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Corridor Planning and Preservation Best Practices

Hillsborough County Corridor Plan Study

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Executive Summary

This report reviews current thoroughfare planning practices in several Florida counties, as well as those of selected cities and counties in other states. Topics include the policy and planning context for corridor management in Florida, best practices for integrating land use context and modal options, and how resilience to climate change and emerging technology may be reflected in contemporary thoroughfare plans. The purpose of the review is to offer insight and guidance to Hillsborough County on the current state of the practice in Florida, and any best practices that may benefit the County as it updates its Corridor Plan. A table defining acronyms and abbreviations used throughout the report is provided in the Appendix.

Legal Review

Few if any changes were identified in Florida's legislative criteria for corridor preservation and management since the 1995 corridor management legislation was enacted. Corridor management under Florida law begins with the designation of transportation corridors in the state-mandated local comprehensive plan, and is supported by goals, objectives and policies that are adopted in accordance with Chapter 163, F.S. Plans or regulations with an unclear purpose or that appear aimed primarily at suppressing right-of-way costs in advance of acquisition have been deemed unconstitutional. Valid public purposes indicated in Florida planning law (s.163.3164(48), F.S.), include "to promote orderly growth, to meet the concurrency requirements of this chapter, and to maintain the integrity of the corridor for transportation purposes." Other valid public purposes include measures demonstrated to protect the public health, safety and welfare.

To carry out the thoroughfare plan, local governments must adopt certain measures to manage corridor development. These include measures to avoid development in the path of a planned transportation project, require mitigation of development impacts, offset any hardship on property owners, and manage roadway access as development occurs. During development review, techniques such as on-site density transfers, setback waivers, and interim use agreements can be used to preserve land ownership and development rights while ensuring that the right-of-way remains clear of major structural improvements.

Local governments may also require some property to be dedicated (conveyed) from a private owner to the public for future transportation right-of-way. Subdivision regulations routinely require dedication of land for local and collector roads needed to serve a development and any site-related improvements. However, mandatory dedication of right-of-way for thoroughfares is subject to constitutional limitations. There must be an "essential nexus" between the impacts of the property and the permit conditions (Nollan v. California Coastal Commission, US 1987), and the amount of the exaction must be roughly proportionate in nature and degree to the impacts of the regulated activity (Dolan v. City of Tigard, US 1994).

Dedication of right-of-way outside of these guidelines is subject to compensation in some fashion. Property owners may be compensated through impact fee credits, density credits, fee simple payments, or some combination of methods. Providing an escape hatch in situations where the regulations would pose a substantial hardship (e.g., permit or buy) further ensures a legally defensible process. This combination of factors differentiates local government programs in Florida from the official map and

development moratoria exemplified in Joint Ventures v. FDOT litigation and suggests the viability of long reservation periods based on long range planning horizons or even build-out plans. However, caselaw suggests that the longer the horizon for preserving future right-of-way, the more tenuous the balance in enforcing preservation policies. Advance acquisition programs may be beneficial in this regard.

The legal context for corridor management in Florida is further defined by an increasing emphasis on multimodal transportation planning in Florida planning law. The 2011 Community Planning Act required local governments in Florida to develop multimodal plans coordinated with future land use plans, removed transportation concurrency as a requirement, and encouraged local governments to adopt alternative mobility funding systems. Many have enacted mobility plans and fees or concurrency based multimodal mitigation fees to help ensure that developments pay their proportionate share of the cost of transportation facilities.

The legalities of impact fees have been litigated over many years. A recent legal analysis for the City of Port St. Lucie extends this analysis to multimodal mobility fees. The study indicates that mobility fees must be both proportional and reasonably connected to the need for new multimodal transportation projects and the mobility benefits provided to those who pay the fee (s.163.31801(4)(f-h), F.S.). As stated in the report (Paul, August 2021):

> "The "dual rational nexus test" requires a local government to demonstrate that there is a reasonable connection, or rational nexus, between the "Need" for additional (new) capital facilities (improvements and projects) to accommodate the increase in demand from new development (growth), and the "Benefit" that the new development receives from the payment and expenditure of fees to construct the new capital improvements….The calculation of the City's Mobility Fee based on person travel demand documents and quantifies the connection between the provision of multimodal person capacity and the person travel demand generated by new development travel, in accordance with dual rational nexus and rough proportionality test."

An internet search and a 2016 study of the application of mobility fees in Florida found no evidence of case law challenging their specific features (Renaissance Planning, 2016). Concern over the potential for litigation, particularly in light of the widespread variation in these fee systems, led the Florida League of Cities to issue a 2021 legislative brief on mobility plans. The brief called for legislation to provide guidance for the creation and adoption of alternative transportation mitigation systems like mobility plans and fees noting "Absent legislative guidance, city ordinances on mobility plans and mobility fees are open to attack over differing legal interpretations of the current state statute."

Nonetheless, in determining the validity of local regulatory actions, courts will review whether the action is consistent with and based upon a local comprehensive plan. Local governments that have designed mobility plans and fees with careful attention to statutory requirements and with the dual rational nexus and rough proportionality tests in mind appear to be on strong legal footing. A multimodal approach to corridor management is essential to the ability of local governments to plan for future growth. An important consideration is internal consistency of the vision expressed in the multimodal plan, quality of service and design criteria, and the corresponding mitigation program. These factors demonstrate public purpose and need for new facilities, benefits received by new development, and how the mitigation is related and proportionate to the impacts of new development.

Current Practices

A thoroughfare plan is ultimately a right-of-way preservation document that allows the orderly development of a transportation network to support future growth. From a planning perspective, the review indicates that contemporary thoroughfare plans are increasingly context sensitive and emphasize a multimodal or complete streets philosophy. Several of the plans reviewed identify area types to guide the design of transportation corridors in relation to their planned land use context and modes. Rather than widely-spaced thoroughfares fed by disconnected local and collector roads, they promote a dense and connected network that supports multimodal activity. These and other integral strategies influence right-of-way needs and advance a more comprehensive vision of the design of the future transportation system.

Contemporary thoroughfare plans serve as a preliminary tool for defining which multimodal design elements and users are prioritized for each roadway type and land use context. The desired thoroughfare network is mapped, including area and street types, with preliminary identification of modal elements. It is then used to define the corresponding right of way needs and cross section design concepts for purposes of corridor preservation and management. Some of the plans also provide a framework for more detailed assessment of cross section design and modal needs by segment, and guide decisions on building type and intensity to reinforce the planned modal elements. As regulatory documents, the plans also include procedures and explanations to guide amendments, exceptions and updates.

An observation on Florida thoroughfare plans, as compared to the handful of plans reviewed nationally, is a less detailed emphasis on integrating area type or context, non-auto modes, and complete streets design concepts at the thoroughfare planning level. Nonetheless, steps are clearly being taken to address those issues and especially in the context of mobility planning practices. In the process, local governments in Florida are broadening their impact fees and mitigation methods to strengthen corridor management plans and practices from a multimodal perspective. Table 1 summarizes corridor management strategies applied in Florida thoroughfare plans. Table 2 summarizes context-sensitive features of selected thoroughfare plans reviewed for the study.

Table 1. Summary of Florida Thoroughfare Plan Practices

Jurisdiction	*ROW Needs Map*		*Mandatory Dedication*	*Preservation Measures*	*Network and Connectivity*	*Area Type and Context*	*Advance ROW Acquisition*
	Planned Roadways	*Non-auto Modes*					
Hillsborough County	Map 25, ROW needs not specified	Transit Map 15, ROW needs not specified Greenways Master Plan	Yes	Restrictions on encroachment, density/intensity credits, clustering, interim uses	Plan policies and regulations Parallel relievers	Context Based Classifications (not yet in practice)	No
Tallahassee-Leon County	Future Rights-of-Way Needs Map and table	Addressed in notes and policy Greenways Master Plan	Yes	Restrictions on encroachment, on-site density transfer, clustering, waiver of deviation, waiver of review fees, interim uses	Comp Plan policies and regulations Planned Development Master Plans	Plan to address in next update	Blueprint 2000 Intergovernmental Agency
Indian River County	Extended Roadway Grid Network Map and ROW table.	Includes bicycleways and sidewalks per adopted plans	Yes, to local road standards	Offsite improvements, lot size adjustments Impact fee credits or purchase of additional ROW	Implements Subdivision Collector Map Network connectivity for TND, mixed use	No	Murphy Act purchases Impact fees, gas tax, sales tax Opportunity purchases
Orange County	Based on LRTP map	Not specified	Yes	Density credits Impact fee credits	Pedestrian connectivity index Urban village districts and Master Plans (Welaunee Arch, Horizon West)	No	No
Broward County Planning Council	Trafficways Plan Map, ROW needs specified	Context sensitive corridors Complete streets guidelines	Yes, by deed or easement	Restrictions on encroachment	Addressed at local government level.	Urban Core, Urban Main Street, or Urban Residential	No
St. Lucie County	Thorough-fare Network Right-of-Way Protection Plan	Not specified	In selected situations only	Restrictions on encroachment, road impact fee credits Transferable Development Rights (TDRs) and TDR Credits in certain planned developments Compensation where otherwise applicable	In planned development overlays only (Towns, Villages, and Countryside and North St. Lucie County Special Area Plan) Jenkins Road Special Area Plan	Context Zones (In Rural Land Steward-ship Area Overlay)	May acquire land or right-of-way in advance of need
Alachua County	Mobility Plan Future Traffic Circulation Corridors Map	Bicycle lanes, sidewalks, express transit, multi-use paths	Yes	Restrictions on encroachment Multimodal mitigation fee credits	Mandatory connectivity and internal street networks in Urban Cluster Includes bike/ped facilities	Urban cluster districts	Multimodal transportation mitigation funds placed in special revenue/mobility project trust funds

Table 2. Context Sensitive Features of Selected Thoroughfare Plans

Jurisdiction	*Area types*	*Corridor Typology*	*Multimodal Elements in ROW*	*Design Types/Cross Sections*	*Application*
El Paso, Texas	Compact Urban, Drivable Suburban, and Rural	Expressway, Principal Arterial, Minor Arterial, Collector	Modal elements identified in basic and optional cross sections	Draft design criteria for new and reconfigured thoroughfares and basic and optional cross sections by area type	Detailed network maps by planning area Draft suggests regional intergovernmental compact. Plans to add multimodal network & update cross sections
Fort Worth, Texas	Area types implicit in street type descriptions Special districts with unique street types	Street Type Map (Activity, Commerce/Mixed-Use, Neighborhood Connector, Commercial Connector, and System Link); Lanes Map, Bicycle Network Map Transit Vision: Major Services map. Special corridor designations	Typical section selection process uses inputs including modal elements to code a range of typical sections for each street type	MTP specifies a suite of cross-sections for each segment based on modal priorities and available ROW	MTP provides ample guidance and detailed procedures for flexibility
Bastrop, Texas	Place Types Nature, Rural, Neighborhood, Neighborhood Mix, Core, Employment Center, Civic Space, Planned Development District	State Highway System, Primary Multimodal Streets, Local Connector Streets, Rural Streets, Multimodal Connections (Trails and Shared-Use Paths) on Map 5.1 2040 Major Thoroughfare Map, with additional cross section variations in B3 code (13 street types)	Modal elements depicted in cross sections	Typical cross sections for functional classification and place types are shown in plan and B3 Code	Standards in B3 Code are adjustable
Indianapolis-Marion County	Context Areas: Compact and Metropolitan	Freeway, Arterial, Collector (non-thoroughfare), Local (non-thoroughfare), Special Corridors (Beltline RR, Greenway)	The ROW Standards and Design Guidelines Table specifies modal elements for each combination	Target widths and cross section elements identified in ROW Standards and Design Guidelines table for each road type, based on number of lanes, speeds and area type	Design guidelines are prototypical, not "one-size-fits-all"
Montgomery County, Maryland	Road Code: Urban, Suburban, Rural	Includes arterials, plus Parkways, Primary Residential Streets, Business Streets, Industrial Streets, Country Roads, Country Arterials, and Rustic Roads and Exceptional Rustic Roads.	Pedestrian priority areas, Transit components of the plan are mapped and considered in design	Context Sensitive Design Standards, cross sections, target speeds	Master Plan guides street design Target speeds based on road classification and area types

Recommended Strategies

The report concludes with alternative strategies for consideration by the County as it updates the corridor plan. The strategies are supplemented with examples from the review of best practices.

- **Establish a clear and integrated vision of the future thoroughfare system, with flexibility and supporting technical documentation.**
    - Consider packaging the Corridor Plan as a concise visual document referenced in the comprehensive plan that conveys vision, modal and design elements (see for example, The Indianapolis-Marion County, Fort Worth, and City of Bastrop Thoroughfare Plans). It could also be an integral part of the mobility plan.
    - Advance more specific corridor management and network enhancement strategies through individual Community Plans and adopt these by reference in the Corridor Plan.
    - Identify implementing strategies and procedures. For example, Broward County has supporting documentation for the trafficways plan map that details the implementation process, including amendments and waivers. The City of Fort Worth has a "suite" of cross section types coded to different streets and corresponding ROW widths**,** while allowing for "interim cross sections" for certain situations in which constructing the full cross section dictated by the Master Thoroughfare Plan would be infeasible or cost prohibitive.
- **Classify all thoroughfares by function, area type or context, and modal accommodations.**
    - Broward County has "Context Sensitive Corridors" depicted on their thoroughfare plan which are highlighted in green on the map and fall into one of three categories: Urban Core, Urban Main Street, or Urban Residential. These corridors are tied to Specific Plans that govern ROW.
    - The Fort Worth, Texas Thoroughfare Plan depicts "Street Types" by evaluating the streets' respective land-use contexts and the various transportation modes needing to use each street. The five "Street Types" are Activity Streets, Commerce/Mixed-Use Streets, Neighborhood Connectors Commercial Connectors, and System Links.
    - The Indianapolis-Marion County Thoroughfare Plan map depicts "Context Areas" labeled as either compact or metropolitan. These disparate geographical areas are used to apply different standards including ROW. The plan incorporates right-of-way needs for all modes, providing design guidance on multi-modal facilities, and providing guidance on conflicting modal priorities (also Greenways as special corridor designations).
    - The El Paso Thoroughfare Plan identifies areas as compact urban or drivable suburban to differentiate thoroughfare design intentions.
    - Montgomery County, Maryland defines pedestrian priority areas and transit corridors and defines target speed by road classification and area type.

- **Adapt the thoroughfare plan to an idealized grid and include supporting network concepts.**
    - NCHRP Report 917 provides a process for adapting a large, planned thoroughfare network to an ideal grid and prioritizing new corridors for preservation.
    - Indian River includes a "Extended Roadway Grid Network" in their thoroughfare plan as logical extensions of roadways to undeveloped portions of the county. The county enforces a Subdivision Collector Map to ensure that proposed development extends subdivision collector roadways to landlocked parcels.

- El Paso, Texas, extends its arterial and collector grid using dashed lines on the thoroughfare plan map.
- The Bastrop, Texas Thoroughfare Plan includes a well-connected grid network that establishes a long-range vision for a highly connected, multimodal street system throughout the City of Bastrop, including the local street network. It may be an interesting model for use in more location specific strategies relative to compact urban areas.
- Alachua County incorporated numerous new corridors and connections in an effort to relieve congested and constrained corridors by providing alternative parallel corridors, and improve accessibility to town centers or activity centers. Issues considered included spacing standards to develop more of a grid network.
- Identify opportunities for complete streets projects and transit corridors to connect to greenways and multiuse trails. Clearly designate greenways and multiuse trails as transportation, not recreational, facilities. For example, Indianapolis-Marion County includes Greenways as special corridor designations.
- Update and assign the County access classifications to County arterial and collector roadways to reinforce the thoroughfare plan. Integrate multimodal and context sensitive features, such as alleys and block spacing in urban contexts and safe, continuous access to transit stops.
- Implement street network connectivity in urban contexts. See Alachua County and Leon County for additional helpful examples of network connectivity provisions.

- **Anticipate and integrate new designations as technology evolves**.
  - Consider designating future Smart Corridors to focus investments in technology enhancements in these areas and manage right-of-way needs, using the emerging smart road classification systems.
  - Integrate FDOT Electric Vehicle (EV) Master Plan locations and possible locations on other County thoroughfares, to support expansion of EV charging stations. The State is developing an innovative funding program to promote such installations (e.g. “Green” Bank, Electric Vehicle Supply Equipment (EVSE) loan).
  - Montgomery County enacted a new policy and guidelines for permitting EV charging stations on the curb for homes lacking driveway and garage access. Consider developing a policy to ensure proper management of the right-of-way for EV charging along major corridors.

- **Increase network redundancy and designate vulnerable routes for management.**
  - Designate routes vulnerable to flooding and other threats by assigning segments to categories shown in Figure 44 and associate the links with specific adaptation and mitigation strategies requiring additional right-of-way.
  - Designate priority routes lacking parallel relievers and/or connections to alternative facilities and increase redundancy of the network through strategies to provide alternative routes in the event of an incident or evacuation.

- **Establish a dedicated funding source for corridor management projects and acquisition of right of way.**
  - Tallahassee - Leon County practices of interest include:
    - Established Blueprint 2000 Intergovernmental Agency, under a board comprised of the County and City commissions, has authority to approve the purchase of

real estate for future Blueprint projects, including early acquisition of transportation right of way with sales tax proceeds.
        - Enacted intergovernmental agreement between Leon County, FDOT and the City of Tallahassee to allow proportionate fair share funds to accumulate in an account earmarked for the completion of major transportation projects, rather than spread throughout the community on smaller projects.
        - Leon County road impact fees are placed in a Countywide Road Impact Fee Trust Account for use on designated state roads. Money deposited into the trust fund account that is not immediately needed is invested by the county and city, and income derived from those investments go back into the trust fund.
    - Indian River County engages in 'opportunity purchases' for advanced right of way acquisition. When a parcel comes up for sale on a corridor planned for widening, the county may either purchase the whole parcel or a portion of the parcel and sell the residual. Funds for land acquisition come from a combination of traffic impact fees, a six-cent local option gas tax, and a one-cent county-wide sale tax.
    - Alachua County has a concurrency-based multimodal transportation mitigation program that provides funding toward a variety of multimodal improvements on planned corridors within its urban service area or "urban cluster".

Chapter 1 - Introduction

The Hillsborough County Corridor Plan was first adopted in 2005 for the purpose of identifying and managing roadway corridors needed to support future growth. The current plan includes thoroughfares identified for improvement by the Hillsborough Transportation Planning Organization (TPO) and County long range transportation planning processes. Future roadway corridors are designated on a map, with needed rights-of-way based on the planned number of lanes, other related plans, and associated County design standards.

County land development regulations implement the Corridor Plan with provisions that allow staff to work proactively with landowners to preserve the needed rights-of-way as development occurs. Subsequent transportation project development activities define the project, which is then programmed for construction through the capital improvement process. Strategies to manage development access and promote local street and sidewalk networks, including safe access to transit stops, are also employed to protect the safety, mobility functions, and livability of the corridor.

The County corridor management process provides many benefits to the public. It offers predictability to property owners and prospective developers, preserves the right-of-way needed for the planned thoroughfare system, coordinates the design of access with the planned functions of the facility, and helps minimize adverse impacts to homes, businesses, and the natural and built environment. A variety of strategies are available in the regulatory program and employed by the County to protect private property rights and investment backed expectations of those whose land is impacted by a planned future corridor.

The County is now in the process of updating its Corridor Plan, including integrating multimodal needs and plans in response to future growth. This study offers guidance to the County on best practices and strategies that may benefit the County in that update. The study explores the changing policy and planning context for corridor management since adoption of the current Corridor Plan. It then examines contemporary corridor management practices in Florida, including strategies for transit and multiuse corridors, and examines best practices for integrating land use context and area type, and how resilience to climate change and emerging technology may be reflected in contemporary corridor management programs. A separate section explores rail corridor preservation strategies and examples. The report concludes with alternative strategies for consideration by the County as it updates the corridor plan. A table defining acronyms and abbreviations used throughout the report is provided in the Appendix.

Background

Much has changed in planning practice since the County adopted its first Corridor Plan and implementing ordinance. Chapter 163 was amended in 2011 directing local governments to plan for a safe and convenient multimodal transportation system, concurrency was retained as a planning and not regulatory tool, and a multimodal “mobility” plan and fee concept were advanced by the Florida legislature to help guide the next generation of transportation plans. In addition, implementation of Complete Streets became a policy priority of the Florida Department of Transportation (FDOT) and land use “context” zones were established by the FDOT to ensure future roadway planning and design would be sensitive to area type and the needs of all system users. In response to these changes, the County is developing Complete Streets guidelines and a Draft Mobility Section of the Comprehensive Plan and adopted a Context Based Classification System (January 2022).

Adding to this is the advent of electric, connected and automated vehicles (AV/CV) and efforts to plan for deployment of these technologies. “Smart corridors” with connected, automated and electric vehicles are becoming a growing reality, with testbeds in Tampa and other areas of Florida., and FDOT has adopted a statewide Electric Vehicle Master Plan (FDOT, 2021) for the development of electric vehicle charging station infrastructure along the State Highway System. Planners are also examining the implications of climate change on existing and planned transportation corridors. Studies are underway in the Tamp Bay region, for example, to identify and develop strategies for those facilities most vulnerable to extreme weather events, storm surge and flooding.

Contemporary corridor plans (aka thoroughfare plans) are therefore focused on much more than implementing new highways and road widening. They now focus on moving people and not cars, and integrate a broad range of land use and transportation strategies and modal priorities, while also considering the potential impacts of climate change and technology. The plans identify area types to help guide the design of transportation corridors in relation to their planned land use context and modes. They also go beyond the traditional widely-spaced thoroughfare systems fed by disconnected local and collector roads, to promote a more connected network that reduces arterial congestion and supports multimodal activity. These integral strategies influence right-of-way needs and implementation strategies to achieve a more comprehensive vision of the future transportation system.

Chapter 2 – Florida's Legal Context

Legal authority for corridor management in Florida is provided to local governments through two state laws – Chapter 163 (Community Planning Act) and Chapter 337 (Transportation). Corridor management in Florida is defined as the "coordination of the planning of designated future transportation corridors with land use planning within and adjacent to the corridor…" (Chapter 163.3164(30) F.S.) It includes, but is not limited to, right of way preservation and access management. Right-of-way preservation is the coordinated application of measures to obtain control of or protect the right-of-way for a planned transportation facility. Access management is the coordinated planning, regulation, and design of access between roadways and land development. The Florida legislature instituted access management in 1988 in part to "assist in the coordination of land use planning decisions by local governments with investments in the State Highway System…" (Chapter 335.181(b), F.S.)

The Early Years

In 1988, "Transportation Corridors" legislation authorized FDOT and local governments to designate transportation corridors for protection by recording an official map. Local governments were then required to withhold development permits in the mapped corridors for a five-year period through a centerline setback requirement (Rivkin Associates, 1996).

In 1990, the Florida Supreme Court ruled that these right-of-way protection provisions were unconstitutional and a violation of due process, Joint Ventures v. Florida Department of Transportation, 563 So. 2d at 625, 626 (Fla. 1990). One reason was the onerous nature of the five-year blanket moratorium on development within mapped rights-of-way, which could be extended for another five years without a purchase commitment from the State. In addition, the stated purpose of the statute was to freeze or otherwise hold down land values in anticipation of condemnation. FDOT argued that allowing development permits to be issued in mapped rights-of-way would increase the cost of future land acquisition if the state were to initiate condemnation proceedings.

Weighing eminent domain law and the potential 10-year reservation period with no purchase commitment, the Court concluded that the statute was "a thinly veiled attempt to acquire land by avoiding the legislatively mandated procedural and substantive protection" and a deliberate attempt to "depress land values in anticipation of eminent domain proceedings." The decision resulted in a halt to FDOT corridor protection actions, as alternatives were explored.

In 1993, the Florida Supreme Court was asked to consider whether a county's thoroughfare plan map and policies were also unconstitutional in Palm Beach County v. Wright, 612 So. 2s 709 (Fla. 1993). The thoroughfare plan was adopted as part of the local comprehensive plan and plan policies prohibited land use activities in the mapped corridors that would impede development of the future transportation network. The Court upheld the constitutionality of the County thoroughfare plan map, distinguishing it from the state official map in Joint Ventures for several reasons:

- Adequate transportation facilities must be provided concurrent with the impacts of development under Florida law (concurrency) and this avoids the need to curtail development, thereby benefiting affected property owners;
- The map has a foundation in a state mandated comprehensive plan, which includes objectives for right-of-way preservation, consistent with Rule 9J-5 of the Florida Administrative Code;

- By meeting the statutory objectives of planning for future growth and development, the thoroughfare plan map is an invaluable planning tool and a proper subject of the police power; and
- Local governments may amend their plan twice per year under Florida law and this provides flexibility for mitigating hardships that may be incurred by affected property owners.

In 1995, the Florida legislature amended state transportation planning law (Chapter 337, F.S.), and Florida's local planning act (Chapter 163, F.S.) to define the local role in corridor management. The policy shift was designed to encourage coordination between the FDOT and local governments on preserving right-of-way for planned facilities and a logical outgrowth of the Palm Beach County v. Wright opinion, which supported corridor management in the context of local comprehensive planning and growth management programs.

Corridor Management in Florida Statutes

Corridor management provisions in Florida local planning and state transportation law have remained largely intact in the decades since passage of the 1995 amendments. The stated intent of the 1995 amendments was to coordinate transportation and land use planning through local comprehensive plans for a variety of legitimate public purposes. This intent was reiterated in the 2011 Florida Community Planning Act, which eliminated the role of the State in monitoring local government plans for compliance under Rule 9J-5, made transportation concurrency optional as a regulatory tool while retaining it as a planning tool, and added new multimodal transportation planning requirements.

The Community Planning Act incorporated language from the 1995 corridor management amendments, enabling local adoption of corridor management maps and ordinances as follows (s.163.3177(b)(1), F.S.):

> "Each local government's transportation element shall address traffic circulation, including the types, locations, and extent of existing and proposed major thoroughfares and transportation routes, including bicycle and pedestrian ways. **Transportation corridors, as defined in s. 334.03, may be designated in the transportation element pursuant to s.337.273. If the transportation corridors are designated, the local government may adopt a transportation corridor management ordinance**. The element shall include a map or map series showing the general location of the existing and proposed transportation system features and shall be coordinated with the future land use map or map series."(emphasis added)

Important definitions in Florida law relating to these provisions include:

> "Transportation corridor" means any land area designated by the state, a county, or a municipality which is between two geographic points and which area is used or suitable for the movement of people and goods by **one or more modes of transportation, including areas necessary for management of access and securing applicable approvals and permits.** (emphasis added) Transportation corridors shall contain, but are not limited to, the following:
>
> (a) Existing publicly owned rights-of-way;
>
> (b) All property or property interests necessary for future transportation facilities, including rights of access, air, view, and light, whether public or private, for the purpose of securing and utilizing future transportation rights-of-way, including, but not limited to, any lands reasonably necessary now or in the future for securing applicable

approvals and permits, borrow pits, drainage ditches, water retention areas, rest areas, replacement access for landowners whose access could be impaired due to the construction of a future facility, and replacement rights-of-way for relocation of rail and utility facilities.(s.334.03(29), F.S.)

"Transportation corridor management" means the coordination of the planning of designated future transportation corridors with land-use planning within and adjacent to the corridor to promote orderly growth, to meet the concurrency requirements of this chapter, and to maintain the integrity of the corridor for transportation purposes," (s.163.3164 (48), F.S.)

State transportation law continues to provide authority to local governments to "…adopt such additional ordinances and regulations as necessary to manage designated transportation corridors,"s.337.273(6), F.S.). As with previous law, corridor management ordinances that are adopted to manage development along designated corridors must include the following (s.337.273(6), F.S.):

- Criteria to manage land uses within and adjacent to the corridor,
- The types of restrictions on nonresidential and residential construction within the corridor,
- Identification of uses that are permitted within the designated corridor,
- A public notification process,
- A variance and appeal process, and
- An intergovernmental coordination process that provides for the coordinated management of transportation corridors with the plans of adjacent jurisdictions.

Local governments are directed to notify FDOT before approving any rezoning, building permit, subdivision change, or other permitting activity that would substantially impair the future viability of the corridor for transportation purposes (s.337.243(1), F.S.). The provision was intended to provide FDOT an opportunity to determine whether to purchase the affected property or initiate eminent domain proceedings, as well as an opportunity to identify problems and negotiate acceptable alternatives.

Rough Proportionality and Unconstitutional Conditions

Government actions to require property owners to convey land for transportation right-of-way in the context of a development approval are subject to the unconstitutional conditions doctrine. Such actions must have an essential nexus to a legitimate government interest and any exactions must be roughly proportionate to the impacts of the development in question. This important legal concept, known as "rough proportionality," continues to govern land dedication requirements.

The key case on this matter is Dolan v. City of Tigard, US 1994, where the U.S. Supreme Court weighed a city action requiring dedication of land for a pedestrian/bicycle pathway as a condition of permit approval to expand an existing hardware store. Questioning the constitutionality of the condition, the court transferred the burden of proof to the city to demonstrate a "rough proportionality" between the impacts of the development and the nature and degree of the exactions. Allowing that the relationship need not be "precisely quantified" the court held that "the city must make some sort of individualized determination that the required dedication is related both in nature and extent to the impact of the proposed development...beyond a conclusory statement that the dedication 'could offset some of the traffic demand' generated by the development."

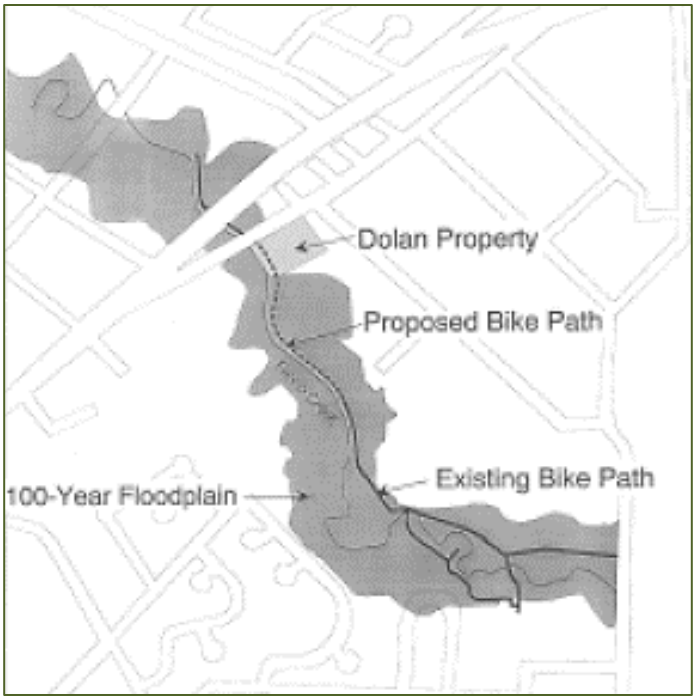


Figure 1. Dolan v. City of Tigard

Murphy Auto Grp., Inc. v. Fla. DOT, 310 So. 3d 1066

In Florida, the issue of rough proportionality in corridor management arose in Murphy Auto Grp., Inc. v. Fla. DOT, 310 So. 3d 1066 (Court of Appeal of Florida, Second District November 20, 2020, Opinion Filed). Murphy Auto Group (a car dealership) requested a driveway connection permit to construct access to U.S. 27 and acceleration/deceleration turn lanes within the existing highway right-of-way and proposed to fill a drainage ditch owned by FDOT that spanned the length of the property. As a condition of the permit and associated drainage permit, FDOT required Murphy to dedicate 12 feet along the property frontage and reconstruct the drainage ditch. Murphy's proposals to use the existing drainage collection system and grant FDOT a drainage easement around an existing retention pond were declined. Murphy sued, asserting that the drainage improvements exacted by FDOT were not roughly proportional to the project's drainage impact.

FDOT claimed that Nolan/Dolan did not apply as it was exercising its proprietary (not regulatory) power and claims for damages were barred by sovereign immunity. The 2nd District Court of Appeals of Florida disagreed stating "FDOT's position involved permitting decisions made in connection with its regulation of a landowner's right of access to the State Highway System. Thus, the trial court was required to apply the unconstitutional conditions doctrine to determine whether there was an essential nexus and rough proportionality between the monetary exactions and the effects of Murphy's development project." The Court reversed and remanded this case.

B.A.M. Dev., L.L.C. v. Salt Lake County, 2006

Similar cases have arisen across the country involving the court's application of rough proportionality to right-of-way exactions. One example is B.A.M. Dev., L.L.C. v. Salt Lake County, UT 2, 128 P.3d 1161, 543 Utah Adv. Rep. 10, 2006 Utah LEXIS 2 (Supreme Court of Utah, January 10, 2006, Filed). The case involved a challenge to County Ordinance 15.28.010, which requires prospective developers to dedicate

land to the county to improve abutting public streets in the context of a Transportation Master Plan, which identifies long-term highway capacity needs of Salt Lake County. The requirements imposed on developers under the ordinance are directly tied to the elements of the Transportation Master Plan and constitute a development exaction subject to the "rough proportionality" standard of the U.S. Supreme Court. In addition, Utah Code Ann. § 17-27a-507 (Supp. 2005) became effective in May 2005 and iterates the rough proportionality test. The Utah Supreme Court remanded the case to the court of appeals with directions that a rough proportionality review was to be conducted on remand to the trial court.

Multimodal Fees and Mitigation

As previously mentioned, the 2011 Community Planning Act requires local governments in Florida to plan for a multimodal transportation system. Counties with population greater than 75,000 and those within a metropolitan planning organization (MPO) planning area have the most extensive multimodal planning requirements. These include, but are not limited to, the need to plan for:

- All alternative modes of travel (e.g., public transportation, pedestrian, and bicycle travel), all types of recreational traffic (including bicycle facilities, exercise trails, riding facilities).
- Existing and projected quality of service for public transportation, quality of service standards, and system needs and availability of mass transit facilities and services, including rights-of-way.
- An identification of land use densities, building intensities, and transportation management programs to promote public transportation systems in designated public transportation corridors to encourage population densities sufficient to support such systems.

In addition, the 2011 amendments to Florida planning law made transportation concurrency optional and allowed local governments to replace concurrency with an alternative mobility funding system. In 2013, the Florida legislature encouraged the adoption of a mobility fee if they repeal transportation concurrency. Section 163.3180, F.S establishes requirements for mobility fee programs. Technical studies of the approach indicate that two basic methods may be used to calculate the mobility fee – consumption-based and improvements-based (Seggerman, et. al.,2009).

> “The consumption-based method charges each new development the value of the increment of transportation facilities or services needed to serve that development. The value of each increment is determined based on recent transportation improvements and is typically reflected as an average cost per unit of transportation service (e.g., a lane mile of roadway, unit of transit service). The improvements-based method charges each new development its proportionate share of the cost of a specific set of improvements deemed necessary to accommodate future growth at an adopted quality of service. “

A handful of local governments have chosen to establish a transportation concurrency mitigation fee or assessment, as opposed to a multimodal impact fee as their mobility fee. Examples include Broward County’s transportation concurrency assessment and the Alachua County multimodal impact mitigation program, which is discussed later in the report. Both systems are based on a planned program of projects. Broward County, for example bases its assessments in eight of its ten concurrency districts on the first five years of the adopted transit development plan (Renaissance, 2016). All funds all placed into a fund that must be used for transit enhancements and cannot be used for pedestrian or bicycle projects (Renaissance, 2016).

To date numerous local governments have enacted mobility fee programs based on multimodal mobility plans. The Florida League of Cities (2021) indicates that since the 2013 law was enacted, 30 cities and 18 counties have adopted or are in the process of adopting a mobility plan or fee. Hillsborough County is among the jurisdictions that has enacted a multimodal mobility fee to ensure that each development mitigates its proportionate share of the costs of offsite transportation facilities. The fee applies to "mobility facilities" defined as bicycle/pedestrian facilities, roadway facilities, or transit facilities on the mobility network.

The legalities of impact fees have been litigated over many years. A recent legal analysis for the City of Port St. Lucie extends this analysis to multimodal mobility fees. The study indicates that mobility fees must be both proportional and reasonably connected to the need for new multimodal transportation projects and the mobility benefits provided to those who pay the fee (s.163.31801(4)(f-h), F.S.). As stated in the report (Paul, August 2021):

> "The "dual rational nexus test" requires a local government to demonstrate that there is a reasonable connection, or rational nexus, between the "Need" for additional (new) capital facilities (improvements and projects) to accommodate the increase in demand from new development (growth), and the "Benefit" that the new development receives from the payment and expenditure of fees to construct the new capital improvements….The calculation of the City's Mobility Fee based on person travel demand documents and quantifies the connection between the provision of multimodal person capacity and the person travel demand generated by new development travel, in accordance with dual rational nexus and rough proportionality test."

A 2016 study of the application of mobility fees in Florida found no evidence of case law challenging their specific features (Renaissance Planning, 2016). Concern over the potential for litigation, particularly given the widespread variation in these fee systems, led the Florida League of Cities to issue a 2021 legislative brief on mobility plans. The brief called for legislation to provide guidance for the creation and adoption of alternative transportation mitigation systems like mobility plans and fees noting "absent legislative guidance, city ordinances on mobility plans and mobility fees are open to attack over differing legal interpretations of the current state statute."

Nonetheless, in determining the validity of local regulatory actions, courts will review whether the action is consistent with and based upon a local comprehensive plan. Local governments that have designed mobility plans and fees with careful attention to statutory requirements and with the dual rational nexus and rough proportionality tests in mind appear to be on strong legal footing.

Additional Florida Caselaw

Palm Beach County v. Wright (1993) solidified local corridor management authority in Florida and established clear guidelines for a legally defensible local corridor preservation program. Since that time, only a handful of cases were identified in Florida that challenged a local government corridor preservation action. These are discussed in this section, along with a 1990 case on frontage roads.

Hillcrest Property, LLP v. Pasco County, 2019 WL 580259 (11th Cir. Feb. 13, 2019)

This case involved a challenge to Pasco County, Florida's actions regarding its right-of-way preservation ordinance. The ordinance, adopted in 2005, requires dedication of right of way shown on officially adopted maps and tables to secure a development permit and allows applicants to appeal to the

development review committee if they feel that the required dedication is not roughly proportional to the impacts of their proposed development. The burden lies with the landowner to prove entitlement to relief.

The case involved a proposal to develop an 83,000 square-foot retail shopping center with three commercial spaces on 16.5 acres purchased by Hillcrest in 2001. In 2006, Hillcrest submitted a preliminary site plan seeking a development permit. From 2006 to 2010, Hillcrest engaged in a series of site plan submittals, as Pasco County, and later the Florida Department of Transportation, rejected the site plans and negotiated varying amounts of right of way to be dedicated. Ultimately, the County required Hillcrest to dedicate about a quarter of its property for the potential road widening before it could build the shopping center. Hillcrest dedicated the required land in exchange for development approval but also reserved the right to contest the exaction.

In 2010, Hillcrest sued challenging the right of way exaction largely on violation of due process. The federal district court agreed with the substantive due process violation and issued a permanent injunction against ordinance enforcement. On appeal by Pasco County, the Court of Appeals reversed in favor of Pasco County. The appeals court indicated that the plaintiff had included a takings claim in its original complaint, but "settled that and other claims for $4.7 million, leaving only a substantive due process claim and request for attorneys' fees for appeal." Despite the favorable ruling, the Court questioned the constitutionality of the County's action on other grounds (Hillcrest Property, LLP v. Pasco County, 2019 WL 580259 (11th Cir. Feb. 13, 2019):

> "… The failure of the substantive due process claim does not mean that the county's application of its land-use ordinance to the plaintiff was constitutionally permissible. As discussed in Judge Newsom's concurrence, the plaintiff may very well have had a viable claim under the Takings Clause. "

In sum, the Hillscrest case did not substantively change the legal context for corridor management in Florida. Rather, it was largely a caution to government agencies on the need to adhere to constitutional guidelines when implementing exaction requirements.

Pembroke Center v. Dept. of Transp., 64 So. 3d 737 (Fla. Dist. Ct. App. 2011)

This case considered when an agency plan to exercise an easement is ripe in relation to declaratory relief and compensation in an inverse condemnation claim. The case involved Florida DOT and Pembroke Center Shopping Plaza, located along State Road 7 in Broward County. A plat drawing of the Plaza from Broward County depicted a ten-foot thoroughfare dedication and forty-foot easement within the boundaries of the land. The thoroughfare is dedicated to the perpetual use of the public in fee simple. The Plaza's original site plan also depicted the dedicated thoroughfare right-of-way and road/utility easements.

The Florida DOT plan to widen SR7 next to the Plaza included a right-of-way map with the intention of taking the thoroughfare dedication and easement for this purpose. The owner of Pembroke Center claimed that the planned FDOT acquisition of the easement constituted inverse condemnation and requested compensation for the easement. The Circuit Court dismissed the complaint, but the appellate court reversed the dismissal and allowed the trial court to reconsider, stating that "At oral argument, we were advised that there may now be funds available to start the project. Our remand allows the trial court to reconsider whether the inverse condemnation claim is now ripe, and if so, to reinstate that

claim as well." *NOTE: Some local governments in Broward County require dedication of easements, as opposed to fee simple dedication.*

Hernando County v. Budget Inns of Florida, Inc., 555 So. 2d 1319 (Fla. 5th DCA 1990)

Hernando County adopted a frontage road ordinance in 1986 to manage development access along its major roadway corridors. The frontage road ordinance requires developers adjacent to major arterial highways to provide a frontage road from property line to property line "upon demonstration of need and demand by the County." Budget Inns applied for a building permit on an arterial highway in Hernando County. The County determined that although no present need existed for the frontage road, the building permit would be conditioned on a promise to build a frontage road in the future if the County found it was needed. Budget Inns claimed that the Hernando County requirement – to dedicate right-of-way and build the frontage road as a condition of granting a building permit – constituted a taking. The Court of Appeals upheld the constitutionality of the ordinance; however, it remanded the case, directing the trial court to enjoin County enforcement of the ordinance in this instance, given no demonstrated present or reasonable immediate future need for the frontage road, and to order the County to issue the building permit without the frontage road condition.

Key Findings

A key finding of the legal review are that few if any changes were identified in Florida's legislative criteria for corridor preservation and management since the 1995 corridor management legislation was enacted. In determining the validity of local regulatory actions, courts will review whether the action is consistent with and based upon a local comprehensive plan. The Palm Beach County case clarified that corridor preservation under Florida law begins with the designation of transportation corridors in the state-mandated local comprehensive plan, and is supported by goals, objectives and policies that are adopted in accordance with Chapter 163, F.S.

Transportation corridors should be designated for preservation in the transportation or mobility element of the local comprehensive plan and/or a thoroughfare plan that has been adopted by reference. The plan should identify transportation projects expected to be completed in the planning horizon, particularly those projects that are part of the MPO cost-feasible plan, the state transportation improvement program, and the local capital improvements program. Local governments may also designate future corridors identified in the MPO "needs" plan and other collector or arterial roadways deemed locally important to the efficiency of the transportation network. These thoroughfares, as well as parallel relievers and frontage roads, may be included in the plan.

Right-of-way needs for each planned transportation corridor will need to be determined, based upon roadway design standards, planned number of lanes, and/or typical (or corridor specific) cross-sections, and then mapped. This map effectively designates a corridor for preservation and should be part of the comprehensive plan. Goals, objectives and policies for corridor preservation and access management should be included in the transportation element of the comprehensive plan to establish the strategic and policy intent of the community.

Corridor management plans should also be tied to valid public purposes as indicated in Florida law (s.163.3164(48), F.S.), which are "to promote orderly growth, to meet the concurrency requirements of this chapter, and to maintain the integrity of the corridor for transportation purposes." Plans or regulations with an unclear purpose or that appear aimed primarily at suppressing right-of-way costs in advance of acquisition have been deemed unconstitutional.

To carry out the thoroughfare plan, local governments must adopt certain measures to manage corridor development. These include measures to avoid development in the path of a planned transportation improvement and to manage roadway access as development occurs. Ordinances for right-of-way preservation may include, but are not limited to, the following (Williams and Marshall, 1996):

- Restrictions on building in the right-of-way of a mapped transportation facility without a variance.
- An option for clustering developments by reducing setbacks or other site design requirements to avoid encroachment into the right-of-way.
- Allowances for some interim use of transportation right-of-way for uses having low structural impact through an agreement that requires the property owner to relocate or discontinue the use at their expense when the land is ultimately needed for the transportation facility.
- Allowances for on-site density transfer from the preserved right-of-way to the remainder of the parcel.
- Criteria for right-of-way exactions and a process for determining the amount of right-of-way dedication that is roughly proportionate to the impact of the proposed development.
- Allowances for impact fee credits for transportation right-of-way dedication.
- Procedures for notifying the state transportation agency of development proposals that would substantially impair the viability of the future transportation corridor.

Right-of-way dedication is the conveyance of property needed for future transportation right-of-way from a private owner to the public. Subdivision regulations provide for dedication of land for roads needed to serve that development and any site-related improvements. However, mandatory dedication of right-of-way for thoroughfares is subject to constitutional limitations. For a community to require an exaction from a development there must be an “essential nexus” between the impacts of the property and the permit conditions (Nollan v. California Coastal Commission, US 1987). In addition, the amount of the exaction must be roughly proportionate, both in nature and degree, to the impacts of the regulated activity (Dolan v. City of Tigard, US 1994).

For the purposes of administering dedication requirements, local governments generally differentiate between transportation improvements that are deemed site-related, such as right-turn lanes or subdivision streets, and those that are not directly site-related, such as traffic signalization, intersection turn lanes, or thoroughfare right-of-way for capacity enhancement beyond the impacts of the development. Site-related improvements are subject to dedication and need not be compensated. Any dedication of right-of-way deemed non-site-related and beyond the amount considered proportionate to development impacts may be subject to compensation in some fashion. Developers may be compensated through impact fee credits (including mobility fee credits), concurrency mitigation credits, density credits, fee simple payments, or some combination of methods.

During development review, techniques such as on-site density transfers, setback waivers, and interim use agreements can be used to preserve development rights and ensure that the right-of-way remains clear of major structural improvements. Providing the ability to permit the request or buy the property in situations where the regulations would pose a substantial hardship (e.g., permit or buy) further ensures a legally defensible process. This combination of factors differentiates contemporary Florida programs from the traditional official map and development moratoria exemplified in the Joint Ventures vs FDOT litigation and suggests the viability of long reservation periods based on long range planning horizons or even build-out plans. However, caselaw suggests that the longer the horizon for preserving future right-of-way, the more tenuous the balance in enforcing preservation policies. Advance acquisition programs may be beneficial in this regard.

Finally, the legal context for corridor management in Florida is further defined by an increasing emphasis on multimodal transportation planning in Florida planning law. The 2011 Community Planning Act required local governments in Florida to develop multimodal plans coordinated with future land use plans, removed transportation concurrency as a requirement, and encouraged local governments to adopt alternative mobility funding systems. Many have enacted mobility plans and fees or concurrency based multimodal mitigation fees to help ensure that developments pay their proportionate share of the cost of transportation facilities.

A multimodal approach to corridor management is essential to the ability of local governments to plan for future growth in accordance with multimodal provisions of Chapter 163. Mobility plans and fees offer a strong legal foundation for multimodal mitigation, provided they are consistent with statutory requirements and designed with the dual rational nexus and rough proportionality tests in mind. An important consideration is internal consistency of the vision expressed in the multimodal plan, quality of service and design criteria, and the corresponding mitigation program. These factors demonstrate public purpose and need for new facilities, benefits received by new development, and how the mitigation is related and proportionate to the impacts of new development.

Chapter 3 – Florida Corridor Management Practices

This chapter reviews contemporary corridor management plans, policies, and practices of Hillsborough County and six other Florida counties: Tallahassee-Leon County, Indian River County, Broward County, Orange County, St. Lucie County and Alachua County.

Hillsborough County

Several agencies have a role in preserving and managing transportation corridors in Hillsborough County.

- Hillsborough County City-County Planning Commission staff coordinate with the County in updating the Hillsborough County Comprehensive Plan, which includes policies and strategies for implementation of the Corridor Plan. A new Draft Mobility Section of the Hillsborough County Comprehensive Plan is currently in progress and adoption is anticipated in 2022.
- The Hillsborough Transportation Planning Organization (TPO) determines future transportation needs based on long range transportation demand modelling and identifies the cost-feasible network, which forms the initial basis for the Hillsborough Corridor Plan. The TPO also programs projects for future improvement and coordinates with the Hillsborough Area Regional Transit Authority (HART) as to where transit is best supported and needed today and in the future. This includes the level of transit to be provided based on land use density and intensity and projected population and employment.
- The County Community and Infrastructure Planning Department conducts additional modelling beyond that done by the TPO to bridge the gap beyond the 2045 TPO long range plan and future County needs for corridor planning and preservation. County planners also integrate multimodal improvements into the thoroughfare network and establishing a framework for context-sensitive solutions in the form of complete streets guidelines and typologies (Context Based Classification Tech Memo, January 2022).
- The County Development Services Department implements corridor preservation strategies and requirements in development review and rezoning decisions to ensure that future corridors are preserved or constructed as a condition of approval.
- The County Public Works Division oversees capital programs and construction, and identifies needs related to engineering and operations.

Although roadways have historically been the focus of corridor preservation efforts, the County is interested in incorporating trails and transit into the corridor preservation process, emphasizing the multimodal nature of corridor preservation planning. A current example is the widening of Big Bend Road, which accommodates a connection of the South Coast Greenway Trail in the corridor. County planners are updating the transportation mobility element and integrating context sensitive considerations to align transportation and future land use, while recognizing different modal needs.

County practice is to limit the mapped corridors to the Urban Service Area, although increased densities at the boundary in South County due to RP-2 zoning have raised concerns related to potential need to include those areas in the future. Right-of-way needs are not specifically identified in table form or map, as is the practice in other areas. Rather, they are based on the number of lanes, design standards and typical cross sections for urban and rural roadways. The amount of ROW to be preserved is based on the distance from the centerline required for the future facility. Additional right-of way may be requested where necessary to address operational issues, such as right turn lanes at intersections. A stated benefit

of this approach is greater flexibility in determining the amount of land needed in relation to the existing centerline and other issues. Below are selected details of the county corridor right-of-way identification and preservation process.

Hillsborough County Comprehensive Plan

The County has several policies and strategies in the currently adopted comprehensive plan for preservation of right-of-way needed for future transportation corridors. Objective 1.5 of the Hillsborough County Transportation Element calls for right of way protection and other measures to preserve corridors for transportation use, for the following stated public purposes:

> OBJECTIVE 1.5: Provide for and promote coordinated multimodal transportation planning, right of way protection, and project implementation across jurisdictional boundaries, to preserve the corridors for transportation use, to maintain transportation level of service, to improve coordination between land use and transportation facilities, and to minimize the adverse social, economic, and environmental impacts of transportation facilities on the community.

The Transportation Element also states that (p. 169), "Right-of-way protection and preservation is necessary to ensure that adequate land is set aside to provide the necessary facilities, and to keep acquisition costs to a minimum." *Note: Although keeping right of way acquisition costs to a minimum is a benefit of such strategies it has not been considered a legitimate public purpose by the courts.*

Policy 1.5.1 references an adopted list of corridors (Appendix G of the plan, and Appendix J, which includes Map 25). Map 25 identifies general alignments, functional classification, and number of lanes planned for all transportation corridors needed to support development defined in the Future Land Use Element for a 30-year timeframe.

Policy 1.5.2 indicates that this "corridor plan" will be reviewed and updated as necessary to address County growth and mobility needs by September 30th of each year following adoption. Policy 1.5.3 establishes that "all applications for development approval shall be reviewed for consistency with the adopted Corridor Plan and shall be approved only if they are consistent with the Corridor Plan."

Policy 1.5.11 calls for updating standards and guidelines for the context sensitive spacing of arterial, collector, and local roads to create a grid or network that supports the safety and mobility of expected users.

Policy 1.1.7 also calls for prioritizing funding of parallel facilities to relieve pressure on constrained roads as the Capital Improvements Program (CIP) is updated and in coordination with FDOT on state-maintained roadways.

<u>Hillsborough County Comprehensive Plan, Draft Mobility Section</u>

Hillsborough County City-County Planning Commission (Planning Commission) staff are preparing a Draft Mobility Section to update the Transportation Element of the Hillsborough County Comprehensive Plan in coordination with County and HART staff. The update reflects a new emphasis on equity for underserved communities, context sensitive Complete Streets, Vision Zero, system maintenance and resilience, network connectivity, systems management and operations, curb management and other multimodal strategies to preserve existing system capacity and expand mode choice. The Draft Mobility

Section (February 2022) includes several objectives and policies relevant to the corridor plan including, but not limited to those shown in Table 3.

Table 3. Draft Mobility Section Objectives and Policies

Objective 4.2:	**Update the Corridor Preservation Plan to protect future right-of-way from encroachment, provide connectivity and ensure multimodal transportation corridors are adequate to serve planned growth and to support development patterns as defined in the Future Land Use Element. (Transportation Obj. 1.5.0)**
Policy 4.2.1	Collaborate with FDOT, the TPO, HART, Plant City, Tampa and Temple Terrace to develop and maintain a Corridor Preservation Plan Map (Map 1). This map will identify the number of lanes, general right-of-way needs, alignments and multimodal facilities for all transportation corridors, including transit and multi-use trails, primarily within the Urban Service Area. (Transportation Policy 1.5.1)
Policy 4.2.2	Review and update the Corridor Preservation Plan to address the growth and mobility needs of the County prior to each update of the TPO's Long Range Transportation Plan (LRTP). (Transportation Policy 1.5.2)
Policy 4.2.3	Ensure that new developments are consistent with the adopted Corridor Preservation Plan by reviewing them during the site and subdivision plan review process. (Transportation Policy 1.5.3)
Policy 4.2.4	Coordinate the design of roadway improvements with the jurisdictions in which those roadways are located. The preservation of right-of-way will be based on the Corridor Preservation Plan or policies of the relevant jurisdiction. (New Policy)
Policy 4.2.5	Collaborate with FDOT, HART, the TPO, Plant City, Tampa and Temple Terrace to integrate the Future Transit Corridors Plan with the Corridor Preservation Plan to address the growth and mobility needs of the County. Continue to preserve transit right-of-way consistent with the Transit Right-of-Way Preservation Corridors Map (Map 2). (Transportation Policy 1.5.7)
Other objectives include the following pertinent policies:	
Policy 1.3.2	Ensure projects serving a larger need are aligned to avoid, minimize or mitigate impacts, particularly those resulting from expanded right-of-way, to neighborhoods and underserved communities. (New Policy)
Policy 5.7.1	Incorporate a bicycle and pedestrian network adequate to support population growth at adopted levels of service into the Corridor Preservation Plan. (New Policy)

Source: Hillsborough County Comprehensive Plan, Draft Mobility Section, February 2022.

Table 3. Draft Mobility Section Objectives and Policies, Continued

Objective 6.5	**Pursue corridor widening strategically, maximizing existing roadway capacity and increasing capacity for vehicular and transit movement while considering lower-cost alternatives, such as increased frequency on existing transit routes. (new objective)**
Policy 6.5.1	Evaluate corridors with frequent transit service for improvements to increase reliability, such as dedicated transit lanes and signal prioritization, especially in cases where transit compares favorably with the cost and convenience of driving and parking. (New Policy)
Policy 6.5.2	Develop plans to provide cross access for developments that front on collector or arterial roadways. FDOT participation shall be requested in the planning process for projects fronting on the State highway system. (FLU Policy A.38.3)

Source: Hillsborough County Comprehensive Plan, Draft Mobility Section, February 2022.

Corridor Management Regulations

Provisions for implementing the Corridor Plan are contained in Part 5.11.00: Transportation Corridor Management of the Hillsborough County Land Development Code. This section examines specific provisions of the code. These provisions reflect current practice in right-of-way management and preservation in Florida and are consistent with the direction provided by the 1995 amendments to Florida law, as well as model regulations produced for implementing those amendments (FDOT, 2001) and previous best practices research (Williams, 2003; Williams and Marshal, 1996).

Encroachment

Section 5.11.05(A) requires all development on or adjacent to planned future corridors to be consistent with the transportation functions of those corridors and to avoid encroachment by structures, parking areas, or drainage facilities, except as may be allowed on an interim basis.

Determination of Alignment

Section 5.11.05(B) provisions include those necessary for determination of alignment and setbacks. Where an alignment has been established by engineering study and/or design, then any applicable setbacks for that site apply and are measured from the identified right-of-way line for the new alignment. Where an alignment has not been established, "the applicant may propose, and Hillsborough County shall establish, an approximate alignment consistent with the need to provide continuity of the corridor, as well as to meet conceptual site planning needs of the project." The generalized widths indicated in the Code are used to determine an appropriate alignment, except where the County has designated an alternative width.

The code sets forth a series of techniques to be considered for maintaining the continuity of the corridor and protecting it from encroachment. On state highways, comments on the proposed alignment are also solicited from the Florida DOT. For existing roadways, the centerline is generally considered the center of the alignment, unless an alternative alignment is less harmful to the environment, displaces fewer residents and businesses, or is more technically or financially feasible.

For new roads on new alignments, an approximate alignment is established that maintains the continuity of the corridor and minimizes adverse social, environmental, and economic impacts of the transportation project. This approximate alignment forms the basis for setbacks, which may be later reduced administratively up to ten percent if necessary to accommodate the right-of-way needed for the specific alignment per the engineering study and design.

Mitigation Measures

Mitigation measures include density/intensity credits and clustering provisions to accommodate development rights, and right-of-way dedication (Sec. 5.11.08). The code also provides for interim use of reserved land (Sec 5.11.09) and allows the County to waive certain provisions if application would prevent all economically beneficial use of the property (Sec. 5.11.10). Additional details are provided below.

- Density/intensity credits: The code allows for on-site transfer of development rights from that portion of land designated for the corridor to the remainder of the site, based on the gross density or intensity allowable on the site prior to any set-aside for future right-of-way. Variances from up to ten percent of site design standards may be granted administratively if necessitated by the increased net density or intensity of the portions of the site receiving the development rights.
- Clustering: Clustering of structures may be allowed to preserve the full development rights of the property while siting structures to avoid encroachment into the corridor. Administrative approval to reduce setbacks between buildings within a project site, reduce buffers within a site, or variances from other site design requirements may be granted for this purpose. The provision "is not intended to reduce perimeter buffer yards designed to ensure compatibility of proposed development with adjacent uses."
- Interim Use: Interim use of land within a future corridor may be permitted to preserve some economic use of the land until it is needed for transportation purposes. The uses must be permissible in that zoning district. In addition:
    - The applicant must agree to relocate uses directly related to the primary use (e.g., parking, entry features, stormwater retention facilities, temporary sales or leasing offices), elsewhere on the site and beyond the setback area at their expense, specify the terms and conditions of the relocation, including timing, and identify and reserve relocation sites.
    - The County may, at their discretion, agree to incorporate any stormwater retention into the future transportation facility design and assume maintenance responsibility for it, provided the land is donated to the County.
    - Uses not directly related to the principal use that do not involve substantial structural improvements (e.g., outdoor storage, agricultural uses, etc.) may be allowable on an interim basis where they are allowed by the underlying zoning and the applicant agrees to discontinue them by a specified date as a condition of the preliminary or final development order.

Staff indicate that although density/intensity credits and clustering are available options, they have rarely if ever been used in practice, although interim use allowances for site-related features are commonly provided. In the past, applicants were provided impact fee credits for constructing a road or conveying land to the county. However, this practice was discontinued as the impact fees were heavily discounted and the value of the dedicated right-of-way greatly exceeded the fees paid to offset

development impacts. When a mobility fee ordinance was adopted to replace the traditional impact fees, it did not include an option for credits for this purpose. Stormwater has been identified as an ongoing challenge to accommodate and also increases the need for additional and costly ROW. Options to improve the way stormwater is managed across an area may be beneficial.

Right-of-Way Dedication

Sec. 5.11.08. of the code sets forth provisions governing right-of-way dedication. Property owners may voluntarily dedicate and convey land in the designated future right-of-way during the development application process based on an established alignment or an approximate alignment. Property owners may be required to dedicate right-of-way as a condition of zoning or site development approval that is roughly proportionate to the impacts of the development on the transportation network. The right-of-way must be recorded through an acceptable method, such as on the plat or deed prior to final development approval and will be voided and returned if the application is denied.

In addition, Policy 1.6.3 provides the following:

> Policy 1.6.3:When new development chooses to construct public facilities, these facilities may be "oversized", if warranted and feasible, to provide additional capacity for future development which must use the same facility. An appropriate repayment mechanism may be employed by the County to compensate for the additional costs of oversized improvements.

The County does not provide credits for land dedication of facility construction in its mobility fee program. The previous transportation impact fee program did allow for credits, but the fees were so heavily discounted that they were often outweighed by the market value of any land dedicated.

Section 6.04.03(P) Right-of-Way Protection and Acquisition of the County access management provisions reiterate the prohibition on development activity within existing right-of-way corridors, per "Hillsborough County Thoroughfare Plan Regulations" and requires applicants on these corridors to reserve or dedicate right-of-way in accordance with "an adopted Hillsborough County Transportation Corridor Map" or "the current MPO Long Range Transportation Needs Assessment Map" in effect at the time of the request for reservation or conveyance. The reference to the County thoroughfare plan is presumed to relate to what is officially called the Corridor Plan.

The amount of ROW dedicated during the development process does not vary according to the size of a development, and staff say it is rare that the amount of right of way to be dedicated is significant in relation to the overall site. Also as indicated by staff, most applicants have been willing to provide the needed ROW to facilitate their project.

Transit Corridor Planning and Preservation

The Transportation Element of the Hillsborough County Comprehensive Plan includes several policies and Map 15 (February 28, 2008) identifying transit right-of-way preservation corridors (Hillsborough County City-County Planning Commission, 2008). The map generally depicts freight rail lines (CSX), and the interstate system (275/4), and mentions suggested transit envelopes and prioritization treatments on designated Transit Emphasis Corridors to be developed in coordination with the Hillsborough Area Regional Transit Authority (HART) and FDOT. However, there is some debate as to the utility of the generalized map. Section 6.03.09 of the County land development code requires new developments on

existing or planned public transit corridors to provide public transit facilities according to size thresholds of the development proposal.

Policies relative to transit corridors in the current comprehensive plan include:

> Policy 1.5.7: Where appropriate, work with the Florida Department of Transportation, Hillsborough Area Regional Transit Authority, and the Metropolitan Planning Organization to reserve a future transit "envelope" within existing or acquired rights-of-way in the following designated future transit corridors (see Map 15).
>
> Policy 2.1.5: With respect to the design of roads and rights of way, establish an on-going program to support transit prioritization treatments in constrained and congested corridors, with a special focus on designated Transit Emphasis Corridors. Incentives that support transit could include: dedicated lanes or transit/HOV use of shoulders on rural section highways; metered freeway ramps with "slip lanes" for transit/HOV; bus bays or pull-outs at key stops; traffic signal preemption or queue jumpers for buses to reduce delays at signalized intersections, and intersections designed specifically to accommodate wide-turning buses.

The Draft Mobility Section (February 2022) of the Hillsborough County Comprehensive Plan also includes a new objective (5.4) to identify and increase frequency of service to higher density and intensity areas, bus emphasis corridors, transportation disadvantaged communities, Neighborhood Revitalization Strategy Areas and Low-Moderate Income Areas as defined by the Department of Housing and Urban Development (HUD). New Policy (5.5.1) calls for collaborating with HART “to implement technologies and traffic management strategies that support the efficiency and reliability of the transit system, such as queue jumps at key intersections and transit signal prioritization.”

A transit strategy suggested by HART staff for the Corridor Plan is to promote the increased use of transit on designated corridors as an alternative to widening. A goal is to coordinate areas with somewhat higher density with programmed increases in service frequency and efficiency, as well as other transit supportive facilities and transit compatible land use decisions on these corridors.

HART has several projects underway with implications for the corridor plan. For example, HART is working to expand service coverage to weekends and increase weekday service frequency through improvements to Route 31 in South County. In addition, the SouthShore Transit Study Reevaluation generated a phased plan of transit alternatives for the Southshore area and outlines five implementation phases for recommended service. It covers six communities (Gibsonton, Riverview, Apollo Beach, Ruskin, Sun City Center, and Wimauma). Figure 2 identifies mobility hubs that will serve as focal points for transit connections.

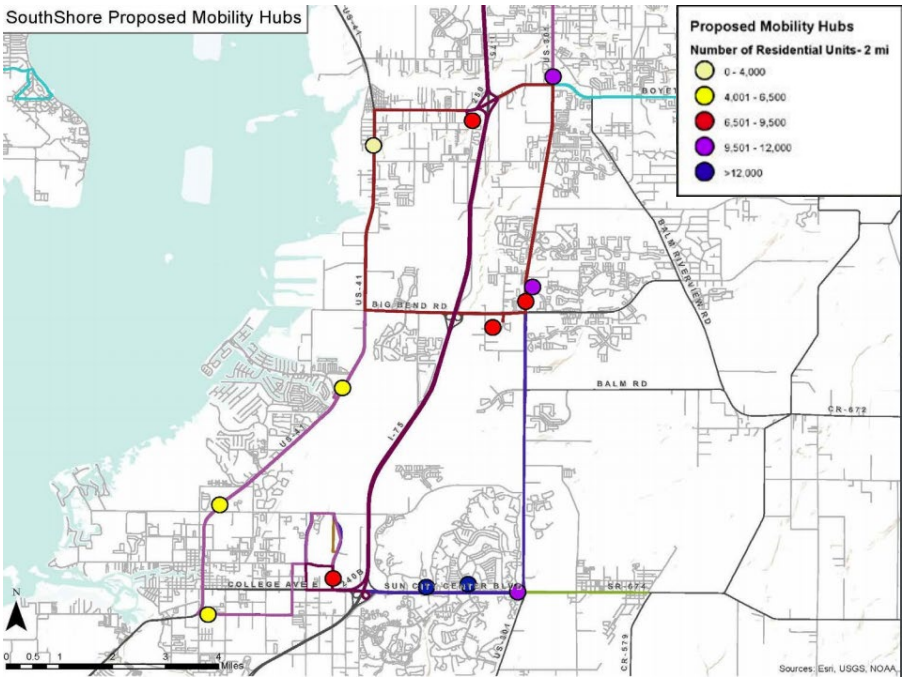


Figure 2: Proposed mobility hubs for SouthShore transit study.

Source: HART & Hillsborough MPO - SouthShore Transit Study Reevaluation, 2018.

Planners are also exploring the potential to provide on-demand service (e.g. Uber, Lyft) for a subsidized fare for first/last mile connections to a mobility hub. Park and ride lot locations are being identified, as well, including one at Gibsonton Drive and I-75 that ties into FishHawk and the downtown route. HART has also expressed interest in the potential of subsidized stack parking facilities to maximize park and ride space in the suburban mobility hub areas and link those areas to efficient frequent transit service. Many areas of the County lack easy bicycle and pedestrian access to transit due to low density, suburban development patterns. This strategy would allow suburban commuters in these areas to access transit with a personal vehicle transit, while offsetting the cost of parking for transit supportive development around these nodes. HART has excess capacity in its buses and may thereby be able to offer a competitive option to single occupancy vehicles on congested arterial roadways.

HART's priority list for the Hillsborough TPO's Transportation Improvement Program (TIP) includes $35 million for bus replacements, establishing electric buses, a CSX rail acquisition study, a bus stop capital improvement plan, and additional real estate acquisition. HART has been working to transition the fleet to electric vehicles (EV) and received a $2.7 million grant from the Federal Transit Authority (FTA) that can be used to purchase four electric buses and establish associated infrastructure, with a goal to deploy them by 2023.

HART is in the early planning stages of conducting a study regarding the acquisition of CSX rail. The HART CSX Study is listed as a top priority of the TPO board. Roughly $3.5 million in federal funds has been requested to assess the track and update the CSX rail plan from downtown Tampa to the University of South Florida. HART has budgeted $150,000 to complete an initial feasibility assessment.

Greenways and Trails

Hillsborough County has long been planning a system of greenways and trails that could be integrated into the corridor plan as special transportation corridors. The Hillsborough County Greenways and Trails

system is a part of a larger regional system of trail corridors that include the statewide Florida Greenways and Trails System (FGTS). In 2016, the Hillsborough TPO adopted the Greenways and Trails Plan Update. The update identified existing, planned, and conceptual trails, side paths, green spines (buffered bike lanes), complete streets, and Regional Shared-Use non-motorized (SUN) Trail eligible trails in Hillsborough County and in 2019, the Hillsborough TPO updated the trail facilities map (see Figure 3). The Hillsborough County Existing and Proposed Trails map, updated on January 13, 2020, identifies existing, proposed, and funded trails (see Figure 4). The Hillsborough County Greenways Master Plan was adopted in 1995 as the official greenways plan for the County and it will be coordinated with the TPO plan and others when it is updated. In addition, an effort to update the Hillsborough County Greenways Master Plan is underway in 2022.

The Hillsborough County Comprehensive Plan Transportation Element (2008) Goal 3 and related objectives and policies call for the inclusion and maintenance of trails in the county. The current draft mobility plan integrates these along with new policy provisions. Those especially pertinent to the corridor plan are noted below (Draft Mobility Section, February 2022).

Table 4. Draft Mobility Section Trails Objectives and Policies

Objective 5.7:	**Build a comprehensive bicycle/pedestrian system, including multiuse trails or side paths, sidewalks, pedestrian crossings and on-road bicycle facilities, to attract more people to walk and bicycle for all trip purposes. (Transportation Policy 3.1.4)**
Policy 5.7.1	Incorporate a bicycle and pedestrian network adequate to support population growth at adopted levels of service into the Corridor Preservation Plan. (New Policy)
Policy 5.7.2	Seek opportunities to construct multi-use trails or side paths adjacent or parallel to limited access highways, along drainage channels, shorelines, and various utility and railroad right-of-way. (Transportation Policy 3.1.5)
Policy 5.7.3	Use trails and shared-use paths to connect schools, neighborhoods, parks, greenways, and civic, residential, and commercial districts, excluding paths through preserves and conservation parks. Use techniques such as cooperative agreements, easements, public right-of-way and Land Development Code standards. (FLU Policy 10.1.7)
Policy 5.7.4	Connect or accommodate future connections to planned and/or existing trails within new development. (FLU Policy 15.5.1)
Policy 5.7.5	Encourage the creation of nonmotorized connections in areas where roads are unlikely to be added, including large residential developments. (New Policy)
Policy 5.7.6	Provide access to trailheads, especially those serving coastal resources, lakes and other natural areas for residents and “ecotourism.” (FLU Policy A.27.1)

Source: Hillsborough County Comprehensive Plan, Draft Mobility Section, February 2022

Table 4. Draft Mobility Section Trails Objectives and Policies, Continued

Policy 5.7.7	Coordinate trail planning among neighboring jurisdictions to enhance the trail network and linkages. (ROSE Policy 1.4.8)
Policy 5.7.8	Evaluate ways to fund trails and shared-use paths used for mobility (including, but not limited to, developer contributions) and implement those initiatives supported by the BOCC. (ROSE Policy 1.4.7)
Policy 5.7.9	In cooperation with state, regional and local entities, ensure no actions are taken that impair the access to or use of trails and shared-use paths used for mobility. (ROSE Policy 1.3.12)

Source: Hillsborough County Comprehensive Plan, Draft Mobility Section, February 2022

As noted above, staff are seeking opportunities to co-locate multi-use trails adjacent or parallel to limited access highways, along drainage channels, shorelines and utility and railroad rights-of-way. An ongoing challenge in this regard is that if a trail falls under another agency's ROW, such as Tampa Electric Company, then the ROW cannot be preserved for a trail as it can in the context of a County road widening, although voluntary participation is an option.

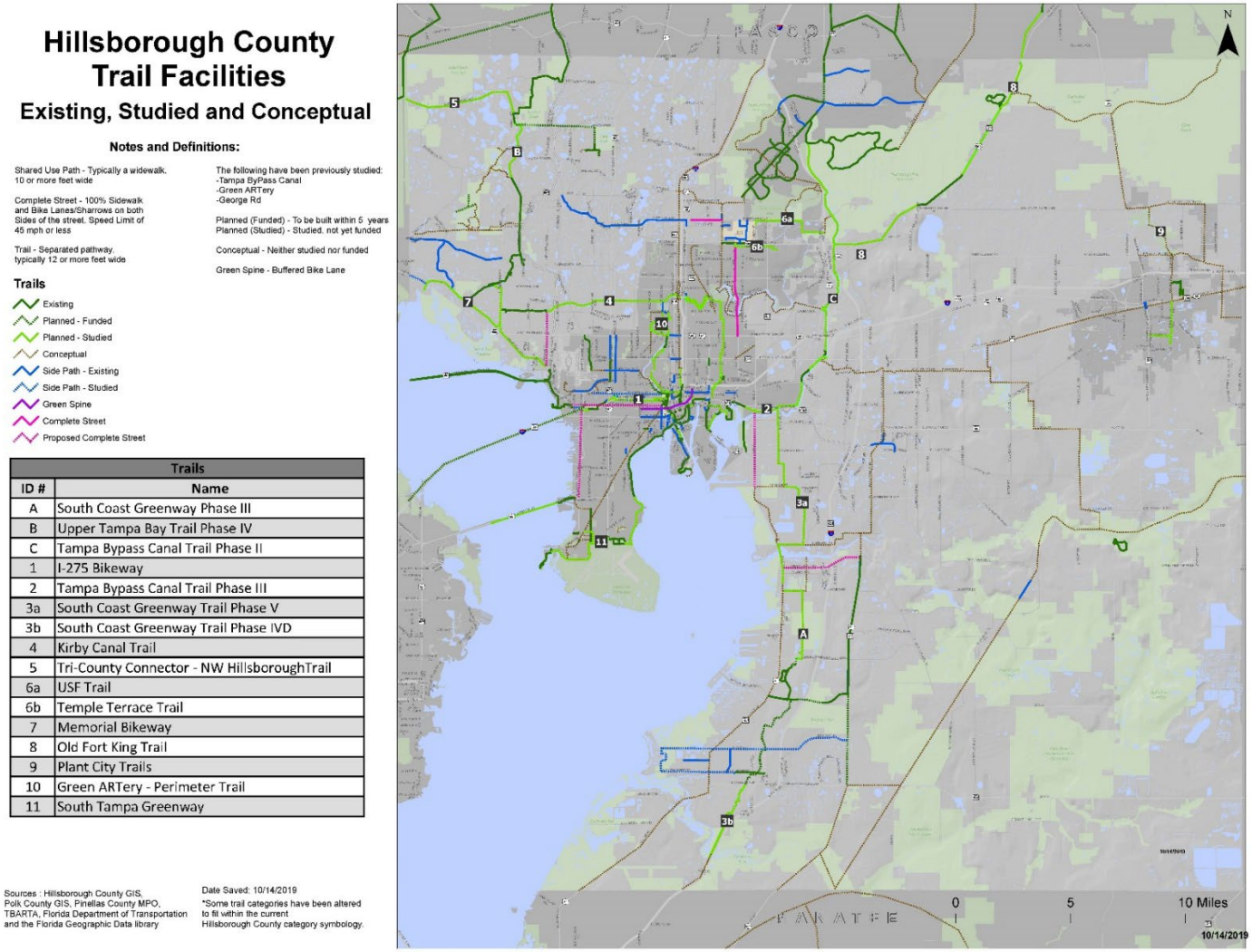


Figure 3. Existing, studied, and conceptual trail facilities

Source: Hillsborough TPO, Hillsborough County Trail Facilities Existing, Studied and Conceptual, 2019

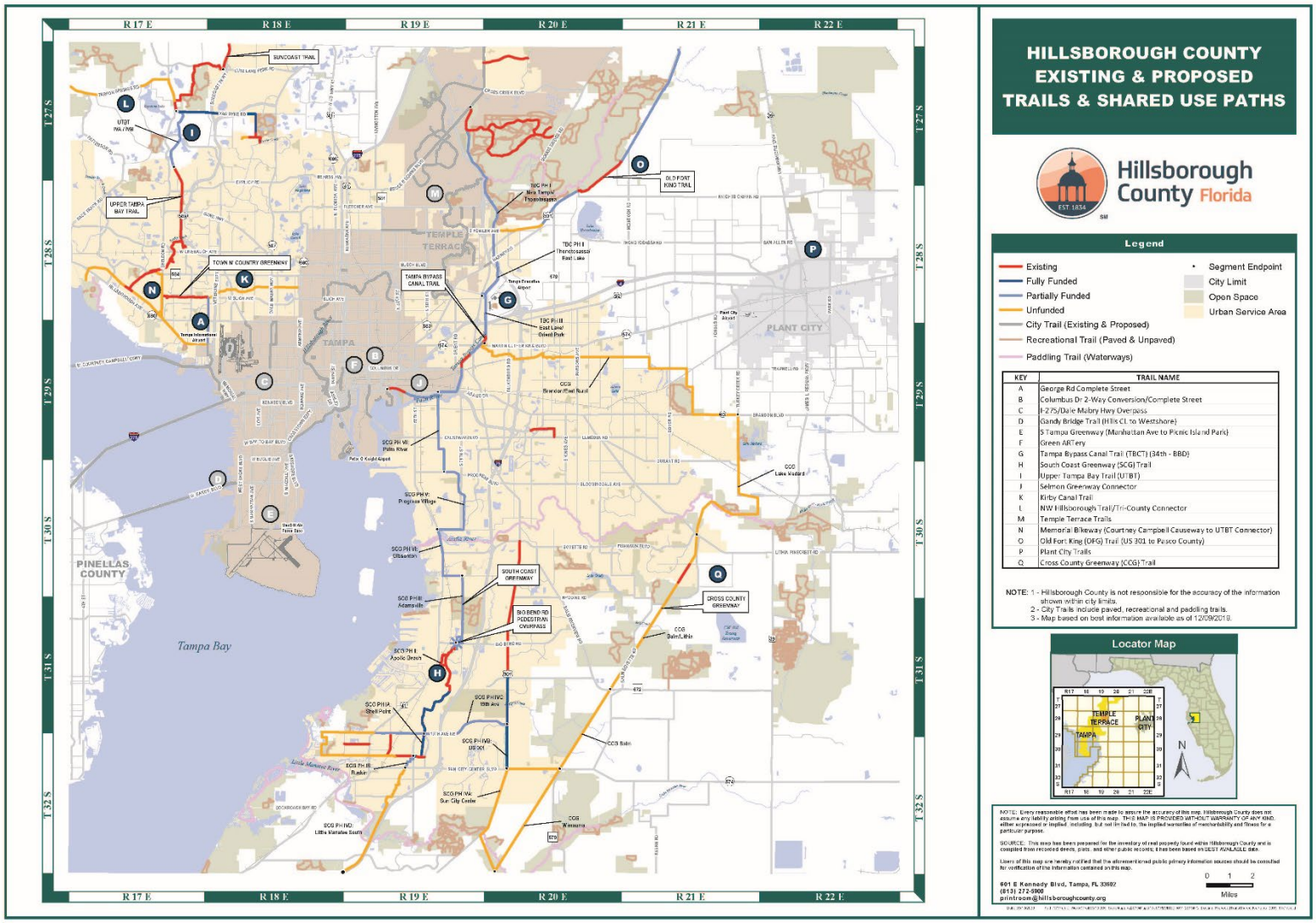


Figure 4. Existing & proposed trails & shared use paths

Source: Hillsborough County, Existing and Proposed Trails and Shared Use Paths, 2020

Supporting Street Network Development

Grid networks and parallel relievers along major thoroughfares have been demonstrated to preserve arterial capacity and relieve traffic demand and congestion. A benefit of the Corridor Plan according to staff has been the ability to preserve right-of-way needed for parallel relievers along US 75. An example is Falkenburg Rd, which runs parallel to and reduces traffic demand on the interstate by providing additional North/South connectors. Another reliever is planned on the east side of the Interstate but is not yet completed. In addition, Policy 1.1.7 of the County Transportation Element indicates that the County will give priority to funding parallel facilities that relieve traffic on designated roadways with right-of-way constraints where appropriate and in coordination with Florida DOT on state roadways.

In addition, Transportation Element Policy 1.5.11 states that "Hillsborough County shall strive to develop and adopt standards for the spacing of arterial, collector, and local roads, to supplement and complement the County Corridor Plan. These standards shall be implemented through the Land Development Code, Roadway Design Technical Manuals or other appropriate implementation regulations." This policy supports the development of a more robust network – an issue important in areas like South County where approved development is outpacing the capacity of the limited arterial network.

Sec. 3.10.06.02 of the County land development code regulates street connectivity through a variety of strategies. County subdivision regulations further require new subdivisions to provide for the continuation of existing arterial and collector streets from adjoining areas, or for their projection where adjoining land is not subdivided. Direct pedestrian access to adjacent subdivisions, school properties, or commercial areas is also required, where feasible, Sec. 6.02.00(G)(1).

Although the County has long had policies and regulations relative to street network connectivity, public opposition to such connections due to concerns about traffic impacts have historically resulted in fewer connections being provided. In recent years, the Board of County Commissioners has increased priority placed on connectivity, which has led to improved enforcement of these provisions in the platting and development review process.

Context and Area Type

The County recently adopted a context classification system that assigns the context designations to all County maintained arterials and collectors within Unincorporated Hillsborough County. The methodology includes both "GIS mapping and professional review of specific community context and roadway characteristics, speed management, and consideration of corridor safety… to further define the future context of County arterials and collectors." The County has applied the FDOT context classification system with modifications to address County characteristics as summarized below (Context Based Classification Tech Memo, January 2022, pp. 1-2) and as illustrated in Figure 5:

> "FDOT's C1 (Natural) and C2 (Rural) categories would be combined due to the prevalence of rural areas within the unincorporated County and fewer all-natural parcels. The FDOT rural town category would be redefined to Suburban Town (C3T) because most of the small towns and census designated places within greater Hillsborough County primarily serve as suburban communities, some with small well-defined town centers. Additionally, the FDOT categories of Suburban Residential (C3R) and Suburban Commercial (C3C) would remain as they were determined to be appropriate for Hillsborough County. Lastly, the urban general category would be used for small pockets of urban development on the fringes of the Tampa urban area. The

urban categories C5 (Urban Center) and C6 (Urban Core) were more appropriate for central business district type of development pattern such as Downtown Tampa, which are not included in the County Context Based Classification system. As a result, all County arterials and collectors are categorized into 5 Context Based Classifications: Rural (C1&C2), Suburban Town (C3T), Suburban Residential (C3R), Suburban Commercial (C3C) and Urban General (C4)."

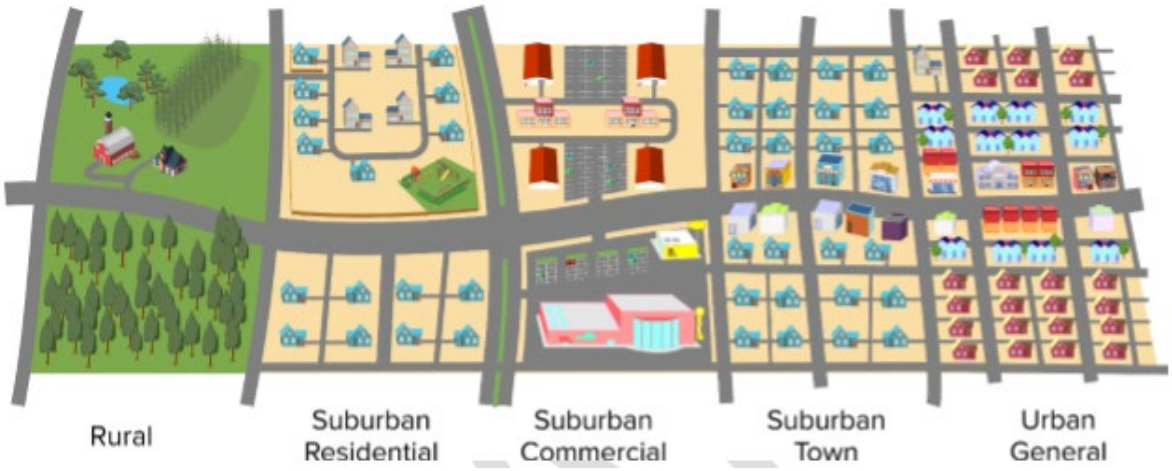


Figure 5. Hillsborough County context classification system.

Source: Hillsborough County, Context Based Classification Tech Memo, January 2022

The corridor classifications are referenced for implementation under Goal 7 of the Draft Mobility Section of the Hillsborough County Comprehensive Plan. Table 5 shows the context classification map with corridor designations by area types. The County plans to use the context classifications to determine the need for and design of multimodal facilities appropriate to the land use context. In addition, the County Complete Streets Guidebook, currently under development, will inform the development of typical cross sections to be included in the Hillsborough County Design Manual. Figure 5 shows the context classifications as applied to the County roadway system.

Table 5. Context Based Classification System in the Mobility Section Draft

Context Based Classification		Characteristics	Future Land Use	Note
Rural (C1&C2)		Preserved land in a natural or wilderness condition, sparsely settled lands, may include agricultural land, grassland, and wetlands	Natural preservation, agriculture, mining, planned environmental community, low density residential	Includes land uses from areas that constitute the Rural-Agriculture Development Area, Rural-Residential Development Area and Non-Residential Development Area along with all areas outside the Urban Service Area. Excludes areas that can be designated Suburban Town.
Suburban	**Residential** (C3R)	Most residential uses within a disconnected or sparse roadway network	Residential	Includes land uses that constitute the Suburban Development Area and Non-Residential Development Area.
	Commercial (C3C)	Mostly non-residential uses with large building footprints and large parking lots within a disconnected or sparse roadway network	Suburban mixed use, neighborhood mixed use, research/corporate park, light industrial, heavy industrial, energy industrial park	
Suburban Town (C3T)		Small concentrations of mixed-use areas or town centers, or developed areas which are immediately surrounded by low to medium density residential areas	Suburban mixed-use, neighborhood mixed use, low to medium density residential	Areas with planned development forms where lower speed is required, including 1) Areas identified in the Livable Communities Element as walkable centers, walkable Overlay Districts identified in the Land Development Code, and developed town centers in Mixed Use Developments of Regional Impact (DRI); 2) The top 20 Severe Crash Corridors involving people walking or biking identified in the Vision Zero Plan that are not otherwise designated C4.
Urban General (C4)		Mixed use set within a well-connected roadway network, highest densities within Urbanized Areas	Community mixed use, urban mixed use, office commercial, regional mixed used, innovation corridor mixed use, higher density of residential	Includes the land uses that constitute the Urban Development Area.

Source: Hillsborough County Comprehensive Plan, Draft Mobility Section, Table 1, February 2022

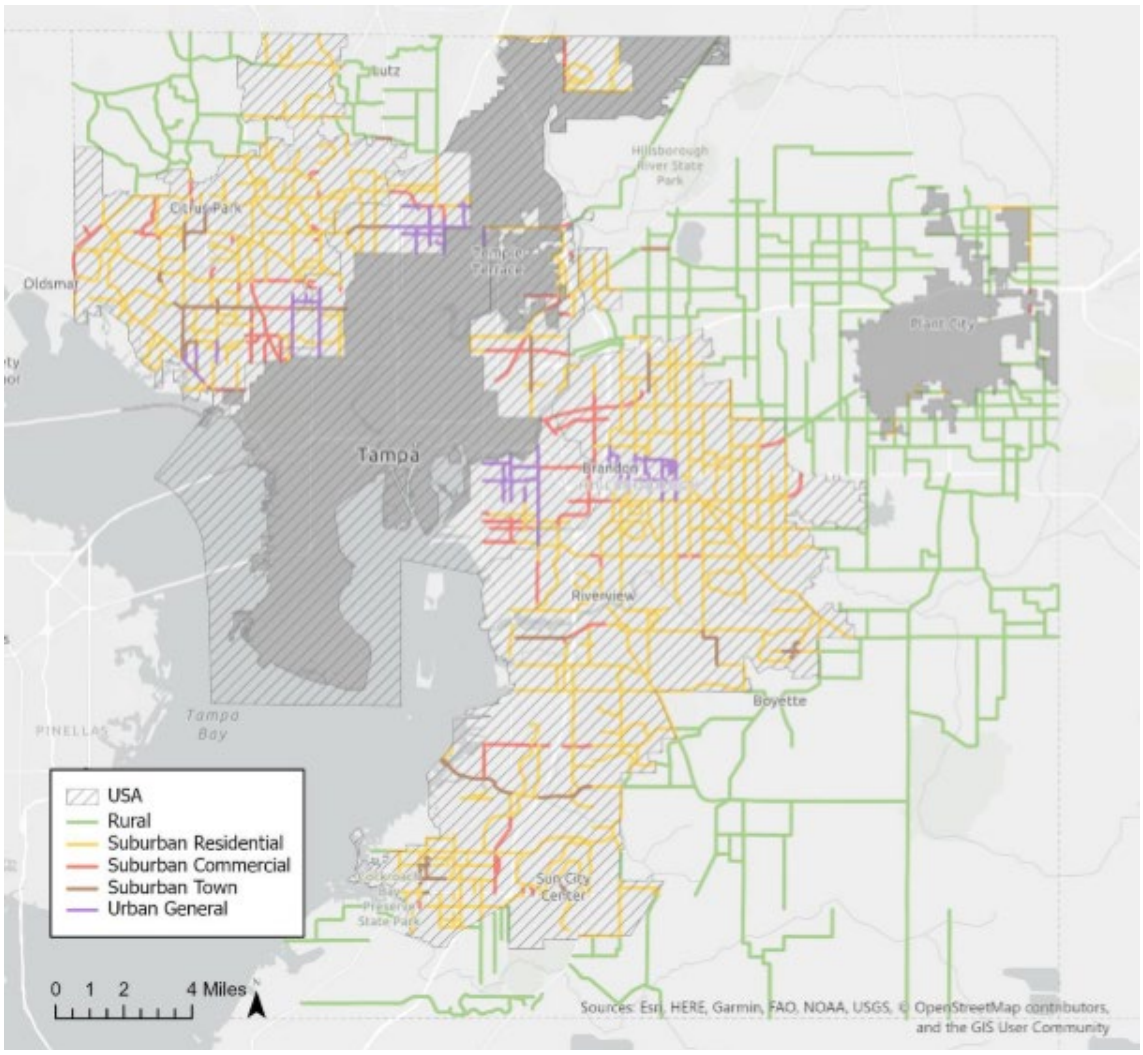


Figure 6. Hillsborough County corridor context classification map.

Source: Hillsborough County, Context Based Classification Tech Memo, January 2022

Tallahassee-Leon County

The City of Tallahassee and Leon County have a joint City-County Department of Planning, Land Management, and Community Enhancement (PLACE) and a joint local comprehensive plan that sets shared goals and policies. Additionally, PLACE coordinates on regional transportation planning with the region's MPO known as the Capital Region Transportation Planning Agency (CRTPA), and houses the Blueprint Intergovernmental Agency (IA), a joint City-County agency. In 2002, the Blueprint 2000 Intergovernmental Agency initiated a project to develop a comprehensive corridor management program for the City of Tallahassee and Leon County that was ultimately adopted in 2006.

The Comprehensive Planning section of the Tallahassee-Leon County Planning Department develops policies and strategies for corridor management and is charged with updating the Future Right-of-Way Needs Map (Map 27). This map is the main driver for identifying future corridor right-of-way needs and is updated every five years in conjunction with the production of the Capital Region Transportation Planning Agency's (CRTPA) Long Range Transportation Plan (locally called the Regional Mobility Plan).

Corridors on Map 27 consist of projects identified in the CRTPA Cost Feasible Plan as well as projects that the public vote on by referendum as part of the Blueprint 2000 initiative. These Blueprint 2000 initiative projects at times overlap with projects on the Regional Mobility Plan, but often they are distinct projects. Blueprint funds, for example, are used to provide multiuse trails and other amenities not provided by FDOT.

The corridor management policies and map in the Comprehensive Plan are implemented through the City and County Land Development Codes, which are administered by the Growth Management Departments of each respective jurisdiction. Staff emphasize interconnection of adjacent properties in development review and approval.

The MPO has also examined the potential for service roads on Capital Circle Southwest north of the airport and identified these roads in the PD&E study conducted for the widening of Capital Circle. The Tallahassee-Leon County Planning Department is preparing for a significant update of the mobility plan that will integrate context classifications and is conducting a mobility fee study expected to be complete by 2023. Below are additional details of the Tallahassee-Leon County corridor management process.

Tallahassee-Leon County Comprehensive Plan

Written into the Tallahassee-Leon County Comprehensive Plan are two objectives and their associated policies which establish the basis for corridor preservation practices in the county (Table 6).

Table 6. Tallahassee-Leon County Corridor Management Policies

Objective 1.6 [m]:	**CORRIDOR PRESERVATION: Identify right-of-way needed for planned future transportation improvements and protect it from building encroachment as development occurs to preserve the corridor for transportation use, to maintain transportation level of service for concurrency, to improve coordination between land use and transportation, and to minimize the adverse social, economic, and environmental impacts of transportation facilities on the community.**
Policy 1.6.1: [M]	The City and County shall adopt and maintain corridor management ordinances, in accordance with subsection 337.273(6), F.S., which are designed to protect future transportation corridors designated in the Tallahassee-Leon County Comprehensive Plan from development encroachment, to provide for right-of-way acquisition, and to mitigate potential adverse impacts on affected property owners.
Policy 1.6.1(a): [M]	Development orders may require conveyance of transportation rights-of-way consistent with a Future ROW Needs Map and Future Right-of-Way Needs and Access Classifications Table, as a condition of plat or development approval, provided that any required dedication shall not exceed the amount of land that is roughly proportionate to the impacts of the development on the transportation network.

Table 6. Tallahassee-Leon County Corridor Management Policies, Continued

Policy 1.6.2: [M]	Acquire and maintain sufficient right-of-way when building new roads or widening old facilities in order to protect waterbodies, wetlands, and flood plains. Plan corridor alignments to avoid environmentally sensitive areas and where this is not possible, acquire wide roadside buffers and prohibit driveways by purchase of access rights, as necessary, to prevent development from occurring within the environmentally sensitive area, as a result of the roadway availability.
Policy 1.6.3: [M]	Future right-of-way needs for selected transportation corridors designated for improvement in the Tallahassee-Leon County Comprehensive Plan are generally depicted in the table below (see Table 7) and in the Future Right-of-Way Needs Map and the Long Range Transportation Plan.
Policy 1.6.4: [M]	All proposed development plans on designated future transportation corridors shall be reviewed for consistency with the Future Right-of-Way Needs Map, the Long Range Transportation Plan, and any specific alignment or engineering studies and shall be consistent with identified right-of-way needs for designated future transportation corridors as a condition of development approval.
Policy 1.6.5: [M]	The Future Right-of-Way Needs Map shall be reviewed, and updated if necessary, every 5 years concurrent with the Long Range Transportation Plan update, or more frequently as necessary to address the growth and mobility needs of the local government.
Policy 1.6.6: [M]	City and County Staff shall consult with FDOT in determining conceptual alignments, acquiring future right-of-way, and reviewing proposed development that substantially impacts state highways designated for improvement in the Tallahassee-Leon County Comprehensive Plan to ensure that local decisions are consistent with state and federal policy, and to ensure that development activity does not substantially impair the viability of the future state transportation corridor.
Policy 1.6.7: [M]	Explore land banking policies, procedures and funding options to facilitate early acquisition of right-of-way for designated future transportation corridors.
Policy 1.6.8: [M]	Right-of-way acquisition shall be facilitated by the establishment of a program to identify, prioritize, and acquire needed right-of-way consistent with the Right-of-Way Needs Map and Capital Improvements Element.
Policy 1.6.9: [M]	Where needed right-of-way is identified in the energy efficiency district connectivity plans, such projects shall also be included on the Right-of-Way Needs Map and/or in the Long Range Transportation Plan.

Source: Tallahassee Leon County Comprehensive Plan, p. 178-180 and 182.

Table 6. Tallahassee-Leon County Corridor Management Policies, Continued

OBJECTIVE 2.3: [M]	**PROTECTION OF FUTURE TRANSIT CORRIDORS: develop and maintain a plan that identifies future transit rights-of-way and corridors and provides means of protecting and acquiring such areas.**
Policy 2.3.1: [M]	Existing and future transit rights-of-way and corridors shall be identified as a part of the comprehensive plan for integrating transit into the existing transportation system.
Policy 2.3.2: [M]	Incentives to encourage the donation of transit rights-of-way and corridors shall be developed.
Policy 2.3.3: [M]	Development agreements and land use regulations shall be utilized to preserve future transit corridors.

Source: Tallahassee Leon County Comprehensive Plan, p. 178-180 and 182.

The County relies on the use of the Future Rights-of-Way Needs Map (Map 27, Figure 7), Future Right-of-Way Needs and Access Classifications Table (Table 7), and the MPO's Long-Range Transportation Plan (titled Connections 2045 Regional Mobility Plan) to carry out these objectives and policies.

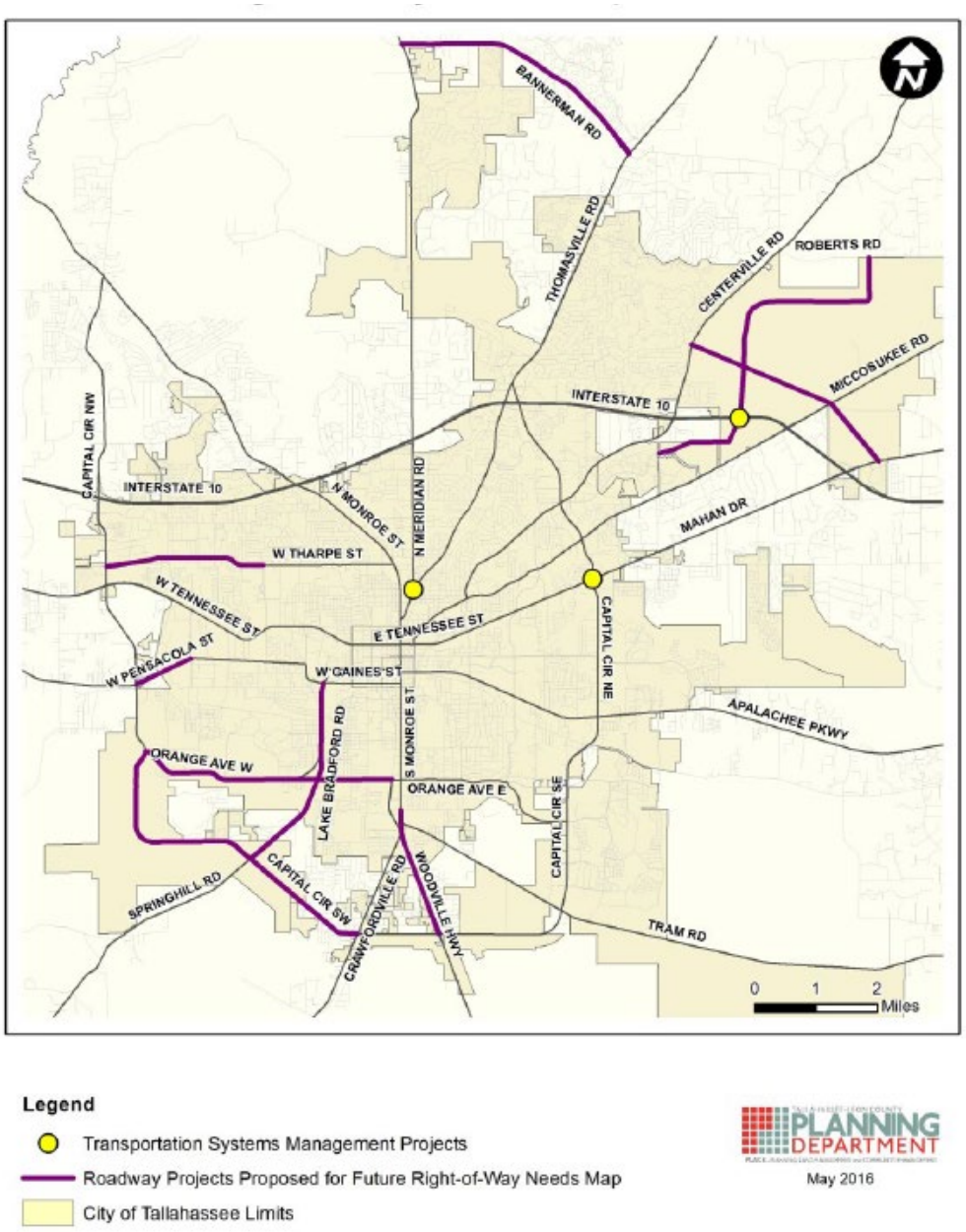


Figure 7. Future Right-of-way needs map modifications.

Source: Tallahassee Leon County Comprehensive Plan, Map 27, p. 191.

Leon County Corridor Management Regulations

Chapter 10, Sec. 10-7.530. (Transportation right-of-way preservation) of the Leon County code describes how the County implements the policies in the Comprehensive Plan for future transportation corridors. According to Sec. 10-7.530 (as well as p. 179 of the Comprehensive Plan), the right-of-way widths shown in Table 7 "represent maximum anticipated right-of-way needs based on roadway functional classification, typical cross sections, and design standards for a range of potential design alternatives." Additional conditions listed as important considerations in determining right of way needs for future corridors are identified in the footnotes to Table 7.

Table 7. Leon County Future Right-of-Way Needs

Functional Classification	With Existing Corridor Alignment, ROW (feet)	W/O Existing Corridor Alignment, ROW (feet)
Blueprint principal arterial	230	230
Principal arterial (w/ Frontage Road)	138	200
Minor arterial (no parking)	112	176
Major collector (with parking)	120	146
Minor collector (no parking)	100	100

Notes:

1) Widths represent maximum anticipated ROW needs for generalized corridors; not precise alignments. Where a specific alignment is established through alignment studies, engineering studies or design, such alignment shall apply for the purpose of development review. Actual road location and design will be determined by specific corridor and design studies.
2) Alternative widths may be established by the local government, in consultation with other affected agencies, pursuant to an adopted Critical Area Plan or based upon an analysis of existing constraints, community planning objectives, and other considerations unique to the roadway or surrounding land development.
3) In addition to the number of travel lanes, the following are important considerations in the determination of right-of way needs for future corridors:
    a) Space for sidewalks to provide safe and convenient movement of pedestrians.
    b) The provision of bike lanes or separate bike paths.
    c) Space for current or future location of utilities so that, when necessary, they can be safely maintained without undue interference with traffic. The utility strip needs to be of sufficient width to allow placement of a water main so that in the case of rupture, neither the roadway pavement nor adjacent property will be damaged.
    d) Accommodation of stormwater at the surface or in storm drains.
    e) Accommodation of auxiliary lanes at intersections.
    f) Placement of trees to improve the aesthetic qualities of the roadway, to shade pedestrians, and improve community appearance. The space needs to be adequate to accommodate tree growth without damaging sidewalks, abutting development, or curb and gutter.
    g) Allowing for changes in the paved section, utilities, or other modifications, that may be necessary in order to meet unseen changes in vehicular, pedestrian, bicycle, or other transportation needs as a result of changes in land use and activity patterns.
4) Planned ROW needs for Capital Circle from Centerview to W. Tennessee, as accepted by the Blueprint Intergovernmental Agency on November 19, 2001.

Source: Leon County Land Development Code, Sec. 10-7.530.

Determination of Alignment and Setbacks

Sec. 10-7.530 (e) of the Code addresses alignment and setbacks. If alignment has been established by engineering study or design, "all proposed structural improvements shall conform with the building setbacks in that zoning district and such setbacks shall be measured from the identified right-of-way line for the new alignment." However, if an alignment has not been established by engineering study or design, the applicant can propose "an approximate alignment consistent with the need to avoid development encroachment and provide continuity of the corridor, as well as to meet conceptual site planning needs of the project." This provision allows for alternatives to centerline alignment that are less harmful to the environment, businesses, and the community or more technically or financially feasible. Reduction of rear- and side-yard setbacks necessitated solely by the proposed alignment of a corridor may be considered to ensure that structures do not encroach into future transportation corridors.

Encroachment

Sec. 10-7.530 (c) and (g) of the Code addresses encroachment. Planned future corridors are protected from encroachment from all structures, parking areas, or drainage facilities. The only exception to this is through interim use to preserve some economic use of the land until it is needed for transportation purposes. These interim uses are limited to green space requirements to support the development on the non-dedicated portion of the parcel and stormwater retention facilities.

Dedication and Land Acquisition

Sec. 10-7.530 (f-h) of Code stipulates that a property owner who is planning a project may voluntarily dedicate land that is in a future corridor right-of-way. Otherwise, projects proposed adjacent to or abutting designated future transportation corridors will be required to dedicate lands within the projects site that are needed for right-of-way provided there is a "rational nexus between the required dedication of land, the needs of the community, and the impacts of the project on the transportation network due to development." In return, the County may approve the on-site transfer of development rights, the clustering of structures, the inclusion of the space in calculations of greenspace required by the county, the eligibility of credit towards transportation concurrency mitigation, a waiver of deviation, or a waiver for elevation review fees.

Finally, Sec. 16-28 (Request for road improvements; donation of right-of-way) of the Code states that if property owners request improvements to roads, water, sewer, stormwater and/or drainage abutting their land and if it is necessary to acquire right-of-way to complete those improvements, then that right-of-way must be donated to the county.

Advance Acquisition Methods and Funding

Policy 1.6.7: [M] in the Mobility Element of the Comprehensive Plan is, "Explore land banking policies, procedures and funding options to facilitate early acquisition of right-of-way for designated future transportation corridors." The County accomplishes this policy through the Blueprint Intergovernmental Agency (IA). The Blueprint IA is a joint City-County agency within the joint Department of Planning, Land Management and Community Enhancement (PLACE) for The City of Tallahassee and Leon County Government. Blueprint 2000 (and now 2020) was created by the Leon County Government and the City of Tallahassee to oversee the implementation of a project list that is funded by a portion of the 1% infrastructure surtax.

According to Article XVI of the Leon County Land Development Code and the Blueprint 2020 Infrastructure Surtax Interlocal Agreement, on January 1, 2020 the 1% infrastructure sales tax that Leon County has had since its inception in 1989, was "relevied, extended and continued" until December 31, 2039. A new one-cent sales tax program began in January of 2020 with proceeds of the sales tax divided between five trust fund accounts as shown in Table 8.

According to the Blueprint Real Estate Policy, "The Blueprint Intergovernmental Agency, created pursuant to Chapter 163.01(7) of the Florida Statutes, has the authority to establish real estate and land banking policies and procedures." The policy continues by stating that the planning director has the authority to approve the purchase of real estate for future Blueprint projects, including the early acquisition of right of way along transportation corridors. Of the 27 Blueprint 2020 Infrastructure Projects, 6 include wording for funding towards "ROW [right-of-way], construction, stormwater for roadway improvements, water quality enhancements, and land acquisition for future greenway."

Table 8. Blueprint 2020 Trust Fund Accounts

Trust Fund Account	Share of Total Proceeds
Blueprint 2020 Infrastructure Projects	66%
Blueprint 2020 Economic Development Programs	12%
Leon County Projects	10%
City of Tallahassee Projects	10%
L.I.F.E Projects	2%

Source: 2020 Blueprint Executed Interlocal Agreement, Page 5.

Tallahassee-Leon County also has a robust proportionate fair-share program to address developer mitigation of transportation impacts. In 2009, the County entered an agreement with the Florida Department of Transportation and the City of Tallahassee to allow those funds to accumulate in an account earmarked for the completion of major transportation projects rather than spread throughout the community on smaller projects. Leon County road impact fees are also placed in a County Wide Road Impact Fee Trust Account. Money placed into that account can only be used for constructing or improving designated state roads. This includes any costs associated with the acquisition of right-of-way. Money deposited into the trust fund account which are not immediately needed are invested by the county and city, and income derived from those investments go back into the trust fund.

Street Network Connectivity and Block Length Standards

Objective 1.4:[M] (Connectivity and Access Management) houses policies which address network connectivity and block length. Policy 1.4.7: [M] (Energy Efficiency District Network and Connectivity) calls for a (p. 174), "dense, interconnected network of local and collector streets, sidewalks, bike lanes, and shared-use paths." The policy further stipulates that:

> "The street, bicycle, and pedestrian network shall be comprised of a system of interconnected and direct routes with a connectivity index of 50 or more polygons per square mile and for areas with a connectivity index below 50, the missing links in the network shall be identified and eliminated where feasible through the development and capital improvement process."

Additionally, within the Comprehensive Plan is the Welaunee Arch Master Plan which has some unique planning components. Welaunee Arch Master Plan calls for the design of an interchange that supports a gridded street network and city blocks. Policy 13.2.21 calls for landowners near rights-of-way of

Welaunee Boulevard, the Shamrock South Extension, and the I-10 Flyover or Interchange to reserve those lands for future convenience. The intent here is to (p. 138), "allow for the design of an interchange that supports a gridded street network and city blocks on the north side of Interstate-10." The purpose of this gridded street network is to divert traffic to a system of streets in the town center and to allow for a more pedestrian friendly environment. Further, the following policy is described under Policy 13.2.4 of the Comprehensive code in regard to activity centers, employment centers, town centers, village centers, and mixed-use centers in Welaunee Arch (p. 124):

> "[each center]…shall be planned on a block system with a gridded road network to facilitate connectivity. Block lengths shall generally be less than 500 feet with block perimeters generally being less than 3,000 feet. Bicycle and Pedestrian paths and drive aisles that directly connect to the parallel street may count as block end points, provided they include pedestrian facilities and accommodations that are required along frontages."

The Leon County Land Development Code includes strong connectivity regulations to carry out these plan policies Sec. 10-7.502. - General layout design standards. For example, Sec. 10-7.502(b) requires the following:

> "New development shall be designed to support the development of a network of interconnecting streets that work to disperse traffic while connecting and integrating neighborhoods with the existing fabric of the community. Such a network makes the following possible: provides choices for drivers, bicyclists, and pedestrians, connects neighborhoods to each other and to local destinations, reduces vehicle miles of travel and travel times, improves air quality, reduces emergency response times, increases effectiveness of municipal service delivery, and frees up arterial capacity to better serve regional long distance travel needs..."

To reduce the necessity of using the public street system to move between adjacent and complementary land uses, all new non-residential and multifamily development in the urban services area (including subdivisions, undivided sites proposed to be developed, and construction of new streets) must be designed to provide vehicular and pedestrian cross access to adjacent commercial, office, multifamily, recreation, and community facility uses, as follows Sec. 10-7.502(b)(1):

> a. If the adjacent site is developed, the developer shall design and build the appropriate cross-access to the property line of the adjacent parcel, unless found infeasible by the development review committee.
>
> b. If the adjacent site is undeveloped or if the adjacent site is developed but cross-access is not possible at the time of application, the developer shall design and build the cross-access to the property line of the adjacent parcel in anticipation of future connection when that site is developed or redeveloped, unless found infeasible by the development review committee.
>
> c. The minimum pavement width of a vehicular and pedestrian cross-access shall be determined by the county engineer or designee and shall be designed to allow for vehicular and pedestrian cross access to adjacent commercial, office, multifamily, recreation, and community uses and to allow shared access points on public or private streets.
>
> d. Shared access points, rather than individual access points, on public or private streets shall be required where it is determined by the county engineer or designee that such shared access points would protect capacity on adjoining roadways or be in the interest of public safety.

The cross-access requirements do not apply if it is demonstrated, as determined by the development review committee, that a connection cannot be made because of the existence of one or more of the following conditions:

> 1. Physical conditions preclude development of the connecting street. Such conditions may include, but are not limited to, topography or likely impact to natural resource areas such as wetlands, ponds, streams, channels, rivers, lakes, wildlife habitat area, or other conservation or preservation features;
>
> 2. Buildings or other existing development on adjacent land, including previously subdivided but vacant lots or parcels, physically preclude a connection now or in the future. The potential for redevelopment of adjacent lands shall be considered in evaluating whether or not a connection will be required.

Sec. 10-7.502(b)(2) requires interconnection of streets within a development and with adjoining development, and design of the street system to coordinate with any existing or proposed streets outside of the development and addresses situations where this requirement may be waived as impractical. Street connections must be made to existing or proposed streets or rights-of-way that abut, are adjacent to, or terminate at the development site. If the adjacent ROW is not paved, the new development must construct the off-site portion of roadway necessary to complete the interconnection. Dedications of the necessary street right of way is required if the adjacent land is undeveloped or partially developed or is separated from the development site by a drainage channel, transmission easement, survey gap, or similar property condition. The right-of-way must be provided to the property line and in locations that will not prevent the adjoining property from developing consistent with applicable standards, as determined by the development review committee.

If a new collector would significantly enhance the internal and external transportation network supporting the new subdivision, as determined by the development review committee, it must be built to County standards and incorporated into the design of the new subdivision Sec. 10-7.502(b)(2)c. Subdivisions with individual driveway cuts into new or existing arterial and collector streets are not allowed, unless approved by the development review committee through the deviation process or if it would prevent all ingress or egress from the parcel.

The code also provides for pedestrian, bicycle, and emergency access to any public building, public park, trail, bikeway, transit stop, or abutting public school where the connection is approved by the school system, Sec. 10-7.502(b)(3). Residential streets ending in a cul-de-sac or dead-end streets must be connected to the closest local or collector street or to cul-de-sac in adjoining subdivisions via a sidewalk or multi-use path, unless deemed impractical or unsafe by the development review committee. Sec. 10-7.502(b)(4).

Indian River County

The Indian River Department of Community Development houses entities responsible for the planning and enforcement of corridor management, including the county Planning Division and MPO staff. The Planning Division is charged with both long-range planning and current development, comprehensive planning, changes to land development regulations, and special planning efforts such as corridor planning. This department also maintains the County's Extended Roadway Grid Network map (Figure 8), which serves as the Indian River County right-of-way needs map.

Indian River County Comprehensive Plan

Indian River County's corridor preservation practices are described in a section of the Transportation Element titled "Right-of-Way and Corridor Protection." The County implements minimum right-of-way standards, maintains an inventory of parcels subject to Murphy Act[1] right-of-way reservations (Figure 9), and coordinates with developers through the county's Technical Review Committee process to acquire right-of-way. The Committee is made up of staff members representing the Indian River County Planning Division, Public Works Department, Traffic Engineering Division, Engineering Division, Utility Services Department, and the Department of Health. Input may also be requested from other county divisions and governmental agencies as needed. The Indian River County Community Development Director chairs the Technical Review Committee.

The County also maintains a right-of-way needs map called the Extended Roadway Grid Network. This map shows collector and arterial rights-of-way on existing roadways, as well as logical extensions of those roadways to undeveloped portions of the county. It replaced what was previously called a Thoroughfare plan map, which generally applied only to roadways with the urban service area. An increase in low-density, non-urban uses outside the urban service area created a potential for extension of the grid system in the future. In anticipation of eventual changes to the land use plan to allow higher densities, the county adopted this new map that extends its grid system beyond the urban service area.

Staff identified the robust grid system as a clear strength of their thoroughfare plan, as it distributes traffic more evenly and reduces overall congestion. The grid also allows buses to circulate more efficiently and use roadways other than primary routes like US 1, so they are closer to the population of riders. In addition, the County does not charge a fare for transit use and this has resulted in high rates of ridership.

[1] Chapter 18296, Laws of Florida (1937) is also known as the Murphy Act. In response to the Florida Land Boom of the early 1920s, the Land Bust of 1926, and the worldwide Depression of the 1930s, the Act provided for forfeiture of lands for nonpayment of property taxes. Tax certificates were issued to landowners who failed to pay their taxes. If the taxes were not paid by June 9, 1939, title to the land went to the state and these lands were then administered by the Board of Trustees. Whenever the Board of Trustees sold these lands, they retained certain oil and mineral interests as well as a reservation of right-of-way 100 feet on either side of the centerline of any state road associated with the land. Many of these roads have been transferred to County jurisdiction as have the reservation of the Murphy Deed road rights-of-way. The reservations are based on the location of the centerline of the road at the time of reservation.

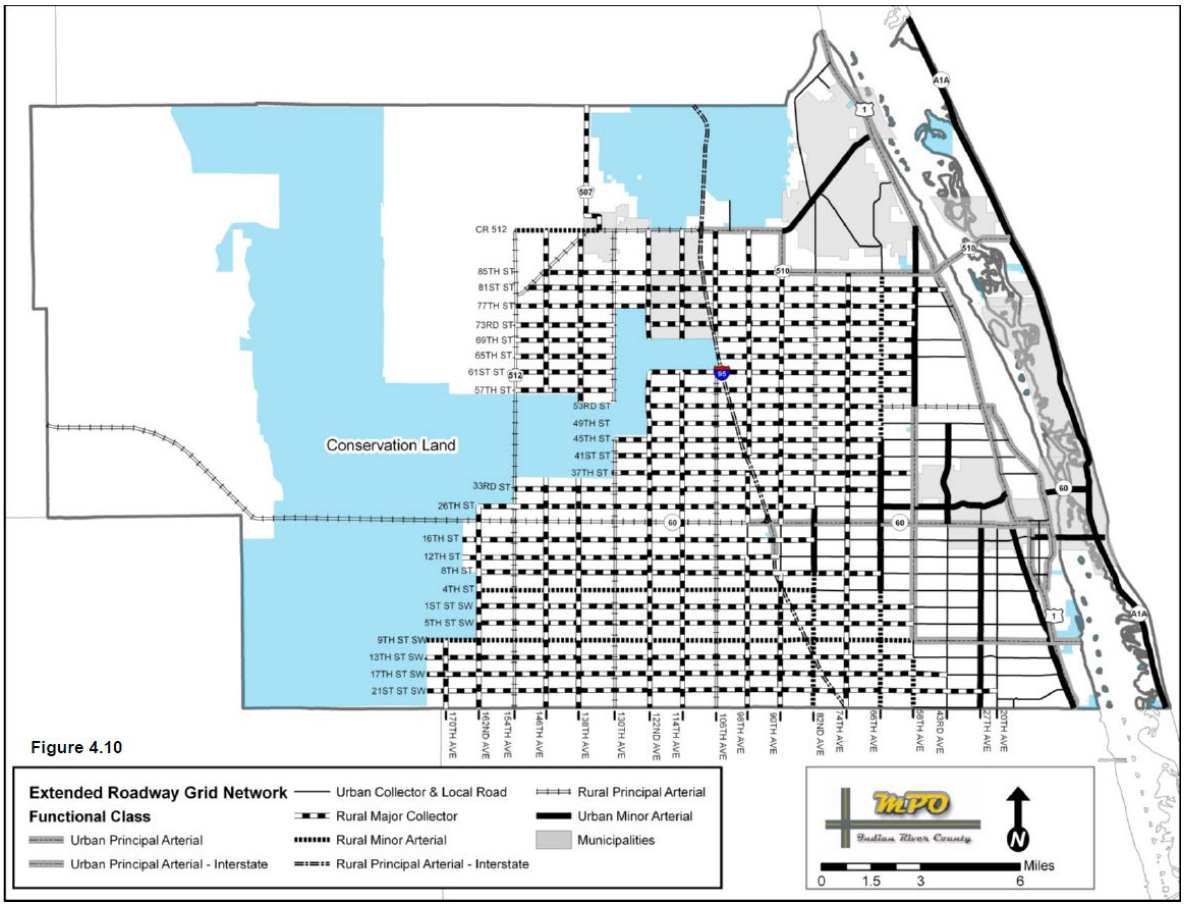


Figure 8. Extended roadway grid network map.

Source: Figure 4.10, Transportation Element, Indian River 2030 Comprehensive Plan, 2019, p. 73.

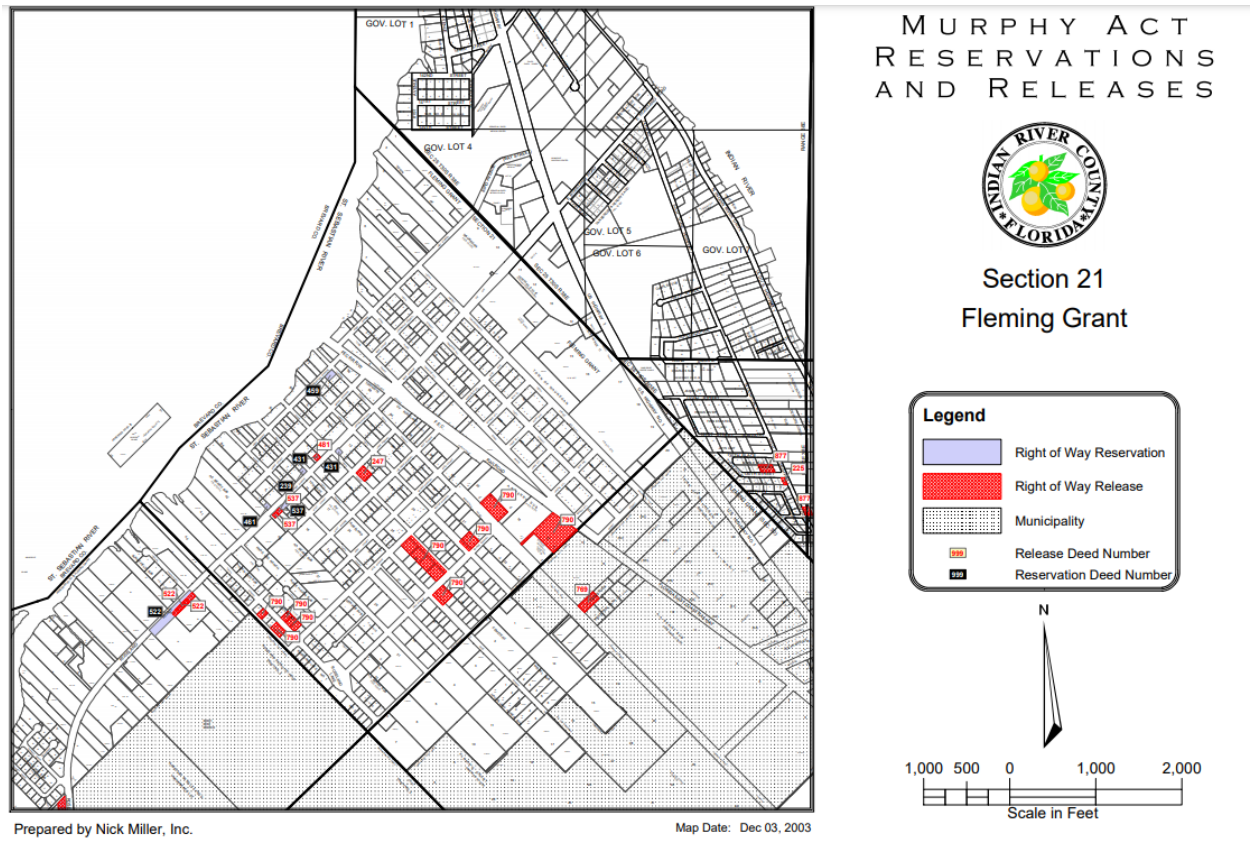


Figure 9. Example of Murphy Act reservations and releases.

Source: City of Fellsmere, Indian River County, Murphy Map Book, December 3, 2003.

Objective 3 (Right-of-Way Protection) of the Indian River County Comprehensive Plan houses policies related to corridor management. Table 9 depicts Objective 3 and its nine associated policies.

Table 9. Indian River County Corridor Management Policies

Objective 3	**By 2035, the county will have acquired the right-of-way needed for all county collector and arterial roads and all mass transit corridors within the urban area where improvements are identified in the 2040 Cost Feasible Long Range Transportation Plan**
Policy 3.1	The county recognizes that road right-of-way must accommodate the travel way, roadside recovery areas, bicycle and pedestrian facilities, drainage facilities, and utility lines. Accordingly, the county hereby adopts minimum right-of-way standards as defined below (see Table 10).

Source: Transportation Element, Indian River County 2030 Comprehensive Plan, 2019.

Table 9. Indian River County Corridor Management Policies, Continued

Policy 3.2	The county shall continue to eliminate existing right-of-way deficiencies, preserve existing right-of-way, and acquire future right-of-way for all collector and arterial roadways as necessary to meet the right-of-way requirements for programmed improvements. These standards will be met by requiring appropriate land dedication through the plat and site plan review and approval processes. Dedication for right-of-way exceeding local road standards shall be compensated through traffic impact fee credits, density transfers, or purchase.
Policy 3.3	The county shall acquire additional right-of-way at intersections to provide for the construction or expansion of turning lanes as needed to improve safety and traffic flow and reduce congestion.
Policy 3.4	The county shall acquire right-of-way, consistent with the standards identified in Policy 3.1, to allow for landscaped open space adjacent to all rural arterial roadways and applicable urban arterial roadways. Where substantial amounts of right-of-way are required to accommodate landscaping, the county shall evaluate the need for that.
Policy 3.5	The county shall use available funds, such as one cent local option sales tax revenue, to pursue advance right-of-way acquisition.
Policy 3.6	The county shall continue to enforce the existing Subdivision Collector Map (see Figure 10) to ensure that proposed development provides for the extension of subdivision collector roadways to parcels which are presently landlocked.
Policy 3.7	To the extent allowed by law, the county shall charge fees to utility companies and other entities for use of road rights-of-way.
Policy 3.8	The county hereby adopts and shall enforce the Extended Roadway Grid Network Map. In so doing, the County shall protect right-of-way beyond the urban service area boundary by requiring appropriate land dedication through the plat and site plan review and approval process.
Policy 3.9	With respect to right-of-way purchases, the county shall deliver a Notice to Owner of the county's intent to complete a voluntary purchase, along with a written purchase offer, and attempt to negotiate a voluntary purchase for 120 days prior to assigning the matter to outside eminent domain counsel.

Source: Transportation Element, Indian River County 2030 Comprehensive Plan, 2019.

Table 10. Indian River Minimum right-of-way requirements.

Type Of Facility	Urban	Rural
U.S. 1 Corridor - 8LD	200	---
U.S. 1 Corridor - 6LD	140	240
U.S. 1 Corridor - 4LD w/frontage roads	200	280
6LD Principal Arterial	140	240
4LD Principal Arterial	120	200
4LD Minor Arterial	120	200
2LD Minor Arterial	100	100
Collector	90	90
Subdivision Collector Roads	60	60
Local, Minor or Residential	60	60
Local, Minor or Residential (with closed drainage as well as curb and gutter)	50	
Marginal Access Roads	40*	40*

* Easement or ROW

These minimum standards may be reduced based upon a roadway design, approved or used by the public works director, or by FDOT, that adequately handles drainage within a narrower right-of-way corridor.

Source: Transportation Element, Indian River County Comprehensive Plan, p. 103.

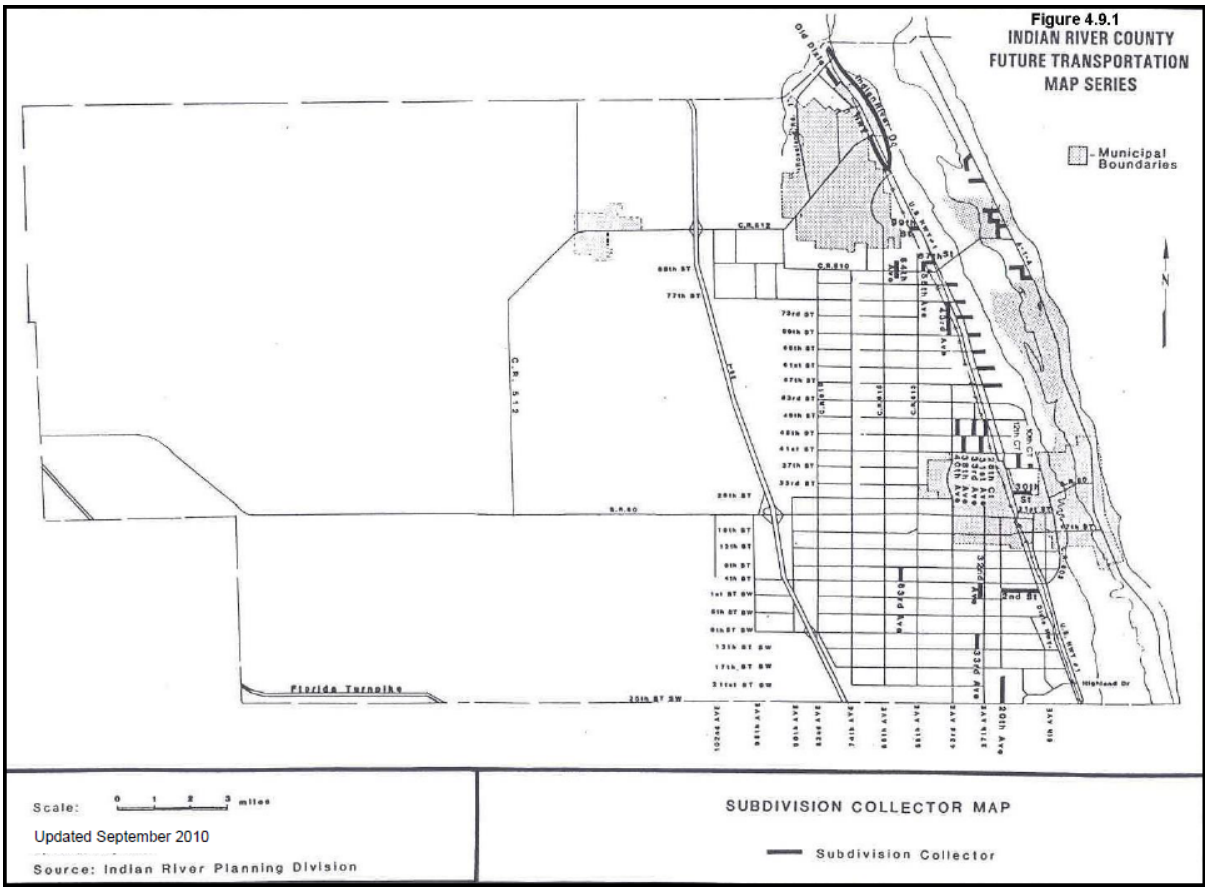


Figure 10. Indian River County Subdivision Collector Map, September 2010,

Source: Indian River County Comprehensive Plan, Transportation Element, Figure 4.9.1, p. 72

Indian River County Corridor Management Regulations

Section 952.07(10) states that Indian River County Community Development and Public Works Departments will maintain a roadway characteristics inventory (Table 4.7.1 in the Transportation Element of the Comprehensive Plan) which includes right-of-way type and width on each segment in the transportation links database. Indian River County's Land Development Code (Table 11) also includes a minimum right-of-way table that addresses the functional classification, urban versus rural cross sections, number of lanes, minimum lane width, and identifies special corridors that may have different cross sections.

There are also multiple mentions in the Transportation Element of the Comprehensive Plan of landscaping as a priority (pages 26, 74, 103). Nearly 3% of total roadway project costs go to landscaping in the County. Policy 3.4 (which falls under the right-of-way protection objective) focuses on the acquisition of right-of-way to allow for landscaping or incentivizing adjacent landowners to provide adequate landscaping along corridors. Policy 5.6 and 5.7 also cover landscaping along corridor rights-of-way and stipulate that the county will allocate a minimum of 2% of total construction expenditures for roadway projects for landscaping.

Right-of-way Dedication

Indian River County requires dedication of the first sixty feet of right-of-way and the property owner is compensated for any additional right-of-way required. County staff indicate that the 60 ft. standard is based on the amount of right-of-way necessary for a local road and to bring the road right-of-way up to the standards in the comprehensive plan and land development code. This is supported by Policy 3.2 of the Transportation Element of the Comprehensive Plan as well as Section 952.08. (Right-of-way requirements) of the Land Development Code. However, during the review of any development project, the technical review committee may require the increase of right-of-way and pavement widths. The county acquires right-of-way through dedication or reservation at the time of site plan approval or through fee simple acquisition or condemnation as part of preliminary and final roadway design for specific projects.

Advance Acquisition

The Transportation Element (p. 58) specifically identifies the need to include funding for advanced right-of-way acquisition in the capital improvement program to ensure that sufficient right-of-way is available for future construction projects. Policy 3.5 in the Transportation Element of the Comprehensive Plan (p. 104) states that the county will use available funds, including the one cent sales tax, for advanced right-of-way acquisition.

The County does currently engage in 'opportunity purchases' for advanced right of way acquisition. When a parcel comes up for sale on a corridor planned for widening, the county may either purchase the whole parcel or a portion of the parcel and sell the residual. Funds for land acquisition come from a combination of traffic impact fees, a six-cent local option gas tax, and a one-cent county-wide sale tax.

Another interesting strategy mentioned by staff is the use of concurrency provisions along SR 60 to obtain financial contributions toward the widening of SR 60. Several developments along the SR 60 corridor pay a special fee that constitutes the difference between the cost of acquisition of right-of-way for future construction and the interest on advance construction of the project. This additional fee allowed FDOT to accelerate the widening project by moving it up in the work program.

Table 11. Indian River County Minimum Right-of-Way Widths

Street Types	Right-of-Way Width		Lane Width
	Urban	Rural	
Principal arterial			
6LD	156	240	12 ft. (11 ft.)****
4LD	120	200	
U.S. 1 Corridor			
8LD	166	200	12 ft. (11 ft.)****
6LD	142	160	
4LD	130	160	
W/frontage roads			
Minor arterial			
4LD	120—130	200	12 ft. (11 ft.)****
2LD	100	100	
Collector streets	90	90—120	12 ft. (11 ft.)****
Subdivision collector roads	60	60	12 ft. (11 ft.)****
Local, minor or residential streets (with swale drainage)	60	60	10 ft.*/11 ft.**
Local, minor or residential (closed drainage, curb and gutter)	50		10 ft.*/11 ft.**
Marginal access roads	40	40	11 ft./12 ft.***
*Single-family subdivision roadway or residential site plan with less than 1,500 ADT			
**Where in conjunction with commercial site plan project			
***When in conjunction with heavy commercial or industrial development			
****When approved by the public works director			

Source: Indian River County Land Development Code, Section 952.08(1)(e)

Determination of Alignment

The County Engineer ensures that the right-of-way comes from both sides of the road, if possible. However, in cases where there is a constraining factor such as a drainage canal, railroad, or if more than one–half the right-of-way has previously been provided by the opposing development, dedication may be required only on property from one side of the corridor. Section 952.08(1)(b) states:

“Right-of-way deficiencies shall be satisfied by dedication of equal amounts of right-of-way from each side of the deficient roadway, unless the conditions of 2., 3., or 4. below apply.”

1. Where right-of-way must be dedicated for site related improvements, all such dedicated right-of-way shall come from the development project side of the roadway.
2. Where a drainage district canal right-of-way, a railroad right-of-way, a high voltage power line, or similar impediment abuts one (1) side of a deficient road right-of-way, the entire right-of-way deficiency shall be made up from the property on the opposite side unless an alternative design (e.g. culverting the canal) is approved by the public works director.
3. Where at least one-half (½) of the required road right-of-way has been provided from the property on one (1) side of a deficient road right-of-way, the remaining right-of-way deficiency shall be made up from the property on the opposite side, unless an alternative design is approved by the public works director.

Mitigation Measures

The County offers offsite improvements, lot size adjustments, and to a lesser degree impact fee credits as mitigation measures in the context of corridor management requirements. Section 1010.04(8) provides for impact fee credits for the dedication of non-site related right-of-way. The value is determined based on the date of the dedication at one hundred fifteen percent of the assessed value as determined by the Indian River County property appraiser. If the property owner does not agree with the property appraiser’s value, they may request an independent appraisal be completed to determine the fair market value. Credit for the dedication of the right-of-way is given when a credit agreement is completed, and the property has been conveyed to the county. Road impact fee credits are not transferable from one project or development to another without County approval.

Policy 18.2 of the Future Land Use Plan of the Comprehensive Plan (p. 175) lists the reduction of right-of way and travel lane widths as an incentive to develop Traditional Neighborhood Design projects within the urban service area.

Sidewalks, Bikeways, Trails and Multiuse Paths

The Indian River County Land Development Code requires project developers to provide sidewalk improvements along the project site's frontage on arterial, collector, and subdivision collector roadways (also known as "thoroughfare plan roadways") in compliance with the Indian River County Comprehensive Bikeway and Sidewalk Plan, and the required improvements regulations of the site's applicable zoning district (Section 913.13(5)). Bikeways must also be provided along the project site's frontage on all rights-of-way or easements as designated in the Indian River County Comprehensive Bikeway and Sidewalk Plan (Section 913.13(4)). The developer is exempted from the requirement to provide sidewalks or bikeway segment(s) along an unpaved thoroughfare plan roadway which is not scheduled for improvement on the county's twenty-year roadway improvement plan schedule or if there are unique physical or design constraints.

Any required sidewalks and bikeways along thoroughfares must be provided prior to receiving a certificate of completions for subdivision projects. Developers may also bond or provide advance payment for these facilities under certain conditions.

Policy 4.2 in the Transportation Element of the Comprehensive Plan (p. 104) describes the County’s intention to evaluate available easements and rights-of-way for off-road trails to be used for recreation

and travel. This includes utility easements, railroad rights-of-way, and drainage canal rights-of-way. Pages 29 thru 31 of the Recreation Element of the Comprehensive Plan cover Corridor Open Space, which includes rights-of-way and easements that can accommodate traffic or utility facilities. This section describes the ability of the county to use right-of-way and easements (including canals). County staff indicated that they have had luck in the past converting abandoned railroad right-of-way to trails, mentioning the Trans-Florida Central Railway. Acquiring drainage canal rights-of-way for trail conversion, however, has more been difficult.

The Conservation Element of the Comprehensive Plan also mentions "land acquisition, development clustering requirements, conservation easements, transfer of development rights, and mitigation banks to conserve natural system." Although not presently used for corridor preservation, strategies such as this could be helpful in greenways and trails acquisition, and in blending greenway/conservation work with other infrastructure projects.

Street Network Connectivity

Regulatory standards for traditional neighborhood design and mixed use development require projects to contain a network of interconnected streets, sidewalks and pathways. Streets must be designed to balance pedestrian and automobile needs, to discourage high automobile speeds, to effectively and efficiently accommodate transit systems, and to distribute and diffuse traffic rather than concentrate it.

Orange County

Orange County has a variety of ongoing planning activities relative to mobility planning and corridor management. For example, the County has designated Alternative Mobility Areas (i.e., transportation concurrency exception areas) that are subject to Activity Center policies and Mixed-Use Corridor designations aimed at promoting multimodal mobility enhancements. Mixed-Use Corridors are intended to promote redevelopment of suburban corridors and transit-oriented development, including transit design standards, in conjunction with Activity Centers and transit planning efforts. These efforts are coordinated with projects and investments in the County Capital Improvements Element. Below are additional specific aspects of the process relative to corridor preservation and management.

Orange County Comprehensive Plan

Orange County does not have a specifically defined corridor preservation program. However, Map 1 of the Transportation Element represents the Orange County 2030 Long-Range Transportation Plan (LRTP) and acts as a basis for right-of-way needs identification and planning (Orange County Transportation Planning Divison, 2017). The map identifies planned and programmed County roadways, alternative mobility areas, alternative analysis corridors, Transit Multi-use Corridors, and other relevant designations. Through designations, Orange County ensures that considerations for the acquisition and preservation of corridor rights-of-way are for multimodal transportation, not only automobile traffic.

The Orange County Comprehensive Plan includes policies for Guiding Principles for Corridors, which were identified through the East Central Florida Corridor Task Force (ECFCTF) in 2014. The ECFCTF was a cooperative effort between FDOT and regional partners, including Orange County, to envision and plan for the next 50 years of major statewide transportation corridors. One such Policy states (p. T-28), "The County shall make early decisions about the location of new or enhanced corridors to ensure effective coordination with conservation and land use decisions and to enable timely reservation, management, or acquisition of property necessary to accommodate existing and planned transportation facilities."

A continuous theme in the Orange County Comprehensive plan is to encourage the connectivity of road, trail, and transit systems. Additionally, the Recreational Element states (p. R-5), “Orange County shall continue to pursue the acquisition of abandoned railroad rights-of way for use as recreational and wildlife corridors” and, “Orange County's priority for acquisition of future public activity-based recreation sites shall be in areas identified in the Parks and Recreation and Trails Master Plan (Orange County Parks and Recreaction Department, 2020).”

Orange County Corridor Management Regulations

Sec. 38-1349 of County land development guidelines and review procedures establish that all streets must meet minimum county standards. In addition, “(1)Local streets shall be designed and located so that future urban development will not necessitate the conversion of such streets to arterial routes. Arterial and major collector streets shall not be impacted by backing movement from adjoining parking areas. Provisions shall be made for the continuation of all arterial streets and highways, where applicable.” Sec. 21-7. Of Chapter 21, Article 1 further regulates unopened unimproved rights-of-way to ensure that these rights-of way are improved to county standards and paved prior to development of any parcel that accesses them.

There are two funding sources for right-of-way acquisition mentioned in the Orange County Land Development Code. The first is the transportation impact fee found in Chapter 23. ARTICLE IV of the county code. The county maintains a clear list of fee rates by land use type and geographical location. The second funding source is a gas tax. Sec. 21-1. of the Land Development Code states that the annual revenue from a six-cent tax per gallon of motor and diesel fuel sold in Orange County is earmarked for right-of-way activities and construction expenditures.

Additionally, Sec. 30-622 of the Land Development Code includes a roadway network agreement (called a “Transportation Road Network Agreement” in the Comprehensive Plan) and a proportionate fair-share program which allows property owners to earn road impact fee credits by making improvements to clogged roads or dedicating right-of-way to expand the road network. A Road Agreement Committee (RAC) reviews agreements related to roads and transportation impact fee credits, covered in Sec. 23-95 of the Land Development Code. The RAC is composed of the following members:

- Director Planning, Environmental and Development Services Division (Chair)
- Public Works Deputy Director and County Engineer (Vice-Chair)
- Manager Transportation Planning Division
- Manager Public Works Engineering Division
- Manager Traffic Engineering Division
- Planning Administrator, Planning Division
- Manager Real Estate Management

Determination of Alignment

The County regulates setbacks from thoroughfares based on their functional classification. The distance is measured by a straight line extending perpendicular from the centerline of the major street as depicted in Table 12. Stated purposes and intent for these setbacks are not to preserve right-of-way, but rather to achieve uniform major street setback distances and address public concerns, such as: adequate space for light, air, protection from disasters, access for fire-fighting apparatus or rescue and salvage operations, separation from and space for vehicular traffic, pedestrian traffic, noise, congestion, pollution emanating from vehicles, intensified use of land, and the public health, safety, and welfare.

Table 12. Orange County Setbacks by Functional Classification

Functional Classification of Major Street	Setback Distance from Centerline for Buildings and Structures (feet)	Setback Distance from Centerline for Parking Areas (feet)
Principal arterial, urban (Class I)	70	65
Principal arterial, urban (Class II)	60	55
Principal arterial, rural	150	100
Minor arterial, urban	60	55
Minor arterial, rural	120	70
Collector, major and minor urban	55	50
Collector, rural	100	50

Source: Orange County Land Development Code Sec. 38-1603.

Encroachment

Chapter 30 Planning and Development Article VIII, Site development. Sec. 30-249. - Planned rights-of-way indicates that "No improvements, including stormwater retention areas, shall be permitted within the planned rights-of-way for major streets as defined in Chapter 38, article XV of the County Code, as the same may be amended." In addition, Chapter 21 Article VI of the Land Development Code regulates right-of-way utilization of county rights-of-way or easements and stipulates that "No encroachment shall be erected in or on any right-of-way unless consistent with the Right-of-Way Utilization Regulations of Orange County."

Connectivity and Block Length

While the county does not regulate block length countywide, Sec. 38-1390.33. of the Orange County Land Development Code standardizes block lengths for a large area known as the Horizon West Town Center Planned Development. The code encourages variations in block lengths, widths, and geometric configurations, and the contexts and use of the site determine the degree of flexibility for block plans. Table 13 outlines the minimum and maximum standards for block length and depth.

Table 13. Horizon West Block Length and Depth Standards.

Area Type	District Type	Minimum Length – ROW to ROW along the Primary block face (4), (5)	Maximum Length – ROW to ROW along the Primary block face (4), (5)	Maximum depth perpendicular to the primary block face (ROW to ROW exclusive of alleys and lanes) (4), (5)
All blocks adjoining a functionally classified street	Applies to all districts	600 feet (1)	800 feet (2)	600 feet
All blocks adjoining a main street	Traditional Town Center Core (TTCC), Corporate Neighborhood Center (CNC)	250 feet (3)	400 feet	400 feet
N/A	Corporate Campus Mixed Use (CCMU), Retail/Wholesale (RW), Urban Residential (UR)	250 feet (3)	600 feet	600 feet

Notes:

1. Primary block length adjacent to a functionally classified street cannot be less than six hundred (600) feet right-of-way to right-of-way where the block edges are formed by streets; however, where a block edge is defined by an approved pedestrian passageway the primary block face may be less than six hundred (600) feet.
2. Primary block faces that are more than six hundred (600) feet in length shall include a mid block pedestrian passageway at either: the mid-point of the primary block face; a point approximating the 600-foot dimension of the block face; or, at a location approved as part of the PD/UNP or PSP.
3. See section 38-1390.33(b)(2) for limitations related to blocks with a primary block face of less than two hundred fifty (250) feet.
4. Right-in and right-out driveways shall not constitute a block for the purpose of determining compliance with minimum or maximum block length standards.

A block length that is between ninety-five (95) percent and one hundred five (105) percent of the standard block length shall be considered in compliance with the block length standard, and shall not require an amendment or waiver.

Source: Orange County Land Development Code Sec. 38-1390.33.

Also housed in the Horizon West Town Center Planned Development section of the Land Development Code are standards related to street network connectivity for the planned development. Sec. 38-1390.40. describes “Framework Street Standards” which are meant to form an interconnected network of streets that provide multimodal access to an array of properties. These standards also place requirements on street parking, bicycle lanes, cross-sections, vehicular intersections, traffic signals, utilities, curbs, gutters, streetlights, driveway access, bulb-out planting areas, cul-de-sacs, and transit stations, stops and pull-out bays within the right-of-way. Detailed Framework Street cross-sections comprised of many elements are depicted and described in Sec. 38-1390.41 of the code.

Transit ROW Related Provisions

Orange County does not have specific corridor preservation policies or regulations relative to transit. As in many jurisdictions, the County does regulate the installation, maintenance, and operation of transit facilities in the public right-of-way (Sec. 21-249, Orange County Land Development Code). This includes transit shelters and benches. The transit facilities authorized in this section must meet the setback, sight triangle, and minimum clear recovery zone requirements outlines in the Florida Greenbook.

Broward County

Broward County is the longest standing example of local corridor preservation and management in Florida. The Broward County Trafficways Plan was developed and adopted in the early 1960's by the Broward County Area Planning Board, now the Broward County Planning Council. It is a characterized by staff as a countywide transportation "build-out" plan representing the ultimate roadway network then considered necessary to serve future land use in Broward County. This section reviews the methods used to implement the plan and how the County is now integrating context sensitive corridors into its corridor preservation process.

Broward County Trafficways Plan

Broward County's corridor preservation plan consists of a map, called the Trafficways Plan, last updated on May 28, 2020 (Figure 11), and a companion document called Documentation of the Broward County Trafficways Plan (1989, as amended). Both are maintained by the Broward County Planning Council and outline countywide procedures and policies associated with right-of-way dedication and preservation.

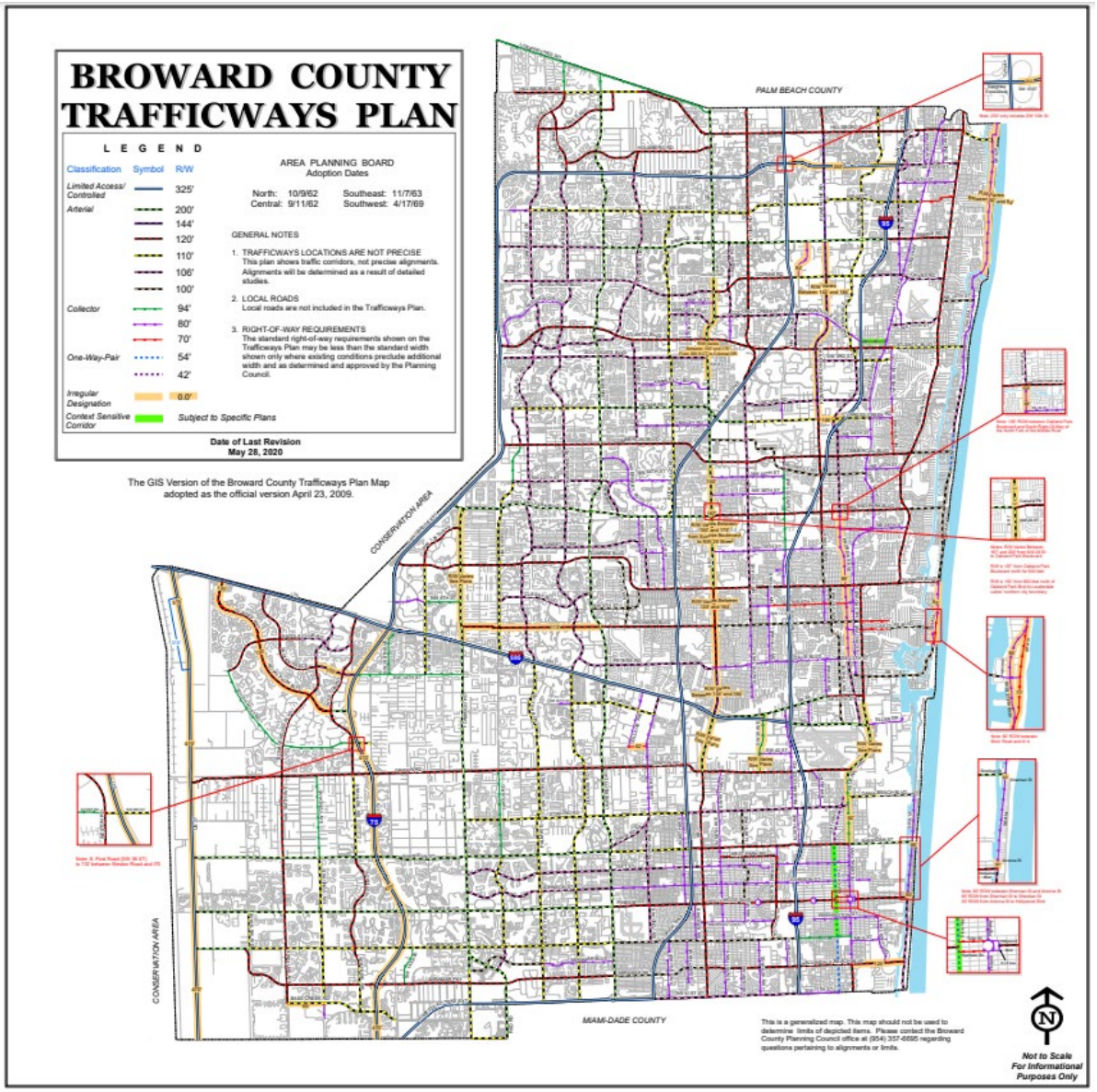


Figure 11. Broward County Trafficways Plan

Source: Broward County Planning Council, May 2020

The legend on the Trafficways Plan indicates right-of-way standards for each road classification and is shown in Figure 12. According to "Documentation of the Broward County Trafficways Plan" (p. 3-5) some corridors depicted on the Trafficways Plan have a specific right-of-way plan and may have varying widths. Additionally, corridors designated as "Context Sensitive Corridors" are defined by special plans and have one of three sub-designations with the following right-of-way width standards:

- Urban Core (UC) 100', 106', 110', or 120' ROW
- Urban Main Street (UMS) 80', 94', 100', or 106' ROW
- Urban Residential (UR) 70' ROW

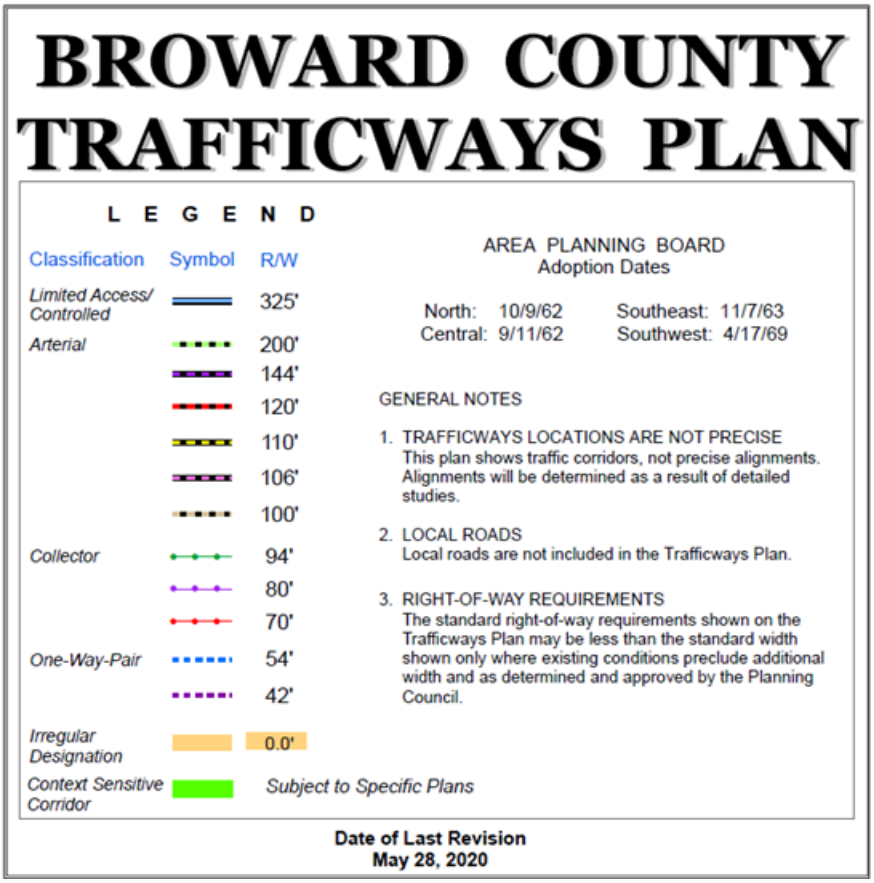


Figure 12. Broward County Trafficways Plan Legend

Source: Broward County Planning Council, May 2020

The Trafficways Plan is implemented through the local development review processes and separate local ordinances. Parcels required to plat, and in some cases those exempt from platting, must dedicate, by deed or easement, right-of-way consistent with the Trafficways Plan. County staff review plats and other development proposals to ensure that proposed uses are consistent with the effective land use designation and the Trafficways Plan. Staff also provide technical assistance to local governments and citizens in interpreting countywide platting requirements.

The Broward County Planning Council considers requests for Trafficways Plan amendments, as well as waivers of the right-of-way dedication requirements. A unit of local government, the Broward County Board of County Commissioners, FDOT, or the Broward County Planning Council may initiate amendments to the Trafficways Plan. Council's review of waivers focuses primarily on the specific characteristics of individual parcels of land and the corresponding impacts of proposed developments. The process for review of waivers or amendments includes review by a Trafficways Review Group, which includes several transportation/mobility related agencies, including the MPO and Broward County Transit. MPO complete streets guidelines are a consideration in such requests, especially if the roadway is in part or whole a Context Sensitive Corridor. A concern of staff in the waiver process is a tendency for local agencies to request reduced right of way widths on context sensitive corridors, as complete streets may still require the full right of way depending on facilities to be incorporated into the design.

Broward County Comprehensive Plan

The County's Comprehensive Plan (called BrowardNext2.0) contains objectives and policies that pertain to corridor preservation and the Trafficways Plan. Objective T3.4 of the Transportation Element states (p. 34), "Broward County shall ensure existing rights-of-way are preserved to support a safe and convenient transportation network." This objective is supported by three policies. Policy T3.4.1, T3.4.2, and T3.4.3 address how Broward County protects existing and future rights-of-way from building encroachment. Future rights-of-way are protected from encroachment through the following methods:

1) Implementation of the Trafficways Plan.
1) Adherence to provisions in the Broward County Land Development Code (specifically those that require dedication or grant of easement for the approval of site plans).
2) The inclusion of funding for right-of-way acquisition in the Capital Improvements Element.
3) Through the Broward County Planning Council's use of the Trafficways Plan and right-of-way protection maps for jurisdictions and transportation authorities adjacent to Broward County.

The Broward County Land Use Plan (Policy 2-17.1 through Policy 2.17.6) and Broward Municipal Services District (BMSD) Land Use and Community Planning document (Policy 1.4.11) identify implementation of the Trafficways Plan as a key driver for corridor right-of-way preservation. Both describe protecting Trafficways Plan corridors through requirements for right-of-way dedication to address transportation impacts of development, sufficient setbacks when issuing development orders, and land development regulations that "provide for the reservation and acquisition of rights-of-way sufficient to meet the requirements of the Broward County Trafficways Plan."

Goal T1 and Objective T1.1 in the Transportation Element of the Broward County Comprehensive Plan focus on creating an integrated network of "Complete Streets, Greenways, and Blueways" and policies within this section mention planning for appropriate rights-of-way to accommodate a broad list of uses including ways to support transit-oriented development. Objective T1.3 states (p. 11), "Broward County shall expand the network of greenways, blueways, and off-network paths to connect to major destinations, transit, schools, parks, and Complete Streets."

A document called "Broward Complete Streets Guidelines" is maintained by the Broward County MPO and used to assist in the determination of road network connectivity, block lengths, transit stop locations, and greenway paths and trails. The Transit Division reviews Complete Street plans to ensure future transportation corridors are consistent with the Complete Streets Guidelines. Additionally, Policy 2.19.3 states that local governments should use the "Context Sensitive Corridor" designation from the Trafficways Plan to (p. 22), "provide for the reservation or acquisition of rights-of-way necessary for mass transit, bicycle and pedestrian facilities and services within their land development regulations."

Context Sensitive Corridors

Broward County "Context Sensitive Corridors" are highlighted in green on the Trafficways Plan map and fall into one of three categories: Urban Core, Urban Main Street, or Urban Residential. These corridors are tied to Specific Plans that govern ROW. Broward County does not pre-designate context sensitive corridors or context areas on their Trafficways Plan. A local government agency must request and justify the need for a Context Sensitive Corridor, and once approved, new standards are applied only to the specific segment of the corridor requested.

According to Documentation of the Broward County Trafficways Plan (1989, as amended), a thoroughfare may be designated as a Context Sensitive Corridor provided that the following conditions have been met:

- The trafficway is included within an adopted municipal or Broward County redevelopment plan; or
- The trafficway traverses an adopted BrowardNext – Broward County Land Use Plan "Activity Center"; and
- The local government provides appropriate supporting information to identify the design/performance criteria for the subject corridor.

If the trafficway is identified as a State Highway System and/or State Intermodal System facility or connector, prior written approval shall be obtained from the District Secretary of the Florida Department of Transportation. If those conditions are met and approved by the Broward County Planning Council, rather than using Table VII from Sec. 5-195 from the Land Development Code which dictates Design Criteria for Construction of Streets Within Trafficway Corridors, Table XIII from Sec. 5-195 can be utilized (Table 14).

Table 14. Excerpt of Optional Trafficways Corridors Criteria

Design Factor	URBAN CORE					URBAN MAIN STREET			URBAN RESIDENTIAL
	1. 100-106-110 ROW Urban Core OPTION A (5-lane Undivided)	2. 100-106-110 ROW Urban Core OPTION B (4-lane with median)	3. 100-106-110 ROW Urban Core OPTION C (7-lane undivided)	4. 120 ROW Urban Core OPTION A (6-lane plus median)	5. 120 ROW Urban Core OPTION B (4-lane with median)	6. 80-94 ROW (8) Urban Main Street OPTION A (5-lane undivided)	7. 80-94 ROW (8) Urban Main Street OPTION B (5-lane undivided)	8. 80 ROW Urban Main Street (2-lane undivided)	9. 70 ROW Urban Residential (5-lane undivided)
Generalized Volume (ADT)	14,500—34,900	14,500—34,900	14,500—34,900	14,500—34,900	14,500—34,900	9,600—24,300	9,600—24,300	9,600—24,300	9,600—24,300
Vehicular Access	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)	Section 5-195(b)(11)

Source: Section 5-195(d) Table XIII of the Broward County Land Development Code.

An example of this is the segment of Martin Luther King, Jr Boulevard / Hammondville Road from Dixie Highway to Interstate 95, which was designated as an 80' "Context Sensitive Corridor – Urban Main Street" in 2012. The City of Pompano Beach (2012) in conjunction with the Pompano Beach Northwest Community Redevelopment Agency (NW CRA) requested the Trafficways Plan amendment to accomplish an Urban Main Street cross section in this area characterizes as having low traffic volumes and proposed for designation as a Transit Oriented Corridor. Prior to the amendment, the segment was classified as a 4-lane City Collector. The purpose for the amendment was to provide greater flexibility for reduction in design speed, on-street parking, elimination of right-turn lanes, wider sidewalks, and shared bike lanes. The Council approved the amendments and updated the Trafficways map to reflect the Context Sensitive Corridor (Figure 13) with adjusted design criteria for construction of streets within Trafficway Corridors (Table 15). Highlighted elements in Table 15 refer to elements involving adjustments from Context Sensitive Corridor design criteria as well as standard Trafficways Plan criteria.

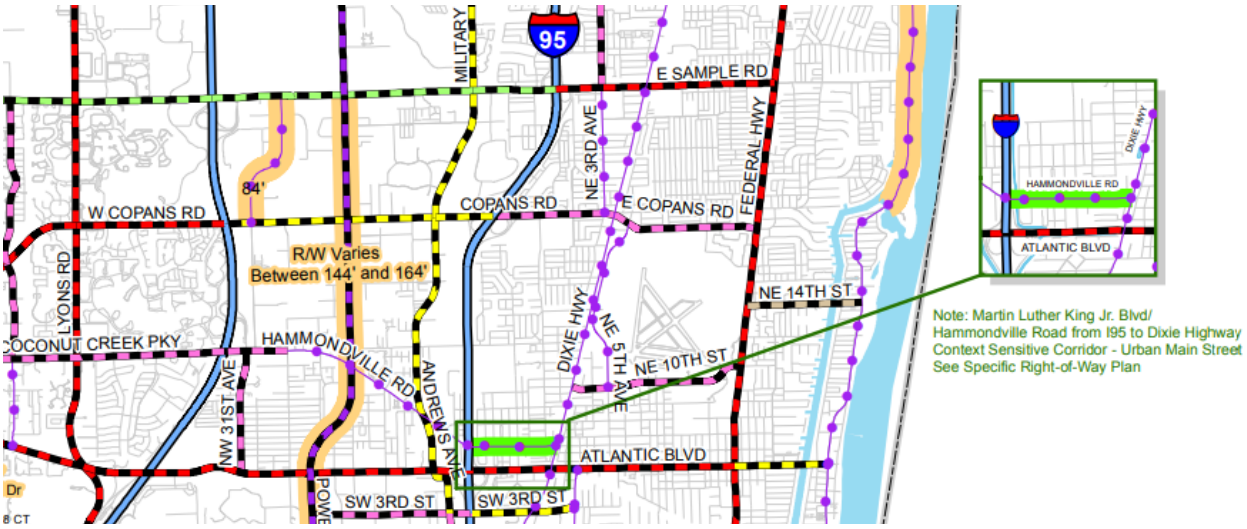


Figure 13. Excerpt of the Trafficways Plan with MLK Jr. Blvd inset.

Source: Source: Broward County Planning Council, May 2020

Table 15. Documentation of MLK Jr. Blvd Design Criteria Adjustments for Trafficways

MARTIN LUTHER KING BLVD. (HAMMONDVILLE RD.) TRAFFICWAYS AMENDMENT
DESIGN CRITERIA FOR CONSTRUCTION OF STREETS
WITHIN TRAFFICWAY CORRIDORS
Trafficway Roadways

Design Factor	**Existing Trafficways Plan Classification of MLK Blvd.** 4-Lane Collector	**Available "Context Sensitive Corridor" Criteria for Trafficway Roadways** 7. 80-94 ROW (8) Urban Main Street. OPTION B (5-Lane undivided)	**Requested / Adjusted "Specific Context Sensitive Corridor" Criteria for MLK Blvd. 80-94 ft. Urban Main Street (with easements). 4-Lane Divided**
Generalized Volume (ADT)	9,600-24,300	9,600-24,300	9,600-24,300
Vehicular Access	Pursuant to provisions o f Sections 5-195(b)(11)	Pursuant to provisions of Sections 5-195(b)(11)	Pursuant to provisions of Sections 5-195(b)(11)
Design Speed	40 mph	25-30 mph	25-30 mph
Typical Streets Spacing	Pursuant to provisions o f Sections 5-195(b)(11)	Pursuant to provisions of Sections 5-195(b)(11)	Pursuant to provisions of Sections 5-195(b)(11)
Minimum Thru- Lane Width	11 ft	11ft	**10ft**
Pavement Width	48 – 56 ft.		
Pavement Markings	Thermoplastic	Thermoplastic	Thermoplastic
Driveway Design	Street Type	Street Type	Street Type
On-Street Parking	Prohibited	Yes	Yes
Median Width w/ Curb and Gutter	15.5-22 ft	11 ft (Center left turn lane)	11 ft (Center left turn lane)
Border Width	7-10 ft	8 ft	**>=8 ft (with sidewalk/landscape easements)**
Left Turn Lanes	Yes	Yes	Yes
Exclusive right turn lane Required at intersections & driveways	Yes	No	No
Traffic Signal	As Warranted	As Warranted	As Warranted
Pedestrian Crossings	At intersections Only	At intersections and at Mid-block (Non-Peak) with special treatment approved by County	At intersections and at Mid-block (Non-Peak) with special treatment approved by County
Approach Widening (Intersection Imp.)	Yes	No	No
Right-of-Way	As Required by the Broward County Trafficways Plan (80')	80' – 94'	**80'/88' Typ. in segments with No On-street Parking (w/ easements) 94' Typ. in segments with On-street Parking (w/ easements)**
Design Vehicle	SU and WB-50	SU and WB-50	SU and WB-50
Sidewalks	Yes	Yes (Min 11.5 ft with easement)	**Yes - 7.5 Typ. & 6' Min. (with easements)**
Bikeways	Yes 4/5 ft	Yes 5 ft	**Yes 3 ft (undesignated)**

Source: City of Pompano Beach Context Sensitive Corridor application documentation.

Broward County Corridor Management Ordinance

Implementation of the Trafficways Plan is outlined in the Broward County Land Development Code in Sec. 5-182.5 (Trafficways). This section includes information on dedication of rights-of-way for major roads and access to corridors depicted on the trafficways map. Sec. 5-199 (Effect of Delineated Trafficways Plan) predicates approval of all applications on dedication of land needed to provide the right-of-way depicted on the Trafficways Plan. It also prohibits local governments in the County from

issuing building permits or development orders for construction that would encroach on the planned right-of-way.

Delineated trafficway is defined in the code as "a public right-of-way the primary, though not necessarily the sole, purpose or use of which is to facilitate through movement of vehicles in substantial volume, rather than the providing of direct access to abutting properties and the location of which is defined with sufficient specificity so that a legal description may be derived therefrom and so that persons owning property affected thereby may be in a position to determine the nature and extent of such effect."

Determination of Alignment and Setbacks

Per Sec. 5-195.b. of the Broward County Land Development Code, design standards for rights-of-way within the Trafficways corridors are dictated by the Broward County Trafficways Plan. In general, rights-of-way should be "of sufficient width to accommodate the safe movement of vehicular traffic, mass transit and mass transit facilities such as bus pull-out lanes and bays, bicycles, pedestrians, road drainage and aesthetic features such as landscaping."

Land Acquisition Methods and Funding

In November 2018, Broward County voters approved a 1% transportation surtax which remains in effect until December 31, 2048. According to Sec. 31½-73. of the county code of ordinances, all money collected from this tax is deposited into the Transportation Surtax Trust Fund and can only be used for "authorized transportation and transit purposes." Broward County, the Broward County MPO, and 30 municipalities entered an Interlocal Agreement (ILA) which charged the MPO with the responsibility and authority to rank municipal projects to be identified in a five-year plan for approval and funding annually from the trust fund.

The Broward County Administrative Code references a road impact fee (Sec. 27.45) and a transit impact fee (Sec. 27.46). Both fees are calculated using a formula that estimates the number of daily trips generated by residential, office and retail developments and are determined during development review. Credits against these impact fees can be granted through an agreement between the county and property owners/developers. Credits against road impact fees are not allowed for (Sec. 27.45.f.3.), "(i) dedicated or conveyed rights-of-way which are a requirement of plat approval, (j) rights-of-way or construction costs on limited access highways, and (k) requirements to construct the first two lanes of a trafficway adjacent to the property." Other items that are not credited include site-related improvements, such as median cuts and auxiliary lanes.

If development is planned in an area classified as a Standard Concurrency District, there is a Transportation Concurrency requirement which can be satisfied by making a Proportionate Fair-Share contribution. There is also an "Impact Fee Credit for Proportionate Fair-Share Mitigation," (Sec. 5-182.2.4.C.). Right-of-way acquisition for capital improvements is eligible for credits.

St. Lucie County

As with the other counties reviewed, St. Lucie County has had a corridor management process for many years, and continues to maintain strong corridor preservation objectives, policies, and regulations. However, the process has been less actively implemented in the County as many of the roadways planned for reconstruction and widening are within the County's rapidly growing municipalities.

Network enhancements are being implemented in these areas through the development of regional impact (DRI) review process and through the preparation of small area plans.

For example, the Port St. Lucie Community Redevelopment Agency is producing a series of small area plans to create a commercial town center along U.S. 1 and a series of mixed-use pedestrian and transit-friendly districts with improved street networks. The plans were prepared through significant community participation and are in varying stages of development and implementation. The Village Green Drive corridor revitalization project, for example, is examining opportunities for multimodal improvements, public art and landscape treatments to complement a downtown center and improve connectivity, accessibility and aesthetics between Crosstown Parkway and key economic, community and healthcare hubs along the corridor. The project documents highlight the importance of complete streets.

St. Lucie County Comprehensive Plan

Objective 2.1.4 in the Transportation Element of the Comprehensive Plan describes the County's intention to acquire and maintain right-of-way through the uses of a thoroughfare right-of-way protection plan. Policies associated with this objective involve prohibiting encroachment, requiring setbacks, requiring dedication of right-of-way through development orders, reviews of development plans for future land use and transportation impacts, and use of minimum right-of-way standards. Specifics on standards and methods for executing these policies are located in the St. Lucie Land Development Code (Table 16).

Table 16. St. Lucie County Corridor Preservation Objectives and Policies

Objective 2.1.4	**St. Lucie County shall acquire and maintain right-of-way for the roadway network based upon the right-of-way protection plan, Transportation Element and the Future Land Use Element of this plan.**
Policy 2.1.4.1	Prohibit encroachment of development and required setbacks into established present and future rights-of-way and, within the law, require dedication of right-of-way through development orders issued by the County.
Policy 2.1.4.2	Review all proposed development plans for impact on the future land use plan and assess the capacity needs of each project as it relates to the thoroughfare right-of-way protection plan by requiring a traffic impact analysis, as further described in the County's LDC, with proposed development applications.

Source: Transportation Element, St. Lucie County Comprehensive Plan, Adopted 4/2/2019.

Table 16. St. Lucie County Corridor Preservation Objectives and Policies, Continued

Policy 2.1.4.3	Use the minimum right-of-way standards as described in the LDC to implement the thoroughfare right-of-way protection plan.
Policy 2.1.4.4	Roadways and roadway corridors shown on the thoroughfare right-of-way protection plan, excluding those that are part of the SIS, that are outside of the urban service area of the County shall not be widened or constructed until it is demonstrated to the County that the roadway construction is required to meet the development impacts of the area. Nothing in this Policy shall be construed or otherwise interpreted as to restrict or limit the ability of the County, the State or other lawful entity, to perform routine maintenance, rehabilitation or safety improvements to any roadways or roadway corridor located outside of the urban service area.
Policy 2.1.4.5	Review bi-annually the status of the thoroughfare right-of-way protection plan and submit any changes to that plan as necessary to address the mobility needs of the community.

Source: Transportation Element, St. Lucie County Comprehensive Plan, Adopted 4/2/2019.

The St. Lucie County Thoroughfare Network Right-of-Way Protection Plan is referenced in the St. Lucie County Land Development Code under section 7.05.03 (Rights-of-Way Determinations, Dedications, and Improvements). Within this section is the Right-of-Way Protection Map, dated December 15, 2010, which depicts the location and number of lanes for roads in St Lucie County (Figure 14). A note on the map indicates that the map may not be the most current or accurate and is not a legally binding document. The Comprehensive Plan references the map in the Land Development Code and contains two other maps that depict road locations, lane numbers, and are similar to the right-of-way map in the code: the Number of Lanes Map (TRN-1) and the Future (2040) Number of Lanes Map (TRN-2) (both prepared July 23, 2018). County Staff indicated a desire to update the Thoroughfare Network Right-of-Way Protection Plan to ensure that it reflects the LRTP of TPO.

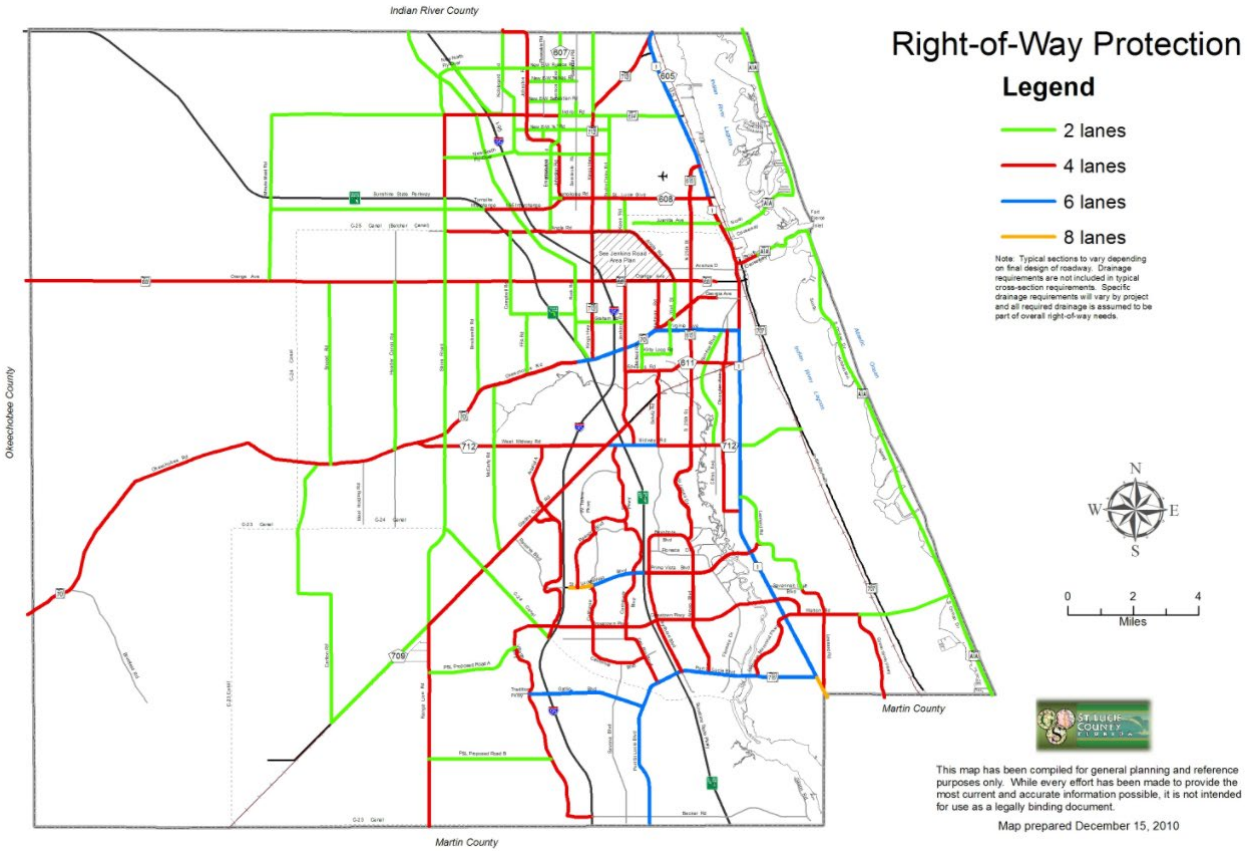


Figure 14. St. Lucie County Thoroughfare Network Right-of-Way Protection Plan

Source: Section 7.05.03, St. Lucie County Land Development Code.

St. Lucie County Corridor Management Ordinance

Section 7.05.03. (Rights-of-Way Determinations, Dedications, and Improvements) in the St. Lucie County Land Development Code houses the bulk of corridor preservation requirements for St. Lucie County. This section begins with an explanation of the St. Lucie County Thoroughfare Network Right-of-Way Protection Plan. The purpose of this plan is to identify current and future right-of-way needs for the County and Inter-County Road Systems, to establish rights-of-way standards for the county, and to provide municipalities in the county a set of standards for their own right-of-way protection planning. Minimum right-of-way widths are listed by functional road classification and number of lanes as depicted in Table 17.

Table 17. Minimum Right-of-Way and Typical Section Requirements.

ROADWAY TYPE	MINIMUM RIGHT-OF-WAY WIDTH
Arterial (8 lane)	200
Arterial (6 lane)	200
Arterial/Collector (4 lane)	160
Arterial/Collector (2 lane)	80
Local Road (w/swale drainage)	70
Local Road (w/closed drainage—curb and gutter)	60
All distances expressed in feet. Actual dimensions to be site determined and may be greater or less than expressed minimums given site conditions and specific roadway design requirements. Additional right-of-way will be at the request of the County Engineer or his/her designee. The Board of County Commissioners may modify standard right-of-way widths for Planned Unit Development if the intent of the ordinance is being upheld.	

Source: TABLE 7-15, St. Lucie County Land Development Code. Accessed Online 6/29/2021.

Additionally, Section 7.03.00. - PLANNED MIXED USE DEVELOPMENT (PMUD) includes roadway standards for developments in PMUD zoned areas (Table 18).

Encroachment

Policy 2.1.4.1 in the Transportation Element of the Comprehensive Plan states that the county intends to (p. 2-5), "Prohibit encroachment of development and required setbacks into established present and future rights-of-way and, within the law, require dedication of right-of-way through development orders issued by the County."

Determination of Alignment and Setbacks

Determination of Alignment is laid out in 7.05.03 D. in the St. Lucie County Land Development Code. According to this section, the general alignment is based on the Right-of-Way Protection Plan and the precise alignment "will be determined at the time of development review and/or as a result of detailed alignment studies and surveys." Further, "The centerline of the precise alignment shall be within six hundred sixty (660) feet of the approximate location shown on the Thoroughfare Network Right-of-Way Protection Plan, except where it can be demonstrated that an alternative centerline alignment is less potentially harmful to the environment, or displaces fewer residences, business, or other development, or is more feasible technically or financially." Centerline determination is further clarified for existing

roads, planned roads on the Right-of-Way Protection Plan which follow section lines, and planned roads on the Right-of-Way Protection Plan which do not follow section lines.

Table 18. Mixed Use Area Roadway Standards.

MIXED USE AREA ROADWAY STANDARDS					
Roadway Classification/ Avg. Daily Trips	Min. Row Width	Max Number of Lanes	Min Lane Width	Sidewalks	Bicycle Lanes
			Rural/Urban		
ARTERIAL ROADS					
0—13,400	100'	2	12'	6' both sides	6' both sides
13,401—29,500	160'	4	12'	6' both sides	6' both sides
29,501 and up	200'	6	12'	6' both sides	6' both sides
COLLECTOR ROADS					
0—10,300	80'	2	12'	6' both sides	5' both sides
10,301—22,800	100'	4	12'	6' both sides	5' both sides
LOCAL GENERAL STREETS					
0—7,500	60'	2	12'	6' both sides	Optional
LOCAL RESIDENTIAL STREETS					
0—4,500	40'*	2	10'/12'	6' both sides	Optional
4,500—7,500	50'*	2	10'/12'	6' both sides	Optional

* Requires curb and gutter for stormwater design unless otherwise approved by County Engineer.
Source: TABLE 7-4 of the St. Lucie Land Development Code Accessed Online 6/29/2021.

Previously, the County increased front setback requirements along select corridors to reflect future right-of-way needs. Section 7.04.04 (Base Building Line Setback Requirements) the Land Development Code outlines setback requirements for thoroughfares (Table 7-11 in the Land Development Code) . The table defines existing and ultimate rights-of-way for named roadway segments as well as specific base building lines for each segment. For any road not found in the table, the base building line dimension is 30 feet. The land development code also clarifies that, “when a thoroughfare right-of-way from centerline is greater than the base building line dimension as hereby established, the right-of-way line shall serve as the basis on which to measure front, side, and rear yard setbacks.” The County has not had legal challenges to this practice to date.

Land Acquisition Methods and Funding

County staff indicated that Road Impact Fees constitute a prime method of guaranteeing from developers the preservation of right-of-way so long as construction produces a net public benefit for the county. Specifically, if developers are willing to construct roads that are capacity building or on the LRTP, the county will provide 40% -100% of the cost of construction in road impact fee credits depending on public benefit and value. A limitation of this method is that the County impact fees are purely road impact fees and credits are not offered for non-auto improvements. Figure 15 depicts roads that have been or will be funded through road impact fee credits.

Road Impact fees are described in Article VIII. of the County Land Development Code. This fee is calculated using tables found in Sec. 24-258. (Computation of the amount of roads impact fee). Use of the road impact fee is limited to "capital improvements or enhancements to transportation facilities associated with the arterial and collector road network of the county as identified in the county's comprehensive plan or the comprehensive plans of the City of Fort Pierce, City of Port St. Lucie Village or by the FDOT." Road impact fee credits are described in Sec. 24-264 and detail use towards right-of-way dedication in sub paragraph (6). This section states, "Credit for the dedication of non-site related right-of-way shall be valued at 120 percent of the assessed value by the county property appraiser plus the reasonable cost, as determined by the county administrator, of any survey, closing costs or title information provided by the fee-payer to the county at the request of the county."

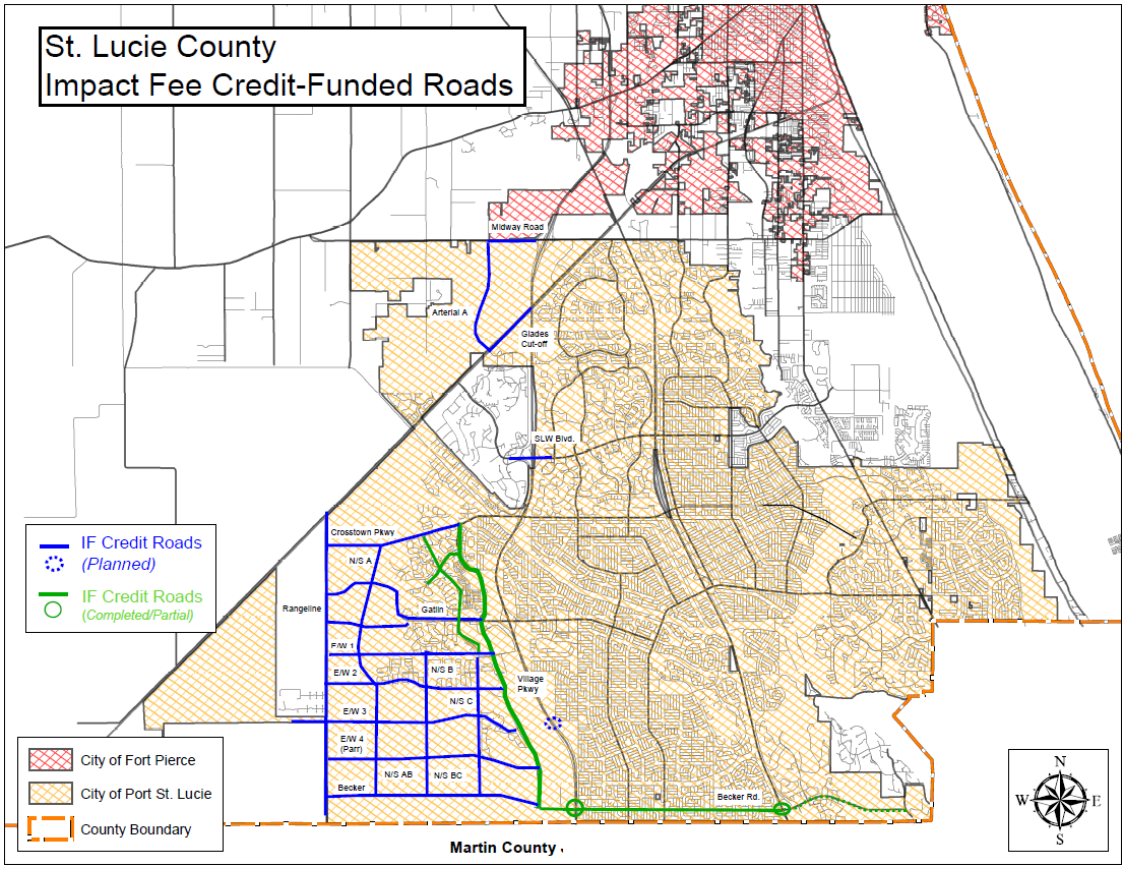


Figure 15. St. Lucie County Future ROW Network Map

Source: St. Lucie County staff.

Transferable Development Rights (TDRs) and TDR Credits are mentioned only in reference to the Towns, Villages, and Countryside (TVC) Overlay and the North St. Lucie County Special Area Plan (SAP). Section 4.04.05. of the Land Development Code outlines any rules that govern the use of TDRs and the creation and calculation of TDR credits.

Advance Acquisition Methods

While no methods are expressly described for advanced acquisition, Policy 9.1.1.10 in the Capital Improvement Section of the Comprehensive Plan states (p. 9-2),

> d. St. Lucie County may acquire land or right-of-way in advance of the need to develop a facility for new development. The location of facilities constructed pursuant to this Subsection shall conform to the Future Land Use Element, and specific project locations shall serve projected growth areas within the allowable land use categories.

Street Network Connectivity and Block Length Standards

In general, there is no overall standard for block length or connectivity. The Countryside (TVC) Overlay section includes mention of both road network connectivity and block length in Section 4.05.08 D. (Stewardship Receiving Area (SRA) Review and Approval Processes). Within this section the Land Development Code states that for an SRA application to meet the requirements of a Rural Land Stewardship Area (RLSA) it must have a master plan which includes the provision: "Achieve connectivity through an interconnected network of roads and streets and block designs in each context zone, as established in the RLSA LDRs, to provide multiple pathways allowing for trip dispersion and reduced trip lengths."

The Rural Land Stewardship Area (RLSA) Overlay section of the Land Ordinance Code (Sec. 4.05.00) also contains information about form-based code elements. The code lists six context zones which specify permitted land uses, FARs, building height, setbacks, and other regulating elements: Town Core, Town Center, Village Center, Special Use District, Neighborhood Edge, Neighborhood General. The goal of the RLSA Overlay is to encourage the preservation and private stewardship of natural resources and the retention of rural uses and agriculture. Streets in designated Stewardship Receiving Areas (SRA) for transfer of development rights in some districts are required to adhere to cross sections in the SRA Plan. At a minimum all proposed streets with the exception of alleys must include sidewalks on both sides of the street, parallel to the right-of-way.

Preservation of ROW for Non-Auto Modes

When formulating ROW protection needs, the Environmental Resource Department is consulted as they manage the greenways and trails program. They assist in developing plans which exhibit strategic advantage to the community for travel to destinations, as well as movement of animals and preservation of ecosystems. The county uses a range of methods to strategically preserve those facilities, including credits to park impact fees, FEMA avoidance of development in flood prone areas, and an environmental land stewardship program. Efforts are also made to integrate multimodal facilities through flexibility in the ROW protection figures and modification of standard sections.

The county is limited in their use of road impact fees and credits, however municipalities have broader transportation impact fees, and can and do use those funds towards multi-modal improvements within the ROW. The county does try to add bus stops or secure easements for stops through impact fee credits for land based on the benefits of the bus to roadway level of service.

Figure 16 shows the existing and planned facilities for non-auto modes. Although the trails are identified as recreationally oriented, the Greenways and Trails Master Plan also emphasizes transportation functions, as follows:

> "The priority of the Master Plan is to expand transportation options for non-motorized modes in addition to providing recreational opportunities, so in places these trails may complete a network of transportation-oriented pathways intended to serve bicyclists and pedestrians. In these cases, the overall recommendation for these trail types is paved surfaces that are amendable to cycling, walking and running.
>
> …. The Master Plan envisions trails continuing along roadways and not just in environmental lands. This not only allows users to identify their direction with understood travel patterns, it also takes advantage of existing right-of-way where it is available. When possible in the long term, these multi-use trails should be constructed on both sides of the roadway with which they are aligned, as shown in the illustration to the left..."

Considerations raised by staff for improving the right of way protection process included:

- more regular updates of the right of way needs map
- integrating key destinations, like town centers and schools, and their connections for improved transparency of purpose to the public and clarification of transit destinations
- reflecting additional modes in both the plan and in the impact fee program
- Possible ROW width considerations based on context classification of corridors, and
- Creation of access classification standards/map tied to specific corridors.

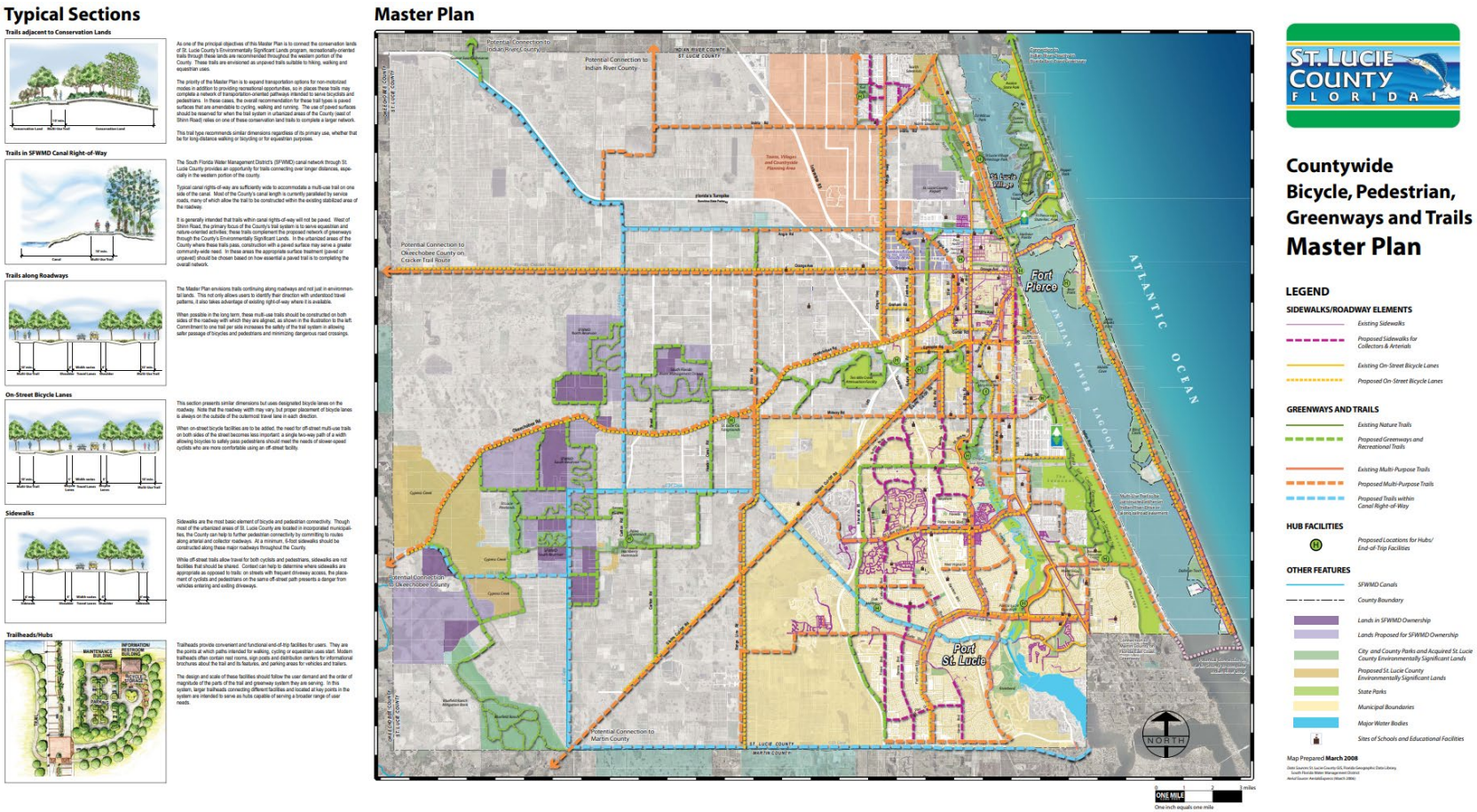


Figure 16. St. Lucie County Greenways & Trails Facility Map

Source: https://www.stlucieco.gov/departments-services/a-z/environmental-resources/greenways-paddling-trails

Alachua County

Alachua County has a multimodal transportation mitigation program to implement its mobility plan. The program offers best practice insight into multimodal corridor planning and mitigation for transportation corridors in Florida. The concurrency program replaced traditional transportation impact fees and proportionate fair share for new projects in the urban service area with a one-time mitigation payment. It is implemented through concurrency, as opposed to mobility fees designed as impact fees, and applies only to developments in the urban service area that lack a valid certificate of level of service compliance. Applicants are required to sign a multimodal mitigation agreement to receive their certificate of LOS compliance. Other developments continue to pay transportation impact fees.

As documented by Paul and Nicholas (2011), the mitigation payment is based on the estimated growth in Vehicle Miles of Travel (VMT) as reflected in adopted transportation and land use plans. To derive a per VMT rate, the projected cost of the multi-modal projects identified in the Mobility Plan is divided by the projected increase in VMT between the base year and horizon year of the Mobility Plan. The result is then multiplied by the transportation impact (trip generation, trip length, pass-by, internal capture, etc.) of a particular land use to produce a simple schedule of fees by land use type. Developers could determine their mitigation payment based on land use type or their own alternative analysis. The analysis by Paul and Nicholas (2011) demonstrates that the mitigation payment for a purely roadway-based mitigation program would be significantly higher than a multimodal plan based system.

The multimodal transportation mitigation payment applies only to developments other than developments greater than 1,000 dwelling units or 350,000 sq ft of non-residential uses in the County's designated urban cluster that trigger a level of service deficiency. Large developments greater than 1,000 dwelling units or 350,000 sq ft of non-residential uses must still mitigate impacts through either of the following methods (Policy 1.1.10):

(a) Mitigate the proportionate share cost for all significant and adverse impacts to roadways, interstates, intersections and interchanges not addressed through the multi-modal transportation fee. Significant and adverse impacts to roadways, intersections, interstates and interchanges shall include all roadways where the development generates traffic that is five (5) percent or more of the Florida Department of Transportation Generalized Tables capacity at the adopted roadway level of service guideline. Adverse roadways are roadways that operate below that adopted roadway level of service guideline. The Florida Department of Transportation shall be consulted on impacts to Strategic Intermodal System (SIS) facilities,

OR

(b) Construct and fund multi-modal improvements, to the extent permitted by law, as described below (capital projects shall be consistent with the Capital Improvements Element):

(1) Construct one of the following:

a. Construct an overpass over Interstate 75 that accommodates at least three of the following modes of travel: walking, biking, driving or riding transit, or -

b. Construct two (2) miles of an off-site roadway capacity project, or

c. Construct four (4) miles of single track or two (2) miles of dual track off-site dedicated transit lanes.

(2) Construct an off-site multi-use trail connecting two pedestrian generators.

(3) Fund four (4) hybrid or alternative fuel buses.

(4) Construct a surface park and ride lot designed to accommodate a multi-story parking structure at a future date, the multi-story parking structure may be constructed in-lieu of the surface lot.

(5) All projects, regardless of proximity to Interstate 75, shall be required to fund transit for a cumulative twenty (20) year period. The funding of transit shall be phased in such a manner to increase service frequency coincident with the construction of the development up to eventual 10-minute headways along Rapid Transit Corridors from the development site to a centrally located transit hub on the University of Florida Campus and the Eastside Activity Center. Timing of the commencement of transit service shall be scheduled to begin when there are sufficient users projected to utilize the service.

Under Policy 1.1.11, developments may receive mobility fee credit for the construction of non-site related infrastructure, purchase of buses and funding of transit required in Policy 1.1.10 above. Where the cost of the required multi-modal improvements is greater than the multi-modal transportation fee, the developer may seek reimbursement for the additional funds expended from a Community Development District (CDD) or Transportation Improvement District (TID). The Developer must enter into a Development Agreement with the County to specify timing for the infrastructure projects and funding of transit service, mobility fee credit, development entitlements, and funding mechanisms. Policy 1.1.11 allows developments to receive mobility fee credit for constructing non-site related infrastructure, purchasing buses and funding transit service.

Alachua County Mobility Plan

The Alachua County Mobility Plan establishes a clear policy foundation for multimodal mitigation. The mobility plan is designed to implement a system of dedicated bus rapid transit corridors on congested roadways, along with parallel roadways, supporting multiuse bicycle and pedestrian paths, and in-street bicycle lanes. It designates three Urban Transportation Mobility Districts in a designated “urban cluster” area surrounding Gainesville to encourage mixed-use, interconnected developments that promote walking and biking, reduce vehicle-miles of travel and greenhouse gas emissions and provide transit-supportive densities (Objective 1.1).

Traditional neighborhood development (TND) and transit-oriented development (TOD) centers are encouraged on rapid transit and express transit corridors. The mitigation payment is reduced for TND and TOD projects with the rationale that these have less impact on the transportation system than suburban single-use developments. Allowances for higher density non-residential development and allowing these uses without special approval were key incentives that reduced costs by streamlining approval thereby garnering widespread support. In addition, a network of corridors with dedicated transit lane(s) are designated on a Rapid Transit Corridors Map “to provide a sense of permanence and provide developers seeking to build Transit Oriented Development with the assurance that there is a commitment to transit.” (Policy 1.1.6.7)

The statements of intent for the Mobility Districts (Policy 1.1.3) clearly establish the transportation benefits of the multimodal transportation facilities and related strategies. For example, one intent is to

provide multiple route choices, alternatives to the state highway system and protect the Strategic Intermodal System (SIS). They are also designed to:

- Support efficient and cost-effective transit service and provide bicycle and pedestrian connections to key destinations and transit.
- To recognize that certain roadway corridors will be congested and that congestion will be addressed by means other than solely adding capacity for motor vehicles and maintaining roadway level of service on those corridors.
- To use features of an alternative mobility funding system per 163.3180, F.S.
- To provide multimodal cross-access and connectivity within and between uses to encourage walking and cycling and reduce travel distances and impact to collector and arterial roadways.

Concurrency is managed in the urban cluster based on adopted multimodal level of service guidelines (Policy 1.1.4, shown below) in the plan with supporting criteria, including an areawide LOS within each Mobility District for all functionally classified roadways. Policy 1.1.5 notes that as the intensity of development to support transit is realized, the County will eventually transition from providing multimodal infrastructure along rapid transit corridors to providing frequent transit service. A twenty-year multimodal transportation capital improvements program provides a schedule for this transition. Policy 1.1.7 establishes the mobility fee through which development must satisfy transportation impact mitigation obligations and requires modes of transportation addressed by the mobility fee to be consistent with and meet the established level of service standards of the modes identified in Policy 1.1.4.

Policy 1.1.4 Within the Urban Cluster, the County adopts multi-modal level of service (LOS) guidelines for the following:

	Level of Service (LOS)	Standard of Measure
Pedestrian	B	Based on Presence of a pedestrian facility
Bicycle	B	Based on Presence of a bike lanes / paved shoulders
Express Transit	B	Based on Peak Hour Frequency of 15 minutes or less
Motor Vehicle*	D	Professionally Accepted Traffic Analysis

*Guideline applies to Collector and Arterial Roads

(a) In order to achieve the level of service guideline for pedestrians and bicyclists, the facility shall run the entire length of the roadway segment. A pedestrian facility shall be either a multi-use path on one (1) side of the roadway or sidewalks on both sides of the roadway. A multi-use path along a roadway shall result in a LOS B for bicyclists. The LOS for bicycle and pedestrian travel is the goal for all collector and arterial roadways within the Urban Cluster by 2040, not a standard that is intended to be achieved on an annual basis for each roadway.

(b) Express Transit Service shall be provided for a minimum of two (2) hours during both the AM and PM peak periods. The LOS for Express Transit Service shall be a goal achieved within the Urban Cluster on each of the routes shown on the Express Transit Corridors map by 2030. The peak hour frequency for each route shall be a minimum of 30 minutes and may be

increased to additional service to meet demand and maintain up to fifteen (15) minute headways based on the capacity and productivity of the service.

(c) Within each Urban Transportation Mobility District, achievement of the LOS for all functionally classified roadways shall be based on an Areawide LOS. The Areawide LOS shall be determined by dividing the sum (∑) of total traffic by the sum (∑) of the total maximum service volume at the adopted LOS guideline for all functionally classified roadways.

The Capital Improvements Element (CIE) identifies the multimodal infrastructure projects needed to meet adopted level of service guidelines and proactively address project transportation needs from new development and redevelopment within the Urban Cluster by 2040 (Policy 1.1.6). Updates of the CIE include an analysis to ensure areawide LOS is achieved for each mobility district and that progress is being made toward achieving the identified LOS guidelines for non-auto modes. A VMT and mode share analysis is also conducted for each mobility district and the urban cluster. If the areawide LOS for motor vehicles falls below adopted guidelines within a mobility district, then the CIE update will identify either additional motor vehicle capacity projects or additional non-auto projects to provide enhanced mobility. Additional policies address amendments to the CIE, future land use plan, urban cluster boundary and annexations.

Roadway capacity projects must focus on development of an interconnected network that provides alternatives to state roads, including additional lanes over I-75. County and state roadways (other than I-75) are limited to no more than four motor vehicle lanes and all bridges over the interstate must provide for transit, bicycle lanes, sidewalks and/or multi-use paths. Policies include flexibility for transportation facility construction scheduling/time frames to accommodate development based on the level of development activity. Dedicated transit lanes must be designed and constructed on new roadway projects on the Rapid Transit Corridors map and the county coordinates provision of park and ride facilities with transit supportive development on those corridors.

Mitigation Fund and Credits

Multimodal transportation mitigation funds are placed in special revenue/mobility project trust funds established for the three (3) transportation mobility districts for funding of scheduled transportation improvements consistent with the capital improvements element. Funds are placed in the transportation mobility district trust fund from which the revenues were collected and spent in that district, as well Article XII Concurrency Management, Sec. 407.125.1(g)1, Alachua County Unified Land Development Code. In no case is a development allowed to be required to pay more than its impact on the transportation system.

Article XII Concurrency Management, Sec. 407.125.1(h) of the Alachua County Unified Land Development Code addresses credits from these payments. Applicants may request credit from the multimodal transportation mitigation payment for dedicating non-site related ROW and the construction of infrastructure consistent with the capital improvements element. They may also request credit for funding transit operations to/from the development consistent with transit service identified in the CIE. Multi-modal transportation mitigation credits may be transferred to other developments within the same transportation mobility district, so long as all the developments are owned by the same development entity. If the credit is based on an improvement or right-of-way dedication for a facility that forms the border of two transportation mobility districts, the credit could be used in either district.

Future Right of Way Map and Dedication

Objective 1.9 of the Mobility Element provides for acquisition and protection of existing and future rights-of-way from development. Policy 1.9.1 indicates that the Future Transportation Corridor Map (Figure 17) is incorporated and will be used to identify right-of-way needs along designated transportation corridors. Subsequent policies state that the County shall protect right of way through the development review process and acquire it as funds become available. In addition, the County will coordinate with FDOT on right-of-way needs on development along state highways and with the Regional Transit Service on right-of-way needs along transit corridors. Standards for roadway construction and development are established to guide these determinations.

The future transportation corridor preservation program was initiated in 2007 and has evolved to be part of the overall mobility planning process. The plan incorporated numerous new corridors and connections in an effort to a) relieve congested and constrained corridors by providing alternative parallel corridors, and b) improve the accessibility to town centers or activity centers (Alachua County, 2007). Criteria used to evaluate and rank potential new corridors to include are shown in Table 19. Other issues considered in the project included spacing standards to develop more of a grid network.

Table 19. Alachua County Ranking Criteria for Future Corridor Evaluation

PRIMARY OBJECTIVES	POINTS
Relieves congested and constrained corridors	30 pts
Improves accessibility to town centers or activity centers	20 pts
SUPPORTING CRITERIA	
Connects two or more existing arterials or collectors	10 pts
Potential expansion of multimodal facilities (transit & bike)	10 pts
Uses existing local roads or ROW easements (75% or more)	10 pts
Minimize environmental impacts (5% or less)	10 pts
Minimize number of land owners impacts (20 properties or less)	10 pts
TOTAL	100 pts

Source: Alachua County Future Traffic Circulation Corridors Map Project, July 10th, 2007.

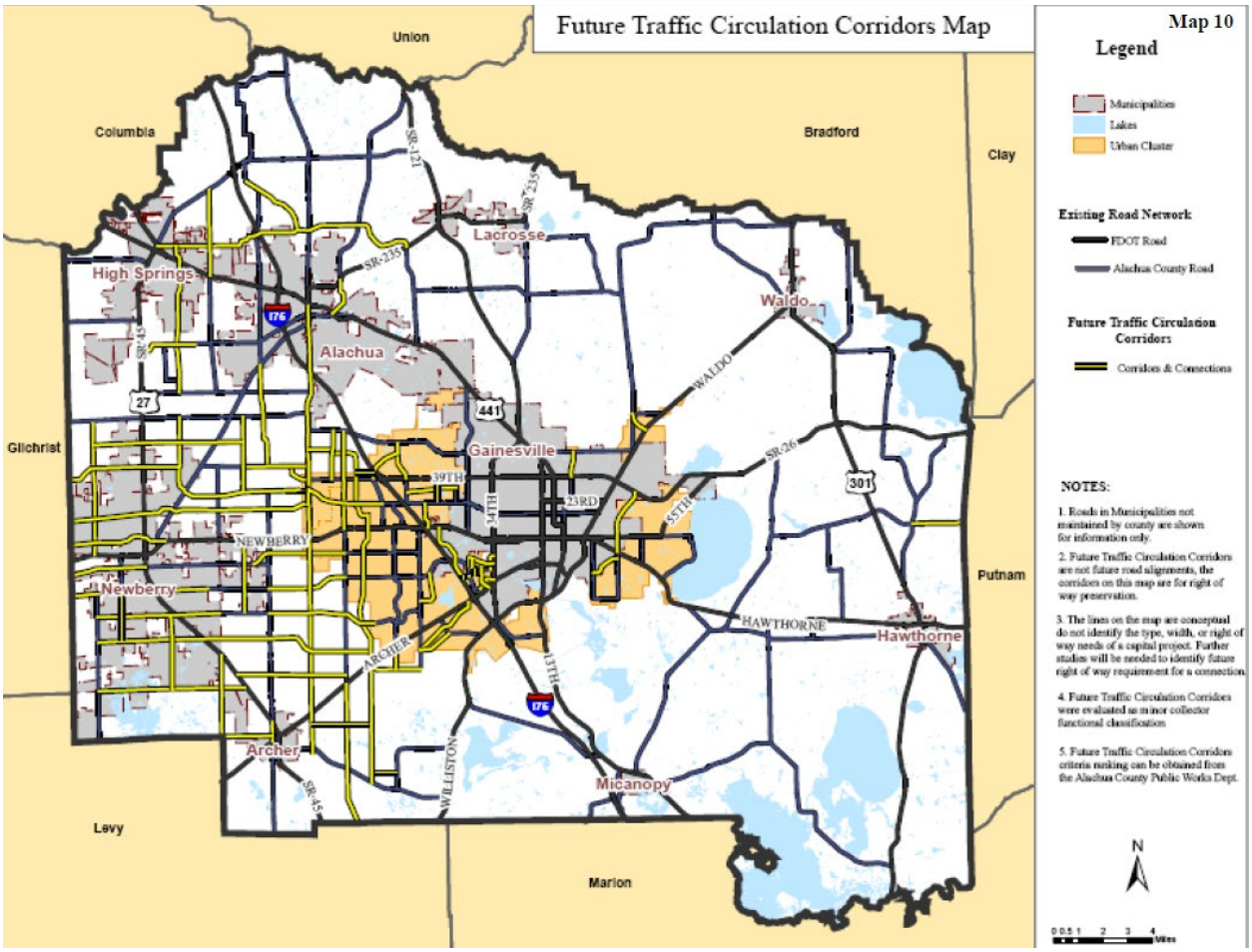


Figure 17. Alachua County Comprehensive Plan, Future Traffic Circulation Corridors Map.

Per Policy 1.3.7 of the Mobility Element development is required to dedicate the necessary right-of-way proportionate to the impacts of development along property boundaries of external roadways to accommodate standard lane widths, turn lanes, bike lanes, clear recovery zones, stormwater, utilities, sidewalks and multi-use paths. Sidewalks and multi-use paths may be provided within an easement along major roadways to preserve and take advantage of proposed buffers, existing vegetation, environmentally sensitive areas, and natural features.

The land development code includes the following provisions for right of way dedication (Sec. 407.140. - Street network standards):

> (c) Dedication of future rights-of-way. All developments located adjacent to or along an existing or future alignment of a collector or arterial roadway, as identified on the future highway functional classification map adopted by Alachua County, shall provide dedication of right-of-way for the alignment that is roughly proportional to the impact of the development. The county engineer may waive the dedication requirement, if there is a substitute dedication that would serve the same purpose, if due to the location and layout of the development, there is no public need for a dedication.

(d)Waiver of requirement for dedication of roads. The board of county commissioner's, upon recommendation of the development review committee, may waive the requirement for the dedication of public streets and allow the streets to remain privately maintained upon finding that by reason of its location and anticipated use, the road will not serve a public purpose or provide connectivity to other platted or unplatted lands. However, the street to be privately owned shall be designed and constructed in accordance with the provisions of this chapter. All streets to be privately owned shall be dedicated to a property owners association or other maintenance entity acceptable to the county for ownership and maintenance.

Street Network and Connectivity

Policy 1.1.8 of the Comprehensive Plan requires development in the Urban Cluster to provide an internal street network. Provisions call for the County to develop a connectivity index standard for bicycles, pedestrians and motor vehicles, and for street design standards that support walking and biking, ensure safety for all users and allow for emergency access. In addition:

- Stub-outs of the street network must be provided to adjacent parcels with development or redevelopment potential in all directions, except where environmental or topographical constraints exist.
- Cross access must be provided and paved to the property boundary even if a cross access connection on the developed land does not exist.
- Developments must continue and extend any existing stub out.
- Developments must provide a pedestrian and bicycle circulation system that includes a network of multi-use paths throughout the development. The multi-use paths must connect open space areas, adjacent developments, and existing or planned bicycle pedestrian facilities along collector and arterial roadways.
- A developer is allowed to propose a plan to provide a network of shared or separate facilities to provide mobility through low-speed electric vehicles. The plan shall address safety for all modes of transportation with particular attention paid to bicycle and pedestrian interactions.

Roadways, dedicated transit lanes and trails identified in the Capital Improvements Element must be constructed by the development where they run through or are contiguous with the project (Policy 1.1.9) Other selected policies of interest to this topic include the following

- Policy 1.6.4. New development proposals shall be reviewed as part of the Development Review process for the provision of adequate and safe bicycle and pedestrian facilities consistent with policies in the Future Land Use Element. Standards and requirements for bicycle and pedestrian facilities (such as sidewalks, pedestrian paths, bicycle lanes, and bicycle parking) shall be detailed in the land development regulations and include elements such as amount, design, and location.
- Policy 1.6.5. Streets and roads shall be designed such that automobile and non-automobile modes of transportation are equitably served to the greatest extent possible. Design will include public and emergency vehicle access. Such designs shall include strategies to calm automobile traffic, provide a pleasant pedestrian environment, and create safe, balanced, livable streets, such as:
    - (a) narrow travel lane width,
    - (b) minimum turning radius,
    - (c) bike lanes,
    - (d) pedestrian-friendly frontage uses and design,

(e) street trees, street furniture, and landscaping,

(f) wide sidewalks,

(g) crosswalks, and/or

(h) gridded street system of short blocks.

Numerous provisions in the Section 407.140 (Street Network Standards) a and b of the land development code implement external connectivity of street networks. For example, direct access is prohibited from any lots in subdivisions or outparcels in retail centers to any street or highway on the county or state system, functionally classified as major collector or higher. if an internal street is not technically feasible as determined by the development review committee. Exceptions may be provided if the development review committee decides an internal street is not technically feasible or the development creates only two lots fronting on the street with frontage greater than 250 feet that are served by a common driveway.

Section 407.140(a)(8) indicates that the layout and types of streets in a development must provide for the continuation or appropriate projection of stub streets and sidewalks to adjacent properties by constructing them as close to the property line as possible, and signs must be posted advising residents of the intent and purpose of the stubbed street. In addition, where a proposed development abuts an existing development with a stub street, the street system in the proposed development must connect to the existing stub street.

The continuation of existing streets must be designed to discourage cut-through traffic through existing or planned development, while providing for convenient movement of traffic, effective fire protection and other public service providers and efficient provision of utilities. The requirement to extend streets or provide a secondary access may be waived where impractical or undesirable and provision for pedestrian and bicycle interconnectivity between the developments is provided. Section 407.140(b) Layout of lots and Streets establishes the ideal street pattern as internally connected and may be in a gridiron, curvilinear, organic, radial or any other style that provides for internal connections and external linkages with an intersection a minimum of every 1000 feet.

Summary

The review of current corridor management practices in Florida suggests few changes in the fundamental practices of developing a future right of way map and implementing it through corridor management regulations. Counties continue to rely on robust authority for implementing right-of-way preservation and other corridor management practices provided to them under Florida planning law. An observation on Florida thoroughfare plans, as compared to the plans reviewed nationally, is a less detailed emphasis on integrating area type or context, non-auto modes, and complete streets design concepts at the thoroughfare planning level. Nonetheless, steps are being taken to address those issues and especially in the context of mobility planning practices. In the process, local governments are broadening their impact fees and mitigation methods to strengthen corridor management plans and practices from a multimodal perspective. A general summary of thoroughfare planning practices in Florida counties reviewed is provided in Table 20. The next section further examines selected Florida and national thoroughfare planning practices relative to context and multimodal elements.

Table 20. Summary of Thoroughfare Plan Practices in Florida Counties

Jurisdiction	*ROW Needs Map*		*Mandatory Dedication*	*Preservation Measures*	*Network and Connectivity*	*Area Type and Context*	*Advance ROW Acquisition*
	Planned Roadways	*Non-auto Modes*					
Hillsborough County	Map 25, ROW needs not specified	Transit Map 15, ROW needs not specified Greenways Master Plan	Yes	Restrictions on encroachment, density/intensity credits, clustering, interim uses	Plan policies and regulations Parallel relievers	Context Based Classifications (not yet in practice)	No
Tallahassee-Leon County	Future Rights-of-Way Needs Map and table	Addressed in notes and policy Greenways Master Plan	Yes	Restrictions on encroachment, on-site density transfer, clustering, waiver of deviation, waiver of review fees, interim uses	Comp Plan policies and regulation Planned Development Master Plans	Plan to address in next update	Blueprint 2000 Intergovernmental Agency
Indian River County	Extended Roadway Grid Network Map and ROW table	Includes bicycleways and sidewalks per adopted plans	Yes, to local road standards	Offsite improvements, lot size adjustments Impact fee credits or purchase of additional ROW	Implements Subdivision Collector Map Network connectivity for TND, mixed use	No	Murphy Act purchases Impact fees, gas tax, sales tax Opportunity purchases
Orange County	Based on LRTP map	Not specified	Yes	Density credits Impact fee credits	Pedestrian connectivity index Urban village districts and Master Plans (Welaunee Arch, Horizon West)	No	No
Broward County Planning Council	Trafficways Plan Map, ROW needs specified	Context sensitive corridors Complete streets guidelines	Yes, by deed or easement	Restrictions on encroachment	Addressed at local government level.	Urban Core, Urban Main Street, or Urban Residential	No
St. Lucie County	Thorough-fare Network Right-of-Way Protection Plan	Not specified	Yes	Restrictions on encroachment, road impact fee credits Transferable Development Rights (TDRs) and TDR Credits in certain planned developments Compensation where otherwise applicable	In planned development overlays only (Towns, Villages, and Countryside and North St. Lucie County Special Area Plan) Jenkins Road Special Area Plan	Context Zones (In Rural Land Steward-ship Area Overlay)	May acquire land or right-of-way in advance of need
Alachua County	Mobility Plan Future Traffic Circulation Corridors Map	Bicycle lanes, sidewalks, express transit, multi-use paths	Yes	Restrictions on encroachment Multimodal mitigation fee credits	Mandatory connectivity and internal street networks in Urban Cluster Includes bike/ped facilities	Urban cluster districts	Multimodal transportation mitigation funds placed in special revenue/mobility project trust funds

Chapter 4 – Context Sensitive Corridor Plan Practices

This chapter reviews selected context sensitive thoroughfare planning practices in reflected in contemporary corridor management programs as identified through a literature and internet search. Related Florida practices are provided in Chapter 3. The focus of this section is on methods for integrating land use context and area type, complete streets strategies, and modal priority. The chapter also examines procedures for flexibility in implementation.

Context and Multimodal Elements

Indianapolis-Marion County

The Indianapolis-Marion County region is served by a joint City-County Council and a joint City-County planning department called the Department of Metropolitan Development which is managed by the Metropolitan Development Commission. While planning documents for this area are developed by planners and community members, the Metropolitan Development Commission is empowered by statute to, among other actions, adopt the Comprehensive Plan and Thoroughfare Plan for the city and county.

As indicated in the Thoroughfare Plan, generally, ROW is only reserved when:

- A new road is planned to be constructed (new terrain)
- A road is planned for expansion by this Plan, INDOT, or a Thoroughfare Plan of an adjacent jurisdiction
- The existing Right of way is less than the minimum for that road's classification and land use context (see Figure 18 and Figure 19)
- Through the subdivision platting process

<u>Indianapolis Comprehensive Plan and Thoroughfare Plan</u>

The Transportation Element of the Indianapolis-Marion County Comprehensive Plan is called the Indy Moves Transportation Integration Plan (Indy Moves) and was updated in 2018. The 2020 Thoroughfare Plan is a section of Indy Moves. The Indianapolis-Marion County Thoroughfare Plan is more extensive than a right of way needs map. Rather, it is a 33-page document that covers goals, existing plans, functional classification, right-of-way preservation, and plan implementation guidelines.

The first two key elements of this Thoroughfare Plan are the prioritization of transit, pedestrians, freight, and bicycles within the transportation system and the incorporation of Complete Streets Ordinances into the plan. Page 2 of the Thoroughfare Plan states that the Thoroughfare Plan "implements the Complete Streets Ordinance by ensuring all modes are accommodated within our transportation system, incorporating right-of-way needs for all modes, providing design guidance on multi-modal facilities, and providing guidance on conflicting mode priorities."

The stated purpose of the plan is to:

- Classify roadways based on their location, purpose in the overall network and what land use they serve.

- Provide design guidelines for accommodating all modes (automobile, transit, pedestrians, bicycles) within the roadway.
- Set requirements for preserving right-of-way (ROW).
- Identify roadways for planned expansion or new terrain roadways.
- Coordinate modal plans into a single linear network through its GIS database.

The Thoroughfare Plan includes the following Indy Moves goals and associated objectives related to the thoroughfare plan:

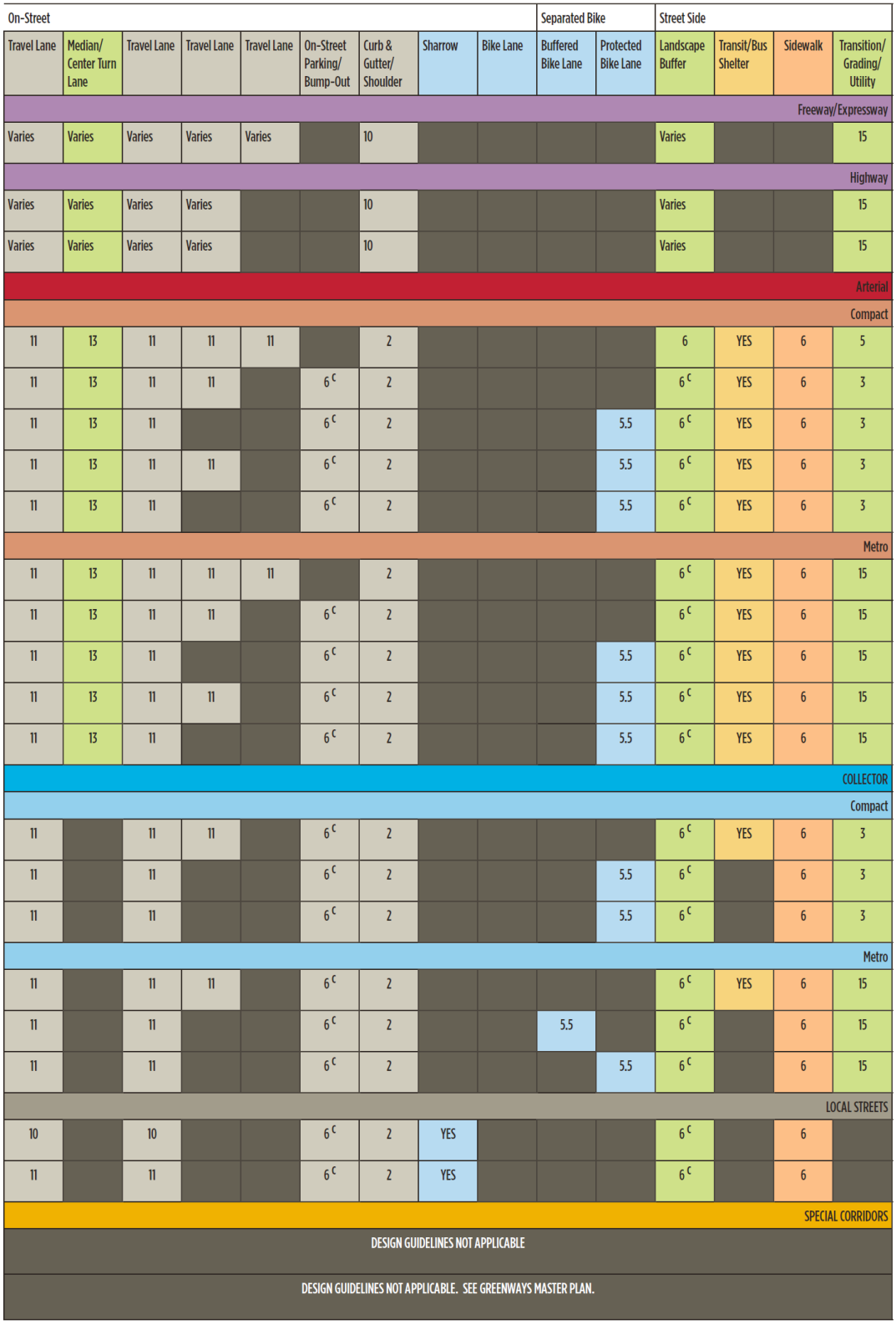
- Goal #1: Balance the transportation needs for mobility and accessibility
- Goal #2: Provide for a safe transportation experience for all system users.
- Goal #3: Accommodate all transportation modes within the roadway system to the extent feasible.
- Goal #4: Balance transportation needs for efficiency and redundancy.

Roads in Indianapolis-Marion County are classified by function, context (Compact or Metropolitan), and number of lanes. Additionally, the Thoroughfare Plan provides a means to establish priorities for users of the ROW. The ROW Standards and Design Guidelines Table of the Thoroughfare Plan (Figure 18 and Figure 19) is used as a preliminary tool for determining which roadway elements and users are prioritized for each type of the roadway functional classification and context area.

				Street Side					Separated Bike		On-Street					
Facility and Context Area	Minimum ROW (Ft.)[a]	Maximum ROW (Ft.)[b]	Speed	Transition/ Grading/ Utility	Sidewalk	Transit/Bus Shelter	Shared-Use Path	Landscape Buffer	Protected Bike Lane	Buffered Bike Lane	Bike Lane	Sharrow	Curb & Gutter/ Shoulder	On-Street Parking/ Bump-Out	Travel Lane	Travel Lane
FREEWAY/EXPRESSWAY (THOROUGHFARE)																
Compact/Metro	Varies	Varies	55mph	15				Varies					10		Varies	Varies
HIGHWAY (THOROUGHFARE)																
Compact	Varies	Varies	55mph	15				Varies					10			Varies
Metro	Varies	Varies	55mph	15				Varies					10			Varies
ARTERIAL (THOROUGHFARE)																
Compact																
6-lane Primary	104	121	40mph	5		YES	10	6					2		11	11
4-lane Primary	78	95	40mph	3		YES	10	6[c]					2	6[c]		11
2-lane Primary	56	80	35mph	3	6	YES		6[c]	5.5				2	6[c]		
4-lane Secondary	78	102	35mph	3	6	YES		6[c]	5.5				2	6[c]		11
2-lane Secondary	56	80	35mph	3	6	YES		6[c]	5.5				2	6[c]		
Metro																
6-lane Primary	124	141	40mph	15		YES	10	6					2		11	11
4-lane Primary	102	119	40mph	15		YES	10	6[c]					2	6[c]		11
2-lane Primary	80	104	40mph	15	6	YES		6[c]	5.5				2	6[c]		
4-lane Secondary	102	126	40mph	15	6	YES		6[c]	5.5				2	6[c]		11
2-lane Secondary	80	104	40mph	15	6	YES		6[c]	5.5				2	6[c]		
COLLECTOR (NON-THOROUGHFARE)																
Compact																
4-lane Primary	78	82	35mph	3		YES	10	6[c]					2	6[c]		11
2-lane Primary	56	67	30mph	3	6			6[c]	5.5				2	6[c]		
2-lane Secondary	56	67	30mph	3	6			6[c]	5.5				2	6[c]		
Metro																
4-lane Primary	102	106	40mph	15		YES	10	6[c]					2	6[c]		11
2-lane Primary	80	91	30mph	15	6			6[c]		5.5			2	6[c]		
2-lane Secondary	80	91	30mph	15	6			6[c]	5.5				2	6[c]		
LOCAL STREETS (NON-THOROUGHFARE)																
Compact	48	48	25mph		6			6[c]				YES	2	6[c]		
Metro	50	50	25mph		6			6[c]				YES	2	6[c]		
SPECIAL CORRIDORS																
Belt Line Railroad (Non-Thoroughfare)	100	100	n/a	DESIGN GUIDELINES NOT APPLICABLE												
Greenway (Non-Thoroughfare)	50	50	n/a	DESIGN GUIDELINES NOT APPLICABLE. SEE GREENWAYS MASTER PLAN.												

Figure 18. Indianapolis-Marion County ROW Standards and Design Guidelines Table.

Source: Indianapolis-Marion County Thoroughfare Plan, p. 16



On-Street									Separated Bike		Street Side			
Travel Lane	Median/ Center Turn Lane	Travel Lane	Travel Lane	Travel Lane	On-Street Parking/ Bump-Out	Curb & Gutter/ Shoulder	Sharrow	Bike Lane	Buffered Bike Lane	Protected Bike Lane	Landscape Buffer	Transit/Bus Shelter	Sidewalk	Transition/ Grading/ Utility
Freeway/Expressway														
Varies	Varies	Varies	Varies	Varies		10					Varies			15
Highway														
Varies	Varies	Varies	Varies			10					Varies			15
Varies	Varies	Varies	Varies			10					Varies			15
Arterial														
Compact														
11	13	11	11	11		2					6	YES	6	5
11	13	11	11		6 [c]	2					6 [c]	YES	6	3
11	13	11			6 [c]	2				5.5	6 [c]	YES	6	3
11	13	11	11		6 [c]	2				5.5	6 [c]	YES	6	3
11	13	11			6 [c]	2				5.5	6 [c]	YES	6	3
Metro														
11	13	11	11	11		2					6 [c]	YES	6	15
11	13	11	11		6 [c]	2					6 [c]	YES	6	15
11	13	11			6 [c]	2				5.5	6 [c]	YES	6	15
11	13	11	11		6 [c]	2				5.5	6 [c]	YES	6	15
11	13	11			6 [c]	2				5.5	6 [c]	YES	6	15
COLLECTOR														
Compact														
11		11	11		6 [c]	2					6 [c]	YES	6	3
11		11			6 [c]	2				5.5	6 [c]		6	3
11		11			6 [c]	2				5.5	6 [c]		6	3
Metro														
11		11	11		6 [c]	2					6 [c]	YES	6	15
11		11			6 [c]	2			5.5		6 [c]		6	15
11		11			6 [c]	2				5.5	6 [c]		6	15
LOCAL STREETS														
10		10			6 [c]	2	YES				6 [c]		6	
11		11			6 [c]	2	YES				6 [c]		6	
SPECIAL CORRIDORS														
DESIGN GUIDELINES NOT APPLICABLE														
DESIGN GUIDELINES NOT APPLICABLE. SEE GREENWAYS MASTER PLAN.														

[a] Minimum Right-of-Way includes the following components: six-foot sidewalks and the applicable transition/ grading/utility, landscape buffer, curb & gutter, and travel lane widths.

[b] Maximum Right-of-Way includes all applicable components.

[c] Include EITHER a landscape buffer OR on-street parking with landscape bump-out. ROW standards do not accommodate both.

Notes:
The values contained in this table represent target widths and may vary depending on local

Through technical evaluation, the Department of Public Works may request additional ROW to right turn lanes at Collector or Arterial intersections with enough turning movements to sufficiently reduce travel lane capacity. DPW may also request irregular topography or slopes necessary for bridges require more than the typical transition area width.

Bus stops/stations require an 8' deep (perpendicular to roadway) paved boarding area separate space. Where shelters are provided, a minimum of 10' of ROW is required, and/or landscape buffer area.

Figure 19. Indianapolis-Marion County ROW Standards and Design Guidelines Table (continued).

Source: Indianapolis-Marion County Thoroughfare Plan, p. 16

In 2015, Indianapolis-Marion County passed the Indy Rezone Consolidated Zoning/Subdivision Ordinance which, among other things, recognized that the city and county contained both suburban and traditional types of development by introducing two "Context Areas" – Compact and Metropolitan [Sec. 740-501]. Compact context areas are characterized by higher density development, structures placed closer to the ROW and to one another, and possibly street grid networks. Metropolitan context areas include moderate to rural density development, suburban development patterns, building set back from ROW, and possibly cul-de-sacs and curvilinear street systems. Figure 20 shows the two broad context area designations.

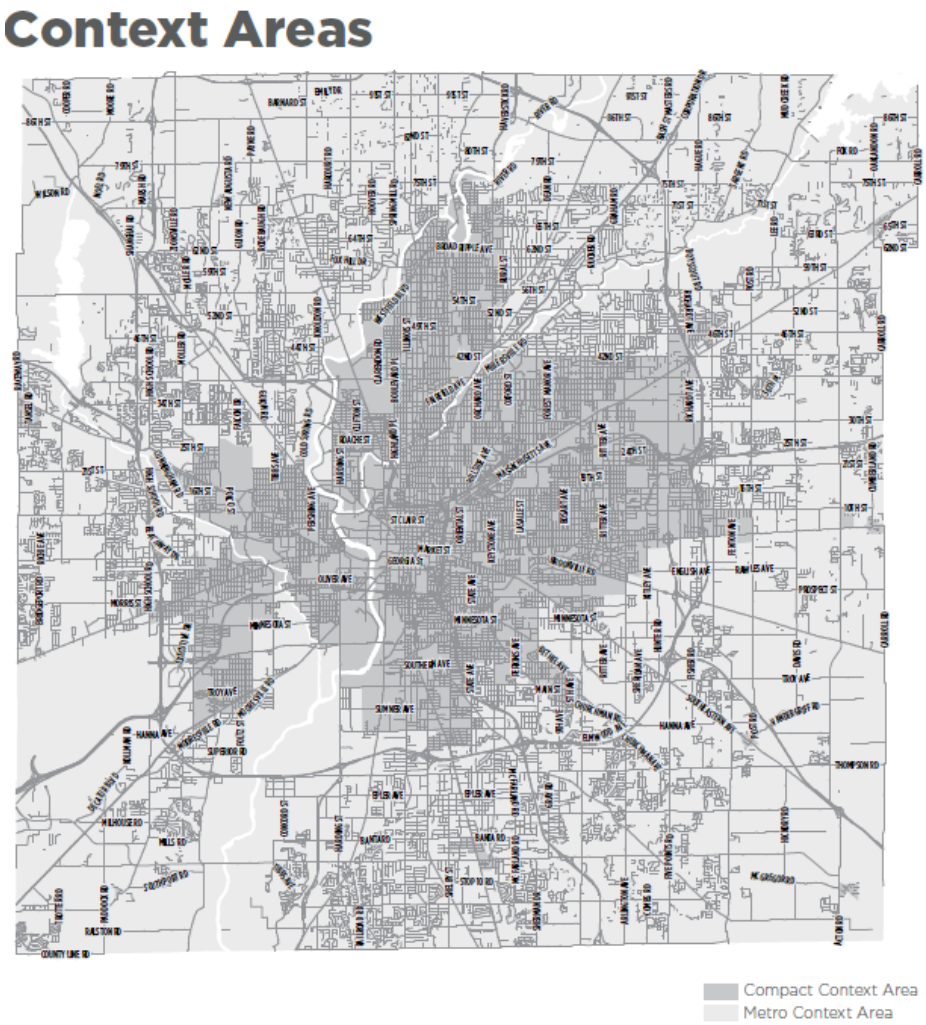


Figure 20. Indianapolis-Marion County Context Area Map

Source: Indianapolis-Marion County Thoroughfare Plan, p. 22

The process of classifying roadway network segments and definition of each functional classification is explained in detail on pages 8-10 of the thoroughfare plan. Road types for functional classification include Freeway/Expressway/Highway (Thoroughfares), Primary Arterial (Thoroughfares), Secondary Arterial (Thoroughfares), Primary Collector (Non-Thoroughfares), Secondary Collector (Non-Thoroughfares), Local Street (Non-Thoroughfares), and Special Corridors (Non-Thoroughfares). Each roadway type is defined in text to clarify the planned function, speeds, volume, and related modal

characteristics. Special corridors are rights-of-way required for unique circumstances, policy objectives, or facility types such as the Belt-Line Railroad Corridor and Greenway Corridors, which accommodate designated off-street greenway trails or shared-use paths as identified in the Indy Moves plan. A section on “proposed right-of-way explains the basis for the minimum right of way widths to be preserved. Figure 21 illustrates the process for determining the widths through use of a decision tree. Figure 22 defines the requirements in text through references to the Right of way Standards and Design Guidelines Table (see Figure 18 and Figure 19).

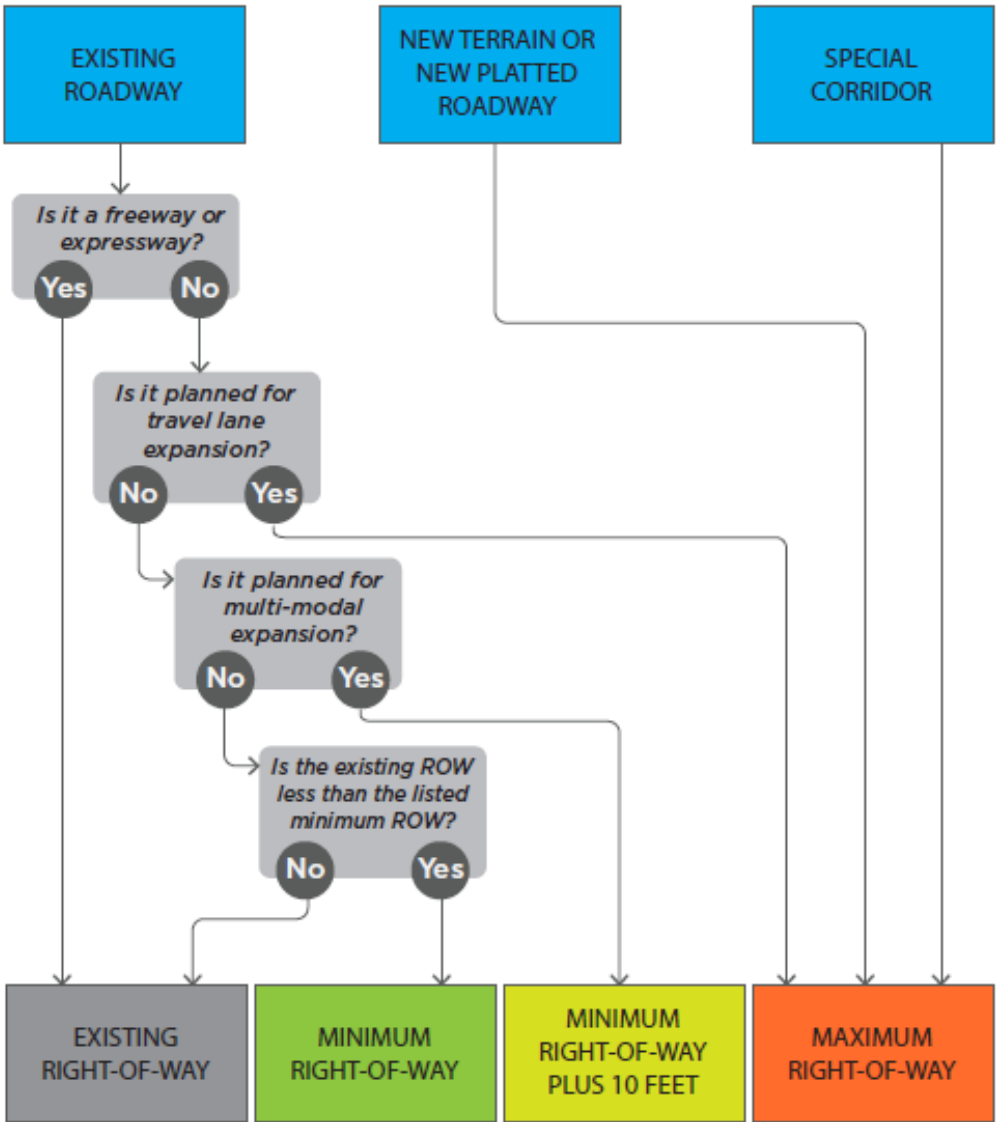


Figure 21. Proposed right-of-way flow chart.

Source: Indianapolis-Marion County Thoroughfare Plan, p. 15

Type of Roadway Segment	Proposed Right-of-Way
For roadways that are classified as freeway or expressway	Existing ROW
For a roadway segment identified as a new-terrain (a new roadway where one does not exist today) thoroughfare	Maximum ROW (per ROW Standards and Design Guidelines Table)
For subdivision platting	Maximum ROW (per ROW Standards and Design Guidelines Table)
For a roadway segment identified for planned travel-lane expansion (road widening)	Maximum ROW (per ROW Standards and Design Guidelines Table)
For a roadway segment identified for planned multi-modal expansion (adding a greenway or shared-use path)	Minimum ROW (per ROW standards and Design Guidelines Table) plus an additional 6 feet
For a roadway segment with an existing right-of-way less than the minimum listed in the ROW Standards and Design Guidelines Table.	Minimum ROW (per ROW Standards and Design Guidelines Table)
For all other roadway segments	Existing ROW
For special corridors	Maximum ROW (per ROW Standards and Design Guidelines Table)

Figure 22 Definitions of "proposed right-of-way" by type of road segment.

Source: Indianapolis-Marion County Thoroughfare Plan, p. 15

The thoroughfare system is also mapped, with roadway classifications guiding right-of-way needs and other requirements, such as setbacks and sight lines. Figure 23 shows the arterial network, planned number of lanes for each category of roadway, and highlights those arterials planned for travel lane expansion, multimodal expansion, and new terrain roadway, as well as compact and metro context areas. Figure 24 is a special corridors map showing rail and greenway corridors, further solidifying their importance to the overall thoroughfare plan.

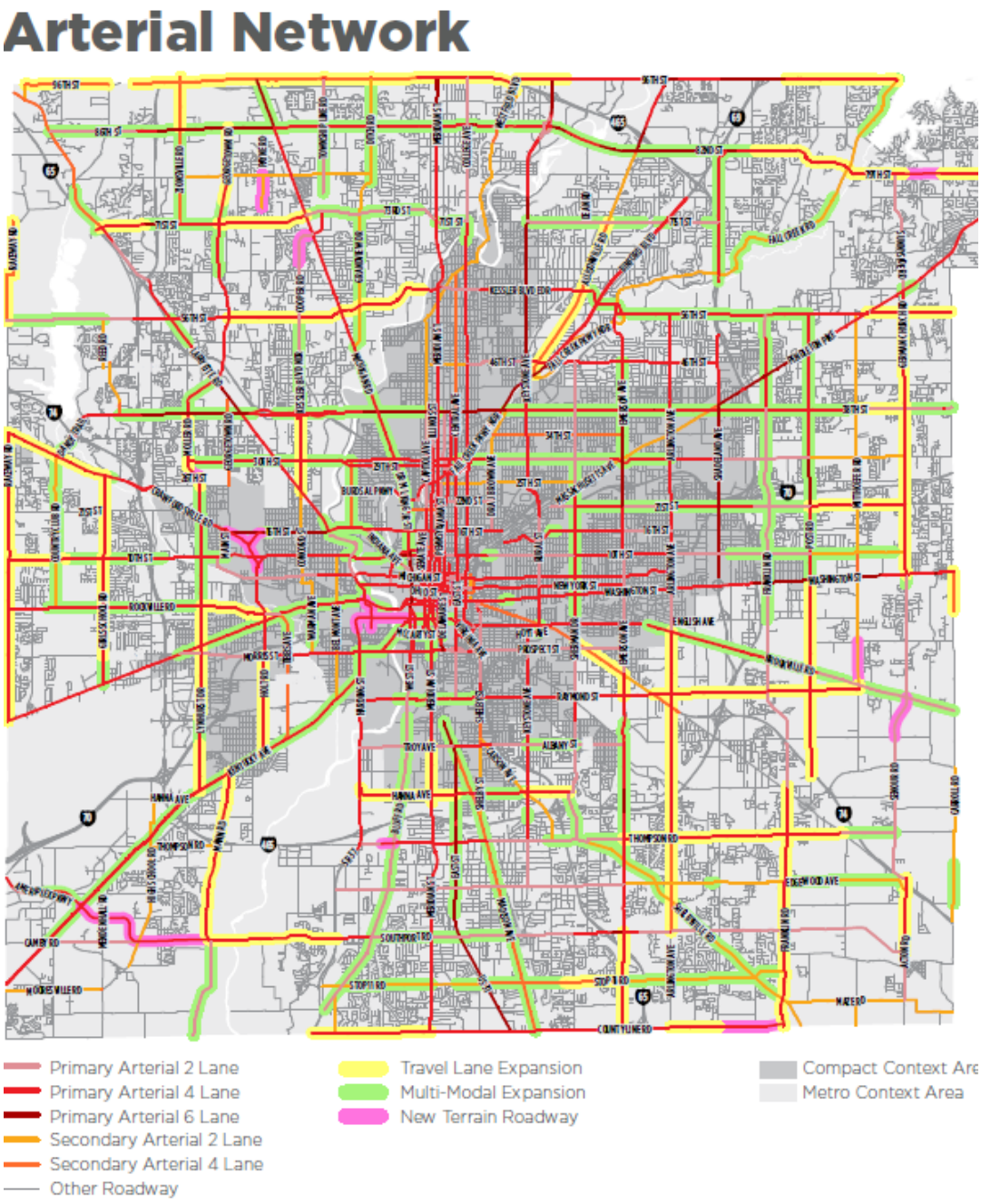
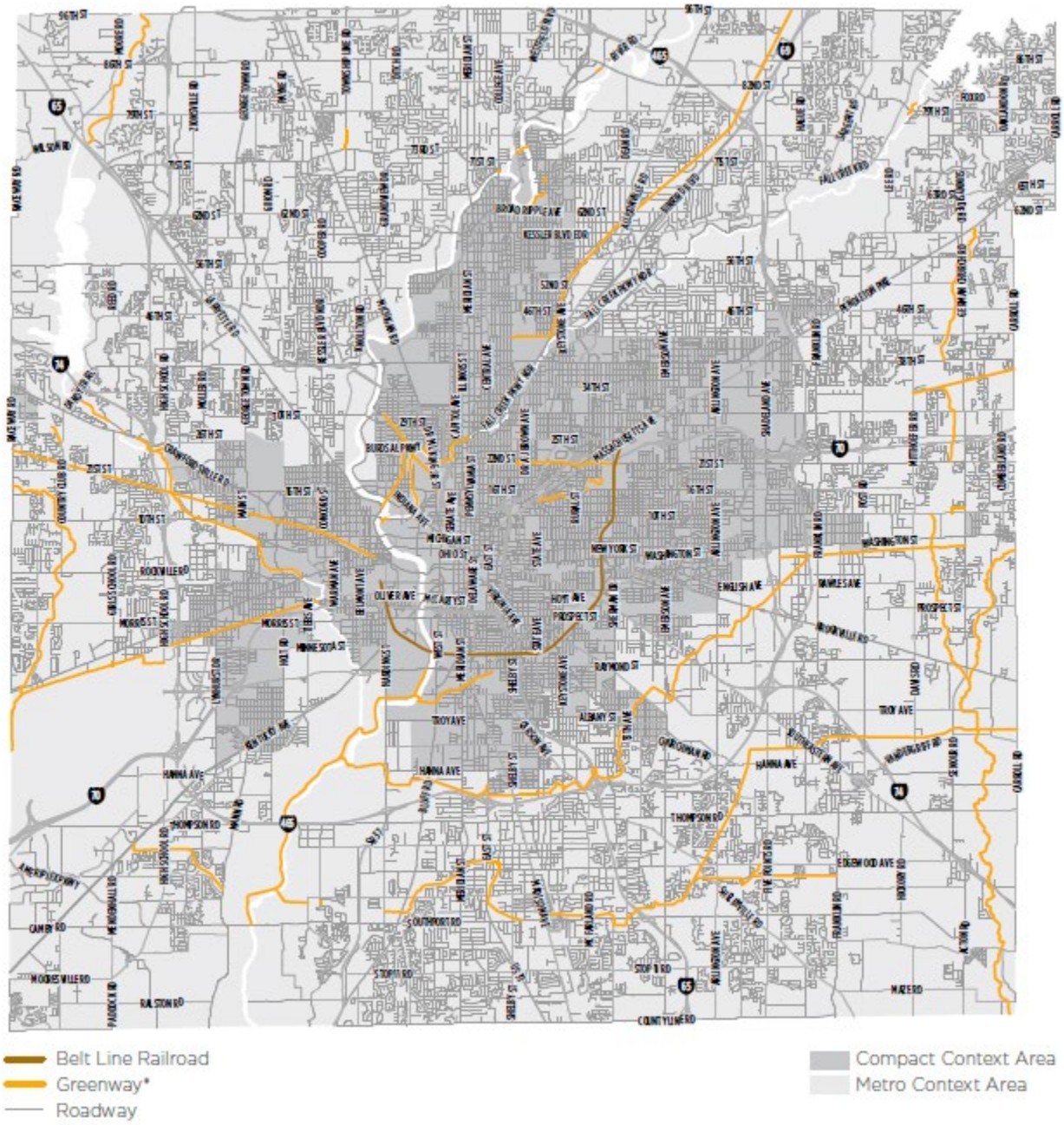


Figure 23 Indianapolis-Marion County Arterial Network Map.

Source: Indianapolis-Marion County Thoroughfare Plan

Special Corridors



*Note listed Greenway Special Corridors only include non-roadway segments unbuilt at time of plan adoption and do not represent the existing built greenway network.

Figure 24. Special corridors map for greenways and railroad corridors.

Source: Indianapolis-Marion County Thoroughfare Plan, p. 28.

In 2012, the City-County Council approved Complete Streets Ordinance. Under Chapter 431, Article VIII of the Consolidated City and County Code of Ordinances the Compete Street Policy outlines the scope of Complete Streets applicability, design standards, performance measures, implementation, and reporting. Sec. 431-807 states,

> "The department of public works, the department of metropolitan development, the office of sustainability and other relevant departments, agencies, or committees will incorporate Complete Streets principles into all existing plans, manuals, checklists, decision-trees, rules, regulations, and programs as appropriate (including, but not limited to, ReZone Indy, ReBuild Indy, the Comprehensive Plan, Transportation Capital Program, the Pedestrian and Bicycle Master Plans, Transit Plan and other appropriate plans)."

In sum, the Indianapolis-Marion County Thoroughfare Plan establishes a clear vision of the future thoroughfare system that is both multimodal and context sensitive. It also clarifies the relationship to other implementing tools, and is clearly written, graphical, and brief to be highly accessible to the public and potential developers. It is an optional element of the Comprehensive Plan, therefore instead of being regulatory, the document provides long-range guidance and is meant to inform decision making. The cross sections described above are not prescriptive, rather, they are meant to be graphic illustrations of a particular concept. For any given mode, other multimodal elements that are appropriate can be substituted for what is illustrated in the ROW Standards and Design Guidelines Table. Additionally, right-of-way minimums can be waived if substantiated by technical justification from the Department of Public Works and certain roads that do not fit design parameters (e.g., roads on National Register of Historic Places) can be addressed on case-by-case basis.

El Paso, Texas

El Paso has a detailed, yet flexible framework for future growth in its award-winning comprehensive plan that guides all future development, including that of the transportation system. Thoroughfares in El Paso are organized into a functional hierarchy based on criteria including design speed, travel lane width, and access, which define the thoroughfare's role in the overall network. The thoroughfare network is mapped and depicts proposed network extensions in a grid pattern (Figure 25). Thoroughfares are further defined in relation to the following area types: Compact Urban, Drivable Suburban, and Rural. The City has also identified a number of subcategories within each area type to identify its various planning areas (Table 21). The Texas Department of Transportation refers to these designations for guidance as it designs roadway projects.

In May 2011 the City of El Paso adopted the Institute of Transportation Engineer's Recommended Practice, Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (2010) as a guideline for designing and redesigning new and existing thoroughfares. The practice of "context sensitive solutions" (CSS) and the designation of context zones helps describe the physical form and characteristic of a place and can be interpreted on a block-by-block basis for thoroughfare design. A SmartCode was also adopted providing additional detailed community types and design criteria. Title 21 of the Code of Ordinances describes the process of using SmartCode in the development process. Incentives for developers to use this method include receiving the highest priority review status by all reviewing agencies, having all applications or filing fees waived, and City acceptance of dedications and maintenance of civic space.

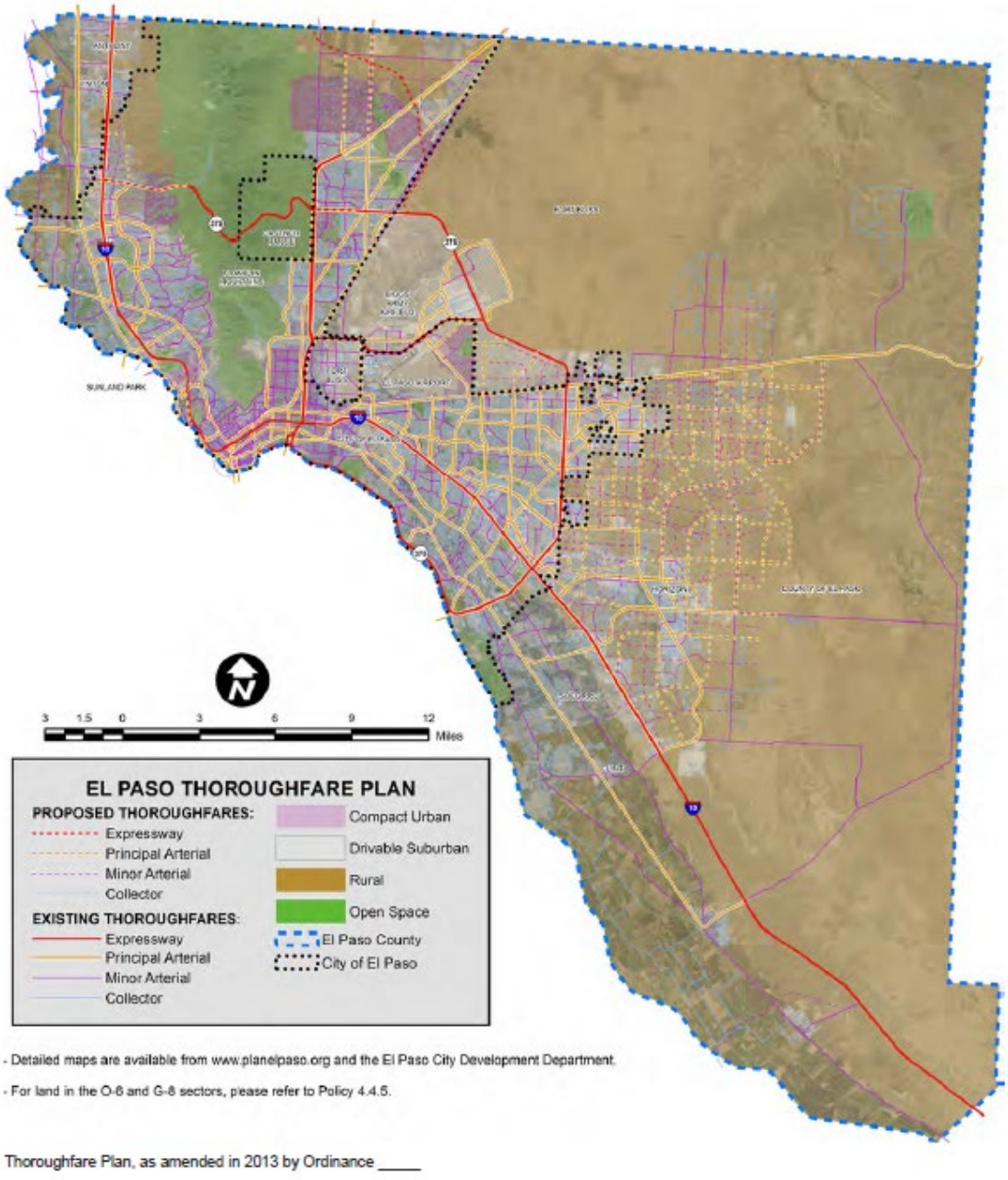


Figure 25. City of El Paso Major Thoroughfare Plan Map.

Source: Draft El Paso Thoroughfare Plan, 2013 Update.

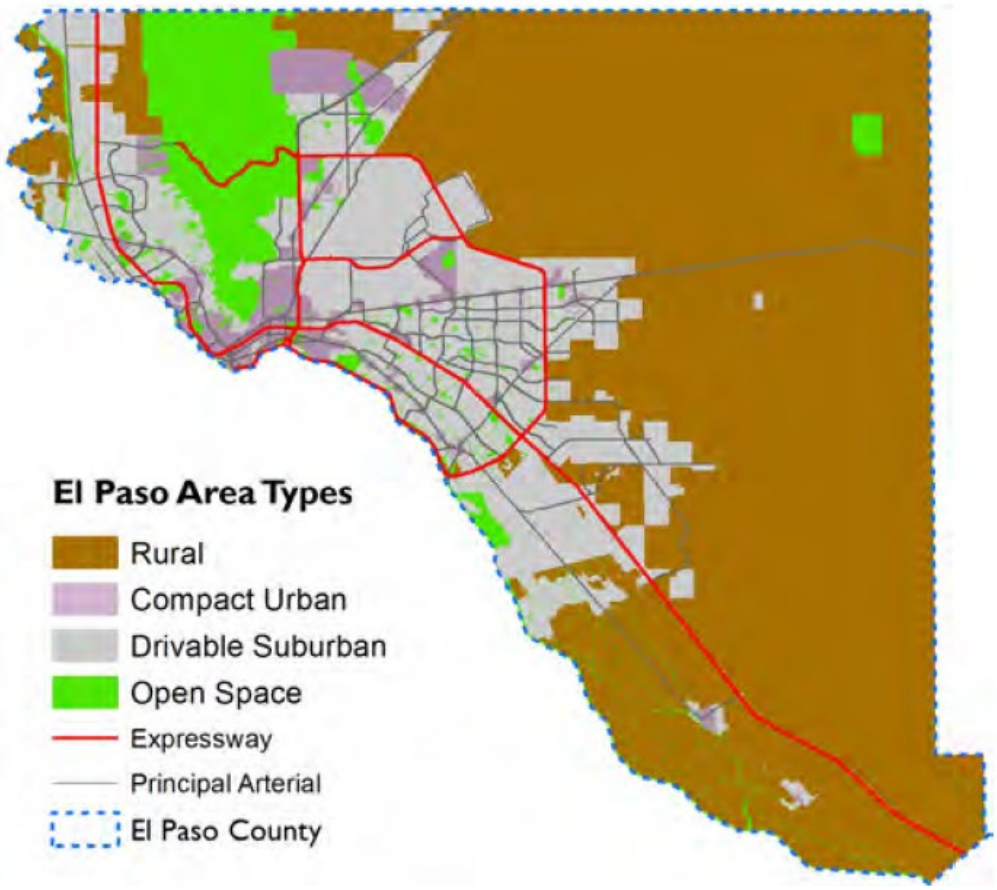


Figure 26. El Paso Area Type Map

Source: Draft El Paso Thoroughfare Plan, 2013 Update.

Table 21. El Paso Area Types Used for Context Classification

	Area Types		
	Compact Urban	**Drivable Suburban**	**Rural**
Future Land Use Map	G-1 – Downtown G-2 – Traditional Neighborhood O-7 – Urban Expansion Local Transfer Centers (overlay) RTS Stops (overlay) Future Compact Neighborhood (overlay)	G-3 – Post-War G-4 – Suburban	O-1 – Preserve O-2 – Natural O-3 – Agriculture O-4 – Military Reserve O-5 – Remote O-6 – Potential Annexation
ITE Context Zones	C-6 – Urban Core C-5 – Urban Center C-4 – General Urban C-3 – Suburban	C-3 – Suburban	– N/A –

Source: City of El Paso, Texas Transportation Element, p. 4.33.

Table 22. Thoroughfare Design Standards by Context and Area Type

	Area Types		
	Compact Urban		Drivable Suburban
	ITE Practice	SmartCode (Title 21)	DSC (Title 19)
Arterial	Commercial Boulevard Residential Boulevard Commercial Avenue Residential Avenue Commercial Street Residential Street	Boulevard: BV-135-53; BV-135-33; BV-125-43; BV-115-33 Avenue: AV-90-56; AV-75-40 Commercial Street CS-100-64; AV-80-54; AV-80-44; CS-60-34; CS-55-29; CS-50-22	Major Arterial 6 lanes (98') Major arterial with Bike/Hike 6 lanes (108') Minor Arterial 4 lanes (76') Minor Arterial with Bike/Hike 4 lanes (86') Boulevard (96')
Collector	Commercial Avenue Residential Avenue Commercial Street Residential Street	Avenue: AV-90-56; AV-75-40 Commercial Street CS-100-64; AV-80-54; AV-80-44; CS-60-34; CS-55-29; CS-50-22 Street: ST-60-34; ST-50-30; ST-50-28; ST-50-26; ST-40-19 Road: RD-50-24	Non-Residential Collector (68') Non-Residential Collector with Bike lanes (80') Non-Residential 4 lane Collector (64') Non-Residential 4 lane Collector with Bike lanes (72') Residential Collector (54') Residential Collector 2 lanes (54')
Local	Commercial Street Residential Street	Street: ST-60-34; ST-50-30; ST-50-28; ST-50-26; ST-40-19 Road: RD-50-24 Rear Alley: RA-24-24 Rear Lane: RL-24-12	Multi-family & Commercial/Industrial Local Street 1 (62') Multi-family & Commercial/Industrial Local Street 2 (54') 36' Local Residential (54'); 28' Local Residential 2 (46') 32' Local Residential 3 (50'); Residential Ln No Parking (38') Divided Mountain Residential Street (ROW varies) Mountain Residential Street 2 lanes only on M.D.A. (23') Alley with Lane (14'); Alley 2 Lanes (20'); Alley No Parking (16') 16' Alley Single-family Residential (16') 28' Alley Commercial/Industrial/Multi-family (28') Cul-de-sac; "T" Cul-de-sac; "Y" Cul-de-sac; Stub Street

Source: City of El Paso, Texas Transportation Element, p. 4.37.

The comprehensive plan identifies interim designations, shown in Table 21, to guide thoroughfare design by context until the thoroughfare plan could be further refined. As an example, Figure 27 identifies areas that are included in the "Compact Urban" area type. A 2013 draft update of the thoroughfare plan, available online, was identified that aimed to integrate bicycle and pedestrian facilities, further refine the classification systems, add cross sections and other updates. Selected draft thoroughfare plan refinements are shown in Table 23 and Table 24.

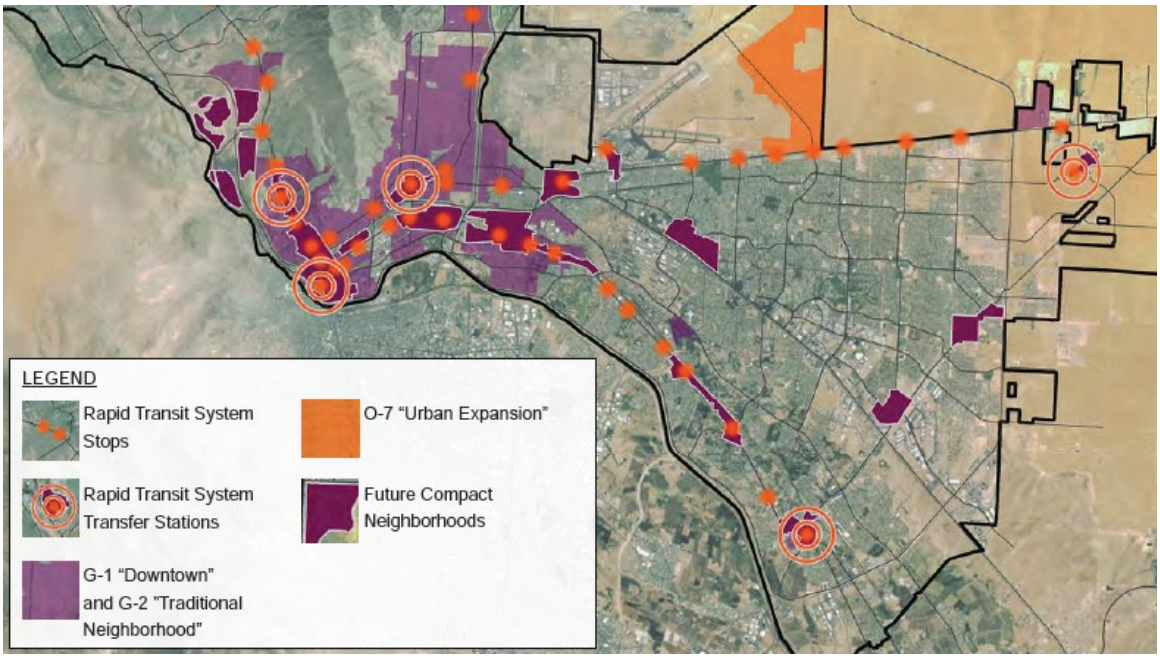


Figure 27. Future Land Use Map highlighting Compact Urban Areas

Source: City of El Paso, Texas Transportation Element, p. 4.34.

Table 23. Design Criteria for New & Reconfigured Thoroughfares

DESIGN CRITERIA FOR NEW & RECONFIGURED THOROUGHFARES					
Number of Travel Lanes					
Compact Urban	4 - 8 lanes	4 lanes typical; 6 lanes in boulevard	2 lanes typical; 4 lanes if necessary	2 lanes	2 lanes
Drivable Suburban		4 lanes typical; 6 lanes if necessary	2 lanes typical; 4 lanes if necessary	2 lanes	2 lanes
Rural		2 lanes typical; 4 lanes if necessary	2 lanes	2 lanes	2 lanes
Target Speed					
Compact Urban	65 mph	30–35 mph	25–30 mph	20–25 mph	20–25 mph
Drivable Suburban		45 mph	40 mph	20–30 mph	20–25 mph
Rural		55 mph	50 mph	45 mph	20–25 mph
Bicycle Facilities					
Compact Urban	none	wide sidewalks, cycle tracks, or boulevard access lane	sidewalks, cycle tracks, or sharrows	cycle tracks or sharrows	with traffic
Drivable Suburban		wide sidewalks	cycle tracks or sharrows	bike lanes; share travel lanes	with traffic
Rural		separated path	separated path	separated path	with traffic
Pedestrian Facilities					
Compact Urban	none	wide sidewalks	sidewalks	sidewalks	sidewalks
Drivable Suburban		wide sidewalks	sidewalks	sidewalks	sidewalks
Rural		separated path	separated path	separated path	separated path
On-street Parking					
Compact Urban	none	yes (not at bus stops)	yes (not at bus stops)	yes	yes
Drivable Suburban		no	occasionally	occasionally	occasionally
Rural		no	no	no	no

Source: Draft El Paso Thoroughfare Plan, 2013 Update, p. 9.

Table 24. Basic and Optional Cross Sections for El Paso Thoroughfares

Area Type \ Street Type	Principal Arterial	Minor Arterial	Collector	Local
BASIC & OPTIONAL CROSS-SECTIONS				
Compact Urban	Basic Cross-Section: Four lanes without median, with parking, sidewalk, and parkway with trees Potential Options: • Add Safety Strip • Add Cycle Track • Substitute Multiway Blvd. • Substitute Multiway Blvd. with bike/hike path • Substitute SmartCode assemblies that match physical context • Substitute parkway/ tree well	Basic Cross-Section: Two lanes without median, with parking, sidewalk, and parkway with trees Potential Options: • Add Safety Strip • Add Cycle Track • Substitute SmartCode assemblies that match physical context • Substitute parkway/ tree well	Basic Cross-Section: Two lanes without median, with parking, sidewalk, and parkway with trees Potential Options: • Add Cycle Track • Substitute SmartCode assemblies that match physical context • Substitute parkway/ tree well	Basic Cross-Section: Two lanes, with curb, parking, wider sidewalk, and parkway with trees Potential Options: • Substitute SmartCode assemblies that match physical context • Substitute parkway/ tree well
Drivable Suburban	Basic Cross-Section: Four lanes with median, with bike/hike path and parkway with trees Potential Options: • Add two more lanes	Basic Cross-Section: Two lanes without median, with bike/hike path and parkway with trees Potential Options: • Add two more lanes • Add median (continuous or at major intersections only)	Basic Cross-Section: Two lanes without median, with sidewalk and parkway with trees Potential Options: • Add occasional medians	Basic Cross-Section: Two lanes, with curb, sidewalk, and wider parkway with trees Potential Options: • Substitute bike/hike path for sidewalk

Source: El Paso Thoroughfare Plan 2013 Draft Update, p. 12.

In sum, the El Paso Thoroughfare Plan is an example of how to transition a more traditional corridor plan to be context sensitive. It meshes traditional functional classifications with broadly defined area types and applies additional land use and network design criteria through application of a SmartCode. These concepts of context and placemaking are conveyed throughout the El Paso Comprehensive Plan, as well. The plan also promotes continuation and connectivity of the arterial and collector grid by extending them using dashed lines on the thoroughfare plan map. A more recent update illustrates how thoroughfares could be redesigned to incorporate context and non-auto modes through suggested design criteria and cross sections concepts.

Fort Worth, Texas

The City of Fort Worth's "Master Thoroughfare Plan" was adopted in 2016 and updated in 2020. As the introduction states, the plan "…is essentially a right-of-way preservation document, allowing the orderly development of a network necessary to support the City's growth plans." To determine the appropriate right-of-way for any corridor on the thoroughfare plan, the City of Fort Worth created a selection process which involves assessing the street type, number of lanes, type of special transit facilities required, type of median needed, parking requirements, and type of bike facilities needed. Therefore, unlike other thoroughfare plans, there is no one map or table that automatically assigns right-of-way

widths. Each thoroughfare on the Street Type Map undergoes an analysis to determine its unique right-of-way needs. The process is depicted in Figure 28.

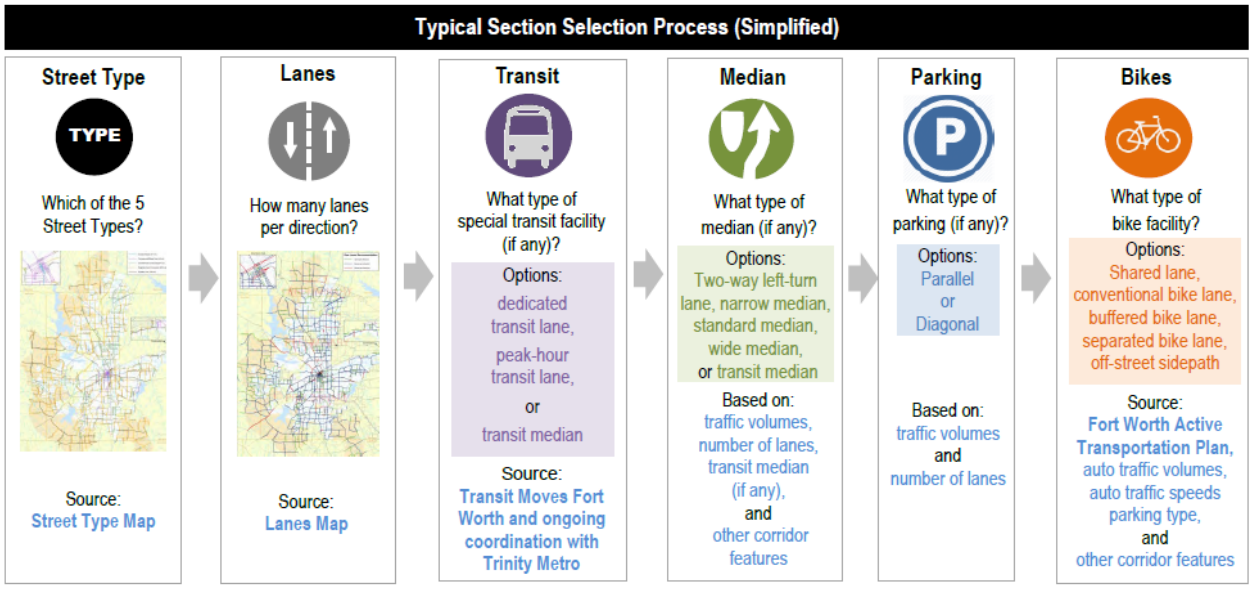


Figure 28. Fort Worth process for selection of typical roadway cross sections.

Source: City of Fort Worth Master Thoroughfare Plan, p. 7.

Four maps are used as inputs for this selection process: the Street Type Map, the Lanes Map, the Bicycle Network Map (from the Fort Worth Active Transportation Plan), and the "Transit Vision: Major Services" map (from Trinity Metro's Master Plan). Additional inputs include quantitative data about the thoroughfare and special corridor designations such as Roundabout Corridor, Aesthetic Corridor, and Special Residential Section. "Street Types" depicted on the Street Types Map (Figure 29) are determined by evaluating a street's respective land-use contexts and the various transportation modes needing to use the street. The five Street Types are Activity Streets, Commerce/Mixed-Use Streets, Neighborhood Connectors, Commercial Connectors, and System Links.

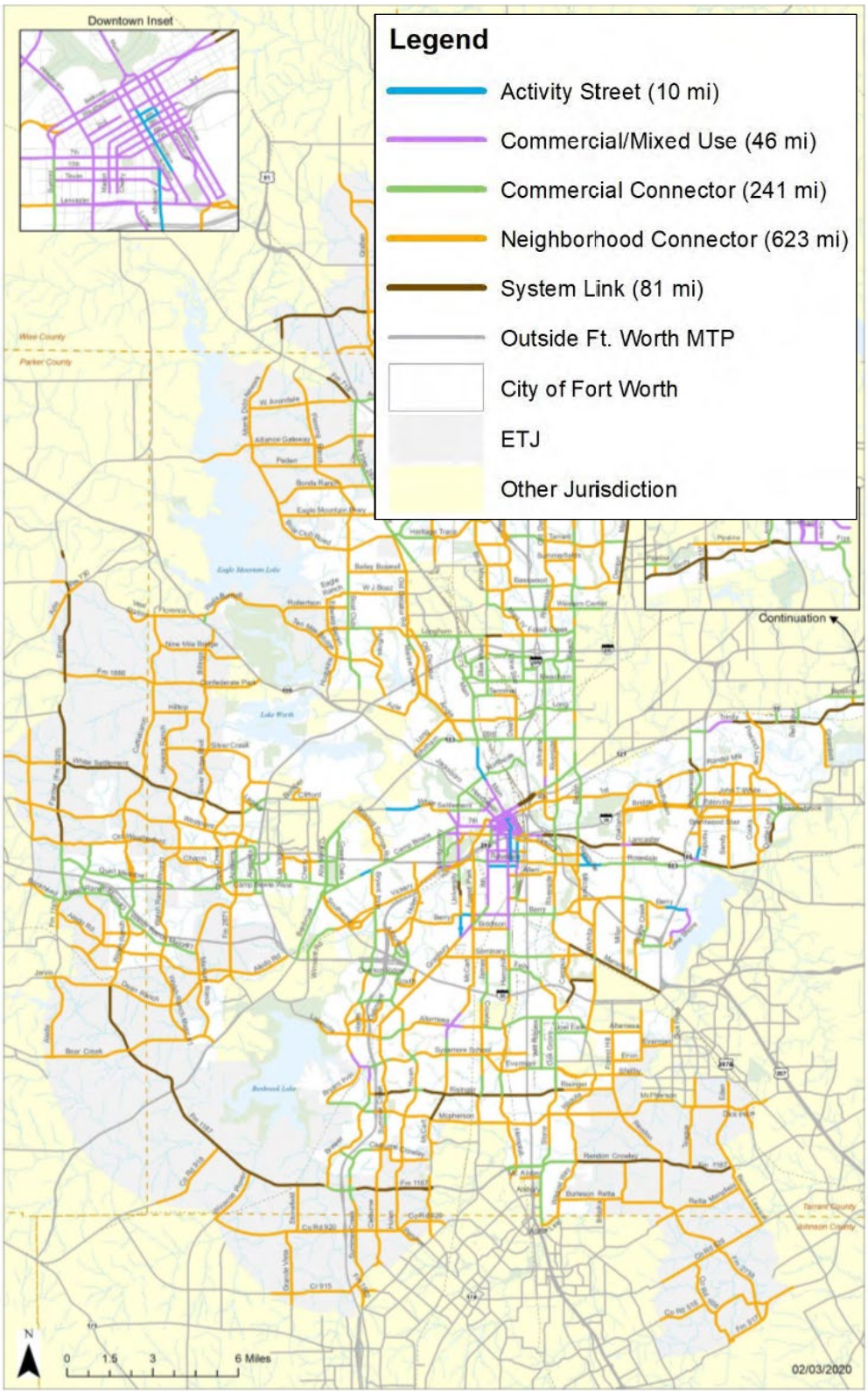


Figure 29. Fort Worth Street type map.

Source: City of Fort Worth Master Thoroughfare Plan, p. 11

After the steps in the Typical Section Selection process are complete, a code and implied right-of-way is created, as shown in Figure 30. This information, along with target vehicle speeds, is used to select an appropriate cross-section from a suite of cross-sections that are associated with each Street Type and illustrated in the thoroughfare plan. Figure 31 shows an excerpt from the plan for Activity Streets and Neighborhood Connectors illustrating the approach and how to read the diagram. Additionally, the process allows for "interim cross sections" for certain situations in which constructing the full cross section dictated by the Master Thoroughfare Plan would be infeasible of cost prohibitive.

The Fort Worth Master Thoroughfare Plan is a regulatory document and includes a clear explanation of their changes and exceptions process which consists of full updates, amendments, waivers, and street type exceptions. These are described below.

- Full updates are conducted every 5 to 10 years and involve a reexamination of the city's buildout land-use assumptions and multi-modal thoroughfare planning philosophy.
- Amendments are changes to the Master Thoroughfare Plan which occur between full updates, generally involve changes to individual thoroughfare segments, and are primarily to maintain flexibility in thoroughfare planning. Certain types of amendments can be handled administratively by city staff while others require City Plan Commission Approval.
- Waivers, on the other hand, do not result in changes to the map. The waiver process allows for slight deviations to the plan to accommodate flexibility in different implementation scenarios. Similar to amendments, many waivers can be handled at the staff level while certain types of waivers require City Plan Commission approval.

For example, in certain situations, an interim cross-section may be needed to provide immediate capacity or connectivity. In such a case a waiver may be approved by either city staff or the City Plan Commission depending on the number and width of travel lanes, sidewalk width, and median type.

Street type exceptions are also built into the plan for those areas which are considered either Special Districts or Park-Adjacent Streets. The transportation plans and established street designations and design standards in the three Special Districts supersede the Thoroughfare Master Plan. Park-Adjacent Streets refer to segments of the thoroughfare which are adjacent to a park. In such a case, rather than follow the standards set in the Master Thoroughfare Plan, an alternative use of right-of-way space is described.

In sum, Fort Worth's Master Thoroughfare Plan is both a visual document that designates desired street types for a given land use context and a procedure to determine the appropriate right-of-way and modal elements given the constraints and characteristics of a specific corridor segment. Separate area types are not defined but rather are implicit in the street type designations. No one map automatically assigns right-of-way widths. Rather each thoroughfare on the Street Type Map undergoes an analysis to determine its unique right-of-way needs. A cross section selection process involves assessing street type, number of lanes, special transit facilities required, median needed, parking requirements, and the type of bike facilities needed. Clear procedures are provided offering design flexibility through waivers that allow interim cross sections or exceptions.

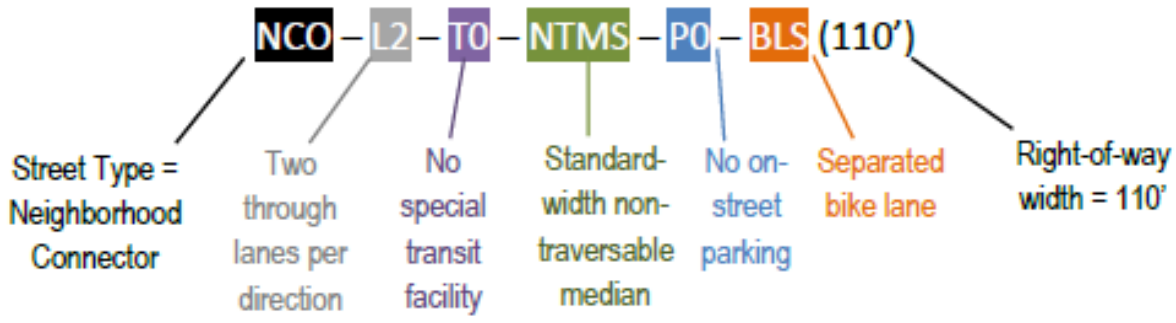


Figure 30. Example code and implied right-of-way application.

Source: City of Fort Worth Master Thoroughfare Plan, p. 7.

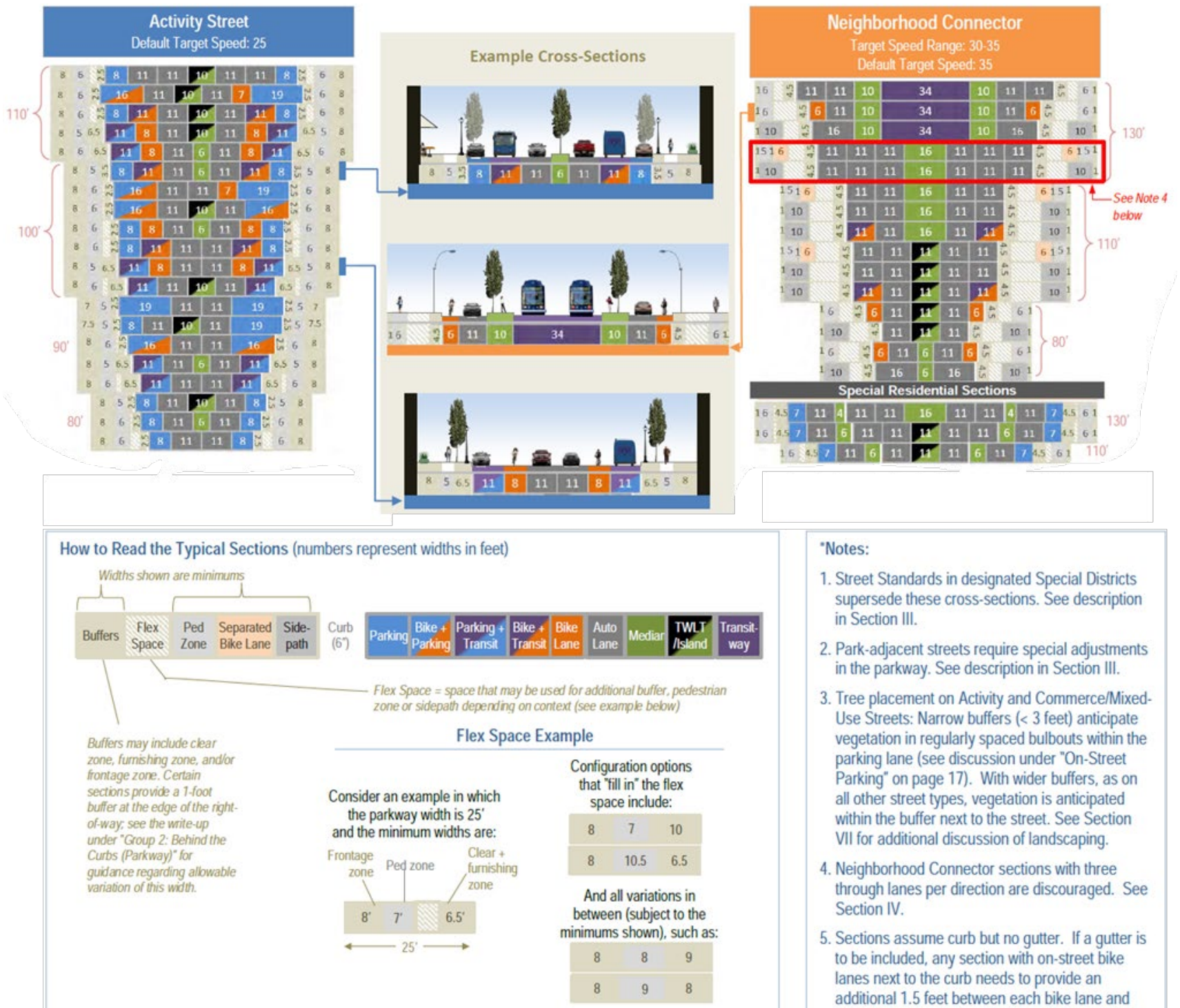


Figure 31. Excerpt of typical sections and how to read them.

Source: City of Fort Worth Master Thoroughfare Plan, p. 17.

City of Bastrop, Texas

In 2019, the City of Bastrop, Texas implemented new land-use regulations to establish a street grid as a framework for growth. The main driver for this change was flood mitigation and overall resilience following five floods and three significant wildfires in the decade leading up to plan implementation. The city created the "Bastrop Building Block (B3) Code" by the following City Council purpose statement, "Create a fiscally sustainable community through land-use standards that are authentically Bastrop and geographically sensitive." This code, as well as the Authentic Bastrop Pattern Book and the Bastrop Building Block Manual, are standalone documents and are adopted by reference in Chapter 14 of the Bastrop Code of Ordinances. The City also created a Transportation Master Plan that establishes a street grid in both undeveloped parts of the city and in extraterritorial jurisdiction (Figure 32). The Bastrop Master Transportation Plan and Thoroughfare Master Plan establish the foundation for the mandatory street network, and the provisions of B3 build upon that foundation in greater detail.

The B3 Code is organized in a hierarchal structure from the highest scale, city wide planning, to the smallest scale, lots and buildings. The city uses seven Place Types (which are similar to transect zones) to distinguish areas with distinct characteristics: P1 – Nature, P2 – Rural, P3 – Neighborhood, P4 - Neighborhood Mix, P5 – Core, EC - Employment Center, CS - Civic Space, and PDD - Planned Development District. These place types relate to intensity of development and building types and determine how the code can be applied. Table 25 is an example of how Place Types are used to guide the design and development of the street network.

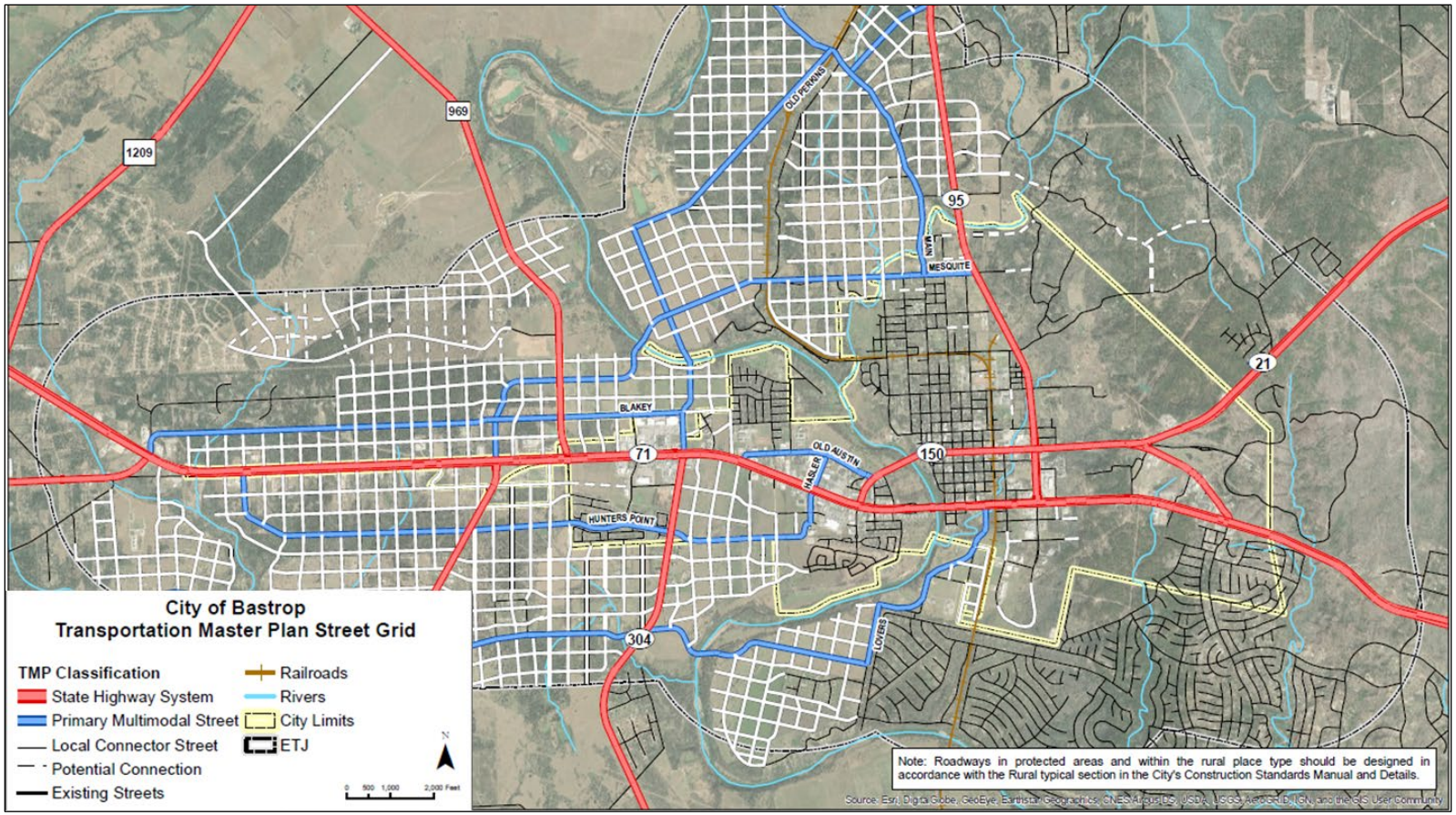


Figure 32. Bastrop 2040 Major Thoroughfare Map/Transportation Master Plan Street Grid.

Source: City of Bastrop Comprehensive Plan, Chapter 5 Thoroughfare Plan, p. 37.

Table 25. Excerpt of the B3 Development Tables

	P1	P2	P3	P4	P5	EC
BLOCKS - *SEC. 7.4.002*						
BLOCK LENGTH MAX.	UNLIMITED	720 FT	330 FT	330 FT	330 FT	720 FT
BLOCK PERIMETER MAX.	UNLIMITED	2,880 FT	1,320 FT	1,320 FT	1,320 FT	2,880 FT
STREETS - *ARTICLE 7.2*						
BOULEVARD	NP	NP	NP	P	P	P
AVENUE	NP	NP	P	P	P	P
CONNECTOR	NP	P	P	P	P	P
NEIGHBORHOOD STREET I	NP	P	P	P	NP	NP

BLANK= BY WARRANT P = PERMITTED NP = NOT PERMITTED

Source: Bastrop Building Block(B3) Code, p. 15.

Bastrop is an example of a more detailed approach to thoroughfare planning that lends itself to application within the context of a compact urban area. It is a Master Street Plan that seeks to implement a gridded network to complement a series of place types with distinct characteristics. The grid extends to undeveloped area and beyond the jurisdiction to facilitate continued growth on the grid. These place types are then coded to achieve the desired results. Another interesting aspect of the plan is its stated relationship to advancing flood mitigation and overall resilience.

Montgomery County, Maryland

The Maryland-National Capital Park and Planning Commission maintains the region's Master Plan of Highways and Transitways (Master Plan), which integrates a variety of area plans, sector plans, and modal or functional plans. In 2018, it was updated in part to conform with Montgomery County, Maryland's 2008 Context Sensitive Design Standards and its 2014 Complete Streets Policy and Guidelines updates. These regulations:

1. Establish new road classifications, including Controlled Major Highways, Minor Arterials and Parkways.
2. Set acceptable target speeds based on road classification and area types (urban, suburban and rural) called road code areas (Figure 33).
3. Specify road design and target speed standards for county roads within urban areas for the safety and convenience of all users.

The Master Plan update also integrates the location of designated Bicycle-Pedestrian Priority Areas within Montgomery County, as well as other pertinent information such as truck restrictions, bus facilities and high occupancy vehicle (HOV) facilities.

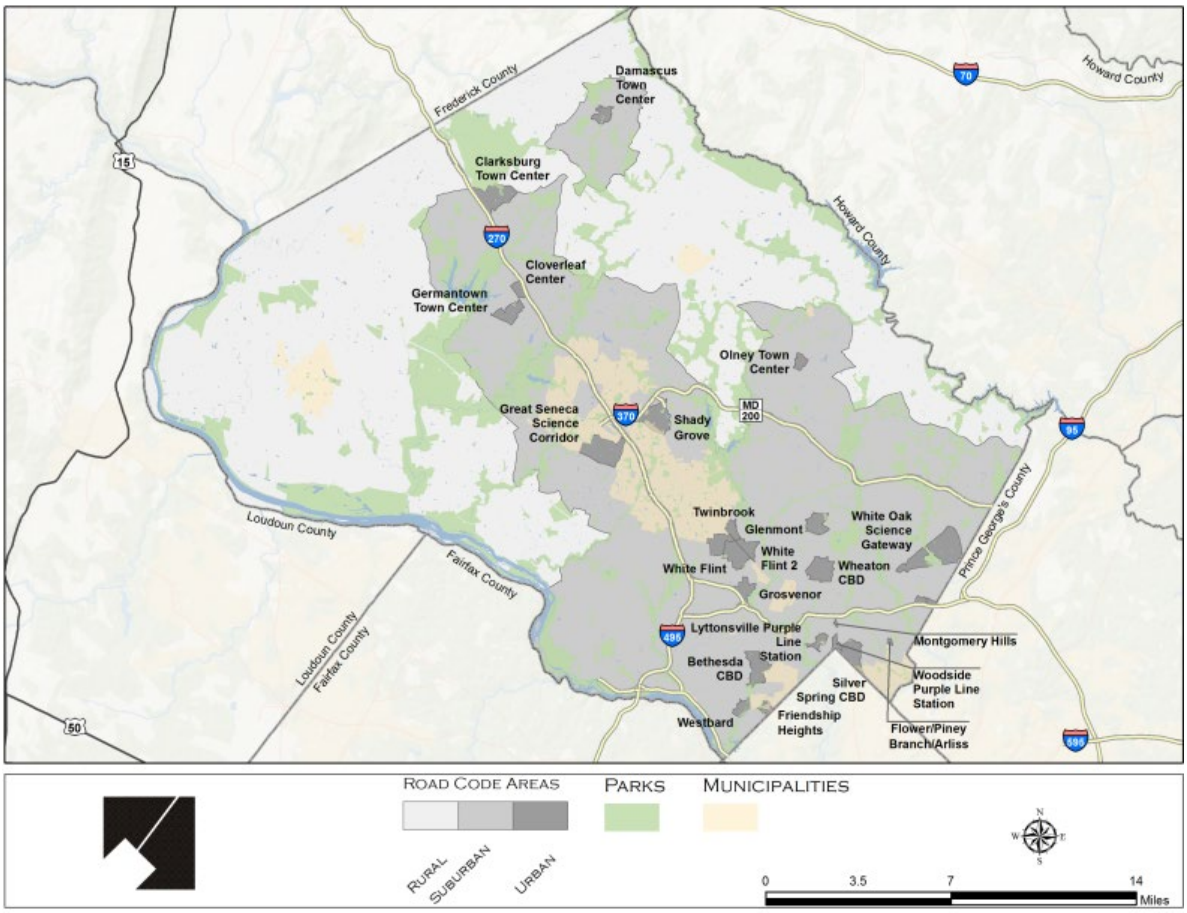


Figure 33. Montgomery County area types (road code areas).

Source: Maryland-National Capital Park and Planning Commission, 2018

The stated purposes of the Master Plan include determining roadway classification and design standards, such as "the planned number of travel lanes, target speeds, divided/undivided designation, transit and high occupancy vehicle (HOV) accommodations, pedestrian and bicycle accommodations, and right-of-way widths," (Maryland-National Capital Park and Planning Commission, 2018). The document indicates that the Master Plan "encapsulates all existing and planned transportation facilities, and preserves planned rights-of-way to accommodate future transportation systems, including highways, transitways and pedestrian and bicycle facilities." It is a long range planning and guidance tool for transportation investments and not specifically binding from a regulatory perspective, unless otherwise regulated at the local government level.

Road classifications are defined with accompanying photos and include Freeways, Controlled Major Highways, Parkways, Major Highways, Arterial Streets, Minor Arterial Streets, Primary Residential Streets, Business Streets, Industrial Streets, Country Roads, Country Arterials, and Rustic Roads and Exceptional Rustic Roads. For each road, Master Plan includes the following information:

- Segment length (feet or miles)
- Master Plan Right-of-way width (feet)
- Road Code road (area) type classification
- Target speed (miles per hour)

- Existing number of through travel lanes
- Future (ultimate) number of through travel lanes
- Divided or undivided road
- Presence of a transitway (none, existing or future)
- Master Planned Interchanges

Montgomery County, Maryland implements the plan through right-of-way needs defined as minimum rights-of-way, based on minimum cross-section design requirements in Chapter 49 of the Montgomery County Code of Regulations (COMCOR) and COMCOR 49.28.01 – Context Sensitive Design Standards. Target speeds are defined in the regulation (COMCOR 49.28.01, Standard 020.01) as "the speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multimodal activity generated by adjacent land uses, to provide mobility for motor vehicles and a safe environment for pedestrians and bicyclists."

A Transitway and Bicycle-Pedestrian Priority Areas Mapbook are provided in Technical Appendix B of the document. Transit components of the plan are mapped as shown in Figure 34 and include:

- Existing and proposed transitways
- Existing and proposed transit mode (bus rapid transit and light rail transit)
- Locations of all Metrorail and MARC rail stations (reference only)
- Location of Bicycle-Pedestrian Policy Areas (as approved by the Montgomery County Council) (Figure 35).

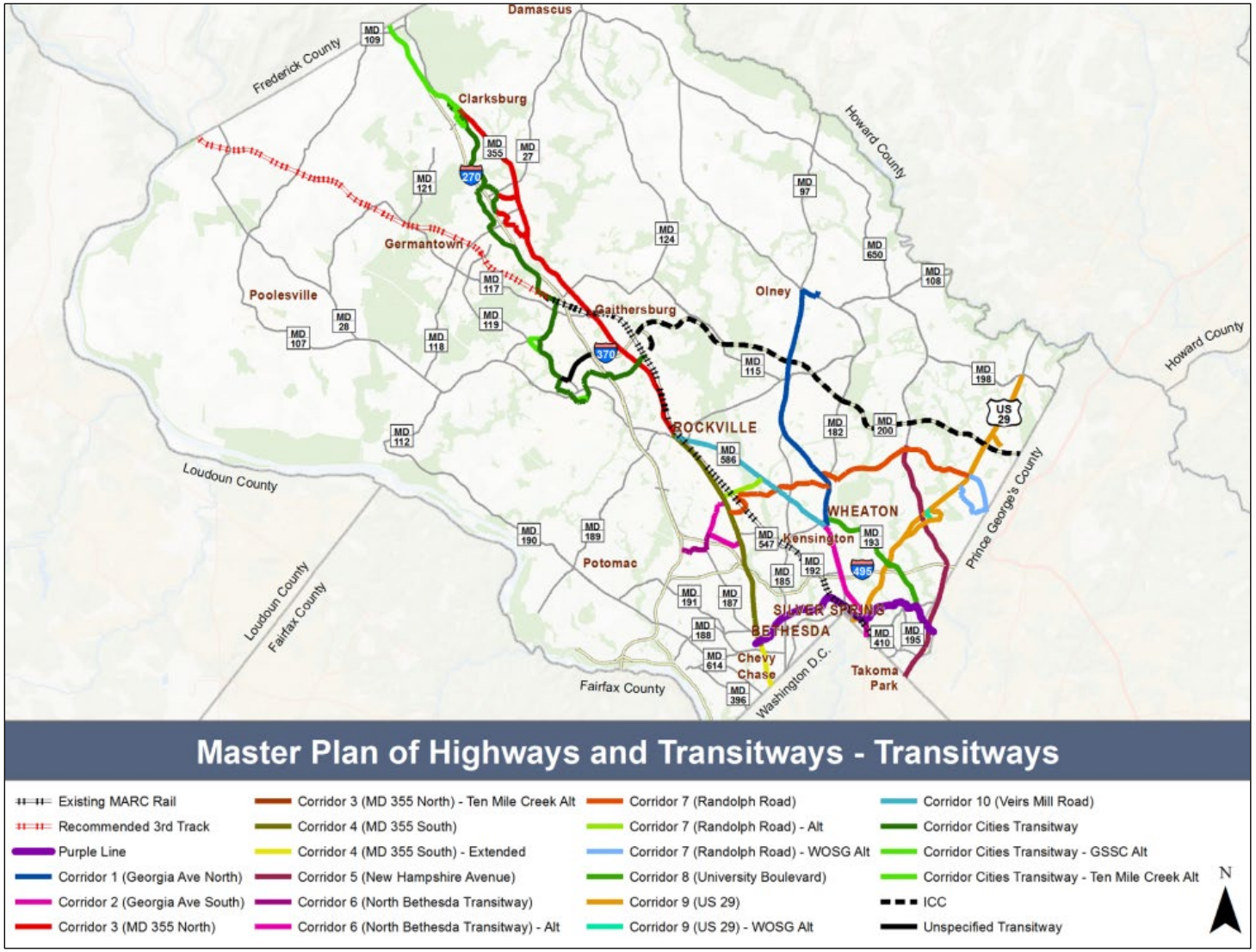


Figure 34. Montgomery County map of adopted planned transitways.

Source: Maryland-National Capital Park and Planning Commission, 2018

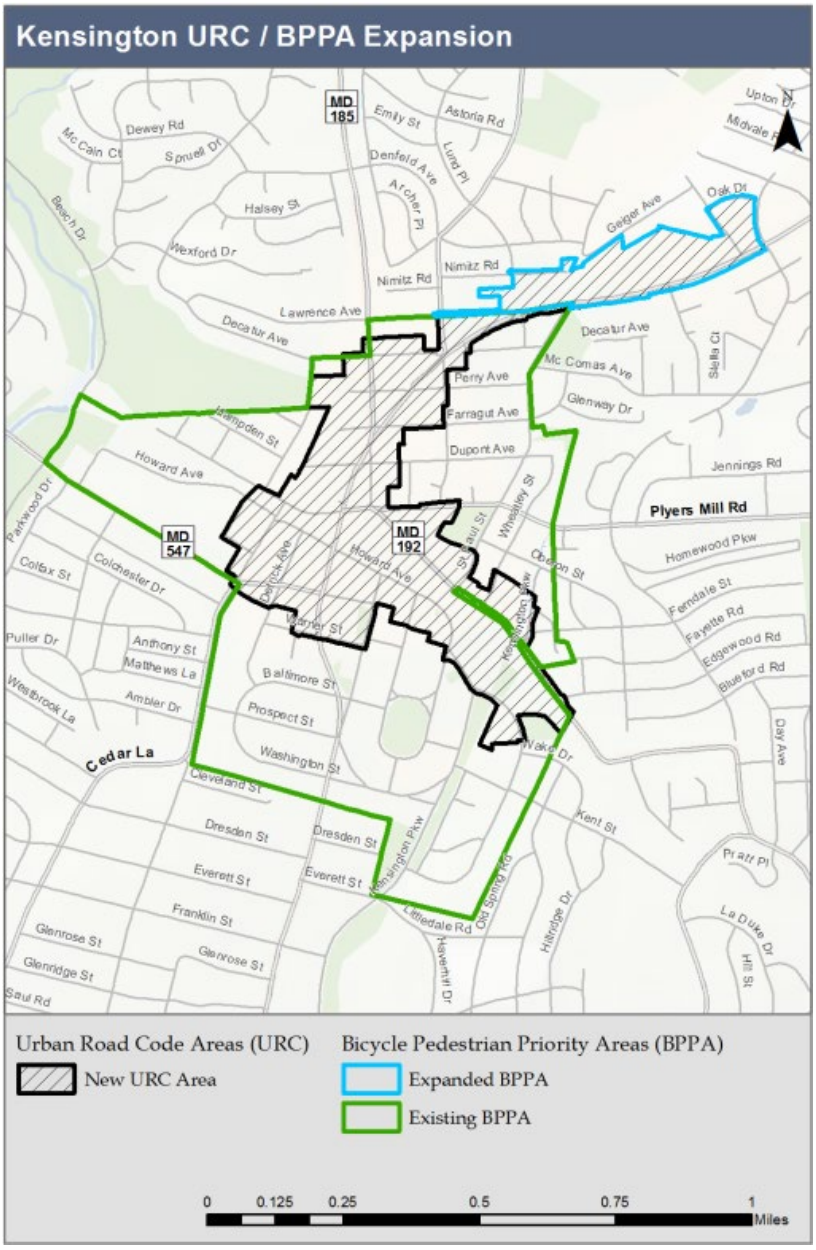


Figure 35. Example of a designated bicycle pedestrian priority area.

Source: Maryland-National Capital Park and Planning Commission, 2018

Summary

In sum, the national review indicates that contemporary thoroughfare plans are increasingly context sensitive and emphasize a multimodal or complete streets philosophy. The plans identify area types or address land use context in street typologies to guide the design of transportation corridors in relation to their planned land use context and modes. Rather than widely-spaced thoroughfares fed by disconnected local and collector roads, they promote a dense and connected network that supports multimodal activity. These and other integral strategies influence right-of-way needs and advance a more comprehensive vision of the design of the future transportation system. Table 26 summarizes context-sensitive features of selected thoroughfare plans reviewed for the study.

Table 26. Context Sensitive Features of Selected Thoroughfare Plans

Jurisdiction	*Area types*	*Corridor Typology*	*Multimodal Elements in ROW*	*Design Types/Cross Sections*	*Application*
El Paso, Texas	Compact Urban, Drivable Suburban, and Rural	Expressway, Principal Arterial, Minor Arterial, Collector	Modal elements identified in basic and optional cross sections	Draft design criteria for new and reconfigured thoroughfares and basic and optional cross sections by area type	Detailed network maps by planning area Draft suggests regional intergovernmental compact. Plans to add multimodal network & update cross sections
Fort Worth, Texas	Area types implicit in street type descriptions Special districts with unique street types	Street Type Map (Activity, Commerce/Mixed-Use, Neighborhood Connector, Commercial Connector, and System Link); Lanes Map, Bicycle Network Map Transit Vision: Major Services map. Special corridor designations	Typical section selection process uses inputs including modal elements to code a range of typical sections for each street type	MTP specifies a suite of cross-sections for each segment based on modal priorities and available ROW	MTP provides ample guidance and detailed procedures for flexibility
Bastrop, Texas	Place Types Nature, Rural, Neighborhood, Neighborhood Mix, Core, Employment Center, Civic Space, Planned Development District	State Highway System, Primary Multimodal Streets, Local Connector Streets, Rural Streets, Multimodal Connections (Trails and Shared-Use Paths) on Map 5.1 2040 Major Thoroughfare Map, with additional cross section variations in B3 code (13 street types)	Modal elements depicted in cross sections	Typical cross sections for functional classification and place types are shown in plan and B3 Code.	Standards in B3 Code are adjustable
Indianapolis-Marion County	Context Areas: Compact and Metropolitan	Freeway, Arterial, Collector (non-thoroughfare), Local (non-thoroughfare), Special Corridors (Beltline RR, Greenway)	The ROW Standards and Design Guidelines Table specifies modal elements for each combination	Target widths and cross section elements identified in ROW Standards and Design Guidelines table for each road type, based on number of lanes, speeds and area type	Design guidelines are prototypical, not "one-size-fits-all"
Montgomery County, Maryland	Road Code: Urban, Suburban, Rural	Includes arterials, plus Parkways, Primary Residential Streets, Business Streets, Industrial Streets, Country Roads, Country Arterials, and Rustic Roads and Exceptional Rustic Roads.	Pedestrian priority areas, Transit components of the plan are mapped and considered in design	Context Sensitive Design Standards, cross sections, target speeds	Master Plan guides street design Target speeds based on road classification and area types

Chapter 5 – Other Relevant Topics

This chapter examines selected other relevant topics in corridor preservation. These include the application of parallel relivers and service roads to provide access and reduce demand on major thoroughfares. Other topics include how resilience to climate change and emerging technology are or may be reflected in contemporary corridor management programs, and considerations in rail corridor preservation and management.

Parallel Relievers and Service Roads

Many urban areas have right-of-way constraints that limit expansion of existing arterials, as well as a desire or policy to avoid further widening of arterial roadways. A variety of alternative options exist to improve the capacity of the existing thoroughfare system, including increased transit service frequency on select corridors, alternative intersection designs, and improvement of the supporting street network. This section examines strategies to integrate service roads as parallel relievers.

Service roads are local or collector roads that generally provide alternative access to commercial tracts along a major roadway. Contemporary best practice is to place these roadways behind commercial tracts to provide access to property on both sides and avoid conflicts associated with short entry throats where they connect to an arterial – a common problem with frontage roads (Access Management Manual, 2014).

Service roads can be implemented in a variety of ways but are most readily accomplished when land is being subdivided or consolidated for development. For example, developers could be required to set aside right-of-way needed for the road as a condition of development approval, and the local government could construct and maintain the road. In some cases, developers may construct a portion of the road. In other cases, a local government may opt to complete undeveloped segments of the road where needed to maintain continuity or as an incentive for private participation.

Service roads may also be implemented when roadways are being improved. MPOs and state transportation agencies may contribute to local road improvements where this would advance corridor improvement objectives or reduce safety and operational problems on a state highway. An example would be to provide funding to complete a gap in a parallel street that would reduce demand on the thoroughfare network. For example, the Colorado Department of Transportation (CDOT) engages in targeted local street improvements during highway reconstruction projects using state funds to advance its access management program. Projects are identified based on their benefits to implementing adopted access control plans.

The Kansas Department of Transportation (KDOT) has a small budget designated for off-system improvements that advance a state highway corridor management plan. Local agencies provide a one-third match for the grants offered through the budgeted funds and pay the contractor as work is performed, with KDOT reimbursing eligible expenses. Projects funded by this program include left- and right-turn lanes, joint and cross access, consolidated access permits, raised medians, local street extensions and service roads. Figure 36 shows a service road funded by the program in the City of Basehor, Kansas (Wolfcreek Parkway) along the US24/US 40 State Avenue corridor.

Figure 36. Service road funded by KDOT access management set-aside funds.

A more urban example involved completion of a grid network parallel to a major arterial in the small City of Hays, Kansas. Here, KDOT provided a series of small grants to the City to advance access management objectives on US Highway 183/Vine Street (Figure 37). The city negotiated right-of-way dedications from property owners and was allowed to apply the value of the right-of-way to fulfill its one-third match under the program.

Figure 37. Parallel access roads in Hays, Kansas.

Florida DOT (FDOT) does not currently invest state funds in local off-system road projects that advance access management on the state highway system. However, FDOT coordinates with MPOs and local governments on projects that improve supporting network on the state highway system. Examples include constructing a service road along a state highway, connecting roads to relieve congestion on the state highway by creating a parallel reliever, or realigning a roadway that is not part of the state highway system so that it intersects at a signalized intersection. For example, Figure 38 shows a service road realignment along SR 50 undertaken by the Hernando County MPO as a capacity and rehabilitation project. Hernando County has been implementing a system of service roads along major roadways since adoption of its frontage road ordinance in 1986. Another example is the use of concurrency management authority by Okaloosa County to develop a system of service roads along US Highway 98 (Figure 39).

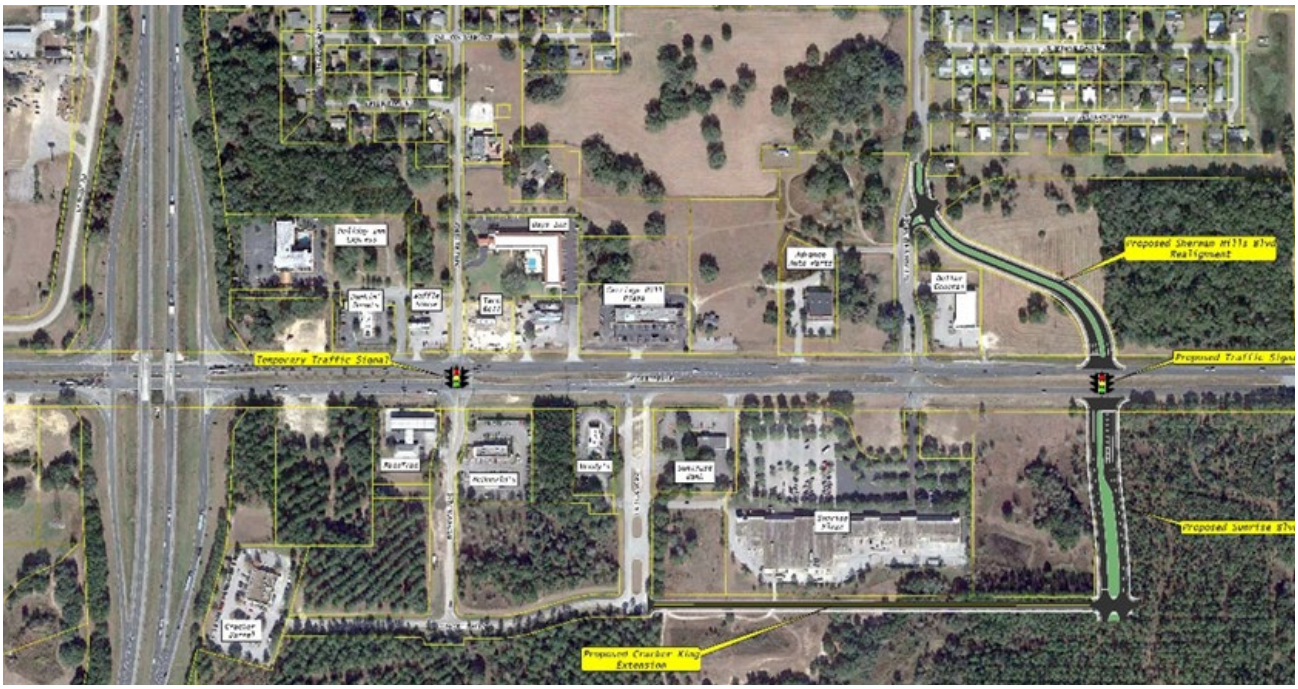


Figure 38. Proposed service road realignment along SR 50 in Hernando County.

Source: Hernando County, Office of Public Information Media Release, April 13, 2017

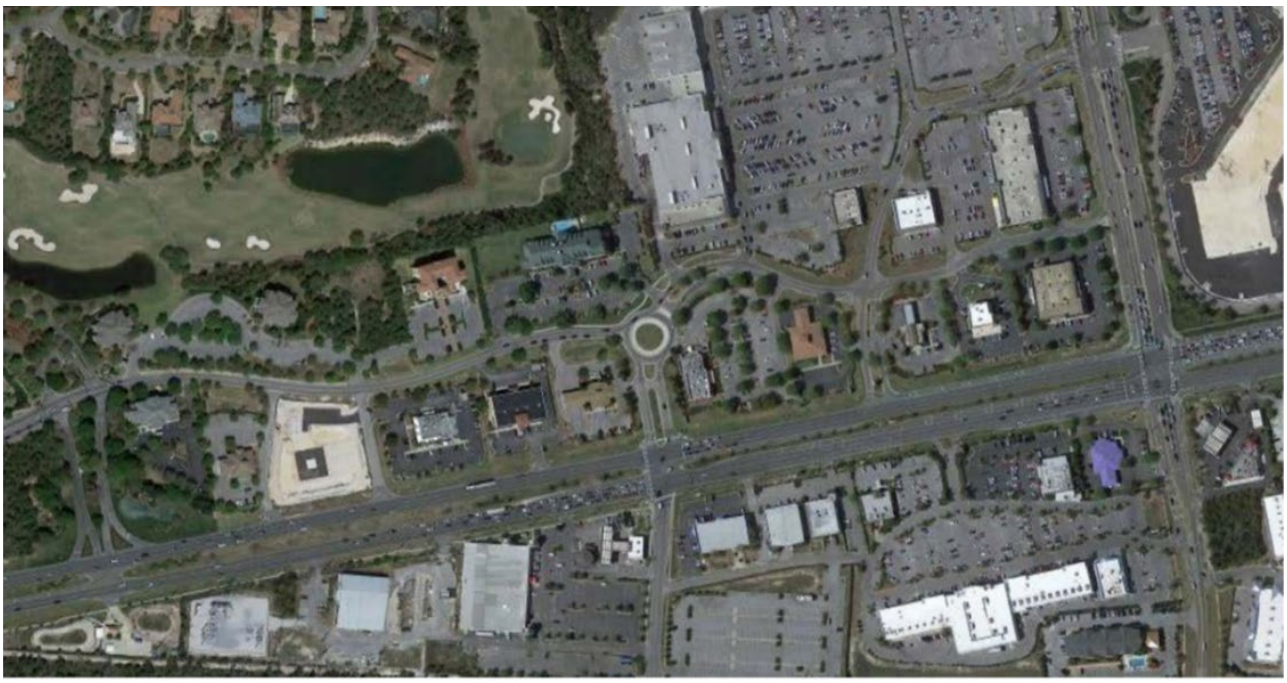


Figure 39. Service roads in Okaloosa County along US Highway 98.

Source: Google maps, 2017

The City of Cape Coral has been implementing access roads parallel to Pine Island Road (SR 78) through its capital projects and land development process as part of the Pine Island Road Corridor Master Plan

(Figure 40). The plan promotes a land use framework with mixed use village and corridor districts supported by a secondary access road system. The access road system is intended to parallel Pine Island Road through a variety of means, including:

- Use of existing roads where feasible;
- New four lane divided roads principally along the north side of Pine Island where deep, extensive parcels exist; and
- Interconnected parking lots and/or two-lane access drives along the south side of Pine Island where parcels are not deep.

Figure 40. Access roads on Pine Island Road in Cape Coral.

Source: SR-78 Final Report, Pine Island Road Master Plan, December 2000.

Technology (ACES)

Pilot projects are ongoing in the Tampa Bay region to better inform the potential of connected and automated vehicle travel. For example, the Tampa Hillsborough Expressway Authority Connected Vehicle Pilot Program and other Federal Highway Administration (FHWA) designated projects are exploring the impacts of various technology applications on safety and traffic conditions (THEA Connected Vehicle Pilot, https://theacvpilot.com/). These efforts are still in their early stages.

Florida DOT is developing an Electric Vehicle (EV) Master Plan for the development of electric vehicle charging station infrastructure along the State Highway System (see Figure 41). The EV Master Plan identifies existing stations in Hillsborough County and includes a gap analysis of potential new Level 2 locations for equity reasons.

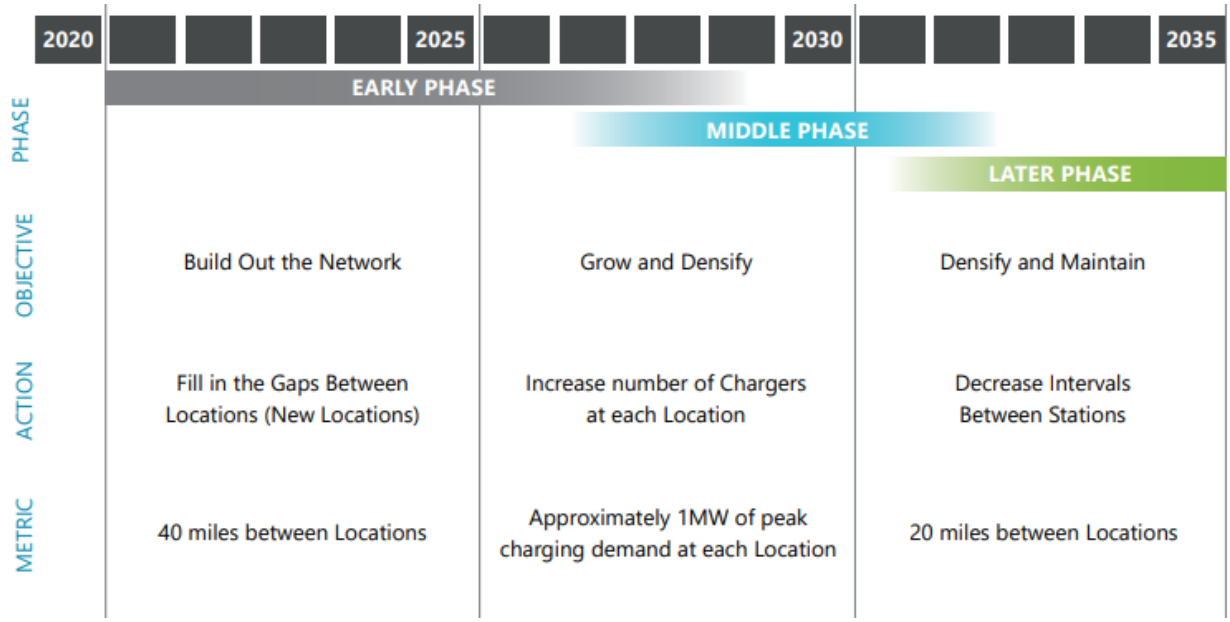


Figure 41. Anticipated phases in the deployment of EVSE infrastructure in Florida.

Source: FDOT EV Infrastructure Master Plan, April 2021.

Hillsborough County is responding to these changes by instituting new objectives and policies in its Mobility Section Draft of its Comprehensive Plan. Objective 6.7 and it associated policies support emerging technologies expansion and incentivize the use of electric vehicles through the implementation and expansion of electric vehicle charging stations. In April 2021 the Florida Public Service Commission approved Tampa Electric Company's petition for a four-year, $2 million EV charging pilot program in Hillsborough County (FDOT, 2021).This will include approximately 200 charging ports and four DC Fast Chargers within the company's service area.

Our review of corridor management practices in Florida did not identify thoroughfare planning practices specific to automated and electric vehicles. A majority of those participating in the interviews conducted for this study indicated they were in the early stages of considering those issues or had not considered them in their local corridor management process and plans.

A potential application of EV to corridor (thoroughfare) planning is to identify key corridors for electric vehicle charging investment and designate the corridors in the corridor plan. Rather than allow the private sector to solely lead implementation, this would help in identifying and managing potential impacts to right-of-way such as utility installation, upgrading charging infrastructure, and securing land for charging stations.

An interesting right-of-way management policy and practice to promote EV use, although not specific to major corridors, was identified in Montgomery County. The County enacted a new policy and guidelines for permitting EV charging stations on the curb for homes lacking driveway and garage access. The policy is designed to ensure proper management of the right-of-way for this purpose when on-site opportunities do not exist and cannot be created. A detailed summary of the process is provided in: Residential Electric Vehicles (EV) Charging Permitting Guidelines (rev. March 2021) https://www.montgomerycountymd.gov/DPS/Resources/Files/RCI/EV_Charging_Guidelines.pdf

Smart Roads Classification Systems

With the advent of automated and connected vehicle technology, research is underway in the U.S. and abroad to explore how best to integrate these vehicles into existing transportation corridors. Smart Roads Classification systems are being explored for this purpose. When planning for smart roadway corridors, factors such as automation levels, connectivity, and current road network characteristics are taken into consideration.

As Hillsborough County continues to update its Corridor Plan, it will be important to identify and designate smart corridors and related classification or typologies through the planning process. Such designations are a proactive way to identify design and infrastructure needs that may require right-of-way and otherwise impact thoroughfare planning practice. Two major initiatives prove instructive regarding identifying and designating smart roadway corridors that may offer insight for the Hillsborough Corridor Plan. One is a National Cooperative Highway Research Program study titled Connected Roadway Classification System Development (Poe, 2020), and another is an international effort underway by the Permanent International Associate of Road Congresses (PIARC, 2021).

NCHRP Project 20-24(112) Connected Roadway Classification System Development

NCHRP Project 20-24(112) discusses connected roadway classification system development within the United States, while also establishing a framework for assessing the infrastructure and implementation of connected and automated vehicles. This study established three infrastructure approaches that can be used to classify roadway projects to support connected and automated vehicles which the author describes as “talking, seeing, and simplifying” (Table 27). The study emphasizes the importance of keeping the classification system both simple and implementable for ease in agency adoption on a domestic and international level. As technology development continues, the study recommends updating the connected roadway classification system every five years (Poe, 2020).

Table 27. Connected Roadway Classification System (CRCS) Framework Overview

Infrastructure Approach	What It Is	CRCS Levels			
		Needs Upgrade & Maintenance	Meets Current Best Practices	Meets Emerging Market (1–5 years)	Meets Next Decade Market (10 years)
Talking	Electronic communications between vehicles & roadway	• Limited or no fiber installed • Limited or no cellular coverage • Limited or no roadside devices with communication • Signal equipment outdated with no connections • Temporary TCD deployed with no communication	• Fiber along roadway with access points • Good cellular coverage • Updated signal controller, meets MUTCD, connected as part of system • Infrastructure has no V2I capability • TCDs connected	• DSRC or C-V2X nodes tied into fiber • Signal is equipped with V2I communication capability • Infrastructure has V2I capability • TCDs able to connect to cellular or fiber	• Small cells deployed along roadway with 5G coverage • Signal transmits SPaT messages • Infrastructure transmits information on conditions with local processing capability
Seeing	Infrastructure (e.g., signs & markings) readable by vehicle sensors	• Roadway assets are not in digital form • Signs and markings are either not present and/or fall short of MUTCD retroreflectivity guidance • Signals in need of upgrade	• Digital inventory of roadway assets exists • Signs and markings are present and meet MUTCD retroreflectivity guidance • Traffic signal equipment meets MUTCD	• Major corridors or areas have digital maps • Signs and markings meet revised MUTCD CAV visibility guidance • Signals are consistent, visible, and use glare reduction backplates	• Signs and markings include technology that provides for future machine visibility and processing • Research is needed on how AVs see signals
Simplifying	Design & operations for AV vehicles & their uses	• Infrastructure geometry, temporary TCDs, and permanent TCDs may not meet AASHTO or MUTCD guidelines • Pavement in poor condition	• Infrastructure geometry meets AASHTO design guidance • Pavement free of defects • Temporary and permanent TCDs meet MUTCD guidance	• Infrastructure geometry is designed to facilitate navigation by CVs/AVs • Navigational aids are V2I capable • Research is needed	• Infrastructure geometry and navigational aids are specifically designed for CVs/AVs only • Research is needed

Source: Poe, NCHRP 20-24(112) Connected Roadway Classification System Development, 2020.

PIARC Smart Roads Classification Framework Study

PIARC is developing a classification framework for smart roads that accommodates connected and automated vehicles. The study identifies several variables and conditions that must be considered for Smart Roads Classification, including (PIARC, 2021):

- Cross-section, lane width, and shoulder width.
- Road markings and traffic signs.
- Intersections, (e.g., signal recognition).
- Pavement condition (e.g., asphalt vs. concrete, distress, old road markings, cracked sealings).
- Environmental conditions (e.g., fog, light conditions, sun glare).
- Vulnerable road users, such as pedestrians and cyclists, including unpredictable behaviors.
- Road work, which may include erased road markings and orientation of construction signage.

Establishing dedicated lanes for automated vehicles (AVs) serves as a potential solution for minimizing the effects of these conditions. An example of a dedicated lane system is shown in Figure 42.

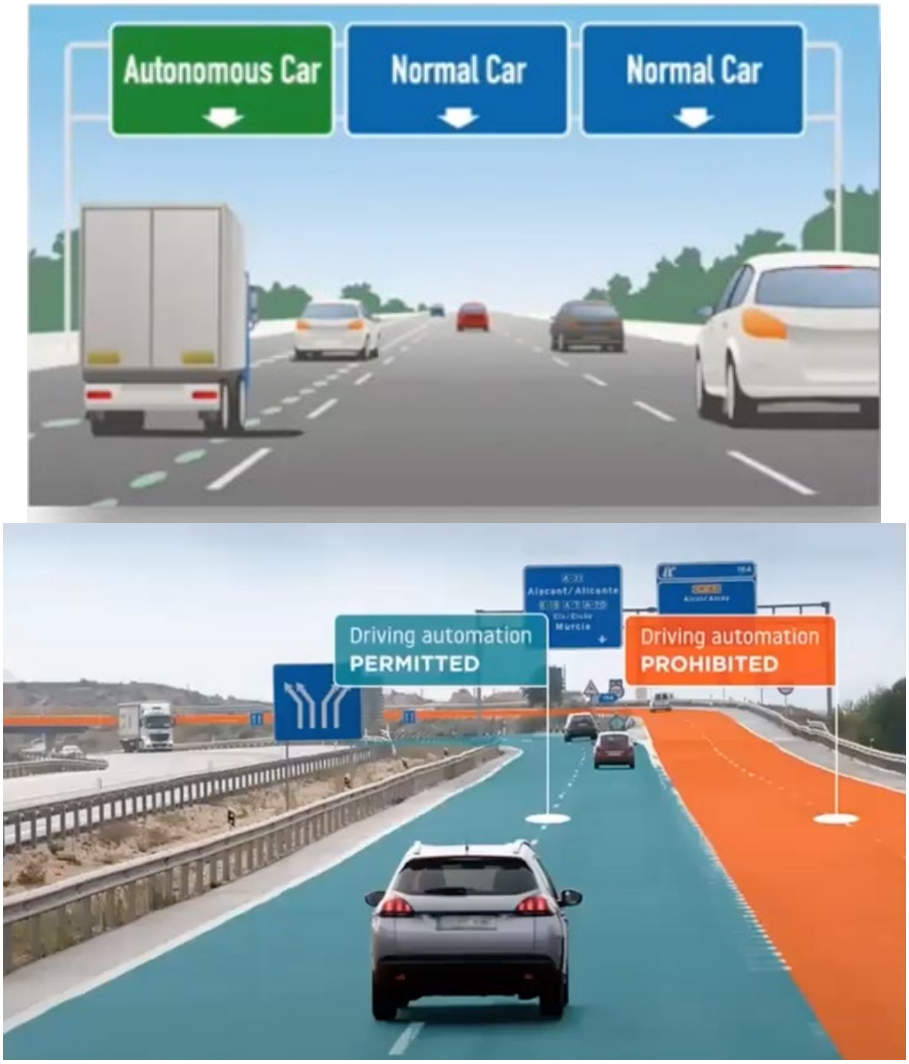


Figure 42. Dedicated smart road lane examples.

Source: World Road Association "PIARC" (2021) Smart Roads Classification Webinar

The Smart Roads Classification model is based on two prior parameters: Level of Service for Automated Driving (LOSAD) and Infrastructure Support for Automated Driving (ISAD). The first one (LOSAD) represents how ready the infrastructure is to host autonomous vehicles. The effects of the environment, geography, time-of-day, traffic, and road markings of a road segment may result in the road being more or less ready for vehicles to use automation. The second one (ISAD) summarizes the support for connected vehicles; adequate connectivity and digital information are vital for sharing information to connected vehicles. The combination of these inputs result in the five Smart Roads Classification Levels from fully autonomous to no automation as follows - autonomousway (AU), full automatedway (FA), automatedway (AT), assistedway (AS), and humanway (HU) as depicted in Figure 43 (PIARC, 2021). .

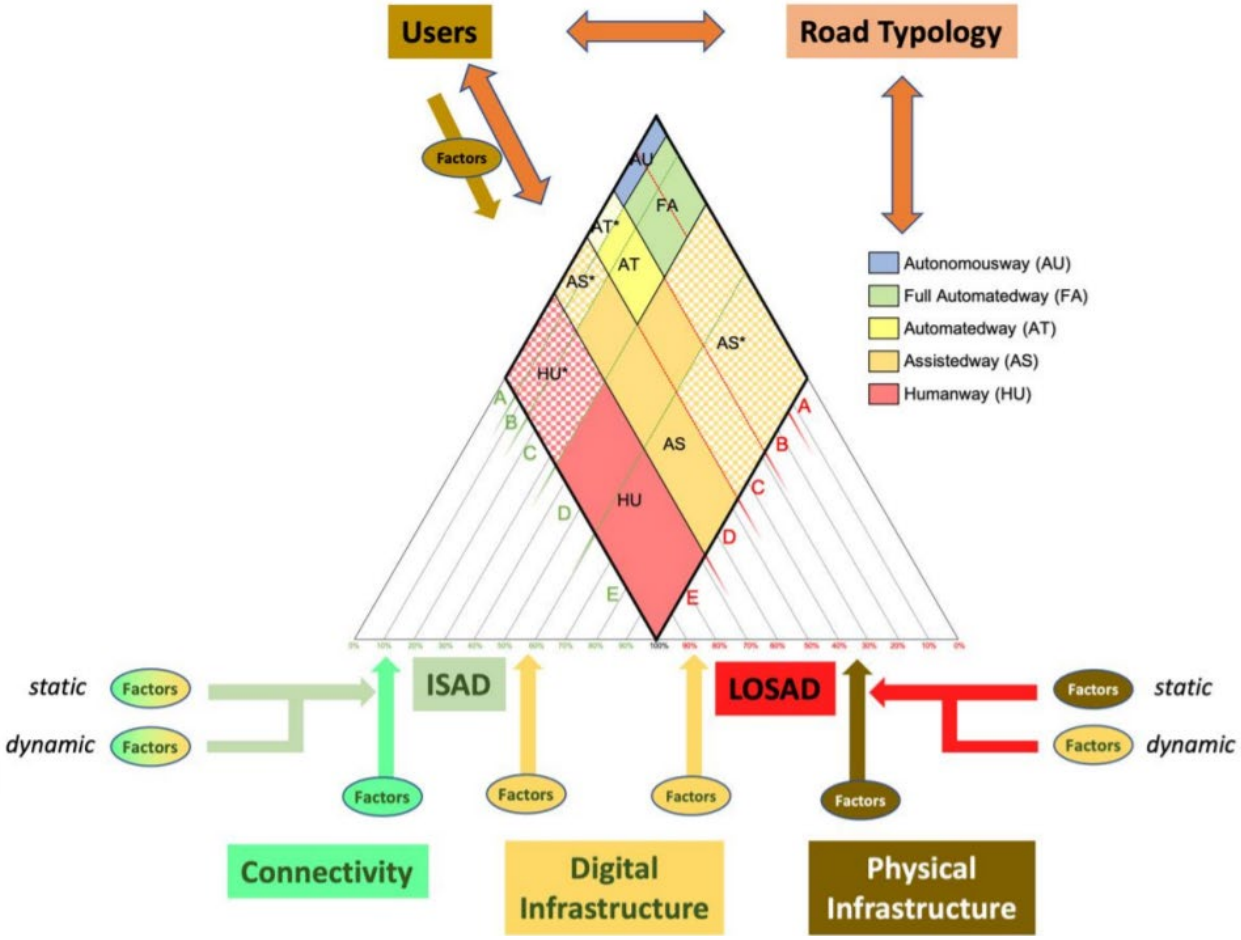


Figure 43. Smart Road Classification Framework

Source: World Road Association "PIARC" (2021) Smart Roads Classification Webinar

Although it may be premature to integrate smart roadway typologies into the Corridor Plan, there may be opportunities to do so on a limited basis. This topic may be most appropriate for future updates as the implications of connected and automated vehicles for design and right-of-way are more fully understood.

Resilience and Vulnerability

Rising temperatures, intensifying precipitation events, and rising sea levels are threats to infrastructure in the Tampa Bay region resulting from climate change. Many areas are considering how best to plan for these issues and integrate them into the decision-making process regarding major transportation investments. For example, the "Resilient Tampa Bay" initiative, funded through a grant from the Federal Highway Administration, is one of eleven pilot projects around the country that is exploring ways to adapt existing infrastructure to extreme weather. The project is being conducted by the Tri-County TMA (Transportation Management Area) comprised of the metropolitan planning organizations for Hillsborough, Pinellas, and Pasco, as well as FDOT, and the Tampa Bay Regional Planning Council. The objective of the project is to provide adaptation strategies or projects for inclusion in the MPO long range transportation plans (Cambridge Systematics, 2020). The project is identifying and categorizing links in the network that are most vulnerable to storm surge, heavy rain, and other threats from a structural perspective using a decision matrix (Figure 44).

Adaptation and mitigation strategies that are being proposed include methods such as strengthening stormwater systems, hardening a causeway, or in extreme cases, elevating roads. Staff indicate that the initiative is still early in the process and does not go much further than identifying critical and vulnerable links. This information could be integrated into the future corridor plan to guide right-of-way and investment decisions, as well as land development along the impacted corridors, as discussed in Chapter 6.

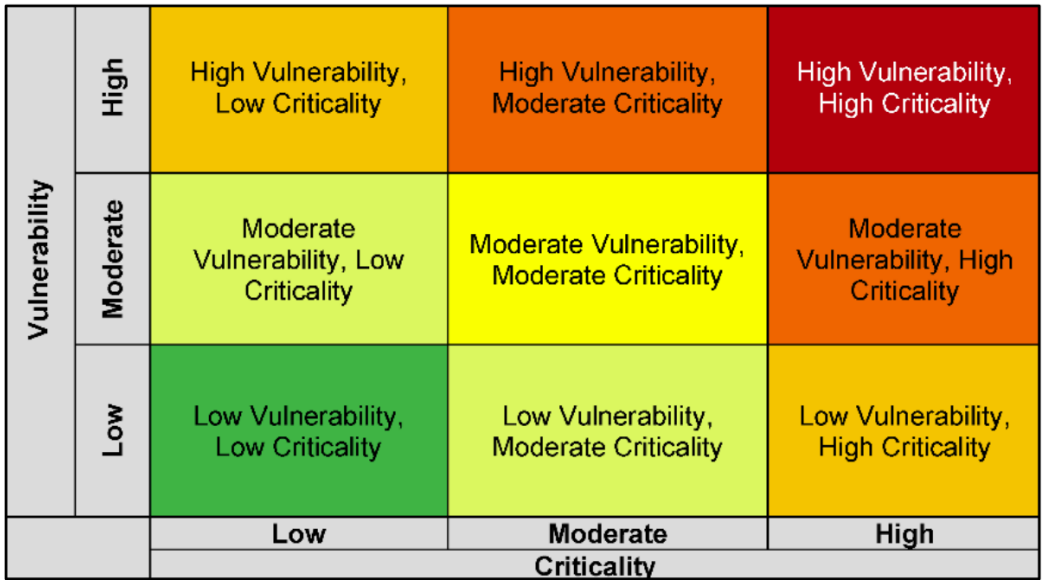


Figure 44. Composite analysis of vulnerability and criticality.

Source: Cambridge Systematics. (2020) Technical Memorandum Resilient Tampa Bay: Transportation Pilot Program Project.

Network Spacing and Resilience

A thoroughfare network with many alternative paths is more resilient to changes in traffic. Redundancy in the network reduces vehicle-miles of travel, improves emergency response times, and provides alternatives to major arterials for short trips. Regularly spaced thoroughfares also allow reduced cross-

section widths more conducive to non-auto modes and placemaking strategies. Large, widely-spaced thoroughfares, fed by disconnected local and collector streets, have the opposite effect. They channel traffic onto a few major routes, limit alternatives in the event of an incident or emergency, and create congestion and delay at major intersections. Trip lengths tend to be longer and less direct, and the lack of local street connectivity and large cross section widths impede the use of non-auto modes.

An ideal network concept places arterial networks in a grid pattern of continuous 4-lane roadways at a general spacing of one-half mile (Figure 45). Shorter spacings of one-quarter mile can be accommodated in dense urban areas. The idealized grid offers numerous benefits for a robust multimodal network. The ½-mile spacing of signalized intersections on major arterials provides more efficient traffic progression in response to peak and off-peak traffic conditions. This spacing creates a 640 acre "cell" for development, with 160 acre "subcells" where streets can be designed to tame traffic and create a safe, livable environment. Local bus service on major streets places residents within a reasonable (¼-mile) walking distance of a bus line.

Frequent placement of through routes helps to avoid the need for wide six-lane roadways with multiple turn lanes at intersections. Four-lane roadways are easier to integrate into neighborhoods than wider roadways and complement urban placemaking and complete streets concepts. On more heavily travelled routes and where wider cross sections are needed, alternative intersection designs (e.g., Michigan U) can be employed to reduce pedestrian crossing widths and allow two-phase signals by eliminating direct left turns. Levinson (2000) offers detailed analysis and guidelines. Pedestrian crossing needs can be accommodated through flexible location of signalized pedestrian crossings.

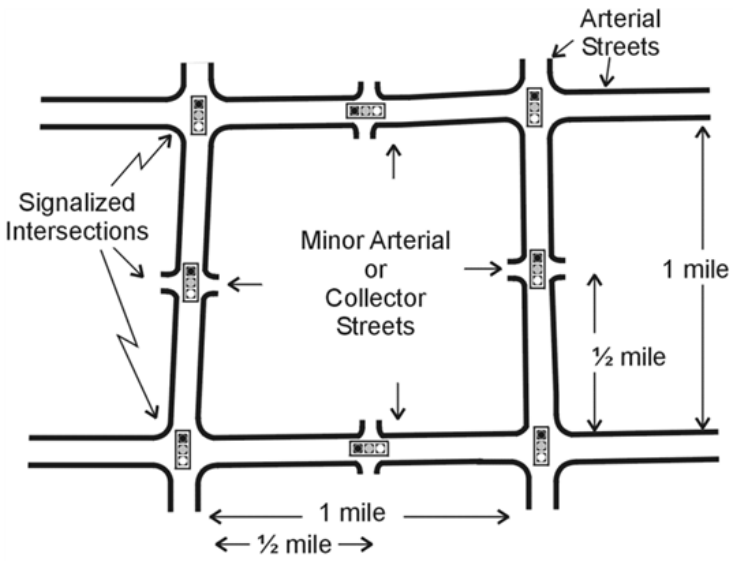


Figure 45. Illustration of ideal arterial network spacing.

Source: TRB Access Management Manual, 2014.

A process for accomplishing more robust network spacing in the context of a thoroughfare plan is illustrated in NCHRP Report 917: Right-Sizing Transportation Investments: A Guidebook for Planning and Programming (Duncan et al., 2019). It is summarized briefly below in text and illustrated in Figure 46.

- Step 1: Overlay ideal grid per spacing guidelines and compare with horizon-year network plans.
- Step 2: Adapt ideal grid to existing roadways and environmental features.

- Step 3: Compare current plans with adapted ideal
- Step 4: Identify and prioritize urgent preservation needs.

The example is especially relevant to Hillsborough County given the sparsity of the arterial and collector network in some areas, like South County, and the extensive development planned and approved in the area. Although an ideal grid is often not feasible, due to waterways, homes, and other barriers, flexible application of network spacing guidelines forms a foundation for an effective thoroughfare plan. Expanding roadway capacity through the addition of new lanes may temporarily ease congestion, but additional efforts are needed to improve throughput, like more connections and alternative routes, and improved transit frequency on designated routes supported by mobility hubs in suburban areas.

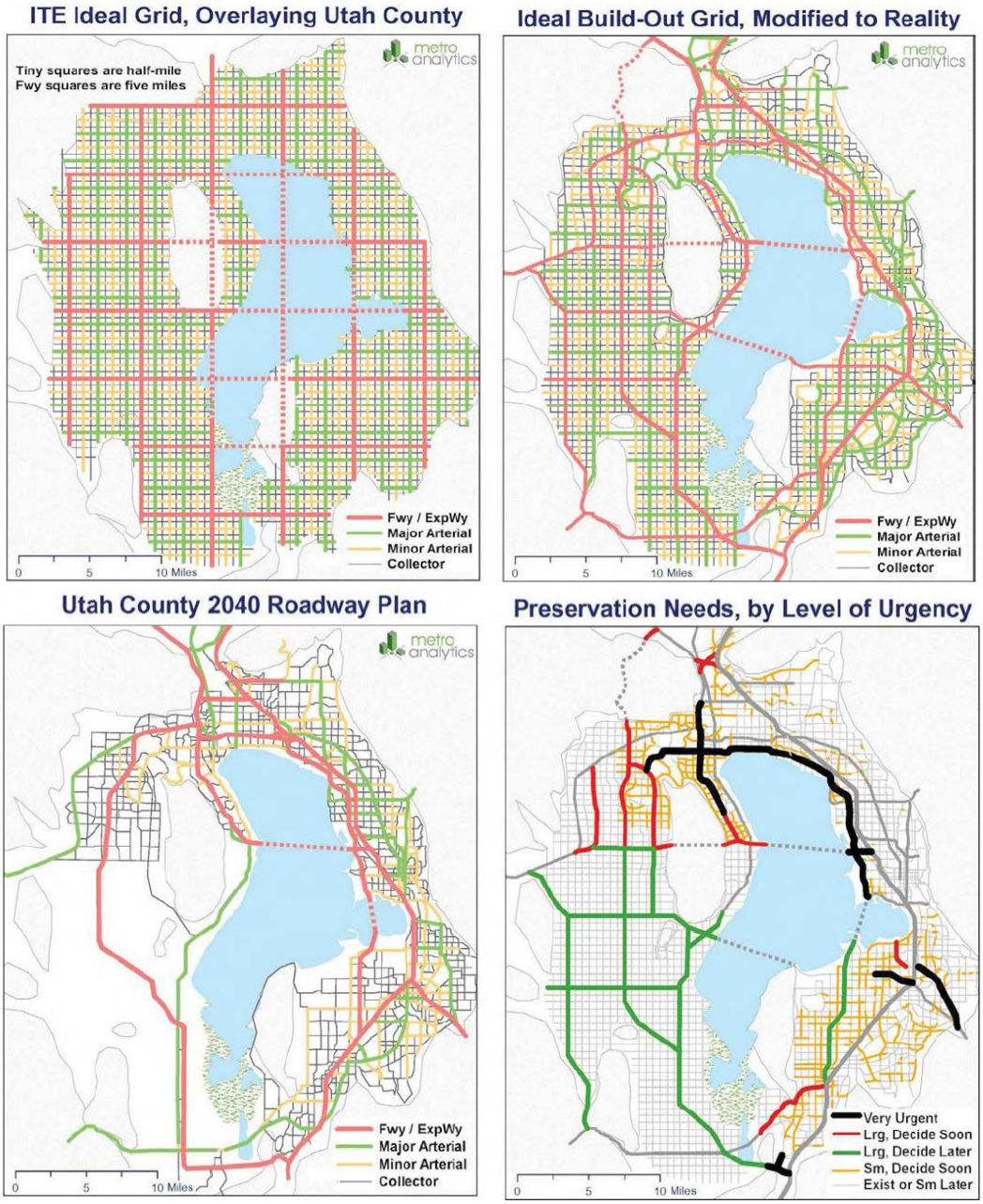


Figure 46. Adaptation of ideal network spacing in Salt Lake City, Utah.

Source: NCHRP Report 917, 2019.

Rail Corridor Preservation and Management

Historically, freight railroads have been privately owned, and therefore, rail corridor preservation was not pursued by state and local governments (Loftus-Otway et al., 2008). However, the acquisition of abandoned or declining freight corridors presents opportunities to develop and expand transit and active transportation where appropriate.

FTA Law: 49 U.S.C. 5323(q) Corridor Preservation for a Transit Project

Federal transit law 49 U.S.C. 5323(q) explains how a recipient may acquire right-of-way before the completion of the environmental reviews for any project that may use the right-of-way if the acquisition is permitted under Federal law. Additionally, right-of-way acquired under this rule cannot be developed until all environmental reviews for the project have been completed. The Federal Transit Administration Guidance on the Application of 49 U.S.C. § 5323(q) to Corridor Preservation for a Transit Project (2020) provides background on this law as follows (p.3):

> "Section 20016 of the Moving Ahead for Progress in the 21st Century Act (MAP-21) amended Federal transit law by adding a new provision at 49 U.S.C. § 5323(q) that allows the Federal Transit Administration (FTA), under certain conditions, to assist in the acquisition of right-of-way before the completion of the environmental review process under the National Environmental Policy Act (NEPA) for any transit project that eventually will use that right-of-way…MAP-21 did not, however, change the prohibition on the acquisition of real property that is not "right-of-way" prior to the completion of the environmental review process for the transit project unless conditions for certain exceptions (hardship and protective acquisitions) are met."

Allowable ROW acquisitions, as outlined in FTA Guidance on 49 U.S.C. 5323(q) (2020) include the following:

- A pre-existing linear ROW, such as an existing railroad ROW needed for a transit project;
- The existing median of a roadway; or
- Non-linear parcels of real property interests that are assembled into ROW for a proposed BRT project or fixed guideway transit project.

In the interim period between ROW acquisition and transit project construction, the ROW may be used for alternative uses, such as a walkway, bike path, or similar use, if those uses have independent utility from the transit project for which the ROW is being preserved. Proposed interim uses of the ROW that would require its modification are subject to their own environmental review (FTA Guidance on 49 U.S.C. 5323(q), 2020).

If the ROW is to be acquired with FTA financial assistance, it is subject to FTA's metropolitan and statewide planning requirements in 49 U.S.C. Chapter 53 and in 23 CFR part 450. FTA cannot fund a ROW-acquisition project unless it is included in the Metropolitan Transportation Plan (MTP). In addition, the metropolitan planning organization (MPO) must include the project in the Transportation Improvement Program (TIP) or it must be included in the Statewide Transportation Improvement Program (STIP). If the ROW is acquired without FTA financial assistance, project sponsors should still satisfy all FTA metropolitan and statewide planning requirements at the time of acquisition if they anticipate using FTA funds for the project that would use the acquired ROW (FTA Guidance on 49 U.S.C. 5325(q), 2020).

Strategies and Case Examples

A study of preserving rail corridors was conducted in 2008 by the Center for Transportation Research at the University of Texas (Loftus-Otway et al., 2008). This study presented several options for freight corridor preservation including rail banking or rails-to-trails, advance acquisition, shared corridor projects, linear corridor purchases, rail relocation, and partnerships. Below are some highlights of that research on relevant strategies.

- **Rails-to-trails and rail banking**. Rails-to-trails refers to the practice of converting an underutilized freight rail into a recreational trail. This practice is done on a more permanent basis. Alternatively, in instances where there is potential for freight demand to resume, rail banking may be employed to temporarily convert a freight line into a trail. Rail banking is established through a written agreement and may require permanent structures, such as bridges and trestles, remain intact. Loftus-Otway et al. (2008) describe the process of ROW abandonment and acquisition through rail banking as challenging due to inconsistencies with ownership, agreement types, and legal language used.

- **Route Acquisition**. Route acquisition is employed to retain rail service by preserving railroad corridors for a provisional period. For example, the Rail Corridor Preservation Act of 1988 gave the North Carolina Department of Transportation (NCDOT) authority to "purchase railroads and preserve rail corridors to reassemble critically important portions of rail corridors that have been condemned" (NCDOT, 2019). NCGS § 160A-498 states that:

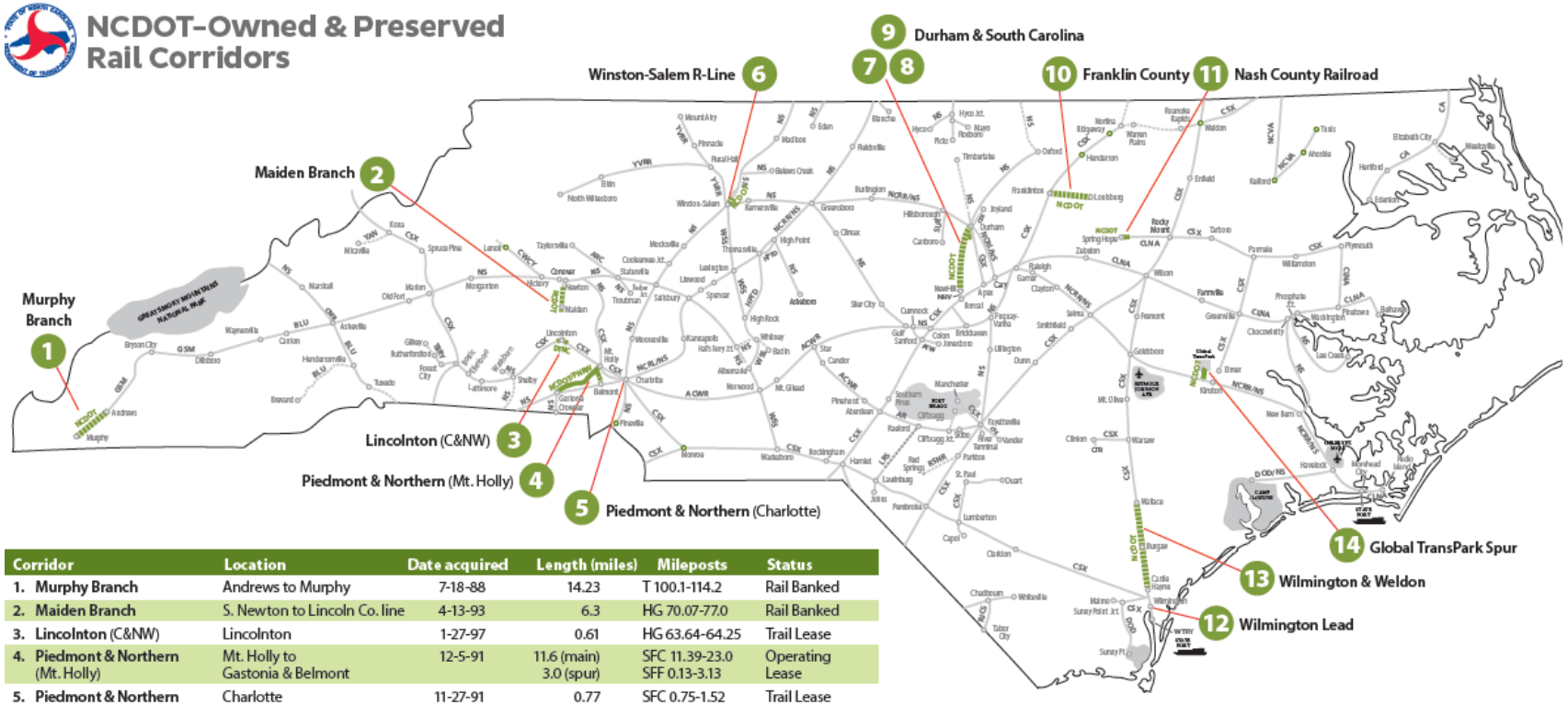
    - A city or county may acquire property, by purchase or gift, to preserve a railroad corridor established by the Department of Transportation. A city or county that acquires property to preserve a railroad corridor may lease the property or use the property for interim compatible uses until the property is used for a railroad.

  The statute was designed to curtail abandonment along rail corridors and provide a strategy to evaluate their significance to economic development, their significance within the community, and the potential for restoration if abandoned. Figure 47 shows rail corridors owned and preserved by NCDOT.

- **Shared-use arrangements**. Given the capacity to move more people, many urban areas are considering passenger rail to preserve mobility and reduce congestion. With the shortage of available right-of-way in urban areas, the use of existing freight corridors provides an alternative solution for developing passenger rail services. A shared-use agreement documents a negotiation between local governments and freight railroad companies to share existing tracks in a manner that ensures the continuation of service reliability and efficiency. These agreements outline conditions within which the ROW and track may be used and typically include assurances of safety, no negative impact on freight services, and no expectations of subsidies of passenger rail services (Loftus-Otway et al., 2008).

  One example of a successful shared use rail corridor is the New Jersey River Line. Loftus-Otway et al., (2008, p. 83) describe the implementation of the arrangement for the New Jersey River Line as follows:

  > "Given that the line was significantly under capacity, the introduction of passenger service was seen as a way to justify retaining the line as an operational freight carrier. The [Federal Railroad Administration (FRA), however, initially denied the right for the line to operate both services simultaneously. A compromise was reached in which freight trains would only be allowed access to the line at night. This restriction further alarmed freight interests who felt that the limitation would hamper the competitiveness of the line. Despite significant cost overruns in its construction, the ridership on the River Line has exceeded expectations and there have been no significant reports of problems for the freight customers on the line due to the nighttime deliveries."



Corridor	Location	Date acquired	Length (miles)	Mileposts	Status
1. Murphy Branch	Andrews to Murphy	7-18-88	14.23	T 100.1-114.2	Rail Banked
2. Maiden Branch	S. Newton to Lincoln Co. line	4-13-93	6.3	HG 70.07-77.0	Rail Banked
3. Lincolnton (C&NW)	Lincolnton	1-27-97	0.61	HG 63.64-64.25	Trail Lease
4. Piedmont & Northern (Mt. Holly)	Mt. Holly to Gastonia & Belmont	12-5-91	11.6 (main) 3.0 (spur)	SFC 11.39-23.0 SFF 0.13-3.13	Operating Lease
5. Piedmont & Northern (Cedar Yard)	Charlotte	11-27-91	0.77	SFC 0.75-1.52	Trail Lease
6. Winston-Salem R-Line	Downtown Winston-Salem	2-26-06	2.0	R-124-126	Trail Lease & Rail Banked
7. Durham & South Carolina	Durham to NC 54	8-18-95	5.07 (main) 3.07 (spur)	DD 32.63-37.7 DD 36.09-39.16	Trail Lease & Rail Banked
8. Durham & South Carolina	Chatham-Wake Co. line to New Hill	8-18-95	7.35	DD 14.1-21.45	Trail Lease & Rail Banked
9. Durham & South Carolina	Fayetteville Street to Chatham-Wake Co. line	8-6-98	6.34	DD 21.45-27.79	Trail Lease
10. Franklin County	Franklinton to Louisburg	11-2-90	9.6	SC 130.2-139.84	Trail Lease & Rail Banked
11. Nash County Railroad	Momeyer to Spring Hope	11-02-05	4.3	ABA 134.8-139.1	Rail Banked
12. Wilmington Lead	Fourth Street to McRae Street	6-12-02	.25		Rail Banked
13. Wilmington & Weldon	Wallace to Castle Hayne	8-4-94	27.1	AC 208.07-235.17	Rail Banked
14. Global TransPark Spur	Kinston	9-30-12	5.7	GTP 0.0-5.7	Operating Lease

NCDOT Rail Division – Corridor Preservation Program

The Rail Corridor Preservation Act, passed by the General Assembly in 1988, gave the NCDOT authority to purchase railroads and preserve rail corridors for "future rail use and interim compatible uses." Amendments to the Act passed during the 1989 session also declared it a public purpose for the NCDOT to reassemble critically important lost portions of rail corridors by condemnation.

In 1988, the NCDOT purchased the former Southern Railway's 67-mile Murphy Branch (part of which has since been purchased by the Great Smoky Mountains Railroad), setting the precedent for other acquisitions that followed. The 14-mile Piedmont and Northern rail line was returned to service in 2010 and has strategic connections to both Norfork Southern and CSX Transportation. NCDOT now holds title to more than 100 miles of rail corridors preserved for future use.

The Rail Division also provides technical assistance to local governments and economic-development groups to preserve freight-rail service to customers along light-density branch lines. In addition, Freight Rail and Rail Crossing Safety Improvement Funds and federal funds are used to assist short line railroads in making improvements to tracks and bridges, thereby helping to keep these lines active.

Figure 47. NCDOT rail corridor preservation

Source: NCDOT, 2017

- **Linear Corridor Purchase**. A linear corridor purchase may be used to convert rail tracks to include both freight and passenger service where freight service is declining, but not obsolete. For example, in 2001 Utah created a Transportation Corridor Preservation Revolving Loan Fund and in 2005, the state legislature passed a bill that allowed counties to impose a vehicle registration fee for corridor preservation. Additionally, in Utah, a merger between Union Pacific Railroad Company and Southern Pacific Railroad in 1995 spurred a series of studies and projects related to rail acquisition and shared track arrangements. In 2002 Utah's Transit Agency (UTA) purchased 174 miles of rail corridor. The rail corridor in the Salt Lake Area is shown in Figure 48, which includes the shared corridors (blue), corridors owned by UTA (red), and the corridor with an access agreement (green). To establish uniform policies and procedures for the thirty-seven municipalities, five counties, and three unincorporated counties that the rail line traversed, an interlocal agreement was negotiated (Loftus-Otway et al., 2008).

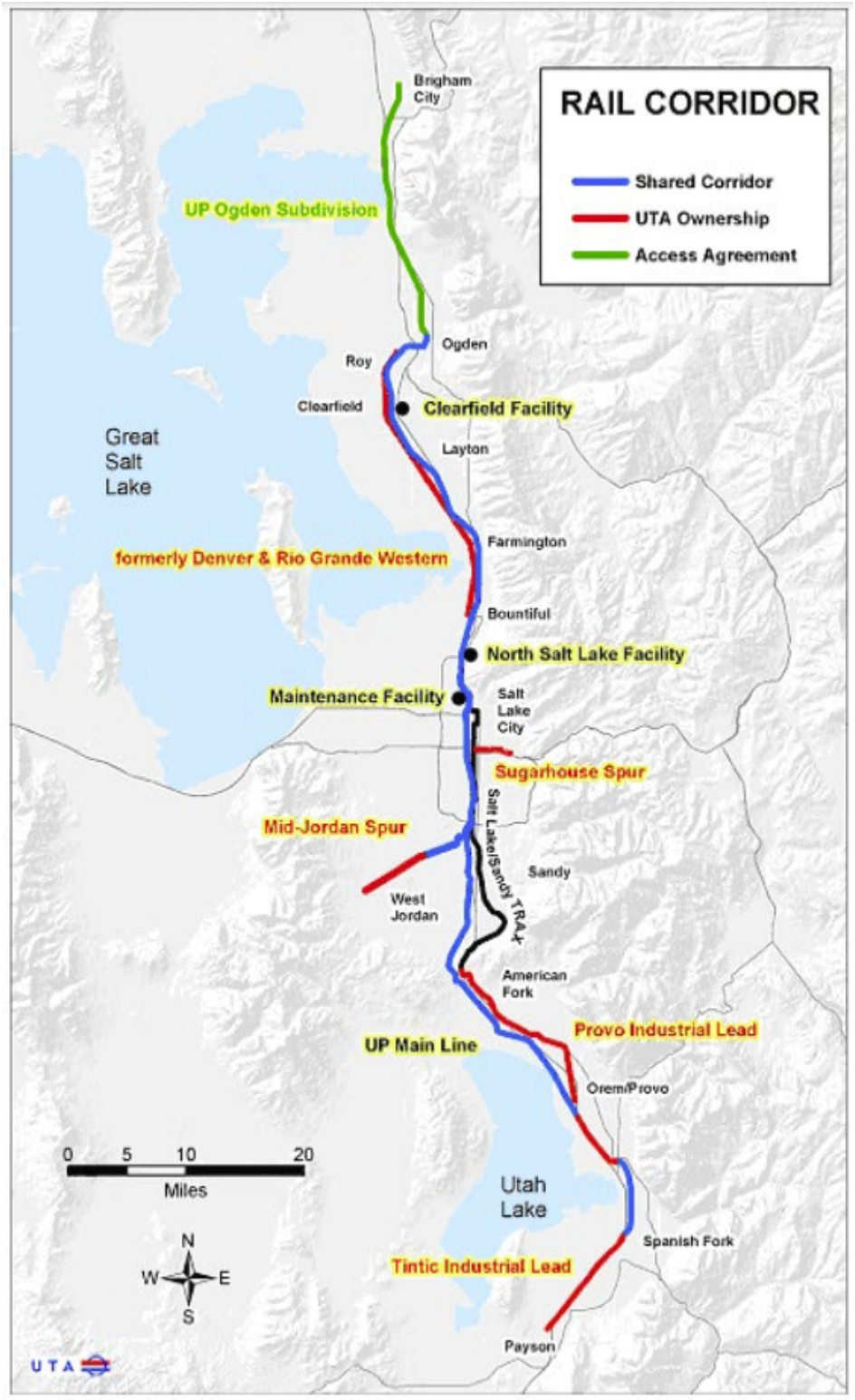


Figure 48. Rail corridor in Salt Lake Area

Source: Protecting and Preserving Rail Corridors Against Encroachment of Incompatible Uses, 2008.

As demonstrated in this section, several strategies can be implemented to preserve rail corridors. Rail corridor acquisition may be long-term or permanent if a rail corridor has been abandoned or there is notable decline in the corridor use that is not expected to increase. An example of permanent strategies can be seen in rails-to-trails programs. Alternatively, if demand is expected to increase in the future or if a rail corridor is being developed, but construction is not anticipated to begin immediately, temporary strategies, such as rail banking or route acquisition, may be employed. Finally, shared use programs provide an alternative option to accommodate both passenger and freight services through a shared use arrangement or a linear corridor purchase.

Loftus-Otway et al., (2008) found that successful preservation programs included "1) a streamlined process that minimized the time the public agency needed to solidify the deal, and 2) a clearly identifiable funding source." Partnerships between local governments, private agencies, and the public are highlighted in the study as a critical component in rail projects and preservation. Strategies such as rail acquisition, shared track arrangements, and corridor purchases require significant coordination and multi-stakeholder partnering, as demonstrated in the previous examples. Furthermore, early and meaningful public involvement reduces opposition and the potential for project delays.

Chapter 6 - Strategies for County Consideration

A thoroughfare plan is ultimately a right-of-way preservation document that allows the orderly development of a transportation network to support future growth. Historically, corridor preservation and management in Florida has focused on the implementation of a major roadway system for auto and truck travel. The basis for that implementation has been the preservation and management of right-of-way needs identified for existing and planned roadways. These needs have been determined based on long range transportation demand models and reflect the functional classification of the roadway, new lanes needed to accommodate forecasted vehicular capacity needs, any adopted roadway design standards, and typical roadway cross sections.

Although contemporary thoroughfare plans build on these practices, they are more context sensitive and emphasize a multimodal or complete streets philosophy. Several of the plans reviewed identify area types to guide the design of transportation corridors in relation to their planned land use context and modes. Rather than widely-spaced thoroughfares fed by disconnected local and collector roads, they promote a dense and connected network that supports multimodal activity. These and other integral strategies influence right-of-way needs and advance a more comprehensive vision of the design of the future transportation system.

Contemporary thoroughfare plans serve as a preliminary tool for defining which multimodal design elements and users are prioritized for each roadway type and land use context, building on adopted multimodal plans and guidelines. The desired thoroughfare network is mapped, including area and street types, with preliminary identification of modal elements. This information is then used to define the corresponding right of way needs and cross section design concepts for purposes of corridor preservation and management. Some of the plans also provide a framework for more detailed assessment of cross section design and modal needs by segment, and guide decisions on building type and intensity to reinforce the planned modal elements. As regulatory documents, the plans also include procedures and explanations to guide amendments, exceptions and updates.

With these comments in mind, this study identifies the following planning and corridor preservation strategies for consideration by the County in the update of the Hillsborough County corridor preservation plan map and corresponding plan.

- **Establish a clear and integrated vision of the future thoroughfare system, with flexibility and supporting technical documentation.**
    - Consider packaging the Corridor Plan as a concise visual document referenced in the comprehensive plan that conveys vision, modal and design elements (see for example, The Indianapolis-Marion County, Fort Worth, and City of Bastrop Thoroughfare Plans).
    - Advance more specific corridor management and network enhancement strategies through individual Community Plans and adopt these by reference in the Corridor Plan.
    - Identify implementing strategies and procedures. For example, Broward County has supporting documentation for the trafficways plan map that details the implementation process, including amendments and waivers. The City of Fort Worth has a “suite” of cross section types coded to different streets and corresponding ROW widths**,** while allowing for “interim cross sections” for certain situations in which constructing the full cross section dictated by the Master Thoroughfare Plan would be infeasible or cost prohibitive.

- **Classify all thoroughfares by function, area type or context, and modal accommodations.**
    - Broward County has "Context Sensitive Corridors" depicted on their thoroughfare plan which are highlighted in green on the map and fall into one of three categories: Urban Core, Urban Main Street, or Urban Residential. These corridors are tied to Specific Plans that govern ROW.
    - The Fort Worth, Texas Thoroughfare Plan depicts "Street Types" by evaluating the streets' respective land-use contexts and the various transportation modes needing to use each street. The five "Street Types" are Activity Streets, Commerce/Mixed-Use Streets, Neighborhood Connectors Commercial Connectors, and System Links.
    - The Indianapolis-Marion County Thoroughfare Plan map depicts "Context Areas" labeled as either compact or metropolitan. These disparate geographical areas are used to apply different standards including ROW. The plan incorporates right-of-way needs for all modes, providing design guidance on multi-modal facilities, and providing guidance on conflicting modal priorities (also Greenways as special corridor designations).
    - The El Paso Thoroughfare Plan identifies areas as compact urban or drivable suburban to differentiate thoroughfare design intentions.
    - Montgomery County, Maryland defines pedestrian priority areas and transit corridors and defines target speed by road classification and area type.

- **Adapt the thoroughfare plan to an idealized grid and include supporting network concepts.**
    - NCHRP Report 917 provides a process for adapting a large, planned thoroughfare network to an ideal grid and prioritizing new corridors for preservation.
    - Indian River includes a "Extended Roadway Grid Network" in their thoroughfare plan as logical extensions of roadways to undeveloped portions of the county. The county enforces a Subdivision Collector Map to ensure that proposed development extends subdivision collector roadways to landlocked parcels.
    - El Paso, Texas, extends its arterial and collector grid using dashed lines on the thoroughfare plan map.
    - Alachua County incorporated numerous new corridors and connections in an effort to relieve congested and constrained corridors by providing alternative parallel corridors, and improve accessibility to town centers or activity centers. Issues considered included spacing standards to develop more of a grid network.
    - The Bastrop, Texas Thoroughfare Plan includes a well-connected grid network that establishes a long-range vision for a highly connected, multimodal street system throughout the City of Bastrop, including the local street network. It may be an interesting model for use in more location specific strategies relative to compact urban areas.
    - Identify opportunities for complete streets projects and transit corridors to connect to greenways and multiuse trails. Clearly designate greenways and multiuse trails as transportation, not recreational, facilities. For example, Indianapolis-Marion County includes Greenways as special corridor designations.
    - Update and assign the County access classifications to County arterial and collector roadways to reinforce the thoroughfare plan. Integrate multimodal and context sensitive features, such as alleys and block spacing in urban contexts and safe, continuous access to transit stops.
    - Implement street network connectivity in urban contexts. See Alachua County and Leon County for additional helpful examples of network connectivity provisions.

- **Anticipate and integrate new designations as technology evolves**.
    - Consider designating future Smart Corridors to focus investments in technology enhancements in these areas and manage right-of-way needs, using the emerging smart road classification systems.
    - Integrate FDOT Electric Vehicle (EV) Master Plan locations and possible locations on other County thoroughfares, to support expansion of EV charging stations. The State is developing an innovative funding program to promote such installations (e.g. "Green" Bank, Electric Vehicle Supply Equipment (EVSE) loan).
    - Montgomery County enacted a new policy and guidelines for permitting EV charging stations on the curb for homes lacking driveway and garage access. Consider developing a policy like this to ensure proper management of the right-of-way for this purpose along major corridors.

- **Increase network redundancy and designate vulnerable routes for management.**
    - Designate routes vulnerable to flooding and other threats by assigning segments to categories shown in Figure 44 and associate the links with specific adaptation and mitigation strategies requiring additional right-of-way.
    - Designate priority routes lacking parallel relievers and/or connections to alternative facilities and increase redundancy of the network through strategies to provide alternative routes in the event of an incident or evacuation.

- **Establish a dedicated funding source for corridor management projects and acquisition of right of way.**
    - Tallahassee - Leon County practices of interest include:
        - Established Blueprint 2000 Intergovernmental Agency with authority to approve the purchase of real estate for future Blueprint projects, including early acquisition of transportation right of way with sales tax proceeds.
        - Enacted intergovernmental agreement between Leon County, FDOT and the City of Tallahassee to allow proportionate fair share funds to accumulate in an account earmarked for the completion of major transportation projects, rather than spread throughout the community on smaller projects.
        - Leon County road impact fees are placed in a Countywide Road Impact Fee Trust Account for use on designated state roads. Money deposited into the trust fund account that is not immediately needed is invested by the county and city, and income derived from those investments go back into the trust fund.
    - Indian River County engages in 'opportunity purchases' for advanced right of way acquisition. When a parcel comes up for sale on a corridor planned for widening, the county may either purchase the whole parcel or a portion of the parcel and sell the residual. Funds for land acquisition come from a combination of traffic impact fees, a six-cent local option gas tax, and a one-cent county-wide sale tax.
    - Alachua County enacted a concurrency-based multimodal transportation mitigation program that provides funding toward a variety of multimodal improvements on planned corridors within its urban service area (urban cluster).

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Appendix - Acronyms and Abbreviations

ACES	Automated, Connected, Electric & Shared
ADA	Americans with Disabilities Act of 1990
AS	Assistedway
AT	Automatedway
AU	Autonomousway
AV/CV	Autonomous Vehicle & Connected Vehicle
BMSD	Broward Municipal Services District
BOCC	Board of County Commissioners
BRT	Bus Rapid Transit
CDD	Community Development District
CDOT	Colorado Department of Transportation
CFR	Code of Federal Regulations
CIE	Capital Improvements Element
CIP	Capital Improvements Program
COMCOR	Code of Montgomery County Regulations
CRCS	Connected Roadway Classification System
CRTPA	Capital Region Transportation Planning Agency
CS	Civic Space
CSS	Context Sensitive Solutions
CSX	CSX Transportation - Class I freight railroad company
DCA	District Courts of Appeal
DOT	Department of Transportation
DPW	Department of Public Works
DRI	Development of Regional Impact (review process)
EC	Employment Center
ECFCTF	East Central Florida Corridor Task Force
EV	Electric vehicle
EVSE	Electric Vehicle Supply Equipment
FA	Full Automatedway
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FGTS	Florida Greenways and Trails System
FHWA	Federal Highway Administration
FLU	Future Land Use
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
HART	Hillsborough Area Regional Transit Authority
HOV	High-occupancy vehicle lane
HU	Humanway
IA	Intergovernmental Agency
ILA	Interlocal Agreement

INDOT	Indiana Department of Transportation
ISAD	Infrastructure Support for Automated Driving
KDOT	Kansas Department of Transportation
LDC	Land Development Code
LLP	Limited liability partnerships
LOS	Level of Service
LOSAD	Level of Service for Automated Driving
LRTP	Long Range Transportation Plan
MARC	Maryland Rail Commuter
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NCDOT	North Carolina Department of Transportation
NCGS	North Carolina General Statutes
NCHRP	The National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NW CRA	Pompano Beach Northwest Community Redevelopment Agency
PD&E	Project Development and Environment
PD/UNP	Planned Development/Unified Neighborhood Plan (Orange County)
PDD	Planned Development District
PIARC	Permanent International Associate of Road Congresses
PLACE	Planning, Land Management, and Community Enhancement
PMUD	Planned Mixed Use Development
PSP	Preliminary Subdivision Plan (Orange County)
RAC	Road Agreement Committee
RLSA	Rural Land Stewardship Area
ROW	Right of Way
RR	Railroad
SAP	Special Area Plan
SIS	Strategic Intermodal System
SR	State Road
SRA	Stewardship Receiving Area
STIP	Statewide Transportation Improvement Program
SUN	Shared-Use non-motorized
TBD	To be determined
TDR	Transferable Development Rights
THEA	Tampa Hillsborough Expressway Authority
TID	Transportation Improvement District
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TND	Traditional Neighborhood Development
TOD	Transit-Oriented Development
TPO	Transportation Planning Organization
TRB	Transportation Research Board
TTY	Teletypewriter
TVC	Towns, Villages, and Countryside (St. Lucie County)

UC	Urban Core (Broward County)
UMS	Urban Main Street (Broward County)
UR	Urban Residential (Broward County)
UTA	Utah's Transit Agency
VMT	Vehicle Miles of Travel
WL	Westlaw electronic database