaven, Photo – Billy Hattaway)

AL-Alley

An Alley is a narrow vehicular access-way at the rear or side of buildings providing service and parking access, and utility easements. Alleys have no sidewalks, landscaping, or building frontage requirements. They accommodate trucks and dumpsters and may be paved from building face to building face, with drainage by an inverted crown using impervious or pervious pavement. In older residential neighborhoods, alleys may be unpaved.

Alley, Franklin, TN

(Source: DPZ Project: Westhaven, Photo – Billy Hattaway)

F DESIGN PRINCIPLES

Introduction

The principles for designing streets in TND communities are similar in many respects to designing streets for conventional transportation.

- Providing mobility for users
- Creating a safe street for users
- Accommodating movement of goods
- Providing access for emergency services, transit, waste management, and delivery trucks
- Providing access to property

TND street design principles have a different emphasis in the following manner:

- The basis for selecting criteria and features used in designing TND communities is the transect zone.
- Streets should be created in context with the desired public realm or other contextual elements
- Focused on reducing speed to create a safer and more comfortable environment for pedestrians and bicyclists

When designing features and streets for TND communities in an infill or redevelopment site, designers need to understand that they will have to "do the best they can." Flexibility is required in the approach to design in what is a constrained environment. Creativity and careful attention to safety for pedestrians and bicyclists must be balanced with the operational needs of motor vehicles.

Likewise, designers should recognize that where TND streets transition into CSD streets, the design criteria such as intersection sight distance, use of on street parking, and other features should be evaluated to ensure that safety for users is provided. This is due to the higher speeds on most CSD streets.

Design Process

The design process for TND communities treats streets as an important part of the public realm, which is the totality of spaces used by the general public, such as streets, plazas, parks and other public infrastructure. TND balances the mobility of all users and pays a great deal of attention to the context or transect

zone in which the street is located. The process also pays attention to creating a high degree of connectivity and an extensive network of streets.

G CROSS SECTION ELEMENTS

Introduction

As discussed earlier in the document, TND street design places importance on how the streets are treated since they are part of the public realm. The street portion of the public realm is shaped by the features and cross section elements used in creating the street. For this reason, more attention to what features are included, where they are placed, and how the cross section elements are assembled is necessary.

H TRAVELED WAY

The traveled way is the central part of the thoroughfare between the curb faces where vehicle movement and on street parking occurs.

(Source: VHB)

Introduction

Every community has different equipment in service for transit, waste collection and emergency services, and coordination with operators should occur early in the planning process to ensure that those service providers can operate their equipment on the streets. The frequency of access by these vehicles should be considered when setting lane widths. The use of narrower lane widths requires that designers recognize the impacts on turning at intersections and u-turns for multi-lane roads.

On Street Parking

When angle parking is proposed for on street parking, designers should consider the use of back-in angle parking, also called head-out angle parking, in lieu of front-in angle parking. Back in angle parking has the following advantages:

- Loading and unloading of passengers naturally encourages passenger movement towards the sidewalk.
- Loading and unloading from the trunk or tailgate occurs at the sidewalk.

Back in Angle Parking, Columbus, OH

(Source: Photo - Dan Burden)

- When the vehicle leaves, the driver has a better view of oncoming traffic, reducing the risk of crashes.

Back in Angle Parking, Seattle, WA

(Source: Photo - Dan Burden)

When designated bike lanes are needed in conjunction with on street parking (for speeds greater than 25 mph), designers should consider increasing the bike lane to 6 feet, in lieu of increasing parallel parking width from 7 to 8 feet. This helps encourage vehicles to park closer to the curb and provides more room for door swing, potentially reducing conflict with cyclists.

When streets are located in Transect Zones 1 and 2, where larger setbacks are created, on street parking is not normally provided for. Lot sizes and driveways should be designed to provide for parking on site so that parking will not occur on sidewalks.

Mid-Block Crossings

Properly designed TND communities will not normally require mid-block crossings, due to the use of shorter block size. When mid-block crossings are necessary, the use of curb extensions or bulbouts should be considered to reduce the crossing distance for pedestrians.

Mid-Block Crossing, Sanford, FL
(Source: AECOM project, Photo - Billy Hattaway)

I Access Management

The philosophy of short block lengths in TND communities is intended to reduce travel speeds, increase access to property, and improve circulation for all users. This is in contrast to the use of access management in CSD, which has the goal of keeping vehicles moving at higher speeds.

As parking is usually located within blocks in mixed use blocks and in alleys in

residential neighborhoods, access along streets is provided primarily through side streets and alleys. This greatly reduces driveway access along corridors, improving safety for bicyclists, pedestrians and vehicles, due to the reduction in conflict points.

J INTERSECTIONS

Introduction

The proper design of intersections is very important to the safety of all users. Research reveals that intersections are disproportionately responsible for crashes and injuries, especially for pedestrians. This is due to the number of conflict points that occur.

The goal should be to keep intersections compact to keep vehicle speeds down and to reduce pedestrian crossing distance. The benefits of compact intersections are reduced exposure of pedestrians to vehicles and shorter cycle times for the pedestrian phase of signals.

The TND approach to street design with more narrow streets and compact intersections requires designers to pay close attention to the operational needs of transit, fire and rescue, waste collection, and delivery trucks. For this reason, early coordination with transit, fire and rescue services, waste collection, and other stakeholder groups is essential.

More regular encroachment of turning vehicles into opposing lanes will occur at intersections. Therefore, frequency of transit service, traffic volumes and the speeds at those intersections must be considered when designing intersections. For fire and rescue services, the importance of that corridor for community access should be determined, e.g. primary or secondary access.

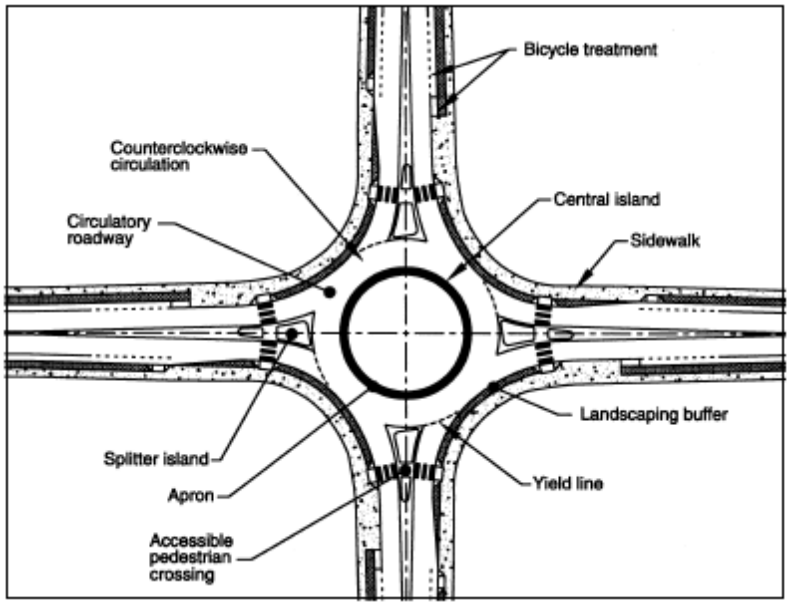
K DEFINITIONS

- **Allee** – a walkway or street lined with trees or tall shrubs
- **Alley** - a narrow street, especially one through the middle of a block, giving access to the rear of lots or buildings.
- **Avenue** (AV) – an avenue is a thoroughfare of high vehicular capacity and low to moderate speed, acting as a short distance connector between urban centers, and usually equipped with a landscaped median.

  It is important to note that many municipalities use the terms, “avenue” and “street” in combination with the thoroughfare name as a way to differentiate

streets running north and south from those running east and west. (e.g., 1st Street, 1st Avenue). These are street names, not to be confused with thoroughfare types.

- **Border** - the area between the curb of the thoroughfare and the right of way line. Elements of the public frontage include the type of curb, sidewalk, planter, street tree and streetlights.
- **Boulevard** – a boulevard is a thoroughfare designed for high vehicular capacity and moderate speed, traversing an urbanized area. Boulevards are usually equipped with slip roads buffering sidewalks and buildings.
- **Context** – the financial, environmental, historical, cultural, land use types, activities and built environment that help to establish the configuration of thoroughfares.
- **Context sensitive solutions** (CSS) - a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist.
- **Design speed** - A selected rate of travel used to determine the various geometric features of the street.
- **Drive -** A drive is located along the boundary between an urbanized and a natural condition, usually along a waterfront or park. One side has the urban character of a thoroughfare, with sidewalk and buildings, while the other has the qualities of a road or parkway, with naturalistic planting and rural details.
- **Human scale** - describes buildings, block structure and other aspects of the built environment that are designed in consideration for pedestrians and bicyclists, their rate of travel and other physical needs
- **Liner building** - a building specifically designed to mask a parking lot or a parking garage from the frontage.
- **Live-work** - a dwelling unit that contains a commercial component in the unit.
- **Mixed use development** - the practice of allowing more than one type of land use in a building or set of buildings. This can mean some combination of residential, commercial, industrial, office, institutional, or other land uses.
- **Modern roundabout** - a circular intersection with specific design and traffic control features. These features include yield control of all entering traffic, channelized approaches, and appropriate geometric curvature to ensure that travel speeds on the circulatory roadway are typically less than 30 mph.



Modern Roundabout

(Source: FHWA Roundabouts: An Informational Guide)

- **Neighborhood** - an urbanized area at least 40 acres in size that is primarily residential. A neighborhood should be based upon a partial or entire standard pedestrian shed.
- **New Urbanism** - a development philosophy based on the principles of Traditional Neighborhood Development designed for the pedestrian, bicyclist and transit, as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice. See the Charter of the New Urbanism for more information (http://www.cnu.org/charter).
- **Passage** - a pedestrian connector passing between buildings, providing shortcuts through long blocks and connecting rear parking areas to frontages.
- **Path** - a pedestrian way traversing a park or rural area.
- **Pedestrian shed** - an area, approximately circular, that is centered on a common destination. A pedestrian shed is applied to determine the approximate size of a neighborhood. A standard pedestrian shed is 1/4 mile radius, or 1320 feet, about the distance of a five-minute walk at a leisurely pace.

Pedestrian Shed
(Source: AECOM)

- **Rear alley/Lane** - a vehicular way located to the rear of lots providing access to service areas, parking, and outbuildings and containing utility easements. Rear Lanes may be paved lightly to driveway standards. The streetscape consists of gravel or landscaped edges, has no raised curb, and is drained by percolation.
- **Retail** - premises available for the sale of merchandise and food service.
- **Smart Growth** - an urban planning and transportation theory that concentrates growth in the center of a city to avoid urban sprawl and advocates compact, transit-oriented, walkable, bicycle friendly land use, including mixed use development with a range of housing choices.
- **Road** - a local, slow-movement thoroughfare suitable for more rural transect zones. Roads provide frontage for low-density buildings with a substantial setback. Roads have narrow pavement and open swales drained by percolation, with or without sidewalks. The landscaping may be informal with multiple species arrayed in naturalistic clusters.
- **Setback** - the area of a lot measured from the right of way line to a building facade or elevation.
- **Street** – a local, multi-movement thoroughfare suitable for all urbanized transect zones and all frontages and uses. A street is urban in character, with raised curbs, drainage inlets, wide sidewalks, parallel parking, and trees in individual or continuous planters aligned in an allee. Character may vary in response to the commercial or residential uses lining the street.

  It is important to note that many municipalities use the terms “avenue” and “street” in combination with the thoroughfare name as a way to differentiate streets running north and south from those running east and west (e.g. 1st Street, 1st Avenue). These are street names, not to be confused with thoroughfare types.
- **Terminated vista** - a building or feature located at the end of a thoroughfare in a

position of prominence.

Terminated Vista, Monticello, FL

(Source: Billy Hattaway)

- **Thoroughfare** - a corridor incorporating sidewalks, travel lanes, bike lanes and parking lanes within a right of way.
- **Traditional Neighborhood Development** (TND) - a community unit type structured by a standard Pedestrian Shed oriented towards a common destination consisting of a mixed use center or corridor.
- **Transit-Oriented Development** (TOD) - a regional center development with transit available or proposed. TODs are developments that are moderate to high density, mixed-use, and walkable development designed to facilitate transit and accommodate multiple modes of transportation. TODs generally encompass a radius of ¼ or ½ miles of a transit station, a distance most pedestrians are willing to walk. It incorporates features such as interconnected street networks, bicycle and pedestrian facilities, and street-oriented site design, to encourage transit ridership. This form of development optimizes use of the transit network and maximizes pedestrian accessibility. Successful TOD provides a mix of land uses and densities that create a convenient, interesting and vibrant community.
- **Town center** - the mixed-use center or main commercial corridor of a community. A Town Center in a hamlet or small TND may consist of little more than a meeting hall, corner store, and main civic space.
- **Transect** - a system of ordering human habitats in a range from the most natural to the most urban. The SmartCode is based upon six Transect Zones that describe the physical character of place at any scale, according to the density and intensity of land use and urbanism.

- **Transect Zone (T-Zone)** - Transect Zones are administratively similar to the land use zones in conventional codes, except that in addition to the usual building use, density, height, and setback requirements, other design elements are integrated, including those of the private lot and building and the adjacent public streetscape. The elements are determined by their location on the Transect scale. The T-Zones are T1 Natural, T2 Rural, T3 Sub-Urban, T4 General Urban, T5 Urban Center, and T6 Urban Core.
- **Yield street -** a thoroughfare that has two-way traffic but only one effective travel lane because of parked cars, necessitating slow movement and driver negotiation.