



DON'T STOP AT THE STOP: ***ACTUALIZING SAFE ACCESS TO TRANSIT***

November 2020 Final Report
Florida Department of Transportation
Public Transit Office
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Task 11 Deliverable: Final Report

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For:

Public Transit Office
Florida Department of Transportation
www.fdot.gov/transit



“The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of Florida Department of Transportation.”

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Photo 1: Crosswalk educational campaign targeting pedestrians.



Community voices concerns over crosswalk after woman hit and killed by car

People are calling the intersection **dangerous**.

“Busy, very busy. All the time,” said Allen Martin. Martin doesn’t live far from the busy intersection of Shad Road and Philips Highway. He said the intersection is **not only busy but dangerous**.

“It’s dangerous, it’s one of the dangerous ones to cross walking,” said Martin. The intersection is also where **a young woman was hit while crossing the road** Saturday night.

Witnesses said **she was trying to get to the bus stop**.

“My heart fell to my feet because it’s too close to home,” said Martin.

Martin said the **problem is people speeding through the intersection and the lack of crosswalks for pedestrian traffic** to cross over from Shad Road to Philips Highway.

“They do come flying through here all the time,” said Martin.

Pedestrians are protected if they’re crossing over on Shad Road because there is a crosswalk, but **for anyone that’s trying to get to the bus stop on the other side** of the road going northbound, **there isn’t a crosswalk**.

News4Jax | June 23, 2019

EXECUTIVE SUMMARY

Tragedies like these are all too common throughout the Sunbelt, and particularly in Florida. A City of Jacksonville Sheriff's Office traffic safety report indicates that, from 2012 to 2017, one in four traffic deaths involved pedestrians, while pedestrian-related traffic homicides accounted for more than 26 percent of all traffic homicides.

Telling the Story

The regularity of such incidents suggests that pedestrian safety has become a major public health issue in the state.

For most transit users who begin and end their trips on foot, the lack of safe, pedestrian-oriented infrastructure, combined with suburban, segregated land use characteristics, creates an inhospitable environment in which to walk or bike to a bus stop. The abundance of national and state design guidance—as well as built examples of transit stops and shelters that incorporate amenities and features meeting or exceeding Americans with Disabilities Act (ADA) minimum requirements—indicates that we do know how to plan, design, and construct quality, accessible stops. Whether via administrative silos, incomplete design and development review processes, undefined agency roles and responsibilities, or basic lack of coordination, there are continuous missed opportunities to incorporate necessary, transit-supportive infrastructure and countermeasures that could otherwise reduce or eliminate obvious safety concerns, preventable injuries, and fatalities for those who access stops.

The volume of research addressing the causality, patterns, and appropriate design countermeasures associated with pedestrian and bicycle safety near transit locations gives decision-makers and technicians a full toolbox to dramatically improve safety and comfort for pedestrians and cyclists accessing transit. There is an urgent need, however, to develop specific guidance and protocols regarding the roles, responsibilities, and

oversight of design and construction, particularly within the context of the “first and last mile,” which is less of a transit problem and more of a land use and urban design problem. Given that Florida leads the nation in pedestrian injuries and fatalities, providing more effective policies and implementation guidance in this respect can substantially improve the conditions for users who most often access transit networks via walking or cycling. Additionally, the Florida Department of Transportation (FDOT) emphasis on Complete Streets implementation and context classification provides an opportunity for more effective integration of transit safety with local land use contexts.

To further support improved safety outcomes and the FDOT Public Transit Office's (PTO) larger mission of imparting guidance and innovative tools to Florida's transit agencies, this study offers a comprehensive evaluation and set of recommendations regarding optimal location, design, and safe access to transit stop locations through the lens of improved coordination and implementation. A key component of this effort will focus on coordinating and leveraging local development review, roadway design and permitting, as well as transit stop investment processes. Additionally, the study reflects direct dialogue with and feedback from transit agencies around the state to distill perspectives and insight on accessibility needs, infrastructure requirements, and agency roles and responsibilities. It is the intent of this study to enhance policy frameworks, technical guidance, and decision-making processes to institutionalize the safety and accessibility of transit stops.

Don't Stop at the Stop

Just as an escalator is essential equipment for a rail transit station, and a pole and sign are the most minimal essential equipment for a bus stop, safe, accessible crossings and comfortable sidewalks are essential for the paths that lead to the transit stop, especially because almost every transit trip begins with a walking or a biking trip. Transit agency roles and responsibilities are primarily focused on rolling stock, the physical bus stop, and operational schedules. However, recognizing the importance of safely accommodating patrons' access to stops and shelters, the oversight of the design and construction of the immediate bus stop accessibility and connectivity to the surrounding street network and infrastructure should be formally expanded to include transportation and transit stakeholders.

Providing a safe, comfortable, and convenient experience for pedestrians accessing the local transit network should be an inherent part of the transit customer service experience. While many transit agencies are involved during design or development review processes, more often than not their role is not clearly defined, and in some cases, completely absent. This results in less than desirable outcomes with respect to the location,

access, and design of transit stops, potentially creating unsafe conditions for the many walkers, rollers, and cyclists attempting to access a particular system.

A great deal of available research provides guidance and best practices with respect to the location and design of transit facilities. Much of this is aimed at increasing ridership and the experience of taking the bus. However, a growing number of emerging trends and opportunities in the state and across the country are greatly influencing the need to improve the transit experience—much of it to ensure that we avoid “stopping at the stop.”

System Redesigns and Route Optimization

Many transit agencies are completely redesigning their bus networks to provide more direct and frequent service and longer hours to reflect the needs of the modern consumer and workforce. While these efforts are collectively increasing bus on-time performance and ridership, the trade-off is that many of the routes are required to remain on higher speed arterial networks connecting major desire lines and destinations. Thus, to preserve 15-minute or less headways, patrons in many service areas may have to walk farther, including through neighborhoods that may not have adequate pedestrian and bicycle infrastructure to get to stops.

First and Last Mile (FM/LM) Problem

Originally adapted from the telecommunications and supply chain management industry, many public transit providers have recognized that passenger travel in the context of getting to or from stops has been problematic. While cities and agencies have been looking at ridesourcing (Uber, Lyft, etc.) as a potential solution to addressing short trips to stops, elasticity of demand around fares, transfers, and opportunity costs presents major issues. However, recognizing that most patrons will walk or bike ¼ mile or more to access high frequency, reliable transit service, addressing the infrastructure (adequate sidewalks, marked crossings, protected/buffered bike lanes, shade trees, etc.) provides a more direct and potentially lower cost way to address not only the FM/LM, but the first and last 50, 100, and 200 feet where

Key Objectives

- Evaluate and provide guidance for implementing safe access to transit stops through the lens of improved coordination
- Identify gaps and opportunities in current research and regulations
- Provide solutions and strategies focused on areas of responsibility to improve the process and ensure safe transit access is part of the regular order of business

Safe access to transit
is a core component to transit service delivery
and should be considered in tandem with
frequency and reliability of service.



Photo 2: ADA compliant StarMetro bus stop with shelter and seating on Apalachee Parkway in Tallahassee, FL.

“Most pedestrian fatalities occur at mid-block crossings or on multi-lane roadways at non-signalized locations. For pedestrians, walking just half a block out of the way to get to a signal can increase their delay by up to 3 minutes or more (assuming a walking speed of 3.5 to 4 feet per seconds)—a delay which would not be tolerated by motorists at a traffic signal.”

Federal Highway Administration Pedestrian Hybrid Beacon Guide

Photo 3: A technically ADA compliant bus stop lacking ADA access to the stop.



safety issues for pedestrians and bicyclists all too often occur. It is also important to recognize that transit accessibility often begins at the interface and connection onto private property.

Complete Streets and Vision Zero

There is a greater awareness that for far too long, streets have been designed primarily for the mobility and convenience of the single-occupancy vehicle. Florida has consistently ranked as one of the worst states for pedestrian safety, adversely

impacting older adults, communities of color, and lower income areas—which also represent a substantial portion of the transit customer base.

Complete Streets are planned, designed, and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. Complete Streets is ultimately about creating safe networks of opportunity; reducing pedestrian fatalities, easing congestion, improving preventable chronic

diseases, and changing travel patterns to support multimodal choice and accessibility. Successful deployment of Complete Streets can also support transit-driven first- and last-mile access.

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. First implemented in Sweden in the 1990s, Vision Zero has proven successful across Europe, and it continues to gain momentum in major American cities, including throughout Florida.

Vision Zero is not just a slogan or tagline, but a new way of approaching safety and roadway design that recognizes traffic deaths as a preventable phenomenon, leveraging cross-disciplinary collaboration, urgency, and accountability to achieve the shared goal of zero fatalities and severe injuries. The successful implementation of these tools directly supports safe first- and last-mile access to transit networks, particularly for those who are disproportionately affected by crashes.

Context Classification

One of the major tenets of Complete Streets is that there is no “one size fits all” solution and that the diversity of places, local needs, and contexts should be the ultimate determinants of roadway design. The FDOT Context Classification policy and standards allow FDOT and localities to work together to “put the right street in the right place.” This provides greater flexibility in determining design speed and facility widths within a variety of urban to rural location typologies. This approach presents a similar opportunity and methodology for more effective review, design, and deployment of transit facilities and infrastructure leading up to transit stops.



Photo 4: Basic design elements (i.e. sidewalks, crosswalks, protected bike lanes) are vital improvements necessary for enhancing safe access to transit.

Florida Transportation Plan (FTP) Implementation and Governor’s Initiatives

The FTP Implementation Element defines the roles of state, regional, and local transportation partners in implementing the Florida Transportation Plan, including a variety of specific short- and medium-term actions and performance measures. Governor DeSantis has also articulated a list of key initiatives aimed at improving multimodal development, congestion management, and safety. FDOT’s Vital Few initiative additionally supports these goals. This study directly supports a number of FTP goals, namely:

Safety and Security

Prevent transportation-related fatalities and serious injuries.

Infrastructure

Optimize the functionality and efficiency of existing infrastructure and right-of-way (ROW).

Mobility

Increase the reliability of all modes of Florida’s transportation system.



Photo 5: Overturned shopping carts at an existing bus stop that lacks pedestrian access to a convenience mart.

Transportation Choices

Increase the share of passenger trips using public transportation and other alternatives to single occupancy motor vehicles.

Economic Competitiveness

Increase transportation connectivity between Florida's economic centers and regions.

Quality Places

Provide transportation solutions that contribute to improved public health.

Environment and Energy

Decrease transportation-related air quality pollutants and greenhouse gas emissions.

Through FDOT's leadership, this study provides an opportunity to rethink and clarify the FM/LM concept and zero in on defining "stop influence areas," or the first 50 feet to ¼ mile radius leading up to and surrounding a bus stop, with the recognition that there are very distinct issues within this space that can often be overlooked. This elicits basic questions such as:

- *Who should be addressing the first 50' to ¼ mile from a stop beyond a pad, sign, or shelter?*
- *How can we ensure that driveway access permits typically granted to developers incorporate the most reasonable consideration for stops if along a major transit route, and that the site is accessible to vulnerable road users?*

- *How can we create metrics to score stop placement to encourage intentionality for safety and comfort and avoid choosing locations simply because of available ROW?*

This study seeks to "institutionalize" safe, comfortable, and convenient access (including full ADA compliance) to stops as part of the regular order of business—from review and coordination through permit issuance and construction.

The study process was driven by a set of transit stakeholder interviews and workshops. Five transit agencies around the state participated in the study, including the Jacksonville Transportation Authority (JTA), Gainesville Regional Transit System (RTS), Palm Tran, Broward County Transit (BCT), and Indian River Transit (IRT) GoLine. An initial assessment of all transit agencies in the State of Florida was performed to identify candidate participants. The Project Team sought to engage a variety of agencies including large, medium, and small agencies with varying levels of operations and local demographics. An initial list of eight (8) agencies was identified and contacted. The first five (5) agreed to participate, were selected, and are listed above.

Kick-off meetings were held with each agency. These meetings included open dialogues around key topics including assets and infrastructure, safety and security, and design and permitting. This process was used to verify assumptions and existing conditions, provide clarity around barriers,

explore roles and responsibilities, and elicit desired outcomes associated with the granularity of the first and last mile.

In addition to extensive interviews and field observations, the study incorporated a substantial literature review, particularly focused on two recent FDOT publications: *The Impact of Transit Stop Location on Pedestrian Safety* (2017) and the *Application of Demographic Analysis to Pedestrian Safety* (2018). Each of these provides salient observations and guidance on the placement and design of stops; however, potential limitations are evident with respect to the documentation of crash incidents and potential countermeasures. Additionally, inconsistent interpretation and application of current Florida statutes and regulations governing the enforcement of pedestrian crossings, particularly at mid-block locations, were also reviewed and found to be a major issue.

Given the long distances between signalized or marked crossings along higher speed/volume arterials in Florida, many pedestrians and cyclists are crossing mid-block to access transit stops. Behavioral and human factors can often supersede safety countermeasures designed to prohibit or blockade pedestrian activity. Like drivers, pedestrians and cyclists are sensitive to distance and delay, especially if they are trying to access desired origins and destinations. Conventional education and enforcement protocols to reduce pedestrian crashes, particularly near transit stops, are not as effective in the absence of better and more coordinated planning, design, and implementation. Based on the synthesis of research and analysis, the following key findings and opportunities, further detailed on pages 55-60 of this report, were explored to inform additional research and policy-making with respect to actualizing safer access to transit in the State of Florida.

Recommendations

Ensure transit agencies take the lead role in the improvement of direct accessibility to transit

Create a “Transit-Inclusive Development Review Process and Flowchart”

Institutionalize Context Classification Review and Approval

Work with localities to adopt development standards to mandate the inclusion of transit amenities and infrastructure in Context Classification Zones Urban General (C4) to Urban Core (C6)

Incorporate GIS-based screening tools as part of the mandatory review and coordination between transit agencies, FDOT, and local jurisdictions

Update FDOT’s “Accessing Transit Handbook” to improve transit agency review/coordination

Update and clarify Florida Statutes governing pedestrian walking and crossing movements

WHY DOES THIS MATTER?



Photo 6: Flowers at this intersection signify the location of a pedestrian fatality.

How we feel
about **streets** is
how we feel about **people.**

Purpose

According to the most recent FDOT Source Book, roughly 231 million transit passenger trips occurred in 2018 (FDOT Forecasting and Trends Office, 2019). For low-income communities, the aging, or those who simply prefer alternative mode choices, transit must be a safe and reliable system that facilitates access to the same goods and services others reach by car.

This study has broad policy implications and directly supports key statewide plans and initiatives. The Florida Transportation Plan (FTP), last updated in 2015 and scheduled for another update in 2020, is the long-range, guiding transportation vision, policy, and implementation document for the State of Florida. Part of the 2015 FTP vision element addresses what FDOT intends to achieve for Florida's transportation system over the next 50 years and prioritizes safety and security, efficient and reliable mobility, as well as more transportation choices. As FDOT and various state agencies and stakeholders gather to discuss the 2020 FTP update, key issues

around safety and access to transit must be a focal point of discussion.

At the May 2019 Future of Transportation in Florida event held in Jacksonville, the Federal Highway Administration (FHWA) and FDOT co-hosted a Vision Zero workshop to “coordinate and align Vision Zero initiatives throughout the state to support the goal of a fatality-free transportation system.” Given the fact that Florida has been highlighted as the most dangerous state in the nation for pedestrians by Smart Growth America, a Vision Zero-based focus for the 2020 FTP update indicates not only the growing importance of safety in Florida, but also the growing statewide recognition of and intolerance for transportation-related deaths.

Governor Ron DeSantis' 2019 Bold Vision for a Brighter Future initiative is investing in transportation infrastructure “to relieve traffic congestion, ensure efficiency, and improve safety.” In the Fiscal Year 2019-20 Work Program, \$667.9 million has been dedicated to transit program improvements and \$229 million for additional safety initiatives.

FDOT Mission

“Provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity and preserves the quality of our environment and communities.”



FDOT Transit Office Mission

“Identify, support, advance and manage cost effective, efficient and safe transportation systems and alternatives to maximize the passenger carrying capacity of surface transportation facilities.”

Photo 7: Unofficial goat path crossing in Jacksonville, FL.

Governor Ron DeSantis' 2019 Bold Vision for a Brighter Future is investing \$896.9 million in transit improvements and safety initiatives.

This statewide momentum around transportation safety creates an ideal environment for highlighting the role that transit agencies and other stakeholders can play in augmenting roadway safety, multimodal transportation options, and efficient mobility. Addressing and promoting transit systems, stops, design, and safety through new regulations, dedicated funding streams, and coordination between relevant agencies can help solve some of Florida's identified key issues.

Transit is a service provided to the public by transit agencies and municipalities that, ideally, cooperate to offer customers the best experience possible. A major challenge in actualizing safe access to transit stems from the fact that transit agencies are generally limited to operational roles and lack the authority or oversight necessary to implement stop and access infrastructure. With no legal influence over the roads, despite existing in and influencing how the roadway system functions, transit agencies are typically left out of the design or planning phases for new developments and roadway improvements that impact the transit experience. The degree to which transit agencies are included in the process varies. Agencies are often reliant on political and social agreements, rather than a formal regulatory framework.

Extensive research and best practice guidance have been published and standardized for bus shelter design, including the necessity for connected pedestrian and bike networks and accessible stops. Regardless, transit agencies and local governments continue to struggle with providing reliable, efficient, and adequate transit service, especially in Florida's vehicular-dominated transportation environment. Creating a safer, more accessible, and more desirable transit experience may require less reliance on optional guidelines and more emphasis

on adopting regulations that mandate the inclusion of transit agencies and elevate network needs throughout the design, permitting, and construction process.

This study will highlight several cases where this is happening in Florida and recommend ways in which FDOT's Context Classification tool, interagency coordination, incentives, and funding can work together to make safe access to transit a reality. This study will thoroughly examine barriers, provide specific illustrations and case study evidence, and recommend ways in which state, local, and private entities can work more effectively with transit agencies to actualize safer access to transit networks.

Photo 8: Transit riders in Broward County, FL who need to cross the street will often do so despite the inherent risk of negotiating eight lanes of traffic.



Photo 9: A worn mid-block path used by pedestrians and cyclists to cross U.S. 1 to access a Super Walmart in Jacksonville, FL.

Specific Research on Safe Access to Transit

Throughout the years researchers, policy-makers, planners, and engineers have made efforts to address issues of safety, security, design, and perception regarding transit. At the onset of this project, we conducted a thorough examination of current thinking and best practices, revealing a large body of work addressing the varying aspects of transit safety and design. The following section summarizes recent research, relevant laws, and guidance specifically selected to provide background for this study. For a complete list of all resources reviewed, beyond the focal snapshot highlighted below, please see the **References** section.

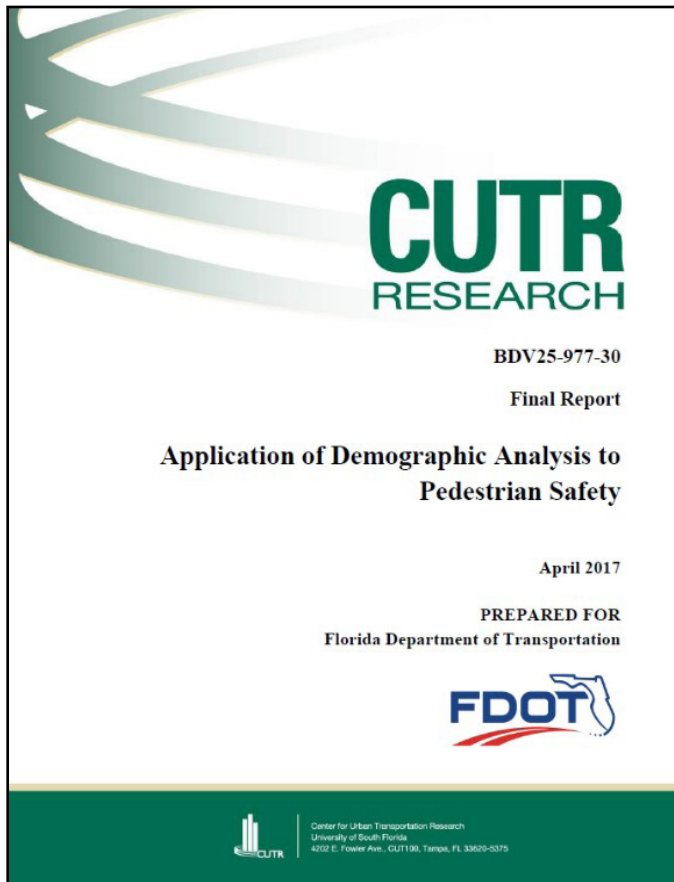


Information was collected on 578 pedestrian crashes occurring within 100 feet of a bus stop between 2011 and 2014 in the study area. Of those crashes, 26 were determined to involve transit users, although the methods for identifying transit users from non-transit users were unclear. The report concluded that the most common reoccurring issues were jaywalking and crossing against the traffic light. Recommendations focused on tactics like expanding use of fencing similar to what is currently found on Oakland Park Boulevard in Broward County and applying signage directing pedestrians to use crosswalks.

OPPORTUNITIES

There are additional opportunities to explore in greater detail the nature of crashes around stops, including the degree to which those involved were bus patrons as well as their origins and destinations. To support the education and enforcement strategies outlined in the report, there are a number of engineering and design solutions that can be included, the combination of which can more effectively address safety, access, and connectivity in the context of stop influence areas.

The goal of this study was to assess conditions at bus stops in Broward and Palm Beach Counties that indicate unsafe design and subsequently high levels of transportation-related pedestrian crashes. The report aims to identify measures to mitigate crashes. Because stops are often not properly integrated with land use and are usually located on high-volume, high-speed roads, transit user safety is generally compromised. To better understand the issues surrounding bus stops, researchers worked to identify stop location and design similarities that result in unsafe walking conditions.



This study focused on the pedestrian experience in low-income areas of Broward and Palm Beach Counties. This effort builds upon the growing need to address the disproportionate number of pedestrian fatalities occurring in low-income areas versus more affluent neighborhoods. Goals of the study were to develop a methodology to identify areas with higher risk of pedestrian crashes by creating a set of identifiers and to create recommendations for design countermeasures and pedestrian education to mitigate crashes. The research showed that pedestrian crashes occur more frequently in areas with (among others):

- Large populations
- Fewer older adults
- Larger minority populations
- More commuters using transit or biking
- Higher proportions of people with less than a high school education

- Higher proportions of zero-car ownership
- More intersections
- More traffic signals
- More bus stops
- Larger proportions of roads with higher speed limits
- Walmarts
- Greater densities of discount department stores, fast-food, convenience stores, and grocery stores

OPPORTUNITIES

This report focused on the pedestrian experience in low-income areas:

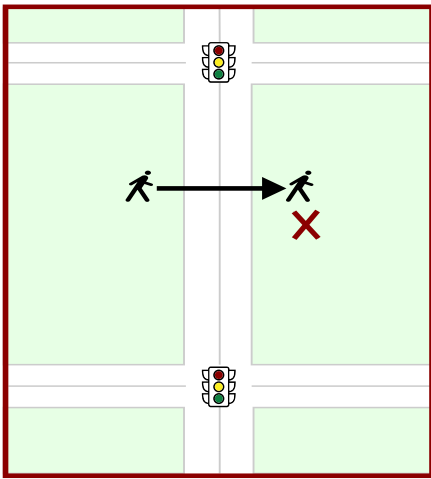
- U.S. Census poverty rates show poorest neighborhoods have highest pedestrian fatality rates
- Low-income areas record twice as many fatalities as affluent neighborhoods

Basic recommendations include engineering countermeasures as well as education and outreach plans. The study offers the potential to consider the roles and responsibilities of transit and other agencies in regard to pedestrian safety, especially around transit stops. There is an opportunity to leverage the findings of this research to incorporate such land use and demographic data as potential “screens” or tools used by local jurisdictions to elevate the design and review of particular transit stop locations so as to avoid missed opportunities or less than desirable access.

PEDESTRIAN LAWS

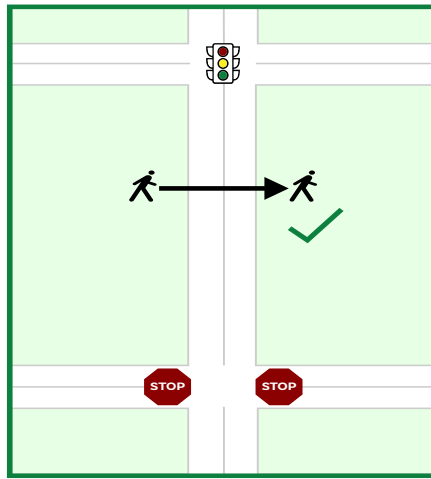
Rules for pedestrians crossing a roadway mid-block, not in a crosswalk (Section 316.130 F.S.):

A pedestrian may not cross between adjacent signalized intersections. Except in a marked crosswalk, a crossing pedestrian must cross at right angles to the edge of the road, or by the shortest route to the opposite side.



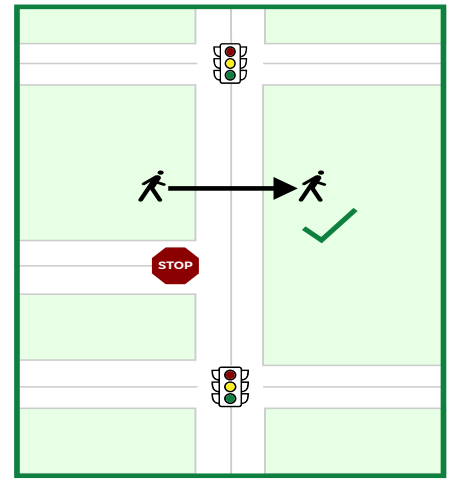
ILLEGAL

Pedestrian has crossed between adjacent, signalized intersections.



LEGAL

Pedestrian has crossed between adjacent intersections, one of which is **NOT** signalized.



LEGAL

Pedestrian has crossed between adjacent intersections, one of which is **NOT** signalized.

There are 28 statutes that apply to pedestrians in the State of Florida. The above image highlights the specific pedestrian laws for those crossing a roadway at mid-block, which is only considered illegal if a traffic signal exists on each of the adjacent intersections. It is legal to cross at mid-block if the crossing occurs between a signalized and a non-signalized, such as a stop-controlled, intersection. Pedestrians are also expected to cross at right angles or in a way that minimizes the distance of the crossing (i.e., not diagonally).

According to a ProPublica feature article entitled “Walking While Black,” which investigates the demographics behind pedestrian ticketing in Duval County, Florida, some pedestrian laws are being inaccurately enforced. Of 648 citations issued to pedestrians for crossing the street outside of a crosswalk in the last 5 years, 58 percent were given at locations without adjacent traffic lights. Low-income and communities of color were shown to be 5.9 and 2.7 times more likely to receive a pedestrian ticket, respectively (Sanders, Rabinowitz, and Conarck, 2017).

OPPORTUNITIES

Many parts of the statute predate the abundance of higher capacity roadway infrastructure, including higher speed, suburban, multi-lane facilities throughout the state, in which many pedestrians and cyclists must navigate to access stops.

Addressing the language related to these statutes can ensure that officers, citizens, and legislators have a full understanding of the laws to avoid unintended consequences as a result of erroneous interpretation and/or enforcement. In addition, providing clarity around this issue could help transit agencies in evaluating appropriate stop placement.

FDOT Context Classification



As a companion to other statewide Complete Streets guidance and policy documents, FDOT adopted a new policy and roadway design guidance aimed at addressing the need for a system to identify roadway and land use characteristics to inform the development of context-sensitive networks.

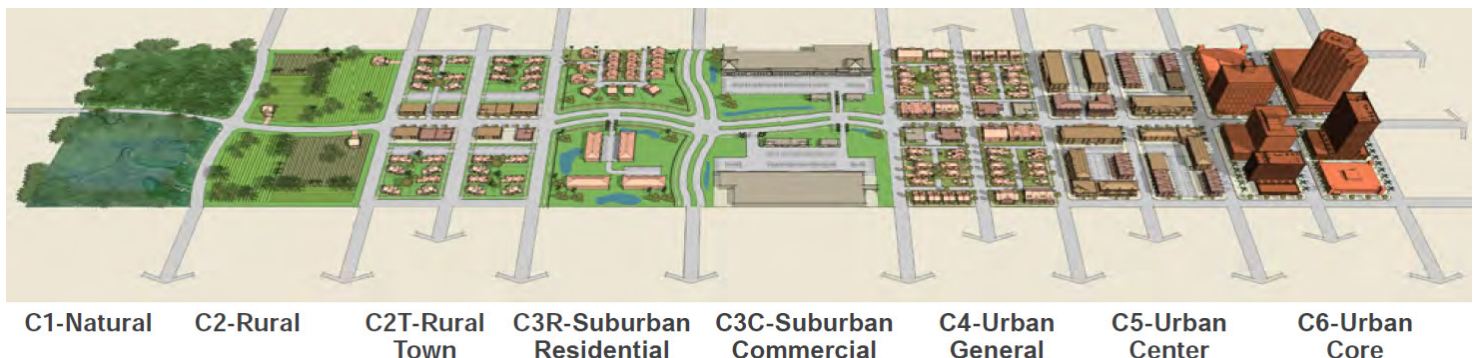
FDOT's Context Classification system defines the process for classifying roadways, categorizing roads into one of eight groups ranging from Natural to Urban Core (see **Figure 1**). Applying these classifications allows agencies to consider the proper application of design and use for the area based on characteristics such as existing and future land use, location of parking, block lengths, intersection density, and building size and placement. The Context Classification process has also been formally integrated into the Florida Design Manual (FDM).

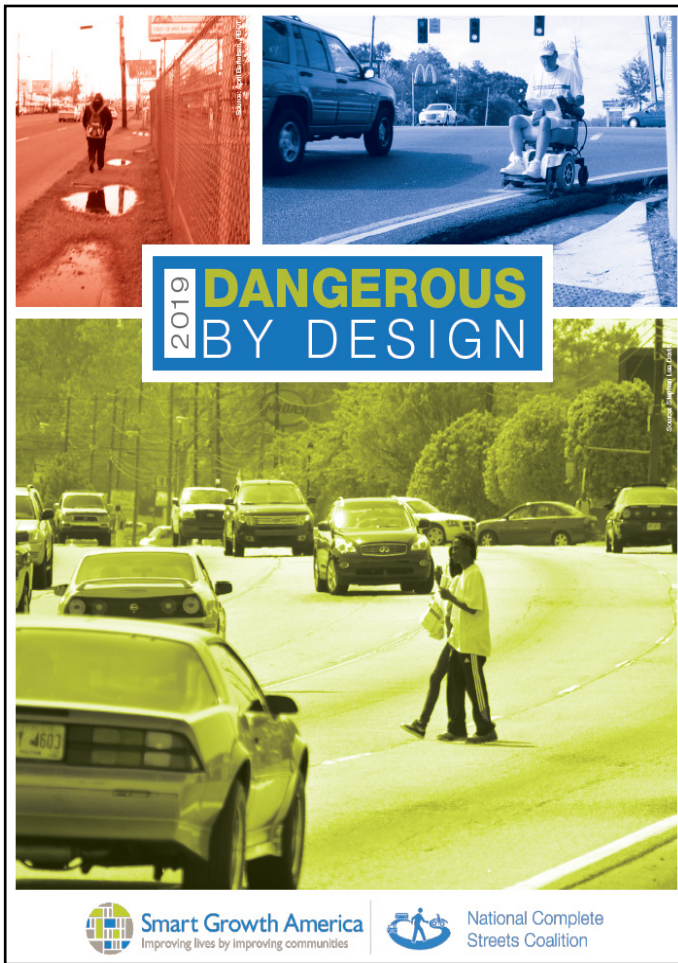
OPPORTUNITIES

This is an exceptional tool for enhancing the roadway design process in the updated Florida Design Manual, recognizing the need for greater flexibility with respect to urban land use characteristics. There is an opportunity to provide specific design guidance around transit in relation to context classification.

Specific opportunities include mandating inclusion of transit features and infrastructure near high-frequency transit stops for mixed-use developments in Context Classification Zones C4 (Urban General) through C6 (Urban Core). Context classification review and approval should be institutionalized in the transit stop design and development process.

Figure 1: The spectrum of context classifications produced by FDOT.





Smart Growth America released its 2019 update of the Dangerous by Design report, which showed that, as in the previous report, Florida cities dominate the list of worst places for pedestrians and cyclists, with eight of the top 10 most dangerous metropolitan areas in the country. In recent years, localities have started to rethink how they design streets

by implementing Complete Streets methodologies that incorporate the needs of all users. The report suggests several countermeasures including adopting Complete Streets policies and ending the practice of using Level of Service as the sole measure of a roadway’s performance, which is primarily based on peak hour traffic congestion.

In addition to roadway and network design, the report notes that older adults, people of color, and those in low-income areas are at much higher risk of serious and fatal injury crashes. Older adults are more likely to be struck while following the proper procedures for crossing in a crosswalk, largely due to pedestrian signal timings that are too short. The report suggests prioritizing projects in low-income areas in order to mitigate the disproportionate number of serious crashes that occur in those areas.

In response to pedestrian and cyclist safety concerns, the Florida Department of Transportation has adopted a Complete Streets Policy to incorporate into their internal guides and documents, and is working with localities to encourage them to do the same. However, no funding has been directly dedicated to constructing Complete Streets in Florida as of yet.

OPPORTUNITIES

This annual report is a leading resource for understanding pedestrian safety according to a pedestrian danger index (PDI) calculated per state each year. One of the main limitations of the PDI is its reliance on Fatality Analysis Reporting System (FARS) input data. This data is based on American Community Survey (ACS) home-based-work (HBW) commutes and only allows people to report a single mode of travel.

Augmented data collection that incorporates a variety of non-HBW trips, including crowdsourcing tools, open data, and civic technologies, as well as national data on injuries or near misses, may serve to bolster the reliability of the PDI measure.

Legal Research Digest 54

Impacts of the Americans with Disabilities Act on Transit Agency Liability, 2018

The Problem and Its Solution

The nation's 6,000 plus transit agencies need to have access to a program that can provide authoritatively researched, specific, limited-scope studies of legal issues and problems having national significance and application to their business. Some transit programs involve legal problems and issues that are not shared with other modes, as for example, compliance with transit-equipment and operations guidelines, FTA financing initiatives, private-sector programs, and labor or environmental standards relating to transit operations. Also, much of the information that is needed by transit attorneys to address legal concerns is scattered and fragmented. Consequently, it would be helpful to the transit lawyer to have well-resourced and well-documented reports on specific legal topics available to the transit legal community.

The Legal Research Digests (LRDs) are developed to assist transit attorneys in dealing with the myriad of initiatives and problems associated with transit start-up and operations, as well as with day-to-day legal work. The LRDs address such issues as eminent domain, civil rights, constitutional rights, contracting, environmental concerns, labor, procurement, risk management, security, tort liability, and zoning. The transit legal research, when conducted through the TRB's legal studies process, either collects primary data that generally are not available elsewhere or performs analysis of existing literature.

Foreword

In the 28 years since its enactment, the Americans with Disabilities Act of 1990 (ADA) has become a fixed part of America's cultural and legal landscapes. The ADA has transformed U.S. transit agencies, which now have sophisticated programs to address a wide variety of accessibility

goals in such areas as the design of transit stations, bus and rail vehicle design, media stop announcements, para-transit programs, website design and content, and many other tools that address ADA requirements.

In 1998 when the ADA was relatively new and there was very little reported case law, TCRP saw a need to assess the potential of tort liability and identify unreported tort liability cases arising out of the ADA, and in December 1998, TCRP published *TCRP Legal Research Digest II: Potential for Tort Liability for Transit Agencies Arising Out of the Americans with Disabilities Act*. In the years since, it has become clear that for transit agencies tort liability is only a small aspect of the many legal risks and liabilities presented by the ADA. In fact, by far the most publicized legal disputes involving transit agencies and ADA claims have been civil rights lawsuits.

In response to several U.S. Supreme Court cases that narrowly interpreted the ADA definition of disability, in 2008 Congress amended the ADA to clarify and broaden the definition.

This digest provides a comprehensive overview of the types of transit agency ADA requirements and legal claims against transit agencies that the ADA is amended has generated. This research presents an assessment of problems in implementing the Act from the perspective of transit operators. Although case law is limited, the Federal Transit Administration (FTA) has issued extensive regulatory guidance, which transit agencies can draw upon in assessing compliance requirements associated with the Act. Relevant FTA guidance is summarized in detail in this report.

This digest will be helpful to transit operators, administrators, planners, risk managers, and attorneys with an interest in devising a transit program that meets the objectives of the ADA.

The National Academies of
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TRANSPORTATION RESEARCH BOARD

incorporate ADA requirements into their design and operation standards, and the Federal Transit Administration (FTA) issues extensive regulatory guidance to assist with this process. The report dissects what aspects of the ADA apply to transit agencies, such as the fact that a public entity must make reasonable modifications of policies, practices, and procedures to avoid discrimination against someone with a disability.

There are numerous locations across the U.S. that are under consent decrees or engaged in settlement agreements with the U.S. Department of Justice (DOJ) for specific violations under Title II of ADA, 42 U.S.C. §§ 12131-12134, and the Department's implementing regulation, 28 C.F.R. Part 35. In Florida, there are currently 10 counties and municipalities listed as part of the US DOJ's Project Civic Access, a wide-ranging effort to ensure that counties, cities, towns, and villages comply with ADA "by eliminating physical and communication barriers that prevent people with disabilities from participating fully in community life (ADA.gov, 2019)."

This report provides legal research for transit agencies and transit attorneys in regard to requirements upheld by the Americans with Disabilities Act (updated in 2008 by Congress) which clarifies and broadens the definition of a disability. Transit agencies strive to

OPPORTUNITIES

This report identifies ways in which transit agencies and the service they provide are tied to the Americans with Disabilities Act, FTA funding, and potential discrimination lawsuits. Transit agency operators, administrators, planning staff, and their attorneys are continuously engaged in risk management activities in support of the Act to minimize harm to disabled customers and agencies' subsequent potential for tort liability.

Agencies can play a major role in working with host jurisdictions to ensure compliance with the Act, given that so many of the facilities that are often subject to violations include sidewalks or other public facilities that are often directly served by transit. Milling and resurfacing and new curb cut activities fall under alterations that trigger ADA obligations.

This can present an opportunity to increase awareness and dialogue around ADA liabilities, working with transit agencies and soliciting input directly from the disability community regarding where new features and improvements are most needed, especially for those that rely on the bus.

TOURISM WORKERS: A FLORIDA TRANSIT EXPERIENCE

Every shift, Nicky Wilkins commutes at least three hours each way on Orlando's Lynx bus system to her job at Disney's Typhoon Lagoon (see **Photo 10**). She takes four different buses to travel the 15 miles it takes for her to get to work—a distance she could travel in 30 minutes if she could drive herself (see **Photo 11**).

Nicky is one of thousands of service, tourism, and other industry workers who rely on the Lynx bus system, which is underfunded and lacks the adequate number of buses to cover the agency's three-county service area.

Photo 10: Nicky Wilkins waiting for one of four buses that will get her to her 8:30 a.m. shift at Typhoon Lagoon.



Commuting 6 hours a day

Nicky Wilkins has a marathon morning to get to her job at Walt Disney World from her apartment in West Orange County.

It requires taking four buses to travel roughly 15 miles the way the crow flies. If she had a car, it would take 30 minutes.

Instead, Wilkins spends nearly three hours on the bus before her 8:30 a.m. shift.

Here's her journey on the bus.

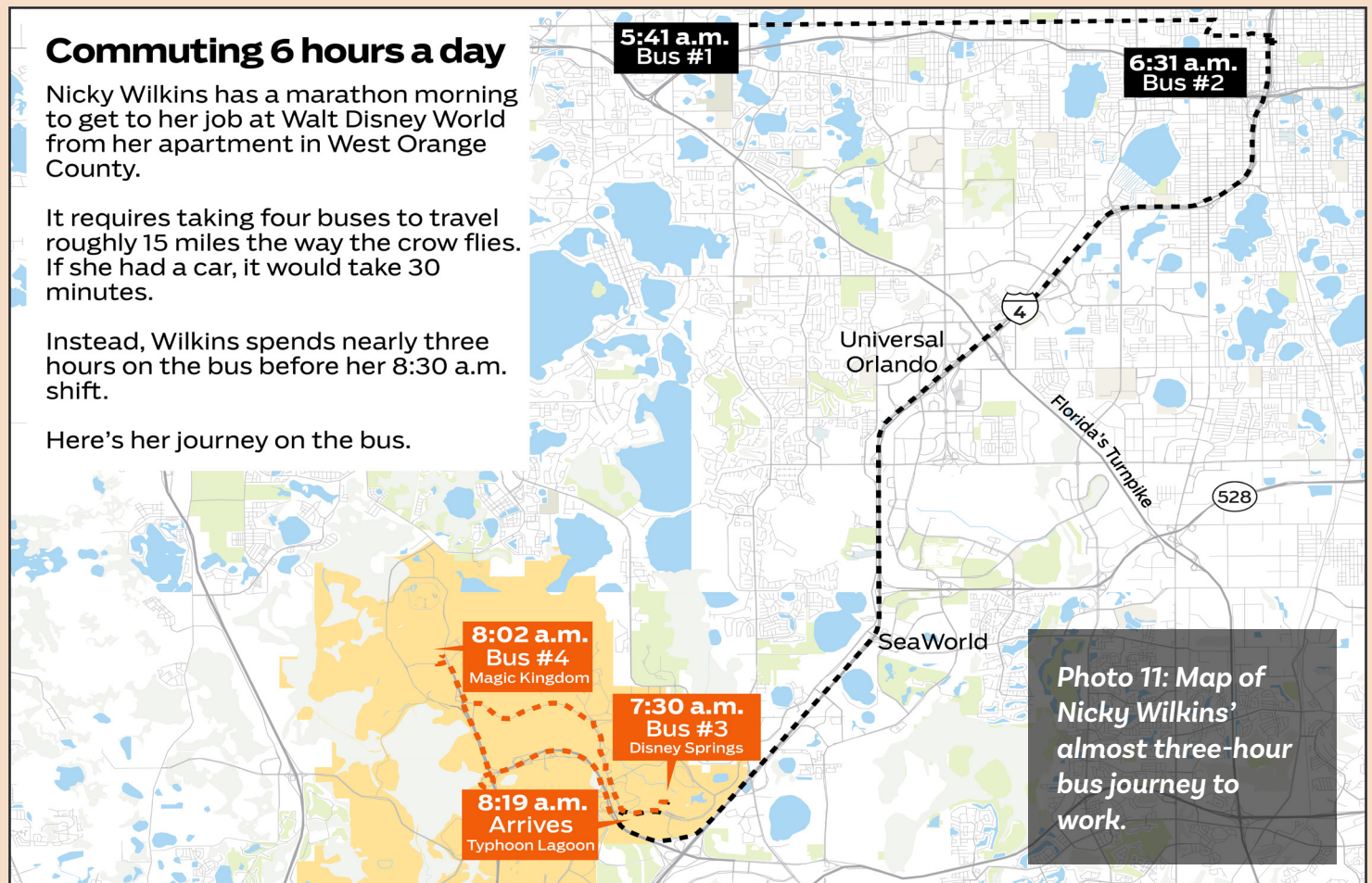


Photo 11: Map of Nicky Wilkins' almost three-hour bus journey to work.

Born with impaired vision that classifies her as legally blind, Nicky is unable to drive and, therefore, entirely transit-dependent. If one of her four buses is delayed, it means she will be late to her 8:30 a.m. shift.

The last few buses Nicky takes are operated by Disney's far more "sophisticated" bus system that has a fleet of "about 100 more buses for a geographic area...63 times smaller than Lynx's." This is the difference made by having a dedicated funding stream.

Since 2000, Orlando's population has jumped more than 30%, nearly twice the national average. However, for the last ten years, Lynx's bus fleet has remained unchanged, despite the fact that an estimated 1,000 people move to Central Florida every week. Lynx as a public transit agency is aware of the problem and laments the challenges workforce commuters face. The Lynx system, which operates 310 buses to cover 2,500 square miles across several counties, lacks sufficient reliability and frequency of service to adequately support those who rely on public transit. Comparatively, Walt Disney World uses 432 buses to service theme parks and hotels across 40 square miles.



Photo 12: Nicky and other passengers board the 6:30 a.m. bus at Lynx Central Station going to Disney Springs.

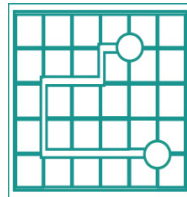
While there has been talk about a penny sales tax within Orange County, similar efforts have failed elsewhere. Neighboring Osceola County voters rejected a proposed sales tax increase for transportation earlier this year that "focused too much on roads instead of buses and trains." SunRail, the commuter rail system that debuted in 2014, has dedicated state funding for its \$40 million budget, but only for another few years. Without the sales tax increase, Lynx may be forced to compete with SunRail for limited dollars. The rail system, which has seen "mostly flat ridership levels," offers services more tailored to the schedules of the typical office worker—it doesn't run on weekends, holidays, or late at night.

The government subsidizes public transportation because it is an important service; in Orlando, public transit helps fuel the region's \$75 billion tourism economy by facilitating job access for low-wage workers like Nicky Wilkins. However, Lynx's funding dilemma is not unique. In many U.S. cities, and particularly in Florida, transit is underfunded and spread too thin. Transit agencies often have to choose between frequency of service and access, and administrative silos and lack of coordination mean that changes to the built environment affecting transit may occur without any consultation with the agency. As a result, transit-reliant individuals are often forced to build their lives around an unreliable system.

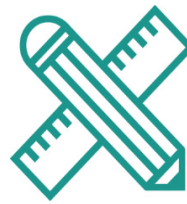
"My thing is to keep moving, don't stop," says Nicky Wilkins. "If you keep moving forward, good things will come out."

WHAT WE HEARD

Assets and Infrastructure



Security



Design

Despite the direct effect on transit system operations, agencies are often left out of the discussion regarding design and placement of public infrastructure and private development. In many cases, an agency's only purview is maintaining transit routes and fleet, and they tend to lack authority over the roads and land use surrounding the systems they operate. One goal of this study was to approach a range of representatives who work directly with transit operations, planning, and safety to gain an understanding of their perspective on how to create safe and accessible networks.

Transit Agency Interviews

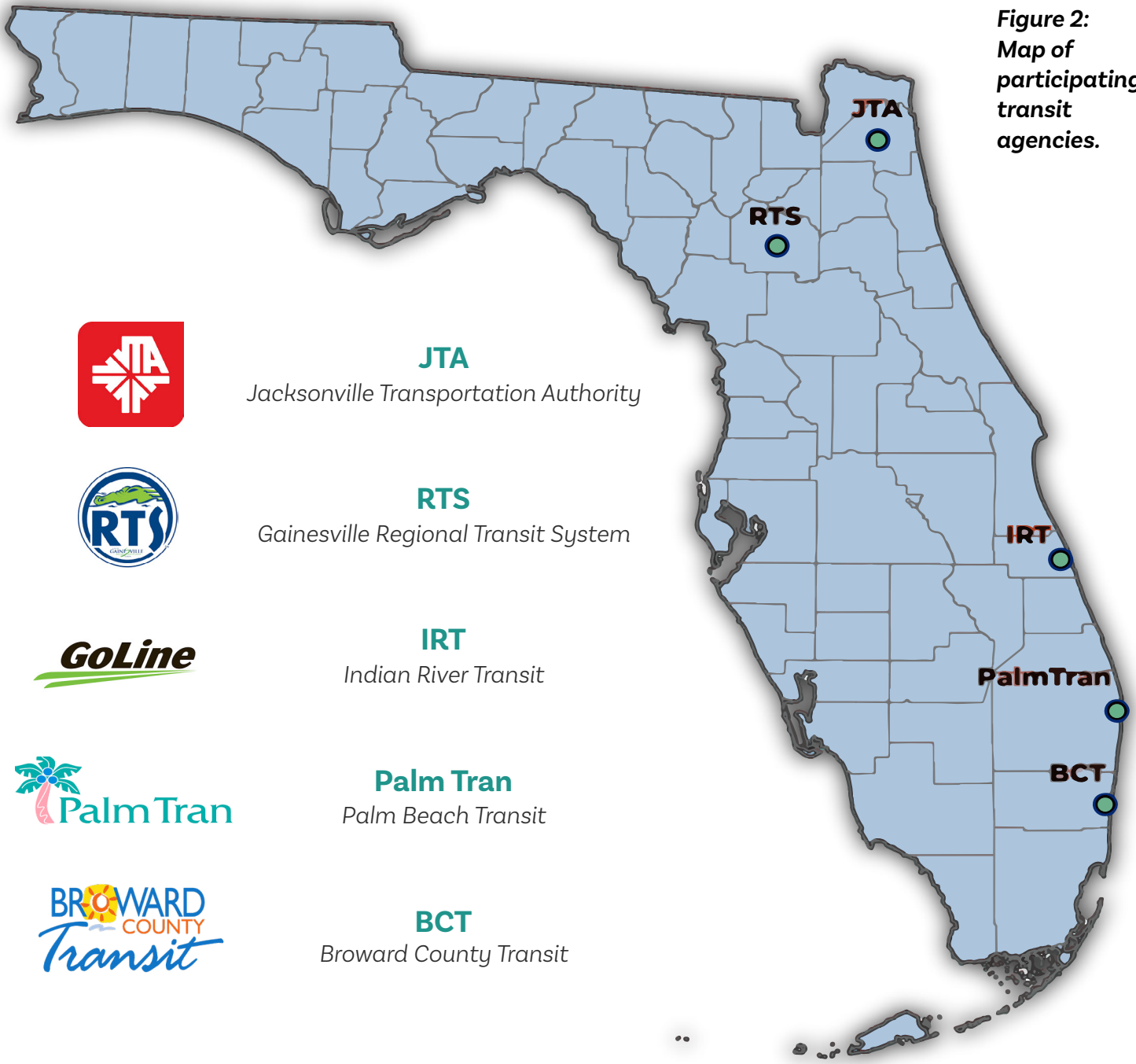
Five stakeholder transit agencies (see **Figure 2**) participated in an open discussion with researchers to determine what roles the agencies play in the development and design of road infrastructure and accompanying transit-related amenities. They were asked to comment on what seemed to work well and where their contributions could be increased in order to build more inclusive transportation networks and prevent missteps.

Outreach Methods

Agencies represented a diverse array of transit operations and service area scales. Selection factors included geographic location, fleet size, ridership, and area population density, age, and income.

[Appendix B](#) gives a brief overview of each agency and describes service and regional characteristics that highlight their distinct opportunities and challenges. Transit agency representatives were encouraged to invite a variety of participants from planning, operations, administrative departments, and law enforcement. Ahead of the interviews, participating agencies were provided a questionnaire (see [Appendix C](#)) to give agencies an opportunity to prepare responses and gather relevant data. Each transit agency discussion opened with a short presentation tailored to the service area that included prevailing research and case studies. Researchers went into the field to document locations known for having poor design or lacking amenities, and their comments and suggestions were recorded. A detailed description of the process and comments can be found in [Appendix D](#).

Figure 2:
Map of
participating
transit
agencies.



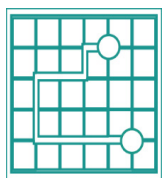
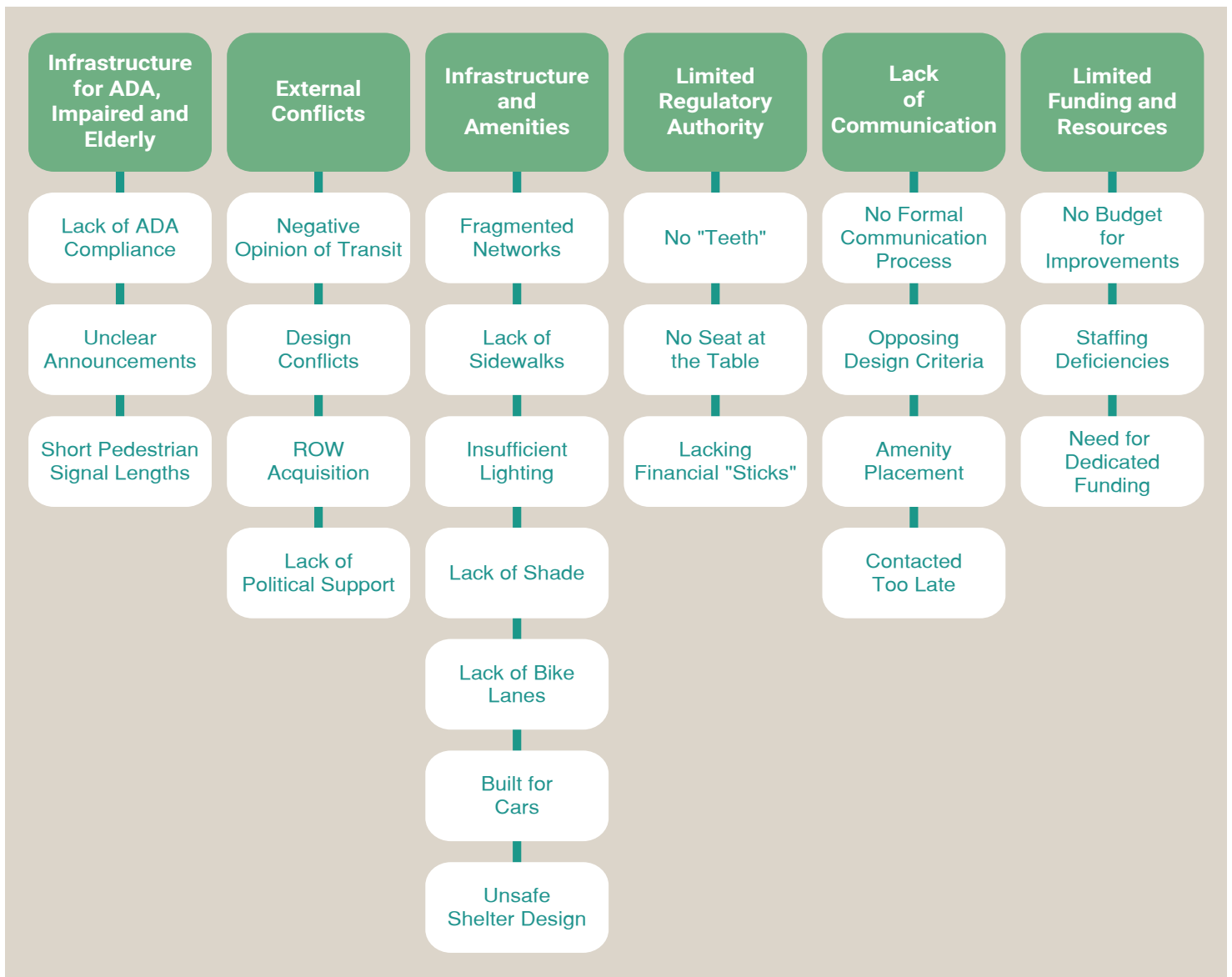
Agency Responses

The interviews were focused on three main topic areas—**infrastructure, design, and security**—with questions that considered the agencies’ particular responsibilities, experiences, difficulties, and suggestions in regard to each category. The discussions were based on the questionnaire, but participating stakeholders were encouraged to consider additional related subjects.

Every transit agency operates under a unique set of conditions, including their relationship to local and state government agencies, private

developers, and the community that they serve. Understanding the differences in their roles and identifying similar conflicts was a key objective of the study. Although each interviewee provided a different set of obstacles and successes, there were many similarities in the struggles that each agency faces. **Figure 3** provides a summary of issues raised by multiple respondents during the interviews. The following sections summarize individual interviewee responses arranged by topic.

Figure 3: Common transit agency concerns.



Assets and Infrastructure

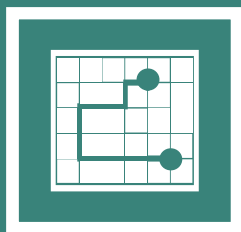
The discussion focused on the current state of infrastructure and network facilities, status in regard to accessibility, data availability, and suggestions for infrastructure improvements.

ADA Compliance

From city to city across the state, the level of ADA compliance varies greatly but, in all the areas examined for this study, there were issues with compliance. Of the transit agencies interviewed, the highest reported percentage of ADA compliant stops was 80 percent (see **Figure 4**). It was clear in speaking with the participating agencies and

other officials that decision makers are mindful of the issue. Several respondents listed it as their highest priority and most of the agencies were in some phase of compliance (see **Figure 4**), either in the process of preparing or following an adopted plan aimed at updating as many stops as possible. In some cases, completing a bus stop compliance plan also brought attention to deficits in funding and staffing that limit the ability of the agencies and localities to fully comply. For example, RTS noted that it will cost \$3 million to complete stop improvements only—that total does not account for amenities outside the bus stop like sidewalks and lighting (RTS, 2019). All of the agencies interviewed maintained or had access to a GIS-based system for assessing stop compliance and tracking improvements. The amount of detail, ability to update records, type of data, and managing agency varied.

Figure 4: ADA compliance efforts by transit agency response.



ADA Compliance Efforts

| | CURRENT COMPLIANCE | PLAN STATUS | DATA TRACKING | OTHER INFORMATION |
|-----------|--|--|--|--|
| BCT | Agency did not provide estimates but does track. | Agency did not comment on a planning document. | GIS-based database of stop status by accessibility and compliance. | Many stops are not eligible based on geography, right of way, or environmental issues. |
| RTS | 34% of stops are without sidewalk access. | Bus Stop Improvement Plan existing; ADA plan being developed. | GIS-based database of stop status including sidewalk access. | Estimates \$3M for stop compliance upgrades. |
| | 44% of stops are not compliant. | TDP to include Mobility Plan. | | Efforts combined between RTS, FDOT, and the City. |
| IRT | Agency estimates that 80% of stops are compliant. | Major update to TDP in 2018 included inventory of non-compliant stops with plans for reaching full compliance. | GIS-based database of stop status including location, sidewalks, & shelters. | Network includes rural areas with limited access. |
| JTA | About 50% of stops are non-compliant with ongoing processes aimed at reaching 100% compliance. | COJ is under an ADA compliance order including sidewalks updates. | GIS-based database of stop status. | Compliance order updates are almost complete. |
| Palm Tran | 61% of stops are non-compliant. | There is an existing ADA Retrofit Plan. | GIS-based database of stop status. | There are roads that would be state roads in other counties and would have sidewalks if under state maintenance. |

Non-Governmental Coordination Issues

During the stakeholder interviews, participants indicated that coordination challenges often occurred among public agencies. However, a dialogue with the private sector can also be important. For example, in Jacksonville, a local nonprofit has been furnishing benches at bus stops where one has not been provided. A noteworthy service they have been providing for decades, the benches are often a welcome addition for riders at stops with limited amenities.

But the benches are frequently placed without notice to the city or JTA. In several instances, bench placement has resulted in once-compliant stops becoming non-compliant. Even though this is done with the best intentions, it can actually cause more work for the agency and result in fewer suitable facilities for disabled users. And because JTA isn't notified when and where benches are placed, they sometimes have to rely on drivers to notice or customer complaints before the issue can be addressed.

For example, BCT assesses their stops based on both stop compliance and sidewalk access (BCT, 2019) and IRT has access to a database maintained by the Indian River County Metropolitan Planning Organization (IRMPO) which contains stop status, sidewalks, and shelters (IRT, 2019). In Jacksonville, JTA maintains a database of stops with compliance status (JTA, 2019) but neither JTA nor the City of Jacksonville have access to sidewalk data. Updating stops and sidewalk connections was a top concern from most respondents, with goals of 100 percent compliance at suitable stops.

Barriers to Access

Interviewees were asked to discuss what they view as the most significant impediments to creating connected and complete transit networks. There were a wide range of responses including sidewalk gaps, right of way conflicts, inconsistent regulations, and lack of communication. Several interviewees mentioned that there was no process to officially include them in roadway or land development project review. In some cases, conflicts have arisen because agencies were consulted too late in the process or not at all, leading to issues with costly mitigation efforts that could have been avoided with more coordination. Their responses were:

- Conflicts between **buses and bike lanes**, exacerbated by the state adding bike lanes to state roads (BCT, 2019)
- Poor **access management** mixed with **disjointed sidewalks** leading to dangerous pedestrian conditions and conflicts with buses and other vehicles (BCT, 2019)
- **Utilities** on the ground restricting network connectivity (RTS, 2019)
- **Easement/private property** causing location conflicts (RTS, 2019)
- Different **regulations** based on the location (the city/CRAs/county/university have different aesthetic requirements, etc.) for pad, sidewalks, shelter, benches (RTS, 2019)
- **Lack of sidewalks** and **right of way issues** that make creating more sidewalk connections difficult (IRT, 2019)
- **Rural areas** with gaps and longer routes because buses must take circuitous paths to

- stay on paved roads (IRT, 2019)
- **Network Connectivity** (JTA, 2019)
- **Lack of Communication** (JTA, 2019)
- **Removal of Services** (JTA, 2019)
- **Private Development Reluctance** (JTA, 2019)
- **Sidewalks, Bike Lanes, and ADA Compliance** (Palm Tran, 2019)
- **Lack of teeth and limited inclusion** (Palm Tran, 2019)
- **Inconsistency**—different rules for different areas of the county; some cities are better to work with than others (Palm Tran, 2019)
- Issues when owners of **right of way** are agencies like drainage districts that do not prioritize transit users or pedestrians (Palm Tran, 2019)

Infrastructure Recommendations

Participants were also asked to provide a list of the most pressing infrastructure requirements in their communities. In some cases, these ideas were relatively universal and in others the needs pertain to specific area or network characteristics. The most commonly mentioned priorities were ADA compliance and sidewalk connections, which are often grouped together. RTS mentioned that while ADA compliance and connection improvements were ongoing, the cost and time associated with those efforts restrict them from starting any other projects for several years (RTS, 2019). Additional suggestions included more crosswalks, crosswalk improvements, pedestrian signals, and lighting, among others:

- More signalized **crosswalks** (BCT, 2019)
- Better **signage** for cars (BCT, 2019)
- Safer **stop placement** (BCT, 2019)
- **Leading pedestrian intervals** (BCT, 2019)
- Roadway **illumination for crosswalks** (BCT, 2019)
- **Sidewalks and ADA compliance** are the only concerns, ADA compliance being the top concern (RTS, 2019)
- **Sidewalks** are the #1 need (IRT, 2019)

- More **bus bays** (IRT, 2019)
- More **crosswalks and concrete pads** for stops (JTA, 2019)
- Increased **system amenities**—better lighting, shelters, and more shade (JTA, 2019)
- **Better technology** like reliable apps for arrival and departure times and fiber optic communications at stops (JTA, 2019)
- **Pedestrian signals, better lighting, and lower speed limits** (Palm Tran, 2019)
- **Road diets** (Palm Tran, 2019)

Stop Location

Participants were asked for an approximation of the number of stops located on arterials roadways without nearby crosswalks (over a quarter mile between marked crosswalks) and to describe their experiences in dealing with these gaps, particularly in suburban areas with high speeds, large population densities, and more crowded land use. This can be a dangerous condition as it leads to riders having to cross wide, high-speed roads without assistance. Responses are summarized in **Figure 5**.

Each agency responded differently. This illustrates the differences among physical characteristics, values, and needs of each system. It also highlights the complexity of stop placement and the difficulty that transit agencies face in gaining access to land for proper stop placement. Staff from Palm Tran noted that stop spacing is difficult because the majority of Palm Beach County is built out and acquiring right of way is difficult. In addition, transit agencies face push back from private entities, business owners, and non-transit agencies like drainage districts who might not have an interest in prioritizing the needs of pedestrians and transit users (Palm Tran, 2019).



Safety and Security

As part of the discussion, participants were asked to weigh in on safety issues facing transit users and how the agencies attempt to mitigate them. A summary of each discussion is provided below.

Figure 5: Bus stops without crossings by transit agency response.

| Agency | Proportion of Stops without Crossings |
|-----------|---|
| BCT | <i>“It is a problem; gaps are mapped and included in their stop database.”</i> |
| RTS | <i>“Did not have a count but noted that there are many.”</i> |
| IRT | <i>“There are wide gaps with SR 60 being the most severe. But, most of the roads are rural and they have a lot of space to work with. They try to place stops as close to intersections as possible.”</i> |
| JTA | <i>“It was not considered to be a prevalent issue.”</i> |
| Palm Tran | <i>“Not sure but noted that spacing is an issue due to land use. Sometimes they don’t have the option to place stops in the safest location for riders.”</i> |

BCT

Staff stated that unmanaged mid-block crossings, vehicles turning right on red, and connections located at the far side of the intersection were the most significant issues for riders. They discussed two examples, University Drive and Broward Boulevard and Oakland Park Boulevard and SR 7, in which riders frequently need to cross the intersection in a hurry to catch connections. At the latter intersection in particular, there are often only 1-3 minutes allotted for passengers to make transfers and they generally must run. However, they also noted that some issues cannot be mitigated with schedule adjustments and if they can, coordinating schedules has a ripple effect, making it a difficult balance. Unmanaged mid-block crossings and crashes from vehicles turning right on red could be addressed by increasing pedestrian signals and creating more mid-block crosswalks. Staff pointed out that while they have quite a few mid-block crosswalks, they were implemented because of right of way issues and not by design or need.

BCT uses signs and audio warnings on buses encouraging riders to use crosswalks, arrive early, and refrain from running. To report safety issues, bus drivers are provided with Operator Cards where they record issues and complaints that are discussed at mandatory monthly safety meetings. In addition, there is a safety compliance phone number and an ADA email address and website. Comments collected through these avenues are logged and addressed. In the event of an emergency, drivers have 9-1-1 priority and the ability to change the bus marquee to 9-1-1.

RTS

The top three dangers to RTS riders are rear-end collisions with buses, insufficient lighting conditions, and improper use of bicycles, skateboards, and scooters. Rear-end accidents are a greater concern on state roads with high speed limits. Buses are equipped with cameras to record incidents and drivers are trained when hired and then complete annual training each summer. Most of the concerns discussed were related to student safety as 80 percent of RTS riders are college students. There are issues with bicycles and scooters particularly on campus, where space is very tight. Student safety is the highest concern and there is a need for more public education on proper pedestrian behavior, including being aware of their surroundings, where and how to cross the street, and safe cycling procedures. There was an unfortunate incident in which a female student walked directly in front of a bus and was struck; since then RTS and the City of Gainesville have pushed to implement more pedestrian safety features like median refuges and bulb-outs. The top three complaints they receive from transit customers are insufficient lighting at stops and along the route to stops, uneven sidewalks, and areas where landscaping blocks the view of or from shelters.

IRT

IRT staff also mentioned rear-end bus collisions as a top safety concern. To address the issue, the agency has stopped allowing ads on the backs of buses to reduce distraction and are considering adding more lights. Due to the rural nature of the service area, many stops are located in areas far from intersections and without pedestrian

crossings. In 2015 there was an incident where a child was struck by an oncoming vehicle when they crossed the street after exiting the bus. The teen, who made a full recovery, ran in front of oncoming traffic causing the accident; this case is one example highlighting a need for more general awareness by everyone when buses are stopped. Staff pointed out that riders are sometimes under the assumption that vehicles are required to stop for public buses as they would for school buses, which they are not. Buses and stops have signage to remind passengers to cross in front of buses and drivers are encouraged to remind passengers to be cautious when crossing. In addition, drivers are trained, especially in rural areas, to wait for passengers to cross the street and to discuss safe procedures with passengers.

JTA

The discussion of safety centered on three general topics:

ADA Accommodations

Accommodating disabled citizens requires more than providing the appropriate physical infrastructure; information exchange methods are also important. Routes, street names, arrival

and departure times, and alerts should be readily available for all users. One suggestion was that JTA look into GPS-enabled apps for visually-impaired transit users.

Safety Education and Pedestrian Laws

Pedestrian laws are generally confusing and unevenly enforced, and most people are not aware of proper legal procedures. In other states, the law requires that vehicles stop at intersections to allow pedestrians to cross. This shows an interest in prioritizing the safety and comfort of pedestrians over the efficiency of moving vehicles, which could lead to more drivers being mindful of pedestrians and cyclists. Staff noted that drivers are often not to blame for crashes. Pedestrians generally do not walk to marked crosswalks once they get off the bus, instead crossing where the bus lets them off. Also, they will often not wait for the bus to move before crossing, making them even less visible to cars. Overall, there is a need for better pedestrian laws and safety education for all users.

Walkability

One study participant pointed out that the system is built for cars but we still expect people

Photo 13: An inaccessible, non-ADA compliant bus stop.



to walk even though the streets aren't designed for walking. Many areas are not designed to be walkable and coordination with design and development is really important. We encourage people to walk or ride bikes for health and environmental reasons but do not provide facilities that are safe and comfortable. There is a need to rethink how networks are built to accommodate all users.

Palm Tran

The most important safety issues for Palm Tran users are sufficient lighting and shelter visibility. It is important that a rider be able to sit comfortably and be protected from the elements while still being able to take notice of their surroundings. Shelter design is sometimes focused on aesthetics over functionality. ADA needs were also discussed. Not long before the interview, a blind woman was struck while crossing the street. They suggested that longer pedestrian signal timings, lower speeds limits, and better crosswalk treatments could help protect disabled pedestrians.

and amenity design with topics focusing on interagency coordination. Each agency described local design guidance, their roles today, in what areas they thought their roles should be increased, and what resources would be needed to make those changes. A summary of roles that each agency plays in placement, design, and maintenance of transit stops and amenities is provided in **Figure 6**.

Planning Documents and ADA Strategies

Each locality appeared to have existing or developing planning guidance pertaining to increasing pedestrian and bicycle facilities and overall safety. These were generally written and enacted by city, state, or MPO sources and included Bus Stop Improvement Plans, Transportation Elements from Comprehensive Plans, Complete Streets Guidance, Bicycle and Pedestrian Master Plans, and Vision Zero Plans. Most of the agencies mentioned ADA compliance as a top concern and either had a retrofit plan in place or were in the process of completing one. While these documents provide valuable guidance, they are frequently managed through varying departments without coordination.



Design and Permitting

The final piece of the discussion pertained to infrastructure

Figure 6: Summary of roles by transit agency response.

| <p>Items Agency Oversees</p> <p>Items Where Agency Has Advisory Role</p> | | Stop Location | Shelter Location | Shelter Design | Installation | Maintenance | Sign Info and Placement | Bench/Trash Can | Lighting | Sidewalk | Crosswalk | Pedestrian Signal |
|--|----|---------------|------------------|----------------|--------------|-------------|-------------------------|-----------------|----------|----------|-----------|-------------------|
| ● | ● | ● | ● | ●● | ● | | ● | ● | ● | ● | | |
| ●● | ●● | ●● | ●● | ● | ● | ● | ● | ●● | ● | ● | ● | ●● |
| ● | | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| ●● | | ● | ● | ● | ● | ● | ● | ●● | ●● | ●● | ● | ● |
| ● | | ● | ● | ●● | ●● | ● | ● | ● | ● | | | |

Current Level of Involvement

The roles and responsibilities of each agency varied greatly from place to place. In some cases, the agencies felt they had more of a place at the table, while in others they felt largely disregarded or excluded.

BCT

- County-wide, all developers are required to confer with the transit agency for development review submittals
- For Maintenance of Traffic Plans (MOT), BCT has the authority to temporarily relocate stops
- BCT asks cities to notate on plans to contact the agency for coordination on shelters

RTS

- City plans don't always align with DOT plans/requirements but they are working on a solution
- They work well with DOT and work very closely with the city departments
- Funding coordination is the biggest issue and recommendations without funding related are often ignored; having a financial incentive helps
- It is not consistent; they can make comments and recommendations but do not have the power to enforce
- Some developers would prefer to give money to avoid having a stop placed on their development

IRT

- Great relationships with local government and law enforcement
- Work directly with Vero Beach and Fellestere municipalities on plan review
- FDOT to provide upcoming training on how to report agency comments on projects so that the DOT gets their comments and suggestions earlier in the process. The ERC (Electronic Review Comments) will help get their comments in sooner
- They suggest every agency have a safety

and security or planning general email to direct design plans, etc., so it's easier for FDOT to respond. Whoever is in the position (because it changes or people leave) will manage that inbox so there is always the same point of contact

- In general, they feel they are contacted for their input and that their suggestions are usually included or considered and that they are taken seriously

JTA

- Coordination sometimes happens but fluctuates. They will have periods where the city sends projects regularly for review and then they will suddenly stop receiving them for a while
- They noted that coordination with FDOT has improved in recent years
- Developers reach out when there is a note to do so in the development review. This has gotten better but it would be more helpful if it came earlier in the process
- There is a pre-application meeting that is supposed to be required, but rarely happens
- Often JTA is either not included or brought in late in the process when an issue has been identified. The city tries to address this when they can but there is no formal process. The process could be improved but staff noted that there are concerns about funding, staffing, and time that need to be addressed as well

Palm Tran

- The agency works with FDOT at scoring with the Multimodal Scoping form and is active in plan review with the ERC
- At the county level, they are only able to review projects in unincorporated areas

Increasing Roles

Agencies were asked both in what capacity they believe transit agency roles should be increased and, if they were, how they think it could be accomplished. Once again, each agency's response was unique.

- Lane eliminations completed by the city frequently involve reducing travel lanes to 10 feet, which causes problems with mirror and sign overhang and right turn radius. The city has responded by recommending a 2-foot curb and gutter which does not actually mitigate the issue. The agency would like the authority to recommend 10-foot lanes with 4-foot bike lanes instead (BCT, 2019)
- In a perfect world, there would be a mandatory ordinance where if a stop is warranted, its placement takes priority (RTS, 2019)
- There is a divide between the private sector, politics, and transit needs. Some want the transit access to their sites while others consider it a huge problem. The stigma of transit needs to be addressed (RTS, 2019)
- Getting private development on board is important. Walmart was open to design suggestions, but only because initially the city opposed their location (RTS, 2019)
- There is a need for more oversight in stop design. Some stops are overdesigned to meet the aesthetic needs of a development, such as ornate facades to match their building. These can often lead to issues such as a lack of visibility (RTS, 2019)
- Dedicated funding for improvements and stop construction is critical (RTS, 2019)
- Transit agencies need to be made aware of projects and have a place at the table at the beginning of the process (IRT, 2019)
- They are actively trying to increase agency participation, but huge barriers are staffing levels and unrealistic timelines (JTA, 2019)
- Coordination doesn't take place and then projects don't turn out as they were intended. Early inclusion in design planning should be part of the process (JTA, 2019)
- Occasionally groups from the private sector reach out about improving stops themselves. They would love it if large

stores and discount stores did this. There has been success with a few who are willing to help, which is great. Better coordination with the private sector is key (JTA, 2019)

- Coordination with transit agencies for bikeshare programs is key. The agency should be involved with and have decision-making power in these kinds of emerging first/last-mile solutions (Palm Tran, 2019)
- Lack of staff is a problem (Palm Tran, 2019)

Additional Stakeholder Comments

Lisa Bacot

Executive Director, Florida Public Transportation Association (FPTA)

Critical Issues

- **Funding.** Transit systems depend on local funding. There is a lot that needs to be done but there just isn't enough money.
- **ADA Compliance.** She noted that many areas are largely lacking ADA compliance at stops and do not have the money to address the problem themselves.
- **Local Support.** Florida is not particularly transit-friendly. There is a desire for increased ridership but policy-makers aren't willing to support increasing funding. Even seemingly small things will be rejected by the legislature.
- **Technology and Amenities.** Many agencies can't afford to provide some services that are generally considered to be basic needs like Wi-Fi and real time route information.

In a perfect world...

- Agencies would have better stops and amenities and dedicated bus lanes.

Trenda McPherson

State Bicycle and Pedestrian Safety Coordinator, Florida Department of Transportation (FDOT)

Critical Issues

- **Walking Distances.** Superblocks and urban sprawl are huge problems. These result in huge gaps in placement.
- **Providing Pedestrian Amenities.** People think of accessibility as only applying to the bus stop, but it extends to the sidewalks and area leading up to the stop.
- **Sidewalks, Lighting, and Shade.** These are basic needs.
- **Enticing the Public to Ride.** Older users often feel unsafe or intimidated by the bus. Transit ambassadors can really help. There is a general stigma associated with riding the bus. Marketing is key—the transit agency should be seen as part of the community, providing a public service.

In a perfect world...

- Agencies wouldn't necessarily need authority but should have an increased advisory role.
- Create a two-page paper for developers that shows best practices, prices, and contact information. This should explain how the upfront costs are outweighed by long-term benefits.
- Planners would make use of better marketing, too. Both the terms road diet and lane elimination sound negative and are hard to sell to residents.

TAKE-AWAYS

While each respondent came from a different background, many of the core issues they expressed were similar or related. This study attempts to address those concerns that could be mitigated by increasing the roles and responsibilities of transit agencies. By altering thinking to make transit considerations part of the regular order of business, including agency input often and early, and treating transit issues with the same importance as other development factors, many of these problems could be avoided and safer, more inclusive systems could be implemented.

DAYTONA BEACH PEDESTRIAN IMPROVEMENTS

The stretch of US-92 through Daytona Beach, served by Votran's bus service, has long been a problem area for pedestrian crashes. In 2015, 12-foot sidewalks, lighting, and other amenities were installed, encouraging pedestrian activity.

After the improvements, injuries went from...

5 to 19 per year
to **zero.**

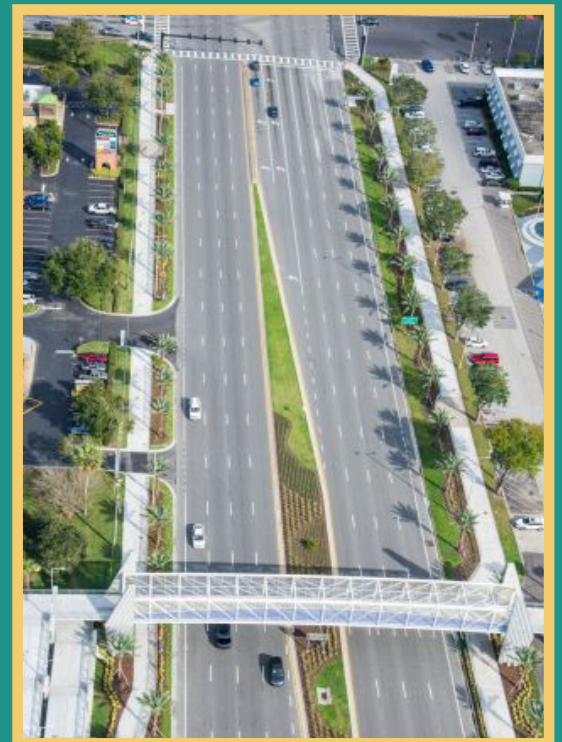


Photo 14: Image of Daytona Beach pedestrian improvements.

ADDRESSING THE ISSUES

Just like an escalator is essential equipment for a rail transit station and a pole and sign are the most minimal essential equipment for a bus stop, a tree-lined sidewalk is essential for the streets that lead to the transit stop. The transit agencies' role does not stop with rolling stock, the stop, and operational schedules. It extends to the surrounding streets' design.

There are numerous resources surrounding best practices and guidance for designing and connecting to bus stops; the American Public Transportation Association (APTA) report, *Transit Stop Design and Access*, provides specific guidance around stop design, stop location, street connectivity and design, and land use that agencies can incorporate into their design and review processes to assess existing or new on-street transit stops (APTA, 2012). Determining how to actualize safe access to transit touches on a wide range of subject areas and a complex array of problems. A focused discussion of the issues facing transit access are discussed in this section, which has been divided into four subsections: ADA Considerations for Transit Facilities; Safe, Connected Networks; Placement and Design; and Accounting for People.

ADA Considerations for Transit Facilities

Because transit agencies generally only have authority over transit stops and their buildings and vehicles, this section will focus on issues pertaining to those aspects of the overall system. ADA-related matters regarding sidewalk connections, intersections, crossings, and signals will be covered in subsequent sections.

Background

When interviewing different transit agencies for this study, overwhelmingly the most prevalent concerns were related to ADA compliance and access for disabled riders. Across the State of Florida, area agencies are working to implement ADA retrofit plans and bring all aspects of transit and public infrastructure into compliance. The Americans with Disabilities Act (ADA), passed in 1990, ensures that individuals with disabilities are not discriminated against in any area of public life, specifically including public transportation (ADA, 1990). It requires that accommodations be made to provide access to public places and that actions are taken to provide effective communication for those with “vision, hearing, and speech disabilities.” It also establishes standard practices for public transit systems and the associated administrative processes and monitoring. A set of specific guidelines have been developed in accordance with ADA regulation to inform transit operators and any other public or private developers on the necessary minimum requirements for access. This includes both the physical space and communication standards for wayfinding.

As a federally mandated law, both funding and enforcement are present to a degree.

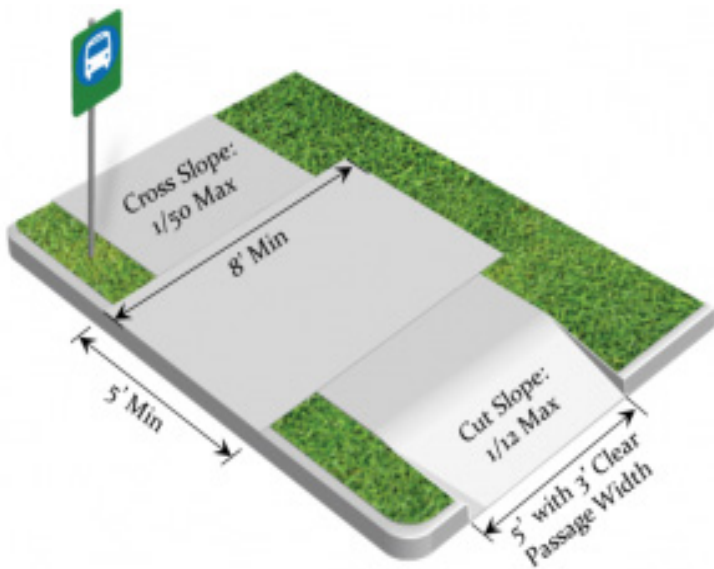


Figure 7: ADA requirements call for a minimum 5' x 8' pad with a clear passage width of 3'.

In addition, agencies want to be able to provide transportation services to all their customers, and disabled persons frequently depend on public transportation for mobility. These factors all contribute to a sense of urgency and responsibility in guaranteeing that transit networks adhere to the required guidelines. Although conditions vary from town to town, most have plans in place to address deficiencies with a goal of 100 percent compliance.

Physical Access

There are three types of physical spaces that transit agencies need to consider for ADA compliance. One is buildings associated with their systems, such as stations and hubs. Because construction must follow a well-established and thoroughly regulated process for design and construction that includes ADA access as a regular order of business, these facilities are generally constructed with the appropriate amenities. The second is the agencies' fleet of vehicles that needs to accommodate riders of all abilities. Once again, there are standards for the design of buses and other vehicles specifically ensuring that they are accessible. With transit-run buildings and vehicles, agencies have considerable authority in overseeing their design. However, transit stops and

the areas leading up to them are subject to a variety of external factors. In some cases, variables such as slope and parcel size limit the ability of the agency to provide ADA access. As previously mentioned, transit agencies lack the authority to mandate that the path to the stop meet ADA standards, but they are required to ensure those standards are in place for stop pads and shelters. The required dimensions of pads and shelters are well-defined and new stops with these amenities should follow them (see **Figure 7**). Unfortunately, despite continuing efforts, there are many existing stops that remain non-compliant. In some areas it could take years or decades to retrofit all stops where compliance is needed.

For example, in Gainesville, agency personnel noted that while 44 percent of stops are not



Photo 15: An example of a bus stop with basic amenities that does not support ADA access.

in compliance, their Bus Stop Improvement Plan will require \$3 million to complete (RTS, 2019). This is for the stops themselves and does not account for the 34 percent of stops reported that have no sidewalk access (see **Photo 15**). Aside from funding issues, agencies also struggle with staffing deficiencies, making timetables for completing retrofits even lengthier. Another difficulty for transit agencies is communicating the requirements of ADA accessibility to outside organizations.

Frequently, accessible stops with clear sidewalk approaches will become non-compliant because of the actions of an external group. For example, utility companies sometimes place poles and other equipment in the right of way, narrowing access on the sidewalk (see **Photo 16**).

Adding furniture, signage, and other amenities to transit stops can also be a source of conflict and these additions are not always conducted by the transit agency, whose designers and engineers are aware of ADA requirements. In Jacksonville, there is an ongoing effort conducted by the local Jaycees to provide benches at bus stops. A long-running community service that began over 60 years ago (Marbut, 2019), the Jacksonville Jaycees donate the benches and then sell advertising space to raise money for their organization. However, they do not notify the JTA when they decide to place a bench and have often placed them in a way that obstructs the path, causing the once-approved stop to become non-compliant. Because they are not made aware of the changes, the issue can go unnoticed until a complaint is made by a rider. The JTA attempts to combat this problem by asking drivers to note changes to



Photo 16: Physical barriers in the walkway, like this telephone pole, do not meet ADA clearance standards.

stops and by monitoring customer complaints. Bench placement by outside parties and lack of coordination is an issue in other communities in Florida, as well.

Wayfinding and Communication

Many people think of physical accessibility when they think of ADA requirements; however, the law also demands a clear system of communication that should include route numbers, system maps, arrivals and departures, street names, and real-time updates and changes. Wayfinding is an important part of ADA access and one that is often easier to overlook than physical access. This information should be readily available to users of all abilities at all transit facilities.

Solutions

ADA compliance is at the forefront of many transit agency planning efforts across the state and best practices for design and implementation are well-established. For the most part, new facilities are constructed with ADA accessible amenities and localities are actively making efforts to upgrade existing ones. The largest issues working

against meeting those goals are lack of funding, staffing deficiencies, and lack of communication. Open and frequent communication between transit agencies and state agencies, public works departments, private entities, utility and stormwater management groups, and other external organizations could alleviate the need to retroactively address some of the issues that cause stops to become non-compliant. In addition to strict adherence to communication guidelines, there are a number of new technologies that assist riders with vision, hearing, and speech issues. Upgrading the transit system to take advantage of these advances can help more users safely access transportation.

Safe, Connected Networks

As important as the transit trip itself is the journey to the stop. The problems facing first mile-last mile access are complicated by the many groups that are involved, varying laws and funding, local political support and the array of conditions and needs. When evaluating the condition of the overall network and assessing deficiencies, there are a number of factors that require consideration.

The Walkshed

There are some standard concepts regarding transit access that should be adjusted or reimaged to better serve the needs of transit users and providers. First is the idea of the traditional transit walkshed—the distance that decision makers believe a customer will travel to reach transit. Capture sheds are frequently used when discussing first mile-last mile transit connections to visually and analytically calculate the area served by a particular stop. The standard assumed distance that potential users will walk to reach transit is a

quarter-mile, roughly approximate to a 5-minute walk. Sometimes a simple buffer has been created around the stop to determine a catchment area and make inferences about who is served and what amenities they can access. **Figure 8** shows a typical quarter-mile catchment for the Jacksonville Transportation Authority's First Coast Flyer Blue Line stop, situated on US-1 in an older suburban region of Jacksonville, Florida. This quarter-mile ring illustrates a typical 5-minute walkshed to this stop. However, because of the lack of connectivity, a rider cannot walk a straight line from any point in the catchment area to reach their bus, thus extending the time it takes to access the stop. In reality, the walkshed is much more constricted.

For example, a rider living in the adjacent area would need to walk along the road to the neighborhood entrance, then travel north along US-1 to reach the shelter (see **Figure 9**). Their trip to catch the bus is more than four times the desired distance, measuring just over a mile.

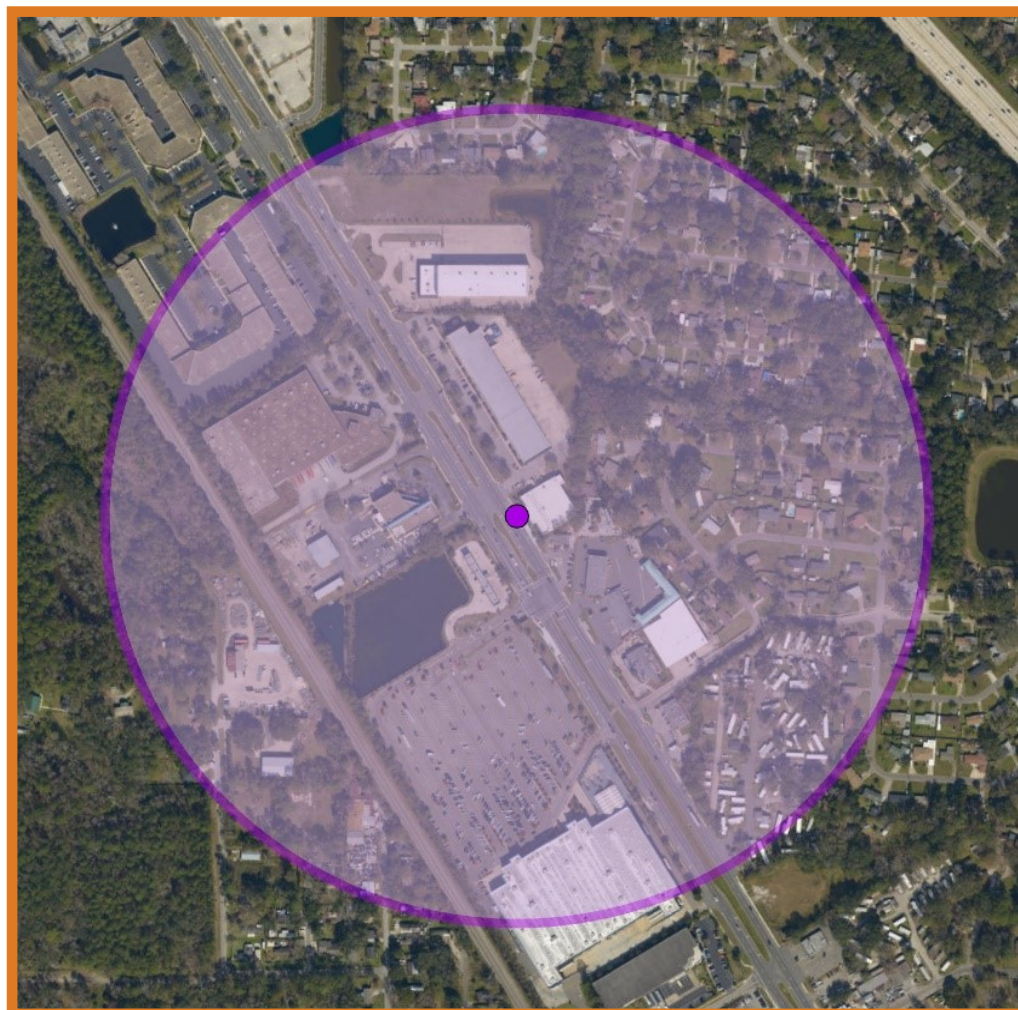


Figure 8: Quarter-mile walkshed to JTA's First Coast Flyer Blue Line route.



Figure 9:
Illustrative walking or biking route to a stop on JTA's First Coast Flyer Blue Line.

sidewalk gap or a crumbling ramp would hinder access, especially for those in a wheelchair, a walker or someone pushing a stroller, for example (see **Photo 17**). In addition to the physical path being connected and made accessible for all users, there is also a need for other amenities that emphasize safety and comfort. These include adequate lighting and shade—two network features that were frequently mentioned by transit agency representatives as critical needs for their systems.

Other characteristics of comfortable pedestrian environments are streetscaping elements, pedestrian-level development (building heights and frontages that are oriented towards people on foot), lower speed limits and narrower roads, buffering the sidewalk with on-street parking or landscaping (thus separating

Contemporary research and guidance indicates that if the infrastructure is safe and comfortable, bus patrons will travel longer distances for transit access. Considering distance alone ignores impediments and obstacles like sidewalk gaps, physical obstructions, and natural barriers like streams, which increase the physical demand of a trip particularly for impaired and elderly riders who may rely solely on transit for mobility. The quality of a walking route and experience is affected by factors like shade, lighting, vehicle speeds, road design, pavement conditions, elevation, grade, presence and condition of sidewalks and crosswalks, and signal timing. Focusing on these elements, including a greater emphasis on land use and urban design features, may encourage more people to ride transit.

Network Characteristics

One of the most obvious barriers to providing a safe and complete network is missing or unusable sidewalks. It is not difficult to understand why a



Photo 17: Sidewalk gap.

vehicles from pedestrians), wider sidewalks, clear and frequent signage, well-marked crosswalks, and adequate pedestrian signal timing.

Who is Responsible?

The overarching problem with creating and maintaining a connected network is that there is not a consensus on who is responsible. Although transit agencies influence and operate in the road space and their customers depend on the network to reach transit, transit agencies are largely left out of the development process. Generally, with new construction, there is a requirement that sidewalks be installed; however, there is no requirement that they connect to anything beyond the subject parcel or that they consider transit user needs. In some cases, optimal provisions are made by the private sector, organization, or agency in charge either because of local requirements, political pressure, or because they desire pedestrian, cycling, and transit access for their sites.

For example, in Indian River County, multiple businesses have constructed transit-related amenities on their sites. **Photo 18** shows a Chick-Fil-A on SR-60. According to IRT, the company paid for and constructed sidewalks leading to their business (IRT, 2019). In Gainesville, a local Walmart was persuaded to develop a Park n' Ride on their lot in order to gain development rights when there was push-back for their desired location (RTS, 2019). Unfortunately, it is more common for developers to want to avoid transit accommodations, even to the point of paying fees to relocate them, as they are often considered to have a negative effect on property value. In

addition, many groups and organizations that operate in or near the public right of way are simply not aware of the need for sidewalks and other amenities, such as utilities and stormwater management agencies.

Solutions

As alternative transportation continues to grow in popularity and congestion on built-out road networks persists—hindering free and easy movement—recent trends towards creating walkable, comfortable places and networks will hopefully continue as well. Although some transit agencies benefit from open communication with other local agencies and the value placed on their services by local residents and political representatives, this is not always standard. In most cases, connecting to transit is an afterthought, not considered, or actively avoided. Therefore, the best alternative is to promote complete and connected networks as community priorities and to mandate that transit be considered, early and consistently, in the development process.

Placement and Design

There are a number of factors that contribute to the design and function of transit stops, hubs, shelters, and vehicles. Transit agencies generally have authority to make the majority of decisions regarding placement and design; however, external influences also play a role in final outcomes.



Photo 18: An Indian River County Chick-Fil-A on SR-60 with pedestrian and transit infrastructure.

TOOLS: WALKING AUDITS

One best practice that facilitates the coordination between agencies is a well-planned walking audit. The Federal Highway Administration's (FHWA) Safety Program provides Road Safety Audit (RSA) resources.

According to the FHWA, an RSA is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users.

The FHWA works with state and local jurisdictions and tribal governments to integrate RSAs into the project development process for new roads and intersections, and also encourages RSAs on existing roads and intersections.

The aim of an RSA is to answer the following questions:

- *What elements of the road may present a safety concern: to what extent, to which road users, and under what circumstances?*
- *What opportunities exist to eliminate or mitigate identified safety concerns?*

Road safety audits can be used in any phase of project development, from planning and preliminary engineering to design and construction. RSAs can also be used on any sized project from minor intersection and roadway retrofits to mega-projects.

The American Association of Retired Persons (AARP) Livable Communities program supports the efforts of neighborhoods, towns, cities, and rural areas to be great places for

people of all ages. Toward achieving this goal, the AARP has created a Walk Audit Tool Kit and Leader Guide that provide detailed guidance on the process of hosting and leading a walking audit.

AARP suggests inviting the following types of organizations and people to the audit, though notably absent from the guidance is transit agency coordination:

- Local community groups and civic associations
- Neighbors of all walking ability levels
- Representatives from local AARP chapters
- Advocacy or volunteer organizations such as environmental and health groups
- Disability rights/advocacy organizations
- PTAs or PTOs (Parent Teacher Associations or Parent Teacher Organizations)
- Walking clubs
- Bicycling clubs
- Running clubs
- College-based student-service organizations
- Faith organizations
- Local business representatives
- Members from a downtown development authority or business development district
- Staff from state or local agencies
- Safe Routes to School (SRTS) coordinator
- Members of a metropolitan planning organization
- Elected or appointed government officials (mayor, city council, city manager, county manager, council person)

- Local law enforcement (police, fire, EMS)
- Other safety organizations

One example of a Florida county embracing the walking audit to make their community safer is the Broward MPO. The MPO leads walking audits in partnership with local cities, the purpose of which is to highlight corridors and areas that could benefit from a street assessment to better promote all modes of transportation.

The Broward MPO audits aim to engage stakeholders, technical staff, elected officials, and representatives of non-traditional transportation partners to experience the surrounding area as a pedestrian, evaluate the safety and quality of the pedestrian experience, identify barriers to a walkable/bikeable/transit-friendly environment, and propose recommendations for improvements. The audit is composed of a pre-walk by staff,

a formal presentation on the corridor at the audit, and a walking audit along the corridor with additional feedback from participants on aerial maps and via interactive questions. Conducting a walking audit in conjunction with FDOT 3R projects or safety studies would add value in engaging partners and transit agency staff for comprehensive feedback and insight. The FDOT Complete Streets Implementation Plan notes on page B-4 under Defining FDOT's Role and Working with Partners: "Engage stakeholders earlier in 3R projects so they have time to coordinate their own related improvements. Consider extending the 3R project development timeline."

The image below captures a Broward MPO walking audit led by a man in a wheelchair who helped attending politicians and stakeholders experience and understand, from his perspective as a disabled individual, what it is like to be a pedestrian and a transit user.



Photo 19: June 2019
Broward MPO Walking
Audit in the City of
Pembroke Pines.

Stop Design & Amenities

The design of transit shelters varies from place to place and depends on several variables such as population density, surrounding land use, and ridership, among others. There is no consensus on how a shelter must look or the number or type of amenities that should be provided. While aesthetics are generally flexible, there are some universal design concerns that should be addressed at every stop.

All stop shelters and pads should follow at least the minimum requirements for ADA compliance. And while the aesthetics can be largely left up to the agencies and other informing groups, signs and audible announcements should be clear and concise to ensure that all users have access to information. Considerations should be made to follow the FDOT Context Classification Matrix (FDOT, 2017). In addition, visibility should be prioritized. While more closed-in shelters provide a better escape from the elements, it is safer and more convenient for riders when they can see the area around them and also be seen. Visibility can also be diminished by landscaping that was poorly planned or that needs to be pruned. Every effort should be made to ensure that clear lines of sight are present. Visibility at stops was listed as a top safety concern by several agencies interviewed for this study.

Modernizing transit stops and services by providing services like Wi-Fi and real-time

arrival updates can help current riders as well as encourage new ones to begin using transit. In addition, there are many new technologies specifically aimed at supporting services for disabled persons, particularly the visually and hearing impaired. For example, in 2018, Moovit, an international public transit app, joined with online blind and low-vision assistance app “Be My Eyes.” Users of “Be My Eyes” are able to connect with sighted volunteers who assist with everyday tasks like shopping. Moovit incorporated new features to make their app more accessible to blind and low-vision users and made “Be My Eyes” features directly available. This means that with Moovit they can get turn by turn directions for their entire trip as well as receive arrival and departure updates (Be My Eyes, 2018). This is just one example of the growing service and assistance options available for disabled transit users.

In some areas, agencies have total autonomy over the aesthetics, services, and branding at stops. However, in many places that authority is overwritten by private sector entities and other influencers like school boards and community groups. This is not necessarily a problem as long as transit agencies have the authority to make decisions that affect the safety and function of their stops and shelters.

Locating Stops and Crossings

Where and how people cross the street and how

Photo 20: An example of a well-designed shelter that provides shade while still allowing full visibility.

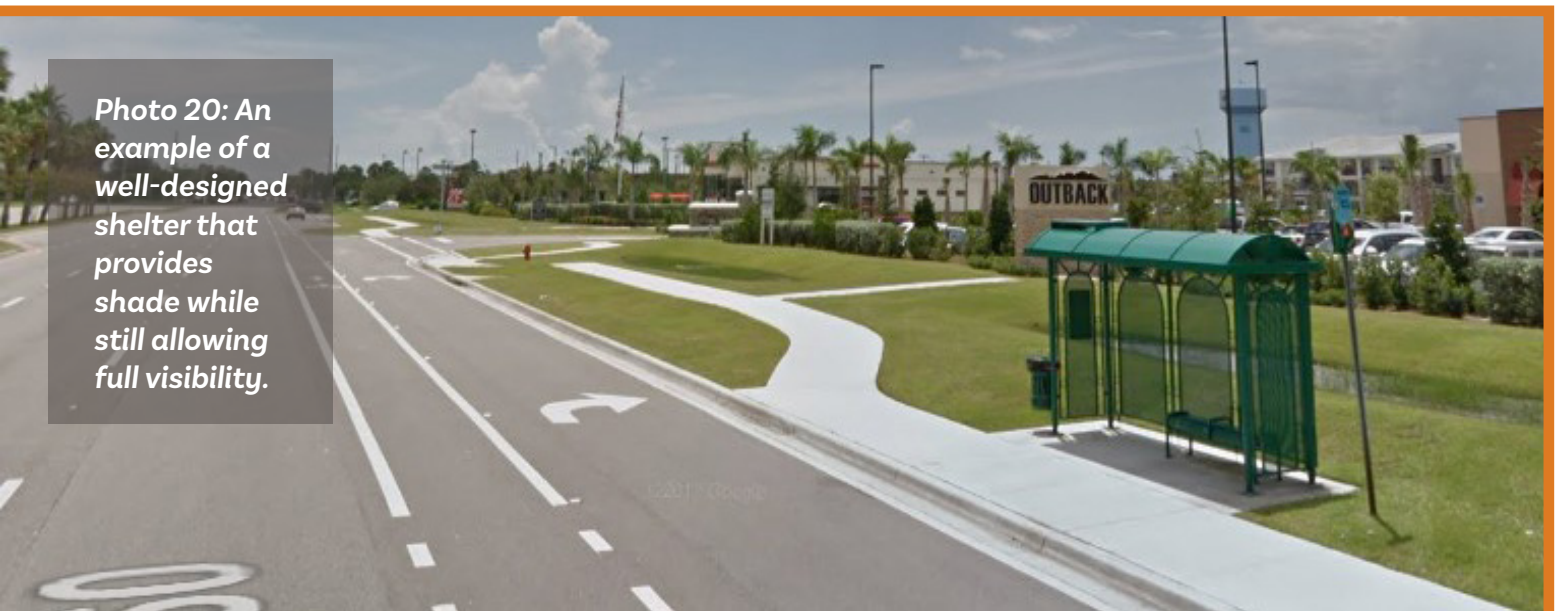




Figure 10:
 Demonstration
 of the distance
 and time benefits
 offered by the
 installation of a
 designated mid-
 block crosswalk.

to ensure that they are safe doing so are issues that localities struggle with nationwide. There are many schools of thought on how to coordinate pedestrians, cyclists, single-occupancy vehicles, and transit in the right of way. In general, these decisions are made using local agency analysis to determine optimal placement for the overall road system.

Whether stops are ultimately located near-side, far-side, mid-block, or utilize in-lane or pull-out stops, it is important that the transit agency play an active role in these placement decisions. As with many processes involving transit considerations, the importance given to transit stop locations varies regionally and the optimum conditions for the transit system are regularly used to advance other interests.

Transit and Site Development

Private land development provides an excellent opportunity to incorporate transit accommodations. As noted in the CUTR report, *Application of Demographic Analysis to Pedestrian*

Safety, certain types of retail inherently lend themselves to larger proportions of pedestrian and bicycle activity. Discount stores, specifically Walmarts, fall into this category (Center for Urban Transportation Research, 2017).

When the above Walmart Supercenter site was planned (see **Figure 10**), rather than construct a new, four-way signalized intersection with Clinton Avenue and the Walmart storefront, which would have provided a direct connection for pedestrians to access the store, the intersection was created a block north of the Walmart parking lot. This is a common practice aimed at improving internal vehicle circulation. The current placement of the intersection and crosswalks instead requires pedestrians, especially coming from the Englewood neighborhood and nearby mobile home park, to walk more than six times the distance they would if there was a crossing at Clinton Avenue and US-1. Additionally, this means that the logical placement of the Jacksonville Transportation Authority's First Coast Flyer Blue Line bus stops located at this site are



Photo 21: Bus stops can sometimes get placed in unusual circumstances when little coordination occurs between agencies.

farther from the neighborhoods and, therefore, a large proportion of the people served by transit. Someone trying to access the Walmart Supercenter or the Southbound bus stop from Clinton Avenue is far more likely to cross illegally at a convenient location than travel north to the signalized crosswalk and cross there, which would add considerably more walking or biking time to their trip. Field observations and interviews conducted at the Walmart Supercenter on a weekday afternoon showed frequent mid-block crossings from Clinton Avenue to the Walmart entrance via a well-worn foot trail in the median (see **Figure 10** and [Photo 9 on Page 12](#)).

Had this development included requirements to integrate transit needs as a priority, particularly with the added pedestrian and bicycle trips generated by Walmart stores, it might have been possible to create a more pedestrian-friendly situation. This is a textbook example of the need for including transit early and regularly throughout the development process.

Project Coordination

In addition to inclusion in site planning, transit is frequently left out of or not informed about state and local roadway projects (see **Photo 21**). This makes retroactive activities to correct compliance issues more frequent and results in more missed opportunities for enhancing pedestrian, bicycle, and transit infrastructure. Two examples of how coordination between transit agencies and state agencies can be facilitated are seen in the processes exemplified by FDOT District 4.

Multimodal Scoping Checklist (MMSC)

The Multimodal Scoping Checklist (MMSC) is a tool developed and used by the Office of Modal Development (OMD) at FDOT District Four. The Multimodal Coordinator leads this effort and is notified of new projects in the Work Program via the Project Suite schedule. When a Design Project Manager (PM) is assigned to a project, Project Suite then flags the need for an MMSC. This occurs typically six months prior to project scoping so that the MMSC can inform the scope of

FDOT COORDINATION BEST PRACTICES

In some regions, FDOT has tools in place to coordinate with local transit agencies. An example of this is found in FDOT District 4, where two key tools increase the ability of transit agencies to give input on FDOT projects: the Multimodal Scoping Checklist (MMSC) and the Electronic Review Comments (ERC) system.

services of issues/needs for each of the modes within the project limits. A standard template has been developed and the Coordinator is required to solicit feedback internally from OMD staff experts on rail, freight, aviation, transit, complete streets, and bike and pedestrian issues as well as from external agencies including transit agencies, school board staff, local government staff and Metropolitan Planning Organizations (MPOs) on each new project. Specific questions are directed to transit agencies inquiring about Americans with Disabilities Act (ADA) access, planned projects, operational issues, and lighting. OMD then provides this information via the MMSC to the Design PM for review and comment for incorporation into the project scope of services. OMD staff remains available to assist and coordinate as the scope for the project is developed and as the project is designed.

This is the first and best opportunity for the transit agency's coordination and input on projects as they move into the design phase.

The process is triggered before the scope of the project is developed, thus providing the opportunity for adequate funding and scheduling. All FDOT projects are included in this process, such as resurfacing, new capacity, intersection improvements, and lighting projects.

The limitations of the MMSC process in regard to transit include the potential lack of resources on behalf of the transit agency to dedicate staff to reviewing and commenting on each project. In addition, FDOT projects could be limited in funding, scope, and schedule due to multiple factors such as timing or project type.

Electronic Review Comments (ERC)

Another opportunity for transit agency coordination and input is through the Electronic Review Comments (ERC) system. The ERC is an application used to track the entire design process seeking comments and responses at critical benchmarks in project development. The benchmarks include Scoping, Initial Design (30 percent), and Constructability (60 percent) and Biddability (90 percent) Reviews.

The ERC is a natural next step tool from the MMSC. Review and comment on the scope of services is the first review solicited from the ERC. This provides the Multimodal Coordinator and other interested stakeholders a chance to verify if issues identified in the MMSC were incorporated into the scope. If not, it provides a second opportunity to raise concern.

The second benchmark for ERC review is at Initial, or 30 percent, design. At this time the Multimodal Coordinator and stakeholders will learn if there are issues that preclude the implementation of multimodal improvements (e.g., right of way, utilities conflicts) and the agencies are allowed the opportunity to offer alternative solutions. Once a project reaches Constructability, 60 percent design, and Biddability, 90 percent design, all issues should have been resolved.

All comments and responses for the entire process reside in one location, allowing any user easy access to all or partial review of comments and resolutions. The system allows Project Managers to easily track all comments and



Photo 22: An officer hands out safety vests to pedestrians.

responses from all Reviewers and Consultants at any time during the process. Each external user is assigned an Internet Subscriber Account (ISA) to access the system. Through the ERC process, transit agency staff can share comments directly with the Design PM.

The Design PM determines who from the Districtwide distribution list will be contacted on each design project. As project deliverables are completed, the District ERC Coordinator provides the deliverable package to the contacts on the project's distribution list via email. This email is the notification that plans are available in the ERC for review. A standard ERC project time-frame to review and comment is 30 days. Key to the success of this process are:

1. regularly updated transit contracts on the District ERC Coordinator's distribution list,
2. a PM that understands the value of including transit agency review on the project and includes them in the ERC distribution, and
3. transit agency staff trained in the ERC process.

Similar to the MMSC, the limitations to transit agencies utilizing the ERC include the potential lack of resources on behalf of the transit agency to dedicate staff to reviewing and commenting in the ERC.

Solutions

While these tools provide an excellent example of regulatory coordination and bringing transit considerations into project planning as a regular order of business, District 4 is currently the only FDOT District following such protocols. In most areas, state and local, projects may or may not be required to include a pre-application meeting that involves seeking transit input. When these meetings do occur, transit agency comments are not necessarily followed and there is generally no mandate requiring that their concerns be addressed. Projects should be required to incorporate transit needs, and transit guidance should be integrated early and consistently in the process.

Accounting for People

Despite the best efforts of local agencies, law-makers, engineers, and other decision-makers, we

continue to struggle with how to keep pedestrians and other non-single occupancy vehicle (SOV) users safe. Unfortunately, pedestrians' needs are frequently outweighed by the prioritization of cars in our road networks. Solutions vary but, particularly in the State of Florida where pedestrian deaths are high, they tend to either put the onus on pedestrians for their own safety (see **Photo 22**) or attempt modify human behavior via physical barriers (see **Photo 23**), rather than prioritizing non-drivers by providing welcoming and safe conditions that make walking or biking a reasonable replacement for driving. These measures are often ignored or avoided.

For example, in the situation described previously on US-1 in Jacksonville, people consistently chose to cross the very busy roadway mid-block with no aid, rather than walking down to the provided crosswalks and pedestrian signals. While such a decision may seem illogical based on inherent risks, this situation poses an important question

about the perceived significance of each group and their personal time. Consistently, pedestrians and cyclists are expected to wait longer and walk farther than those with personal vehicles. We can begin to address this inherent inequity by prioritizing the walking environment and designing road networks that suit the needs of all users.

Pedestrian Laws

Another problem with how people are treated in the road network is the inequitable enforcement of confusing, outdated pedestrian laws last rewritten in the early 1970s. As noted in the [Why Does This Matter?](#) section, Florida is one of many states with lengthy statutes on how and where pedestrians can cross the street. Because of this lengthy and often ambiguous language, enforcement of the laws is often a challenge and difficult to uniformly apply. In addition, state law requires that pedestrians yield the right of way to vehicles in all cases except when they are in



Photo 23: Fencing being used to keep people from crossing on Oakland Park Boulevard in Broward County.

the roadway at marked crosswalks or unmarked crosswalks at intersections (State of Florida Legislature, 2019). This makes the pedestrian or cyclist responsible for observing vehicles and finding the right time to cross. Legally, vehicles do not need to consider them until they are physically in the crosswalk or intersection.

Solutions

To encourage people to walk more, use transit, and ride bicycles, we must commit and invest in solutions and infrastructure to make them attractive options. Until we can provide safe and comfortable settings, we cannot expect people to choose alternative transportation over their personal vehicles. All efforts need to

be made to create an environment that gives as much importance to pedestrians and cyclists as drivers. One way to accomplish this would be to reform or eliminate laws that favor drivers at the expense of the safety of other users. In most cases, pedestrian regulations are antiquated and misunderstood and a thorough examination of their contribution to overall safety is warranted. Secondly, state and local agencies should continue to promote safe access for all users and begin to incorporate safety measures designed to enhance the pedestrian experience. For example, providing signalized mid-block crossings where people want to cross, rather than assuming they will walk farther to a less convenient, albeit safer, crosswalk.

COVID-19 CONSIDERATIONS

The disruptions of COVID-19 have caused a widespread reckoning in the transit industry regarding the true role of public transportation. The pandemic revealed a stark divide between those with and those without mobility choices, as well as those who must perform their jobs in person (essential workers) and those who can work remotely. Cities and towns across the country shut down in response to outbreaks, causing transit ridership to plummet by 70-90% (Bliss, 2020). In addition, the release of preliminary research and editorials blaming transit for the spread of COVID-19, coupled with the persistent stigma associated with the safety and cleanliness of transit, has created a concern that transit ridership will remain low well after other pandemic-related fears have been assuaged (Bliss, 2020).

Being an essential resource, public transit continued to provide service during the initial U.S. COVID-19 outbreaks, albeit with precautionary adjustments to reduce the likelihood of transmission and to protect both customers and operators. New and innovative protocols can greatly improve the safety and security of riders accessing the system prior to boarding. Some of

these changes will eventually be rolled back but others will become part of standard operating procedures, and emerging technologies will play a role in how they are permanently adapted. The long-term industry response to post-COVID transit planning will rely on or be enhanced by innovation, and an agency's ability to adapt could determine their future relevance to riders and their place in the community.

REGAINING PUBLIC TRUST

A major issue for transit agencies dealing with decreased ridership will be to regain public trust (Sadik-Khan, 2020). Even before COVID-19 forced the discussion, many agencies were already contemplating how to reinvigorate public transit due to a trend in declining ridership that began around 2014 (Bliss, 2020). If forward-thinking practitioners and leaders are willing to invest in the existing systems, the current crisis could naturally provide an opportunity to reinvent and reinvigorate existing transit networks and the cities they serve (Sohn, 2020). Many developing technological innovations could effectively work to address the issues of health and safety as well as create more exciting and desirable public transportation networks.

PUBLIC TRANSIT AND COVID-19 PANDEMIC: GLOBAL RESEARCH AND BEST PRACTICES (APTA, 2020)



- 1. No direct correlation has been found between use of urban public transit and transmission of COVID-19.**
- 2. There will be long-term health consequences if people in large numbers switch from public transit to private cars.**
- 3. An analysis of public transit ridership in multiple cities over the past three months shows no correlation with the rise or fall of local COVID-19 cases.**
- 4. Mask wearing has been shown to be effective at reducing person-to-person transmission.**
- 5. There are several possible explanations for the lack of correlation between the increase in public transit ridership and increasing COVID-19 cases.**
- 6. It appears that what you do at the end of a trip affects the probability of contracting the virus far more than the mode of travel.**

Technology Innovation

Online and mobile platforms allow for greater dissemination of pertinent information. One way in which transit agencies could enhance public safety is to limit the need for riders to interact with objects like ticketing kiosks and turnstiles. Integrated online or mobile payment apps provide a contactless payment system that eliminates the need to use public touch screens (Sohn, 2020). Pre-booking seats and providing capacity information available through smartphones can allow riders to choose less crowded train cars and make other trip choices when vehicles are at capacity (Sohn, 2020).

In some countries, riders can be tracked and alerted if they have ridden with someone who is later found to have been ill. While this technology is being developed by Apple and Google, privacy concerns make adoption in the U.S. unlikely (Sohn, 2020). Mobile notifications, such as when buses were last cleaned and agency cleaning policies, could provide additional information to help both agencies and riders.

Safe Access & Infrastructure

Since the COVID-19 pandemic began, cities have become more focused on the way street space can be repurposed to support people and local businesses—by facilitating outdoor dining, improving safety and dedicated spaces

to encourage walking or cycling, enhancing access to essential transportation services, and more. More people staying home means more people and families seeking to take advantage of nearby outdoor spaces. The presence of safe and accessible alternative transportation infrastructure designed to accommodate communities of all ages and abilities is, therefore, now more important than ever.

There are many opportunities to activate small safety measures at bus shelters to accommodate social distancing practices, including:

- signage to stay six feet away from one another,
- provision of hand sanitizer dispensers,
- Wi-Fi access for contactless trip planning and fare payment,
- and the ability to reserve seating on the bus.

There are similarly actions that can be taken on the bus to minimize exposure and keep everyone safe, such as:

- handing out masks and sanitizer for passengers and operators to use on-board,
- suspending in-person fare collection, and
- requiring rear-door boarding.

AGENCY ROLES AND

Actualizing safe access to transit requires a high level of agency coordination and collaboration that should ideally extend beyond the bus stop to include stop influence areas that comprise and shape first mile and last mile bus stop access.

Figure 11 captures typical roles and responsibilities for the entities involved in the selection, placement, design, and maintenance of a transit stop. Beyond the physical boundaries of the bus stop, transit agencies have limited capacity to influence how pedestrians and cyclists access transit. **Figure 12** on the next page contains a detailed stop influence area breakdown of these responsibilities by agency.

Beyond the first 50 feet of the bus stop, direct oversight by transit agencies in infrastructure provision evolves into more of a coordination and review capacity.

In an ideal world, input from transit agencies would be required any when changes to the built



Figure 11: Typical roles and responsibilities associated with bus stop design and placement

environment significantly impact the transit network. To address this issue, a more formalized and mandated coordination process that allows

RESPONSIBILITIES

Agency

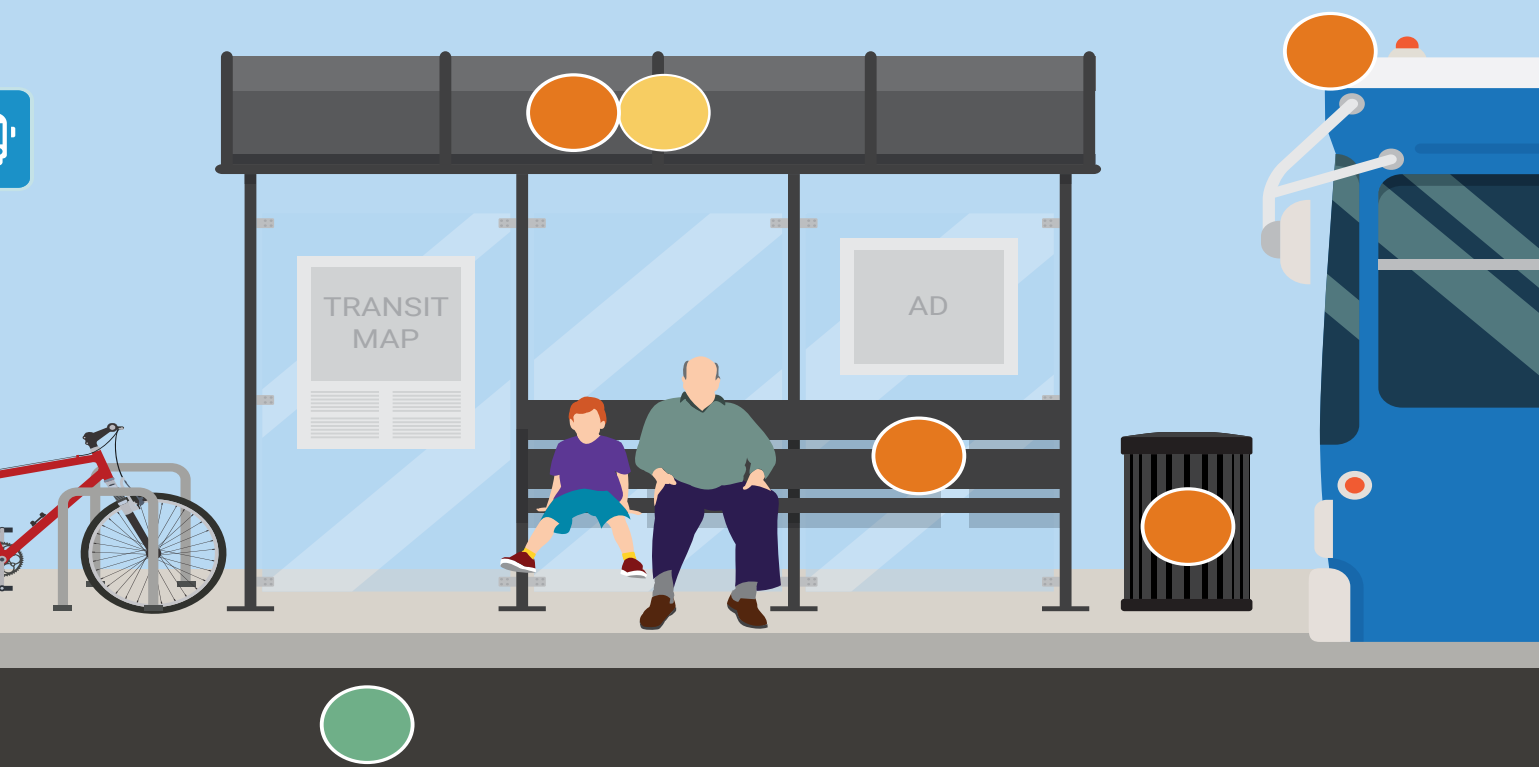
• Stop & Shelter Location
• Design Signage
• Shelter & Seating
• Lighting
• Stop
• Trash Can
• & Maintain Fleet

Private/Institutional

- May Design Shelter
- May Provide Sidewalks

DOT (on State Roads)

- Maintain Right of Way
- Maintain Markings

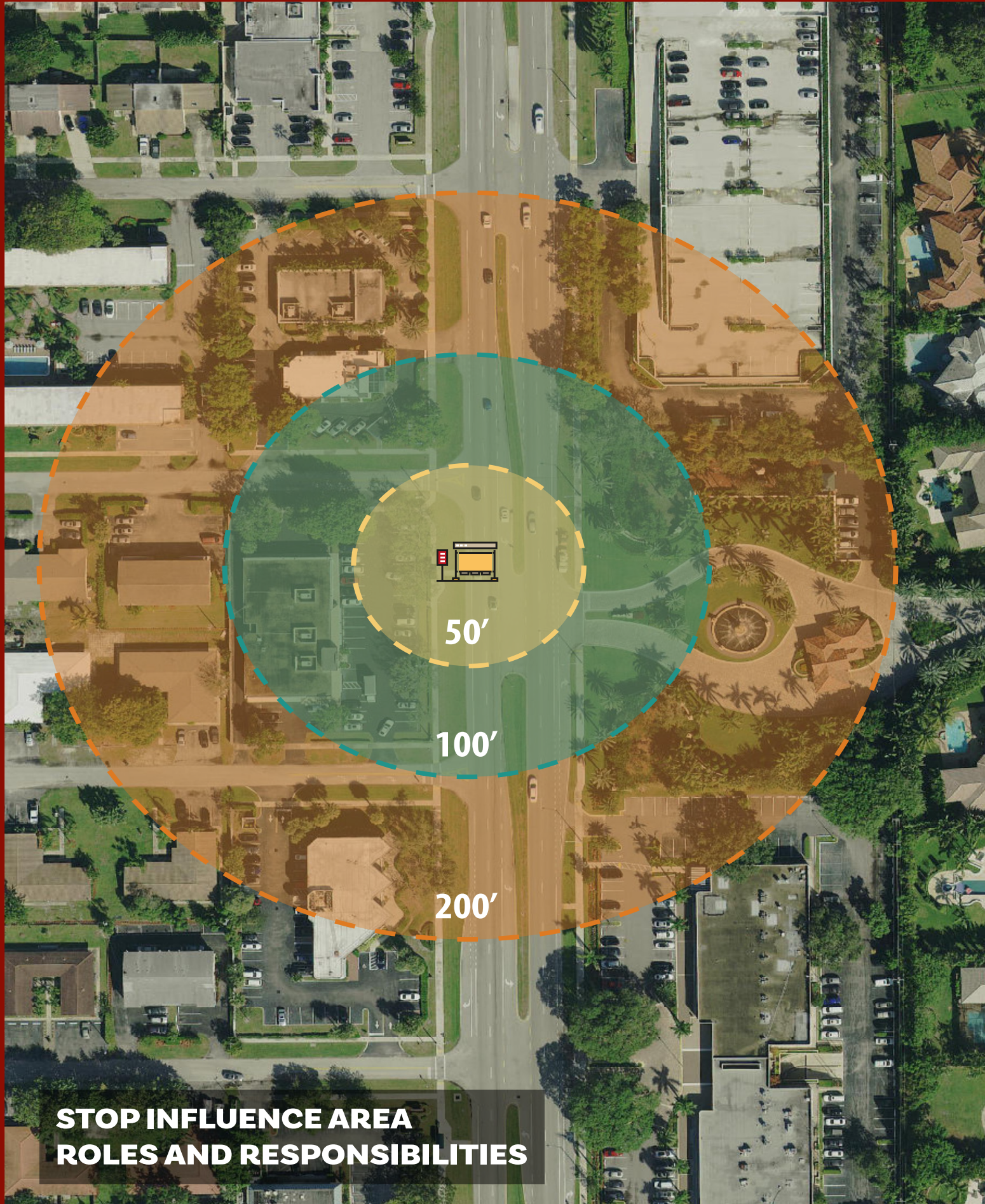


ment for public and private entities.

transit agencies to leverage land use and roadway projects to ensure consideration for their priorities would not only avoid the unnecessary waste of

resources, but also enhance safety for walkers, cyclists, rollers, and transit users beyond the bus stop.

Figure 12: A detailed breakdown of agency roles and responsibilities within stop influence areas.



LEGEND

**Not to Scale*



First 50 Feet*



Next 100 Feet*



Next 200 Feet*



Transit Agency



Roadway Owner (FDOT/County/Local) including Right of Way & Traffic Operations



Public Works/Utilities/Water Management District



Law Enforcement



Private Property Owner

First 50 Ft



- Shelter Location
- Shelter Lighting
- Shelter Maintenance
- Real Time Information
- Safety Warnings
- Leverage Land Use and Roadway Projects
- Guide Rider to Push Button



- Sidewalk Connection
- ADA Access
- Connectivity to Local Developments
- Landscaping
- Review for Mid-Block Crossings
- Electrical Connection
- Leverage Projects to Build Transit Amenities
- Input from Transit Agencies Required



- ADA Access
- Canal Maintenance (South Florida)



- Enforce Speed Limits and Safe Driving
- Prevent Jaywalking



- Developer Commitments
- On-Site Pedestrian/Bicycle Connections
- Input from Transit Agencies Required

Next 100 Ft



- Safety Warnings
- Leverage Land Use and Roadway Projects
- Guide Rider to Push Button



- Sidewalk Connection
- ADA Access
- Pavement Markings
- Landscaping
- Review for Mid-Block Crossings
- Push Buttons and Signals
- Input from Transit Agencies Required



- ADA Access
- Canal Maintenance (South Florida)



- Enforce Speed Limits and Safe Driving
- Prevent Jaywalking



- Developer Commitments
- On-Site Pedestrian/Bicycle Connections
- Input from Transit Agencies Required

Next 200 Ft



- Leverage Land Use and Roadway Projects



- System and Network Connections
- Landscaping
- Review for Mid-Block Crossings
- Signal Optimization
- Maintenance of Traffic Agreements



- ADA Access
- Canal Maintenance (South Florida)



- Enforce Speed Limits and Safe Driving
- Prevent Jaywalking



- Developer Commitments
- On-Site Pedestrian/Bicycle Connections
- Input from Transit Agencies Required

OPPORTUNITIES FOR

The capacity of transit agencies across the state to implement critical “stop influence area” infrastructure improvements is often limited. Since most serve as operators and do not control the right of way, agencies may serve in a “review and/or commenting” role as part of a host local government’s civil plan review and permitting process, which consists of the technical review of the horizontal construction aspects of development projects. Additionally, even when transit agencies are able to review and comment, any recommendations or modifications for transit accommodations as provided may not necessarily need to be implemented to receive authorization for construction permits or certificates of occupancy by the local government.

There are many cases where the local jurisdiction, private developer, or FDOT will proactively coordinate with the transit agency to ensure that basic amenities such as pads, shelters, and minimum ADA access are provided. However, the lack of uniform transit coordination as a standard precursor during preliminary site development review stages will continue to result in stops that vary widely with respect to quality and safety. Transit stops placed in less than ideal locations that are unsafe for pedestrian and cyclist access do not effectively leverage the local and FTA investment in stop infrastructure, thereby ignoring the importance of the “complete trip” for customers.

Such results can be attributed to a number of reasons including, but not limited to:



FOR IMPROVEMENT

Development Review Flowchart Example

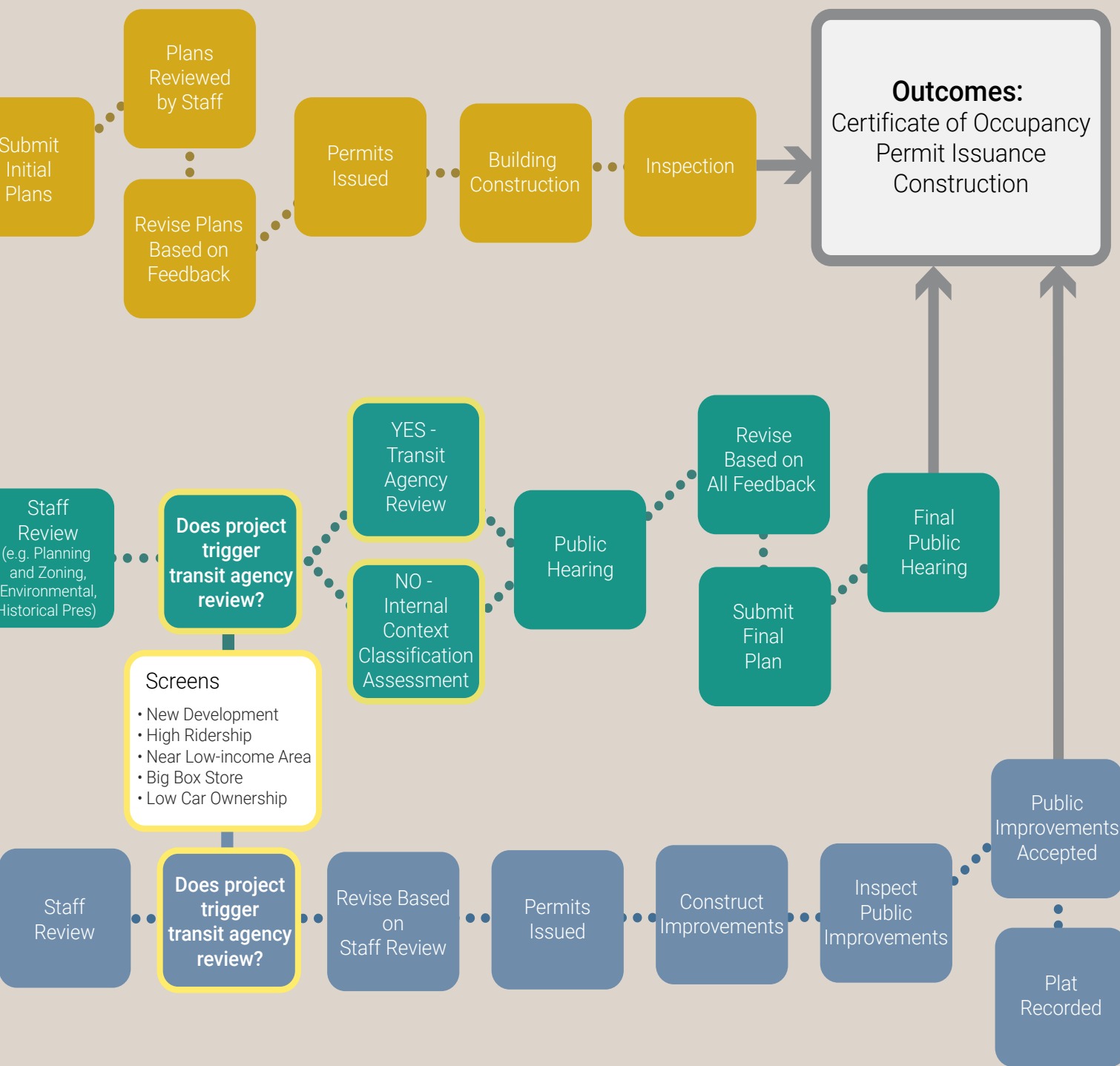


Figure 13: Transit-Inclusive Development Review Flowchart.

- Lack of capital funding
- Responsibility limitations
- Inconsistent role in local government development and permitting processes
- Lack of in-house institutional/engineering capacity
- Complex approval processes
- Lack of coordination

In addition to the need to institutionalize coordination throughout the various regular order of municipal development business, other major opportunities include:

- integration of enhanced screening tools to prioritize particular stop locations for review;
- ensuring the participation of private development in specific context classifications;
- and providing updates and clarification to the existing statewide pedestrian laws and enforcement.

The issues addressed in this report reflect a broader need to fundamentally change the culture and attitudes around transit and articulating the positive impacts of its role and benefits to communities. Based on the synthesis of research and analysis, the following key findings and opportunities were explored to inform additional research and policy-making with regard to actualizing safer access to transit in the State of Florida.

Key Findings and Opportunities

Recommendation #1

Ensure that transit agencies are taking the lead role in the improvement of the direct accessibility of transit, based upon the “stop influence areas” as described herein.

This should include the planning and

implementation of all stop and shelter improvements, the creation and adoption of agency standards for location and design that must be followed by jurisdictions, developers, and FDOT; coordination with jurisdictions and FDOT during all phases from planning through permitting and construction, and establishment of communication protocols to better facilitate uniformity and optimal stop placement. The most effective way to ensure this outcome is through the establishment of MOU’s between transit agencies and FDOT as well as the development and formal adoption of local government ordinances that thoroughly integrate transit review and coordination into development services and permitting processes.

Recommendation #2

Mandate changes to existing jurisdictional development services/permitting processes to create a “Transit-Inclusive Development Review Process and Flowchart” (see Figure 13). This should include institutionalizing transit stop access into the regular order of business processes associated with roadway improvements, access management, and site/development plans.

As noted previously in the report, there are several tools and processes that FDOT and transit agencies can utilize more consistently across the state to successfully implement improvements to transit facilities. Some of the existing tools include the FDOT District 4 Multimodal Scoping Checklist (MMSC), the Electronic Review Comments (ERC) system and via the Access Permitting process.

However, at the local level, there is a need to revisit the typical roles and responsibilities that have far too often resulted in less than optimal location and accessibility to stops. The provided “Transit Inclusive” process and flowchart provides a template for institutionalizing transit safety and access throughout the context of the review and development permitting process, particularly for site/land development and roadway improvement projects.

The illustrative template not only provides a mechanism for appropriate screens that would warrant a higher level of transit engagement and review, but also integrate an FDOT Context Classification assessment with respect to the appropriate transit stop design and amenities based on local development and place typologies.

Recommendation #3

Institutionalize Context Classification Review and Approval into the transit stop design and development process, including added directives under “Chapter 225—Public Transit Facilities” of the Florida Design Manual (FDM).

Throughout the FDM, including the specific chapters dedicated to context classification and transit, there is little mention of transit. Most noticeably absent is the lack of existing design guidance tailored for accommodating transit in relationship to the context classification. Chapter 225 provides minimum dimensions for boarding areas as well as placement, specifically indicating that “the boarding and alighting area may be placed at the edge of shoulder pavement on roadways with a posted speed of 45 mph or less.”

There is no distinction, however, between context classes in this guidance in light of the variety of transit services and operational needs among urban and suburban areas. The FDM includes minimum lane width guidance by context class

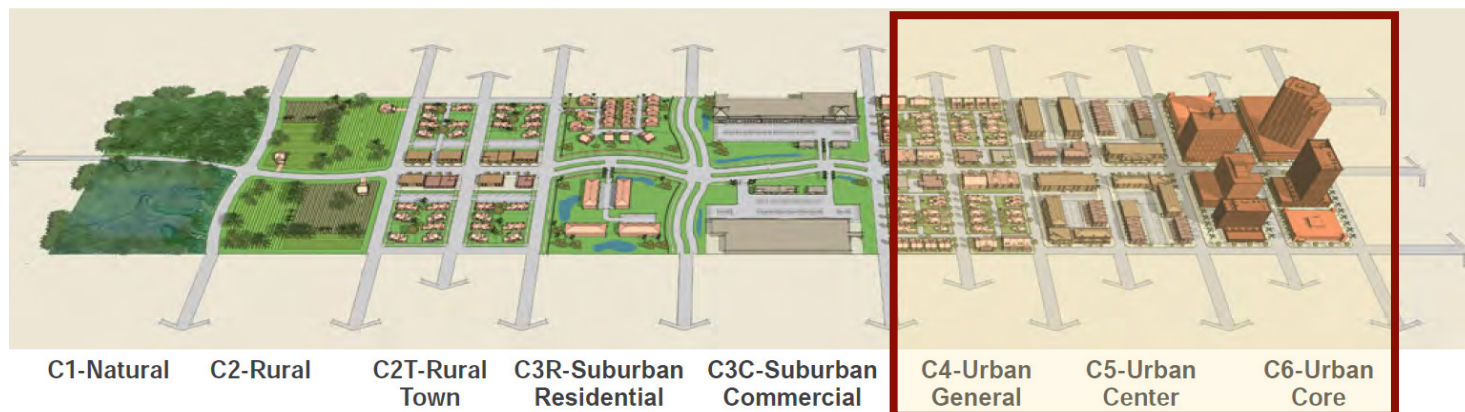
and suggests that widths wider than the 10 ft minimum should be considered when transit is present. This guidance, however, does not appear in the Public Transit Facilities Chapter.

Recommendation #4

Adopt development/design standards to mandate the inclusion of transit amenities and infrastructure within 100’ of high-frequency transit stops, where feasible, for all mixed-use developments exceeding 30 units per acre, minimum floor area ratios of 2.1, and a mean percentage of retail composition of 21 percent* in Context Classification Zones C4 (Urban General) through C6 (Urban Core) using corresponding design typologies.**

Land use and urban design are critical ingredients to improve the quality of the pedestrian environment and transit access. Site development that is transit-supportive extends beyond compact, high-density transit-oriented development (TOD) sites around rail.

In Florida, where fixed-route bus operations represent the typical service offering among varying locations and community contexts, there is not a one-size-fits-all standard for transit-supportive development. However, many urban centers that offer premium transit provide a great opportunity to implement transit supportive infrastructure into new development or in-fill sites. To avoid missed opportunities around placement,



design, and amenities, development standards should be modified to incorporate these features at the front end of project development reviews in Context Classification zones C4-C6. This can serve to enhance the coordination link between agencies and processes for better integrating land use and transit.

****This is a general guideline, in accordance with FTA, for minimum ideal transit-supportive development based on mean residential densities and Floor Area Ratios (FARs) in typical urban contexts. Specific conditions may warrant more or less development intensities based on local market, context, and typologies.*

Recommendation #5

Incorporate use of GIS-based screening tools to include demographic, land use, and ridership measures as part of the mandatory review and coordination between transit agencies, FDOT, and local jurisdictions. If warranted, based on ridership propensity and safety issues, conduct mandatory walk audits with transit agencies.

As mentioned in the “Transit Inclusive” Process and Flowchart, the development of easy-to-use on-line mapping and analysis tools can assist in the screening for access and stop needs and support proactive, interagency dialogue and coordination around transit accommodations. ArcGIS tools can enable the quick display of area demographic profiles, ridership, big box/convenience store uses, and land use context measures that indicate transit propensity and provide a useful, data-driven warrant at the beginning of the development review process to ensure that safe and accessible transit features are planned and integrated into construction documents well before site development, driveway permits, and roadway improvements are implemented.

In addition, it may be necessary to conduct a more granular “stop influence area” walking and infrastructure audit of an area to ensure

the optimal placement and design of stops. Conducting walk audits in conjunction with FDOT and extending the timeline for 3R projects may also help with engaging stakeholders earlier so they have time to coordinate their improvements. Understanding that transit may be a critical ingredient to the success of a proposed project, it may be useful to conduct the following activities as part of a coordinated exercise among key stakeholders, including transit agencies, public works, private developers, and/or FDOT:

- Assessment of local road layouts, arterial/collector road layouts, analysis of the costs and feasibility of servicing the proposed development (e.g. route length per number of residents served)
- Review of “actual” walking distances to transit stops (vs. ¼ or ½ mile “as the crow flies” radii) and ensuring that they are properly sited and designed to enhance user access and comfort
- Review of the proposed staging of development with respect to planned expansion of transit services and the cost/benefits of providing transit services if development is located away from the current transit service area
- Provide comment on the orientation and design of buildings to ensure that they are appropriately addressing key pedestrian routes leading to and from transit stations and that there is a positive relationship between the location of entrances and transit stops.

Recommendation #6

Incorporate specific updates to “Chapter 7—Agency Coordination” of the Accessing Transit Handbook to integrate transit agency review and coordination of transit stop development access issues prior to permit and construction stages.

While early coordination is critical to the optimal placement and design of transit stops, reliance on agency coordination via federal requirements per 23 CFR 450.208 may be too limiting.

Unlike new capacity or roadway realignment project timelines, private development, driveway permitting, and resurfacing (3R) project opportunities are typically more expeditious. There are many times where 3R projects emerge quickly based upon funding or local government requests and may not have been included in an FDOT 5-Year Work Program schedule. Likewise, driveway permit and construction, especially in phased site development plans, can be modified based upon market forces or project needs. This may present a challenge around appropriate siting, relocation, or access to transit stops, resulting in less than desirable transit facilities.

Recommendation #7

Consider regulatory changes to Sec 316.130 F.S. to modify and clarify language regarding legal, pedestrian walking and crossing movements. Many parts of the statute (including subparts 4 and 11) predate the abundance of higher capacity infrastructure, including higher speed, suburban, multilane facilities throughout the state, which many pedestrians and cyclists must navigate to access stops. Specifically addressing the language related to mid-block locations can ensure that officers, citizens, and legislators have a fuller grasp of the statute to avoid unintended consequences as a result of erroneous interpretation and/or enforcement.

While education and enforcement (part of the traditional three “E’s”) play a role in pedestrian and bicycle safety, there is difficulty in educating people to walk along or cross the roadway safely in the absence of safe, adequate infrastructure. There is greater evidence that increased reliance on engineering (the third “E”) and design

countermeasures result in making streets safer by reducing pedestrian injuries and fatalities. This includes reducing speeds, building more sidewalks, marked crossings and other pedestrian-friendly infrastructure. The inclusion of new “E’s”, including “equity” and “empathy” has great potential to institutionalize more thoughtful consideration to transit safety and access in this context.

In addition, there has been little discernable connection between where pedestrian deaths occurred and where law enforcement issues tickets. In Jacksonville, Florida, for example, nearly 60% of the 648 pedestrian citations issued between 2012 and 2017 to pedestrians crossing the street outside of a crosswalk were given in error. This percentage was actually uniform across many large metropolitan areas in the state. Much of this may stem from confusion related to sub part (11) in which the statute prohibits pedestrians from crossing streets outside formal crosswalks when they are “between adjacent intersections at which traffic control signals are in operation.” In many locations where there are large distances between signalized or unsignalized intersections and/or where sidewalk infrastructure may be absent along higher speed arterials, explicit provisions in the existing statute may put pedestrians, many of whom may be accessing transit at harm. Statute language could be clarified to permit legal mid-block pedestrian crossing movements between signalized intersections where such distance between signals exceeds 1,320 feet, for example, which would represent a reasonable 5-minute walking distance.

Subpart (4) specifically indicates that “where sidewalks are not provided, any pedestrian walking along and upon a highway shall, when practicable, walk only on the shoulder on the left side of the roadway in relation to the pedestrian’s direction of travel, facing traffic which may approach from the opposite direction.” There are many cases where obstructive conditions along arterial roadways, including natural barriers and swales, weather-induced flooding, or steel beam crash barriers/guardrails that leave little room if any for pedestrians to navigate shoulders or any available part of the right-of-way in the absence of dedicated sidewalks.

Next Steps and Action Items

This study is intended to drive conversation and facilitate improved transit outcomes on and off FDOT's roadway network. Only through a systemic process that prioritizes the safety and accessibility of all users, from initial planning through to design, construction, and maintenance, will we begin to increase awareness, support, and encouragement of walking, biking, and taking transit.

There are a number of opportunities presented as part of this study which consider how to improve outcomes associated with transit stop location and accessibility. The Florida Design Manual (FDM), in particular, includes rounds of recurring updates and, as discussed in this study, the next update should incorporate transit facility location and design in accordance with the Context Classification framework.

This will more effectively provide an understanding of the granular design and safety needs of transit facilities relative to the variety of place typologies in the state.

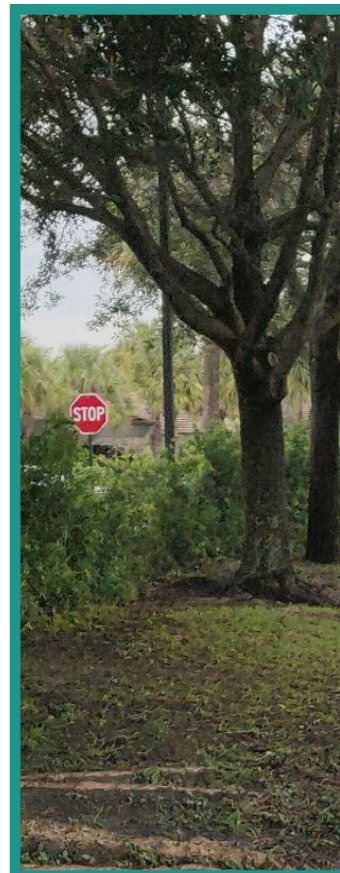
Action Item 1

Establish a formal pilot study to proactively address safe access to transit. The study should include a participating transit agency and host jurisdiction and provide a means to test an improved process of standardized coordination among agencies. This could be structured as a six-month evaluation that incorporates a number of the proposed strategies, including formalizing roles and responsibilities based upon the described “stop influence areas”; GIS-based screening and auditing tools; and a trial application of the proposed “Transit-Inclusive Review Process.”

The latter could be focused on better integrating typical “missed opportunities” such as 3R projects and private land permitting and development. Based upon the results of the pilot, FDOT may elect to establish and deploy a model framework across the state that could be adopted by local ordinance to improve coordination among stakeholders.

Action Item 2

Leverage the FDOT Bicycle Pedestrian Focused Initiative Leadership Team and the Department's “Alert Today/Alive Tomorrow” campaign to convene a dialogue or working group focused specifically on working with the legislature to update Chapter 316.130 of the Florida Statutes.



The FDOT has identified individual “District Champions” for pedestrian and bicycle safety and to guide the implementation of the Pedestrian and Bicycle Strategic Safety Plan (PBSSP). The Plan is organized around six Emphasis Areas, including “Legislation, Regulation, and Policy.” To more effectively address engineering, education, and enforcement, this working group/subcommittee charge could be to coordinate with the appropriate public and private agencies and stakeholders, including the disability community, to work directly with the legislature to update and rewrite these regulations.

Action Item 3

Update Chapter 7 of the 2017 FDOT Transit Access Handbook to acknowledge the issues and timelines associated with more immediate and short-term project opportunities, such as resurfacing, driveway permitting, and private land development,

to ensure coordination around transit facility location and access.

In light of the COVID-19 pandemic, new guidance should also be added to help public agencies pivot in response to future pandemics, including social distancing considerations for bus shelter design and public health and safety accommodations for bus patrons (see section on [COVID-19 Considerations](#)).

Action Item 4

Review current funding levels and identify opportunities and best practices to allow transit agencies the resources and staff needed to maintain the level of coordination called for in this report. Dedicating funding streams for agencies involved with providing safe access to transit is an important step towards actualizing many of these recommendations.



Photo 24: High speeds combined with a sharp road curvature can lead to safety issues for those accessing transit.

APPENDIX A:

REFERENCES

1. AdanCarrilloAASHTO. (2016). *Florida Department of Transportation - US 92 Pedestrian Improvement*. America's Transportation Awards. Retrieved from <https://americatransportationawards.org/2016/08/23/florida-department-of-transportation-us-92-pedestrian-improvement>.
2. American Public Transportation Association. (2012). *Design of On-street Transit Stops and Access from Surrounding Areas*. Washington D.C.
3. American Public Transportation Association. (2020). *Public Transit and COVID-19 Pandemic: Global Research and Best Practices*. APTA. Retrieved from: https://www.apta.com/wp-content/uploads/APTA_Covid_Best_Practices_09.29.2020.pdf.
4. American Public Transportation Association. (2018). *Understanding Recent Ridership Changes, Trends and Adaptations*. Washington D.C.
5. Americans with Disabilities Act (ADA). (1990). *The Americans With Disabilities Act of 1990*. Washington, D.C.
6. Be My Eyes. (2018). *BeMyEyes Newsroom*. Retrieved from Press Release: Be My Eyes and Moovit join forces to make public transit more accessible: <https://www.bemyeyes.com/newsroom/be-my-eyes-and-moovit-join-forces-to-make-public-transit-more-accessible>.
7. Bliss, L. (2020). *A Post-Pandemic Reality Check for Transit Boosters*. Bloomberg CityLab. Retrieved from: <https://www.bloomberg.com/news/articles/2020-05-06/a-post-pandemic-reality-check-for-transit-boosters>.
8. Broward County Transit. (2019, March 20). *Safe Access to Transit Interview*. (MBI, Interviewer)
9. Center for Urban Transportation Research (CUTR). (2006). *Pedestrian Safety at Midblock Locations*. Tallahassee.
10. Center for Urban Transportation Research (CUTR). (2017). *Application of Demographic Analysis to Pedestrian Safety*.
11. IRT. (2019, April 8). *Safe Access to Transit Interview*. (MBI, Interviewer)
12. Florida Department of Transportation (FDOT). (2013). *Accessing Transit: Design Handbook for Florida Bus Passenger Facilities*. Public Transit Office. Tallahassee.
13. Florida Department of Transportation (FDOT). (2013). *Quality/Level of Service Handbook*. Tallahassee.
14. Florida Department of Transportation (FDOT). (2013). *Typical Sections for Exclusive Transit Running Ways. Freight, Logistics, and Passenger Operations and Public Transit Office*. Tallahassee.
15. Florida Department of Transportation (FDOT). (2014). *Best Practices in Evaluating Transit Performance*. Freight, Logistics and Passenger Operations, Transit office. Tallahassee.
16. Florida Department of Transportation (FDOT). (2015). *Complete Streets Implementation Plan*.
17. Florida Department of Transportation (FDOT). (2015). *Florida Transportation Plan, Policy Element*. Office of Policy Planning. Tallahassee.
18. Florida Department of Transportation (FDOT). (2015). *Florida Transportation Plan, Vision Element*. Office of Policy Planning. Tallahassee.
19. Florida Department of Transportation (FDOT). (2017). *Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, Interim Updates*. Public Transit Office. Tallahassee.
20. Florida Department of Transportation (FDOT). (2017). *FDOT Context Classification*. FDOT Roadway Design Office. Retrieved from www.fdot.gov/roadway/CSI/files/FDOT-context-classification.pdf.
21. Florida Department of Transportation (FDOT). (2018). *A National Synthesis of Transit and Complete Streets Practices*. Tallahassee: Florida Department of Transportation, Transit Office and Smart Growth America.
22. Florida Department of Transportation (FDOT). (2018). *TDP Handbook: FDOT Guidance for Preparing & Reviewing Transit Development Plans*. Public Transit Office. Tallahassee.
23. Florida Department of Transportation (FDOT). (2018). *Transit Accessibility Assessment for Special Populations*. Tallahassee: Florida Department of Transportation Freight, Logistics and Passenger Operations.
24. Florida Department of Transportation (FDOT). (2019). *FDOT Design Manual*. Tallahassee, Florida: Florida

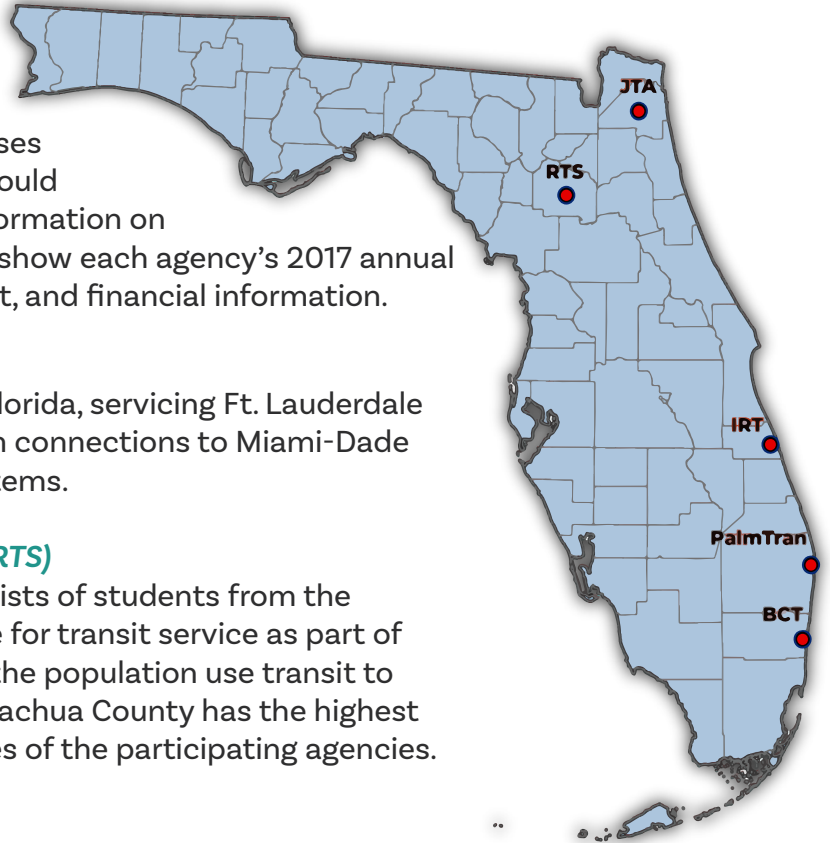
- Department of Transportation.
25. Florida Department of Transportation (FDOT). (2019). *The FDOT Source Book 2018*. Forecasting and Trends Office. Florida.
 26. Florida International University (FIU). (2013). *Analysis of Movable Bus Stop Boarding and Alighting Areas*. Tallahassee.
 27. Federal Transit Administration. (2014). *Planning for Transit-Supportive Development: A Practitioner's Guide*. Newark.
 28. Federal Transit Administration. (2017). *Manual on Pedestrian and Bicycle Connections to Transit*. Washington D.C.
 29. Indian River Transit. (2019, April 8). Safe Access to Transit Interview. (MBI, Interviewer)
 30. Jacksonville Transportation Authority. (2019, March 15). Safe Access to Transit Interview. (MBI, Interviewer)
 31. Marbut, M. (2019). *Bus bench ad battle pits Jaycees, city of Jacksonville*. Retrieved from Jax Daily Record: <https://www.jaxdailyrecord.com/article/bus-bench-ad-battle-pits-jaycees-city-of-jacksonville>.
 32. National Academies of Sciences, Engineering, and Medicine. (2018). *Impacts of the Americans with Disabilities Act on Transit Agency Liability*. Washington, DC: The National Academies Press. Retrieved from <https://doi.org/10.17226/25329>.
 33. National Center for Transit Research (NCTR). (2017). *Impact of Transit Stop Location on Pedestrian Safety*. Center for Urban Transportation Research.
 34. Pace Suburban Bus. (2013). *Transit Supportive Guidelines for the Chicogoland Region*. Chicago.
 35. Palm Tran. (2019, April 3). Safe Access to Transit Interview. (MBI, Interviewer)
 36. Regional Transit System (RTS). (2019, March 14). Safe Access to Transit Interview. (MBI, Interviewer)
 37. Russon, G. (2019). *Laborland Part 3: Too Few Buses, Not Enough Routes*. Orlando Sentinel. Retrieved from: <https://www.orlandosentinel.com/business/tourism/laborland/os-bz-disney-tourism-workers-public-transit-20191212-qi427edpnrhxpkkeebdalpgkau-story.html>.
 38. Sadik-Khan, J. and Solomonow, S. (2020). *Fear of Public Transit Got Ahead of the Evidence*. The Atlantic. Retrieved from: <https://www.theatlantic.com/ideas/archive/2020/06/fear-transit-bad-cities/612979/>.
 39. Sanders, T. and Conarck, B. (2017). *Florida Police Issue Hundreds of Bad Pedestrian Tickets Every Year Because They Don't Seem to Know the Law*. ProPublica, Florida Times-Union. Retrieved from <https://www.propublica.org/article/florida-police-issue-hundreds-of-bad-pedestrian-tickets-every-year-because-they-dont-seem-to-know-the-law>.
 40. Sanders, T., Rabinowitz, K., and Conarck, B. (2017). *Walking While Black*. ProPublica, Florida Times-Union. Retrieved from <https://features.propublica.org/walking-while-black/jacksonville-pedestrian-violations-racial-profiling/>.
 41. Smart Growth America. (2019). *Dangerous By Design*. National Complete Streets Coalition. Retrieved from <https://smartgrowthamerica.org/app/uploads/2019/01/Dangerous-by-Design-2019-FINAL.pdf>.
 42. Sohn, E. (2020) *Your daily commute won't ever be the same: Coronavirus will upend—but perhaps make*
 43. *healthier—the ways we use trains, buses, and bike lanes in our post-pandemic future*. National Geographic. Retrieved from: <https://www.nationalgeographic.com/science/2020/05/coronavirus-your-daily-commute-will-never-be-the-same-cvd/>.
 44. State of Florida Legislature. (2019). 2019 Florida Statutes, Title XXIII Motor Vehicles, Ch 316 State Uniform Traffic Control, 130 Pedestrians; traffic regulations. Retrieved from Official Internet Site of the Florida Legislature: http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0316/Sections/0316.130.html.
 45. Thomas, L. W. (2018). *Impact of the Americans with Disabilities Act on Transit Agency Liability*. The National Academies of Sciences, Engineering, and Medicine; Transportation Research Board.
 46. TransitCenter. (2018). *Sorry to Superb: Everything You Need to Know about Great Bus Stops*. New York.
 47. United States Department of Transportation, Federal Highway Administration. (2008). *Pedestrian Safety Guide for Transit Agencies*. Washington D.C.
 48. United States Department of Transportation, Federal Highway Administration, Office of Planning, Environment, and Realty. (2018). *Integrating Shared Mobility into Multimodal Transportation Planning: Improving Regional Performance to Meet Public Goals*. Washington D.C.
 49. United States Department of Transportation, Federal Transit Administration. (2018). *National Transit Database: 2018 Policy Manual, Reduced Reporters*. Washington D.C.

APPENDIX B:

PARTICIPATING AGENCY

PROFILES

Five transit agencies participated in an open discussion with researchers to determine what role agencies play in creating safe access to transit, what processes seem to work well, and what they thought could be improved. Below is some background information on each transit agency. The next several pages show each agency's 2017 annual agency profile, which includes ridership, fleet, and financial information.



- **Broward County Transit (BCT)**

Second largest transit system in Florida, servicing Ft. Lauderdale and the surrounding localities with connections to Miami-Dade Transit, Palm Tran, and Tri-Rail systems.

- **Gainesville Regional Transit System (RTS)**

The majority of RTS ridership consists of students from the University of Florida who pay a fee for transit service as part of their tuition. About 4.1 percent of the population use transit to commute and 3.3 percent walk. Alachua County has the highest transit and pedestrian percentages of the participating agencies.

- **Indian River Transit (IRT)**

IRT operates the GoLine, a fixed-route bus service in Indian River County. The service area is in a rural region, with unimproved roadways in some areas. The community values and supports the system and IRT enjoys a close working relationship with agencies and local law enforcement.

- **Jacksonville Transportation Authority (JTA)**

JTA is an independent agency responsible for public transit operations in Duval County. Originally formed in 1971 with the merger of the Expressway Authority and local private bus companies, JTA runs fixed-route bus service and bus rapid transit, the Skyway automated people mover system, downtown trolley services, Jacksonville Jaguars gameday event service, and paratransit services. About 1.9 percent of the population use transit to commute and 1.7 percent walk.

- **Palm Tran**

Palm Tran provides public transit to Palm Beach County and a portion of Broward County.

Broward County Transit Division

2017 Annual Agency Profile

General Information

Urbanized Area Statistics - 2010 Census
Miami, FL
1,239 Square Miles
5,502,379 Population
4 Pop. Rank out of 498 UZAs

Service Consumption
153,557,336 Annual Passenger Miles (PMT)
29,764,400 Annual Unlinked Trips (UPT)
98,014 Average Weekday Unlinked Trips
59,206 Average Saturday Unlinked Trips
32,494 Average Sunday Unlinked Trips

Database Information
NTDID: 40029
Reporter Type: Full Reporter

Financial Information

Sources of Operating Funds Expended

| | | |
|---------------------------------------|----------------------|---------------|
| Fare Revenues | \$33,327,891 | 23.7% |
| Local Funds | \$79,560,963 | 56.5% |
| State Funds | \$16,543,931 | 11.8% |
| Federal Assistance | \$6,414,741 | 4.6% |
| Other Funds | \$4,899,334 | 3.5% |
| Total Operating Funds Expended | \$140,736,860 | 100.0% |

Operating Funding Sources

Service Area Statistics

410 Square Miles
1,909,632 Population

Service Supplied
23,249,312 Annual Vehicle Revenue Miles (VRM)
1,635,613 Annual Vehicle Revenue Hours (VRH)
494 Vehicles Operated in Maximum Service (VOMS)
596 Vehicles Available for Maximum Service (VAMS)

Modal Characteristics

Modal Overview

| Mode | Vehicles Operated | | Uses of Capital Funds | | Other | Total |
|-----------------|-------------------|--------------------|--------------------------|-----------------------|--------------------|--------------------|
| | Directly Operated | In Maximum Service | Purchased Transportation | Systems and Guideways | | |
| Demand Response | - | 203 | \$99,746 | \$0 | \$0 | \$402,735 |
| Bus | 284 | 7 | \$99,746 | \$2,300,101 | \$3,677,851 | \$6,918,407 |
| Total | 284 | 210 | \$99,746 | \$2,603,090 | \$3,677,851 | \$7,321,142 |

Summary of Operating Expenses (OE)

| | | |
|--|----------------------|---------------|
| Salary, Wages, Benefits | \$87,151,015 | 62.6% |
| Materials and Supplies | \$21,948,158 | 15.8% |
| Purchased Transportation | \$18,788,047 | 13.5% |
| Other Operating Expenses | \$11,285,690 | 8.1% |
| Total Operating Expenses | \$139,172,910 | 100.0% |
| Reconciling OE Cash Expenditures (Reported Separately) | \$1,563,950 | |
| Purchased Transportation (Reported Separately) | \$0 | |

Operation Characteristics

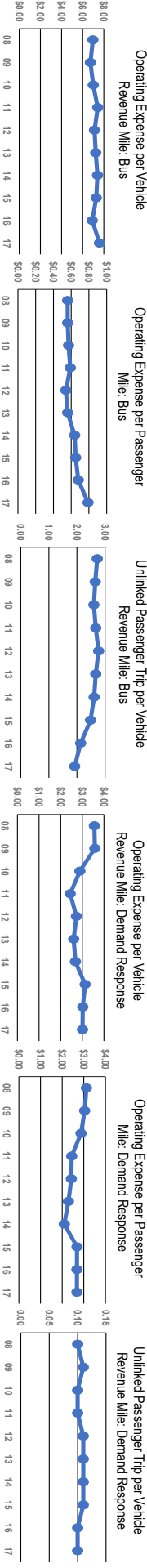
| Mode | Operating Expenses | | Uses of Capital Funds | | Annual Passenger Miles | Annual Unlinked Trips | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours |
|-----------------|----------------------|---------------------|-----------------------|--------------------|------------------------|-----------------------|------------------------------|------------------------------|
| | Expenses | Fare Revenues | Capital Funds | Passenger Miles | | | | |
| Demand Response | \$24,482,396 | \$1,124,393 | \$402,735 | 9,137,658 | 783,949 | 8,146,814 | 483,519 | |
| Bus | \$114,690,514 | \$32,203,498 | \$6,918,407 | 144,419,678 | 28,980,451 | 15,102,488 | 1,152,094 | |
| Total | \$139,172,910 | \$33,327,891 | \$7,321,142 | 153,557,336 | 29,764,400 | 23,249,312 | 1,635,613 | |

Performance Measures

| Mode | Operating Expenses per Vehicle Revenue Mile | | Operating Expenses per Passenger Mile | | Demand Response | Total |
|-----------------|---|----------------------|---------------------------------------|----------------------|-----------------|---------------|
| | Operating Expenses per Vehicle Revenue Mile | Vehicle Revenue Mile | Operating Expenses per Passenger Mile | Vehicle Revenue Mile | | |
| Demand Response | \$3.01 | \$3.01 | \$2.88 | \$2.88 | \$0.79 | \$0.91 |
| Bus | \$7.59 | \$99.55 | \$0.79 | \$3.96 | \$3.96 | \$4.68 |
| Total | \$5.99 | \$85.09 | \$0.91 | \$4.68 | \$4.68 | \$4.68 |

Service Effectiveness

| Mode | Operating Expenses per Vehicle Revenue Mile | | Operating Expenses per Passenger Mile | | Demand Response | Total |
|-----------------|---|----------------------|---------------------------------------|----------------------|-----------------|---------------|
| | Operating Expenses per Vehicle Revenue Mile | Vehicle Revenue Mile | Operating Expenses per Passenger Mile | Vehicle Revenue Mile | | |
| Demand Response | \$3.01 | \$3.01 | \$2.88 | \$2.88 | \$0.79 | \$0.91 |
| Bus | \$7.59 | \$99.55 | \$0.79 | \$3.96 | \$3.96 | \$4.68 |
| Total | \$5.99 | \$85.09 | \$0.91 | \$4.68 | \$4.68 | \$4.68 |



Notes:

*Demand Response - Taxi (DT) and non-dedicated fleets do not report fleet age data.

General Information

| | |
|---|---|
| Unbarred Area Statistics - 2010 Census | Service Consumption |
| Gainesville, FL | 27,204,489 Annual Passenger Miles (PMT) |
| 87 Square Miles | 9,513,421 Annual Unlinked Trips (UPT) |
| 187,781 Population | 36,191 Average Weekday Unlinked Trips |
| 187 Pop. Rank out of 498 USAs | 6,809 Average Saturday Unlinked Trips |
| Other USAs Served | 1,887 Average Sunday Unlinked Trips |
| 0 Florida Non-USAs | |

Database Information

NTDID: 40030
Reporter Type: Full Reporter

Financial Information

| | | |
|--|----------------------------------|---------------|
| Sources of Operating Funds Expended | Operating Funding Sources | |
| Fare Revenues | \$14,817,862 | 56.9% |
| Local Funds | \$4,187,140 | 16.1% |
| State Funds | \$3,599,864 | 13.8% |
| Federal Assistance | \$2,798,921 | 10.7% |
| Other Funds | \$656,862 | 2.5% |
| Total Operating Funds Expended | \$26,060,649 | 100.0% |

Sources of Capital Funds Expended

| | | |
|-------------------------------------|--------------------|---------------|
| Fare Revenues | \$4,750 | 0.1% |
| Local Funds | \$508,662 | 9.7% |
| State Funds | \$15,553 | 0.3% |
| Federal Assistance | \$4,716,720 | 89.9% |
| Other Funds | \$0 | 0.0% |
| Total Capital Funds Expended | \$5,245,685 | 100.0% |

Service Area Statistics

76 Square Miles
163,990 Population

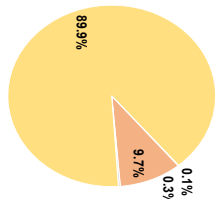
4,464,732 Annual Vehicle Revenue Miles (VRM)
346,578 Annual Vehicle Revenue Hours (VRH)
158 Vehicles Operated in Maximum Service (VOMS)
184 Vehicles Available for Maximum Service (VAMS)

Modal Characteristics

| Modal Overview | Vehicles Operated | | Uses of Capital Funds | |
|-----------------|--------------------|-------------------|--------------------------|------------------------|
| | In Maximum Service | Directly Operated | Purchased Transportation | Systems and Guidelines |
| Mode | | | | |
| Demand Response | - | 35 | \$47,498 | \$0 |
| Bus | 111 | - | \$3,940,446 | \$907,274 |
| Vanpool | - | 12 | \$0 | \$0 |
| Total | 111 | 47 | \$3,987,944 | \$907,274 |

Summary of Operating Expenses (OE)

| | | |
|--|---------------------|---------------|
| Salary, Wages, Benefits | \$16,755,613 | 64.8% |
| Materials and Supplies | \$4,144,240 | 16.0% |
| Purchased Transportation | \$2,064,474 | 8.0% |
| Other Operating Expenses | \$2,885,200 | 11.2% |
| Total Operating Expenses | \$25,849,527 | 100.0% |
| Reconciling OE Cash Expenditures | \$211,122 | |
| Purchased Transportation (Reported Separately) | \$0 | |

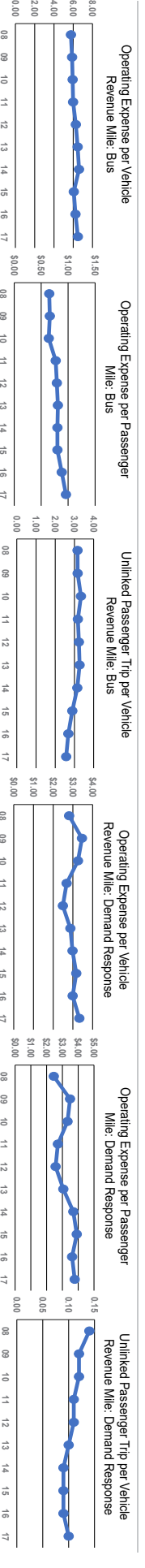


Operation Characteristics

| Mode | Operating Expenses | Fare Revenues | Capital Funds | Uses of | | Annual Unlinked Trips | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours | Fixed Guideway Directional Route Miles | Vehicles Available for Maximum Service | Vehicles Operated in Maximum Service | Spare Vehicles | Average Fleet Age in Years* |
|-----------------|---------------------|---------------------|--------------------|-------------------|------------------|-----------------------|------------------------------|------------------------------|--|--|--------------------------------------|----------------|-----------------------------|
| | | | | Passenger Miles | Passenger Miles | | | | | | | | |
| Demand Response | \$1,931,884 | \$165,464 | \$47,498 | 511,492 | 55,916 | 580,650 | 39,238 | 0.0 | 41 | 35 | 14.6% | 1.6 | |
| Bus | \$23,701,024 | \$14,533,822 | \$5,198,187 | 24,815,978 | 9,415,077 | 3,657,573 | 301,612 | 0.0 | 131 | 111 | 15.3% | 10.5 | |
| Vanpool | \$216,649 | \$123,526 | \$0 | 1,877,019 | 42,428 | 226,509 | 5,728 | 0.0 | 12 | 12 | 0.0% | 1.8 | |
| Total | \$25,849,527 | \$14,822,612 | \$5,245,685 | 27,204,489 | 9,513,421 | 4,464,732 | 346,578 | 0.0 | 184 | 158 | 14.1% | 1.8 | |

Performance Measures

| Mode | Operating Expenses per Vehicle | Operating Expenses per Vehicle Mile | Operating Expenses per Passenger Mile | Operating Expenses per Passenger Trip | Unlinked Trips per Vehicle Revenue Mile | Unlinked Trips per Vehicle Revenue Hour | Service Effectiveness |
|-----------------|--------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|---|---|-----------------------|
| | | | | | | | |
| Demand Response | \$3.33 | \$3.33 | \$49.23 | \$3.78 | 0.1 | 31.2 | 1.4 |
| Bus | \$6.48 | \$0.96 | \$78.58 | \$0.96 | 2.6 | 7.4 | 1.4 |
| Vanpool | \$0.96 | \$37.82 | \$37.82 | \$0.12 | 0.2 | 27.4 | 7.4 |
| Total | \$5.79 | \$74.59 | \$74.59 | \$0.95 | 2.1 | 27.4 | 2.1 |



Notes:

*Demand Response - Taxi (DT) and non-dedicated fleets do not report fleet age data.

Indian River County 2017 Annual Agency Profile

General Information

Urbanized Area Statistics - 2010 Census
 Sebastian-Vero Beach South-Florida Ridge, FL
 97 Square Miles
 149,422 Population
 220 Pop. Rank out of 498 UZAs
Other UZAs Served
 0 Florida Non-UZA

Service Consumption
 6,597,388 Annual Passenger Miles (PMT)
 1,255,136 Annual Unlinked Trips (UPT)
 4,502 Average Weekday Unlinked Trips
 1,820 Average Saturday Unlinked Trips
 29 Average Sunday Unlinked Trips

Database Information
 NTDD: 40104
 Reporter Type: Full Reporter

Sources of Operating Funds Expended

| | | |
|---------------------------------------|--------------------|---------------|
| Fare Revenues | \$11,222 | 0.2% |
| Local Funds | \$932,430 | 19.9% |
| State Funds | \$1,166,375 | 25.0% |
| Federal Assistance | \$2,559,518 | 54.8% |
| Other Funds | \$4,952 | 0.1% |
| Total Operating Funds Expended | \$4,674,497 | 100.0% |

Financial Information

Service Area Statistics
 216 Square Miles
 143,696 Population

Service Supplied
 1,529,038 Annual Vehicle Revenue Miles (VRM)
 86,368 Annual Vehicle Revenue Hours (VRH)
 34 Vehicles Operated in Maximum Service (VMS)
 58 Vehicles Available for Maximum Service (VAMS)

Sources of Capital Funds Expended

| | | |
|-------------------------------------|------------------|---------------|
| Fare Revenues | \$0 | 0.0% |
| Local Funds | \$0 | 0.0% |
| State Funds | \$67,307 | 20.8% |
| Federal Assistance | \$255,991 | 79.2% |
| Other Funds | \$0 | 0.0% |
| Total Capital Funds Expended | \$323,298 | 100.0% |

Operating Funding Sources

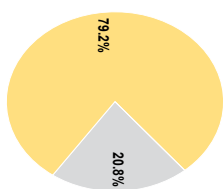
| | | |
|---------------------------------------|------------------|---------------|
| Fare Revenues | \$0 | 0.0% |
| Local Funds | \$0 | 0.0% |
| State Funds | \$67,307 | 20.8% |
| Federal Assistance | \$255,991 | 79.2% |
| Other Funds | \$0 | 0.0% |
| Total Operating Funds Expended | \$323,298 | 100.0% |

Modal Characteristics

| Modal Overview | Vehicles Operated in Maximum Service | | Uses of Capital Funds | | Other | Total |
|-----------------|--------------------------------------|--------------------------|-----------------------|------------------------|-----------------|------------------|
| | Directly Operated | Purchased Transportation | Revenue Vehicles | Systems and Guidelines | | |
| Mode | | | | | | |
| Demand Response | - | 18 | \$65,926 | \$4,110 | \$0 | \$4,813 |
| Bus | - | 16 | \$0 | \$48,177 | \$95,951 | \$104,321 |
| Total | - | 34 | \$65,926 | \$52,287 | \$95,951 | \$109,134 |

Summary of Operating Expenses (OE)

| | | |
|--|--------------------|---------------|
| Salary, Wages, Benefits | \$31,251 | 0.7% |
| Materials and Supplies | \$1,574 | 0.0% |
| Purchased Transportation | \$4,616,903 | 98.8% |
| Other Operating Expenses | \$22,769 | 0.5% |
| Total Operating Expenses | \$4,674,497 | 100.0% |
| Reconciling OE Cash Expenditures | \$0 | |
| Purchased Transportation (Reported Separately) | \$0 | |



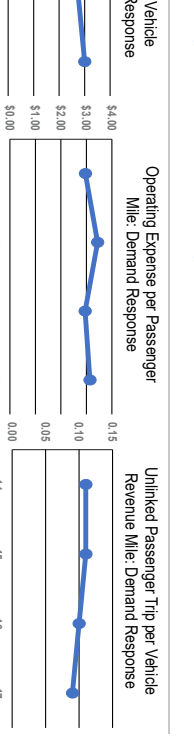
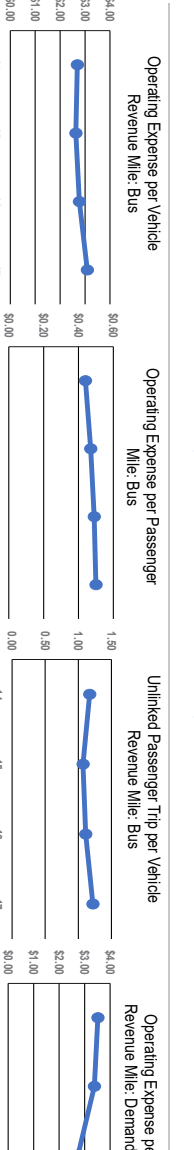
Operation Characteristics

| Mode | Operating Expenses | Fare Revenues | Capital Funds | Uses of Annual Passenger Miles | Annual Unlinked Trips | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours | Fixed Guideway Directional Route Miles | Vehicles Available for Maximum Service in Maximum Service | Vehicles Operated in Maximum Service | Spare Vehicles | Average Fleet Age in Years* |
|-----------------|--------------------|-----------------|------------------|--------------------------------|-----------------------|------------------------------|------------------------------|--|---|--------------------------------------|----------------|-----------------------------|
| Demand Response | \$1,616,137 | \$11,222 | \$74,849 | 515,498 | 49,459 | 538,800 | 30,309 | 0.0 | 32 | 18 | 43.8% | 7.9 |
| Bus | \$3,058,360 | \$0 | \$248,449 | 6,081,890 | 1,205,677 | 990,238 | 55,459 | 0.0 | 26 | 16 | 38.5% | 5.3 |
| Total | \$4,674,497 | \$11,222 | \$323,298 | 6,597,388 | 1,255,136 | 1,529,038 | 86,368 | 0.0 | 58 | 34 | 41.4% | |

Service Efficiency

| Mode | Operating Expenses per Vehicle Revenue Mile | Operating Expenses per Passenger Mile | Operating Expenses per Vehicle Revenue Hour | Operating Expenses per Passenger Hour | Operating Expenses per Vehicle Revenue Mile: Demand Response | Operating Expenses per Passenger Mile: Demand Response | Operating Expenses per Vehicle Revenue Mile: Demand Response | Operating Expenses per Passenger Mile: Demand Response |
|-----------------|---|---------------------------------------|---|---------------------------------------|--|--|--|--|
| Demand Response | \$3.00 | \$52.29 | \$52.29 | \$52.29 | \$3.14 | \$32.68 | \$3.14 | \$32.68 |
| Bus | \$3.09 | \$55.15 | \$55.15 | \$55.15 | \$0.50 | \$2.54 | \$0.50 | \$2.54 |
| Total | \$3.06 | \$54.12 | \$54.12 | \$54.12 | \$0.71 | \$3.72 | \$0.71 | \$3.72 |

| Mode | Operating Expenses per Vehicle Revenue Mile | Operating Expenses per Passenger Mile | Operating Expenses per Vehicle Revenue Hour | Operating Expenses per Passenger Hour | Operating Expenses per Vehicle Revenue Mile: Demand Response | Operating Expenses per Passenger Mile: Demand Response | Operating Expenses per Vehicle Revenue Mile: Demand Response | Operating Expenses per Passenger Mile: Demand Response |
|-----------------|---|---------------------------------------|---|---------------------------------------|--|--|--|--|
| Demand Response | \$3.00 | \$52.29 | \$52.29 | \$52.29 | \$3.14 | \$32.68 | \$3.14 | \$32.68 |
| Bus | \$3.09 | \$55.15 | \$55.15 | \$55.15 | \$0.50 | \$2.54 | \$0.50 | \$2.54 |
| Total | \$3.06 | \$54.12 | \$54.12 | \$54.12 | \$0.71 | \$3.72 | \$0.71 | \$3.72 |



Notes:
 *Demand Response - Taxi (D) and non-dedicated fleets do not report fleet age data.

General Information

Urbanized Area Statistics - 2010 Census
 Jacksonville, FL
 530 Square Miles
 1,065,219 Population
 40 Pop. Rank out of 498 UZAs
Other UZAs Served
 0 Florida Non-UZA

Service Consumption
 70,037,473 Annual Passenger Miles (PMT)
 12,659,047 Annual Unlinked Trips (UTP)
 42,488 Average Weekly Unlinked Trips
 21,579 Average Saturday Unlinked Trips
 13,966 Average Sunday Unlinked Trips

Database Information
 NTDDID: 400040
 Reporter Type: Full Reporter

Sources of Operating Funds Expended

| | | |
|---------------------------------------|---------------------|---------------|
| Fare Revenues | \$12,704,362 | 13.0% |
| Local Funds | \$73,194,803 | 75.0% |
| State Funds | \$4,593,397 | 4.7% |
| Federal Assistance | \$6,028,223 | 6.2% |
| Other Funds | \$1,120,697 | 1.1% |
| Total Operating Funds Expended | \$97,641,482 | 100.0% |

Service Area Statistics
 798 Square Miles
 1,036,907 Population

Service Supplied
 13,107,699 Annual Vehicle Revenue Miles (VRM)
 875,949 Annual Vehicle Revenue Hours (VRH)
 248 Vehicles Operated in Maximum Service (VOMS)
 297 Vehicles Available for Maximum Service (VAMS)

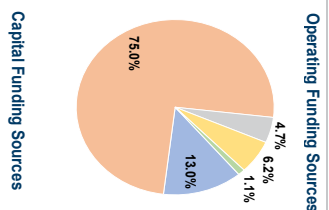
Modal Characteristics

Modal Overview

| Mode | Vehicles Operated | | Uses of Capital Funds | | Total |
|--------------------|-------------------|--------------------|-----------------------|--------------------|---------------------|
| | Directly | In Maximum Service | Systems and | Facilities and | |
| | Operated | Transportation | Guideways | Stations | Other |
| Demand Response | - | 89 | \$0 | \$0 | \$13,763 |
| Ferryboat | - | 1 | \$0 | \$2,898,732 | \$34,750 |
| Bus | 153 | 1 | \$5,601,678 | \$7,458,065 | \$5,071,505 |
| Monorail/Automated | 5 | - | \$0 | \$561,939 | \$0 |
| Total | 158 | 90 | \$5,615,441 | \$5,162,852 | \$10,918,736 |

Summary of Operating Expenses (OE)

| | | |
|--|---------------------|---------------|
| Salary, Wages, Benefits | \$57,764,959 | 59.7% |
| Materials and Supplies | \$11,064,421 | 11.4% |
| Purchased Transportation | \$6,934,633 | 9.2% |
| Other Operating Expenses | \$18,028,314 | 19.7% |
| Total Operating Expenses | \$96,792,327 | 100.0% |
| Reconciling OE Cash Expenditures | \$849,155 | |
| Purchased Transportation (Reported Separately) | \$0 | |

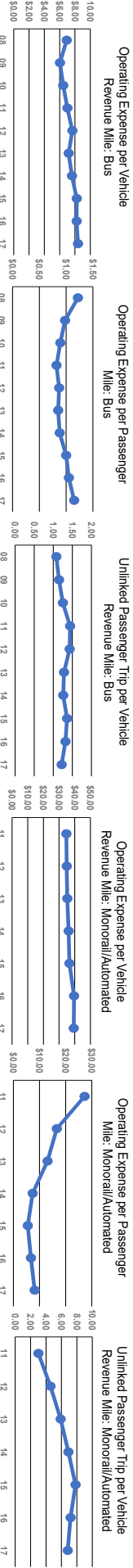


Operation Characteristics

| Mode | Operating Expenses | Fare Revenues | Uses of | | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours | Fixed Guideway Directional Route Miles | Vehicles Available for Maximum Service | Vehicles Operated in Maximum Service | Percent Fleet Age in Years* |
|--------------------|---------------------|---------------------|---------------------|-------------------|------------------------------|------------------------------|------------------------------|------------------------------|--|--|--------------------------------------|-----------------------------|
| | | | Capital Funds | Passenger Miles | | | | | | | | |
| Demand Response | \$14,177,196 | \$1,072,358 | \$13,763 | 4,396,241 | 4,092,002 | 226,790 | 4,420 | 0.0 | 98 | 1 | 0.0% | 2.6 |
| Ferryboat | \$2,302,822 | \$1,247,360 | \$2,933,482 | 198,914 | 442,032 | 7,956 | 4,420 | 0.9 | 1 | 1 | 0.0% | 21.0 |
| Bus | \$74,234,599 | \$10,384,644 | \$22,133,914 | 64,694,247 | 8,853,123 | 630,492 | 14,247 | 5.4 | 192 | 153 | 20.3% | 6.9 |
| Monorail/Automated | \$6,077,710 | \$0 | \$1,722,125 | 748,071 | 1,053,621 | 14,247 | 14,247 | 5.4 | 6 | 5 | 16.7% | 18.2 |
| Total | \$96,792,327 | \$12,704,362 | \$26,803,284 | 70,037,473 | 13,107,699 | 875,949 | 875,949 | 6.3 | 297 | 248 | 16.5% | |

Performance Measures

| Mode | Operating Expenses per Vehicle Revenue Mile | Service Efficiency | Operating Expenses per Vehicle Revenue Hour | Service Effectiveness | Operating Expenses per Unlinked Passenger Trip | Unlinked Trips per Vehicle Revenue Mile | Operating Expenses per Passenger Mile | Unlinked Trips per Vehicle Revenue Hour |
|--------------------|---|--------------------|---|-----------------------|--|---|---------------------------------------|---|
| | | | | | | | | |
| Demand Response | \$3.46 | \$62.51 | \$62.51 | \$3.22 | \$38.46 | 0.1 | \$38.46 | 1.6 |
| Ferryboat | \$289.44 | \$521.00 | \$521.00 | \$1.58 | \$5.21 | 56.6 | \$5.21 | 17.1 |
| Bus | \$8.39 | \$117.74 | \$117.74 | \$1.15 | \$6.88 | 1.2 | \$6.88 | 17.1 |
| Monorail/Automated | \$39.31 | \$426.60 | \$426.60 | \$8.12 | \$5.77 | 6.8 | \$5.77 | 74.0 |
| Total | \$7.38 | \$110.50 | \$110.50 | \$1.38 | \$7.65 | 1.0 | \$7.65 | 14.5 |



Notes:
 *Demand Response - Taxi (DT) and non-dedicated fleets do not report fleet age data.

Board of County Commissioners, Palm Beach County, Palm Tran, Inc.

2017 Annual Agency Profile

General Information

Urbanized Area Statistics - 2010 Census
Miami, FL
1,239 Square Miles
5,502,379 Population
4 Pop. Rank out of 498 UZAs
0 Florida Non-UZA

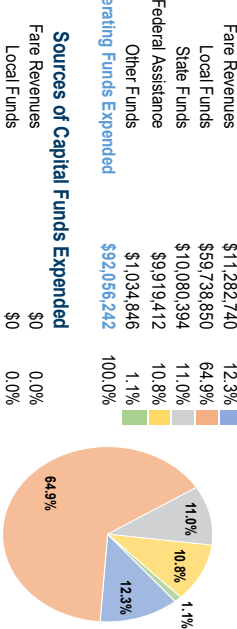
Service Consumption
69,573,393 Annual Passenger Miles (PMT)
9,775,152 Annual Unlinked Trips (UPT)
33,364 Average Weekly Unlinked Trips
17,411 Average Saturday Unlinked Trips
7,332 Average Sunday Unlinked Trips

Database Information
NTDID: 40037
Reporter Type: Full Reporter

Financial Information

Sources of Operating Funds Expended
Fare Revenues \$11,282,740
Local Funds \$59,738,850
State Funds \$10,080,394
Federal Assistance \$9,919,412
Other Funds \$1,034,846
Total Operating Funds Expended \$92,056,242

Operating Funding Sources



Sources of Capital Funds Expended
Fare Revenues \$0
Local Funds \$0
State Funds \$0
Federal Assistance \$3,415,795
Other Funds \$0
Total Capital Funds Expended \$3,415,795

Capital Funding Sources



Summary of Operating Expenses (OE)

Salary, Wages, Benefits \$49,758,155 (54.6%)
Materials and Supplies \$10,983,158 (12.0%)
Purchased Transportation \$24,913,252 (27.3%)
Other Operating Expenses \$5,504,944 (6.0%)
Total Operating Expenses \$91,159,509

Reconciling OE Cash Expenditures \$896,733
Purchased Transportation (Reported Separately) \$0

Service Area Statistics
365 Square Miles
1,268,782 Population

Service Supplied
16,793,738 Annual Vehicle Revenue Miles (VRM)
1,041,604 Annual Vehicle Revenue Hours (VRH)
431 Vehicles Operated in Maximum Service (VOMS)
483 Vehicles Available for Maximum Service (VAMS)

Modal Characteristics

| Modal Overview | Vehicles Operated | | Uses of Capital Funds | | Total |
|-----------------|--------------------|-------------------|--------------------------|-----------------------|--------------------|
| | In Maximum Service | Directly Operated | Purchased Transportation | Systems and Guideways | |
| Mode | | | | | |
| Demand Response | 129 | 302 | \$1,923,133 | \$0 | \$1,923,133 |
| Bus | - | - | \$182,627 | \$1,048,447 | \$1,231,074 |
| Total | 129 | 302 | \$1,923,133 | \$1,048,447 | \$2,971,580 |

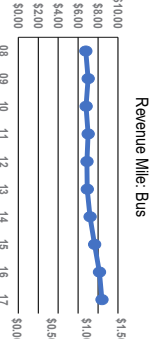
Operation Characteristics

| Mode | Operating Expenses | Fare Revenues | Capital Funds | Annual | | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours |
|-----------------|---------------------|---------------------|--------------------|-------------------|------------------|------------------------------|------------------------------|
| | | | | Passenger Miles | Unlinked Trips | | |
| Demand Response | \$30,203,963 | \$2,556,523 | \$0 | 11,816,307 | 859,989 | 9,530,149 | 557,137 |
| Bus | \$60,955,546 | \$8,726,217 | \$3,415,795 | 57,757,086 | 8,915,163 | 7,283,589 | 484,467 |
| Total | \$91,159,509 | \$11,282,740 | \$3,415,795 | 69,573,393 | 9,775,152 | 16,793,738 | 1,041,604 |

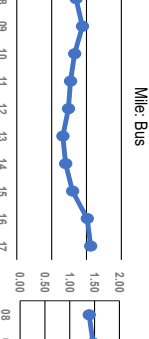
Performance Measures

| Mode | Operating Expenses per Vehicle | Operating Expenses per Passenger Mile | Operating Expenses per Vehicle Revenue Mile | Annual | Annual | Annual Vehicle Revenue Miles | Annual Vehicle Revenue Hours | Service Efficiency | |
|-----------------|--------------------------------|---------------------------------------|---|----------------|----------------|------------------------------|------------------------------|--------------------|----------------------------|
| | | | | | | | | Passenger Miles | Unlinked Trips per Vehicle |
| Demand Response | \$3.17 | \$3.17 | \$3.17 | \$54.21 | \$54.21 | \$54.21 | \$54.21 | \$2.56 | 0.1 |
| Bus | \$8.39 | \$8.39 | \$125.82 | \$125.82 | \$125.82 | \$125.82 | \$125.82 | \$1.06 | 1.2 |
| Total | \$5.43 | \$5.43 | \$87.52 | \$87.52 | \$87.52 | \$87.52 | \$87.52 | \$1.31 | 0.6 |

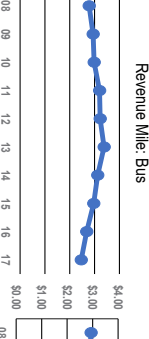
Operating Expense per Vehicle



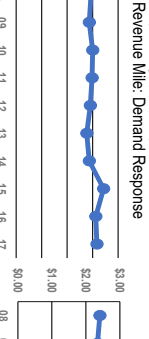
Operating Expense per Passenger Mile



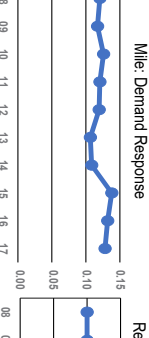
Unlinked Passenger Trip per Vehicle Revenue Mile



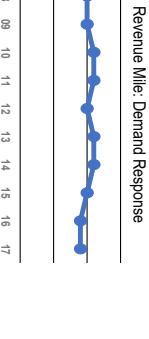
Operating Expense per Vehicle Demand Response



Operating Expense per Passenger Mile Demand Response



Unlinked Passenger Trip per Vehicle Demand Response



Notes:

*Demand Response - Taxi (DT) and non-dedicated fleets do not report fiscal age data.

APPENDIX C:

INTERVIEW

QUESTIONNAIRE

Draft Transit Interview Talking Points/Script and Engagement Framework

The following information and questionnaire will be provided to the agency stakeholders at least two weeks in advance of conducting the face to face “discovery meetings.” Participants will include a combination of agency administration and planning staff; bus operators/union representation; safety and security liaisons; and local law enforcement, if possible. Participants shall be briefed on the mission and objectives of the study and how their input will inform the recommendations and potential policy-making moving forward.

The Florida Department of Transportation (FDOT) is leading a research-based project designed to improve safety and accessibility to public transit stops. As part of this effort, we are specifically coordinating with transit agency and public safety staff to provide perspective and insight on accessibility needs, infrastructure requirements, and agency roles and responsibilities. The following set of questions are open-ended and designed to foster a dialogue and path forward with respect to the development of a set of revised guidelines and standards for improving access and safety to transit facilities.

While there has been a great deal of research and publications aimed at addressing pedestrian safety issues near transit stations, bus stops, and other locations where transit is operated, specific guidance and protocols regarding the roles, responsibilities, and oversight of design, engineering, and enforcement, particularly within the context of the “first and last mile,” has not been thoroughly explored. Given that Florida leads the nation among those states with a high incidence of pedestrian injuries and fatalities, providing more effective policy and design guidance in this respect can improve the conditions for transit users who most often access the system via walking or cycling. Additionally, FDOT’s emphasis on complete streets implementation and the launching of its context classification system provides an opportunity for more effective integration of transit and safety supportive of local land use contexts and characteristics.

The focus of this effort is on-street bus stops and transfer locations for transit agencies of different sizes across the state. We are seeking to coordinate with six (6) transit agencies. The Team would like to meet with you and discuss your current stop conditions and access to stops in general.

I. Assets & Infrastructure

- 1. What are the approximate percentage of stops in route network without accessible sidewalks pedestrian paths? What percentage are not ADA compliant?*
- 2. What do you see as the major infrastructure and land use issues/barriers with respect to access to transit stops?*
- 3. Are there high proportions of stops located along major arterial roadways with wide gaps (i.e. at least*

¼ mile/1,320') between marked crosswalks?

4. Do you have a software or database (i.e. Automated Transit Stop Inventory Model (ATSIM)) that specifies current conditions of transit assets, stop inventory and/or tracks safety and security incidents?
5. What improvements would like to see for connections to, from and at on-street transit stops?

II. Safety & Security

6. What do you believe is the most significant safety issue with respect to transit (passengers)?
7. What are the mechanisms in place, if any, to report safety and security issues?
8. Does your agency have the specific resources/training/certification to address safety issues above current regulations? If so, what are they?
9. What are major behavioral/human factors which contribute to problematic issues and can they be overcome with design countermeasures? Do you have countermeasures in place now and data on performance?
10. Have you experienced direct customer feedback with respect to lack of safe access to stops and/or amenities?

III. Design & Permitting

11. Does your jurisdiction have an existing complete streets plan, bike & pedestrian plan and/or ADA transition plan to provide/support guidance with respect to transit/bus stop facilities design?
12. What is your level of involvement/role with agencies responsible for roadway design & construction, including private development review?
13. Do you believe that transit agencies should have a more direct involvement or oversight responsibility when it comes to "first/last mile" infrastructure needs? If so, how could transit agencies have more influence or affect change within the first/last mile? And what resources would be needed?
14. What is your perspective on mid-block stops and crossings?

APPENDIX D:

UNABRIDGED AGENCY

RESPONSES

I. Assets & Infrastructure

1. **What are the approximate percentage of stops in route network without accessible sidewalks pedestrian paths? What percentage are not ADA compliant?**

Broward County Transit (BCT)

- Staff has ADA in GIS by stop with 3 designations. ADA accessible (4 foot route to and from stop), ADA compliant and Red Not Compliant. There is a certain percent that cannot be made compliant due to geographic reasons, ROW or environmental issues.

Gainesville Regional Transit System (RTS)

- 33.7 percent of stops are without sidewalk access (they have a map of those locations for us)
- Working on ADA plan to address stops without ADA amenities such as ramps and detectable warnings (will send us copy)
- There have been multiple complaints from customers on non-ADA compliant locations (no mention of lawsuits)
- The Bus Stop Improvement Plan requires an estimated \$3M for stop compliance (not including sidewalks, only at stops)
- TDP in process now, looking into a Mobility Plan, setting up mobility hubs and e-scooters
- As of 2018, 1100 stops/44 percent are not ADA compliant
- The ADA compliance effort is a combined effort between RTS/DOT/City of Gainesville

Indian River Transit (IRT)

- There are many places where there are sidewalks on one side of the street but not the other.
- It is a rural-urban area, 500+ stops, 50 shelters
- Lots of areas with no sidewalks
- TDP, major update last year, inventory of qualified stops/ADA compliance
- Created a map for this update shows ¾ mi buffers (as per ADA guidance)
- GIS data in house - stop locations, inventory of sidewalks and shelters (may also have streetlights)

Jacksonville Transportation Authority (JTA)

- City is under an ADA compliance order that includes sidewalk updates, have been working on compliance for several years and are almost done
- For bus stop pads and stops, which falls under JTA operations, about 50 percent are ADA compliant, with a goal of 100 percent compliance (JTA to provide map showing stops that are/are not compliant)

Palm Tran

- PalmTram (PT) is 61 percent ADA non-compliant with 3,000 total stops from GIS data. There is an ADA Retrofit Plan. PT utilizes FDOT ERC for 3R projects to address this. Staff stated that the county had roads that would be state roads in other places. Wishes the state would encourage county to add more sidewalks.

2. **What do you see as the major infrastructure and land use issues/barriers with respect to access to transit stops?**

Broward County Transit (BCT)

- Conflicts between buses and bike lanes adjacent to stop, this is occurring as state adds bike lanes to state roads, issues with bike and bus conflicts. In urban areas there are conflicts with driveways, the sidewalk is disjointed. Is there a way to mitigate.

Gainesville Regional Transit System (RTS)

- Utilities on the ground restricting network connectivity
- Easement/private property causing location conflicts
- Different regulations based on the location (the City/CRAs/County/University have different aesthetic requirements, etc) for pad, sidewalks, shelter, benches). UF in particular has a lot of restrictions on aesthetics.

Indian River Transit (IRT)

- Lack of sidewalks
 - Lack of ROW is huge barrier to constructing new sidewalks
 - Lots of gaps
 - The county has sidewalk projects planned but they are not necessarily related to transit stops, amenities
 - IRT does not have a process in place to directly increase sidewalks/acquire ROW
 - FDOT has added some sidewalks – following widening/resurfacing projects
 - US-1, large gap, being redeveloped as part of upcoming development, will include sidewalks and buffered bike lanes
- The pink line, ex, goes through rural area with dirt roads. Route is winding to keep with paved road areas

Jacksonville Transportation Authority (JTA)

- Network Connectivity – particularly on local roads, in some areas the network is solid but in others its incongruous and pedestrians have to take circuitous paths to reach stops. The City has received numerous complaints.
- Lack of Communication – New development going up without transit and without working with JTA. Specifically, a problem with senior housing ‘popping up’ where bus service is lacking. Many seniors do not or cannot drive but need a way to get to the doctor, pharmacy, recreation, the grocery store, etc.
- Removal of Service – There had been a route in the northside that brought residents downtown but the route was eliminated. She says she used to take the bus to work but now that’s not feasible (COJ employee). The route had been eliminated as part of JTA’s ROI program. This can be a problem – some routes were eliminated so that frequency could be increased but that means that some people are, of course, inconvenienced.
- Private Development Reluctance – Many developers see transit service as a negative and do not want stops/service at their locations. This means optimal paths/locations are blocked. These developers don’t see the value in transit, or they don’t understand transit/aren’t users/aren’t concerned with transit access. Comment was made that in other cities, transit is embraced and often found near hotels and other businesses.

Palm Tran

- Sidewalks, bikelanes, non-ADA compliant areas, swales, and ditches. Has office of Development Review (DRO) with a process for shelters and infrastructure set asides but it is limited and not holistic and only includes the unincorporated part of the county. Also work with cities but “teeth” are limited. New development in the west provides opportunities and easements but not routes there currently. Some cities are better to work with than others. Developers should provide sidewalk. Could the state have more teeth on local roads?
3. **Are there high proportions of stops located along major arterial roadways with wide gaps (i.e. at least ¼ mile/1,320’) between marked crosswalks?**

Broward County Transit (BCT)

- The surtax effort can help here. Gaps are mapped. Traffic Engineering or Richard Tornese at Highway Construction will have sidewalk gap information.
- On roads without curb or gutter, existing drainage needs to be coordinated, example on Atlantic Blvd. from 31st to Turnpike adding service and want to add sidewalk. In Weston also. There are 40 miles of sidewalk to be installed with the surtax funds in conjunction with new service expansion. Buses are available. Further coordination with Public Works and meetings are being held now. For example, for service on Nob Hill the timing is 2021 for sidewalk infrastructure construction. Transit may begin to take over construction to advance construction to prior years.
- Problem with establishing new service – need to get roles in place for Cities or Counties – they will roll out new service but no one built a sidewalk. BCT can’t take on that responsibility.
- BCT reviews every new development in the County, for example, Walmart or gas station, that has a transit component. The connectivity to the development is not reviewed. BCT will ask for an easement to install a shelter or transit connectivity. BCT asks and if the developer does not comply, there is a cost estimate and permit funding is withheld and BCT will do the work themselves. At project close-out BCT staff inspects.

Gainesville Regional Transit System (RTS)

- Yes, there are many.

Indian River Transit (IRT)

- SR 60 is most severe.
- Signals 0.5-1 mile apart with no crosswalks in between.
- They don’t have any examples like our Jacksonville-Phillips Hwy example. In the past if they found issues like this, they were able to fix the problem/move stop location. There is a lot of space.
- They try to place stops as close to intersections as possible.

Jacksonville Transportation Authority (JTA)

- The consensus was that this is not really an issue.

Palm Tran

- No, does state have a standard? Stop spacing is a difficult issue in county because of land use. We want to encourage aging in place. Far-side vs. near-side and safety, pedestrian safety or vehicular safety. Previous staff encouraged stops every 500’, but this can disincentive the choice rider.
4. **Do you have a software or database (i.e. Automated Transit Stop Inventory Model (ATSIM)) that specifies current conditions of transit assets, stop inventory and/or tracks safety and security incidents?**

Broward County Transit (BCT)

- There is a GIS layer for transit assets with shelter, trash can, and bike rack data. There is a monthly safety meeting where any stop security issues are discussed. There is a database of incidents and accidents intentional or not. There is a call-in number for the public, 954-357-8400, and an access database with injuries and concerns. The only gap is when the police are called and it is not reported to BCT. NTD reporting is also done by BCT.
- Sometimes the police call BCT for video.
- There are lighting concerns at stops. Not all shelters have lighting. Local governments dictate this. For example, Plantation does not allow. With street lighting, like solar lighting on a pole, operation dollars are needed. BCT receives calls that stops are dark. All new shelters get lighting unless local government does not want. There is a code minimum of 1 foot candle but they exceed this. One tool of crime prevention is increased lighting. Typically 3-5 foot candles and sometimes as high as 10-15 foot candles.

Gainesville Regional Transit System (RTS)

- Bus Stop Inventory
 - Incident tracking software
 - This summer they are updating their software to work with ESRI GIS
- No coordination between law enforcement in the event of an incident involving a transit customer
- Only notified if bus is present (/directly involved)
- They are in the process of testing buses with ped warnings, cameras at signals

Indian River Transit (IRT)

- GIS db, inventory of shelters
- Safety and Security:
 - Hotline for complaints and suggestions, they keep a log of complaints and feedback
 - Log includes location, so they can find correlation. In general, they address problems as they arise. Ex - In communities, someone wants to not have a stop in their yard, they give an alternative location - IRT either moves the stop if that's possible or they communicate with the resident why its not possible.
 - People sometimes move stop signs themselves to either have them closer or further away
- They have a good relationship with the community and have a great record of working with residents, businesses and law enforcement
- Recent project - Relocated the main transit hub. Revamped all routes and stops. May 2017
 - Changes based on ridership/OD data
 - Reexamined all locations, very few stops were removed (some had been there for several decades) some shifted location, and many were added
 - There were NO COMPLAINTS from the public regarding the project - either for the process of moving or new stop locations or route changes. This is impressive especially considering that they moved the main hub a sig distance from origin

Jacksonville Transportation Authority (JTA)

- ATSIM is used by JTA. It provides stop condition, location and ADA access information but does not track safety.
- JTA has an app called JTA See & Say where citizens can report crimes and other issues. List of report types from the app: Assault or Fighting, Disruptive Behavior, Human Trafficking, Illegal Parking, Lewd Behavior, Maintenance/Facilities Issue, Other, Panhandle/Homeless, Person Needs Assistance, Suspicious Activity, Unattended Bag or Package, Vehicle Accident. Note: Many people in the room were not aware of the app.
- JTA keeps a record of incidents on buses and at stations, they rely on police reports for data.
- JSO also has a database on safety/incidents related to buses and stops.

Palm Tran

- Yes, there is GIS stop inventory with amenities not condition of stop. No safety and security database. There is a new See Something, Say Something campaign with a safety hotline. Also get calls on things like trash.

5. What improvements would like to see for connections to, from and at on-street transit stops?

Broward County Transit (BCT)

- More signalized crosswalks and better signage for cars. Far-side and near-side bus stops at a T-intersection were discussed and what is better for pedestrians to avoid car turning movements and which way drivers are looking before turning. Leading pedestrian intervals were noted as beneficial. Roadway illumination for crosswalks were highlighted as a safety improvement. Staff discussed all red conditions and an intersection ‘scramble’. BCT interested in learning more about if this was occurring in Florida.

Gainesville Regional Transit System (RTS)

- Sidewalks and ADA Compliance is main concern for the agency currently – will cost about \$7M for all stops to be updated to ADA compliance + ~\$3M for sidewalks (rough estimate).
- Updating is underway but will take years – until those needs are addressed they aren’t considering taking on any other endeavors.
- They receive \$100k/year for sidewalk improvements (this has not increased in the past 5 years).
- They do receive mobility fee \$ - which is used for capital only, not operating costs.
- ADA compliance is #1 concern.

Indian River Transit (IRT)

- #1 - SIDEWALKS
- More bus Bays, see Oslow Rd, Dollar Store
- There is no requirement for transit review from the county, however, developers are very aware of the importance of the bus system to the community
 - They contact IRT, build shelters, ask for suggestions
 - There is great coordination between private sector and agency
 - Sometimes the county has asked for transit amenities: Chick-Fil-A, Dollar Store (I think this refers to the Family Dollar)
 - If there is no stop at the site, often they will build sidewalk connections
- There have been instances of residents who are not transit users, calling in to complain that they want amenities added – ex given was of residents calling in to complain that they saw transit passengers waiting in the rain for a bus.
- On shelters:
 - Redesigned the shelters
 - Wanted something with visibility, so that passengers can see down the road and what’s happening around them, behind and to left and right
 - Wanted something that provided air flow and shade
 - Went to law enforcement for advice who suggested they not include anything that skateboarders could ‘grind’ on, not to include backs on benches to avoid having people sleep on them
 - Used solar for lighting
 - Some areas have slightly different designs, all are ‘bus stop green’ (see second pic above for shelter example)

Jacksonville Transportation Authority (JTA)

- Crosswalks
- Concrete Pads
- Lighting
- Shelters
- SHADE – shade is a huge need in Jacksonville.
- Technology – There is an app that JTA provides called NextBus which they said was ‘slightly predictive’ and one person used when traveling to and from work. Because he’s able to use the app to time when he leaves home/work to get there just before the bus does, he doesn’t need to wait at the stop. Getting people more familiar with the app could really help. Arrival and departures are also displayed on totems/in stations. It was also suggested that equipping stops with fiber optic communications could be helpful.
- On shelters:
 - There was an issue where a stop in a high-crime area (Moncrief) appeared to be busy but the actual ridership was very low. Originally thought that the shelter would be a positive addition but, residents were asking for it to be removed because people were using it to sell and do drugs.
 - Shelters are sometimes used by homeless because they provide shade, seating and privacy.
 - JSO are aware that people are loitering but do not do anything about it. Any help that they could provide to stop people from loitering/committing crimes/living in shelters would be great.
 - “If you build a public space – a bus shelter, a park, etc – people will loiter in it.”

Palm Tran

- Pedestrian signals, lower speed limits (the lower the speed the chances of dying), width of roadway, lighting. Issues when owners of right of way are agencies like FEC and drainage districts that do not prioritize transit users or pedestrians.

II. Safety & Security

6. What do you believe is the most significant safety issue with respect to transit (passengers)?

Broward County Transit (BCT)

- Staff stated mid-block crossings, right on red, and connections when stop is not located near intersection and the connection is located on the far side of intersection. Example at University and Broward and rider is getting off the southbound University #2 bus at the nearside stop north of Broward and going to the farside stop on Broward Blvd. Discussion proceeded with noting that this often cannot be mitigated by schedule.
- Oakland Park Blvd at SR 7 has issue with operations as at some time pints the north south buses and east west buses have 1, 2 or 3 minutes for transfer and passenger run to make there transfer. Coordinating schedules has a ripple effect and is difficult.
- Bus drivers have Operator Cards where they write down any safety issues or complaints and they “bank” them for the monthly safety meeting.
- The bus drivers do have priority routing to 911.

Gainesville Regional Transit System (RTS)

- Top three:
 - Rear-end Collisions – has always been the highest. Esp an issue on SRs with high speed limits
 - *Have several Smart Bus Bays which they said were not very reliable/efficient
 - Lighting – issues have been raised concerning lighting at stops but also in lots and on walk

to stops – this is a particular concern on campus and with students. (Students make up 80 percent of riders).

- Bicycles/Skateboards/Scooters – much of this is related to students/UF Campus

Indian River Transit (IRT)

- Distracted driving
- Buses stopping on the road/rear end collisions
- Loading, especially in smaller communities
- Fixed route loads from the side
- In general, stop locations aren't unsafe (whenever there are safety concerns, they have been addressed and stops have been moved) issues come from outside factors like distracted passengers and/or drivers

Jacksonville Transportation Authority (JTA)

- ADA issues:
 - What GPS enabled tech could be used in Jax? It has been used in other cities with success. Apps that help the visually impaired navigate streets. Can similar technology be incorporated, particularly with mid-block crossings? Could it be integrated into the existing JTA app?
 - Announcements are a huge issue. One example – when the same road changes names several times but the change is not announced.
- Safety education and laws:
 - One person told a story about how in the NW people stop at intersections for pedestrians (Note: this is a difference in the laws).
 - When people get off the bus, they don't walk down to where a crosswalk is – they cross where they are, and they do not wait for the bus to move – they dart in front. At the same time, cars will not see them and zip around the bus.
- “Good design can change behavior”
 - When buildings put stairs front and center in a building, more people take them.
 - When email was introduced, it didn't require training – it was intuitive.
- Walkability
 - Many areas are not designed to be walkable – coordination with design and development is really important.
 - The system is built for cars but we want and expect people to walk – its not set up for it.

Palm Tran

- Having sufficient lighting and shelter visibility. Like in Broward they are see-thru. It is important the person can sit comfortably and is protected from the elements but the person needs to be aware of their surroundings. Working with Urban Solar to have lights affixed to a pole.

7. What are the mechanisms in place, if any, to report safety and security issues?

Broward County Transit (BCT)

- 954-357-8400 phone number tracked by HASTUS with comments assigned. See something say something campaigns. Operators have a safety card to fill out by hand to turn in to dispatch and alert staff. Monthly safety meeting. ADA email address with complaints banked, a website, in an emergency the bus marquee can be changed by driver to 911 and drivers can call dispatch.

Gainesville Regional Transit System (RTS)

- Nothing is reported unless there is an incident
- Buses have cameras that can be examined if needed, process of investigation is involved, sometimes passengers will call one in and they will go back and research incident.

- More issues with bikes on campus, space is very tight

Indian River Transit (IRT)

- All buses have interior/exterior A/V and radios
 - Protocol – drivers contact 911 or law enforcement for the area they are in, then they contact supervisors
- Great relationship with law enforcement
 - They will alert the agency to incidents near/related to stops
 - They have asked for tape from incidents for investigations
- Drivers are trained to know how to handle situations and it is extremely important to the agency that their drivers know they have their back, that they can come to them with any comments or suggestions and that they will make sure to support them if there are problems/incidents

Jacksonville Transportation Authority (JTA)

- JTA See and Say app – system for reporting issues and safety concerns.
- JTA employee who does field visits checks stops, he keeps track himself of areas that appear to need crosswalks/crossings – but there is no formal process in place for tracking on their end.

Palm Tran

- Drivers contact dispatch.

8. **Does your agency have the specific resources/training/certification to address safety issues above current regulations If so, what are they?**

Broward County Transit (BCT)

- The monthly safety committee is mandatory. Other County staff attend from Risk Management, County Attorney, Facilities, Union Reps. Safety meetings review TSA safety notices, accident claims, cost resolution, attendees can bring anything to the table. Liability claims are discussed, any other concerns can be brought up and are followed-up on with a list. Management wants resolution with items not staying on list month to month.

Gainesville Regional Transit System (RTS)

- Drivers receive training on being hired
- Then continued training each summer
- Agency participates in rodeos, etc.
- Safety Committee – looks for things like high incidents at specific stops, move stops if deemed necessary
- Alachua Co Safety Com – meets monthly
- DOT – sends all plans for roadway improvements (striping, etc), main comments back to DOT generally relate to ADA compliance
- DOT is more open to multimodal considerations in recent years
- When they did their BRT study it was not well-received by DOT due to dedicated transit lane

Indian River Transit (IRT)

- Good communication with drivers so they know they should/can speak up
- Agency is careful to address any safety concerns
- They take comments and concerns from their drivers seriously
- They use a standard driver training and safety course

Jacksonville Transportation Authority (JTA)

- No certifications that they were aware of.
- Said that ADA compliance training could be really helpful. Laws can be unclear and there are specific

rules for judging compliance at stops. There will be surveys done, but the surveyor didn't follow the rules (for ADA compliance) – they think everything is ok, then there's a battle because the stop has to be removed and replaced. Also, other groups will come after the pad is in place and in compliance and – for example – put in a bench – and the stop is no longer in compliance. (Note: Refer to the suit between JTA and the Jaycees). JEA recently put a utility pole in the middle of a BRT stop. Coordination between all entities is needed. Everyone would like to work together but they lack the time and resources to make it happen.

- Drivers and service delivery personnel are asked to use a google form to keep track of things like improperly placed benches – drivers have been provided a diagram showing how they should be set up.
- Everyone is very busy and don't have time for additional training. It's a staffing concern. These things won't be fixed until staffing issues are addressed.

Palm Tran

- PT takes advantage of the training resources available.

9. **What are major behavioral/human factors which contribute to problematic issues and can they be overcome with design countermeasures? Do you have countermeasures in place now and data on performance?**

Broward County Transit (BCT)

- There are signs and audio on the bus, placards, etc. These remind riders to use the crosswalk. There is website and a MyRide app to see where bus is in real time. Schedules are printed and online. Schedules remind riders to be at the bus stop early and not to run. In the past BCT worked with Lauderdale Lakes to discourage mid-block crossing with ads in shelters.

Gainesville Regional Transit System (RTS)

- Students expect drivers to be aware/accommodate them, there have been instances off campus where they walk out in front of traffic expecting that they will be given the ROW – a girl was hit downtown when she walked out directly in front of a bus.
- In the past few years they have begun implementing ped safety measures such as median refuges and bulb outs
- They did coordinate with safety personnel giving tickets to people who weren't yielding, and compliance went up but then went back down after a while once ticketing stopped. Its not reasonable to use those resources long term
- Roundabouts – overall positive feedback but some safety issues so they are looking into safety measures
- Want more outreach and education
- Accidents are less serious/less serious injuries
- They only have single-lane roundabouts
- No roundabouts on SRs – last year the City took over Main St and added roundabouts
- Difficult because DOT wants proof of success but won't allow any experimenting (it's a Catch-22)

Indian River Transit (IRT)

- Distracted passengers and car drivers – people in a hurry
- Agency stopped allowing ads on the backs of buses to help with distractions (Lynx did the same)
- They have looked at having more lights and position of lights on the back of buses
- They have signage in buses/stops warning passengers not to cross in front
- Drivers are encouraged to remind passengers not to run out in front of the bus and that cars are not required to wait/not pass as with school buses
- Drivers are trained – especially in rural areas – to make sure they wait for passengers to cross street

- There was an incident in Fellsmere where a child ran in front of a car, driver was not at fault

Jacksonville Transportation Authority (JTA)

- N/A.

Palm Tran

- Road diet, speeding, 12' travel lanes, longer ped timing – “HUGE.” Recently there was a blind woman hit on Congress. What is the trigger for audio at intersections? Suggest a different treatment at crosswalks, brick pavers get noticed.

10. **Have you experienced direct customer feedback with respect to lack of safe access to stops and/or amenities?**

Broward County Transit (BCT)

- Yes, on ADA. Also the FDOT project on Sheridan St., a Commissioner was involved, about 2000 feet west of I-75 (136th?) the stop was in the grass with no sidewalk and had been there for many years by the canal guardrail. Asked FDOT to move stop to far side, initially was told no, but was re-evaluated and now moving. Another project issue was the MOT on 441 with gravel. Need stop access during construction. Was not familiar with FDOT District 4 Multimodal scoping checklist for projects – opportunity for additional coordination with FDOT.

Gainesville Regional Transit System (RTS)

- Complaints
 - Lighting
 - Uneven Sidewalks
 - Landscaping blocking view of stop
- 15+ daily boardings is justification for a shelter
- Bus Stop Improvement Plan – addresses shelter locations (they have a map of non-sheltered stops with 15+/day)
- Sometimes UF has paid for on-campus stops/amenities --- in that case RTS gives suggested location and design but UF has final say
- Some on SRs

Indian River Transit (IRT)

- Yes, and yes, they always respond. If there is no change based on feedback – they always make sure to contact and explain why they can't take action.

Jacksonville Transportation Authority (JTA)

- N/A.

Palm Tran

- Absolutely, calls about amenities and safety and shopping carts.

III. Design & Permitting

11. **Does your jurisdiction have an existing complete streets plan, bike & pedestrian plan and/or ADA transition plan to provide/support guidance with respect to transit/bus stop facilities design?**

Broward County Transit (BCT)

- Yes, with County office, MPO and City of Fort Lauderdale also. There is an ADA Transition Plan.

Gainesville Regional Transit System (RTS)

- Bus Stop Improvement Plan
- Working on TDP
- Comp Plan/Trans Element
- Public Works Guidelines have a Complete Streets section
- ADA Transition Plan
- All items listed in the question exist, but some are under different departments/are part of various plan documents and guidelines
- Note that students/UF pay into transit, students pay a transit fee

Indian River Transit (IRT)

- There is a bike/ped plan
- Anytime there is a resurfacing/widening ped and bike amenities are considered
- Have a list of stops to improve/add shelters
 - Easiest 'low-hanging fruit' have been addressed already
 - More difficult/expensive are left
 - Drainage issues
 - ROW/Private property
 - Limited capital funds

Jacksonville Transportation Authority (JTA)

- Yes.

Palm Tran

- TPA has complete streets plan, County has Vision Zero (?) and PT has ADA Retrofit.

12. What is your level of involvement/role with agencies responsible for roadway design & construction, including private development review?

Broward County Transit (BCT)

- (see #3 above) County-wide, all developers with submittal at development review. For MOT, BCT can temporarily relocate stop. BCT advises cities to notate on plans to contact BCT for coordination on a shelter. Can disassemble and reassemble shelters.

Gainesville Regional Transit System (RTS)

- City plans don't always 'jive' with DOT plans/requirements - they are working on a solution.
- Work well with DOT and work very closely with the City departments
- Funding coordination is the biggest issue
- Recommendations without funding related are often ignored, having a financial 'stick' helps; Mobility fee
- It is not consistent, they can make comments and recommendations but do not have the power to enforce
 - Example: Wal-Mart Supercenter
 - There was a large amount of opposition to the Wal-Mart opening so the developer was more than willing to make concessions
 - They were able to develop the park n ride lot - that is always full (benefit is that parking is limited on campus)
- Some would prefer to give money to avoid having a stop placed on their development (negative stereotyping of transit riders)
- In a perfect world:

- Mandatory ordinance – if a stop is warranted, its placement takes priority
 - But realistically there is a divide between private development/politics and transit needs
 - Within private development, there are differences. Some want access while many consider it a huge problem.
 - Sometimes stops are overdesigned for a private development, ex, when they want an ornate shelter that matches their façade of their building but the design causes visibility issues
- One issue is that riding the bus isn't 'cool'
 - 80 percent of riders are students
 - Transit is losing ridership to Uber, etc.
- Walmart was open to design suggestions, etc but only because the city didn't want them to open in that location, so Wal-Mart was willing to work with them
 - Developed transfer station, park n ride and its always at capacity
 - This provided an alternative for parking on campus, which is limited

Indian River Transit (IRT)

- Great relationship
- Work with Vero Beach and Fellemsmere municipalities on plan review
- FDOT to do May training on how to report agency comments on projects so that FDOT gets the comments/suggestions earlier in the process
- ERC online tool will help to get comments to FDOT sooner
- They suggest every agency have safety/sec or planning general email to direct design plans etc. so it's easier for FDOT to contact. Whoever is in the position (because it changes/people leave/etc.) will manage that inbox so there is always the same point of contact.
- In general, they feel they are contacted for their input and that their suggestions are usually considered/included/taken seriously

Jacksonville Transportation Authority (JTA)

- It is pretty good but fluctuates.
- City will send them and then won't for a while.
- Coordination with FDOT has improved.
- Developers have been reaching out because they have a note in development review. It has gotten better but wishes that it was earlier in the process.
- There is a pre-application meeting that is supposed to happen but it rarely does. Often JTA is not included in the process or they are brought in in the middle when an issue has been noticed.
- City tries to address this. It's not a formal process and could be improved – again this is an issue of time and staffing.

Palm Tran

- Works with FDOT at scoping with Multimodal Scoping form and is active in plan review in ERC. For the County, only review for unincorporated area.

13. **Do you believe that transit agencies should have a more direct involvement or oversight responsibility when it comes to “first/last mile” infrastructure needs? If so, how could transit agencies have more influence or affect change within the first/last mile? And what resources would be needed?**

Broward County Transit (BCT)

- **For the majority of construction that impacts stops, BCT works to solve issues. BCT frequently receives notifications that the city is closing a road for a parade where**

there is service. They let operations know and plan a detour. With lane eliminations, when cities want to reduce lanes to 10 feet, that causes problems with mirror overhang and right turn radius. City may try to offer it is a 10 foot lane with 2 foot curb and gutter but that does not actually mitigate. With newer buses, the bus is knocking out bus stop signs and mirrors. Requests for a 10 foot lane and a 4 foot bike lane are requested.

Gainesville Regional Transit System (RTS)

- Need City and FDOT permits on one side of the street
- Need FDOT and County on the other side
- All the separate permitting/permitting process could end up costing something like \$20k
- RTS is in a better position than maybe many other agencies
 - In the early states of having multimodal department - will do projects soon
 - They function as part of the City, with everyone under the same umbrella, they can be more holistic and work together
 - There are pros and cons of this setup. Coordination and cooperation are good but they find themselves at the whim of local politics/current office-holding politicians. When one leaves, the next may not have the same position and/or may need to learn about transit issues.

Indian River Transit (IRT)

- Need to be aware and have a place at the table at the beginning of the process.

Jacksonville Transportation Authority (JTA)

- An upfront topic, JTA is actively trying to have more insight in the process
- Transportation planning and roadway design - being involved.
- Staffing levels and unrealistic timelines are a problem.
- Coordination doesn't take place and then projects don't turn out as they were intended.
- Better coordination with the private sector is key. People occasionally reach out and want to improve stops themselves. Would love if large stores/discount stores did this. Probably when it has happened its been handshake deals with little documentation. There has been some success with a few who are willing to help which is great.
- Inclusion in early design planning should be part of the process.

Palm Tran

- Coordination with transit is key for bikeshare programs. TPA is a resource in that coordination. For overall last mile conversations, want to be involved and have decision making power. More involvement than that would be a lot to take on. Also lack staff.

14. What is your perspective on mid-block stops and crossings?

Broward County Transit (BCT)

- Have quite a few mid-block stops, often due to ROW, not by design. Staff have a list of mid-block stops. GIS notes whether stop is nearside, farside or mid-block.

Gainesville Regional Transit System (RTS)

- Safety is a concern
- They submitted a plan to DOT a few years ago, it didn't go anywhere
- Applications are costly
- They have similar issues with multi-lane facilities as we saw in the presentation video from Jacksonville
- Some success with road diets

- Some bus delays/backups at peak hours
- Very gridded system so there are options
- Have included other improvements such as bulb outs
- Main St Road Diet – Main/S Main/6th
- University has many issues, solutions have been debated for years
- BRT study – predicted ridership increase was not significant enough for the cost
- City has a VisionZero Plan but there is a lack of funding

Indian River Transit (IRT)

- Have some mid-block stops but they try to avoid.
- Depends on the road.
 - Small local roads are fine.
 - Larger roads – like US-1 and SR 60 – they do not want to encourage crossing mid-block, roads are too busy.
 - Ex. The Source (foodbank/homeless assistance) there is only a stop on one side of the road. The same at Wal-Mart.
 - Have refused stop locations across the street to avoid people crossing busy roads.
 - The Source stop is about a quarter mile down.
 - “This is public transit, not door to door service, customers must expect to walk some.”
 - However, when patterns become apparent, and there is a concern or safety issues, that’s when the transit agency steps in and does what it can to solve the problem.

Jacksonville Transportation Authority (JTA)

- Likes them but there are concerns with safety on high speed roads – Jacksonville has a lot of 4-lane 45 mph undivided roads.
- There are lots of places where they are needed.
- The city has put in for 24 more in the last year and a half. JTA employee asked if there was a list. He mentioned that there were mid-block crossings that have gone in that are not being placed properly in relation to stops. Example given was near 3rd Street and Jefferson, where the crosswalk was placed in the center of the stop causing buses to block it and creating a huge safety issue. They agreed to get together and coordinate on the upcoming crosswalk locations.
- Crosswalks should have a full design and safety review. There was a process like this for BRT – a similar process could be established with a checklist to make sure all the issues are covered. Apparently, this was tried in the past and had support all around but fell through the cracks – when JTA gets a mandate to update 200 stops in a year, there’s just no time. Instead it should be part of the design process. Maybe a flowchart or checklist.

Palm Tran

- Try not to create stops mid-block, but land use may dictate. Need infrastructure like RRFBs for safe mid-block crossings. Would like to pilot. Examples are Lake Worth Road between Haverhill and Congress. What are the rules for mid-block crossings: 4-lane, not on 6-lane?

Public Transit Office
Florida Department of Transportation
www.fdot.gov/transit

