metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

2045

Metropolitan Transportation Plan

Technical Series #9

Pedestrian & Bicycle Needs Assessment

Adopted: 12/09/2020

What is in this document?

MetroPlan Orlando envisions a transportation system that safely and efficiently moves people and goods through a variety of options that support the region's vitality. The pedestrian and bicycle network is key to that regional goal. This technical series provides an overview of the existing pedestrian and bicycle network in the region and identifies gaps, needed projects, and resources to fill those gaps in the network. The pedestrian needs assessment focused on identifying critical sidewalk gaps and potential crosswalk locations. The analysis identified critical needs sidewalks based on how important the gaps were in the overall connectivity of the street network, as well as factors such as functional classification and proximity to schools, transit, and parks. The crosswalk needs assessment also screened the network to identify where there are long distances between signalized crossing opportunities and where crossing-related pedestrian and bicycle crashes were observed.

For the bicycle needs assessment, the report provides an overview of the Level of Traffic Stress (LTS) methodology and its application for identifying gaps in the bicycle network that would leverage existing low stress streets. The LTS methodology was applied to the entire regional network and used to assess bicycle network connectivity and comfort. This document also identifies specific strategies for each of the Metropolitan Transportation Plan's (MTP's) goals and objectives as they relate to walking and biking.

HOW TO GET INVOLVED IN THE 2045 PLAN

Online at MetroPlanOrlando.org
Learn more about how long range planning works and sign up for our e-newsletter to get email updates on comment opportunities

Request printed material
If you don't have digital access and prefer information in paper form, you can make that request by calling the number below

In person
Invite us to attend your event or present to your group by contacting our community outreach staff

Questions?
Contact our community outreach staff at ***MTP@MetroPlanOrlando.org*** or ***407-481-5672***

On social media
Follow us on Facebook and Twitter to learn about transportation news and when we'll be out in the community

Contents

Tables

Figures

Introduction

As part of the MetroPlan Orlando 2045 Metropolitan Transportation Plan (MTP), a comprehensive needs assessment on the network for all modes was completed, including the pedestrian and bicycle network. This memo summarizes the needs assessment for the bicycle and pedestrian network and identifies potential projects to address those needs as part of the 2045 MTP.

The MetroPlan Orlando 2040 Bicycle & Pedestrian Report from the previous long range plan identified several projects. The 2045 needs assessment leverages the 2040 LRTP, MetroPlan Orlando's Complete Street Policy, Pedestrian and Bicyclist Safety Action Plan, and current programmed and prioritized projects to holistically identify all the bicycling and pedestrian needs in the network.

Background

FHWA Connectivity Grant and LOTIS

In 2018, MetroPlan Orlando received a FHWA Connectivity Grant to explore alternative transportation performance measures and really to get at "connecting people to places." With this grant, MetroPlan Orlando formed a partnership with the East Central Florida Regional Planning Council to fund the initial workings of what would become the LOTIS network. The data in this pedestrian and bicycle analysis almost exclusively leveraged the Land Overlayed on Transportation Information System (LOTIS) network database. This data enabled a detailed regional analysis of the active transportation system. The analysis required consistent and detailed data points on the roadway characteristics that were used to identify opportunities and assess needs in the network and surrounding areas.

Ongoing Corridor Safety Studies

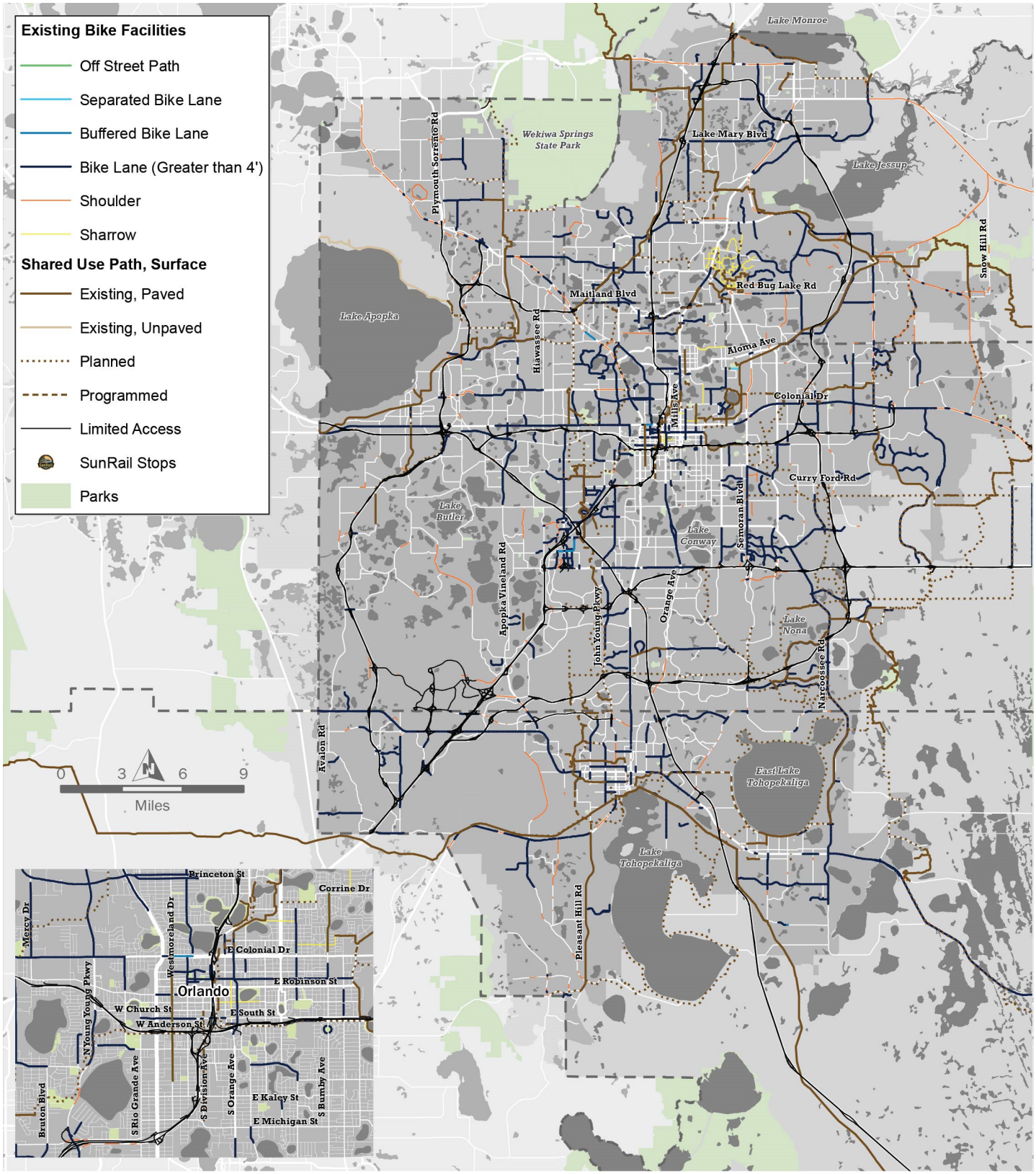
There is a recognized commitment in the Central Florida region to reduce injuries and fatalities for pedestrians and bicyclists and there are many on-going activities to improve pedestrian and bicycle safety. The MetroPlan Orlando Pedestrian and Bicyclist Safety Action Plans (PBSAP) catalogued behaviors and other factors that contribute to crashes and is developing recommendations for nine road corridors with high numbers and severity of crashes. Many of these safety emphasis corridors coincide with needs identified in the 2045 MTP's pedestrian and bicycle needs assessment.

Existing Conditions

To understand the current context of the pedestrian and bicycle network in the region, GIS data from the East Central Florida Regional Planning Council's (ECFRPC) LOTIS (Land Overlayed on Transportation Information System) was reviewed, analyzed, and mapped. A map of the Existing Bicycle Facilities is provided in Figure 9.1 and a map of sidewalk gaps is provided in Figure 9.2. Sidewalk infrastructure shown in Figure 9.2 can also be viewed online in greater detail on ***MetroPlan Orlando's Online Data Viewer*** (MetroPlanOrlando.org/maps-tools/dataviewer).

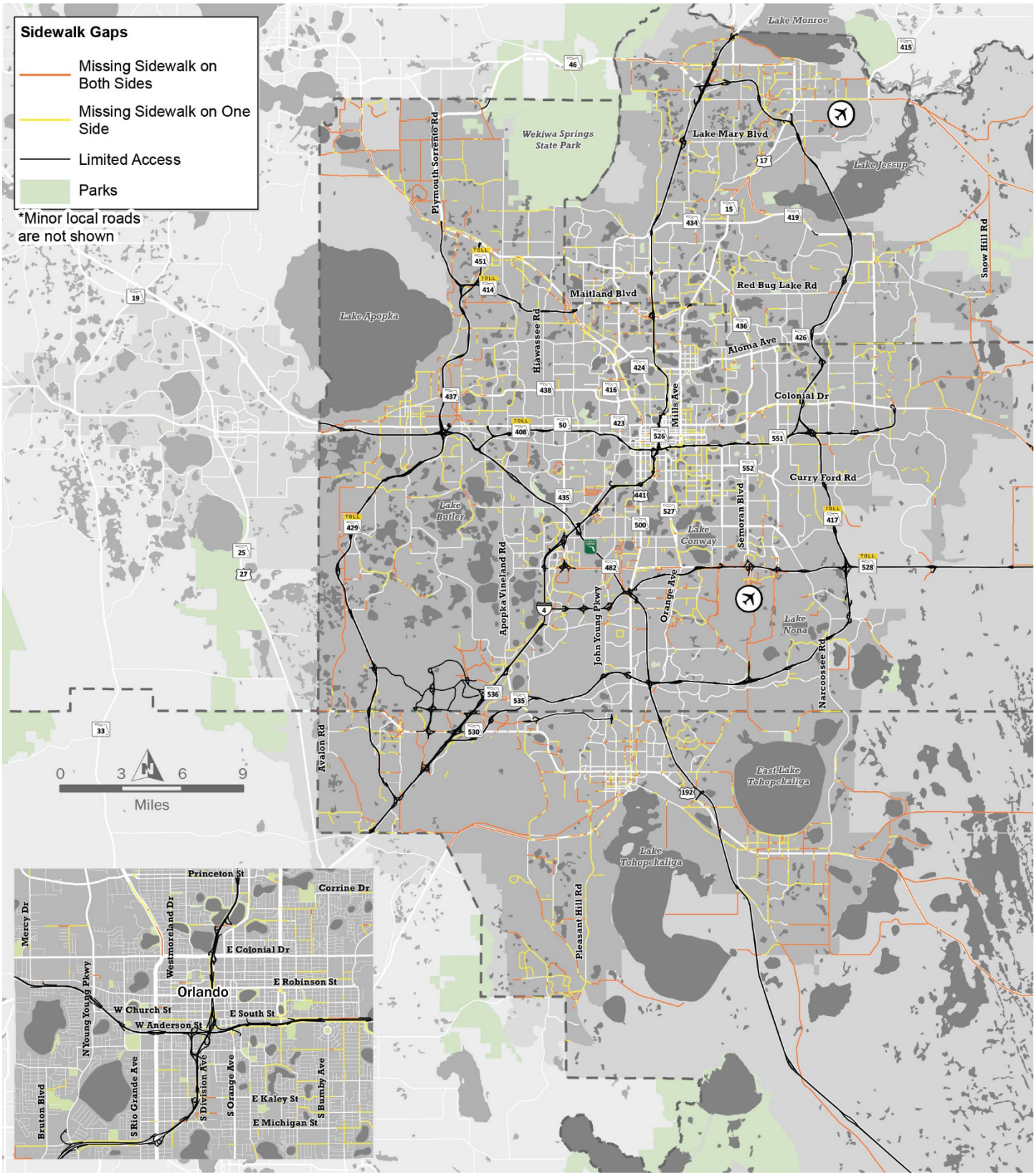
Pedestrian and bicycle needs are predicated on two (2) key elements. The first is the pedestrian or bicyclist feels safe and the second is they feel safe for the entire trip. This means that the ability to meet pedestrian and bicycle needs vary based on key network and roadway characteristics, such as travel lanes, traffic volumes and posted speed limits. These characteristics are mapped in Figure 9.3, Figure 9.4 and Figure 9.5.

Figure 9.1 | Existing Bicycle Facilities



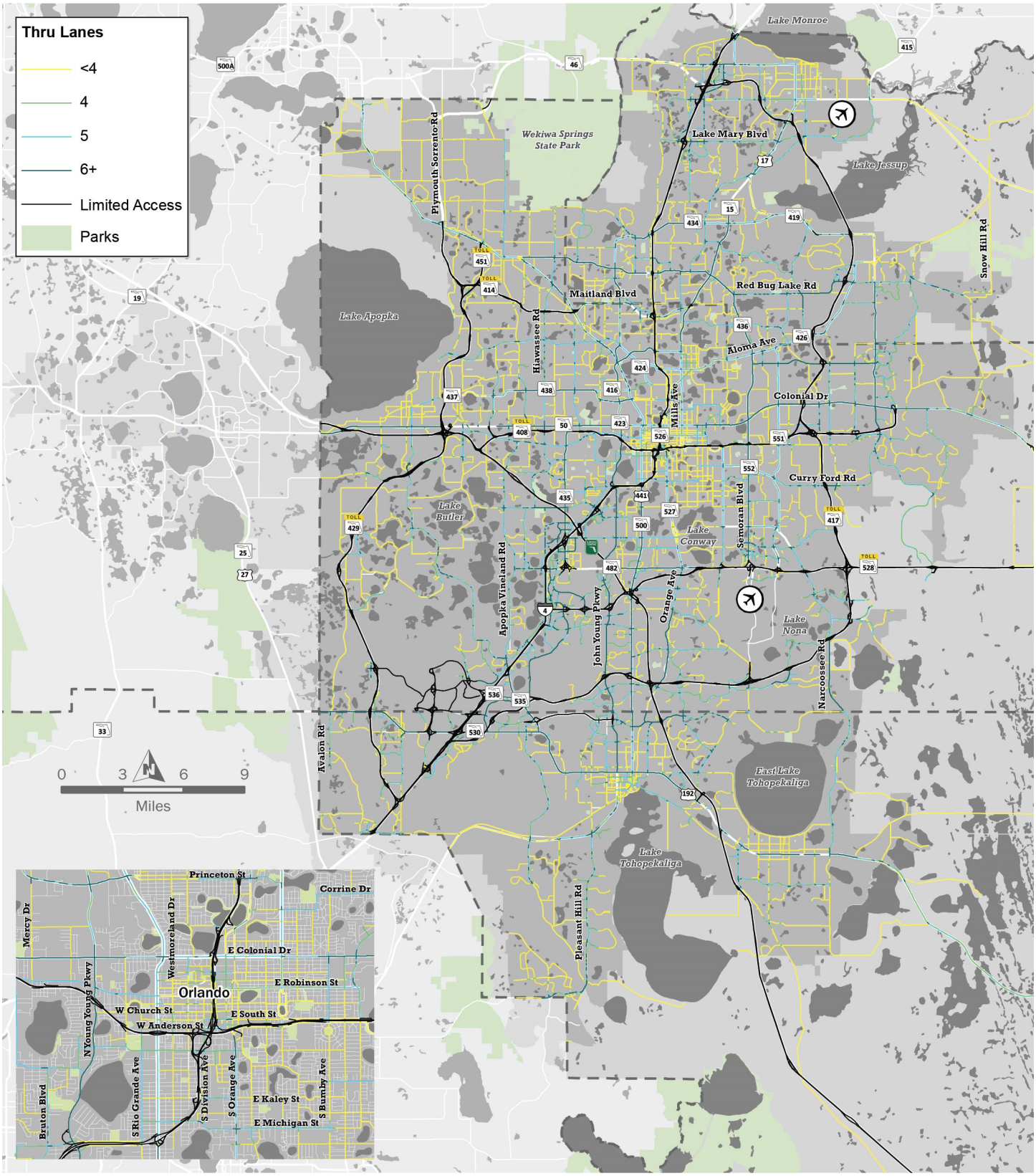
Source: Land Overlayed on Transportation Information System (LOTIS), 2019

Figure 9.2 | Existing Sidewalk Gaps



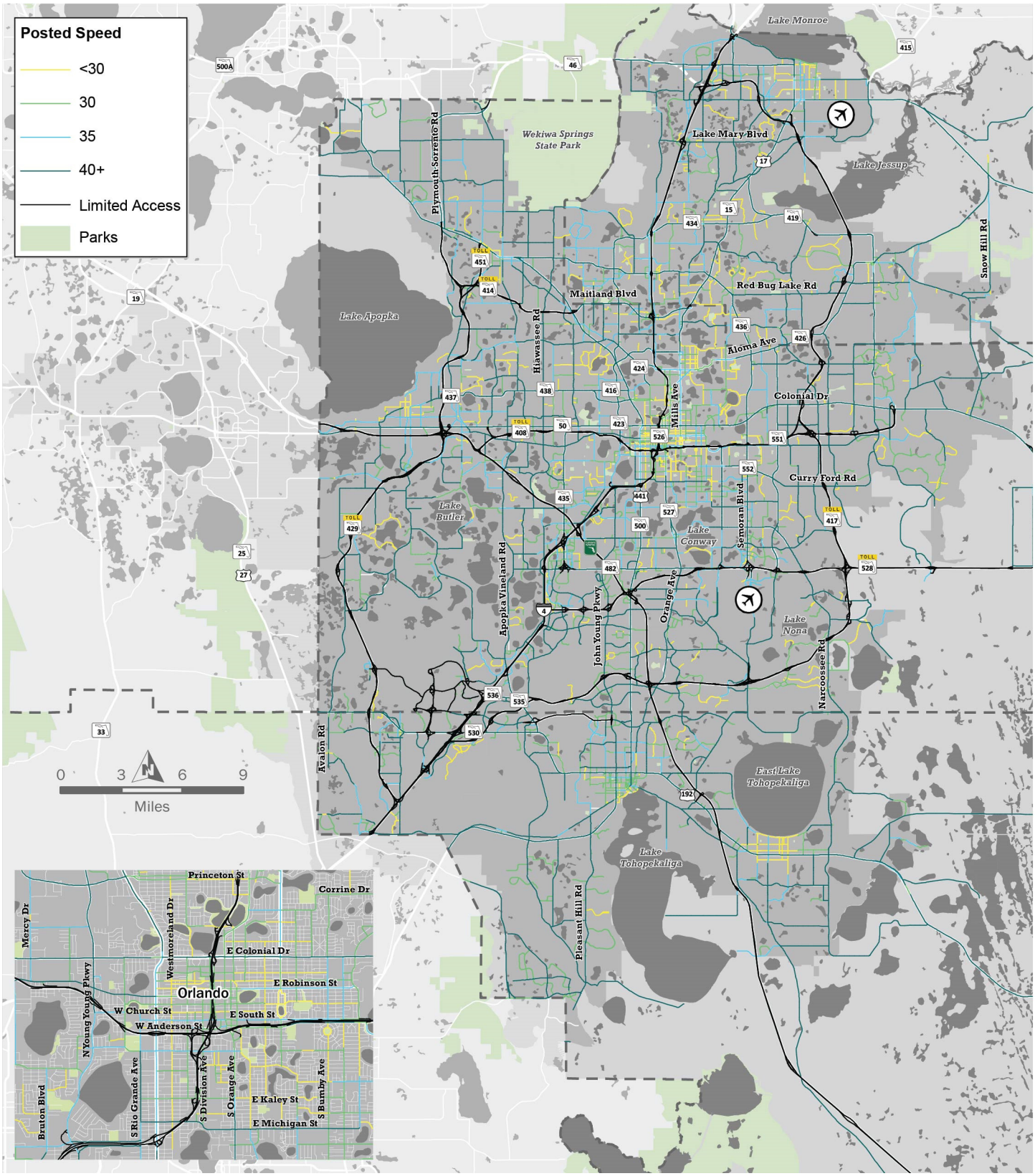
Source: Land Overlayed on Transportation Information System (LOTIS), 2019

Figure 9.3 | Number of Travel Lanes



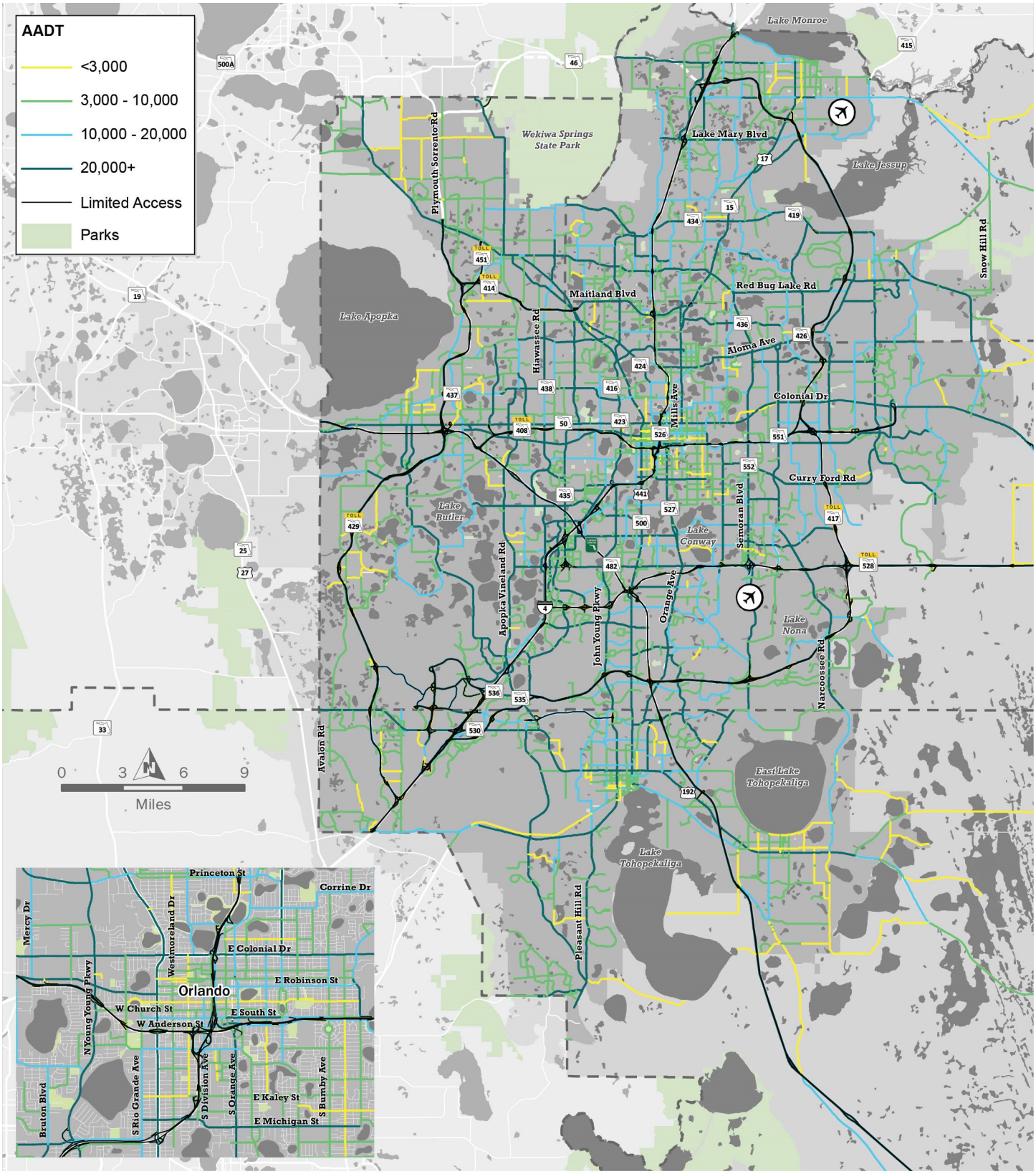
Source: Land Overlayed on Transportation Information System (LOTIS), 2019

Figure 9.4 | Posted Speed Limit (MPH)



Source: Land Overlayed on Transportation Information System (LOTIS), 2019

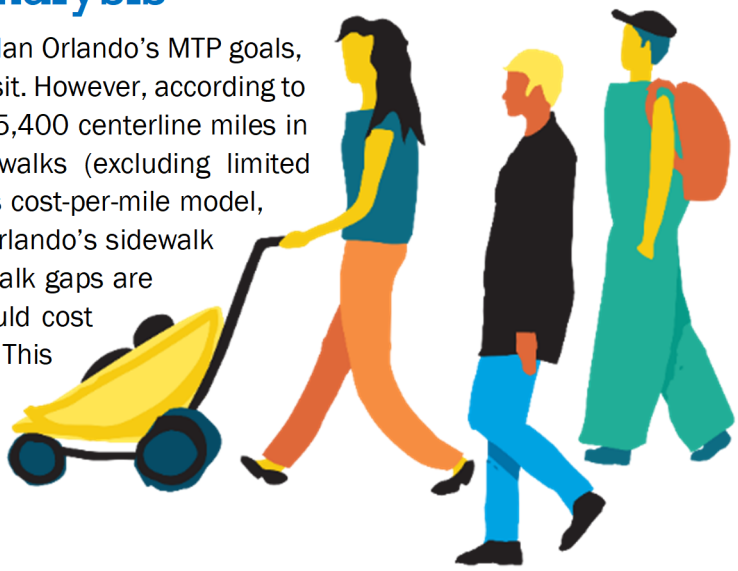
Figure 9.5 | Average Daily Annual Traffic (AADT)



Source: Land Overlayed on Transportation Information System (LOTIS), 2019

Pedestrian Needs Assessment

Critical Sidewalk Needs Analysis



The presence of sidewalks advances several of MetroPlan Orlando's MTP goals, including those related to safety, accessibility, and transit. However, according to the existing conditions assessment, there are roughly 5,400 centerline miles in the MetroPlan Orlando area without complete sidewalks (excluding limited access roads), about half of the network. Using FDOT's cost-per-mile model, it would take at least $1.5 billion to fill all MetroPlan Orlando's sidewalk gaps. Approximately 17 percent of the identified sidewalk gaps are on Federal functionally classified roadways and it would cost anywhere from $250 to $300 million to fill these gaps. This is simply not attainable given current funding levels. This section of the needs assessment narrows this long list of needs into a shorter list of "critical needs."

Finding the Critical Needs

A combination of categorical and quantitative data is used to find the critical sidewalk needs across the entire MetroPlan Orlando planning area. The categorical data points are sourced directly from LOTIS:

- Roadway functional classification
- Proximity to transit
- Proximity to schools
- Sidewalk presence (i.e., on one side or on neither side)

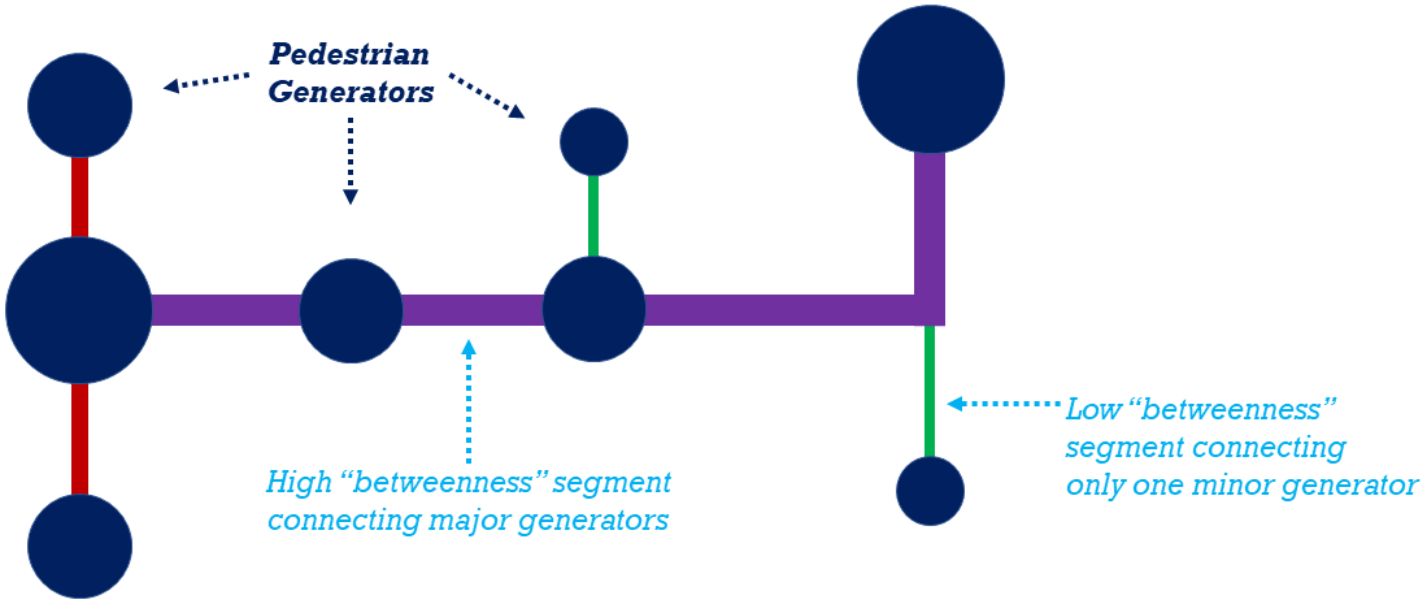
For the quantitative data analysis, a centrality network analysis was performed using ArcGIS. Centrality analyses are used to estimate various measures of how centrally each building or street is positioned in an urban environment and how easily a user can access different amenities from each street segment.

The open-source Urban Network Analysis toolbox by MIT Media Lab researchers was used for this centrality analysis to arrive at the "betweenness" of each roadway segment. Betweenness measures, how critical a given road segment is for a pedestrian to travel from their origin to their destination. It defines how important each segment is to direct pedestrian connectivity in the network based on the street's ability to connect population densities. For example, a cul-de-sac residential street is likely to have low betweenness scores because it offers low connectivity in a street network. A continuous street connecting two dense neighborhoods would have a higher betweenness score. Figure 9.6 illustrates the "betweenness" metric.

Steps taken to calculate the betweenness measure:

1. A dataset containing the number of households (2010) in all census blocks in the tri-county area – as well as Lake County and Volusia County – was used as the demand input.
2. A street network (OpenStreetMap) was loaded onto the tool to serve as the connections between the households in the census blocks.
3. Finally, a betweenness metric was calculated for each segment with a sidewalk gap as defined by the LOTIS network.

Figure 9.6 | Illustration of the Betweenness Metric



Sorting the Critical Needs

The categorical data points are used as the first sorting mechanism. Table 9.1 summarizes the sorting categories.

Table 9.1 | Initial Levels of Need based on Categorical LOTIS Data

Initial Level of Need	Road Type	Sidewalk Presence	Proximity to Transit	Proximity to Schools	Centerline Miles (% of all Gaps)
1 Lowest	All rural classes; RCID; Minor local	One or neither side	Any	Any	4,577 (84%)
2	All other types	One side only	Greater than ½ Mile or Within ½ mile but no school within 2 Miles	Any	206 (4%)
3	All other types	One side only	Within ½ Mile	Within 2 Miles	264 (5%)
4	All other types	Neither side	Greater than ½ Mile or Within ½ mile but no school within 2 Miles	Any	234 (4%)
5 Highest	All other types	Neither side	Within ¼ Mile	Within 2 Miles	118 (2%)

Notes: Total of all gaps is 5,416 centerline miles. Percentages do not add up to 100% because some segments have missing (i.e., N/A) information.

The numerical scores from the betweenness analysis are used as a secondary input to update a segment's level of need. This way, lower-ranking segments may still be included as a critical need if they have high betweenness scores.

Table 9.2 presents the betweenness thresholds used to update the initial sorting and the resulting centerline miles of critical needs.

Table 9.2 | Updating Initial Level of Need based on Betweenness

Level of Need	Betweenness Score to be included as Critical Need	Centerline miles (% of all gaps)
1 Lowest	Top 20% of all gaps	584 (11%)
2	Top 40%	104 (2%)
3	Top 60%	196 (4%)
4	Top 80%	139 (3%)
5 Highest	All gaps included	118 (2%)
	Total Critical Needs	**1,142 (21%)**

Note: Total of all gaps is 5,416 centerline miles.

The critical need segments represent about 1 in 5 centerline miles of gaps. About half of these critical need segments have sidewalks on only one side of the roadway, while the other half have no sidewalks at all. Using the FDOT cost-per-mile model for long-range estimates, filling these critical need gaps would take about $300 million. If spread uniformly over the MTP's 25-year period, this would result in a sidewalk gap filling program of approximately $10 million per year. The rankings for the sidewalk gaps are mapped in Figure 9.7.

Critical Sidewalk Needs Results

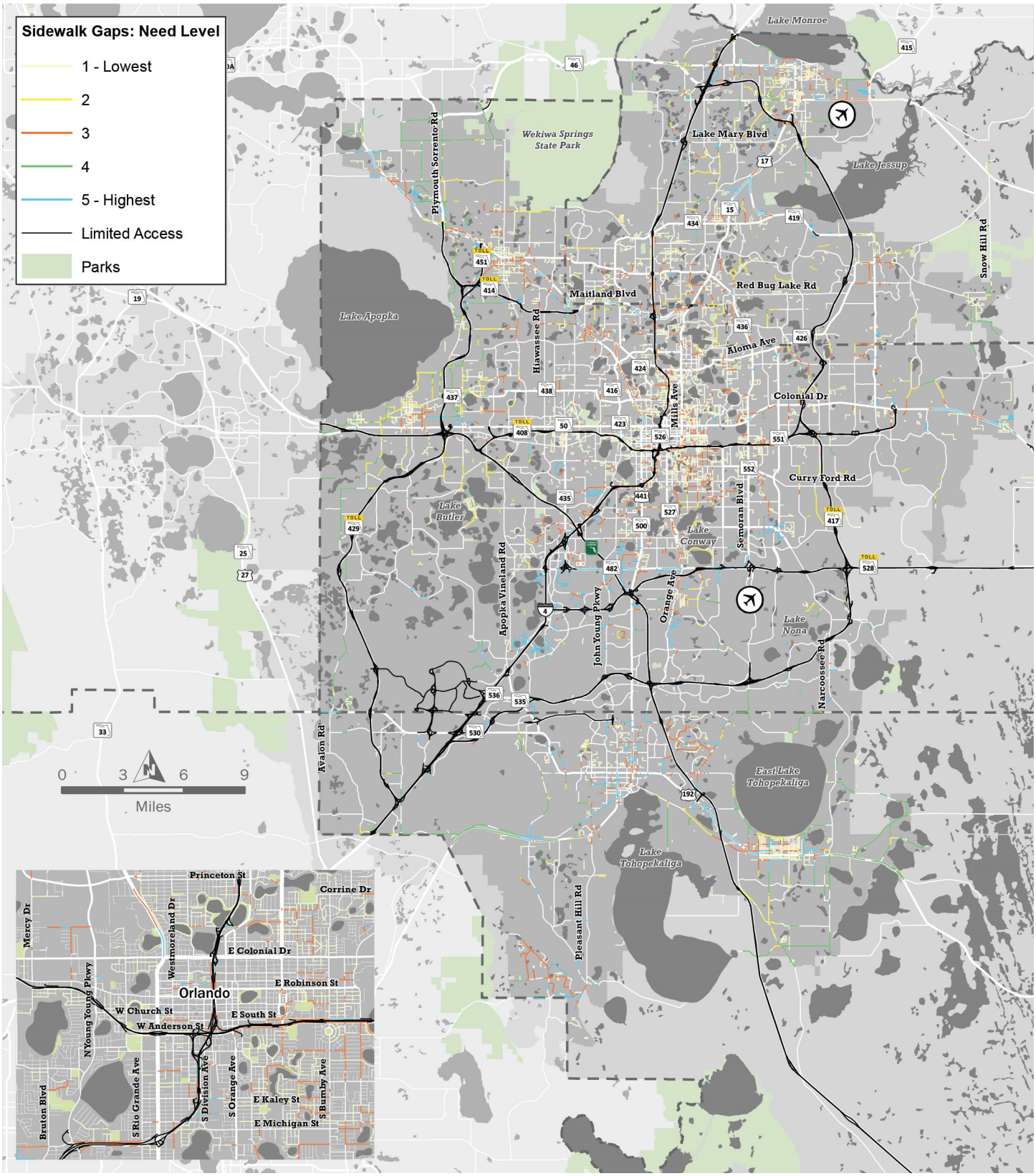
The combined assessment of how important the missing sidewalk is to the connectivity of the network and the need based on key context-sensitive variables screened the segments to identify the top 21 percent of sidewalks gaps that are the greatest needs. These segments are mapped in Figure 9.8. These segments were bundled by sub-area to understand the extent of the need and potential investment over the geography of the region. The total mileage of critical sidewalk gaps and their associated costs are summarized in Table 9.3.

Table 9.3 | Summary of Critical Sidewalk Needs by Sub-Area

Sub-Area	Miles of Missing Sidewalk- One Side	Miles of Missing Sidewalk-Both Sides	Total Miles of Sidewalk	Total Cost (Estimated[1])
HARMONY AND VICINITY	0.00	0.03	0.07	$10,585
HUNTERS CREEK	0.26	0.57	1.41	$226,440
ALAFAYA TRAIL EXT	0.12	1.07	2.27	$364,964
LAKE NONA / INNOVATION WAY	0.36	1.02	2.41	$388,017
WATERFORD LAKES	2.58	0.05	2.68	$431,789
SEMINOLE RURAL NORTH	0.20	1.76	3.72	$598,624
ORANGE 408 WEST	4.22	0.35	4.93	$793,684
SEMINOLE NORTH	1.75	2.23	6.20	$998,691
WEST OF KISSIMMEE	1.77	2.46	6.69	$1,078,329
ALTAMONTE SPRINGS	6.96	0.27	7.51	$1,209,879
SOUTH HORIZONS WEST	0.25	3.85	7.96	$1,282,708
UNIVERSITY / GOLDENROD	6.57	0.70	7.97	$1,283,629
EAST OF LAKE TOHO	0.27	4.04	8.35	$1,345,638
WINDERMERE	6.86	1.13	9.12	$1,469,239
CHULUOTA	0.71	4.22	9.16	$1,475,356
DISNEY	0.63	4.33	9.29	$1,497,377
UCF/RESEARCH PARK	6.71	1.54	9.78	$1,576,338
WINTER SPRINGS/OVIEDO	7.93	1.10	10.14	$1,633,727
N OCOEE	4.62	3.03	10.67	$1,719,519
GOLDENROD / CURRY FORD	8.00	1.49	10.99	$1,770,161
EXECUTIVE AIRPORT	9.08	1.50	12.09	$1,947,208
NE RURAL ORANGE	2.46	4.84	12.13	$1,954,909
LAKE MARY/HEATHROW	6.49	3.08	12.65	$2,037,637
LAKE HOWELL	11.33	1.03	13.39	$2,156,473
OSCEOLA FOUR CORNERS	2.31	5.82	13.94	$2,246,233
BOGGY CREEK	2.08	6.32	14.71	$2,370,291
ORLANDO INTERNATIONAL AIRPORT	3.75	5.73	15.20	$2,448,811
NORTH OF EAST LAKE TOHO	5.40	5.18	15.77	$2,540,730
NORTH HORIZONS WEST	2.24	7.19	16.62	$2,677,841
DOWNTOWN NORTH	14.07	1.75	17.56	$2,829,516
LONGWOOD/CASSELBERRY	8.61	4.75	18.11	$2,917,326
POINCIANA	9.78	4.70	19.18	$3,090,389
DOWNTOWN SOUTH	18.28	0.77	19.82	$3,192,498
VINELAND/LB MCLEOD	7.74	7.29	22.33	$3,596,879
CONVENTION CENTER	5.50	8.55	22.59	$3,638,979
WEST OF LAKE TOHO	2.96	10.39	23.74	$3,824,544
MAITLAND CENT / WINTER PARK	12.44	6.06	24.56	$3,957,004
EAST OF EAST LAKE TOHO	1.75	11.49	24.73	$3,984,188
SE APOPKA	19.16	6.21	31.59	$5,089,819
TAFT	13.86	12.78	39.41	$6,350,020
WINTER GARDEN / OCOEE	19.05	12.60	44.25	$7,129,059
ST CLOUD	16.59	17.95	52.49	$8,456,660
SANFORD	21.15	16.81	54.76	$8,821,888
KISSIMMEE	21.02	16.89	54.80	$8,828,377
APOPKA	17.17	38.22	93.61	$15,081,067

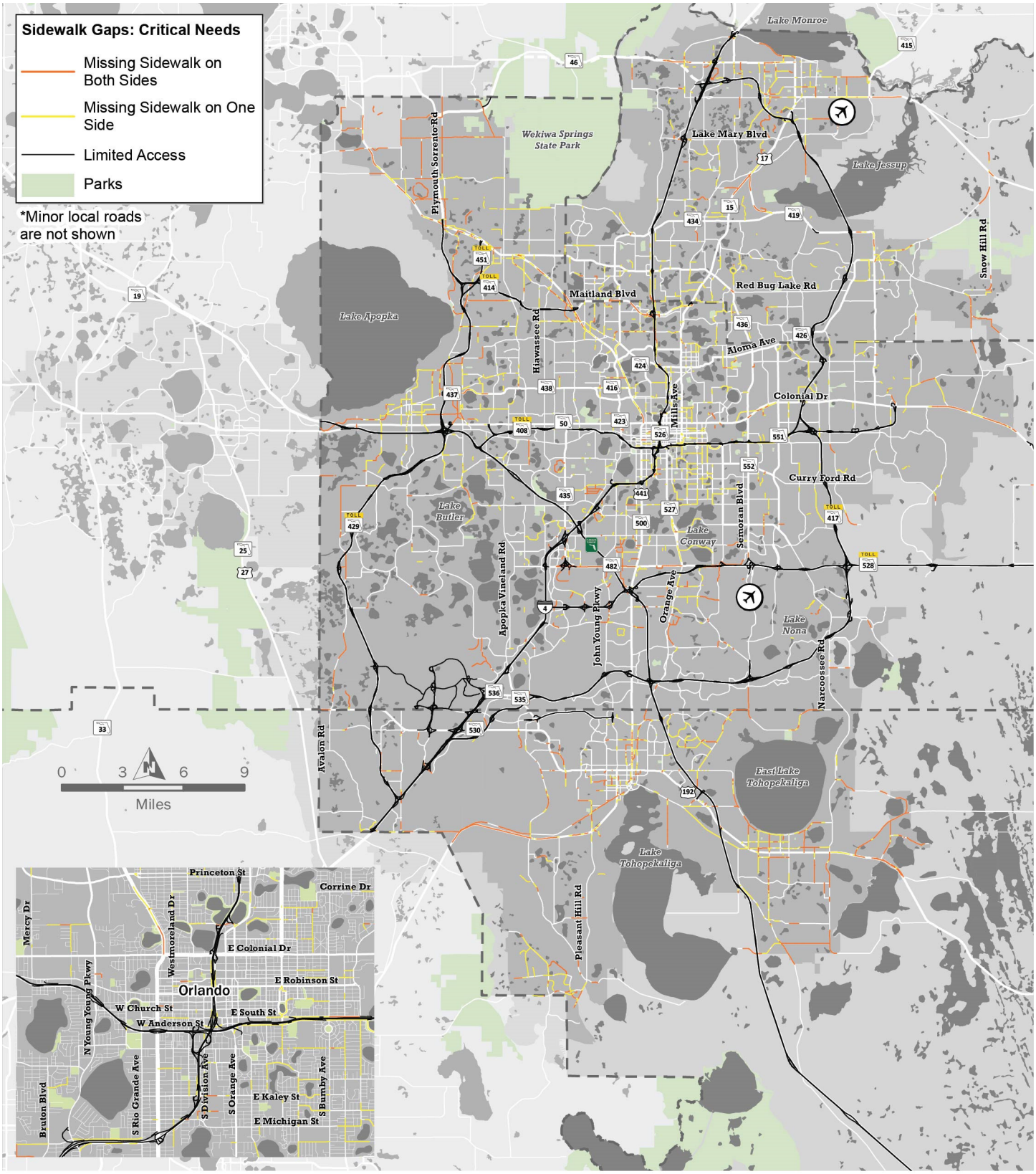
[1] Costs were estimated using FDOT's cost-per-mile model, at $161,109 per mile of sidewalk (one side of the street).

Figure 9.7 | Sidewalk Gaps: Need Level Score



Source: Land Overlayed on Transportation Information System (LOTIS), 2020

Figure 9.8 | Sidewalk Gaps: Critical Needs



Source: Land Overlayed on Transportation Information System (LOTIS), 2019

Crosswalk Needs Assessment

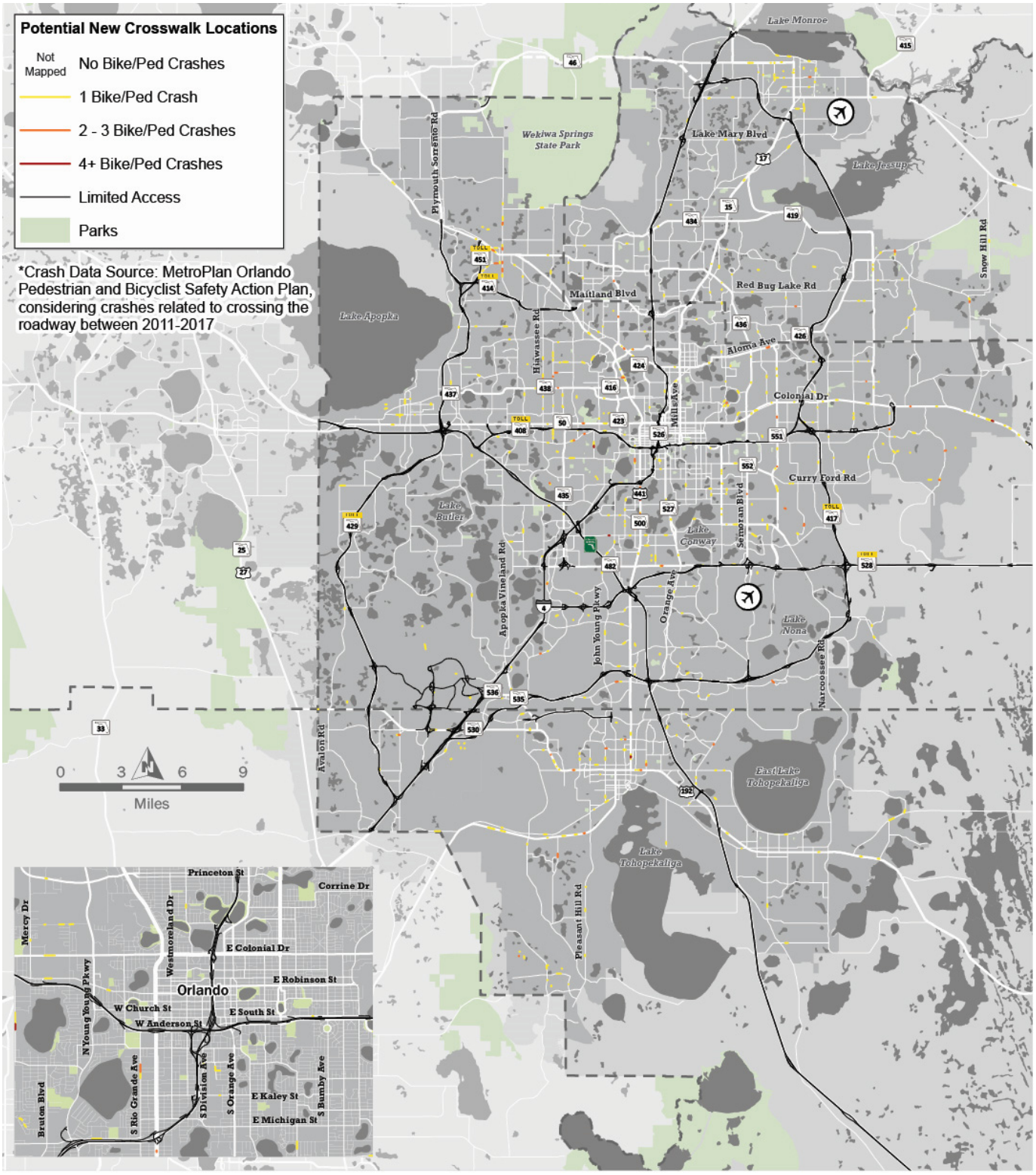
The sidewalk needs analysis helped identify the top sidewalks needed for pedestrians to have a complete network and feel safe along the street. Full walkability includes ability of pedestrians to cross the street safely and comfortably. In many places throughout the network, though, crossing opportunities are few and far between. A roadway's permeability and crossing comfort directly relate to the frequency of controlled/protected pedestrian crossing locations. To identify potential roadway segments where additional crossings may be beneficial, the network was screened to identify any segments that have existing signalized crossing locations that are farther than 1,200 feet apart. These segments were then further evaluated based on pedestrian and bicycle crashes that are crossing-related. This analysis identifies where there are infrequent signalized crossing opportunities and where crash patterns indicate a need for additional safe crossings.

The segments are provided in a map in Figure 9.9

These map layers can also be viewed online in greater detail on *MetroPlan Orlando's Online Data Viewer*

www.MetroPlanOrlando.org/maps-tools/dataviewer

Figure 9.9 | Potential New Crosswalk Locations



Source: Land Overlayed on Transportation Information System (LOTIS), 2019;
MetroPlan Orlando Pedestrian & Bicycle Safety Action Plan (2011-2017)

Bicycle Needs Assessment

Level of Traffic Stress

An industry leading approach for determining the existing low stress network is the Bicycle Level of Traffic Stress (LTS) Methodology. The bicycle LTS methodology uses roadway characteristics to evaluate the potential comfort of people riding a bicycle on the street or on a bicycle facility, including posted traffic speeds, traffic volumes, number of travel lanes, level of separation from traffic, and land use context. The network was evaluated based on a "weakest link" threshold approach. Segments within the network were evaluated based on the thresholds developed and explained in this methodology. If the segment met the threshold, it was assigned an LTS score. If it did not, it was evaluated based on the next set of thresholds.

LTS 1-4 is generally defined using the following comfort level descriptions:

LTS 1: Except in low-speed (<30 MPH)/low-volume (<3,500 ADT) traffic situations, a separated bike facility that has physical separation from traffic is present. This is comfortable for the general population and is suitable for an 8-year old.

LTS 2: Except in low-speed (<30 MPH)/low-volume (<3,500 ADT), cyclists have their own place to ride that keep them from having to interact with traffic except at crossings that can easily be navigated by an adult bicycle rider. Stress that most adults can tolerate, particularly those cyclists classified as "interested but concerned."

LTS 3: Involves interaction with moderate speed or multilane traffic, or close proximity to medium speed traffic (30-35 MPH). Comfortable for "enthused and confident" cyclists.

LTS 4: Involves interaction with higher speed traffic (40+ MPH) or close proximity to high speed traffic. Uncomfortable for most bicycle riders, acceptable only to "trained and confident" cyclists.

An approach was developed for network segments where bicycles mix with traffic and a second approach was developed for network segments with a bicycle facility.

Mixed Traffic Assessment

All bike facilities classified as sharrows or signed bike routes and streets without bicycle facilities were assessed using the mixed traffic approach. The evaluation methodology, shown in Figure 9.10, assigned an LTS score to each mixed traffic segment. This resulted in only one score per segment and used the "weakest link" methodology to represent the highest level of stress encountered along that segment. Three main corridor characteristics influence LTS on mixed traffic segments – posted speed, number of lanes, level of curbside activity and commercial activity.

Bicycle Facility Assessment

All trails and streets with bicycle facilities were evaluated using the Bicycle Facility LTS Methodology. The evaluation methodology, shown in Figure 9.11, assigned an LTS score to each bicycle facility segment. This resulted in only one score per segment and used "weakest link" methodology to represent the highest level of stress encountered along that segment. Three main elements influence level of traffic stress on bicycle facilities – type of bicycle facility, posted speed, and presence of on-street parking (and the width of the bike facility adjacent to parking).

Figure 9.10 | LTS: Mixed Traffic Assessment Methodology

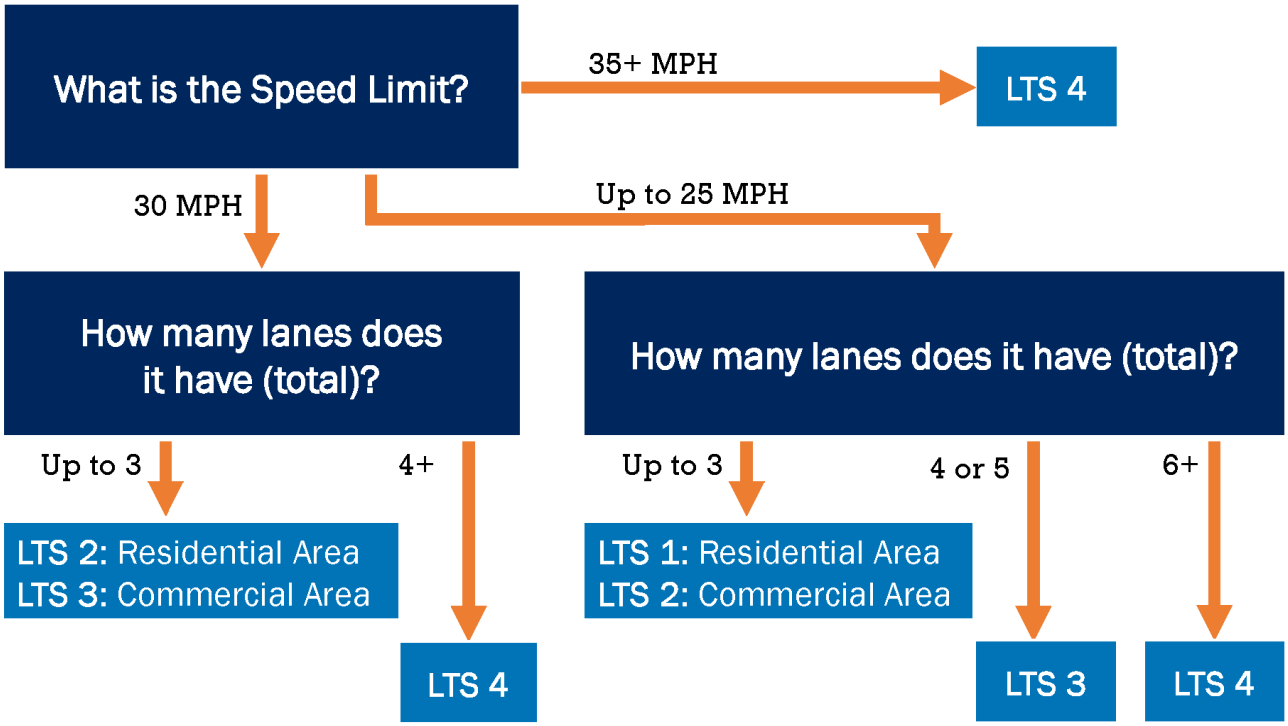
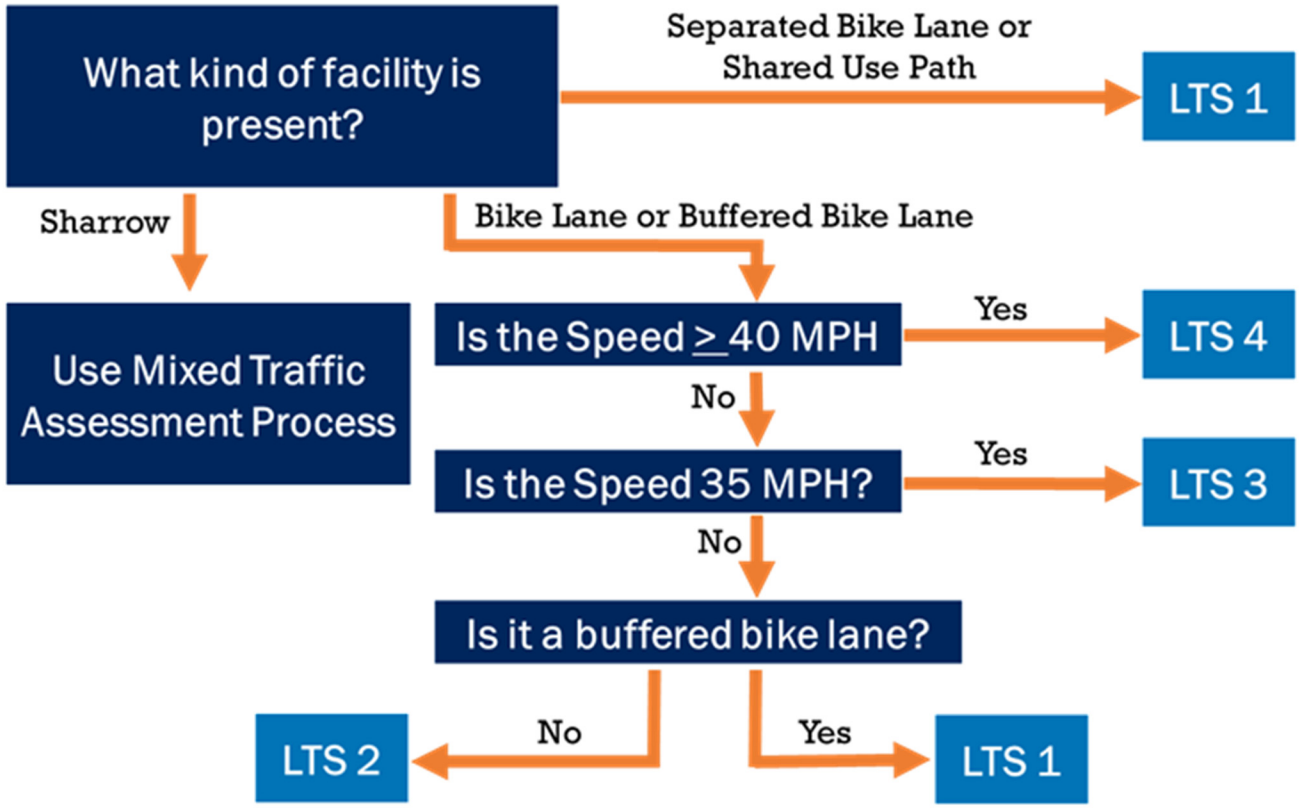
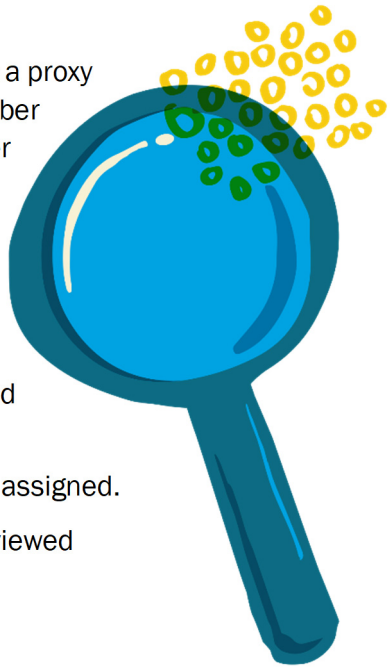


Figure 9.11 | LTS: Methodology if Bicycle Facility Present



Annual Average Daily Traffic Screening



Due to the availability of data, the number of travel lanes was used in the analysis as a proxy for traffic volumes. However, there may be cases where streets that have a low number of travel lanes and, therefore receive an LTS score of 1 or 2, may actually carry higher traffic volumes than the street's physical characteristics suggest. This creates a condition where a steady flow of traffic, particular in the peak hour, creates more conflict and friction between a bicyclist and vehicular traffic in mixed traffic conditions. The initial LTS results were screened using AADT data that is available, and the following manual adjustments were made:

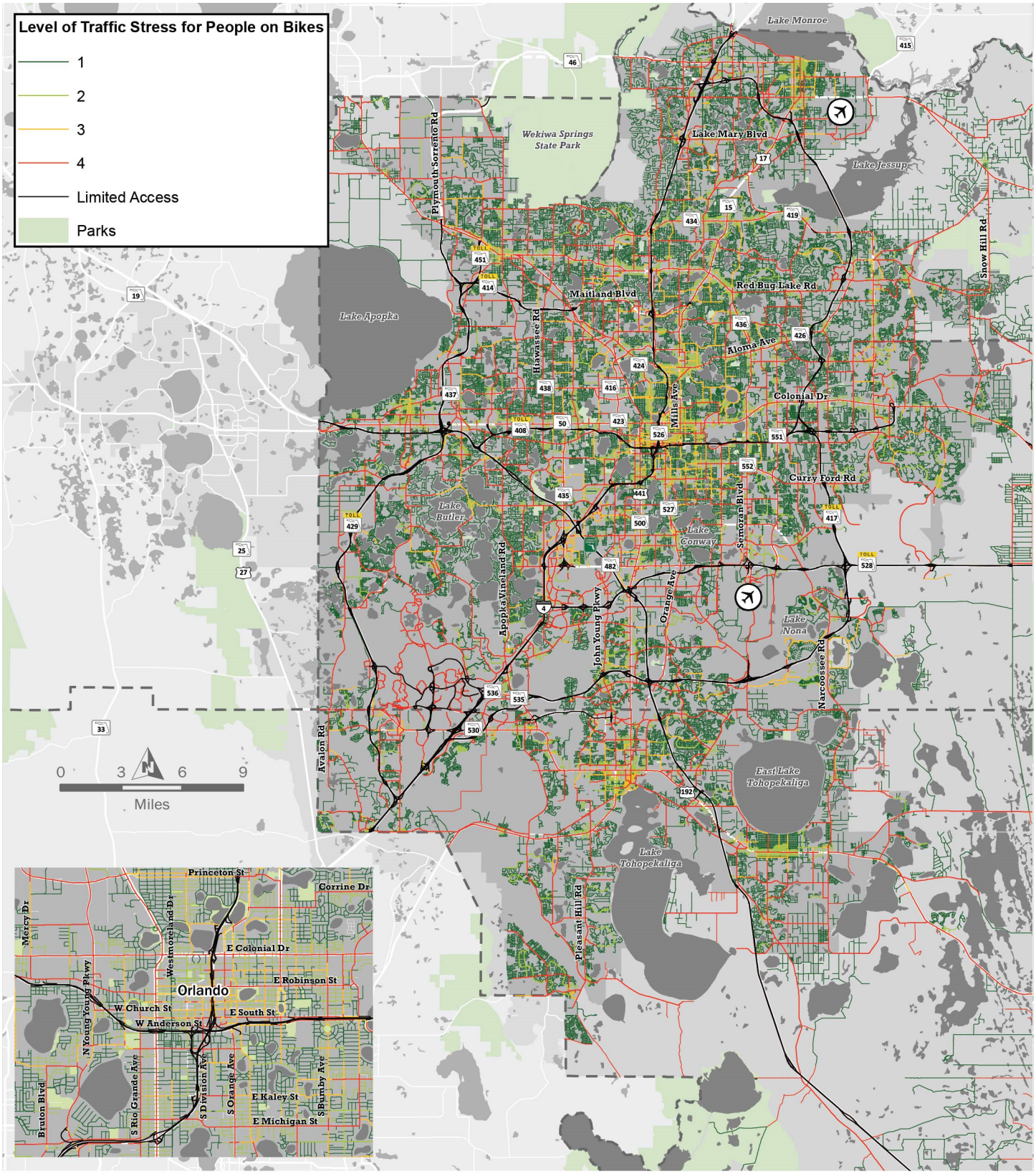
For streets with bike lanes or buffered bike lanes that scored LTS 1 or 2 and had >6,500 AADT, LTS 3 was assigned.

For mixed traffic streets that scored LTS 1 or 2 and are over 3,500 AADT, LTS 3 was assigned.

Final Bicycle LTS Scores for all roadways are shown in Figure 9.12 and can also be viewed online in greater detail on ***MetroPlan Orlando's Online Data Viewer***

www.MetroPlanOrlando.org/maps-tools/dataviewer

Figure 9.12 | Bicycle Level of Traffic Stress (LTS) Scores



Note: Based on approach identified in Figures 9.10 and 9.11 with AADT Post Screening

Bicycle Project Evaluation and Development

Identifying Projects through Bicycle Network Planning

MetroPlan Orlando has various potential bicycle projects including those in the Transportation Improvement Program (TIP), Prioritized Project List (PPL), and local government plans. Understanding how these investments contribute to the overall network is key to quantifying its value. These projects were assessed through a "low-stress island" analysis. This analysis is done to visualize all the "islands" of connected low-stress neighborhoods that will be connected by the project to demonstrate the influence the project has in connecting existing low-stress network. Each island represents a network of connected low-stress streets, where someone can cycle via a continuous, low-stress trip. It also highlights the barriers in the network, which are areas between the low-stress islands.

The low-stress islands connected by the TIP projects, PPL projects, and projects from local plans were identified and mapped. The LTS score was used to identify the type of bicycle facility needed for the roadway segment to be considered a low-stress facility. Additionally, the analysis identified supporting projects. Supporting projects are opportunities to implement low-cost infrastructure (such as sharrows and wayfinding) on existing low-stress streets to maximize the reach and impact of a larger projects. Supporting projects may also help avoid "orphaned facilities" which are high quality, high investment bicycle facilities that lack connectivity to the rest of the low-stress network.

All projects analyzed and the supporting projects identified, and their corresponding low-stress islands, are provided in a map in Figure 9.13.

Project Development

As stated earlier, the type of bicycle facility needed based on a street's LTS score was identified for each of the corridors. The facility type needs assessment used the following framework:

- All **LTS 1 and 2** streets were assigned a facility type of "Wayfinding with Traffic Calming."
- All **LTS 3** streets were assigned a facility type of "Buffered Bike Lanes or Separated Bike Lanes."
- All **LTS 4** streets were assigned a facility type of "Separated Bike Lane."

This framework can provides guidance on the type of facility needed for the facility to be comfortable for all ages and abilities. Additionally, the relative "influence" of the project was identified by calculating the number of households within the low-stress islands each project connected. This helps us understand the total reach of the project and how many households will have access to the facility via a continuous low-stress trip.

All projects will require site-specific feasibility studies and detailed assessments of needs, potential solutions, and community desires to determine how to accommodate a bicycle facility.

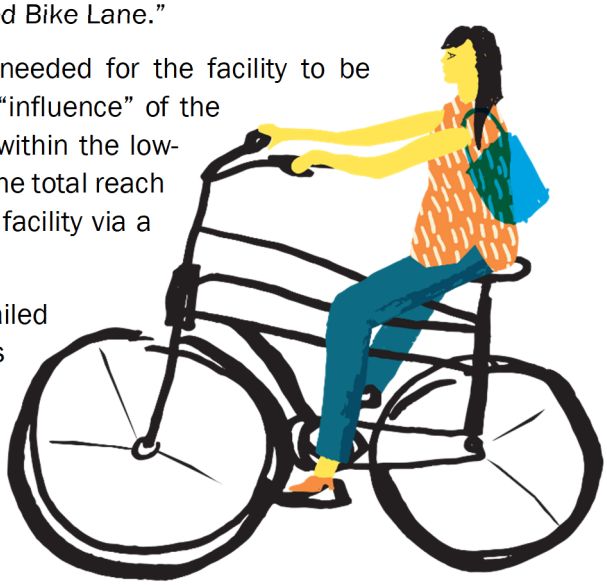
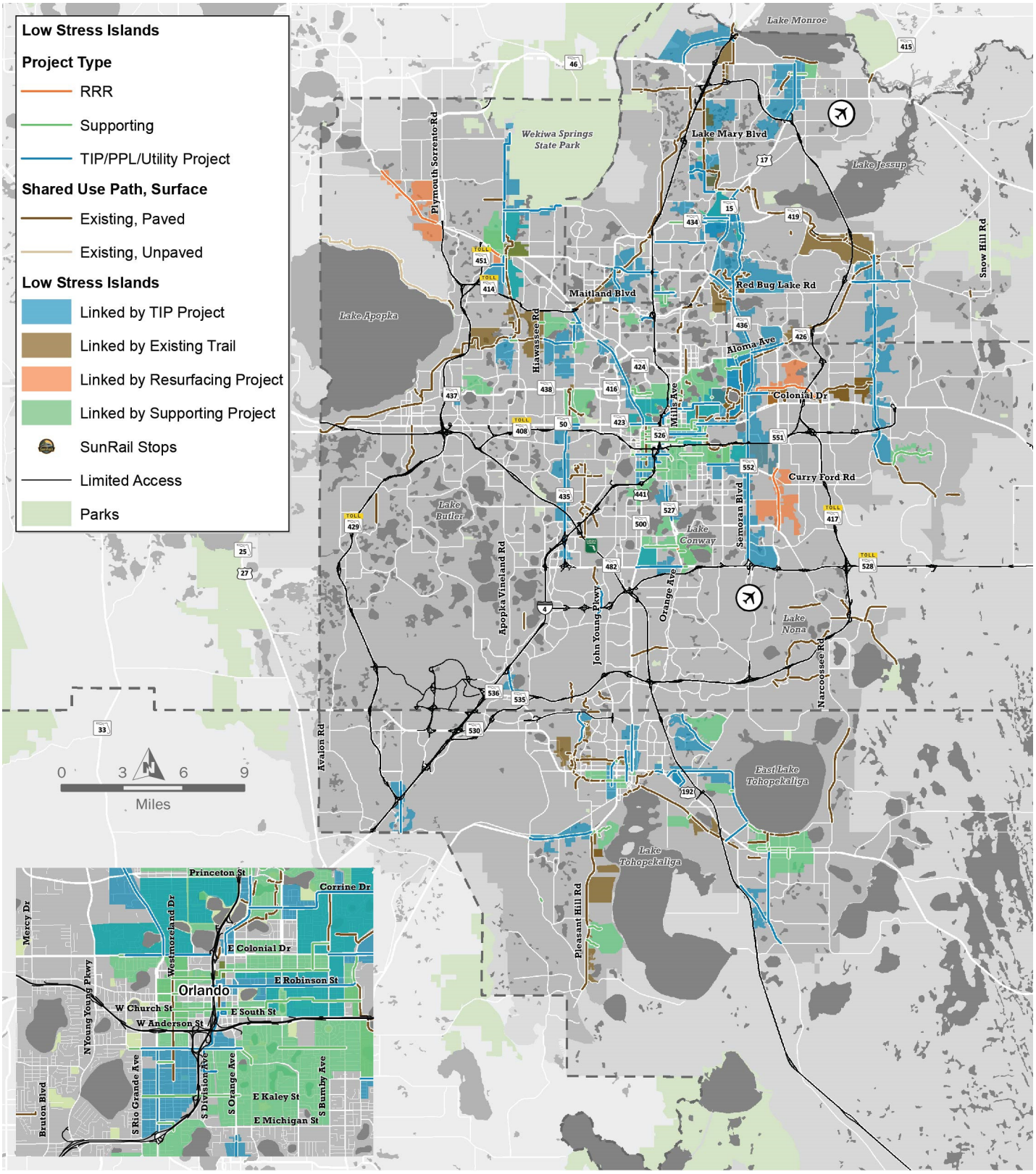


Figure 9.13 | Low Stress Islands: TIP (FY2020/21 to FY2024/25) and PPL (2040) Projects



Note: Transportation Improvement Program (TIP), June 2020; Prioritized Project List (PPL), June 2020

Needs Assessment Summary

The needs assessment for the bicycle and pedestrian network generated initial assessments of which projects may have the greatest return on investment. These assessments will be used as a basis to further prioritize projects in the MTP. The analysis can also be used to create a strategic plan by local governments, FDOT, MetroPlan Orlando, and other partner agencies to advance projects that address the regional network's more critical needs and implements projects with the highest return on investment for improving the safety and comfort of bicycling and walking. Targeted investments in these projects (Table 9.4) will also contribute to a fully connected bicycle and pedestrian network that is safe and comfortable for all users in Central Florida.

The bicycle network impact assessment calculated the area of influence based on the project's ability to connect to existing low-stress streets. The area of influence for each project is provided in a series of maps in *Technical Series #9: Map Supplement*. Additionally, planned trails and powerline projects were compared against utility right-of-way to identify potential locations for new trails and connections that can be built along existing easements. The maps of these locations are also provided in Map Supplement. The viability of these potential easement opportunities needs to be further vetted with site-specific feasibility studies.

Table 9.4 | Preliminary Walking and Cycling Infrastructure Needs

Facility / Project Name	From	To	Need / Project Type
Critical Sidewalk Gaps (Regional)	Multiple Locations		Sidewalks
Little Econ Trail Phase 3	Baldwin Park	Richard Crotty Pkwy	Trail Bridge
Pine Hills Trail Phase 3 (SunTrail Program / Coast to Coast)	Seminole Co. Line	Clarcona Ocoee Rd.	Shared Use Path
Clarcona-Ocoee Connector (SunTrail Program / Coast to Coast)	N. Hiawassee Rd.	Pine Hills Trail	Shared Use Path
Sandspur Rd	Maitland Blv./ N. Wymore Rd.	Maitland Ave.	Shared Use Path
Shingle Creek/Kirkman Trail	Raleigh St.	Old Winter Garden Rd.	Shared Use Path
East/West Trail Connector	S. Orange Ave.	Lake Underhill/ SR 408	Shared Use Path
Shingle Creek Trail (Yates Connector, Phase 2B)	Pleasant Hill Rd	Toho Vista	Shared Use Path
Shingle Creek Trail (Phase 2C North)	Osceola Bkwy Overpass	Orange/Osceola Co. Line/ N. Jonh Y Pkwy	Shared Use Path
Shingle Creek Trail Overpass (Phase 2D North)	At Osceola Parkway	0	Trail Bridge
Shingle Creek Trail Phase 4	Alhambra Dr.	Old Winter Garden Rd.	Shared Use Path
West Orange Trail Phase 4	Kelly Park/ Rock Springs	W. Lester Rd.	Shared Use Path
EE Williamson	Sunshine Ter	CR 427 / Ronald Regan Blvd	Shared Use Path
West Orange Trail Phase 4B	Wekiva Pkwy.	Kelly Park/ Rock Springs	Shared Use Path
Seminole Wekiva Trail - SR 434 Overpass	At SR 434	0	Trail Bridge
Seminole Wekiva Trail - SR 436 Overpass	At SR 436 / Semoran Blvd.	0	Trail Bridge
Church Trail	S. Lakemont Ave.	Perth Ln.	Shared Use Path
Lake Nona SE Trail	Lake Nona Village Pl	Dowden Rd.	Shared Use Path

Facility / Project Name	From	To	Need / Project Type
Lake Nona SE Trails	Lake Nona Blvd./ Narcossee Rd.	Moss Park Rd./ Narcossee Rd.	Shared Use Path
Central Casselberry Connectivity	Hibiscus Rd, Palm Dr & Marrigold Rd		Shared Use Path
Toho Valencia Bridge	E. Vine St	North Valencia Community College-Osceola Campus	Shared Use Path
Horizon West	Tiny Rd	West Orange H.S.	Shared Use Path
Emory Canal	Toho Vista	Mabbette St	Shared Use Path
Neo City Loop	Brinson Park/ Neptune Rd	Neptune Rd, West of Fowler Blvd	Shared Use Path
Ascension Trail	East of US 17/92	North of Northmoor Rd.	Shared Use Path
Kewannee Trail Ext.	Derbyshire Rd.	Casselcreek Blvd.	Shared Use Path
N. Winter Park Drive	N. Triplet Lake Dr.	North of Gee Creek Ln/ W. Winter Park Dr.	Shared Use Path
Shawnda Lane	Neocity Way	Shawnda Ln	Shared Use Path
Bill Beck Trail	Fortune Rd	US 192	Shared Use Path
Spring Lake Road Trail	Northlake Blvd	Oakland Rd. at Lake Orienta E.S.	Shared Use Path
Innovation Way/UCF	University Blvd	Lake Underhill Rd.	Shared Use Path
Lakefront Path	North of Paquin Dr.	Ralph V. Chisholm Park	Shared Use Path
Innovation Way	John Wycliffe Blvd./ Wewahootee Rd.	Alafaya Trl S./ S. Avalon Park Blvd.	Shared Use Path
Kirkman Shingle Creek Connector	S. Kirkman Rd./ Valencia Community College	Metrowest Blvd./ Eagle Nest Park	Shared Use Path
Ponkan Road spur	Jason Dwelley Pkwy.	Rock Springs Rd.	Shared Use Path
Lake Fran Trail	E. of S. Kirkman Rd.	Poppy Ave.	Shared Use Path
Goldboro Trail	Coastline Park	US 17/92	Shared Use Path
Carroll Street	W. Donegan Ave	N. Thacker Ave.	Shared Use Path
Neptune Road	Sunnyside Ave./Neptune Rd	Tohoqua Blvd./Neptune Rd	Shared Use Path
Altamonte Springs E/W	Highlan St./ Sanlando Park	E. Altamonte Dr.	Shared Use Path
Avalon Trail	West of SR 436	North of Sr 520	Shared Use Path
Azalea Park Trail	Avalon Trail	SR 50	Shared Use Path
East Orange Trail	UCF	Seminole Ranch Conservation Area (Orange Co.)	Shared Use Path
Kissimmee Downtown Path Connector	US 192 / Vine Street	Vista Rd	Shared Use Path
Kissimmee St. Cloud Connector	Neptune Rd.	Lakeshore Blvd.	Shared Use Path
Little Econ Greenway	East of SR 436	Chuluota Rd.	Shared Use Path
Meadow Woods Trail	John Young Pkwy	Lake Nona Blvd.	Shared Use Path
Orlando Urban Trail	Anderson St.	Parramore	Shared Use Path
Pine Hills Trail	Red Bone Ln.	Maitland Blvd.	Shared Use Path
Wirz Trail	Wirz Park	Eagle Cir.	Shared Use Path
Spring Lake Road Trail	Northlake Blvd	Oakland Rd (at lake Orienta Elementary)	Shared Use Path

Facility / Project Name	From	To	Need / Project Type
Canoe Creek Road (CR 523)	Deer Run Rd.	US 192	Shared Use Path
Crossing of Keller Rd	Fennell St	Southall Ln	Shared Use Path
Maguire Blvd	Livingston St	SR 50 (Colonial Drive)	Shared Use Path
Ronald Reagan Blvd	Ronald Reagan Blvd	Connection to existing trail	Shared Use Path
Crossing US 17/92	at Raven Ave/Shepard Rd		Shared Use Path
Crossing of Ronald Reagan Blvd	Ronald Reagan Blvd	Longwood Lake Mary Rd	Shared Use Path
Power Corridor Trail - Ronald Reagan Blvd	Ronald Reagan Blvd	Ronald Reagan Blvd	Shared Use Path
Melonville Ave Bicycle Improvements	E 25th St	Celery Ave	Safety Improvements
Orange Ave Trail Connector	West Town Pkwy	Seminole Wekiva Trail	Shared Use Path
Bunnell Rd	at Seminole Wekiva Trail Crossing Safety		Safety Improvements
Bear Lake Rd	at Seminole Wekiva Trail Crossing Safety		Safety Improvements
Oviedo Crossings Blvd	at Cross Seminole Trail Crossing Safety		Safety Improvements
Altamonte SunRail Station Bicycle and Pedestrian Connectivity Improvements	Altamonte SunRail Station		Shared Use Path
Old Lockwood Rd	E McCulloch Rd	Seminole State College	Shared Use Path
CR 426 Trail	East of Downtown Oviedo	SR 46	Shared Use Path
Future Trails within Power Line Corridors	Greenway Blvd	Ronald Reagan Blvd	Shared Use Path
Lake Emma Rd Trail	Longwood Hills Rd	Lake Mary Blvd	Shared Use Path
Lake Mary Blvd Trail	Markham Woods Rd	Lake Emma Rd	Shared Use Path
CR 419 shared-use path	East of Snowhill Rd	Orange County Line	Shared Use Path
Red Bug Connector Trail	SR 434	Red Bug Lake Rd	Shared Use Path
E Lake Mary Blvd Trail	US Hwy 17-92	West of Red Cleveland Blvd	Shared Use Path
Park Drive/Park Ave Bicycle Improvements	US Hwy 17-92	SR 46	Shared Use Path
Airport Blvd Trail	US Hwy 17-92	SR 46	Shared Use Path
International Pkwy Trail Connector	Seminole Wekiva Trail	Monroe Rd	Shared Use Path
Future Trails within Power Line Corridors	Lake Emma Road	Cross Seminole Trail	Shared Use Path
Spring Lake Rd/O'Brien Rd Trail Connector	Maitland Ave	US Hwy 17-92	Shared Use Path
CR 419 Sidewalks	East of Downtown Oviedo	Lockwood Blvd (Existing trail)	Sidewalk
Red Bug Lake Rd	SR 436	Cross Seminole Trail	Sidewalk

Note: Preliminary Needs, October 2020

Active Mobility: Goals, Objectives & Strategies

The 2045 MTP has established overarching goals and objectives for the region's transportation system. To meet these goals and objectives, specific strategies related to the pedestrian and bicycle network were identified. These strategies support the implementation of infrastructure, programs, and policy best practices for walking and biking.

Access & Connectivity

Enhance communities and lives through improved access to opportunities

MTP Objectives	Active Mobility Strategies
Increase transit system frequency Improve housing and employment access to high-frequency transit Improve access to essential services across all modes of transportation Reduce per capita vehicle miles traveled (VMT) Increase ridership on public transportation Reduce the reliance on single-occupant vehicle (SOV) travel Plan and develop transportation systems that reflect regional and community values	Prioritize bicycle and pedestrian projects that connect to high frequency and high ridership transit routes/stops Prioritize pedestrian and bicycle infrastructure in major activity centers Build priority bicycle corridors to connect all neighborhoods with city centers and major destinations Improve bicycle and pedestrian access around schools Connect activity centers with regional trails and bicycle network Adopt regional policy/guidance on pedestrian and bicycle wayfinding Increase multimodal supportive land use patterns and development (e.g. mixed uses, concentrated core areas, site planning that support walking and bicycling, etc.) Support/Encourage TDM strategy implementation with regional employers Expand the existing transportation network for bicyclists and pedestrians of all ages and abilities Build priority bicycle corridors to connect all neighborhoods with city centers and major destinations Increase multimodal supportive land use patterns and development (e.g. mixed uses, concentrated core areas, site planning that support walking and bicycling, etc.) Prioritize pedestrian/bicycle projects that connect to high frequency and high ridership transit routes Expand existing low-stress transportation network for bicyclists and pedestrians of all ages and abilities Proactively leverage resurfacing to implement/retrofit bicycle and pedestrian facilities and traffic calming

Safety & Security

Provide a safe and secure transportation system for all users

MTP Objectives	Active Mobility Strategies
Eliminate the rate and occurrence of transportation system fatalities, injuries, and crashes with high emphasis on the most vulnerable users Provide infrastructure and services to help prepare for, respond to, and recover from emergencies Prevent and mitigate transportation-related security risks Improve emergency response and incident clearance times Increase the resiliency of infrastructure to risks, including extreme weather and environmental conditions	Expand the existing transportation network for bicyclists and pedestrians of all ages and abilities Reduce conflicts between bicyclists, vehicles, and pedestrians by implementing a range of treatments appropriate to a street and its surrounding context Improve the safety of bicyclists and pedestrians through education and enforcement Consider vehicle speed reduction on roadways with high pedestrian and bicycle activity Actively monitor and support local implementation of best practices to address potential safety challenges from emerging micro mobility and shared mobility systems Educate public and private sector professionals who work on transportation, land use and development issues in the MPO area about Complete Streets principles and design

Health & Environment

Protect and preserve our region's public health and environmentally sensitive areas

MTP Objectives	Active Mobility Strategies
Provide transportation solutions that contribute to improved public health Expand conservation lands and minimize land consumption for future development Increase population/employment densities and mix of land uses Reduce per capita related air quality pollutants and greenhouse gas emissions Reduce adverse health impacts associated with physical inactivity Plan and develop transportation systems in a manner that protects and restores the function and character of the natural environment and avoids or minimizes adverse environmental impacts Reduce transportation system impacts caused by stormwater issues and flooding Prevent disproportionate adverse effects of transportation projects on minority and low-income communities	Prioritize pedestrian and bicycle infrastructure in major activity centers Proactively leverage resurfacing to implement/retrofit bicycle and pedestrian facilities and traffic calming Integrate the off-street trail system with the street network by providing wayfinding and well-designed transitions at trail access points, ensuring smooth transitions for bicyclists/pedestrians, and minimizing conflicts between users of all travel modes Leverage community events to promote health through biking and walking as a means of transportation for all trip types Prioritize pedestrian and bicycle infrastructure in major activity centers Leverage community events to promote health through biking and walking as a means of transportation for all trip types Expand existing transportation network for bicyclists and pedestrians of all ages and abilities Support bicycle and pedestrian network to serve Environmental Justice communities Support access to shared micro mobility systems for Environmental Justice communities

Reliability and Performance

Leverage innovative solutions to optimize system performance

MTP Objectives	Active Mobility Strategies
Improve travel time reliability on the transportation system Enhance and expand the region's ITS, adaptive and actively managed traffic systems Reduce travel time per capita (peak and off-peak travel times) Improve average transit on-time performance (bus and rail services) Adapt transportation infrastructure and technologies to meet changing traveler needs and desires	Prioritize pedestrian and bicycle infrastructure in major activity centers Integrate shared mobility, micro mobility and other pedestrian and bicycle options into existing infrastructure Implement a comprehensive set of congestion management tools and strategies from the MetroPlan Orlando's Congestion Management Process Implement design and operations solutions that balance safety and auto reliability/throughput Implement traffic operations solutions at intersections that support pedestrian and bicycle safety (e.g. Leading Pedestrian Interval (LPI), Protected-Only left turns, Pedestrian Only phases etc.)

Investment & Economy

Support economic prosperity through strategic transportation investment

MTP Objectives	Active Mobility Strategies
Meet industry, state, and national standards for infrastructure and asset quality, condition, and performance for all public transportation infrastructure Reduce per capita delay for residents, visitors, and businesses Increase affordability for transportation and housing choices Improve transportation experience for visitors and supportive-industry workers Increase the number of skilled workers in Central Florida's transportation-related industries Promote transportation projects that expand and enhance economic prosperity	Meet design standards for pedestrian and bicyclist facilities outlined in the FDOT Design Manual (FDM) Expand existing transportation network for bicyclists and pedestrians of all ages and abilities Prioritize pedestrian and bicycle infrastructure in major activity centers Integrate shared mobility and micro mobility options in the transportation system Enhance wayfinding for bicyclist and pedestrian infrastructure Prioritize pedestrian/bicycle projects that connect to transit routes that visitors and service workers may be more likely to use (connecting to the airport, major destinations, hotels) Support adequate levels of ped/bike infrastructure, including bicycle parking, in commercial destinations Identify opportunities for ped/bike connections and infrastructure through redevelopment projects

metroplan orlando

A REGIONAL TRANSPORTATION PARTNERSHIP

250 South Orange Avenue • Suite 200 • Orlando, Florida 32801

www.MetroPlanOrlando.org

407-481-5672