

Existing Conditions

Active Transportation Plan

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MetroPlan Orlando

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ACTIVE TRANSPORTATION PLAN

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Introduction

The MetroPlan Orlando Regional Active Transportation Plan (ATP): Ride & Stride 2050 will serve as a roadmap to enhance active transportation options on the MPO Roadway Network throughout Orange, Osceola, and Seminole Counties. This document summarizes the existing conditions assessment that was conducted through the lens of the Active Transportation Plan's key objectives:

1. Improve transportation safety outcomes for vulnerable roadway users, including pedestrians, bicyclists, and other non-auto transportation system users.
2. Identify a regional active transportation network that complements other travel modes, especially transit, and supports future land use patterns.
3. Develop a feasible project list to incorporate into the 2050 Metropolitan Transportation Plan.

Throughout this document, all references to pedestrians are inclusive of persons with disabilities who use mobility aids (i.e., scooters, manual and powered wheelchairs) to access public pedestrian walkways.

This document is organized around the following main topics:

- Policies and Goals
- Regional Overview
- Existing Road Types and Facilities
- Collision Analysis
- Level of Traffic Stress and Pedestrian Level of Comfort
- Travel Access Analysis
- Planned Facilities
- Public Participation

For some of the topics, separate memorandums have been prepared, with this document providing a summary of results and the supporting documents provided as an attachment.



Policies and Goals

To support the development of the ATP, a review of relevant plans and policies from the three Counties, 22 incorporated cities and towns, and the Florida Department of Transportation (FDOT) was conducted to identify potential barriers to plan implementation and identify policy guidance that could be incorporated into the ATP.

Overall, MetroPlan Orlando member jurisdictions have goals and policies that are supportive of providing active transportation facilities within the region. However, some potential barriers were identified that could hinder the implementation of the Active Transportation Plan: Ride & Stride 2050 equally throughout the region, including:

- Some communities with vehicle delay-based level of service policies that do not have exceptions for prioritizing bicycle and pedestrian travel along some corridors.
- Lack of supportive regulations that require new developments to provide bicycle parking and other design features that could promote higher levels of walking, bicycling and transit use over time.
- Insufficient staffing resources to implement projects identified within their jurisdiction.
- Land Development Codes that may miss opportunities to require new bicycle and pedestrian facilities to be constructed as part of development.
- Technology changes that are not considered in local planning documents, such as e-scooters and e-bikes.

To help overcome some of these barriers, there are opportunities as part of the plan development to provide policy language and development code templates that could be used as municipal partners update various plans in the future. Some examples include:

- Example Level of Service Exemptions
- Level of Service Standards for Active Transportation Modes
- Bicycle Parking Standards
- E-Scooter and E-Bike Ordinances

Additionally, there may be a need to develop a technical assistance program to help some jurisdictions navigate project implementation, including identification of grant programs and coordinating with FDOT and other regional/local partners to implement projects. The full plan review is provided as [Appendix A](#).



The following presents relevant policies and goals from the 2045 Metropolitan Transportation Plan (2045 MTP) and potential policy refinements to consider as part of the 2050 Metropolitan Transportation Plan.

MetroPlan Orlando

Policies and goals guide how an organization makes decisions and what it prioritizes. MetroPlan Orlando's primary guiding document is the 2045 MTP (available [here](https://metroplanorlando.org/plans/metropolitan-transportation-plan/): <https://metroplanorlando.org/plans/metropolitan-transportation-plan/>). The 2045 MTP sets the goals, objectives, and project evaluation process for the organization over the coming years. Preparation of the 2045 MTP was guided by five overarching goals that collectively advance the MetroPlan Orlando vision for a *regional transportation system that safely and efficiently moves people and goods through a variety of options that support the region's vitality*. The five goals are listed below along with objectives from the 2045 MTP that a robust bicycle and pedestrian system can help accomplish. Within the Bicycle & Pedestrian Needs Assessment document, active mobility strategies are identified, with these strategies helping to inform project prioritization criteria. Based on our review of the 2045 MTP goals, objectives and active mobility strategies, opportunities for policy refinement within the 2050 MTP were developed.

- **Safety and Security** – provide a safe and secure transportation system for all users

2045 MTP Objectives

- 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

2050 MTP Objective Opportunities

- The 2045 MTP objectives as related to Safety and Security help advance the vision of a safer Active Transportation system in the region. Adoption of the regional Vision Zero Action Plan in 2024 will further enhance strategies to reduce the prevalence of fatal and severe injury crashes in the region.
- **Reliability and Performance** – leverage innovative solutions to optimize system performance



2045 MTP Objectives

- 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

2050 MTP Objective Opportunities

- With the 2050 MTP, there are opportunities to incorporate reliability and performance standards for bicycling and pedestrian infrastructure. In specific contexts, providing increased opportunities for crossing the street, leading pedestrian intervals or bicycle detection are potential performance indicators for non-auto travel. Additionally, providing people with increased travel mode options can improve the reliability of their travel – if one mode is not available to them, there are other reasonable choices to complete a trip.
- **Access and Connectivity** – Enhance communities and lives through improved access to opportunities

2045 MTP Objectives

- 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 travel
- Plan and develop transportation systems that reflect regional and community values

2050 MTP Objective Opportunities

- A barrier to higher transit use is the lack of safe pedestrian facilities connecting people from their origin or destination to transit facilities. The ATP also includes an accessibility analysis to identify locations in the region that have less accessibility via walking and bicycling modes. Incorporation of accessibility indicators for all travel modes could be used to identify communities in the region where walking and bicycling infrastructure should be prioritized.



- **Health and Environment** – Protect and preserve our region’s public health and environmentally sensitive areas

2045 MTP Objectives

- 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

2050 MTP Objective Opportunities

- The 2045 MTP policies are supportive of providing active transportation infrastructure to help improve public health outcomes. There are opportunities to reference providing lower stress walking and bicycling facilities to help encourage more frequent walking and bicycling trips.

- **Investment and Economy** – support economic prosperity through strategic transportation investment

2045 MTP Objectives

- 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

2050 MTP Opportunities

- Objectives related to reducing per-capita delay could be contrary to other goals and objectives related to safety and the provision of additional infrastructure for walking and bicycling. While reducing delay incurred by all roadway users as a result of improperly timed traffic signals may be appropriate, reducing delay through roadway widening to address periods of peak congestion may be contrary to other goals and should be carefully weighed against other strategies.

Guiding Principles

To guide the identification of specific projects, policies, and strategies, guiding principals were developed based on the existing conditions assessment described in this document, as well as project goals, feedback from the steering committee, the existing policy framework, and future policy opportunities. The three Guiding Principles include:

- **Safety** – as one of the most dangerous places in America for people walking and bicycling, improving transportation safety outcomes is a key priority and all projects, policies, and strategies will be evaluated through a safety lens.
- **Equity, Inclusion and Health** – there are disproportionate impacts in some communities related to transportation safety and health outcomes, partially due to fewer transportation options. Prioritizing active transportation improvements in communities where there has historically been less investment is a priority for the region.
- **Connectivity and Comfort** – providing comfortable and direct routes of travel to a variety of land uses, including transit stops, has been identified as a priority by the steering committee and the public to access educational, employment and shopping opportunities by a variety of travel modes.



Regional Overview

Land uses, population density, demographics, and development patterns are all key components of the transportation system and how it is used. This section describes some of the non-roadway elements that are considered in the ATP planning process.

Land Use and Key Destinations

The MetroPlan Orlando region is comprised of three counties, Orange, Osceola, and Seminole, each with different development patterns and geographies that affect the operation of the transportation system. The population of this region is currently about 2.3 million people. In 2022, over 74 million visitors came to the area, making it one of the most popular tourist destinations in the world, with current tourism levels on-track to exceed pre-pandemic visits. This section describes existing land uses and key destinations in the region.

Orange County is a predominantly urban area that is composed of 13 incorporated cities and towns. The largest city in Orange County is Orlando, where about a quarter of the county's population lives. In addition to local schools, parks, and businesses, the county is home to regional attractions including several universities and colleges, regional hospitals, museums, professional sports stadiums, event venues, and a major international airport. There are also many recreational and wildlife areas. Orange County is also home to several world-renowned theme parks, including Disney World, Sea World, and Universal Studios, that draw millions of visitors every year.

Osceola County is predominantly rural, with most of the population living in the northwest of the County. The County has two incorporated cities: Kissimmee and St. Cloud. There are also several unincorporated towns within the County. While much of the remaining land is comprised of private agricultural land and preservation areas, planning for several large developments are underway that will house much of the projected population growth in the region. Osceola County is close to many of the destinations in Orange County, and many visitors stay in Osceola County.

Seminole County is comprised of seven incorporated cities. The eastern border of the County is mostly agricultural and wildlife lands. The County hosts an international airport, zoo, and a wide variety of parks and recreational areas. The county prides itself on its natural resources and outdoor attractions. Many of the shared-use paths/trails in the MetroPlan Orlando region are in Seminole County.

Population and Jobs

Approximately 2.39 million people live in the MetroPlan Orlando region, with Orange County having the highest population of about 1.48 million people. According to 2022 population



estimates prepared by the Office of Economic and Demographic Research, the population of Osceola County is about 425,000 people and the population of Seminole County is about 484,000. Florida is one of the fastest growing states, with the population of the region expected to increase by about 36 percent by 2045, adding an additional 880,000 people, as summarized in [Table 1](#), to the MetroPlan Orlando region. The total employment by county is also summarized, with the region providing about 1.2 million jobs. Many people who live in Osceola and Seminole Counties commute to Orange County for work.

Table 1: Population and Job Density

Variable	Orange County	Osceola County	Seminole County	Regional	Notes
Existing Population	1,481,300	424,950	484,000	2,390,250	2022 Population Estimates
Projected Population (2045)	1,987,400	705,700	578,800	3,721,900	2045 population estimates
Total Employment	894,330	98,420	209,940	1,202,690	2020 LEHD
Size (square miles)	1,003	1,506	345	2,854	
Existing Average Population Density (people/square mile)	1,477	282	1,403	838	
Projected Average Population Density (people/square mile)	1,981	469	1,678	1,304	
Existing Average Job Density (jobs/square mile)	892	65	609	421	

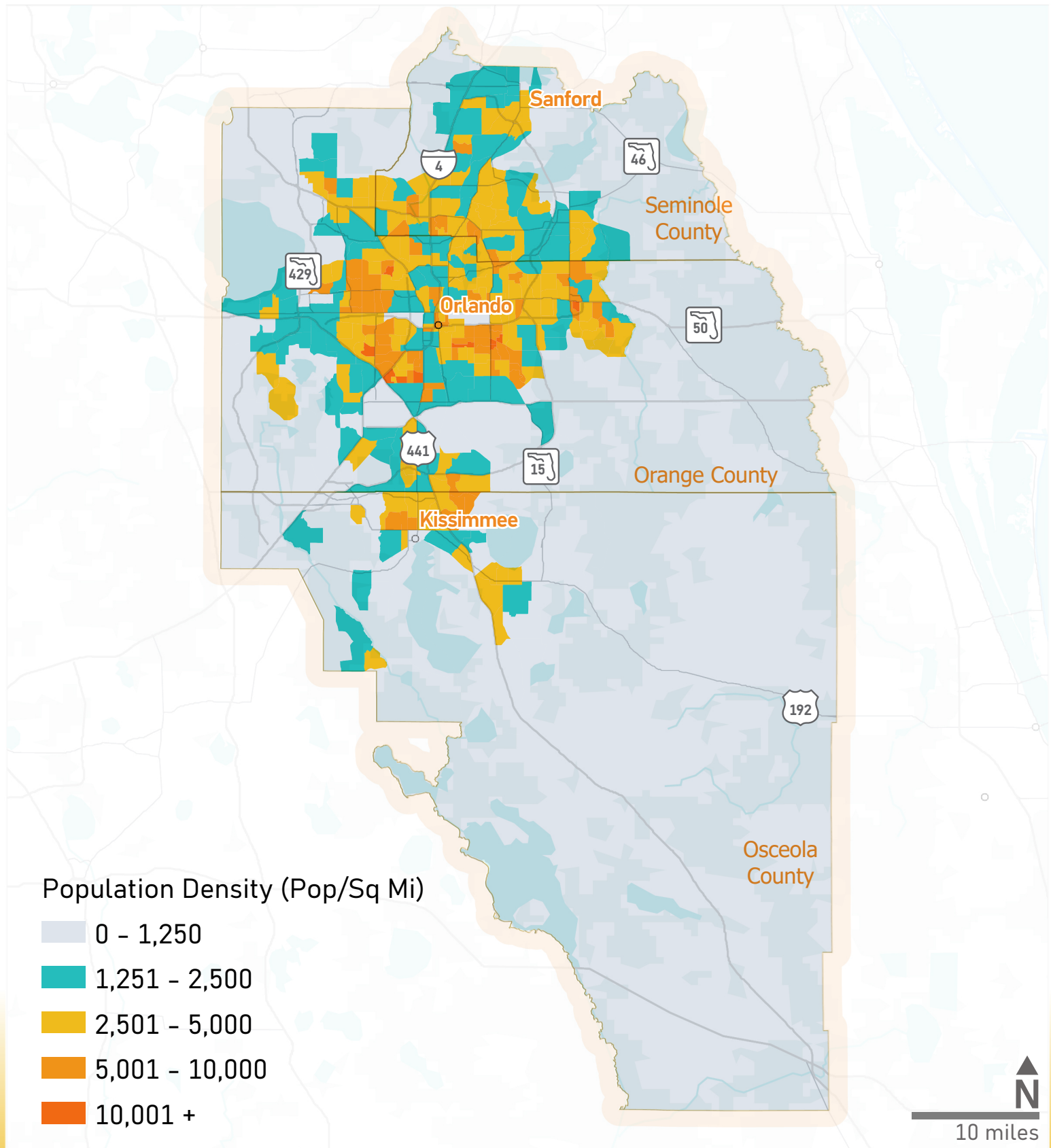
Notes: Longitudinal Employer-Household Dynamics (LEHD) data is based on tabulated and modeled administrative data provided states to the Census Bureau related to unemployment earnings, and the quarterly census of employment and wages. Additional information can be found here: <https://onthemap.ces.census.gov/>

Source: Office of Economic and Demographic Research, LEHD Data; Fehr & Peers, 2023

The existing population and job density, and projected population density were also calculated for each county, as shown on Table 1. As population density increases, higher levels of walking and bicycling may occur, as more land uses are proximate. However, the quality and perception of safety for the walking and bicycling infrastructure, along with area demographics, ultimately play a large role in an individual's decision to walk or bicycle. As the average population density by county can be misleading, especially in Osceola County where much of the land is undeveloped, the average existing population density by census tract is presented on [Figure 1](#).

FIGURE 1

Existing Population Density by Census Tract





Demographics

A demographic assessment was conducted to identify key population characteristics that could contribute to an increased reliance on walking and bicycling as transportation modes. Populations that are reliant on non-auto travel modes, with limited access to walking and bicycling facilities, could have a higher risk for being involved in a crash that results in a fatal or severe injury. For the purposes of this analysis, the current MetroPlan Orlando Title VI Underserved Community Definitions were used, as documented in the Nondiscrimination Plan (document can be found [here: https://metroplanorlando.org/plans/nondiscrimination-language-plans/](https://metroplanorlando.org/plans/nondiscrimination-language-plans/)). MetroPlan Orlando works to ensure that transportation decisions do not cause disproportionately high and adverse effects on low-income and minority populations – a concept known as environmental justice (EJ). A census tract must meet four of the seven indicators to be considered an EJ focus area:

1. **Low Income** - A person or family whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines.
2. **Minority Population** - An individual belonging to any of the following groups:
 - Black – persons having origins in any of the black racial groups of Africa
 - Hispanic or Latino – persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race
 - Asian American – persons having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
 - American Indian and Alaskan Native – persons having origins in any of the original people of North America, South America (including Central America), and who maintain cultural identification through tribal affiliation or community recognition
 - Native Hawaiian and Other Pacific Islander – persons having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands
3. **Aging Population** - Because of the increasing number of persons aged 65 and older, the aging population is increasingly being categorized as young-old (65-74), old (75-84), and oldest-old (85+).
4. **People with Disabilities** - Persons who have mobility and/or self-care limitations, as defined by the U.S. Census. The disability may be physical or mental.
5. **Zero Car Households** - Households without automobiles or access to an automobile.
6. **Limited English Proficiency** - Individuals who do not speak, read, write, or understand the English language at a level that permits effective interaction.



7. Female Head of Household with Child - Households led by a single mother with children under age 18.

About 42 percent of the region's population lives in a census tract that is defined as an EJ area, with almost half of the population in both Orange and Osceola counties living in an EJ area. **Figure 2** displays the number of criteria each census tract in the region meets.

Table 2 summarizes some of the key data inputs to the transportation disadvantaged designation.

MetroPlan Orlando is in the process of updating the approach to identifying underserved communities to align with the Justice40 Initiative and other efforts underway by the US Department of Transportation (USDOT). The adopted criteria in place at the time of project prioritization will be used for this project.

FIGURE 2

Disadvantaged Census Tracts

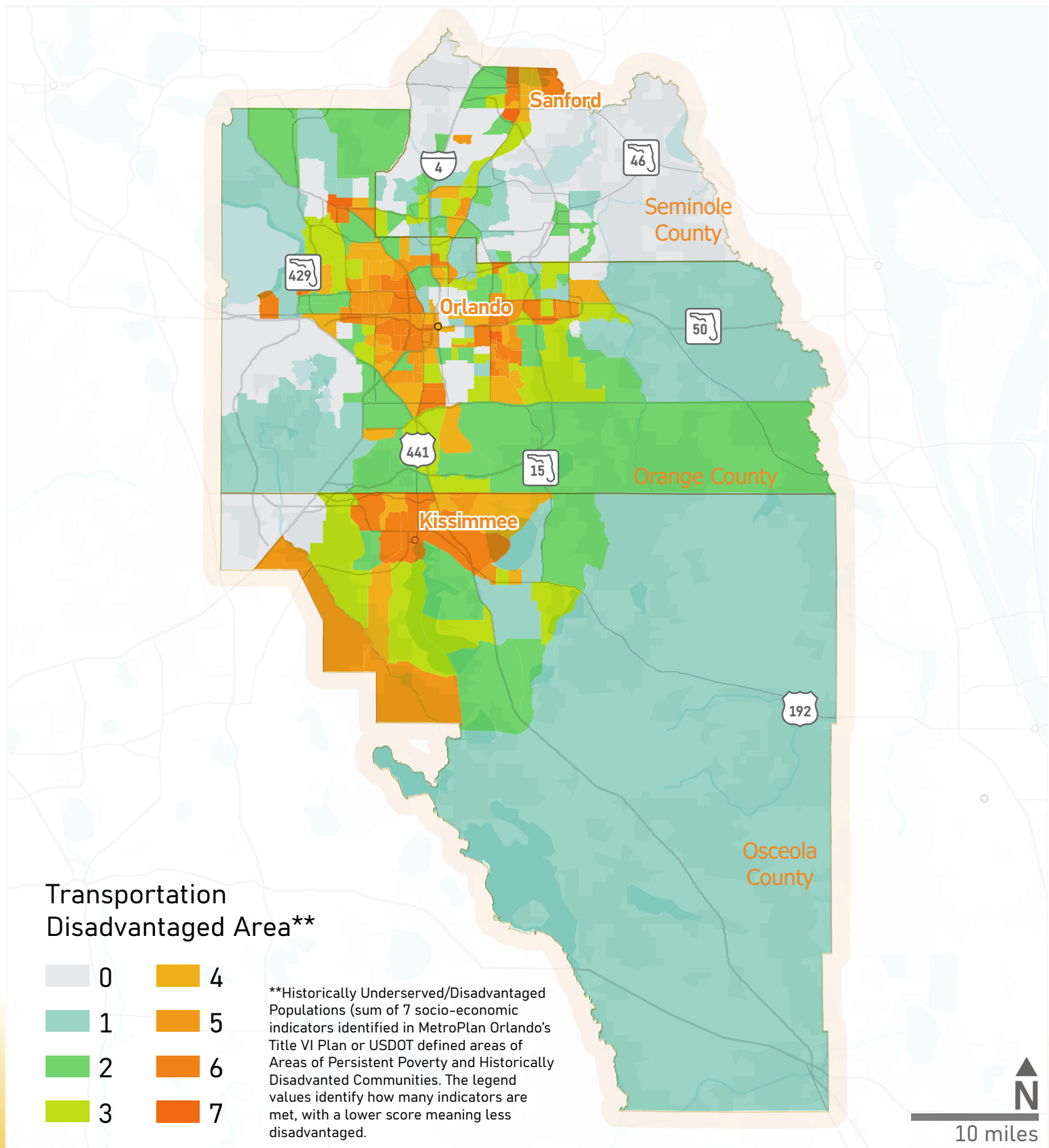




Table 2: Demographic Information

Variable	Orange County	Osceola County	Seminole County	Regional Total	Notes
2020 Households Below the Poverty Level (%)	13.5%	13.3%	9.6%	12.5%	2020 5 Year ACS
2020 Owner Occupied Housing Units (%)	56.5%	63.5%	63.9%	59.3%	2020 Census
2020 Renter Occupied Housing Units (%)	43.5%	36.5%	36.1%	40.7%	2020 Census
2020 Owner Households with No Vehicles (%)	2.3%	3.2%	1.8%	2.3%	2020 5 Year ACS
2020 Renter Households with No Vehicles (%)	9.2%	8.8%	7.2%	8.7%	2020 5 Year ACS
2020 Under 18 Years Old (%)	22%	24%	21%	22%	2020 5 Year ACS
2020 Senior Population (%)	13.1%	14.8%	16.9%	14.2%	2020 5 Year ACS
2020 Households With 1+ Persons with a Disability (%)	22.9%	30.6%	22.3%	23.9%	2020 5 Year ACS
Population in Underserved Communities Census Tracks (%)	45%	48%	31%	42%	USDOT

Source: 2020 5 Year American Community Survey (ACS) Data and US Department of Transportation (USDOT).



Travel Mode Share

The mode of travel a person will select for a specific trip is dependent on many factors, including:

- Destination distance
- Trip purpose
- Travel costs, including parking
- Availability of a vehicle, bicycle, or transit
- Personal disability
- How many people are traveling
- Transportation infrastructure, such as the presence of sidewalks and bicycling facilities

Data for work trips is the most readily available data from the Census, which shows that most people who work in the region drive a car or carpool to their place of employment, with about three percent of residents in the region walking, biking, or taking transit to work, as shown in [Table 3](#).

Table 3: Travel Mode Share

Variable	Orange County	Osceola County	Seminole County	Regional Average	Notes
2020 Average Travel Time to Work (min)	28.8	34.3	27.8	29.4	2020 5 Year ACS
2020 Percent of Workers with Travel Time to work > 30 mins	46.7%	60.4%	42.7%	48.0%	2020 5 Year ACS
2020 Workers age 16+ Means of Transportation to Work: Public transportation (excluding cab) (%)	2.0%	1.2%	0.7%	1.6%	2020 5 Year ACS
2020 Workers age 16+ Means of Transportation to Work: Bicycle (%)	0.5%	0.3%	0.2%	0.4%	2020 5 Year ACS
2020 Workers age 16+ Means of Transportation to Work: Walk (%)	1.3%	0.7%	1.0%	1.1%	2020 5 Year ACS

Source: 2020 5 Year American Community Survey Data.



With an average travel time to work of about 29 minutes, most people do not live in proximity to their place of employment such that walking or bicycling is practical. The Florida Department of Transportation (FDOT) conducted a statewide survey in 2021 related to transportation use (documented [here](https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/customers/2021survey.pdf?sfvrsn=1afde675_4):

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/customers/2021survey.pdf?sfvrsn=1afde675_4). While the responses are only available at the FDOT district level, people in District 5, which includes the MetroPlan Orlando region, reported that about 18.5 percent walk for travel at least 4 times a week, 9 percent bicycle for travel at least 4 times a week, and about 4.5 percent use transit at least 4 times a week for travel. These results include all trip purposes, so while commute modes are one indicator of the potential level of walking and bicycling in a community, commute trips represent a small percentage of overall trips people make.

Commute mode share for each city in the region is provided in [Appendix B](#). The city with the highest percentage of people who walk, bike, or take transit is the City of Eatonville, with 8 percent of residents. Based on 2020 data, approximately 27 percent of Eatonville residents live in households with income below the poverty level with about 10 percent of households not having access to a vehicle.



Existing Road Types and Facilities

This section describes the existing roadway network, including bicycle and pedestrian facilities. This information will help the project team identify opportunities for new and enhanced facilities to include in the plan. This section is divided into the following subsections:

- MetroPlan Orlando Roadway Network
- Bicycle Facilities
- Pedestrian Facilities
- Transit Facilities
- Mobility Trends

MetroPlan Orlando Roadway Network

The ATP is focused on roadways along the designated MPO Roadway network, which includes the State Highway System, major arterials, and some major collector roadways throughout the region, as shown on [Figure 3](#), serving as the major transportation network within the region. This network is also known as the Federal Aid Network. While bicycle and pedestrian facilities on the non-MPO roadway network provide important connections to the regional roadway network, modifications to the non-Federal Aid Network are planned at the local level and are not included in this assessment.

Posted Speed Limits

One of the key inputs to the level of traffic stress (LTS) and pedestrian level of comfort (PLOC) analysis, which are presented in a subsequent section, is the speed at which vehicles are traveling. The speed a vehicle is driven is one of the biggest factors in the outcome of a collision. The faster a vehicle is driven, the greater the likelihood that someone will be seriously injured or killed as the result of a collision, with people walking and bicycling being disproportionately represented in crashes that result in a severe injury or fatality. Walking or bicycling adjacent to fast-moving vehicles can also be uncomfortable for some people. A summary of the existing posted speed limits on the MPO Roadway Network are shown on [Figure 4](#) with [Table 4](#) providing a summary of the lane miles for each speed category. Most roadways on the MPO Network have a posted speed limit between 35 and 45 miles per hour (mph), with slower speed roadways in downtown areas. There are many commercial corridors in the MetroPlan Orlando region with a posted speed limit of 40 mph or greater with active land uses on both sides of the street as well as transit facilities.



FIGURE 3

MPO Roadway Network

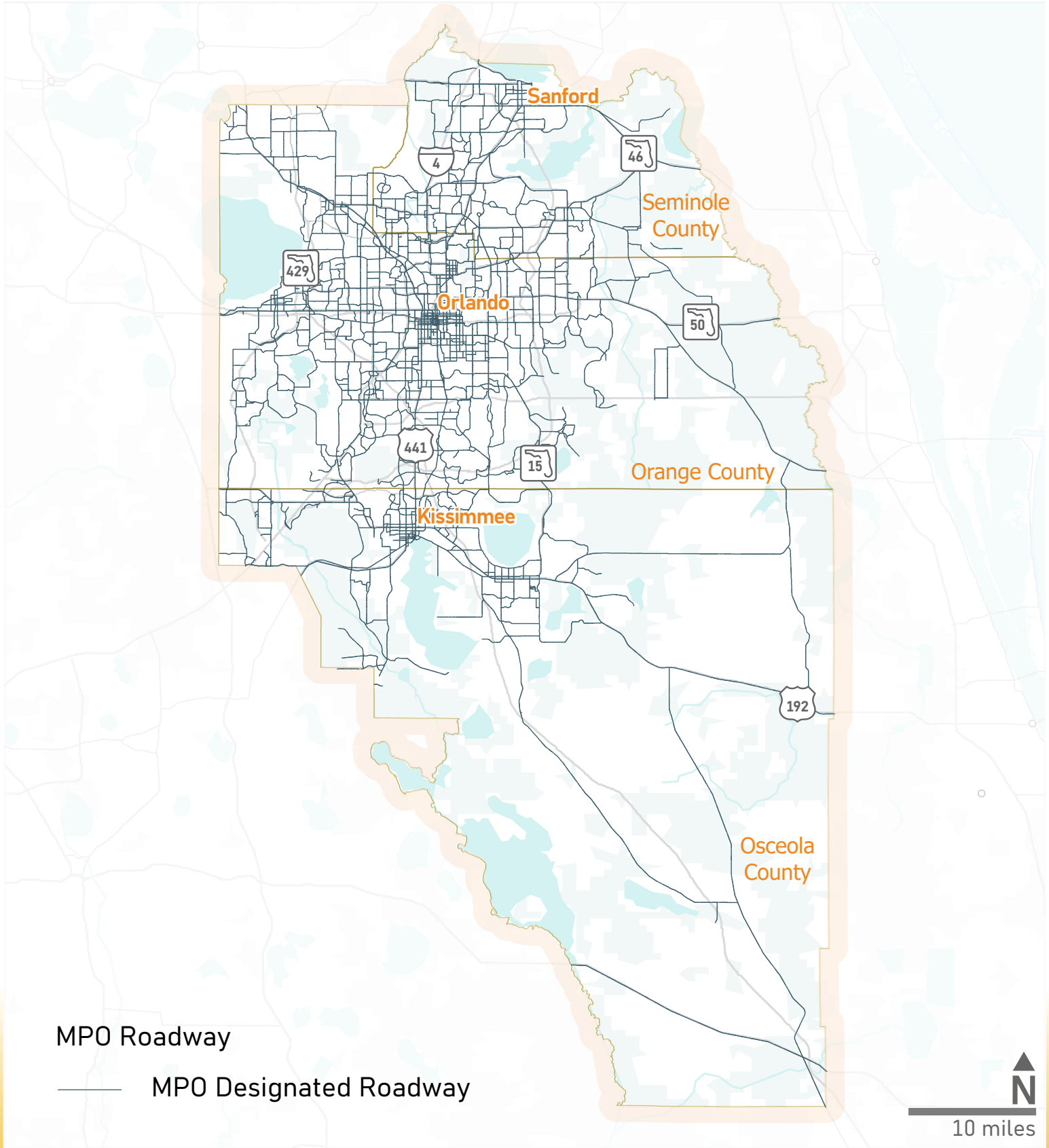


FIGURE 4

Posted Speed Limit MPO Roadway Network

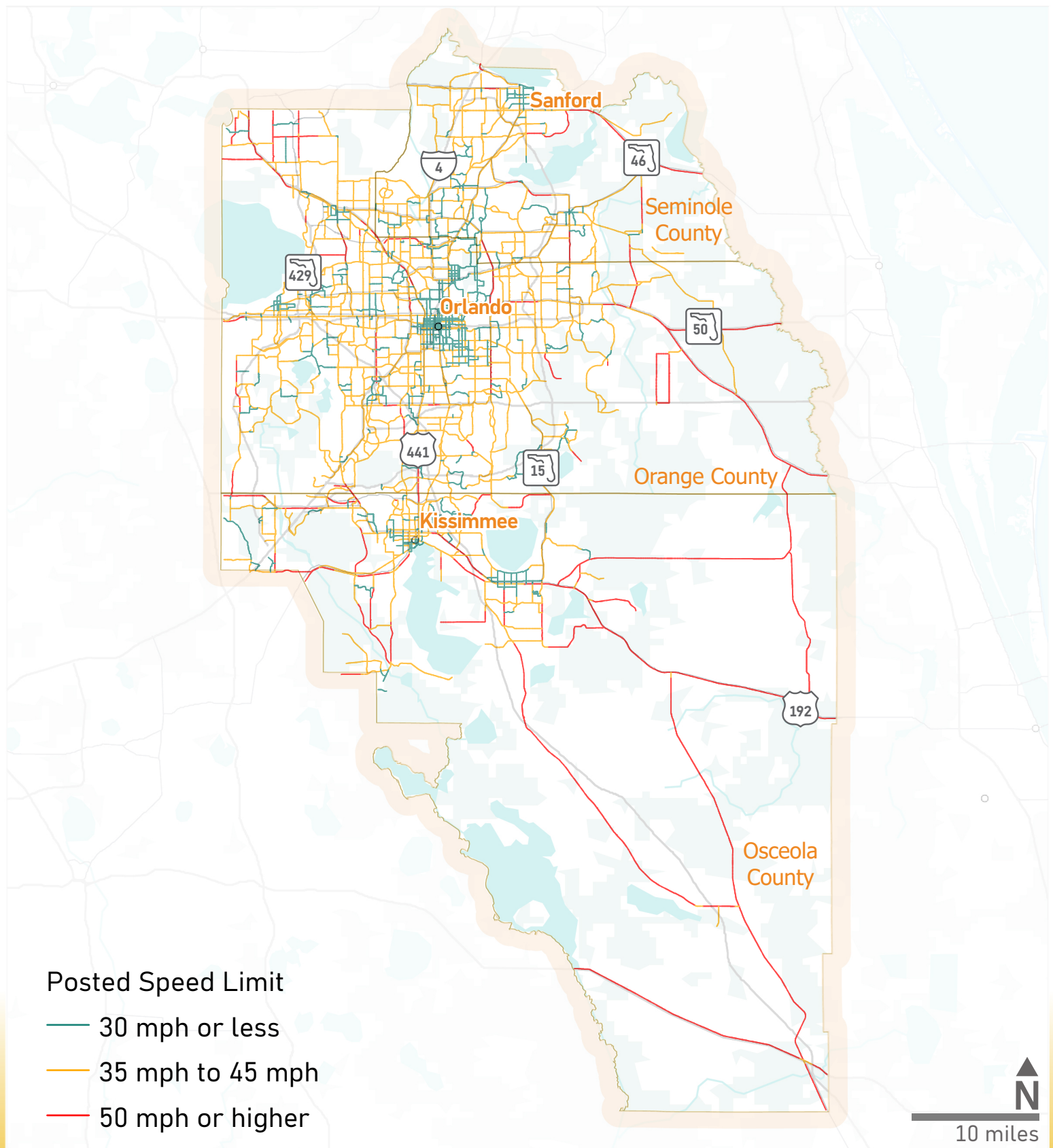




Table 4: Centerline Miles by Posted Speed Limit MPO Roadway Network

Posted Speed Limit	Orange County	Osceola County	Seminole County	Regional Total
30 mph or less	260	66	65	391
35 mph to 45 mph	738	200	253	1,191
50 mph or higher	127	229	33	389
Total	1,125	495	351	1,971

Notes: Centerline Miles represent the total length of a given road from a start point to an end point. The mileage does not include the size or number of lanes nor does it include other features, like shoulders and turn lanes.

Source: xGeographic Wave Database as summarized by Fehr & Peers, 2023

A consideration of where to invest in active transportation facilities and selection of the appropriate facility type is the speed at which people will be driving. On roadways with high travel speeds, a separation or physical barrier between the bicycling or walking facility would be desirable while on a slow speed roadway, less separation would be needed to provide a comfortable facility.

Vehicular Traffic Volumes and Travel Lanes

The amount of vehicle traffic and the number of travel lanes on a roadway is also an input to the LTS and PLOC analyses. Roadways with higher volumes increase potential exposure and conflicts between all roadway users, and roadways that have multiple lanes in each direction, typically designed for high levels of peak period travel, usually have excess capacity during off peak travel times that can encourage people to drive faster than the posted speed limit.

Figure 5 shows the average annual daily traffic (AADT) for roads on the MPO network and

Figure 6 shows the number of travel lanes on each roadway on the MPO network.

FIGURE 5

Existing Average Annual Daily Traffic

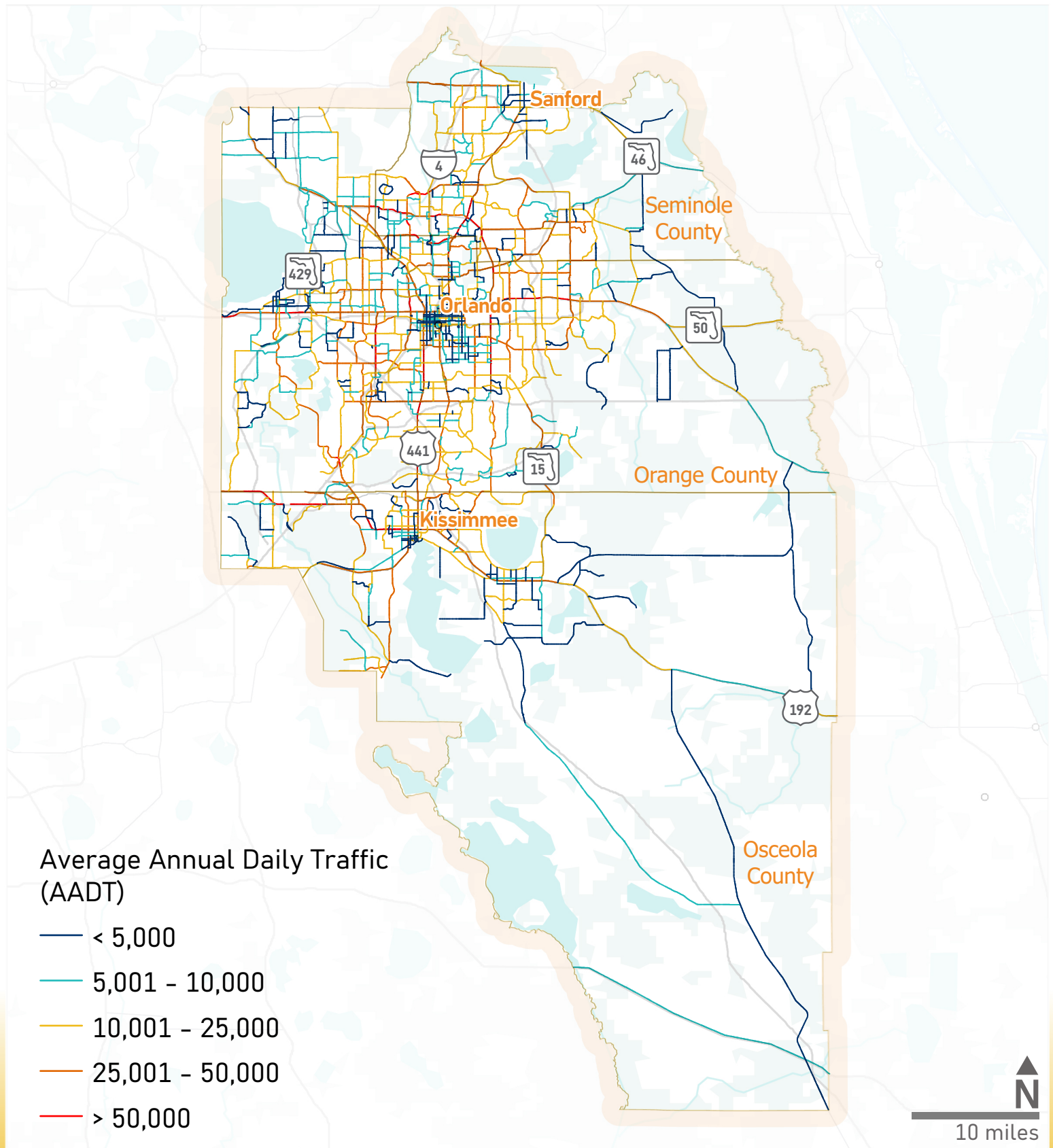
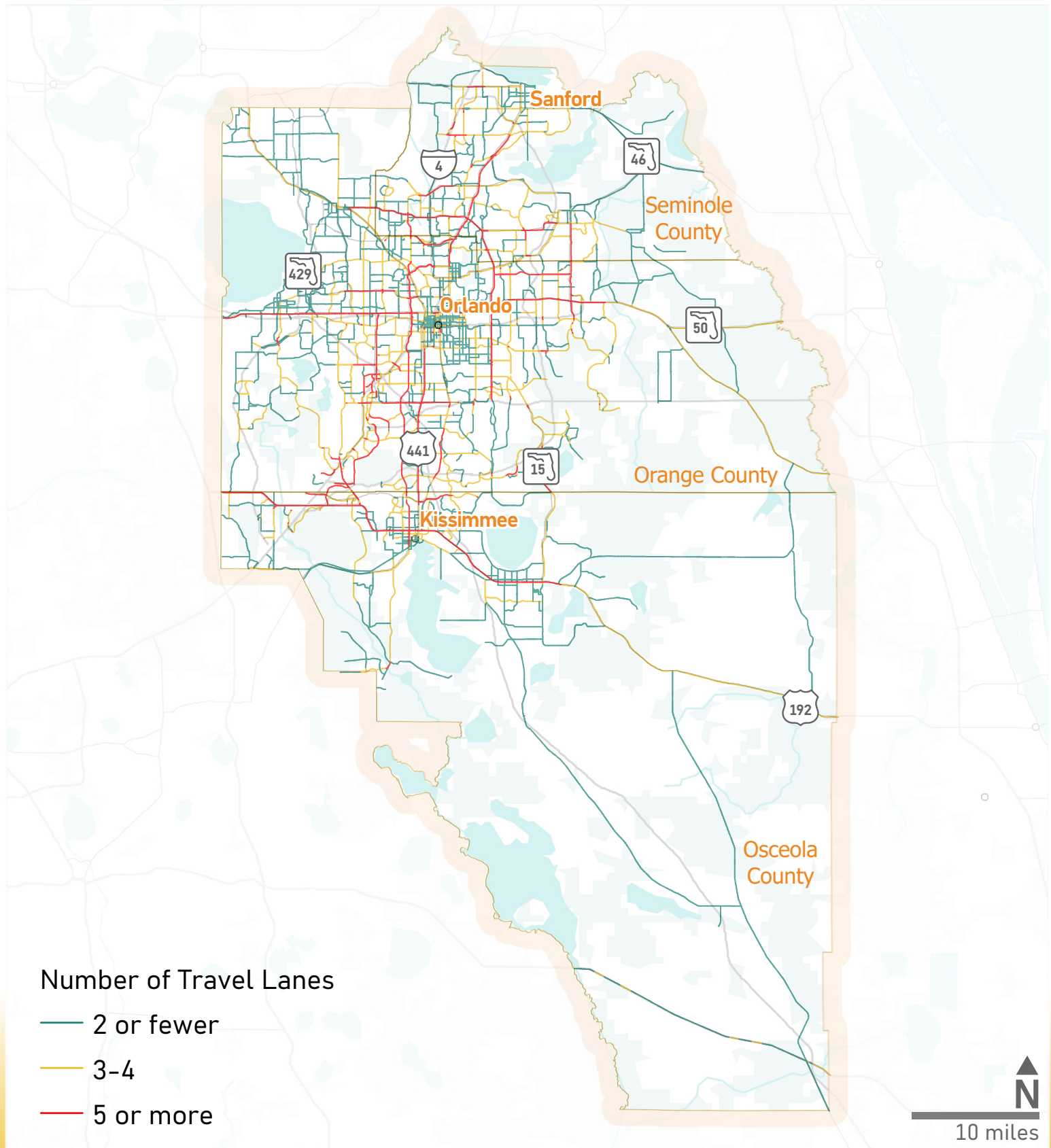


FIGURE 6

Existing Number of Travel Lanes





Bicycle Facilities

This section describes the type and location of existing bicycle facilities in the MetroPlan Orlando region with a focus on the MPO network, with the general extent of existing on-street bicycle facilities shown on [Figure 7](#) and off-street bicycle facilities shown on [Figure 8](#). These maps categorize the bicycle facilities into four facility types, bike lanes, paved shoulders, side-paths, and shared-use paths/trails. More details about each category are provided below.

Bike Facilities – This category includes (see Figure 7):

- **bike lanes** – dedicated, on-road bicycle facilities (at least four-feet wide) (Image 1),
- **buffered bike lanes** – bike lanes with horizontal separation between vehicle lanes (Image 2),
- **separated bike lanes** – exclusive bicycle facilities that are physically separate from the roadway and distinct from the sidewalk (Image 3), and
- **protected bike lanes** – exclusive bicycle facilities that are physically separated from vehicle and pedestrian traffic by a physical barrier (Image 4).

Prior to 2016, the minimum required width for a bicycle lane was 4-feet on FDOT facilities. Since that time, the standards have been updated to reflect a wider range of bicycle facility types, with the guidance to provide the bicycle facilities in the following priority order as conditions permit:

1. 7-foot buffered bicycle lane
2. 6-foot buffered bicycle lane
3. 5-foot bicycle lane
4. 4-foot bicycle lane

As roadways undergo periodic resurfacing, there are opportunities to upgrade on-street bicycle facilities to current standards.

On-street facilities also include wide sidewalks (sidewalks that are at least 8-feet wide) that can be shared by people walking and bicycling.



Image 1: Bike Lane Example



Image 3: Separated Bicycle Facility Example

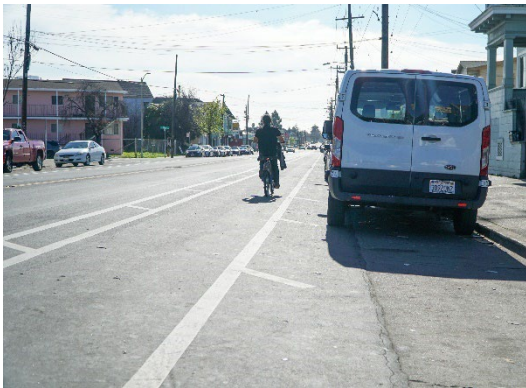


Image 2: Buffered Bike Lane Example



Image 4: Protected Bike Lane Example

Paved shoulder – roadways that do not have a dedicated bicycle facility, but that have a paved shoulder that's at least four-feet wide. These are often high-speed rural roadways with minimal cross traffic.



Image 5: Paved Shoulder Example

Share-use paths/trails – provide a facility that is separated from the vehicular travel way for use by bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. Conflicts between trail users and people driving exist at crossing locations. Trails are typically 12 feet wide, with a 2-foot unpaved shoulder, but can be reduced to 10 feet when there are right-of-way or environmental conditions, like a mature tree or wetlands area, that preclude a wider path (See Figure 8).



Image 6: Shared-use path/Trail Example

Side paths – two-way path for both bicyclists and pedestrians adjacent to a roadway. Like shared-use paths, they are typically 12-feet wide but can be reduced to 10-feet where conflicts exist. On high-speed roadways (45 mph or greater) a separation of at least 5-feet from the vehicular travel way is required per the Florida Design Manual (FDM). In Urban and constrained areas, less separation is required (See Figure 8). Wide sidewalks are a subset of side paths, where the facility provides added width (8-feet) from a standard sidewalk, which is typically 5 or 6 feet.



Image 7: Side Path Example



Table 5 shows the number of on-street lane miles of bicycle facilities on the MetroPlan Orlando network, with an additional 128 miles of off-street trails and 151 miles of side-paths. There are about 425 miles of on-street bicycle facilities, with about 9 percent being on roadways with a posted speed limit of 30 mph or less, 54 percent on roadways with a posted speed of 35 to 45 mph, and 37 percent on roadways with a posted speed of 50 MPH or greater. Approximately 40 percent of roadways with a speed of 50 mph or greater have bicycle lanes or a paved shoulder that can be used by bicyclists.

Table 5: Lane Miles of On-Street Bicycle Facilities by Posted Speed Limit

Facility Type	Lane Miles by Posted Speed of Roadway		
	30 mph or Less	35 to 45 MPH	50 MPH or More
Bike Lane (4 ft +)	37	216	92
Paved shoulder (4 ft +)	1	15	64
Percent of Total Lane Miles by Speed (see Table 4)	9.7%	19.4 %	40.1%
Percent of Total On-street Facilities	8.9%	54.4%	36.7%

Source: xGeographic Wave Database as summarized by Fehr & Peers, 2023.

FIGURE 7

Existing On-Street Bicycle Facilities

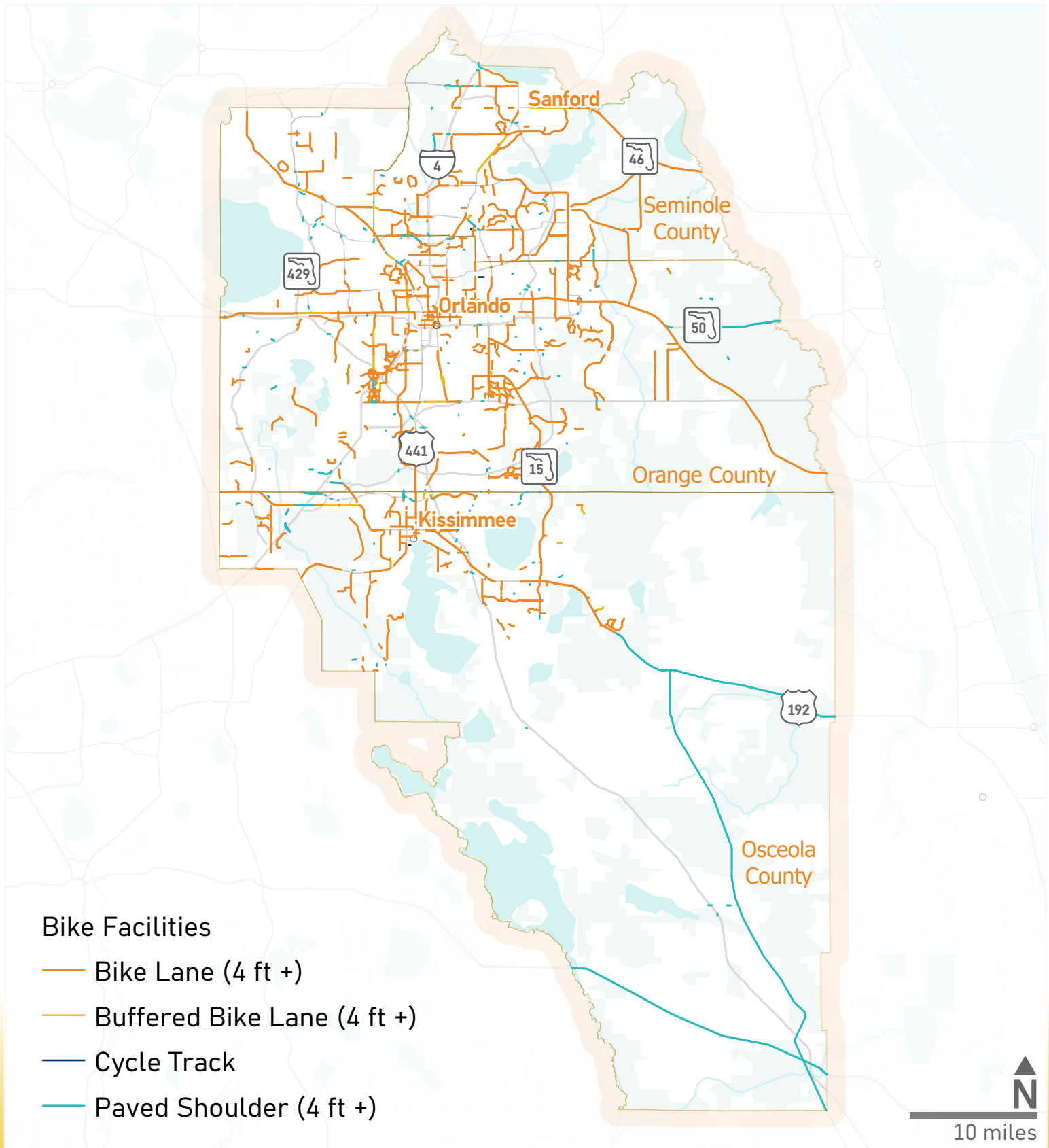
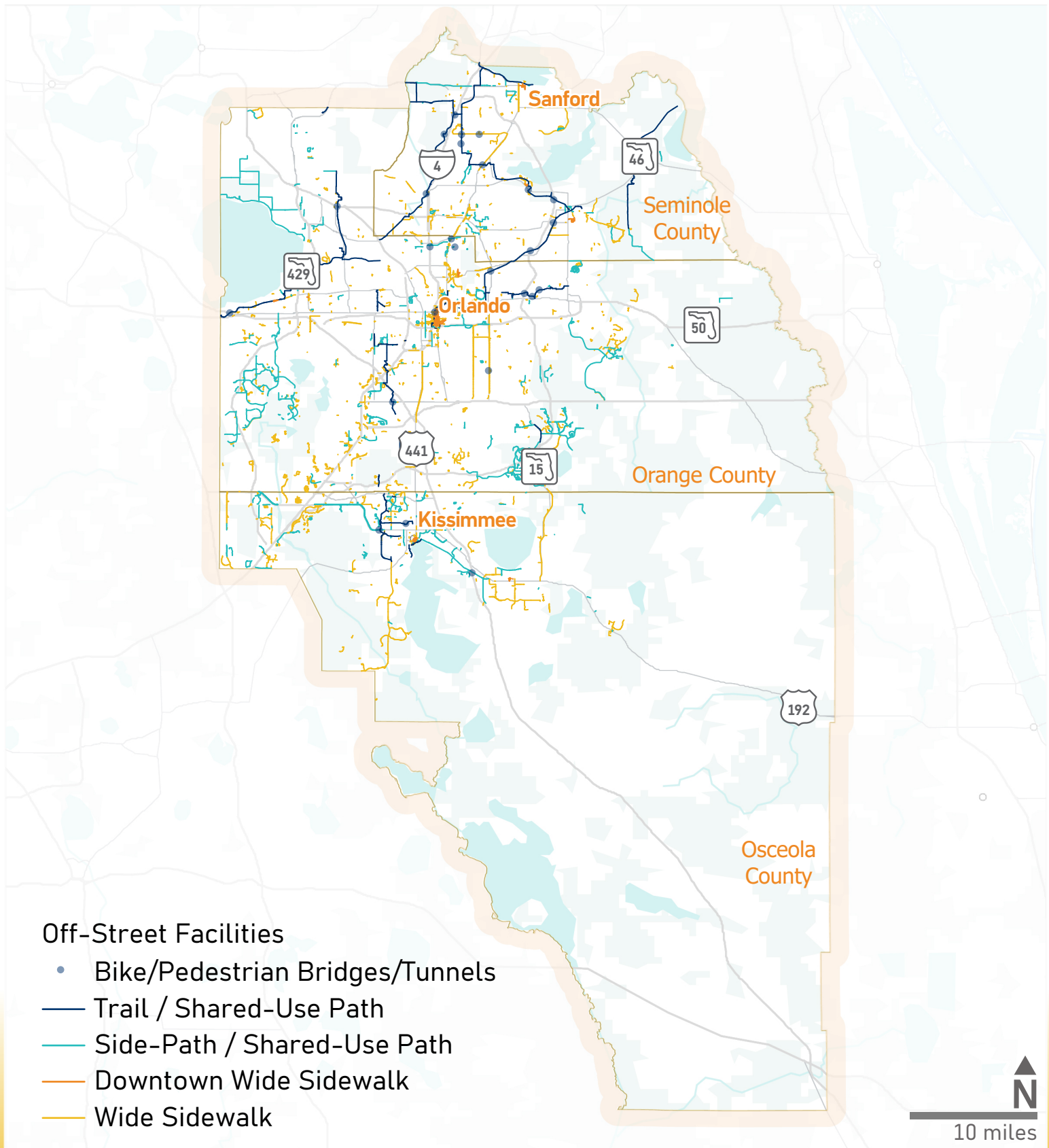


FIGURE 8

Existing Off-Street Facilities





Pedestrian Facilities

Pedestrian facilities in the region are typically provided by sidewalks, side paths and shared use paths. However, there are some roadways in the region where sidewalks are only provided on one side of the street, as shown on [Figure 9](#) and summarized in [Table 6](#). The sidewalk gaps by the posted speed limit of the roadway were assessed, as presented in [Table 7](#), which shows that sidewalk gaps tend to be more prevalent on higher speed roadways. Of the MPO roadway network, approximately 26 percent of roadways do not provide any sidewalks and about 18 percent only provide sidewalks on one side of the street.

Table 6: Miles of Pedestrian Facilities

Facility Type	All Roadways (in miles)	MPO Roadway Network (in miles)
Sidewalk one side	1,590	384
Sidewalk both sides	5,169	1,084
Wide Sidewalk	466	179
Side Path	329	182
Shared-use path/trail	141	

Source: xGeographic Wave Database as summarized by Fehr & Peers, 2023

Table 7: MPO Network Sidewalk Gap Miles by Posted Speed

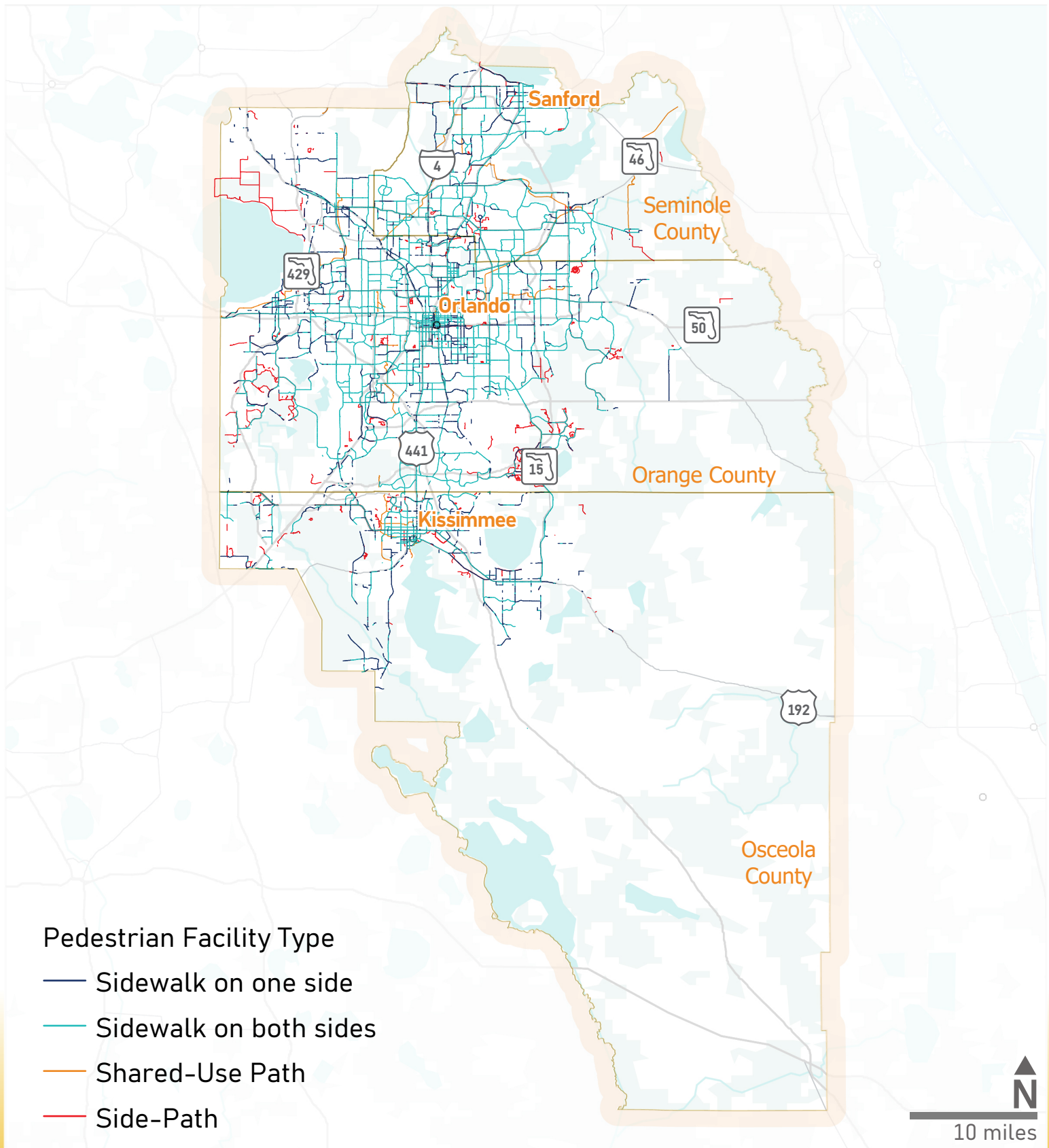
Facility Type	Sidewalk Gap Miles by Posted Speed of Roadway		
	30 mph or Less Gap Miles / (% of MPO Network Centerline Miles)	35 to 45 MPH Gap Miles / (% of MPO Network Centerline Miles)	50 MPH or More Gap Miles / (% of MPO Network Centerline Miles)
Sidewalk Missing	44 (11%)	203 (17%)	282 (72%)
Sidewalk One Side	108 (28%)	223 (19%)	38 (10%)

Source: xGeographic Wave Database as summarized by Fehr & Peers, 2023

As part of a separate project, the critical sidewalk gaps have been identified, and project bundles developed to address the gaps. The sidewalk gap project bundles will be added to project opportunities for the ATP.

FIGURE 9

Existing Pedestrian Facilities All Roadways in Region





Transit Facilities

LYNX is the transit provider for the MetroPlan Orlando Region. Each weekday, LYNX provides approximately 55,000 rides across 80 routes. In Fiscal Year 2022 (October 2021 to September 2022), approximately 16 million passenger trips were provided. Ridership significantly decreased during the COVID-19 pandemic, and while ridership continues to increase each month, it is still below the pre-pandemic peak of about 25 million annual riders. Existing fixed routes are shown on [Figure 10](#) with the average weekday boardings shown on [Figure 11](#).

Bicycle and pedestrian facilities typically serve as first mile/last mile connectors to transit stops. Improving safety as people walk or bike to transit stops could help improve ridership and increase overall accessibility to transit in the region.

Mobility Trends

Micromobility has experienced significant growth and transformation in recent years. Micromobility refers to lightweight, often electric-powered vehicles designed for short-distance trips, including electric bikes, electric scooters, and shared mobility services. These devices can be individually owned, or they can be part of a sharing service, like Bird, Lime, and Lyft.

These micromobility services can offer an alternative to traditional modes of transportation like cars and public transit. Users can locate and unlock shared vehicles through smartphone apps, making it easy to hop on a scooter or bike for short trips.

The rapid proliferation of micromobility has presented challenges, including issues related to parking, improper usage, and sidewalk clutter. Local governments have responded by implementing regulations and permitting processes to manage the influx of vehicles and ensure safety for both riders and pedestrians, but not all jurisdictions in the region have developed e-scooter and e-bike ordinances. The City of Orlando has the most robust bike and scooter share program in the region, with an average of 1,500 shared devices in operation on City of Orlando streets on a typical day, with over 520,000 trips taken in 2022, covering about 489,000 miles – demonstrating that most trips using shared mobility devices are relatively short trips. Additional information can be found on the City's website (linked [here](#): <https://www.orlando.gov/Initiatives/Bike-Share-Scooter-Share-Program>) with ridership information provided by Populus (linked [here](#): <https://app.populus.ai/orlando/public/routes>).

E-bikes and e-scooters, either privately owned or shared, can travel at much faster speeds than human powered bicycles and scooters, potentially creating safety hazards due to speed differential. Additionally, e-bikes can be significantly heavier than traditional bikes, potentially increasing the risk of injury or death in a collision with people walking or on bikes/scooters.

Low Speed Vehicles (LSV) can help enhance mobility options by providing a lower cost and more sustainable transportation mode, especially for short trips within communities that may be too long to walk and are not well served by other non-auto travel modes for a wide range



of the population. LSVs are similar to golf carts with slightly different regulations for LSVs versus golf carts, as shown in [Table 8](#). Given the speed of many roadways within the region, people driving golf carts or LSVs within their communities may choose to drive on the sidewalk, creating the potential for conflicts people walking and bicycling. As an example, the City of Belle Isle became a golf cart community in 2020, allowing golf carts on all streets except McCoy Road. People are also allowed to drive golf carts on select sidewalks on roadways within the city, including Hoffner Avenue and Conway Road. In some places the width of the sidewalk does not allow for two-way travel for both people in golf carts and people walking or bicycling.

Table 8: Distinction between Golf Carts and Low-Speed Vehicles

	Golf Cart	Low Speed Vehicle
Maximum Speed Allowed	20 mph	25 mph
Operator Requirements	14 years of age or older; no license or insurance required; no title or registration required	Driver's license and vehicle insurance; title and registration required
Allowable Roadways	Roadways designated for golf carts with a posted speed limit of 30 mph or less; may operate at dusk, night and dawn hours if equipped with headlights, brake lights, turn signals and windshield	Roadways with posted speed limit 35 mph or less; may operate on roadways with a 45-mph speed limit for short distances if there is no other route and not expressly prohibited
Allowable Crossings	To cross a FDOT or County facility, FDOT must review and approve the location and design of the crossing	Generally, no restrictions, but FDOT may prohibit the operation of LSV on or across a roadway if it is determined to cause a safety issue

Source: Section 320.01 (41) of the Florida Statutes.

The Active Transportation Plan will consider these competing demands on the existing and planned infrastructure for walking and bicycling.

FIGURE 10

Existing Transit Routes

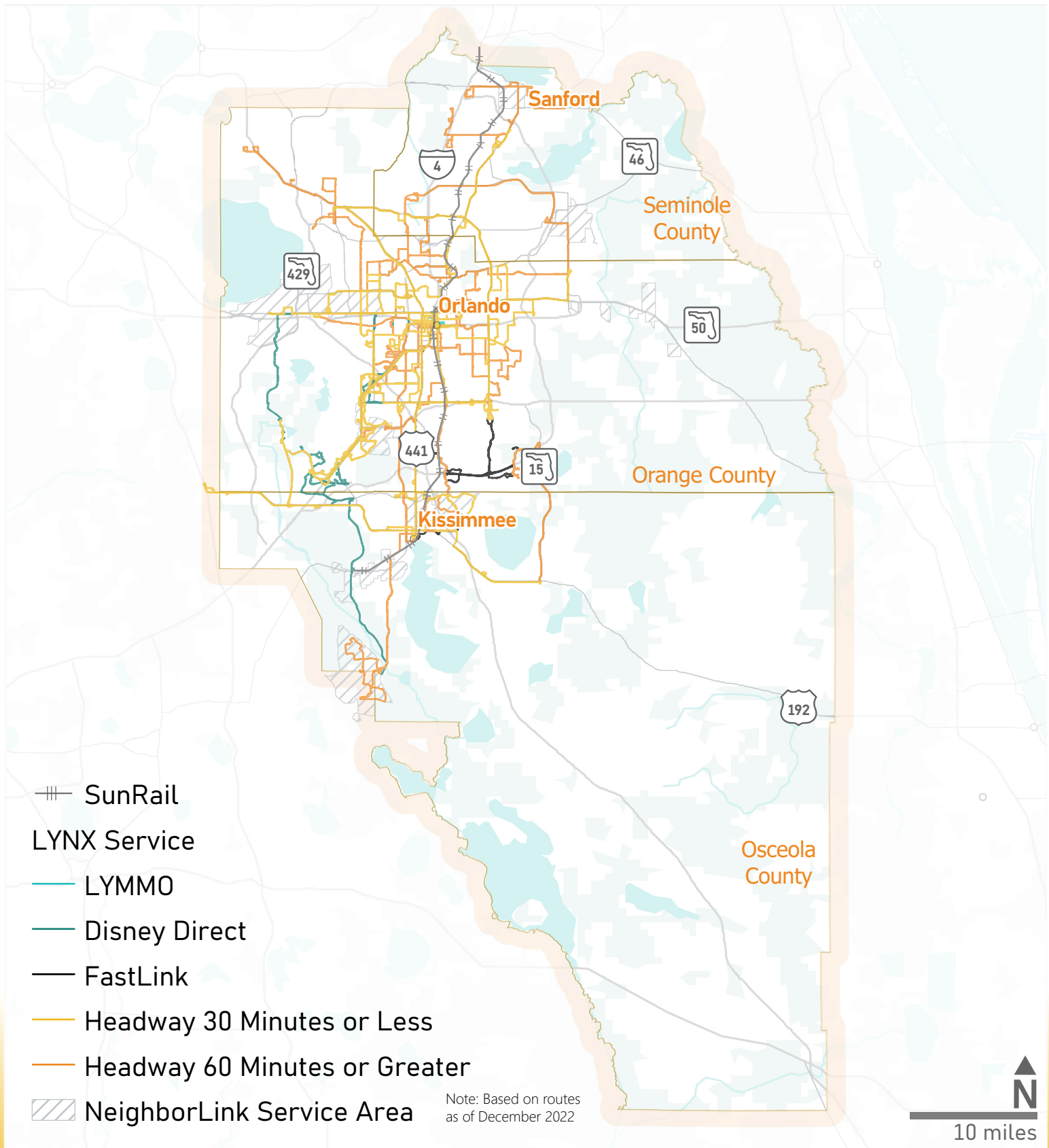
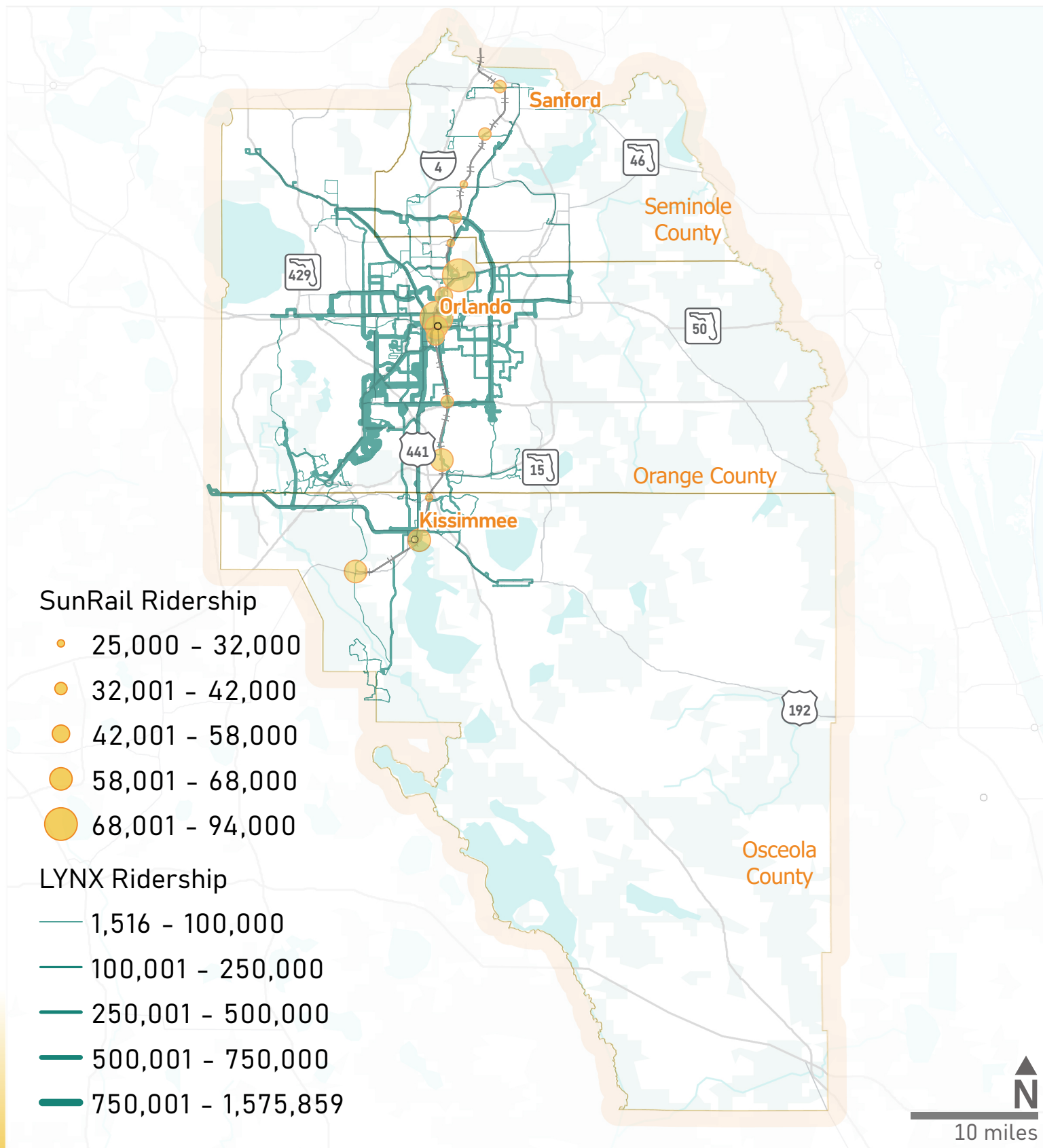


FIGURE 11

Existing Transit Ridership Fiscal Year 2022





Collision Analysis

The MetroPlan Orlando region has the unfortunate distinction of being one of the deadliest metropolitan areas for pedestrians in the country with our outcomes worsening over time. One of the goals of the ATP is to develop a safer bicycle and pedestrian network that improves transportation safety outcomes for vulnerable roadway users, including pedestrians, bicyclists, and other non-auto transportation system users. To support this goal, crash data reflective of 2018-2022 was reviewed and summarized in [Table 9](#) based on data from Signal4. This data reflects crashes that occurred anywhere within the MetroPlan Orlando region, including access-controlled facilities and parking lots. Data in the table is presented for each County as well as the regional total, and crash rates were normalized by population to allow for a comparison between counties. Data reflective of bicyclists and pedestrians generally does not include injuries that might be sustained while using the transportation system if a vehicle was not involved. For example, a pedestrian that trips and is injured might not be included, and a bicyclist that falls off their bike and hits their head on the curb, if that fall was unrelated to a vehicle activity, may not be included in crash report data.

Between 2018 and 2022, there were approximately 344,670 reported crashes in the region. It should be noted that:

- During the height of the pandemic, there may have been some under reporting of crashes that did not result in injuries or property damage as people were social distancing,
- Some KSI (crash which results in a fatality or severe injury) collisions may be underreported because not all serious injuries are visible (i.e., brain injuries),
- Fatalities that are reported within 30 days of the crash are recorded as a fatal crash; fatalities that are reported more than 30 days after the crash are not recorded as a fatal crash.

Of the total crashes occurring within the MetroPlan Orlando region, about 3 percent resulted in a fatality or severe injury, referred to as a KSI crash, accounting for all travel modes, with the most crashes and most crashes per person occurring in Orange County.

A much smaller number of crashes involve someone bicycling or walking, less than 3 percent. Although people walking and bicycling are involved in about 2.6 percent of all crashes, people walking and bicycling that are killed or severely represent over 15 percent of KSIs in the region.

Orange County has a higher severe and fatal crash rate on a per resident basis for pedestrians than Osceola and Seminole Counties, while Osceola County has the highest fatal crash rate for bicyclists when normalized by population.



Table 9: Regional Collision Data (all roadways – 2018 to 2022)

Variable	Orange County Number (rate per 100k people)	Osceola County Number (rate per 100k people)	Seminole County Number (rate per 100k people)	Regional Total Number (rate per 100k people)
Total Population	1,420,000	400,000	470,000	2,290,000
Total Reported Collisions	222,999 (3,141)	56,397 (2,820)	65,268 (2,777)	344,664 (3,010)
Number of People Killed or Severely Injured (KSI)	8,074 (114)	1,778 (89)	1,206 (51)	11,058 (97)
Number of People Killed	946 (13.32)	329 (16.45)	199 (8.47)	1,474 (12.87)
Collisions that involve a Bicyclist	2,402 (33.83)	529 (26.45)	722 (30.72)	3,653 (31.90)
Number of Bicyclists Killed or Severely Injured	337 (4.75)	62 (3.10)	55 (2.34)	454 (3.97)
Number of Bicyclists Killed	49 (0.69)	17 (0.85)	8 (0.34)	74 (0.65)
Collisions that involve a pedestrian	3,482 (49.04)	799 (39.95)	1,076 (45.79)	5,357 (46.79)
Number of Pedestrians Killed or Severely Injured	893 (12.58)	165 (8.25)	141 (6.00)	1,199 (10.47)
Number of Pedestrians Killed	286 (4.03)	54 (2.70)	49 (2.09)	389 (3.40)

Source: Signal4; data from 2018 – 2022

Bold indicates a crash rate above the regional average.



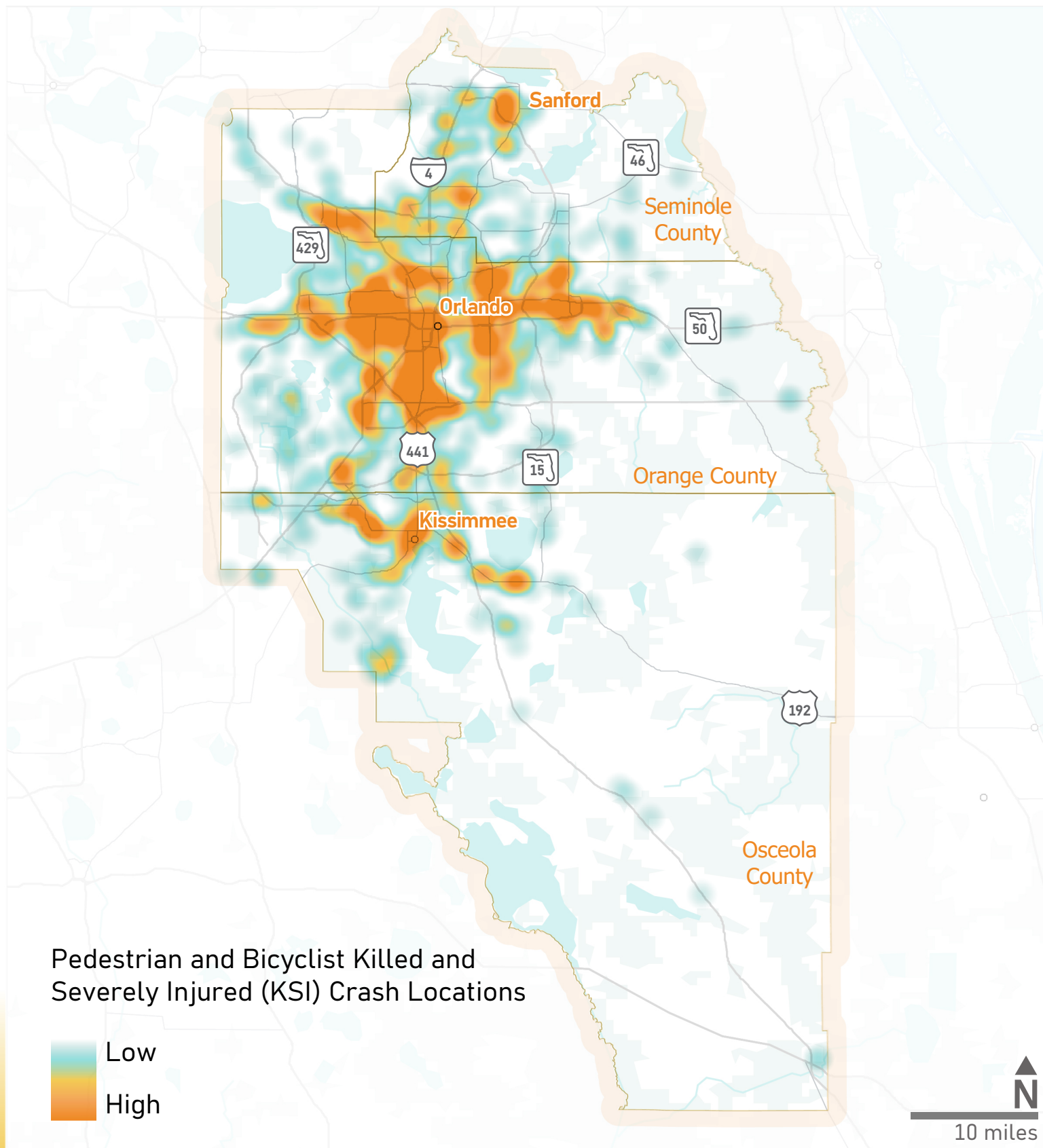
Crash trends by the characteristics of the roadway system were also reviewed, with the number of crashes involving a person walking or bicycling increasing as the number of vehicular travel lanes and the traffic volumes increases. There are many factors that contribute to this trend, such as:

- Roadways with high traffic volumes and multiple travel lanes tend to serve commercial corridors where transit is operated, and there is a high density of destinations.
- Multi-lane roadways (more than 7 lanes) tend to have higher posted speed limits (40+) and higher speed vehicle traffic that can increase crossing distance of roadways, increasing the exposure of people walking and bicycling to conflicts with vehicles, and increasing the reaction time of a person driving to react to someone crossing the roadway.

A heat map showing the locations within the MetroPlan Orlando Region with the number of reported crashes that result in a severe injury or fatality for people walking and bicycling is shown on [Figure 12](#).

FIGURE 12

Pedestrian and Bicyclist KSI Crash Locations (2018 – 2022)





LTS and PLOC

To evaluate where new and enhanced walking and bicycling facilities could improve accessibility within the MetroPlan Orlando region, a Level of Traffic Stress (LTS) analysis was conducted to assess the comfort for people bicycling on roadways within the region and a Pedestrian Level of Comfort (PLOC) analysis was conducted to assess the comfort of people walking on the transportation system. A technical memorandum was prepared to document the LTS and PLOC Methodology and is provided as [Appendix C](#).

Level of Traffic Stress and Pedestrian Level of Comfort scores should not be construed as a predictor of facility use by people walking and bicycling. Area demographics and land uses along a corridor are better predictors of the volume of walking and bicycling that does and could occur. For example, in a low-density area where land uses are spread apart and most people have access to a vehicle, people may walk or bicycle for recreational purposes in the area, but not as a primary mode of travel. Conversely, in areas where complementary uses are within proximity and people have less access to vehicles, walking and bicycling activity is typically higher, even when low stress facilities are not available.

Bicycle Level of Traffic Stress

Inputs to the Level of Traffic Stress (LTS) analysis generally include:

- Type of bicycle facility present
- Speed limit of the roadway
- Traffic volumes on the roadway

LTS scores of 1 and 2 generally represent lower stress facilities than many people feel comfortable riding a bike on, while LTS 3 and 4 facilities are generally more stressful for people to use. Additional details are provided in the methodology memorandum. Shared Use Paths/trails and side paths are the least stressful bicycle facility type in the region, with paved shoulders and roadways with no bicycle facilities being the most stressful of roadways with bicycle lanes. A visual depiction of the LTS ratings is shown on [Image 8](#). Results of the existing conditions LTS analysis are presented on [Figure 13](#) and summarized in [Table 10](#).

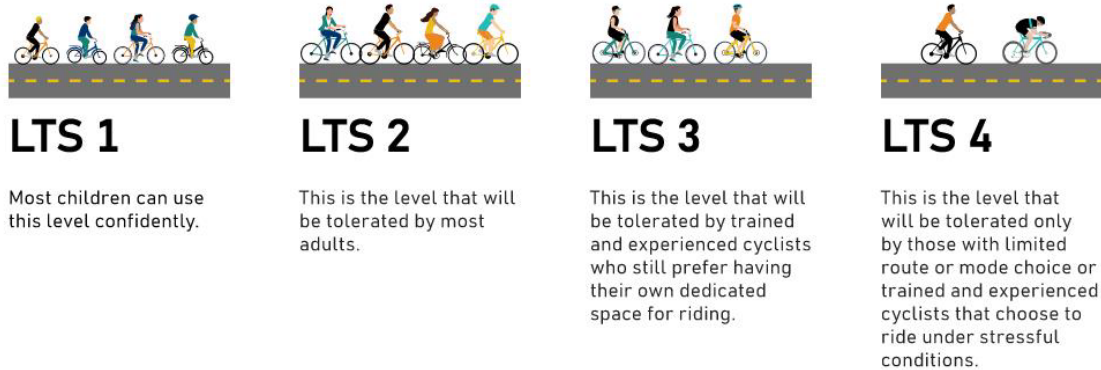


Image 8: Visual Depiction of Level of Traffic Stress

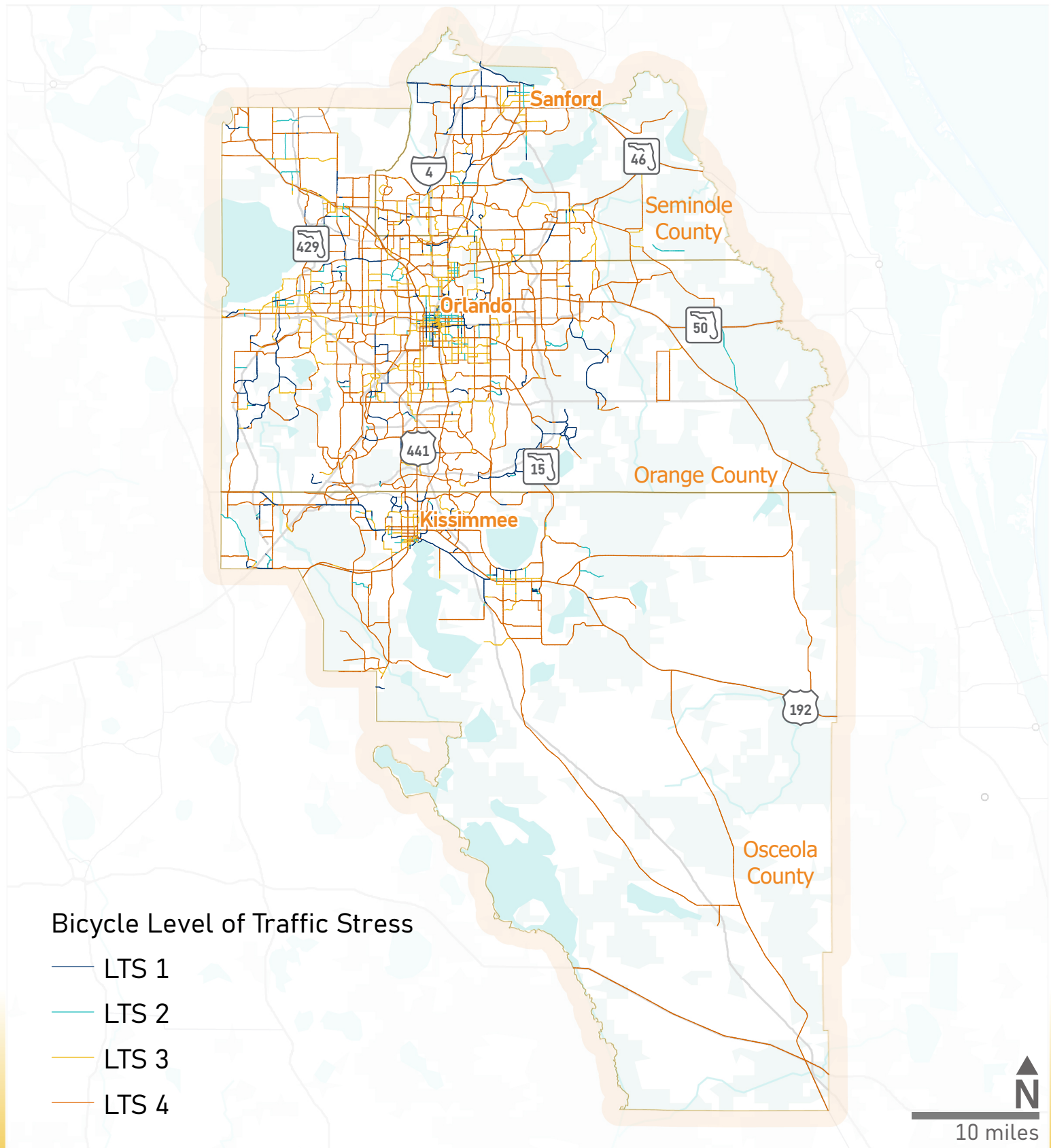
Table 10: LTS Score for MPO Network by Bicycle Facility Type (in miles of facility)

LTS Score	Shared Use Path/ Trail	Side Path	Bicycle Lanes/Paved Shoulder	No Bicycle Facility
1	128	342	66	121
2	-	-	28	74
3	-	-	82	245
4	-	-	522	800

Source: xGeographic; Fehr & Peers, 2023

FIGURE 13

Existing Bicycle Level of Traffic Stress



Pedestrian Level of Comfort

Inputs to the Pedestrian of Level of Comfort (PLOC) analysis generally include:

- Type of pedestrian facility present
- Distance between pedestrian facility and vehicular travel way
- Speed limit of the roadway
- Traffic volumes on the roadway

PLOC scores from one to five, with a PLOC 1 rating represents the lowest stress facility and primarily includes trails, side paths, and streets with sidewalks on both sides of the street as well as low volume and low speed vehicle travel. A PLOC 5 rating was reserved for roadways with no pedestrian facilities. More information about the PLOC methodology can be found in [Appendix CC](#) and a graphic depiction of the PLOC scoring is shown on [Image 9](#).

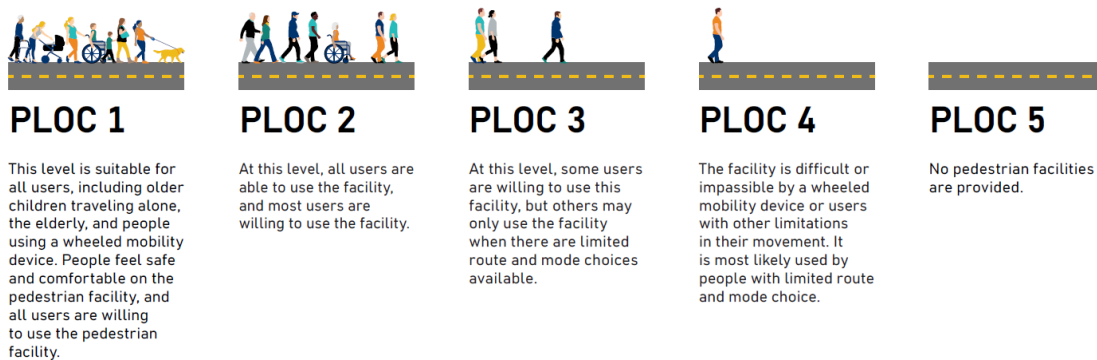


Image 9: Visual Depiction of Pedestrian Level of Comfort

Figure 14 displays the PLOC scores for the MetroPlan Orlando pedestrian network. **Table 11** summarizes the miles of pedestrian facilities by PLOC score. There is a higher percentage of lower stress (PLOC 1 or 2) pedestrian facilities than bicycle facilities, with about 33 percent of the facilities rated as PLOC 1 or 2. As previously mentioned, PLOC does not always correlate with where people are currently walking. Filling gaps, particularly on high stress facilities where people are already walking could be a good opportunity to improve pedestrian comfort in the region.



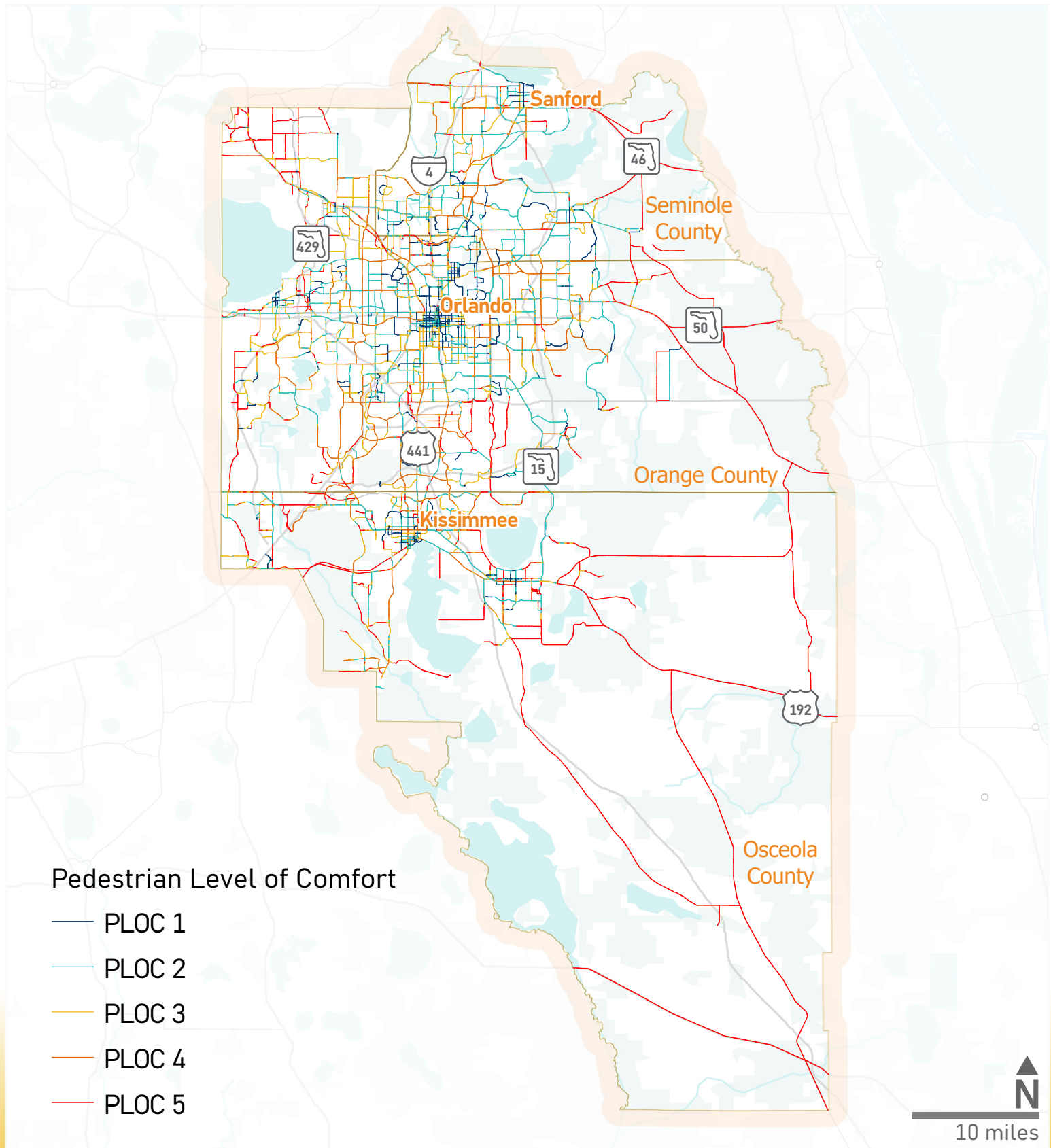
Table 11: PLOC Score for MPO Network by Pedestrian Facility Type (in miles of facility)

PLOC	Shared Use Path/ Trail	Side Path	Sidewalks Both Side	Sidewalks One Side	No Sidewalks
1	128	342	166	-	-
2	-	-	396	88	-
3	-	-	250	195	-
4	-	-	260	85	-
5	-	-	-	-	527

Source: xGeographic; Fehr & Peers, 2023

FIGURE 14

Existing Pedestrian Level of Comfort





Travel Access Analysis

A travel access analysis was conducted to identify locations in the region that have a high level of access to a variety of destinations via low stress walking and bicycling facilities, and parts of the region that may have high levels of access, but only on high-stress facilities. Analysis results will help guide where lower stress walking and bicycling facilities would be provided.

Based on feedback from the public as well as the steering committee, the travel access analysis considered how accessible a variety of key destinations are from the surrounding area, with the following destination types considered locations where travel access would be prioritized:

- Public Schools
- Transit Facilities, such as LYNX stops and SunRail stations
- Parks, including neighborhood parks and regional parks
- Jobs, based on the location of businesses in the xGeographic Wave database
- Shopping, including grocery stores

The distance that an average person might be able to bicycle within different time periods was based on an average biking speed of 10 miles per hour, meaning that it would take an average person about 30 minutes to travel 5-miles on their bicycle. For walking access, an average walking speed of 3 miles per hour was used. Some people may bike or walk faster or slower than the averages, with these speeds selected for planning purposes. For each destination type, the areas that could be reached within 1-5 minutes, 6-15 minutes, and 16-30 minutes were assessed. Where there are sidewalk gaps, it was set as a walking barrier with no walking trips able to pass by the area without a sidewalk. A similar impedance was not applied for bicycle travel. With all land uses combined, the allowable score ranges from 0 to 5. The results shown on [Figure 15](#) for bicycling accessibility and [Figure 16](#) for pedestrian accessibility, meaning that the higher the total accessibility score the, the higher the level of access via bicycling and walking.

To account for the comfort of walking and bicycle facilities provided, the underlying LTS and PLOC rating were then factored into the analysis. Based on the stress of the routes, a score was assigned to assess the overall comfort of walking and biking to various destinations within the region. Areas that are either inaccessible or only accessible via high stress networks received a lower score than areas that are accessible via lower stress networks, with the results shown on [Figure 17](#) for bicycling accessibility and [Figure 18](#) for pedestrian accessibility. Roadways were rated with one of four scores:



- ***Low LTS/PLOC and High Access*** - these are roadways where there are many destinations within the travel buffers (above average access score), and the route is comfortable (average LTS/PLOC score of 2 or better).
- ***Low LTS/PLOC and Low Access*** - these are roadways where there are not that many destinations within the travel buffers (lower than average access score), but the route is comfortable (average LTS/PLOC score of 2 or better).
- ***High LTS/PLOC and Low Access*** - these are roadways where there are not that many destinations within the travel buffers (lower than average access score), and the route is uncomfortable (average LTS/PLOC score greater than 2).
- ***High LTS/PLOC and High Access*** - these are roadways where there are many destinations within the travel buffers (above average access score), but the route is uncomfortable (average LTS/PLOC score greater than 2).

The overall accessibility to different land use types by primarily low stress networks (route average LTS or PLOC is 2 or better) is summarized in [Table 12](#) for a 15-minute travel time and [Table 13](#) for a 30-minute travel time. In the region, about 28 percent of schools are accessible via a 15-minute low stress walking network and about 10 percent are accessible via a 15 minute-low stress bicycling network. Parks are the most accessible land use by both walking and bicycling travel modes. This is likely due to the placement of parks within neighborhoods as development occurs. Shopping destinations are the least accessible for people walking, with only about 12 percent of shopping destinations accessible via a 15-minute walk. This is likely due to the placement of many shopping centers on arterial roadway. About 20 percent of transit stops in the region are considered accessible by a 15-minute walk, with less than 2 percent accessible by a 15-minute bike ride. When travel time assumptions are increased, the number of walkable and bikeable destinations via a low stress route increases. For example, the number of parks accessible in a 30-minute walk increases to about 76 percent of parks in the region. Access to shopping centers also doubles and access to transit facilities almost doubles. There are also some modest gains for the bicycling access sheds, with parks remaining the most accessible land use in the region via bicycling.

It is important to note the distance traveled within a 15 (or 30) minute walk shed is considerably shorter than that of a 15-minute bicycle shed (since the assumed travel speed is 3 mph for pedestrians and 10 mph for bicyclists). This likely contributes to the result that facilities are generally more accessible via low-stress networks for pedestrians compared to bicyclists. This also suggests that low-stress accessibility decreases as trips get longer as consistently comfortable facilities are not provided. Additionally, due to the high granularity of the data, there may be short segments identified as uncomfortable or posing as a barrier to access, such as where no designated or controlled crossing locations are present in proximity to the nearby land uses.

FIGURE 15

Existing Bicycle Accessibility Score

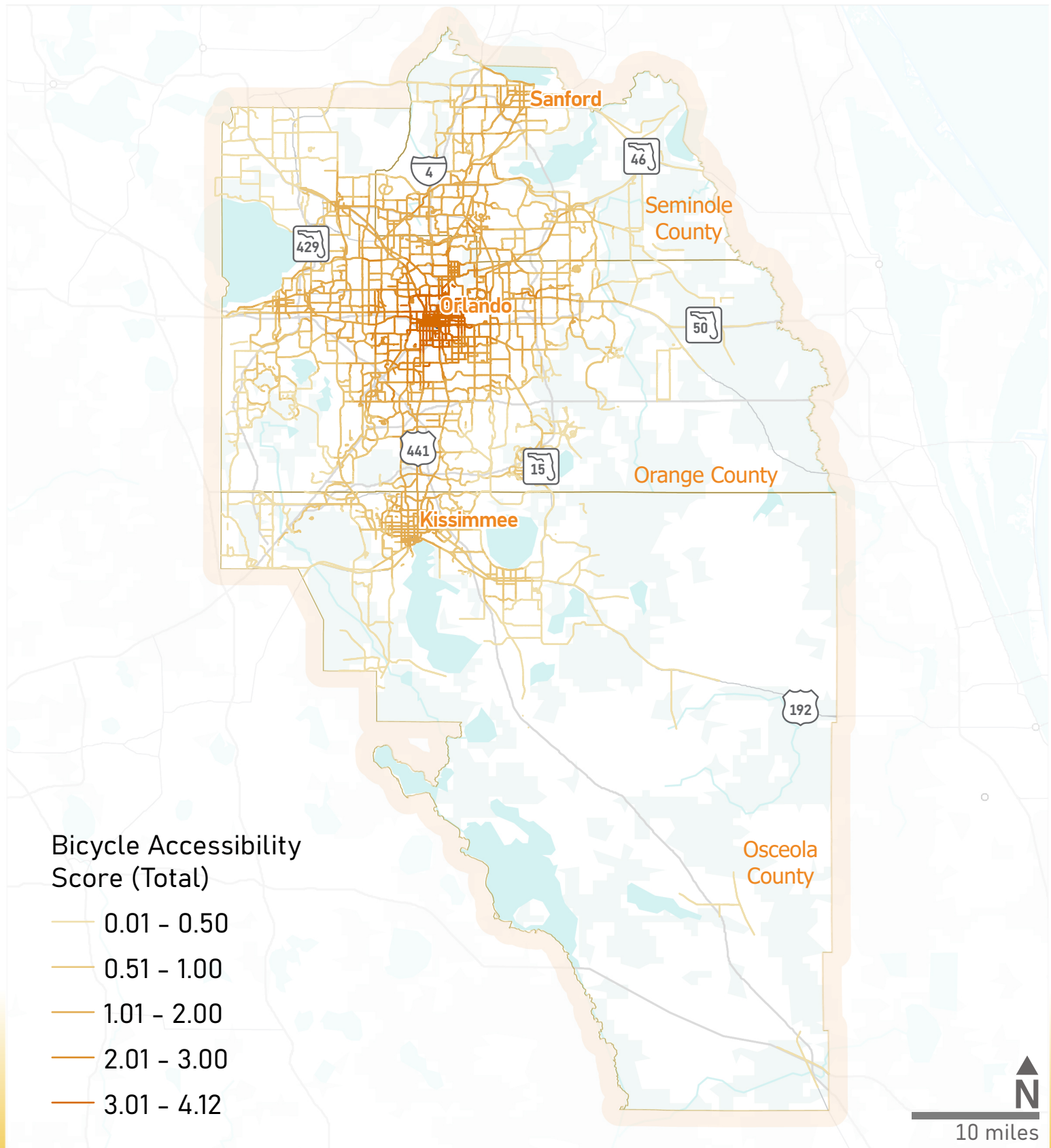


FIGURE 16

Existing Pedestrian Accessibility Score

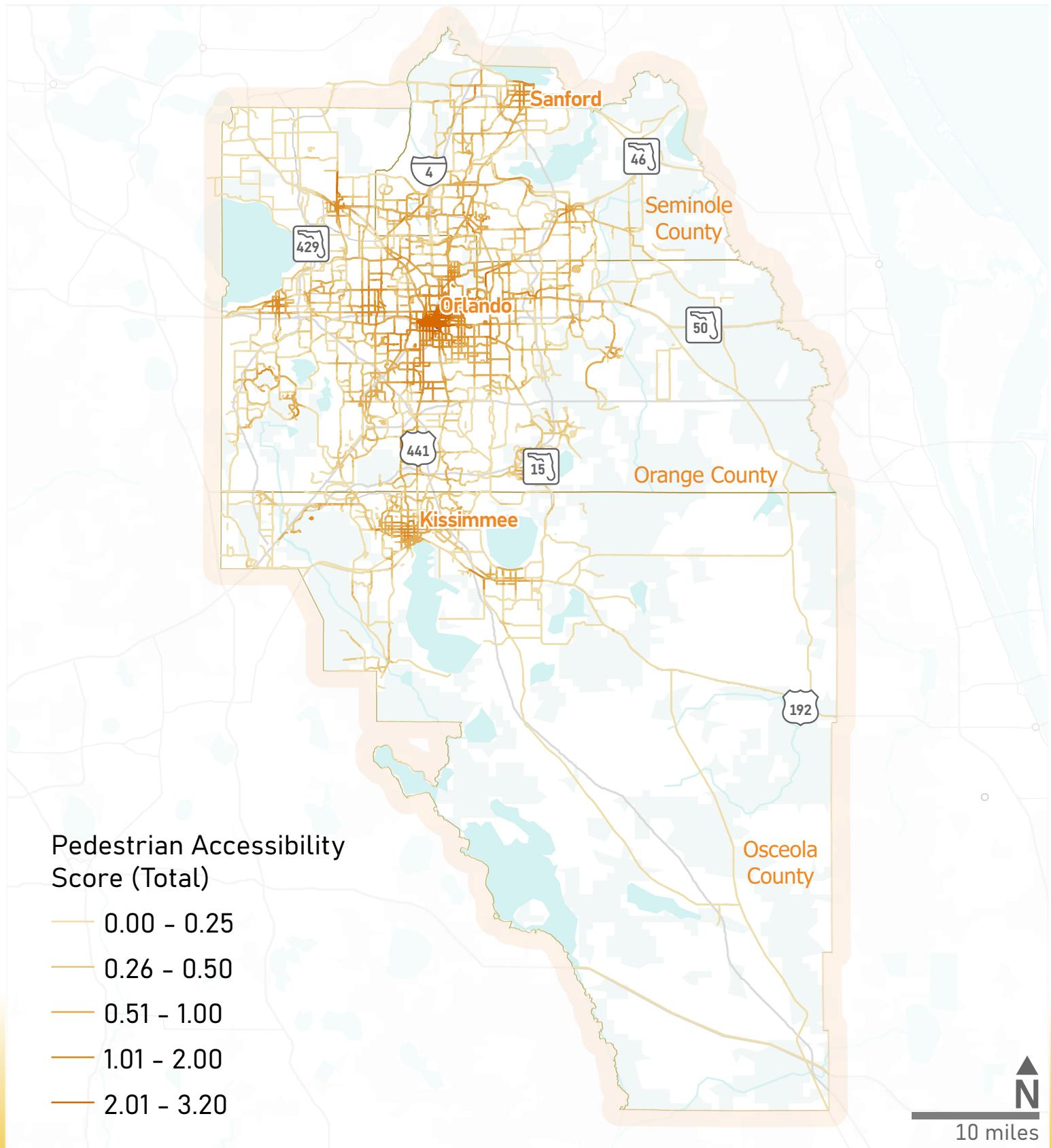


FIGURE 17

Existing Bike Access and Comfort Summary

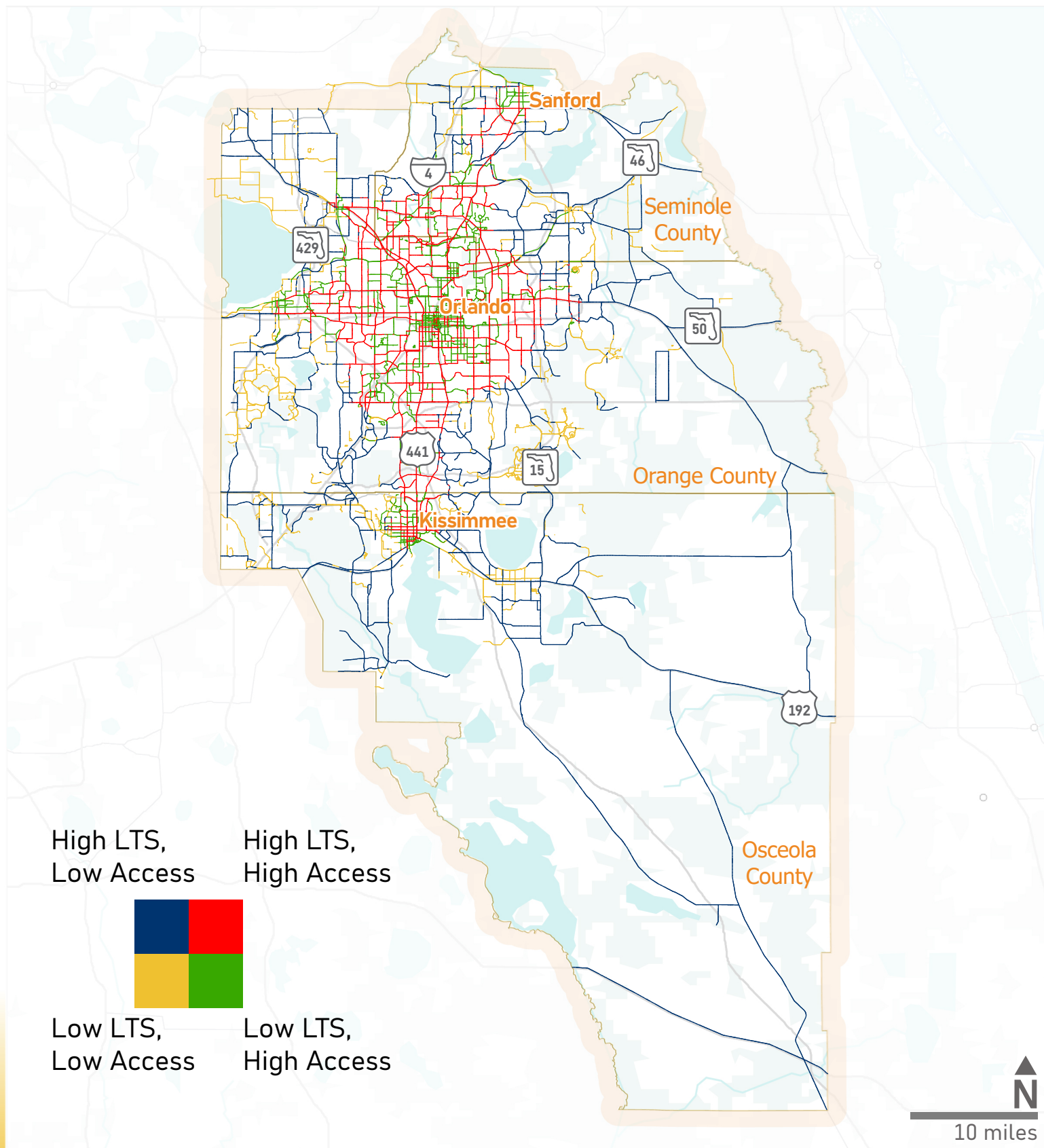


FIGURE 18

Existing Pedestrian Access and Comfort Summary

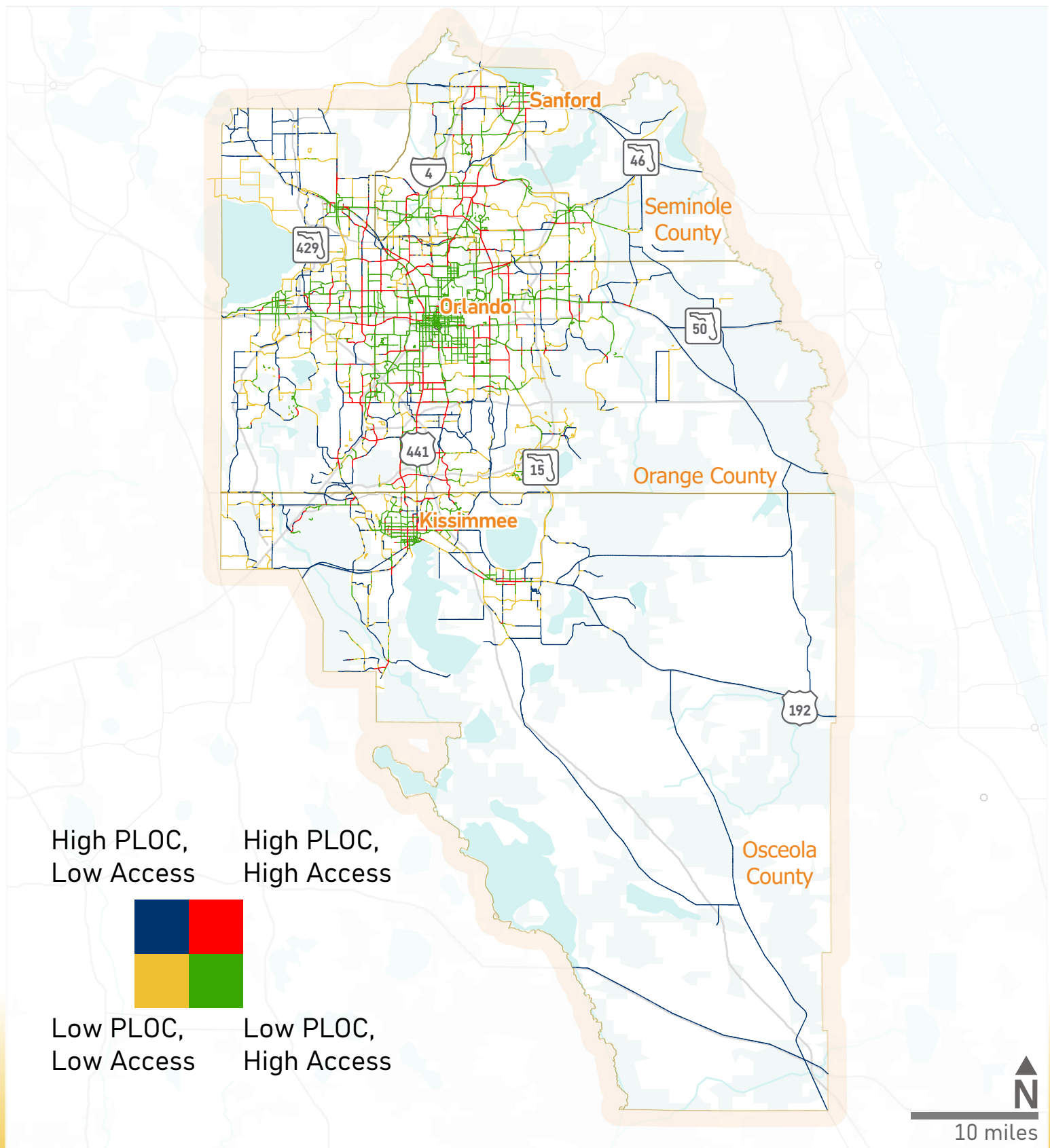




Table 12: Existing Travel Access Summary Via Predominately Low-Stress Network* – 0 -15 Minute Travel Time

Land Use Type	Total within Region	Total Accessible on walking network	Percent Accessible on walking network	Total Accessible on biking network	Percent Accessible on biking network
Schools	317	90	28%	31	10%
Transit Facilities	4,280	877	20%	97	2%
Parks	817	368	45%	102	12%
Jobs	2,704	663	25%	157	6%
Shopping	1,776	210	12%	48	3%

*Predominately low-stress network" definition: Average PLOC or LTS of all roads within shed is less than or equal to 2

Source: xGeographic; Fehr & Peers, 2023

Table 13: Existing Travel Access Summary Via Predominately Low-Stress Network* – 0 -30 Minute Travel Time

Land Use Type	Total within Region	Total Accessible on walking network	Percent Accessible on walking network	Total Accessible on biking network	Percent Accessible on biking network
Schools	317	142	45%	50	16%
Transit Facilities	4,280	1,597	37%	128	3%
Parks	817	618	76%	154	19%
Jobs	2,704	1152	43%	277	10%
Shopping	1,776	415	23%	78	4%

*Predominately low-stress network" definition: Average PLOC or LTS of all roads within shed is less than or equal to 2

Source: xGeographic; Fehr & Peers, 2023



Accessibility was also measured in disadvantaged communities (meeting 4 or more of the factors listed previous in the Regional Overview section, starting on Page 10). Any travel shed whose area covered at least 50% of a disadvantaged community was flagged as a shed within a disadvantaged community. [Table 14](#) and [Table 15](#) show the number of predominately accessible facilities within disadvantaged communities for 15 and 30-minute travel times, respectively. It is apparent that disadvantaged communities are less likely to be found in low stress travel sheds compared to those that are not.

Table 14: Existing Travel Access Summary Via Predominately Low-Stress Network within Disadvantaged Communities – 0-15 Minute Travel Time

Land Use Type	Total within Region	Total Accessible on walking network	Percent Accessible on walking network	Total Accessible on biking network	Percent Accessible on biking network
Schools	317	27	9%	3	1%
Transit Facilities	4,280	570	13%	25	1%
Parks	817	100	12%	8	1%
Jobs	2,704	263	10%	38	1%
Shopping	1,776	91	5%	4	1%

Source: xGeographic; Fehr & Peers, 2023

Table 15: Existing Travel Access Summary Via Predominately Low-Stress Network within Disadvantaged Communities – 0-30 Minute Travel Time

Land Use Type	Total within Region	Total Accessible on walking network	Percent Accessible on walking network	Total Accessible on biking network	Percent Accessible on biking network
Schools	317	39	12%	5	2%
Transit Facilities	4,280	896	21%	49	1%
Parks	817	165	20%	14	2%
Jobs	2,704	445	16%	46	2%
Shopping	1,776	160	9%	8	0%

Source: xGeographic; Fehr & Peers, 2023



The population characteristics of each travel shed were also reviewed. [Table 16](#) summarizes the average population within the travel shed for each of the destination land uses, with [Table 17](#) summarizing the percent of that population that resides in a disadvantaged community. In general, populations within predominantly accessible areas are higher when they are not within disadvantaged communities.

Table 16: Average Population in Low Stress Travel Sheds

Land Use Type	Avg. Pop within 0-15 min walk shed	Avg. Pop within 0-15 min bike shed	Avg Pop between 0-30 min walk shed	Avg Pop between 0-30 min bike shed
Schools	2,260	9,767	9,056	24,568
Transit Facilities	3,503	7,756	12,346	18,256
Parks	2,004	6,300	7,470	22,440
Jobs	2,246	5,508	11,564	18,257
Shopping	2,986	9,702	10,423	25,109

Source: xGeographic; Fehr & Peers, 2023

Table 17: Disadvantaged Community Population in Low Stress Travel Sheds

Land Use Type	Avg. Pop within 0-15 min walk shed	Avg. Pop within 0-15 min bike shed	Avg Pop between 0-30 min walk shed	Avg Pop between 0-30 min bike shed
Schools	2,823	11,105	8,259	457
Transit Facilities	2,948	809	8,460	837
Parks	2,200	2,426	6,626	338
Jobs	2,213	6,359	7,534	466
Shopping	2,800	347	8,505	347

Source: xGeographic; Fehr & Peers, 2023



Planned Facilities

As a starting point to the identification of new active transportation facilities in the region, the planned bicycle facility types were documented as shown on [Figure 19](#) for on-street facilities and [Figure 20](#) for off-street facilities, and summarized in [Table 18](#). This planned network has been confirmed by local agencies in the region and will serve as a starting point for the identification of new facilities in the region.

Table 18: Planned Facility Types on MPO Network

Facility Type	Orange	Osceola	Seminole	Total
Shared-Use Path/Trail	22	2	0	24
Side Path	237	244	142	623
Wide sidewalks	0	0	0	0
Bike Lane (4 ft +)	150	80	13	243

Source: xGeographic; Fehr & Peers, 2023

A preliminary future year accessibility analysis was also conducted to see how planned improvements could improve accessibility, with the results shown on [Figure 21](#) for bicycling and [Figure 22](#) for walking. The number of destinations accessible via a predominately low stress network was also calculated for the future planned system, with the results shown in [Table 19](#) for a 15-minute low stress travel buffer and [Table 20](#) for a 30-minute low stress travel buffer. Overall, the planned system will increase the number of low stress routes to key destinations within the region, although many destinations will continue to not be accessible via a low stress walking and bicycling network.

FIGURE 19

Planned On-Street Bicycle Facilities

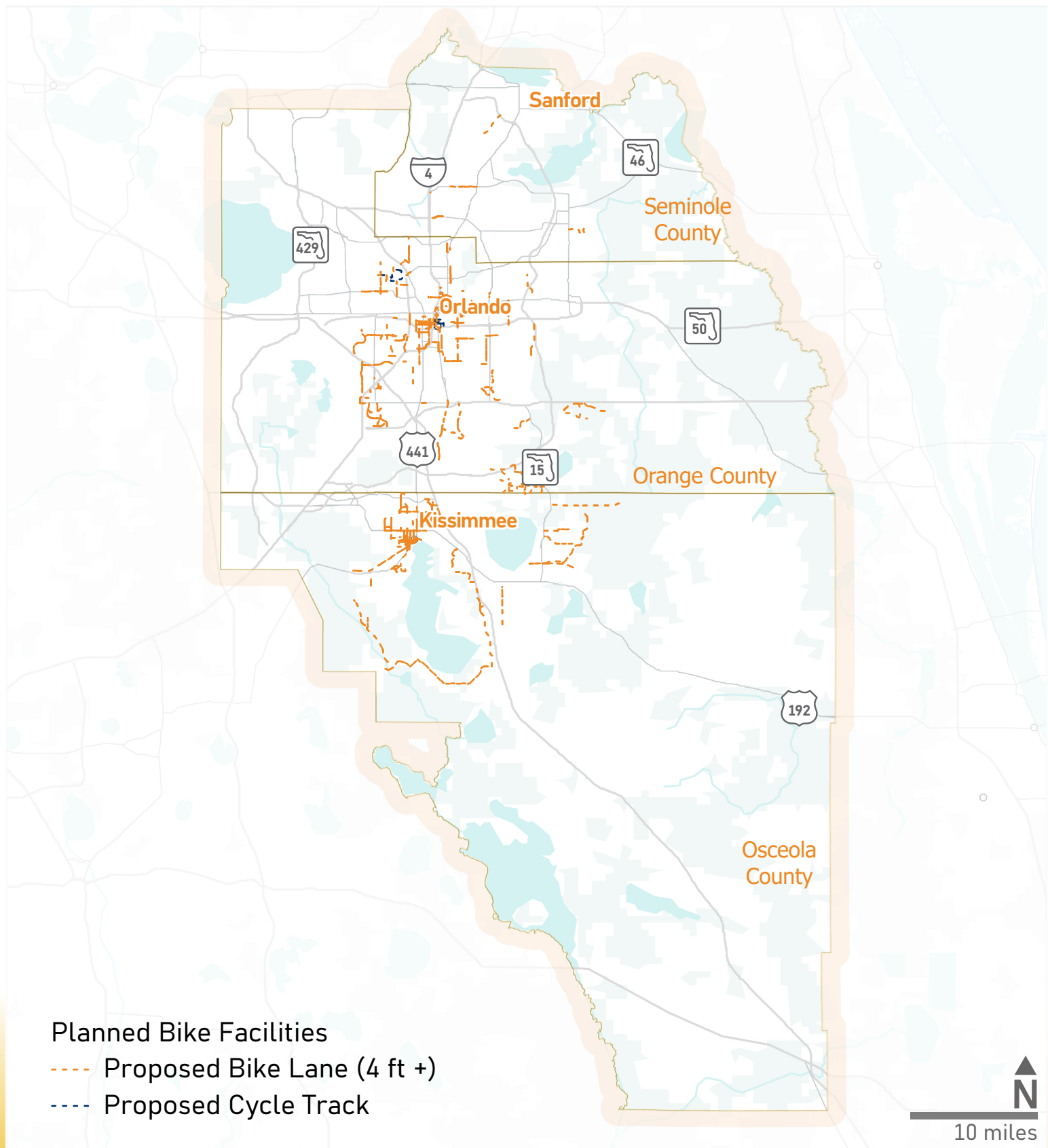


FIGURE 20

Planned Off-Street Facilities

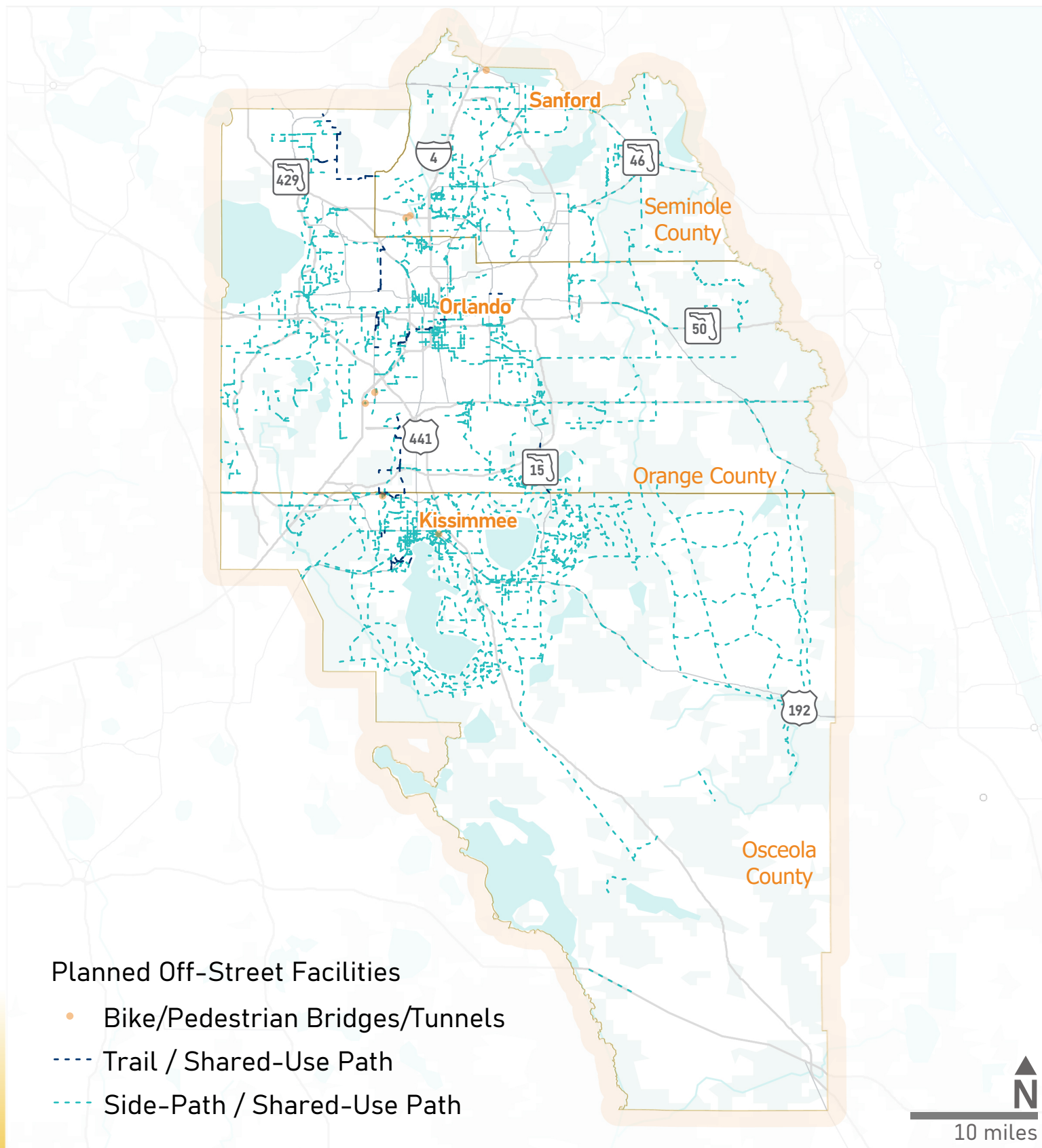


FIGURE 21

Future Bicyclist Accessibility with Planned Improvements

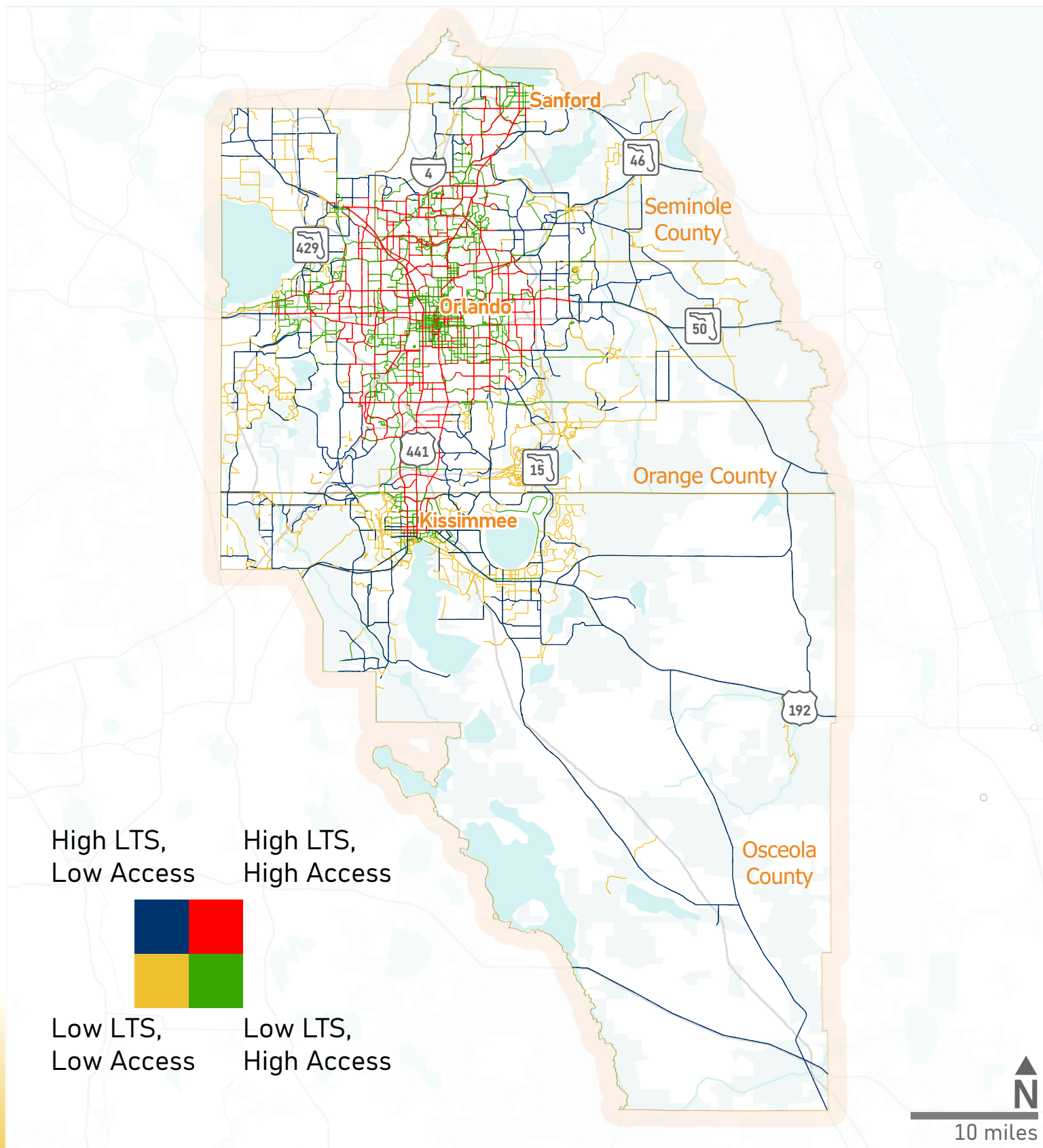


FIGURE 22

Future Pedestrian Accessibility with Planned Improvements

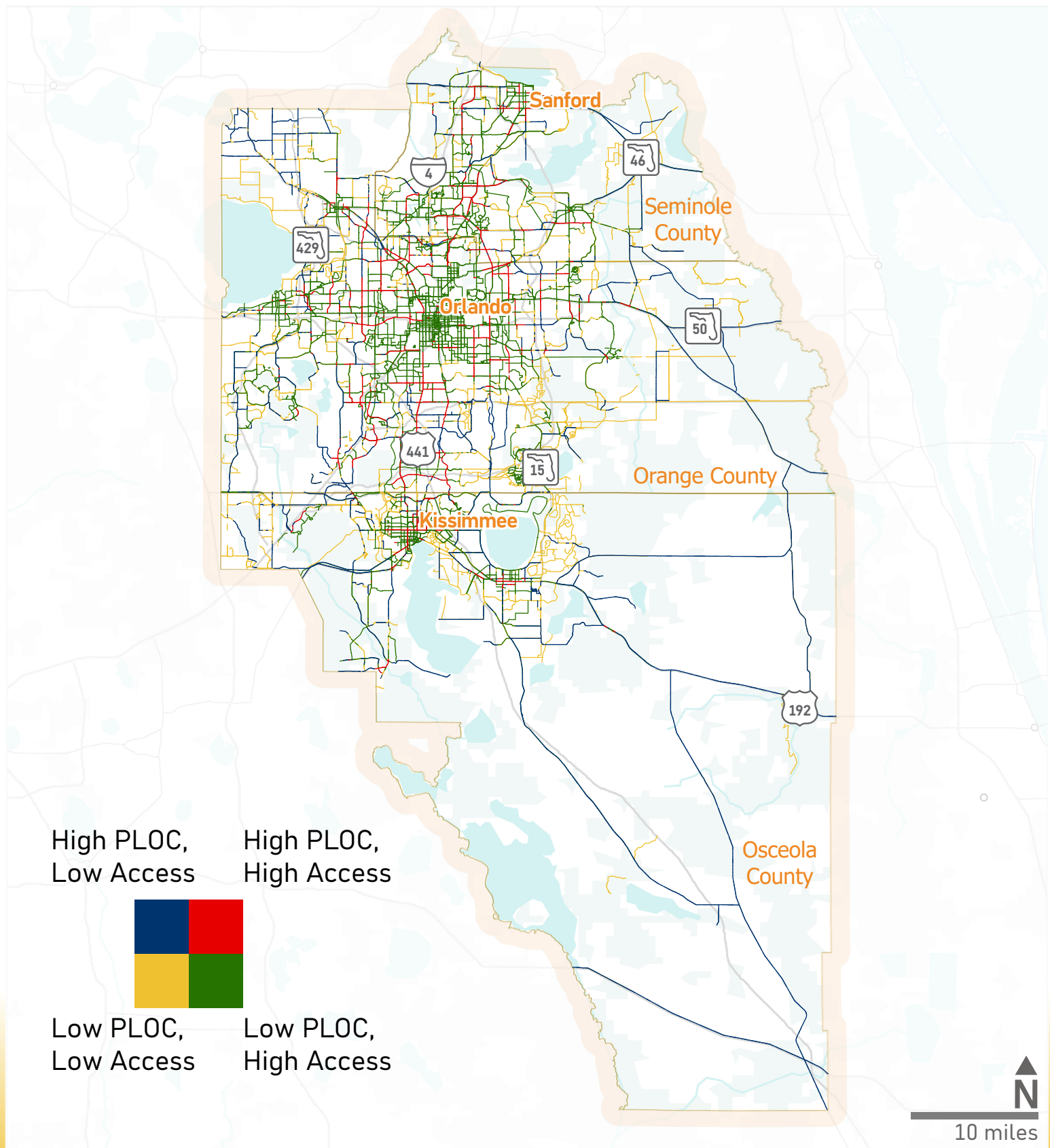




Table 19: Future Planned System Travel Access Summary Via Predominately Low-Stress Network* – 15 Minute Travel Time

Land Use Type	Total within Region	Total Accessible on walking network	Percent Accessible on walking network	Total Accessible on biking network	Percent Accessible on biking network
Schools	317	190	60%	60	19%
Transit Facilities	4280	1659	39%	334	8%
Parks	817	557	68%	191	23%
Jobs	2704	1504	56%	532	20%
Shopping	1776	941	53%	261	15%

*Predominately low-stress network" definition: Average PLOC or LTS of all roads within shed is less than or equal to 2

Source: xGeographic; Fehr & Peers, 2023

Table 20: Future Planned System Travel Access Summary Via Predominately Low-Stress Network* – 30 Minute Travel Time

Land Use Type	Total within Region	Total Accessible on walking network	Percent Accessible on walking network	Total Accessible on biking network	Percent Accessible on biking network
Schools	317	188	59%	50	16%
Transit Facilities	4280	1720	40%	296	7%
Parks	817	532	65%	133	16%
Jobs	2704	1483	55%	475	18%
Shopping	1776	857	48%	236	13%

*Predominately low-stress network" definition: Average PLOC or LTS of all roads within shed is less than or equal to 2

Source: xGeographic; Fehr & Peers, 2023



Public Participation

Community outreach and engagement is a critical component of the MetroPlan Orlando Regional Active Transportation Plan (ATP): Ride & Stride 2050 for both informing the public and key stakeholders about the effort and for soliciting their feedback.

Outreach and engagement are primarily focused on three different groups:

- Steering Committee
 - This diverse committee provided overall project guidance. We asked Steering Committee members to support public outreach efforts through their networks. Four steering committees have been held as of July 2023.
 - The first meeting introduced the overall project, specific tasks, and public engagement strategies.
 - The second reviewed the preliminary feedback from the public engagement process and discussed the approach to the LTS and PLOC analysis and presented the framework for the Travel Access analysis.
 - The third meeting presented the results of the initial public engagement survey as well as the results of the accessibility analysis. The framework for the toolbox of strategies was also presented.
 - The fourth meeting was an in-person workshop format where potential new projects, including new trail segments, potential crossing enhancements, corridor implements, safety improvements, and corridors for target speed reduction were presented for feedback from the TAC. Potential project prioritization criteria was also discussed and feedback received.
- MetroPlan Orlando committees, with a focus on the TAC and CAC
 - Project status updates were provided at regular intervals at CAC and TAC meetings. Opportunities for more in-depth feedback and comments were offered during project workshops. Feedback received during these status update meetings and workshops was considered and incorporated into the overall project. The first set of workshops were held in October 2022 and feedback from the TAC and CAC have been incorporated into the base mapping and overall approach.
- General Public
 - General public engagement occurred in the form of online surveys and interactive GIS based maps. An email list of potential interested parties was



developed based on feedback from the Steering Committee as well as TAC/CAC to disseminate project information. A request for feedback was conducted during February and March 2023. A detailed summary of the first public engagement is provided as [Appendix E](#). Another round of feedback requests will be conducted in the late 2023 and the summary of that engagement will be appended to this document as [Appendix F](#).

Appendix A: Policy Assessment

Memorandum

Date: March 28, 2023

To: Taylor Laurent, MetroPlan Orlando
Slade Downs, MetroPlan Orlando

From: Kathrin Tellez, Fehr & Peers
Elizabeth Suárez, Fehr & Peers

Subject: Active Transportation Plan Regional Policy Review

Introduction

To support the development of the MetroPlan Orlando Regional Active Transportation Plan (ATP): Ride & Stride 2050, a review of relevant plans and policies from the three Counties, 22 incorporated cities and the Florida Department of Transportation (FDOT) was conducted to flag potential barriers to plan implementation and identify policy guidance that could be incorporated into the ATP.

This review was conducted through the lens of the Active Transportation Plan's key objectives:

1. Improve transportation safety outcomes for vulnerable roadway users, including pedestrians, bicyclists, and other non-auto transportation system users.
2. Identify a regional active transportation network that complements other travel modes, especially transit, and supports future land use patterns.
3. Develop a feasible project list to incorporate in the 2050 Metropolitan Transportation Plan.

The purpose of the review is to identify existing and planned bicycling and pedestrian infrastructure to incorporate into the project mapping (completed) and to identify if there are potential policy conflicts or regional needs that could be addressed through the preparation of this plan, and to identify how the preparation of this Active Transportation Plan can support other statewide, regional, or local goals and policies.



Document Review

For each jurisdiction within the MetroPlan Orlando region, including the Florida Department of Transportation (Statewide and District 5), various documents were reviewed including:

- Transportation Elements of Comprehensive Plans
- Active Transportation Plans
- Transportation Safety Documents

Each of the various document elements that were reviewed are described below. **Table 1** provides a summary of key regional documents. A matrix with a high-level summary for all counties/cities/towns in the MetroPlan Orlando region is provided as **Attachment A**.

Standalone Active Transportation Plan (ATP)

This type of plan includes a large menu of policy, program, and practice suggestions, as well as site-specific (and prototypical) engineering treatment suggestions. Active Transportation Plans document a jurisdiction's vision for improving walkability, bikeability, and bicycle and pedestrian safety; establish policies, programs, and practices; and outline the prioritization and budgeting process for project implementation. Different organizations use different terminology for their plans (i.e., Multi-modal Plan, Bicycle and Pedestrian Plan). Standalone Active Transportation Plans are more common for larger communities and those with extensive plans, as the work that goes into preparing the plan can help communities obtain implementation funding. One benefit of having identified alignments and standards for new active transportation facilities is that as development occurs, it either provides an opportunity to incorporate new facilities within planned development or ensures that development does not preclude the provision of facilities in the future.

Active Transportation Element Incorporated into Comprehensive Plan

If a jurisdiction did not have a standalone ATP, we reviewed the Comprehensive Plan to determine if it had an Active Transportation Element or specific maps highlighting the existing and planned active transportation facilities. Active Transportation Elements typically provide objectives and policies that promote a multi-modal transportation network. Policies can be related to active transportation directly (i.e., policies promoting pedestrian and bicycle safety) or indirectly (i.e., policies related to land use). Incorporation of ATP elements within a Comprehensive Plan is typical of smaller communities and those without extensive network plans.



Comprehensive Plan Policies that Support Development of Active Transportation Facilities

If an agency did not have a standalone ATP or an Active Transportation Element incorporated into their Comprehensive Plan, we reviewed the Comprehensive Plan policies to determine if they support the development of an active transportation network.

LOS Exemptions when Meeting LOS Standards Conflicts with Safety or ATP Goals

Traditional vehicle-delay based Level of Service (LOS) policies can conflict with safety and ATP goals. Meeting peak hour roadway LOS standards may require widening a roadway or intersection, which increases pedestrian and bicyclist crossing exposure, and can encourage higher speed vehicle travel outside periods of congestion. Roadway widening can also use right-of-way that could have otherwise been allocated for other roadway users, can encourage higher levels of auto use over time, and create land use patterns not conducive to non-auto modes. We examined the member agencies' Comprehensive Plans to understand if the jurisdiction provides exemptions to meeting roadway LOS standards and if meeting the standard would conflict with a safety or ATP goal. Some jurisdictions allow for operations beyond the LOS standard for constrained corridors or along corridors that have been identified for walking or bicycling priority.

Bicycle Parking Requirement

Providing bicycle parking and showers/locker rooms encourages more people to commute via an active mode. Bicycle parking can also facilitate last-mile connections between two modes, such as bicycle parking at a transit station. To be effective, bicycle parking needs to be visible and secure, and have enough capacity to accommodate bicycle demand, both long-term and short-term. Especially during hot months, it is common to sweat when commuting via an active mode. Showers and locker facilities promote active commutes by providing users a place to change and take a shower. This column indicates whether an agency requires new developments to provide bicycle parking and/or shower/locker rooms. A few jurisdictions do not require shower/locker rooms but allow developers to reduce their vehicle parking if they provide shower/locker rooms.

Active Transportation Planner

Active Transportation Planners provide guidance for pedestrian/bicycle planning efforts and oversee implementation of programs and helps with capacity building of staff. Typically, only large jurisdictions have a dedicated Active Transportation Planner position; in some agencies, the functions of an Active Transportation Planner are provided by staff with other primary responsibilities. Only the City of Orlando has a dedicated Active Transportation Planner position.



Organization has a BPAC

Bicycle Pedestrian Advisory Committees (BPACs) serve as important sounding boards for new policies, programs, and practices. Responding to public concerns through public feedback mechanisms represents a more proactive and inclusive approach to bicycle and pedestrian safety compared to a conventional approach of reacting to crashes. BPACs are common in jurisdictions with a high demand for bicycling and pedestrian facilities.

Vision Zero Plan

Vision Zero is a strategy to eliminate crashes that result in severe injuries and fatalities. It considers traffic-related fatalities and serious injuries to not only be unacceptable but also preventable. The approach stresses the importance of involving everyone that is connected to the transportation system, from engineers and planners, to the user, to enforcement personnel and first responders. This is a strategy that has been adopted worldwide. In the MetroPlan Orlando region, people walking and bicycling are more likely to be involved in a traffic crash that results in a severe injury or fatality. Providing improved bicycling and walking infrastructure can help reduce these deaths and injuries on our roadways. Currently only the City of Orlando has an adopted Vision Zero Plan, although several local agencies have adopted Vision Zero resolutions. The Federal Highway Administration recently announced grant funding that would support the development of Vision Zero Action plans for all jurisdictions within the MetroPlan Orlando region, furthering the goals of the ATP.

Electric-Bike and Electric-Scooter Ordinances

Electric-bikes and electric-scooters (e-bikes and e-scooters) have become increasingly popular and controversial. E-bikes and e-scooters can provide opportunities to increase mobility for underserved communities and people with mobility impairments but can also create issues as e-devices can block the sidewalk and some users may not ride appropriately for the condition (i.e., too fast on a crowded sidewalk). We reviewed the member jurisdictions' municipal codes to understand the various regulations around e-bikes and e-scooters in the MetroPlan Orlando region. Most agencies in the region do not have specific ordinances regulating e-bikes and e-scooters.

ADA Transition Plan

Americans with Disability Act (ADA) Transition Plans identify gaps and issues in the City/County's current ADA infrastructure, prioritize projects for implementation, and set forth the process for bringing public facilities into compliance with ADA regulations. Transition Plans typically cover a range of locations, such as public buildings, sidewalks, ramps, and other pedestrian facilities. Each County has their own ADA Transition Plan covering "unincorporated areas" within the county. The County Plans provide guidance to the Cities, but do not identify, prioritize, or implement projects within these areas. ADA deficiencies can be a barrier for those with mobility disabilities to navigate through our communities.



Table 1. State and Regional Plan Review Summary

Plans Reviewed	Summary of Plan Reviewed	Applicability to ATP
State – Florida Pedestrian and Bicycle Strategic Safety Plan, September 2021	The primary goal of this plan is to identify strategies that ultimately eliminate roadway fatalities and serious injuries for people walking and bicycling on our roadways. This plan also incorporates other statewide plans, including the Highway Safety Improvement Plan (HSIP), the Highway Safety Plan (HSP), the Strategic Highway Safety Plan (SHSP), and the Florida Transportation Plan (FTP). The goals of this document are centered around data, law enforcement, emergency response, legislation, roadway planning, design and operations, education and outreach, and vision zero.	The MetroPlan Orlando ATP will incorporate the applicable statewide goals and objectives, with a focus on improving transportation safety outcomes.
State – District 5 Bicycle and Pedestrian Master Plan	This plan was not completed, but a detailed existing conditions assessment and public outreach campaign was conducted.	Relevant existing conditions data and public feedback was reviewed for the MetroPlan Orlando region and incorporated into background reports as appropriate.
Orange County Comprehensive Plan, July 2022	<p>As a part of the comprehensive plan, numerous policies related to transportation safety and strategies to create multimodal transportation networks are provided, including network and connectivity considerations. Level of service standards have also been established for walking and bicycling modes and maps of future facilities have been created.</p> <p>Note: A draft of the Vision 2050 Comprehensive Plan is available but has not yet been adopted. A review of goals and strategies related to active transportation indicate similar multimodal transportation goals related to network planning and safety such that adoption of the Vision 2050 Comprehensive Plan would not change the findings of this review.</p>	The ATP would Incorporate the existing and planned county-wide facilities and potentially identify new regional facilities that would help Orange County achieve goals related to bicycle and pedestrian network and connectivity.



Plans Reviewed	Summary of Plan Reviewed	Applicability to ATP
Orange County Multimodal Corridor Plan Phase 1, June 2014	To further goals articulated in the Comprehensive Plan, Orange County has several focused initiatives designed to ensure roadways and other transportation facilities are in place or planned to serve motorists, bicyclists, transit riders, pedestrians, and freight transport, referred to as multimodal planning. Phase 1 of the Plan reviews policy and design aspects of Orange Counties current and future transportation network, including analysis of network safety, livability, technology, economy, and amenity functions and needs. Phase 2 of the Multimodal Corridor Plan presents a conceptual year 2040 multimodal network for Orange County, including modeling, cost estimates, and phasing. Phase 3 will identify specific multimodal corridors for implementation, including corridor transition, funding options, and future alternatives to transportation concurrency.	The ATP will incorporate any new facilities identified as part of the Phase 2 Multimodal Corridor Plan, when it becomes available. The goals and strategies of the ATP would support the development of a multimodal network within Orange County.
Osceola County Comprehensive Plan, December 2018	The Transportation Element of the Osceola County Comprehensive Plan moves away from the conventional roadway functional classification and introduces thoroughfare types to better balance mobility, livability, and commerce. The goal of the throughfare-type system is to create a transportation network that is 100 percent walkable. Various goals and policies related to transportation and land use are articulated to support these goals.	The ATP will help further these goals by identifying the regional Active Transportation system that can be constructed as a part of new development to connect to and support the local network.
Osceola County Pedestrian and Bicycle Facility Master Plan, 2019	This plan contains policies that are supportive of providing a regionally coordinated bicycle and pedestrian system through the provision of multimodal corridors, off-street trails, and appropriate crossing infrastructure. One of the plan goals is to establish meaningful bicycle and pedestrian level of service standards for comprehensive planning. Potential facilities were identified.	The ATP mapping of potential new regional facilities incorporates the Osceola County vision as a starting point for new facilities in Osceola County.



Plans Reviewed	Summary of Plan Reviewed	Applicability to ATP
Seminole County 2040 Transportation Plan, February 2018	<p>The Seminole County 2040 Transportation Plan was developed based on several key considerations supportive of the ATP effort:</p> <ul style="list-style-type: none"> • Expand multimodal transportation options • Improve safety for all transportation users, especially pedestrians and bicyclists <p>Bicycle and pedestrian quality of service standards are also identified. Various goals and objectives are aimed to improve transportation safety outcomes and provide multimodal travel options.</p>	The ATP will help further these goals by identifying the regional Active Transportation system that can be constructed as a part of new development and connected to non MPO roadway network to provide improved walking and bicycling accessibility to existing and future residents of Seminole County.
Seminole County Trails Master Plan, Draft September 2021	The draft 2021 Trails Master Plan identifies new planned trail facilities, including cost estimates and project prioritization.	The ATP mapping of potential new regional facilities incorporates the Seminole County vision as a starting point for new facilities proposed in Seminole County.
Local Plans - Details of the local plan review are provided in Attachment A.	All local plans were reviewed to consider strategies for developing a complete and connected walking and bicycling network that promotes walking and bicycling access and safety.	The ATP aims to link ideas from local plans and align with them in both incorporated and unincorporated areas; however, it is the responsibility of each jurisdiction to fully implement their respective plans.

Source: Various documents as available from agencies on their website or by request.



Conclusion

Overall, MetroPlan Orlando member jurisdictions have goals and policies that are supportive of providing active transportation facilities within the region. However, some potential barriers were identified that could hinder the implementation of the Active Transportation Plan: Ride & Stride 2050 equally throughout the region, including:

- Some communities with vehicle delay-based level of service policies that do not have exceptions for prioritizing bicycle and pedestrian travel along some corridors.
- Lack of supportive regulations that require new developments to provide bicycle parking and other design features that could promote higher levels of walking, bicycling and transit use over time.
- Insufficient staffing resources to implement projects identified within their jurisdiction.
- Land Development Codes that may miss opportunities to require new bicycle and pedestrian facilities to be constructed as part of development.
- Technology changes that are not considered in local planning documents, such as e-scooters and e-bikes.

To help overcome some of these barriers, there are opportunities as part of the plan development to provide policy language and development code templates that could be used as jurisdictions update various plans in the future. Some examples include:

- Example Level of Service Exemptions
- Level of Service Standards for Active Transportation Modes
- Bicycle Parking Standards
- E-Scooter and E-Bike Ordinances

Additionally, there may be a need to develop a technical assistance program to help some jurisdictions navigate project implementation, including identification of grant programs and coordinating with FDOT and other regional/local partners to implement projects.

Attachment A – Policy Review Matrix

Ride & Stride 2050

ACTIVE TRANSPORTATION PLAN

Attachment A: Policy Review Matrix

Agency	County	Standalone ATP?	ATP Year	Agency Active Transportation Element Incorporated into Comprehensive Plan?	Policies that support development of Active Transportation Facilities	LOS Exemptions when meeting LOS Standards conflicts with Safety or ATP Goals	Bicycle Parking and/or Shower/ lockers Required for New Developments	Organization has a BPAC	Vision Zero Resolutions and Plans	ATP Position	E-Scooter and E-Bike Ordinance	ADA Transition Plan
Orange County	Orange County	Yes	2014	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	No	Bicycle Parking - yes Showers/lockers - no	Pedestrian Safety Initiative	Adopted Resolution	No	Private E-bikes and e-scooters permitted on trails	Yes
Osceola County	Osceola County	Yes	2013	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	No	No	No	Adopted Resolution	No	Third party and private e-bikes and e-scooters permitted	Yes
Seminole County	Seminole County	Yes	2021	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	No	Bicycle Parking - yes Showers/lockers - no	No	No	No	Private e-bikes and e-scooters permitted	Yes
Apopka, City	Orange County	No	N/A	No	Yes	No	Bicycle Parking - yes Showers/lockers - option to reduce required vehicle parking	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Bay Lake, City	Orange County	No	N/A	No	No	No	No	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Belle Isle, City	Orange County	No	N/A	No	Yes	No	No	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Eatonville, Town	Orange County	No	N/A	No	Yes	No	No	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Edgewood, City	Orange County	No	N/A	Yes	Yes	Yes	Bicycle Parking - yes Showers/lockers - no	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Lake Buena Vista, City	Orange County	No	N/A	No	No	No	No	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.



Attachment A: Policy Review Matrix

Agency	County	Standalone ATP?	ATP Year	Agency Active Transportation Element Incorporated into Comprehensive Plan?	Policies that support development of Active Transportation Facilities	LOS Exemptions when meeting LOS Standards conflicts with Safety or ATP Goals	Bicycle Parking and/or Shower/ lockers Required for New Developments	Organization has a BPAC	Vision Zero Resolutions and Plans	ATP Position	E-Scooter and E-Bike Ordinance	ADA Transition Plan
Maitland, City	Orange County	No	N/A	Yes	Yes	Guidance provided to prioritize multi-modal transportation and widen roadways as a last option.	Bicycle Parking - yes Showers/lockers - no	No	No	No	Private e-bikes and e-scooters permitted	No standalone plan, but guidance to the cities is provided in the County Plan.
Oakland, Town	Orange County	Yes	2017	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	No	No	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Ocoee, City	Orange County	No	N/A	Yes	Yes	No	No	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Orlando, City	Orange County	Yes	2020	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	No	Bicycle Parking - yes Showers/lockers - no	Maybe	Yes	Yes	Third party and private e-bikes and e-scooters permitted	Yes
Windermere, Town	Orange County	Yes	2015	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	No	Bicycle Parking - yes Showers/lockers - no	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Winter Garden, City	Orange County	No	N/A	No	Yes	No	No	No	No	No	None	No standalone plan, but guidance to the cities is provided in the County Plan.
Winter Park, City	Orange County	Yes	2010	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	Yes	Yes	Bicycle Parking - yes Showers/lockers - no	Yes	No	No	Permitted in some areas	No standalone plan, but guidance to the cities is provided in the County Plan.
Kissimmee, City	Osceola County	Yes	2010	Yes	Yes	No	Bicycle Parking - yes Showers/lockers - option to reduce required vehicle parking	No	No	No	Restricted in some areas	No standalone plan, but guidance to the cities is provided in the County Plan.



Attachment A: Policy Review Matrix

Agency	County	Standalone ATP?	ATP Year	Agency Active Transportation Element Incorporated into Comprehensive Plan?	Policies that support development of Active Transportation Facilities	LOS Exemptions when meeting LOS Standards conflicts with Safety or ATP Goals	Bicycle Parking and/or Shower/ lockers Required for New Developments	Organization has a BPAC	Vision Zero Resolutions and Plans	ATP Position	E-Scooter and E-Bike Ordinance	ADA Transition Plan
St. Cloud, City	Osceola County	No	N/A	No	Yes	No	Bicycle Parking - yes Showers/lockers - option to reduce required vehicle parking	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Altamonte Springs, City	Seminole County	No	N/A	Yes	Yes	Yes	Bicycle Parking - no Showers/Lockers - option to meet Mobility Performance Standards	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Casselberry, City	Seminole County	Yes	2019	Standalone ATP provided and incorporated into Comprehensive Plan by reference.	ATP	Yes	No	No	No	No	No related ordinances	Yes
Lake Mary, City	Seminole County	No	N/A	No	Yes	Yes	No	No	No	No	No related ordinances	Yes
Longwood, City	Seminole County	No	N/A	Yes	Yes	Yes	Bicycle Parking - yes Showers/lockers - yes, for large developments	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Oviedo, City	Seminole County	In Progress	In Progress	No	Yes	No	Bicycle Parking - yes Showers/lockers - no	No	No	No	Restricted in some areas	No standalone plan, but guidance to the cities is provided in the County Plan.
Sanford, City	Seminole County	No	N/A	No	Yes	Concurrency Exceptions	Bicycle Parking - TDM strategy Showers/lockers - TDM strategy	No	No	No	No related ordinances	No standalone plan, but guidance to the cities is provided in the County Plan.
Winter Springs, City	Seminole County	No	N/A	No	Yes	Concurrency Exceptions	No	Yes	No	No	No related ordinances	Yes

Source: Various documents as available from agencies on their website or by request.

Appendix B: Mode Share by City

Appendix B: Mode Share for Cities in MetroPlan Orlando Region

Travel Mode	Altamonte Springs	Apopka	Bay Lake	Belle Isle	Casselberry	Eatonville	Edgewood	Kissimmee	Lake Buena Vista	Lake Mary	Longwood	Maitland	Oakland	Ocoee	Orlando	Oviedo	St. Cloud	Sanford	Windermere	Winter Garden	Winter Park	Winter Springs
Drove alone	81%	79%	93%	75%	72%	79%	86%	75%	100%	73%	86%	78%	64%	72%	77%	78%	81%	81%	76%	80%	73%	81%
Carpooled	7%	11%	8%	9%	13%	11%	6%	18%	0%	9%	4%	4%	20%	11%	8%	7%	10%	8%	6%	9%	5%	7%
Public transportation (excluding taxicab)	1%	1%	0%	0%	2%	1%	1%	2%	0%	1%	0%	2%	0%	2%	3%	0%	1%	2%	0%	0%	1%	0%
Walked	2%	1%	0%	1%	1%	2%	1%	1%	0%	1%	0%	4%	1%	1%	2%	1%	1%	1%	0%	1%	3%	1%
Bicycle	0%	0%	0%	0%	1%	5%	0%	1%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	1%	0%
Walk, Bike, Transit	3%	2%	0%	1%	4%	8%	1%	3%	0%	2%	1%	6%	2%	4%	5%	1%	2%	3%	0%	1%	4%	1%
Taxicab, motorcycle, or other means	2%	2%	0%	4%	2%	0%	1%	1%	0%	3%	1%	1%	0%	6%	3%	1%	1%	2%	2%	2%	1%	3%
Worked from home	8%	7%	0%	11%	9%	2%	7%	3%	0%	14%	9%	11%	15%	7%	7%	14%	6%	6%	16%	8%	16%	9%

Source: 2020 5 Year ACS; Fehr & Peers

Appendix C: Level of Traffic Stress/Pedestrian Level of Comfort Methodology

Memorandum

Date: March 28, 2023

To: Taylor Laurent, MetroPlan Orlando
Slade Downs, MetroPlan Orlando

From: Kathrin Tellez, Fehr & Peers

Subject: Active Transportation Plan LTS/PLOC

Introduction

To evaluate where new and enhanced walking and bicycling facilities could improve accessibility within the MetroPlan Orlando region, a Level of Traffic Stress (LTS) analysis was conducted to assess the comfort for people bicycling on roadways within the region and a Pedestrian Level of Comfort (PLOC) analysis was conducted to assess the comfort of people walking on the transportation system.

The purpose of this memorandum is to document the data inputs and approach based on feedback from MetroPlan Orlando staff and the Steering Committee. The LTS and PLOC analysis was conducted using data inputs contained in the xGeographic Wave database, which includes an aggregation of roadway, property, demographic, environmental and other disparate data into a unified geodatabase. The most recent version of the Wave database incorporates feedback from all municipalities within the MetroPlan Orlando region to better reflect their existing bicycling infrastructure. Once the LTS and PLOC analysis is completed, an accessibility assessment to document the accessibility of different land uses by a low stress bicycling and walking network will be conducted and used to help set targets for the Active Transportation Plan.

This memorandum is organized to provide an overview of the LTS and PLOC methodology, scoring system and key data inputs.



Methodology

Level of Traffic Stress (LTS) is a way to evaluate the stress a person bicycling might experience while riding on the road and pedestrian level of comfort (PLOC) is a means to evaluate the stress a person walking might feel. The primary difference between the LTS and the PLOC analyses is that the LTS analysis considers the type of bicycle facility present while the PLOC analysis considers the type of pedestrian infrastructure present. A high-level description of LTS / PLOC Scores are presented in **Table 1**, with a visual depiction shown on **Figure 1** for LTS and **Figure 2** for PLOC.

Table 1. LTS / PLOC Scores

LTS / PLOC Score	Description	Typical Facilities
LTS / PLOC 1	Facilities are suitable for all users, including children traveling alone, the elderly and people using a wheeled mobility device. People generally feel safe and comfortable using the facility and they are willing to use the facility.	Low vehicle volume, low speed roadways with sidewalks on both sides of the street. As traffic volumes and speeds increase, the addition of separation between the vehicle lanes and walking and bicycling facilities increases.
LTS / PLOC 2	All users are able to use the facility, and most are willing to use the facility.	Moderate vehicle volume, moderate speed roadways with sidewalks on both sides of the street. As traffic volumes and speeds increase, the addition of separation between the vehicle lanes and walking and bicycling facilities increases. In some instances, there may only be sidewalks on one side of the roadway but typically not active uses on that side of the roadway.
LTS / PLOC 3	Tolerable for trained and experienced bicyclists and some pedestrians. People may only use the facility when there are limited route and mode choices available.	Higher vehicle volume, higher speed roadways with sidewalks on both sides of the street. Limited separation exists between vehicle lanes and walking and bicycling facilities. In some instances, there may only be sidewalks on one side of the roadway.

LTS / PLOC Score	Description	Typical Facilities
LTS / PLOC 4	Uncomfortable for most people and a barrier to walking and bicycling for many. For people using a wheeled mobility device, such as a wheelchair, the facility may be impassible. People may only use the facility when there are limited route and mode choices available.	Multilane roadways with high speed/high volume vehicle travel typically without facilities for bicycling. Sidewalks may be present, but typically with no separation between sidewalk and travel lane. Bicycle facilities may be present, but with no separation from the adjacent travel lane.
PLOC 5	No pedestrian facilities present. For people using a wheeled mobility device, such as a wheelchair, the facility is impassible. There may be an unimproved area where people can walk, but people typically only use the facility when there are limited route and mode choices available.	Roadways without sidewalks on both sides of the street (excludes limited access facilities where non-motorized vehicles are not permitted).

Notes: Adapted from the research conducted by the Mineta Transportation Institute

Level of Traffic Stress and Pedestrian Level of Comfort ratings should not be construed as a predictor of facility use by people walking and bicycling. Area demographics and land uses along a corridor are better predictors of the level of walking and bicycling that does and could occur. For example, in a low-density area where land uses are spread apart and most people have access to a vehicle, people may walk or bicycle for recreational purposes in the area, but not as a primary mode of travel. Conversely, in an area where complementary uses are within close proximity and people have less access to vehicles, walking and bicycling activity is typically higher, even when low stress facilities are not available.

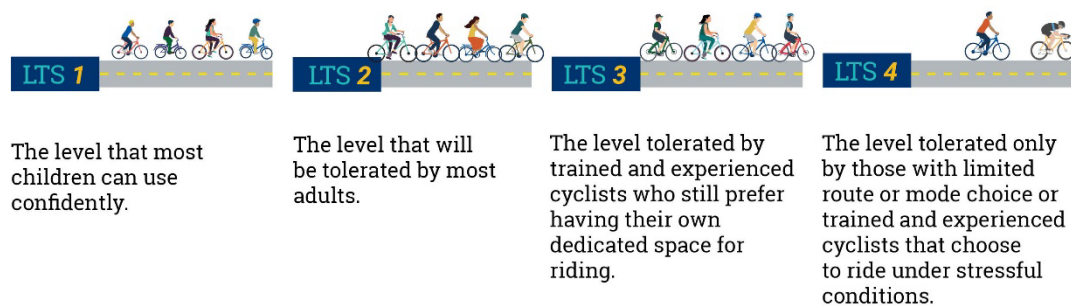


Figure 1: Visual Depiction of LTS

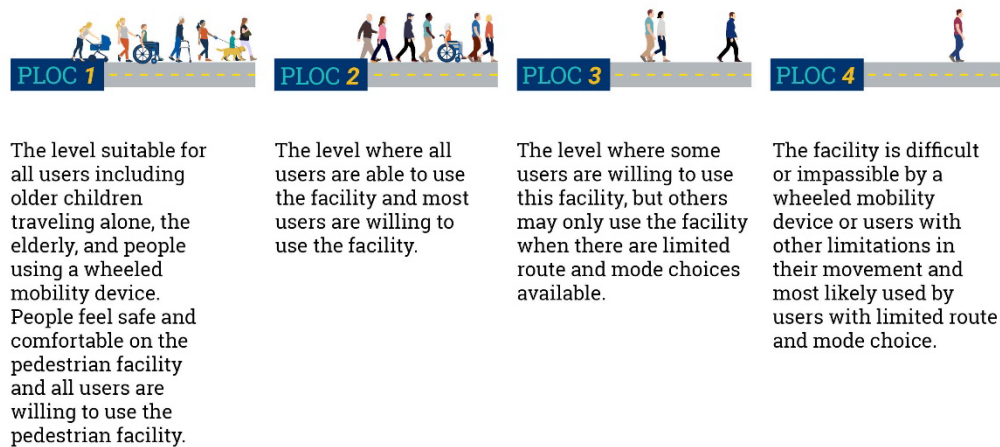


Figure 2: Visual Depiction of PLOC

Figure 3 provides a flowchart of the LTS methodology for roadways with bicycle facilities and Figure 4 provides a flowchart of the LTS methodology for roadways without bicycle facilities. Table 2 provides the scoring criteria for the PLOC calculations.

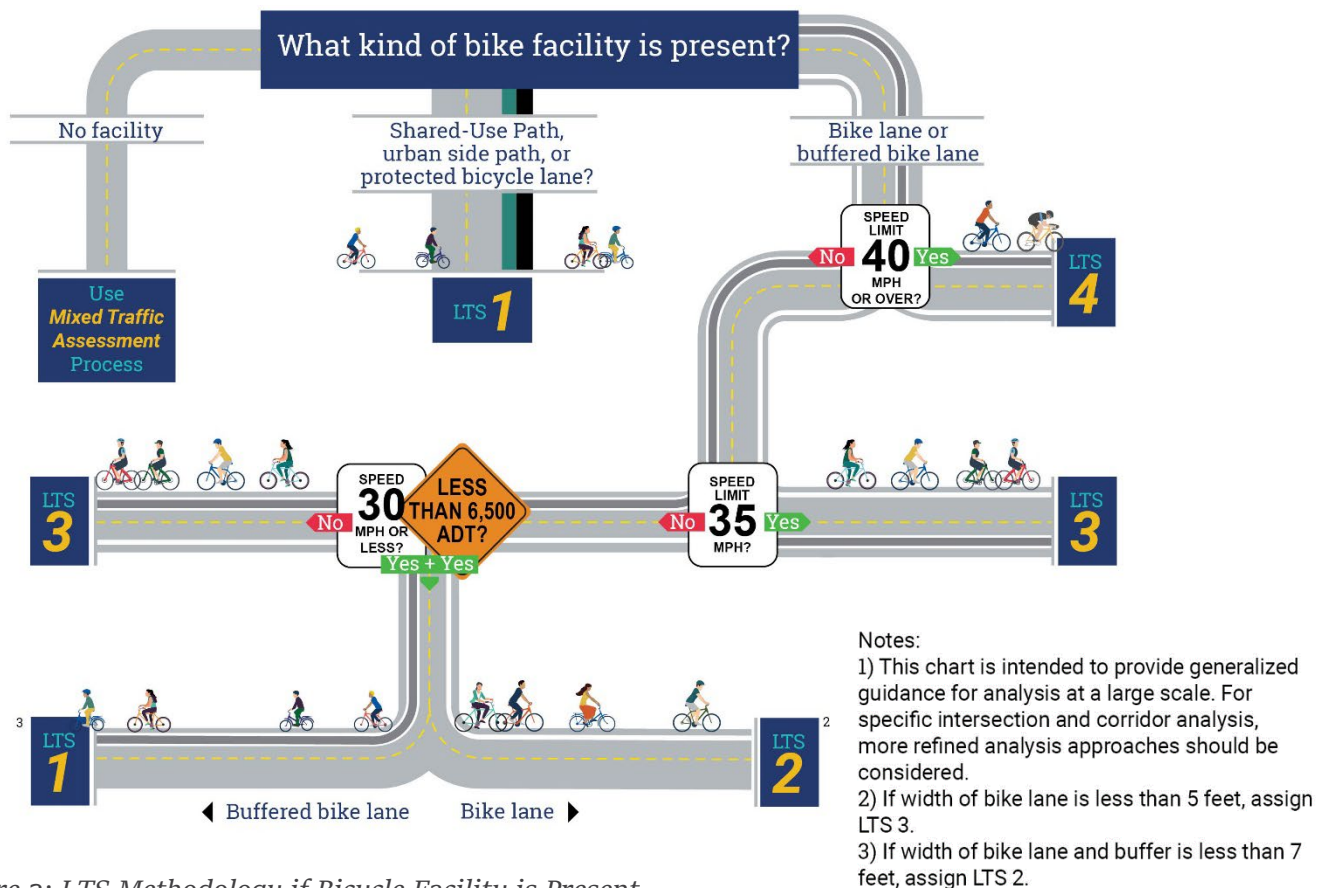


Figure 3: LTS Methodology if Bicycle Facility is Present

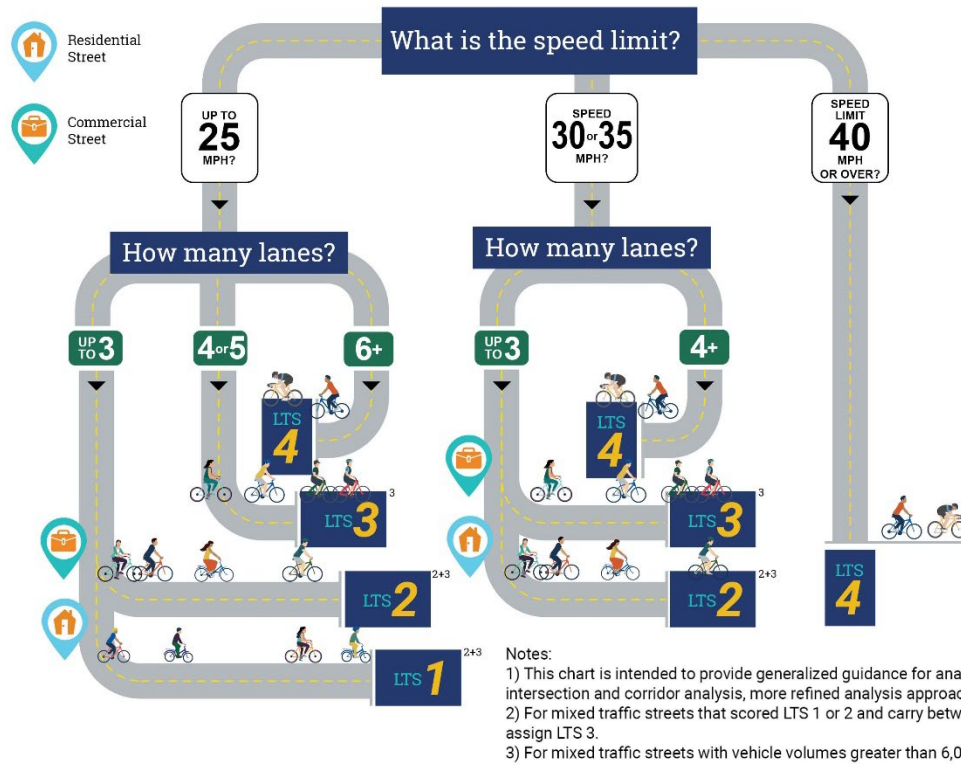


Figure 4: LTS Methodology if No Bicycle Facility is Present

Table 2. Pedestrian Level of Comfort Matrix

Sidewalk Separation	AADT	Posted Speed (mph)	Sidewalk Coverage						
			Both sides of the roadway			One side of the roadway			No sidewalk
			Number of Through-Lanes						
			<4	4-5	6+	<4	4-5	6+	2+
High Separation (distance from curb or edge of pavement to sidewalk is 7+ feet on both sides of roadway; separation elements could include bicycle lane, landscape strip or paved shoulder)	Low	25	1	1	2	2	2	3	5
		30-35	1	1	2	2	2	3	5
		40+	2	2	2	2	2	3	5
	Moderate	25	1	1	2	2	2	3	5
		30-35	1	1	2	2	2	3	5
		40+	2	2	2	2	2	3	5
	High	25	1	2	2	2	2	3	5
		30-35	2	2	2	2	3	3	5
		40+	2	2	2	3	3	3	5
Moderate Separation (distance from curb or edge of pavement to sidewalk is 3 to 6 feet on both sides of roadway; separation elements could include bicycle lane, landscape strip or paved shoulder)	Low	25	1	1	2	2	2	3	5
		30-35	1	1	2	2	2	3	5
		40+	2	2	3	3	3	4	5
	Moderate	25	1	1	2	2	2	3	5
		30-35	1	1	3	2	3	3	5
		40+	2	2	3	3	3	4	5
	High	25	1	2	2	2	3	3	5
		30-35	2	2	3	3	3	3	5
		40+	3	3	3	3	3	4	5
Low Separation (distance from curb or edge of pavement to sidewalk is 0-2 ft)	Low	25	1	1	2	2	2	3	5
		30-35	2	3	3	3	3	3	5
		40+	3	3	4	3	3	4	5
	Moderate	25	1	2	2	2	2	3	5
		30-35	2	3	3	3	3	3	5
		40+	3	4	4	4	4	4	5
	High	25	2	2	2	3	3	3	5
		30-35	3	3	3	3	3	4	5
		40+	4	4	4	4	4	4	5

Notes: AADT = Average Annual Daily Traffic

Low = < 10,000 vehicles per day

Moderate = 10,000 to 19,999 vehicles per day

High = over 20,000 vehicles per day



Speed Data

For both the LTS and PLOC analysis, two sets of speed data were used. One analysis was conducted using the posted speed limit for each roadway. The second was conducted using the 85th percentile speed as measured regionally through connected vehicle data. While the connected vehicle data only provides a sample of speeds along the corridor, it has been shown to be a good general representation of the speeds people are driving on roadways within the MetroPlan Orlando region. For most roadways, the LTS/PLOC results do not change between the two speed data sets, but for some roadways, especially those that have a posted speed limit of 35 to 40 miles per hour, the actual travel speed based on the connected vehicle data is closer to 45 to 50 miles per hour, resulting in more LTS / PLOC 4 facilities.

For the purposes of the LTS and PLOC analyses, the posted speed limit was used. Based on the initial results, potential strategies to enforce existing posted speed limits and identify opportunities to reduce the posted speed will be explored during the bicycle and pedestrian system planning phases of the Active Transportation Plan to improve the LTS and PLOC ratings, respectively.

FDOT Quality of Service Handbook – January 2023

The Florida Department of Transportation published an updated Quality of Service Handbook in January 2023 after an initial LTS analysis had been completed using the approach outlined in our January 27, 2023 technical memorandum. Based on the results of the initial analysis and feedback from MetroPlan Orlando staff, some changes were made to better incorporate the FDOT guidance while providing an approach that can be conducted at the regional level based on available data, which is reflected in the methodology which has been outlined in this document.

Next Steps

The final LTS and PLOC analyses incorporate feedback from MetroPlan Orlando staff and the Steering Committee. These results will be used as the basis for the accessibility analysis that will be used to help identify the location of new and modified walking and biking facilities as well as other systemwide strategies that can improve the comfort for people walking and bicycling in the region.

Appendix D: Accessibility Analysis Methodology

Draft Memorandum

Date: July 6, 2023

To: Taylor Laurent, MetroPlan Orlando
Slade Downs, MetroPlan Orlando

From: Kathrin Tellez and Stephen Spana, Fehr & Peers

Subject: Active Transportation Plan Accessibility Analysis Overview

Introduction

As a part of the MetroPlan Orlando Active Transportation Plan, a travel access analysis was conducted to identify locations in the region that have a high level of access to a variety of destinations via low stress walking and bicycling facilities, and parts of the region that may have high levels of access, but only on high-stress facilities.

Based on feedback from the public as well as the steering committee, the travel access analysis considered how accessible a variety of key destinations are from the surrounding area, with the following destination types considered locations where travel access should be prioritized:

- Public Schools
- Transit Facilities, such as LYNX stops and SunRail stations
- Parks, including neighborhood parks and regional parks
- Jobs, based on the location of businesses in the xGeographic Wave database
- Shopping, including grocery stores

The distance that an average person might be able to bicycle within different time periods was based on an average biking speed of 10 miles per hour, meaning that it would take an average person about 30 minutes to travel 5-miles on their bicycle. For walking access, an average walking speed of 3 miles per hour was used. Some people may bike or walk faster or slower than the averages, with these speeds selected for planning purposes. For each destination type, the areas that are reachable within 1-5 minutes, 6-15 minutes, and 16-30 minutes were assessed. It was assumed that sidewalk gaps were a barrier for walking trips.



Bike trips, however, were allowed to traverse any road with or without bike facilities (since bicyclists could presumably share the road with vehicles).

Analysis Inputs

Inputs to the analysis include network features and points of interest with the data sources for each provided below.

Network

- Bike: Federal Aid roadway network for Orange, Osceola, Seminole counties (minus limited access facilities); Existing shared-use paths, side paths, and cycle tracks
 - Planned shared-use paths, side paths, and cycle tracks were added to the future scenario
- Pedestrian: Federal Aid roadway network for Orange, Osceola, Seminole counties (minus limited access facilities and facilities with no sidewalks); Existing shared-use paths and side paths
 - Planned shared-use paths and side paths were added to the future scenario

Points of Interest (POIs)

- Schools (Elementary, Middle, High) – Wave
- Transit stops – bus stops from LYNX GTFS, SunRail stations from Wave
- Park centroids – Wave
- Shopping – Supermarkets (e.g. Publix, Winn Dixie, Walmart) and Markets (e.g. Dollar General, gas stations) from Wave
- Jobs – TAZ centroids from CFRPM7 model



Travel Sheds

Travel sheds for each point of interest type and each travel mode were developed using ArcGIS Pro, assuming a 10 mile per hour (mph) travel speed for bikes and 3 mph travel speed for pedestrians. Travel sheds were generated for 5-, 15-, and 30-minute travel times. Within each travel shed, an accessibility score was then developed:

- For each mode and POI, assign accessibility score to each travel shed
 - 0-5 minute sheds: Accessibility Score 3
 - 6-15 minute sheds: Accessibility Score 2
 - 16-30 minute sheds: Accessibility Score 1
- For Jobs POI only – number of jobs within each TAZ had to be represented differently
 - Multiply accessibility score by total TAZ employment to create weighted accessibility score. For example, a TAZ with 100 total jobs would be scored as follows:
 - 0–5-minute sheds: Accessibility Score 300
 - 6–15-minute sheds: Accessibility Score 200
 - 16–30-minute sheds: Accessibility Score 100

Joining accessibility scores to the network

For each travel mode and POI, the accessibility score for each travel shed was summed over each road segment in the network. This resulted in every road segment having an accessibility score associated with it. For example, for the shopping POI type using the pedestrian network, if there are 3 5-minute sheds, 6 15-minute sheds, 10 30-minute sheds overlapping a single roadway segment, the segment accessibility score would be:

Segment accessibility score (shopping, ped network) = $3*(5) + 6*(2) + 10*(1) = 37$



Accessibility Score

To calculate an accessibility score for each roadway segment, the scores were normalized and combined. Specifically, for each mode the segment accessibility score for each POI was scaled to a value between 0 or 1, assuming all POI types are equally as important.

The total accessibility score was then calculated for each road segment for walking and bicycling modes as follows:

- Sum the normalized accessibility scores for all POI types to create a total accessibility score (which will be between 0 and 5). Example for road segment in ped network:
 - Normalized shopping accessibility score: 0.6
 - Normalized transit accessibility score: 0.8
 - Normalized job accessibility score: 0.2
 - Normalized school accessibility score: 0.1
 - Normalized park accessibility score: 0.1
 - Total road segment accessibility score (ped): $0.6 + 0.8 + 0.2 + 0.1 + 0.1 = 1.8$

Incorporation of LTS/ PLOC

To account for the comfort of walking and bicycle facilities provided, the underlying Level of Traffic Stress (LTS) and Pedestrian Level of Comfort (PLOC) ratings were factored into the results. Based on the stress of the routes, a score was assigned to assess the overall comfort of walking and biking to various destinations within the region. High LTS/PLOC was defined as LTS/PLOC greater than 2, and Low LTS/PLOC was defined as less than or equal to 2. Areas that are either inaccessible or only accessible via high stress networks received a lower score than areas that are accessible via lower stress networks. High/Low access



thresholds were determined by the distribution of total road segment accessibility scores for each mode. Roadways were rated with one of four scores:

- ***Low LTS/PLOC and High Access*** - these are roadways where there are many destinations within the travel buffers (above average access score), and the route is comfortable (average LTS/PLOC score of 2 or better).
- ***Low LTS/PLOC and Low Access*** - these are roadways where there are not that many destinations within the travel buffers (lower than average access score), but the route is comfortable (average LTS/PLOC score of 2 or better).
- ***High LTS/PLOC and Low Access*** - these are roadways where there are not that many destinations within the travel buffers (lower than average access score), and the route is uncomfortable (average LTS/PLOC score greater than 2).
- ***High LTS/PLOC and High Access*** - these are roadways where there are many destinations within the travel buffers (above average access score), but the route is uncomfortable (average LTS/PLOC score greater than 2).

The results are presented in the Existing Conditions report for the existing and planned future Active Transportation system.

Appendix E: First Round Public Engagement Summary

Draft Memorandum

Date: May 25, 2023

To: Taylor Laurent, MetroPlan Orlando
Slade Downs, MetroPlan Orlando

From: Kathrin Tellez, Fehr & Peers
Elizabeth Suárez, Fehr & Peers

Subject: Active Transportation Plan Public Engagement Summary

Introduction

Community outreach and engagement is a critical component of the MetroPlan Orlando Regional Active Transportation Plan (ATP): Ride & Stride 2050 for both informing the public and key stakeholders about the effort and for soliciting their feedback. This memorandum summarizes feedback received from the public during the first round of community engagement, which occurred between February 1st and March 21st, 2023.

The engagement materials were hosted on an online platform called Social Pinpoint, which people could access through the MetroPlan Orlando project website (<https://metroplanorlando.org/atp>). The goal of the engagement was to understand the barriers to walking and biking that community members face, what their values and interests are related to walking and biking, and what kind of projects they would like to see implemented to make it easier for them to walk and bike to key destinations. The outreach was comprised of two components, a survey and a comment map. An option for people to call or email feedback was also available for people who do not have access to the internet or do not feel comfortable using it. Because Spanish is the most prevalent language in the region after English, all outreach materials were provided in both English and Spanish.

Targeted online outreach was conducted via Facebook and Instagram, with a sample outreach ad shown on **Figure 1**. MetroPlan Orlando public information staff sent information to the general MetroPlan Orlando mailing list. Information was also shared through the various MetroPlan Orlando committees and boards, and the project Steering Committee also shared the opportunity to provide project feedback through their networks. MetroPlan



Orlando staff also participated in the Healthy West Orange Take Over the Trails Day on February 17, 2023, to promote the project, answer questions and provide links to the survey and comment map.

Between the survey and comment map, approximately 371 people participated. The following sections provide summaries of the feedback received from the survey and comment map.

A sample outreach advertisement for the 'Ride & Stride 2050' project. The ad is divided into two main sections: English and Spanish. At the top, there is a circular logo for 'Ride & Stride 2050' with 'ACTIVE TRANSPORTATION PLAN' around it. Below the logo, the English section on the left says 'Let's talk!' in a speech bubble, followed by 'We want to hear where you ride & stride in Orange, Osceola & Seminole counties!'. The Spanish section on the right says '¡Hablemos!' in a speech bubble, followed by '¡Queremos escuchar dónde montas & pasas en los condados Orange, Osceola & Seminole!'. In the center, there is a QR code with the text 'Scan the QR code' on the left and 'Escanea el código QR' on the right. At the bottom, there is a black bar with the MetroPlan Orlando logo and the text 'metroplan orlando A REGIONAL TRANSPORTATION PARTNERSHIP'. Below this bar, there is an orange section with silhouettes of people walking a stroller, a person in a wheelchair, a person walking a dog, and a person riding a bicycle.

Figure 1: Sample Outreach Ad



Survey Results

The survey consisted of six key questions related to where people currently walk and bike and where they would like to walk and bike, as well as what types of improvements could be made to increase their comfort level when walking and bicycling on our transportation system. Each question is provided below with a summary of responses.

There were 336 people who took the survey, of which 4 people took the survey in Spanish. Not every person answered each question.

The survey asked community members what the most important land uses are to connect to with safe walking paths/sidewalks and, in a separate question, with biking facilities. Respondents were able to select from the following land uses, including an open response option, and asked them to provide a score from one to ten, with one being the lowest, to each category:

- Jobs
- Schools
- Shopping Centers, including grocery stores
- Medical centers
- Transit facilities (bus stops or SunRail stations)
- Recreational facilities (park, trail, neighborhood center)
- Other (open response)

Of the land uses provided, survey respondents thought it was most important to provide safe walking and biking facilities to schools, with recreational facilities and transit facilities being a close second. Although respondents indicated that providing walking and biking access to medical facilities was the least important of the given land uses, more than half indicated it was an important destination for people walking and biking. Respondents ranked the ability to bike to jobs higher than the ability to walk to jobs, presumably given the distance most people live from their place of employment.



In your opinion, what are the most important land uses to connect to with safe walking paths/sidewalks (biking facilities)? Please rank the options below with ten (10) being the most important and one (1) being the least important.

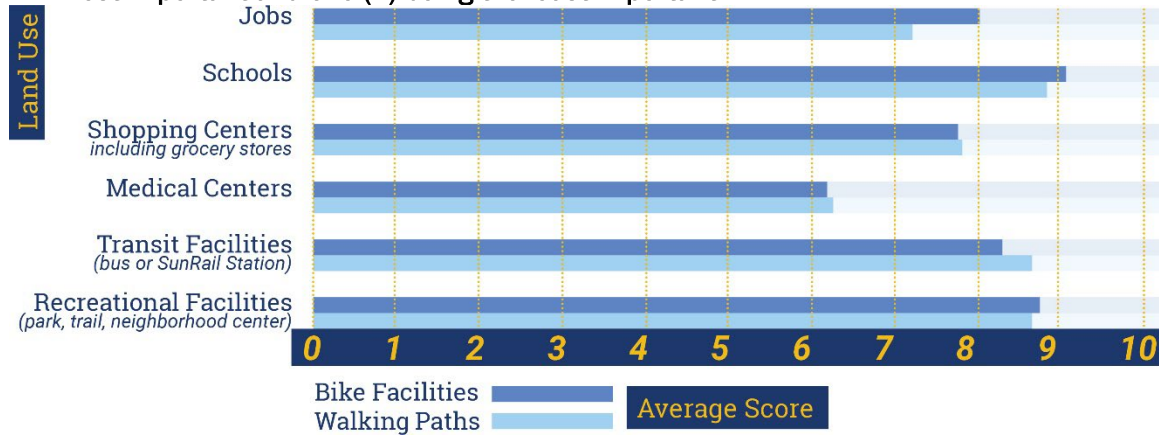


Figure 2: Walking and Biking Connections Preferences

In response to what other places people think should be connected to walking or biking facilities, the most common answers were:

- Churches and religious facilities
- Neighborhoods, particularly a desire to walk to a friend's house
- Community centers
- Sports arenas and event venues
- Local businesses (coffee shops, restaurants/bars, local shops, gyms etc.)

The next question asked where people are **currently walking and biking**. We asked them if they currently walk or bike to the following places:

- Work
- School – alone
- School – with children
- Medical centers
- Shopping Centers, including grocery stores
- Recreational facilities (park, trail, neighborhood center)
- Transit facilities (bus stops or SunRail stations)
- Walk for fun/exercise with no specific destination
- Other (open response)

Around 90 percent of survey respondents walk or bike for fun or exercise, with no specific destination. If going somewhere specific, most participants walk or bike to recreational facilities. The second most popular destination is shopping centers/grocery stores. For most of the destinations noted in the survey, similar numbers of people tend to walk or bike, except for employment uses. About 22 percent of respondents said they bike to work, and only 6 percent said they walk to work.



Do you currently walk or bike to the following places? Please rank the options below with ten (10) being the most important and one (1) being the least important.

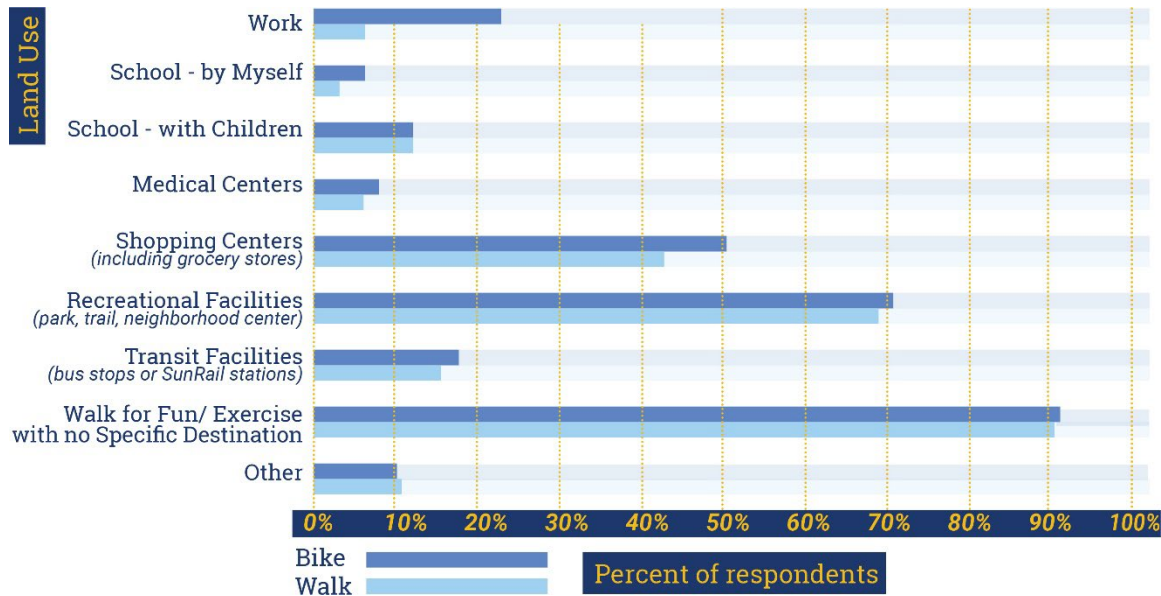


Figure 3: Walking and Bicycling Destinations

A review of the survey responses comparing the responses about where people think they should be able to walk and bike versus where they actually walk and bike shows that if safer walking and bicycling facilities were provided, more people might walk and bike places if the destination is within a reasonable distance from their origin, such as schools and transit facilities.

Next, we asked users what improvements would make it easier for them to walk or bike to the destinations discussed in the previous questions.

Below is a list of improvements that respondents said would make it easier for them to walk to desired destinations:

- Wide, continuous, shaded, buffered, unobstructed sidewalks
- Better sidewalk maintenance
- More and enhanced crosswalks
- Pedestrian bridges/underpasses at large intersections
- Traffic calming
- Better lighting
- Having more destinations within walking distance
- More reliable transit
- Enforcement of reckless driving

The following is a list of improvements that respondents said would make it easier for them to bike to desired destinations:

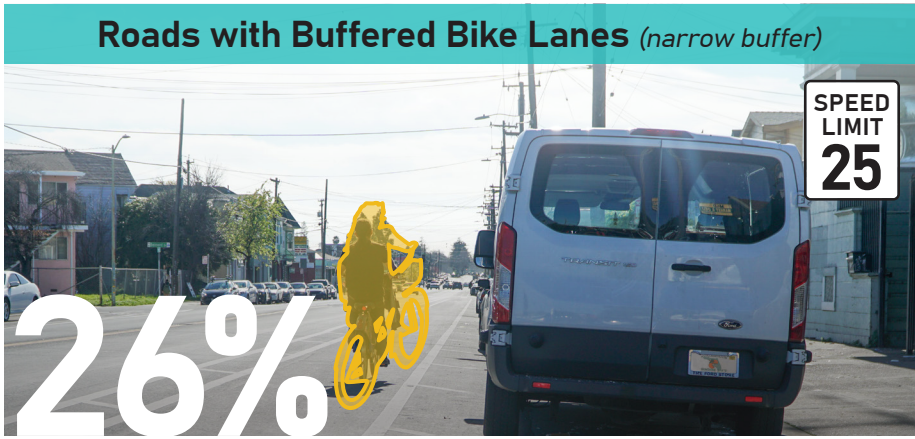
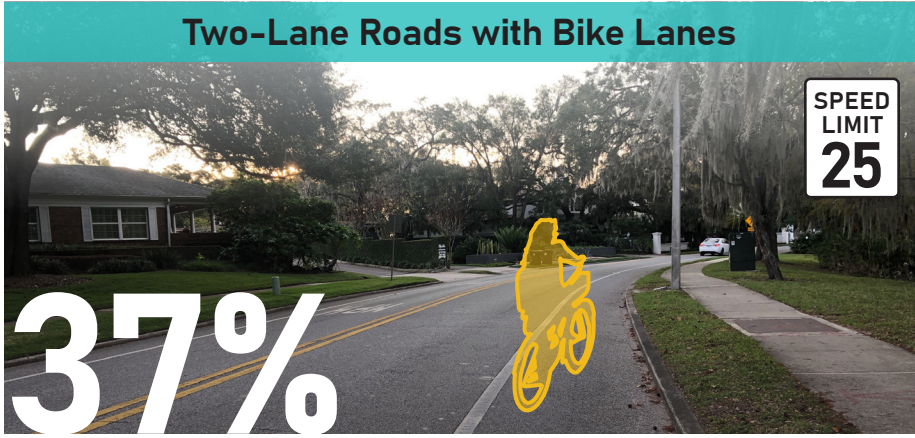
- Wider sidewalks to accommodate bikes



- Separation between bicyclists and pedestrians
- More and wider bike lanes
- Protected bike lanes, particularly on wide, fast roads
- Better maintenance – clear of debris and vegetation
- Smooth facilities, including adding concrete bike lanes on brick streets
- Better intersection crossings, including signal priority, shorter cycle lengths, bicycle detection, and pavement markings
- Bike paths
- Better connectivity, including continuous bike lanes
- More connections to transit
- More secured bike parking
- Lighting along routes including trails
- Signs warning drivers to look for bikes
- Improved wayfinding
- More shade
- Fewer vehicle lanes in residential areas
- Housing built near destinations
- Lower speed limits and traffic calming measures
- More enforcement of reckless driving
- Routine driver education

Then, **we wanted to understand** what types of bicycle facilities people feel comfortable using. We showed users images of different facility types and asked them to select the ones they would feel comfortable riding on. The results are shown on **Figure 4**. Most respondents were comfortable riding on a roadway with a protected bike lane (including vertical separation) and trails. The facilities respondents were least comfortable riding on were roadways without any dedicated bicycle facility. These results confirm feedback from other local engagement efforts and national research, in that there is a public preference for bicycling facilities that have a physical separation from vehicle traffic.

Figure 3: Visual Preference Survey Results





At the end of the survey, **we asked participants** to provide additional comments. Below is a summary of some of the general themes from those who provided further feedback.

- Maintain continuity of bicycle facilities
- Don't implement sharrows
- Don't provide unprotected bike lanes on large roads
- Look to the Europeans for inspiration
- Provide bicyclist education
- Provide vertical separation between bike lanes and travel lanes
- Implement new land use policies to encourage bike/ped/transit friendly development
- Start with temporary materials if permanent materials are too expensive
- Provide walking and biking education in schools
- Freight loading and unloading should be prohibited during the morning and evening commute hours
- Use asphalt instead of jointed concrete for facilities where bikes are supposed to ride
- Buses should have more than two bike racks
- Provide clearer regulations around electric bikes and scooters

Although the Active Transportation Plan is focused on bicycle and pedestrian facilities, there were several comments related to improving transit in the region. Below is a summary of the transit-related comments:

- Bus reliability needs to be improved
- Buses need to operate at a higher frequency
- Some of the bus lines need to be rerouted to create more efficient routes
- High speed rail is needed
- Buses should have dedicated lanes
- SunRail should operate 24 hours a day, 7 days a week
- Buses should have room for more than two bikes

Comment Map

Geographic Information

The comment map provided an online map of the existing and planned bicycle facilities in the MetroPlan Orlando region and allowed users to leave comments. There were four pre-set options for comment types, each of which gave the user the possibility to write in a comment. The map was in English and Spanish although no map comments in Spanish were provided. The four options were:

- Great facility
- Currently unsafe
- Facilities needed
- Additional comments



About 83 percent of the comments 240 were placed in Orange County. Osceola and Seminole Counties received a similar number of comments. Based on population, responses from Orange County (62 percent of population and about 83 percent of responses) are disproportionately higher than both Osceola (16 percent of population and about 9 percent of responses) and Seminole (21 percent of population and about 9 percent of responses) Counties. This was noted throughout the public engagement period and additional outreach was conducted to the Public Information Officers with each jurisdiction in Osceola and Seminole Counties to further promote the project.

Of the total responses, about 75 percent of the comments related to a facility not feeling safe or that a facility was needed. Approximately 13 percent of comments noted that a facility was great (**Table 1**). The remainder of comments were related to a wide range of topics, mostly related to maintenance, such as potholes and faded paint, and driver behavior, such as failure to yield at marked crosswalks. **Figure 5** displays the geographic distribution of the comments.

The location of comments was also compared against the Level of Traffic Stress (LTS) analysis results to see if there was a relationship between the public's perception of facilities and their calculated stress level based on the number of travel lanes, vehicle volumes, vehicle speeds and roadway characteristics (please see technical memorandum that describes the LTS analysis methodology dated March 28, 2023). As shown in **Table 2**, approximately half of the comments related to the safety of a facility are within 250 feet of an LTS 3 or 4 facility, which is generally a higher stress facility, and a disproportionate number of the overall comments related to safety are within 250 feet of a LTS 3 or 4 facility.

Finally, general themes, such as speeding, were compared geographically (**Table 3**). Top themes in the comments include: speeding, lighting, visibility, roadway condition, and a need for bicycling and walking facilities.

This information will be used in combination with the LTS, Pedestrian Level of Comfort (PLOC) and accessibility analyses to identify locations on the MPO roadway network for new and enhanced facilities. How each comment was incorporated into the analysis will be documented [here](#).



Table 1: Comment Geographic Distribution

County	Total	Total (%)	Currently Unsafe		Facilities Needed		Great Facility		Additional Comments	
			Total	%	Total	%	Total	%	Total	%
Orange	240	83%	98	41%	84	35%	34	14%	24	10%
Osceola	25	9%	7	28%	8	32%	3	12%	7	28%
Seminole	25	9%	12	48%	8	32%	1	4%	4	16%
Total	290		117	40%	100	35%	38	13%	35	12%

Source: Social Pinpoint Comment Map; Fehr & Peers, 2023

Table 2: Comment Proximity to High Stress Facilities for Bicycling (LTS 3 or 4)

County	Total	Total (%)	Currently Unsafe		Facilities Needed		Great Facility		Additional Comments	
			Total	%	Total	%	Total	%	Total	%
Orange	144	50%	69	48%	50	35%	15	10%	10	7%
Osceola	15	5 %	5	33%	3	20%	3	20%	4	27%
Seminole	17	6%	7	41%	7	41%	0	0%	3	18%
Total	176		81	46%	60	34%	18	10%	17	10%

Source: Social Pinpoint Comment Map; Fehr & Peers, 2023:



Table 3: Comment Themes by Geography

County	Total	Speeding	Connectivity	Road Condition	Lighting/ Visibility	Mentions Sidewalks	Mentions Bike Lanes	Ped Comments	Bike Comments
Orange	206	26	44	12	24	56	43	121	105
Osceola	22	4	3	0	0	7	6	11	9
Seminole	24	0	4	0	1	6	9	11	13
<i>Total</i>	<i>252</i>	<i>30</i>	<i>51</i>	<i>12</i>	<i>25</i>	<i>69</i>	<i>58</i>	<i>143</i>	<i>127</i>

Source: Social Pinpoint Comment Map; Fehr & Peers, 2023:

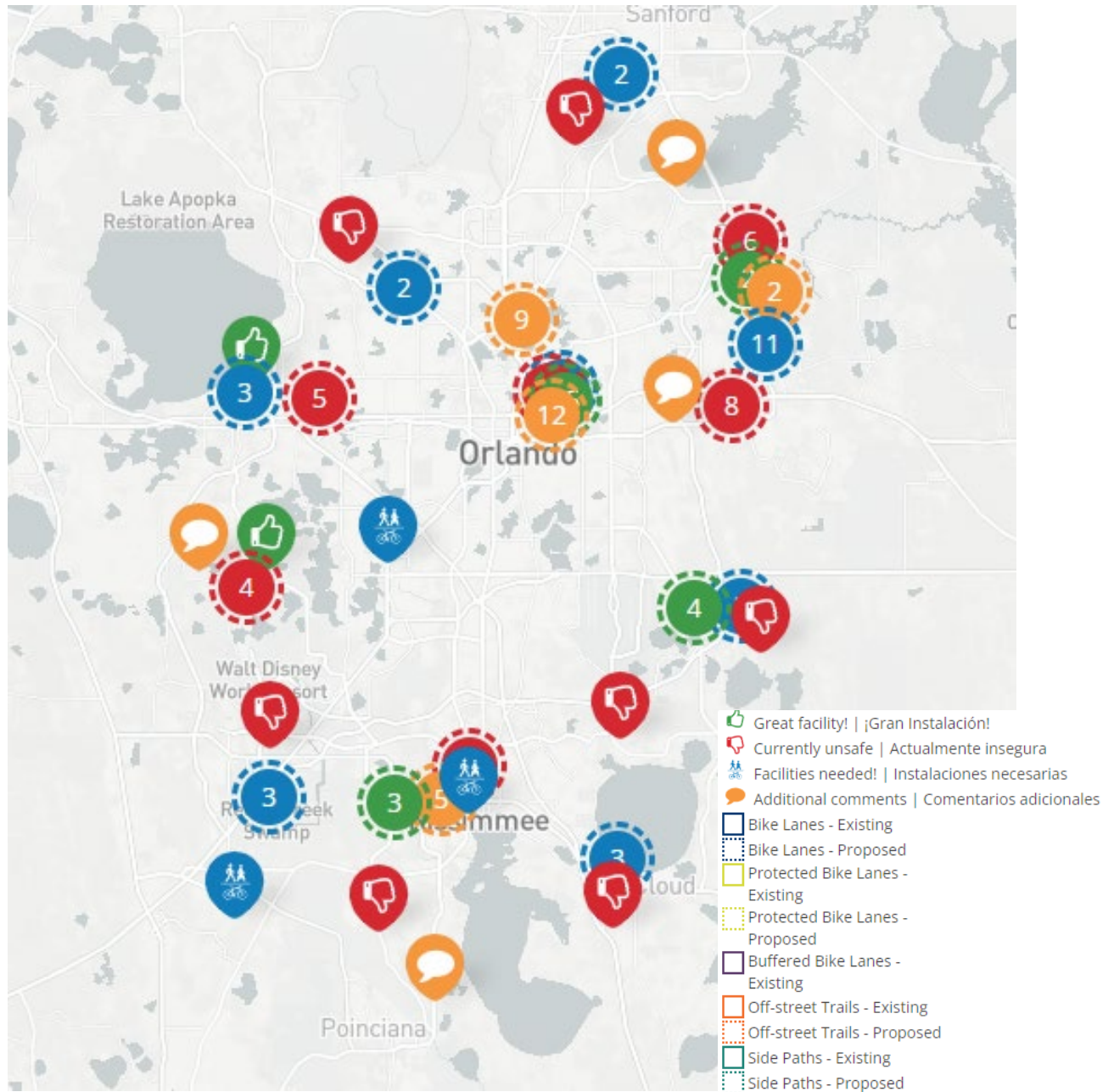


Figure 5: Geographic Distribution of Comments



Comment Summary

There were many comments about specific facilities. These comments will be considered when developing recommendations. Many of the comments are similar to the ones provided in the survey. Below is a summary of the general concerns of respondents.

Enhanced Facilities

- Wider sidewalks/bike lanes
- Buffered facilities including vertical separation
- Enhanced intersection and trail crossings
- Reduced intersection crossing distances and properly timed flash don't walk phase
- Enhanced crosswalks including raised crosswalks
- Landscaping and shade
- Trashcans along walking and biking paths
- Trails instead of bike lanes on large, high-speed roadways
- Delineation between bicycle and pedestrian spaces
- Bulb-outs
- Curb ramps

New Facilities

- More sidewalks
- More crosswalks
- Pedestrian bridges
- Dedicated bicycle facilities, especially where sidewalks are narrow
- Consistent, continuous facilities
- Fill in gaps in the bicycle and pedestrian network

Better connections

- Between different cities and neighborhoods
- To transit
- To parks and lakes
- To trails
- To UCF
- To schools
- To shopping centers

Dangerous or Uncomfortable Facilities

- Bike lanes on busy, high-speed roads
- Brick roads
- Inconsistent infrastructure (bike lanes that stop and start, bike lanes that shift cyclists to the sidewalk)

Driver behavior

- Speeding
- Drivers don't look for or yield to bicyclists or pedestrians



- Drivers parking on the sidewalk

Maintenance

- Faster maintenance
- Clear debris and overgrown vegetation
- Fix potholes and bumps in bike lanes
- Fix broken sidewalks

Miscellaneous

- Biking and walking facilities need better lighting
- Core areas like Ivanhoe and Mills should prioritize walking and biking
- Concerns about criminal activity and safety in wooded or secluded areas
- Address bicycle and pedestrian conflicts with railroad crossings
- Roads should fit the context of the neighborhood
- Push buttons are on the wrong side of trail

Demographic Information

As part of the survey, we asked participants for demographic data, including race/ethnicity, gender and age. The percentage of survey respondents who are white is disproportionately higher than the regional population, and the Black or African American population bring the most underrepresented. Responses by gender were slightly higher for people that identify as males (48 percent) than females (45 percent). Approximately 6 percent of responds preferred not to state or are non-binary. No persons under the age of 18 responded to the survey. Persons over the age of 65 are slightly overrepresented in the survey responses.

Next Steps

The public engagement participants provided insightful feedback about what they would like the regional bicycle and pedestrian network to look like. The project team will work to incorporate this feedback when developing recommendations for the types of facilities to provide and their locations. For each comment related to specific infrastructure (safety or identification of a project need), a record of how the project team incorporated the feedback will be [kept](#). For comments not on the MPO Roadway network, the comments will be forwarded to the appropriate jurisdiction.

Appendix F: Final Public Engagement Summary

Note: This appendix will be added after the completion of the public engagement activities for this project.