metroplan orlando
A REGIONAL TRANSPORTATION PARTNERSHIP

2050 Metropolitan Transportation Plan

Chapter 3 | Existing Conditions, Area Profile, and Travel Patterns

August 22, 2025
Draft

What is in this document?

This chapter provides an overview of the region's demographic, land use, mobility, and emerging technology conditions. The region's existing transportation system is also summarized by establishing an inventory of the infrastructure assets along with some indicators of how the system is performing. The data and existing conditions established here will form the basis of future forecasts and transportation needs assessments. A comparison of the future 2050 alternatives and their relation to the existing conditions will help develop policy direction as part of the master planning process for the 2050 Metropolitan Transportation Plan.

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Legal Information

The preparation of this report has been financed in part through grants from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

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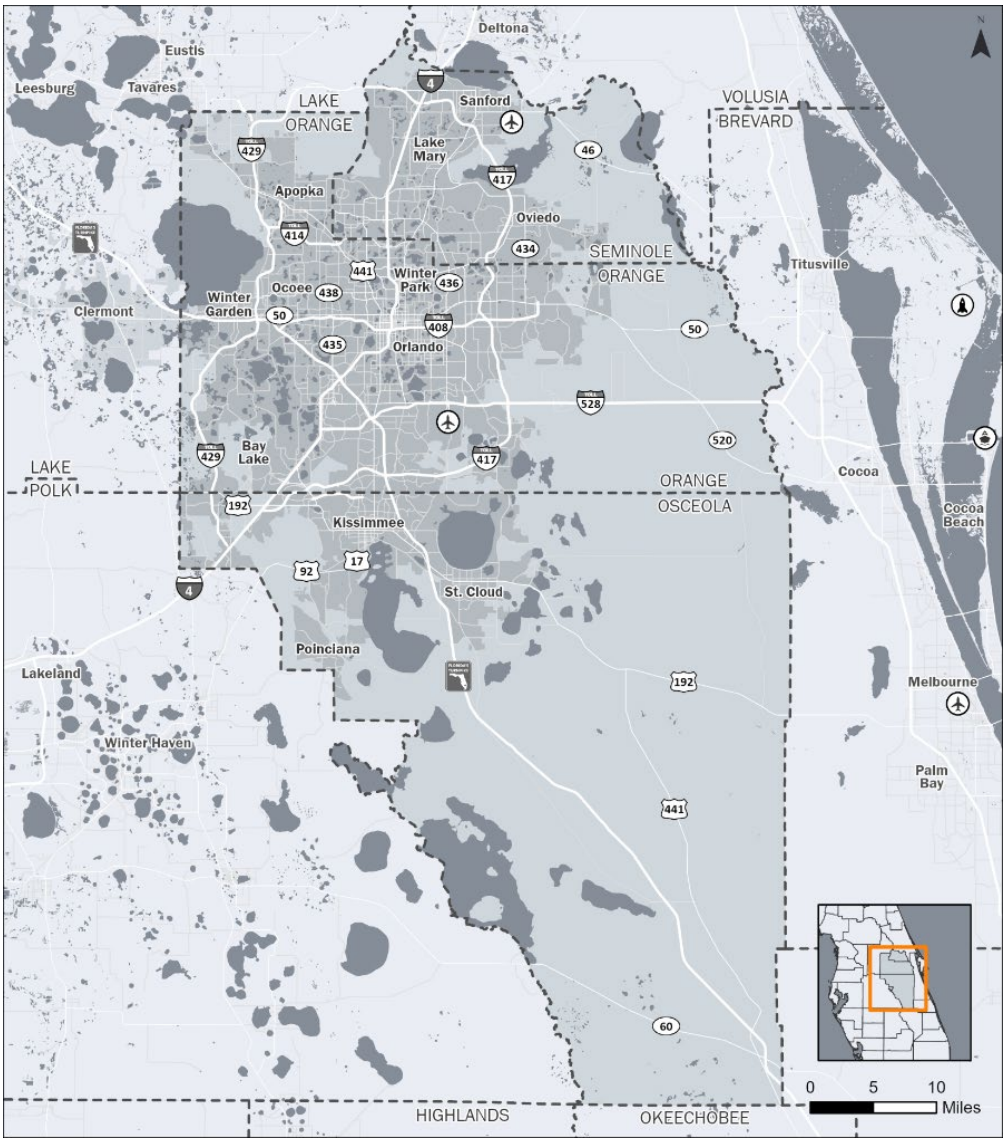
3.1 Introduction

MetroPlan Orlando is the designated Metropolitan Planning Organization (MPO) for the Central Florida region, shown in Figure 3-1. The planning area includes Orange, Osceola, and Seminole counties – the Orlando and Kissimmee urbanized areas. This three-county area will be called "the region" throughout this report. A key responsibility of MetroPlan Orlando is to prepare the region's 2050 Metropolitan Transportation Plan (2050 MTP or 2050 Plan). The development of the MTP will take a systems-planning approach that fully addresses all transportation modes and the relationship and connectivity between modes. The result will be a comprehensive planning document which will guide the development of the region's transportation facilities and services over the coming decades.

This chapter plays an important role in the 2050 MTP by providing a foundation of data specific to the region. This document is organized into four segments, each providing a key building block in the 2050 Plan's foundation.

Figure 3-1 | MetroPlan Orlando Coverage Area



Sources: Florida Department of Transportation (FDOT), Florida Geodatabase Library (FGDL), 2023

PART 1 Introduction

PART 2 Tracking Trends

PART 3 Area Profile

PART 4 Origin-Destination and Travel Patterns

This chapter of the 2050 MTP begins with a review of major milestones from years past. Numerous transportation trends are then documented with the comparisons from five years ago to today (using baseline data from 2022). Next, the Area Profile looks at community composition such as demographics and indicators for work and play to tell the story of Central Florida's people and how they move about to enjoy life in the Sunshine State. Lastly, this chapter takes an analytical look at Origin-Destination data, the travel patterns of the region's residents and visitors. This data modeling helps understand the travel demands of the area and where people are trying to go.

3.1.1 LEARNING FROM THE PAST

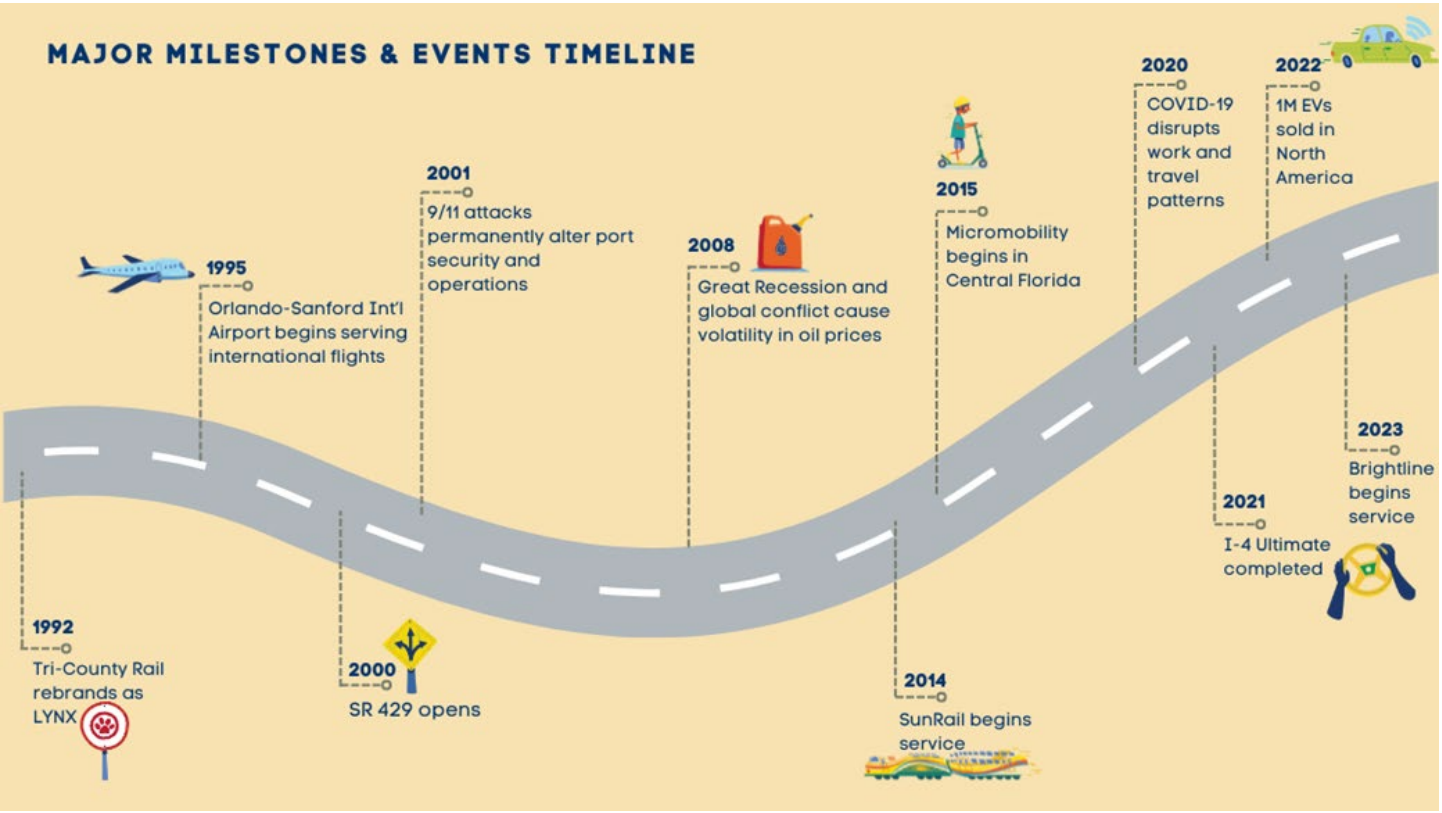
Many major milestones have shaped the Central Florida region from 1990 to today. The Great Recession and COVID-19 are now firmly in the rear-view mirror; and Central Florida, like other metropolitan areas around the southern U.S., is experiencing rapid population growth and a resurgence in travel and tourism. With the growing accessibility of fast broadband speeds, improved cellular and social networks, and accessibility to smartphones, personal technology is rapidly transforming how people travel, shop, work, play, and even meet one another.

The Long Range Transportation Plan for 2025 was prepared in the early 2000's and envisioned a multimodal 2025. Several key projects that were visualized did get completed, including I-4 Ultimate, the completion of the Western Beltway around Orlando (S.R. 429), and passenger rail service with SunRail. Much of the transit planning for the region at that time centered around light rail improvements in the core of the region, generally paralleling I-4. While this project did not occur, a form of rail transit for the region was achieved through SunRail. The 2025 Plan did address bicycle, pedestrian, and freight modes, but the data to build upon planning for these modes was limited. In 2023, the region is equipped with numerous data sets and mapping products that enhance MetroPlan Orlando and its partners' ability to create positive change by analyzing data.

3.1.2 MAJOR MILESTONES & EVENTS

Transportation has been an integral part of our region's history and has shaped what our community is today. Central Florida has grown from a small metropolitan area into arguably the world's premier international tourist destination and a bustling metro area. The transformation started with the opening of the Walt Disney World Resort in 1971 and continued to gain momentum through the 1970s and 80s. The region's growth and international status has further strengthened since 1990. A summary of major milestones since 1990 are summarized in Figure 3-2. In addition to growth, advancements in technology have had a significant impact on mobility in the region.

Figure 3-2 | Historic Milestones and Events



3.2 Tracking the Trends

Historic milestones and current situations can advise on future action with the help of accurate and detailed analysis. MetroPlan Orlando tracks numerous trends and data points relating to transportation in the region, and this chapter dives into the latest available data for these trends. In addition to the information available in this section of the report, MetroPlan Orlando maintains an online Tracking the Trends program, including interactive maps and data relating to these trends. Additional information can be found online at www.MetroPlanOrlando.gov/Trends.

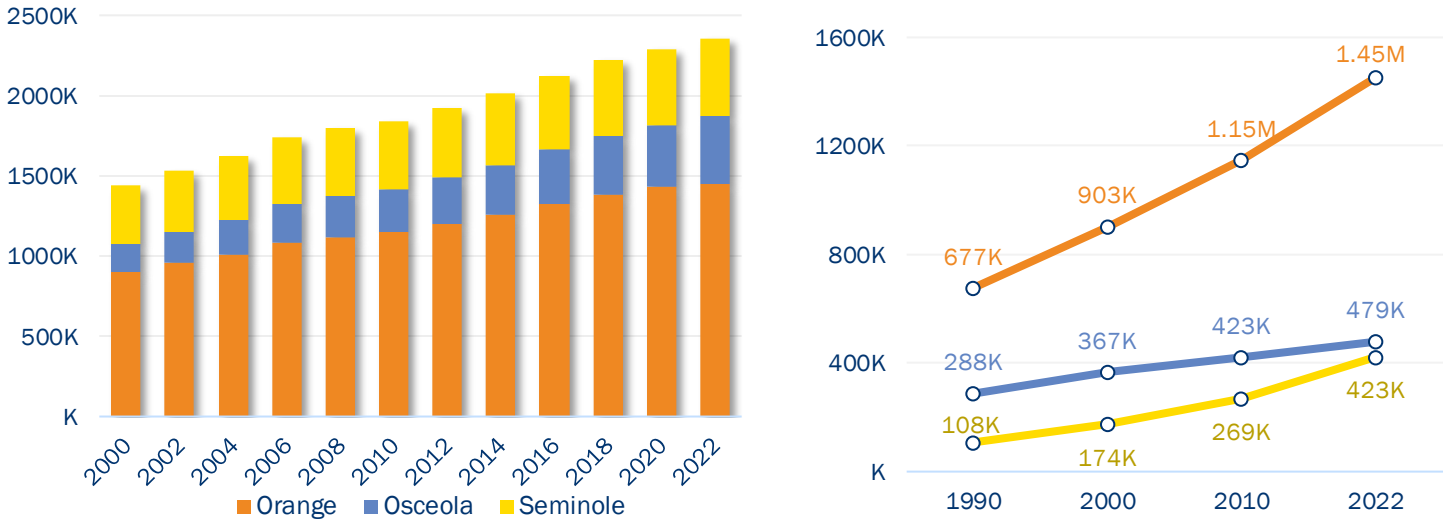
3.2.1 PEOPLE & PATTERNS

Population and employment are key variables driving transportation movements in the region. Historical data relating to population and employment for the three Central Florida counties were collected from the U.S. Census Bureau, the U.S. Bureau of Economic Analysis, and the U.S. Bureau of Labor Statistics.

3.2.1.1 POPULATION

Figure 3-3 summarizes the population growth trend in the region and shows that the regional population grew from about 1.5 million in 2002 to nearly 2.4 million in 2022. With this growth, the Orlando-Kissimmee-Sanford Metropolitan Statistical Area (MSA) is the 22nd largest metro area in the United States as of 2022. The fastest-growing county in the region continues to be Osceola County, which grew 57% from 2010 to 2022.

Figure 3-3 | Population Data Series: (Left): Region Population; (Right): Long Term Population by County

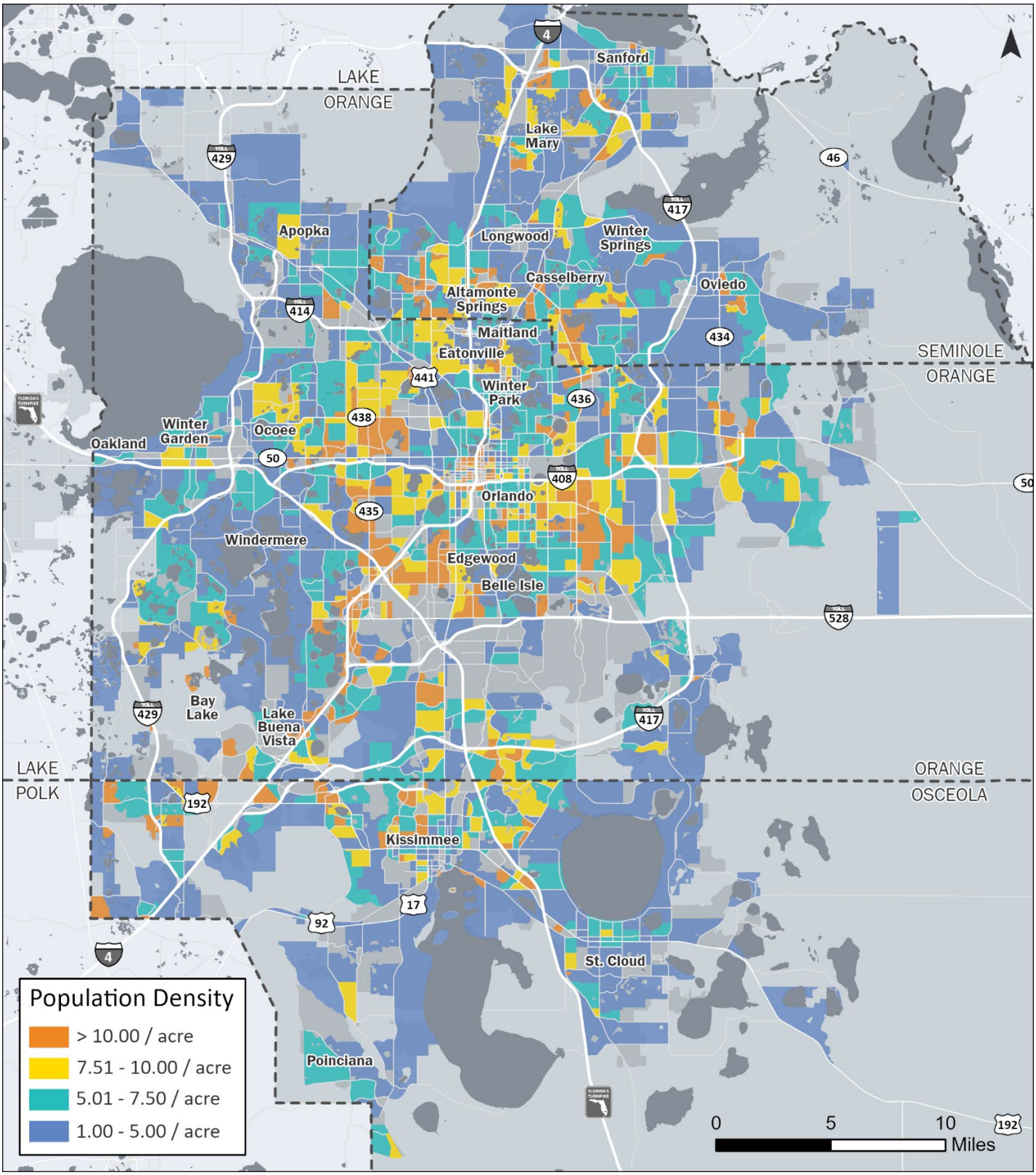


Source: U.S. Census Bureau, 2022

3.2.1.2 POPULATION DENSITY

It is also important to take a look at where this population growth occurred. Population density is the number of people per acre that live in an area. Traditionally, downtown areas and urban cores have higher densities, and rural and suburban areas have lower densities. In the three-county region, there are several urban core areas, the largest being Downtown Orlando, Sanford, and Kissimmee, with suburban areas in between. Large swaths of land, mainly used for rural and natural conservation purposes, still exist on the outskirts of the suburban areas. Figure 3-4 illustrates the population density around the three counties.

Figure 3-4 | Population Density



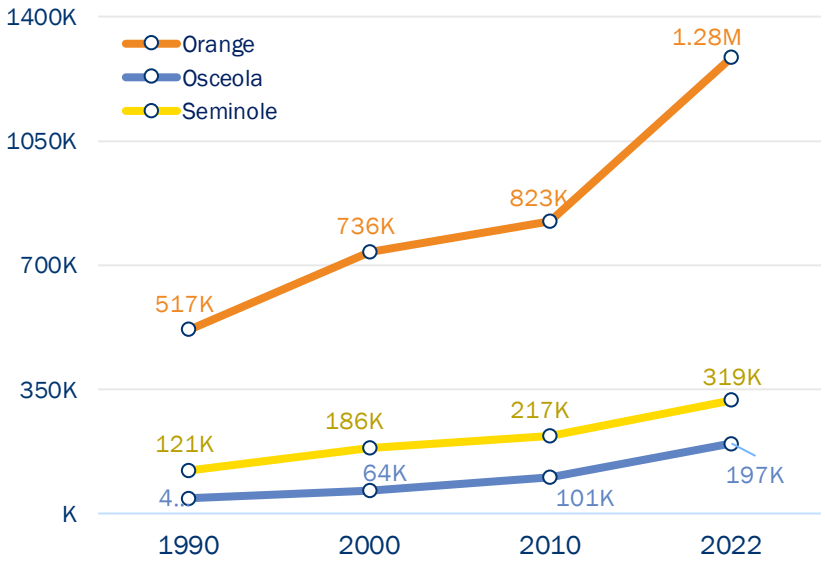
Source: Central Florida Regional Planning Model Traffic Analysis Zones, 2022

3.2.1.3 EMPLOYMENT

Residential growth must be paired with growth in employment sectors to sustain a population. Employment and unemployment trends are typically more volatile than population trends and more closely resemble overall economic and business cycles. Historical labor market data for the three Central Florida counties from 1990 onwards were collected from the U.S. Bureau of Economic Analysis and the U.S. Bureau of Labor Statistics.

The region has been resilient to acute economic shocks, including the Great Recession of 2009 and the COVID-19 pandemic of 2020. As shown in Figure 3-5, since 2010, more than 400,000 jobs were created in Orange County, more than 100,000 jobs were created in Seminole County, and Osceola County nearly doubled to 197,000 jobs.

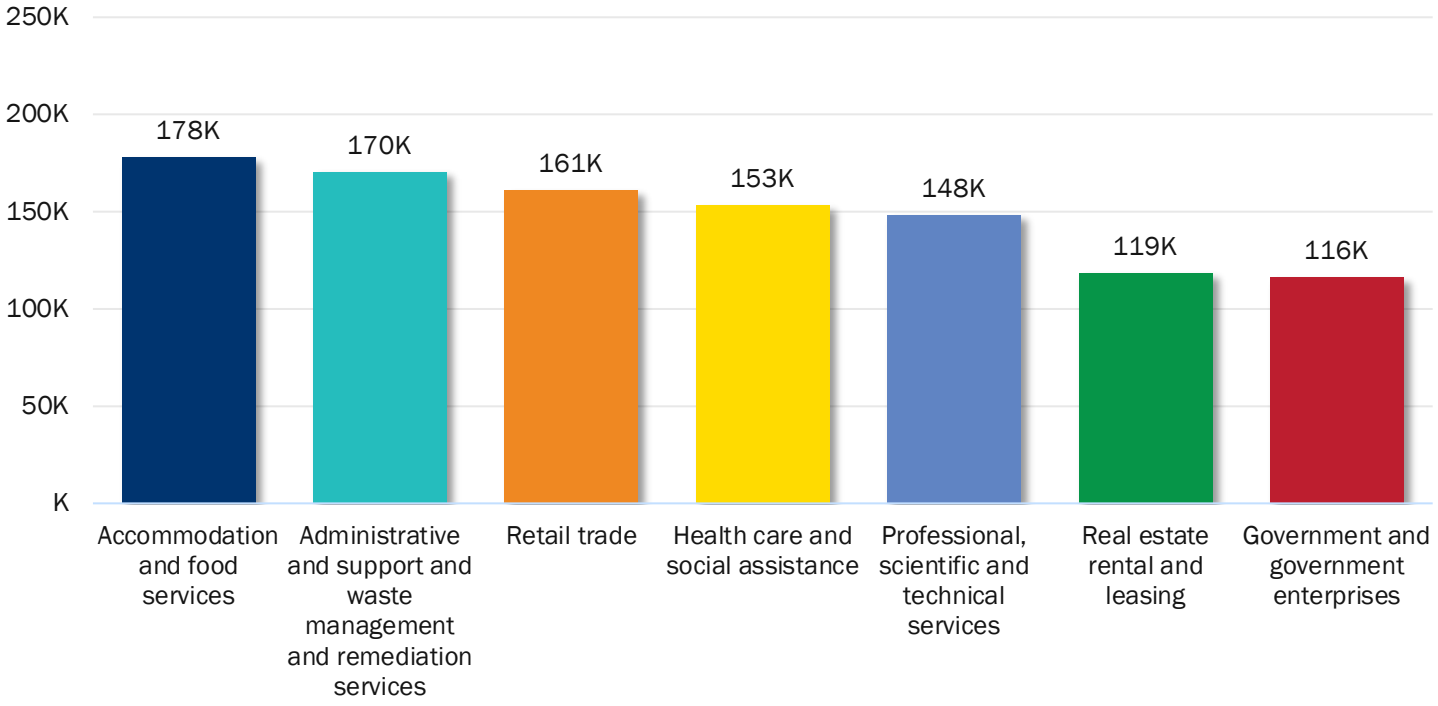
Figure 3-5 | Long-Term Regional Employment by County



Source: Bureau of Economic Analysis, 2023

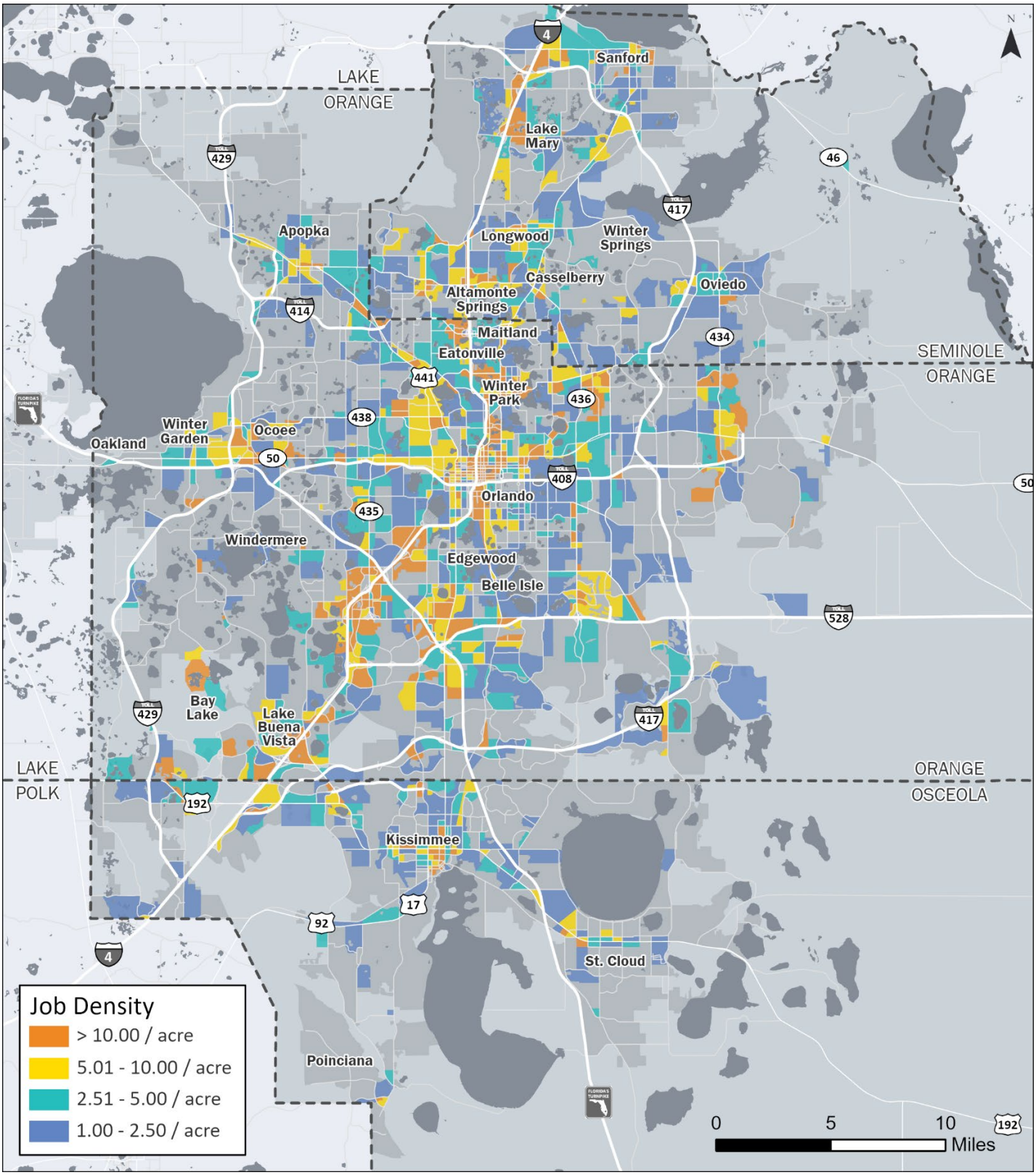
The region's employment by industry has not changed since the last MTP update, as accommodation and food services, administration, and retail trade are the top industries by job count as seen in Figure 3-6. A map of employment density is depicted in Figure 3-7. This map shows that job density is spread throughout the region.

Figure 3-6 | Regional Employment by Industry, 3-County Area



Source: U.S. Bureau of Economic Analysis, 2022 (both figures on page)

Figure 3-7 | Employment Density



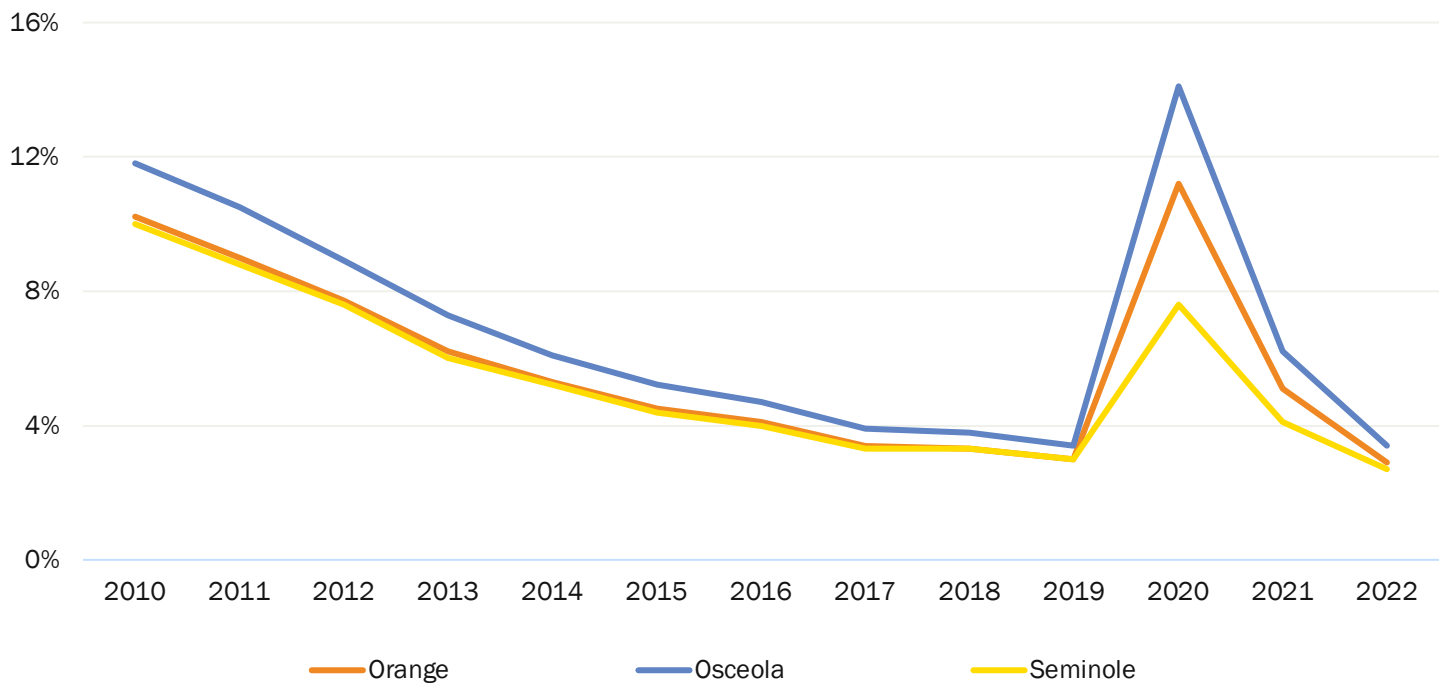
Source: Central Florida Regional Planning Model Traffic Analysis Zones, 2022

3.2.1.4 UNEMPLOYMENT

With hospitality/accommodation, food services, and retail trades among the region's largest industries, it is no surprise that the area's economy was susceptible to recent economic shocks. Despite these shocks, unemployment data shows robust economic resiliency throughout the three counties. Trends related to unemployment throughout the region are summarized in Figure 3-8.

Average levels of unemployment in the region were very high in 2010 as a result of the Great Recession. After 2010, unemployment rates gradually decreased to below 4%, but a second peak occurred in 2020 as a result of the COVID-19 pandemic. Since 2020, unemployment has sharply decreased to levels below 4%.

Figure 3-8 | Unemployment Rate by County and Year, 2010-2022

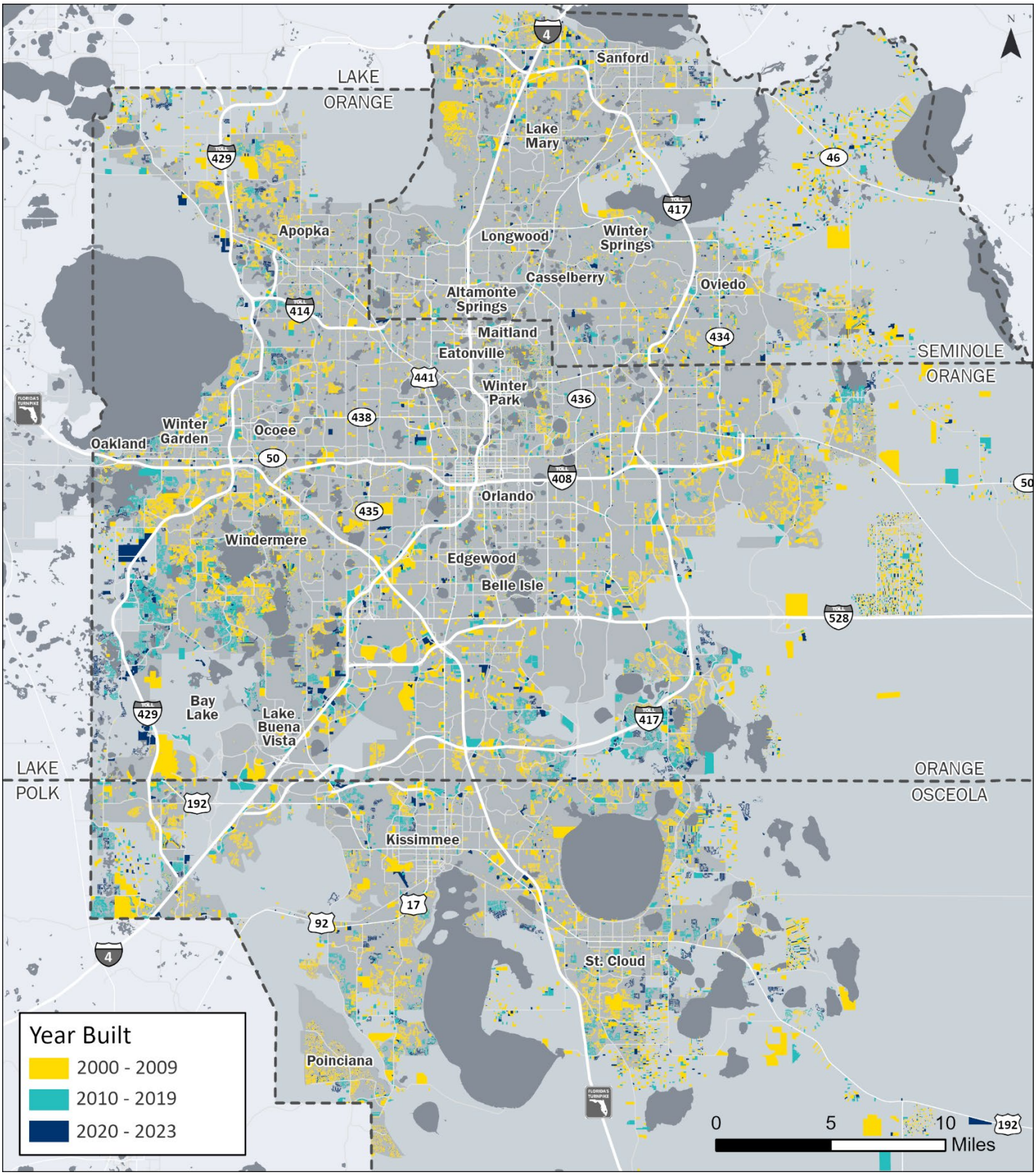


Source: U.S. Bureau of Labor Statistics, 2022

3.2.1.5 DEVELOPMENT PATTERNS

Population, employment, and unemployment are key components of measuring growth. To get the most overarching view of where growth has occurred in the region, it is important to look at both residential and non-residential development, like businesses, grocery stores, warehouses, office buildings, and so forth. On the following page, Figure 3-9 shows where all new developments, residential and non-residential, were built since 2000. Infill development, buildings constructed or renovated in already developed areas, make up a good portion of the region, but the figure makes it clear that a majority of the growth in the region has occurred at the suburban outskirts.

Figure 3-9 | Parcels Built from 2000 to 2023



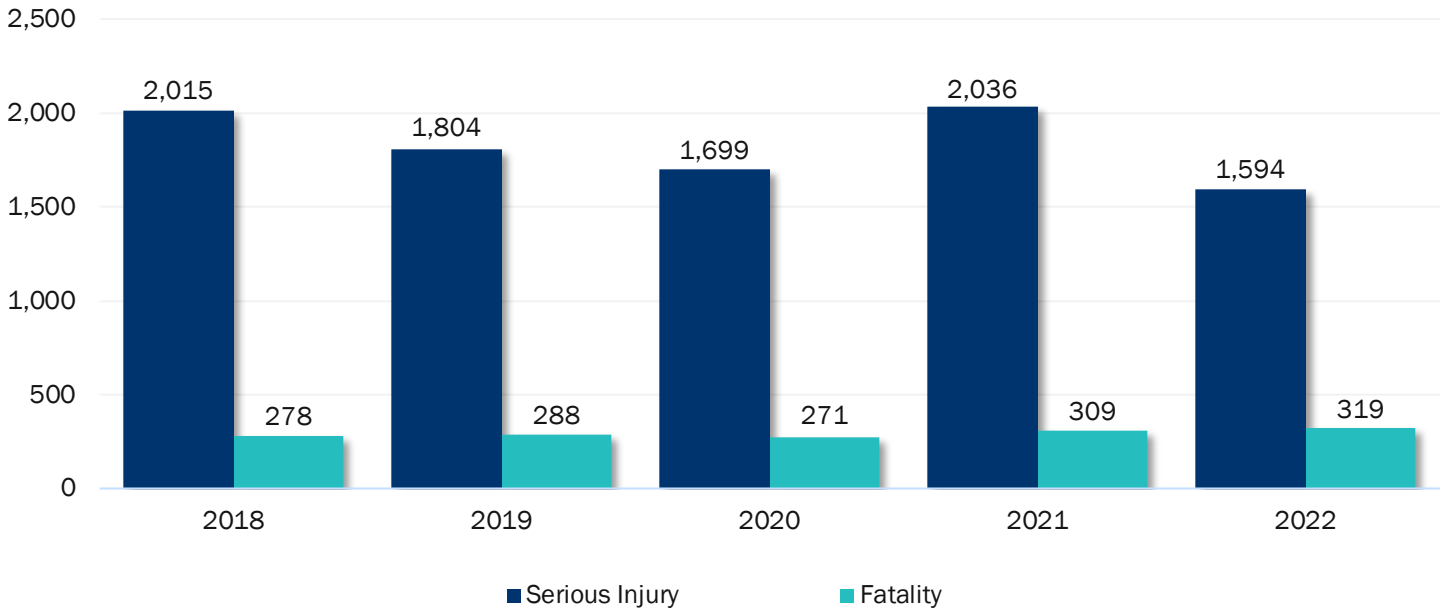
Source: County Parcel Files, 2024

3.2.2 SAFETY & SECURITY

The region has continued to grow in terms of population and vehicle miles traveled over the past decade, and crash rates have increased similarly over time. Over the last five years, the total number of crashes, crashes resulting in property damage, traffic-related fatalities, and traffic-related serious injuries have remained somewhat consistent, with relative dips occurring in 2020 due to decreased traffic volumes as a result of the COVID-19 pandemic. Figure 3-10 show crash trends from 2018 through 2022.

While these charts show how safety figures have fluctuated over time, it is important to recognize that no deaths are acceptable on the region's road network. That is why MetroPlan Orlando is working has worked with every city, town, and county in the region to develop Safety Action Plans. More about the Regional Safety Action Plan and safety efforts can be found in Chapter 9.

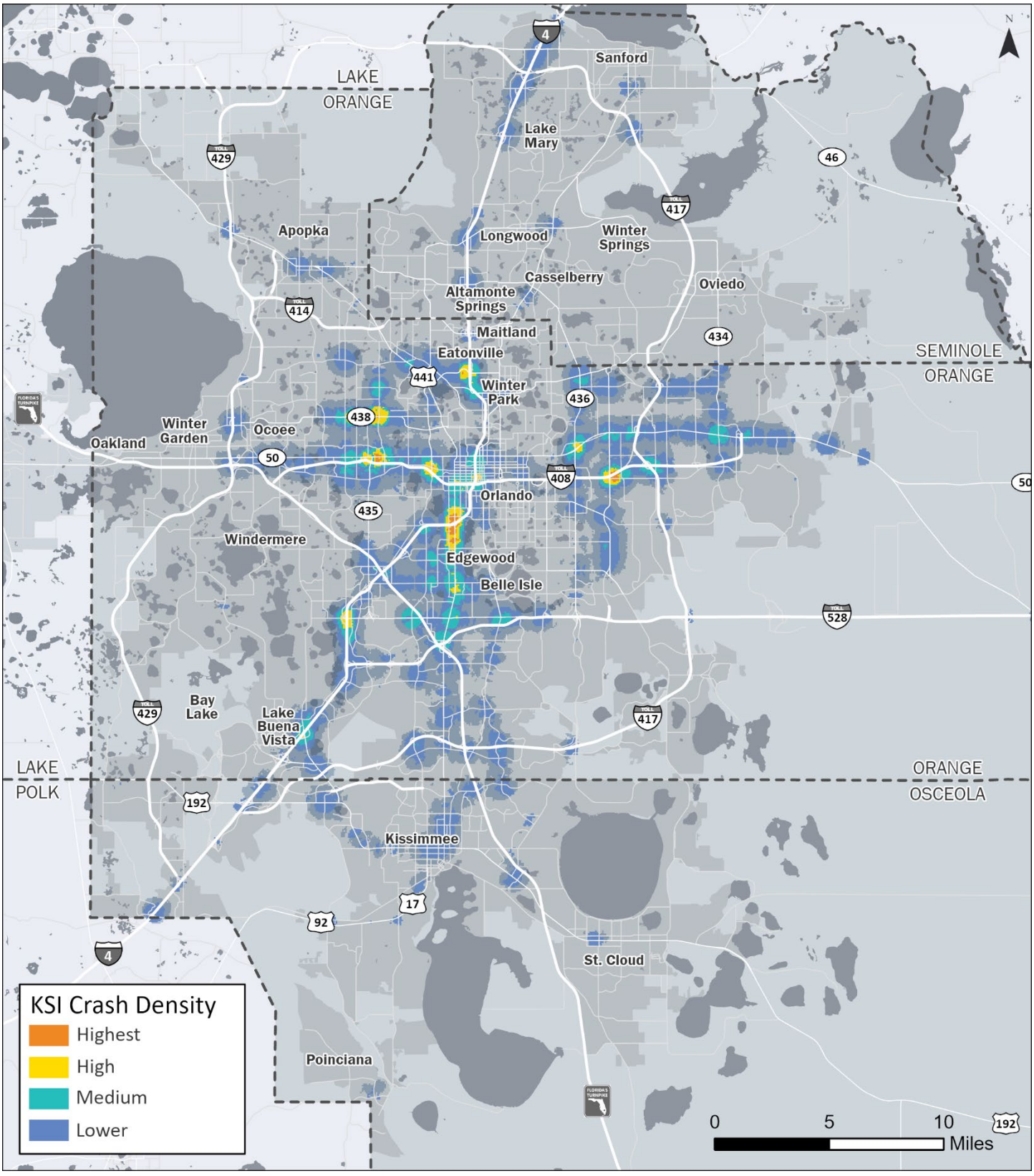
Figure 3-10 | Traffic-Related Fatalities and Serious Injuries, 2018-2022



Source: Signal Four Analytics, 2022

In order to capture the full picture of safety in the region, it is crucial to look at where crashes are occurring throughout the region as well. Crash hot spots where one or more person was killed or seriously injured (KSI) can be viewed in Figure 3-11 on the following page. From a three-county perspective, the areas with higher KSI within the region are predominantly located in Orange County along major thoroughfares, like Orange Blossom Trail (US 12/92/441), Colonial Drive (SR 50), and Sand Lake Road (SR 482).

Figure 3-11 | Crash Hot Spots with KSI (Killed or Seriously Injured Person), 2018-2022

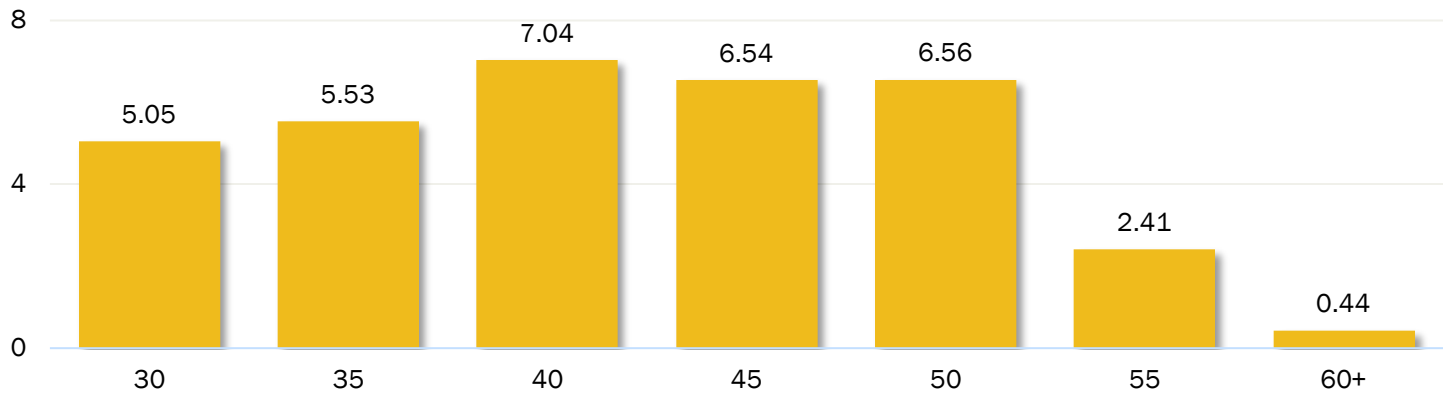


Source: Signal Four Analytics, 2022

3.2.2.1 CRASH RATES BY ROAD FEATURE

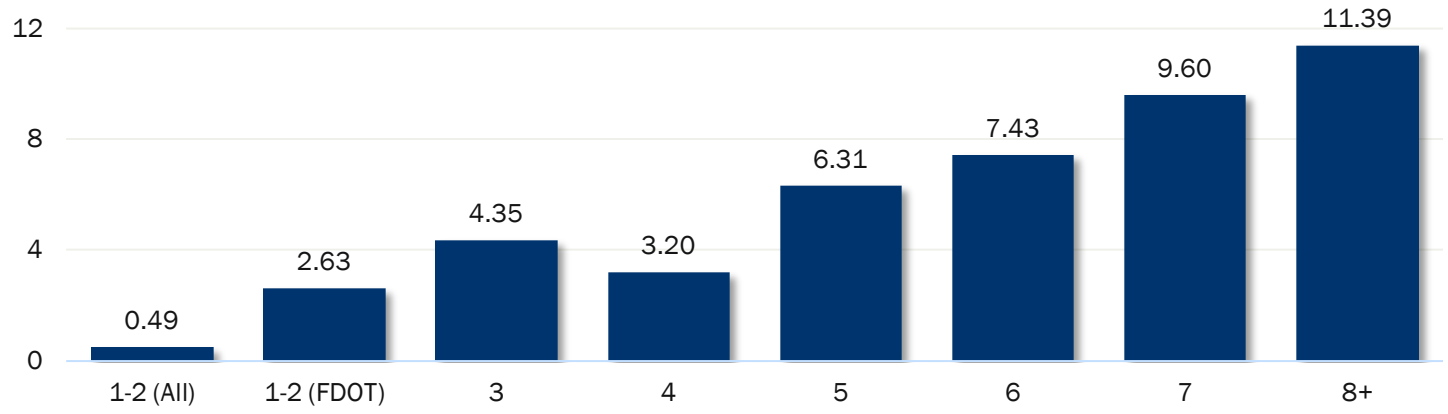
Crash rates indicate how frequently crashes have occurred on a road, and it has been seen that the more lanes a road has, then the more frequently crashes occur on that roadway. Figure 3-12 and Figure 3-13 show a correlation between total number of lanes and crash rates per centerline mile, with more crashes generally occurring where more lanes are present. The xGeographic Wave database and the Signal Four Analytics crash database are cross-referenced in this section to associate crash rates with road features. Roads with less than 3 lanes are differentiated between all roads and FDOT. Similarly, travel speed is another element associated with heightened crash rates. Figure 3-12 shows that crash rates peak in the 40 to 45 mile per hour range, excluding limited access roads. This data, along with crash data related to functional class and context class, is explored in greater detail in the Existing Conditions and Area Profile Technical Report.

Figure 3-12 | Crashes Per Lane Mile Per Year (2018-2022) – Posted Speed Limit (Excluding Limited Access)



Source: xGeographic Wave, 2023 (Road Features); Signal Four Analytics, 2018-2022 (Crashes)

Figure 3-13 | Crashes Per Lane Mile Per Year (2018-2022) – Number of Lanes (Excluding Limited Access)

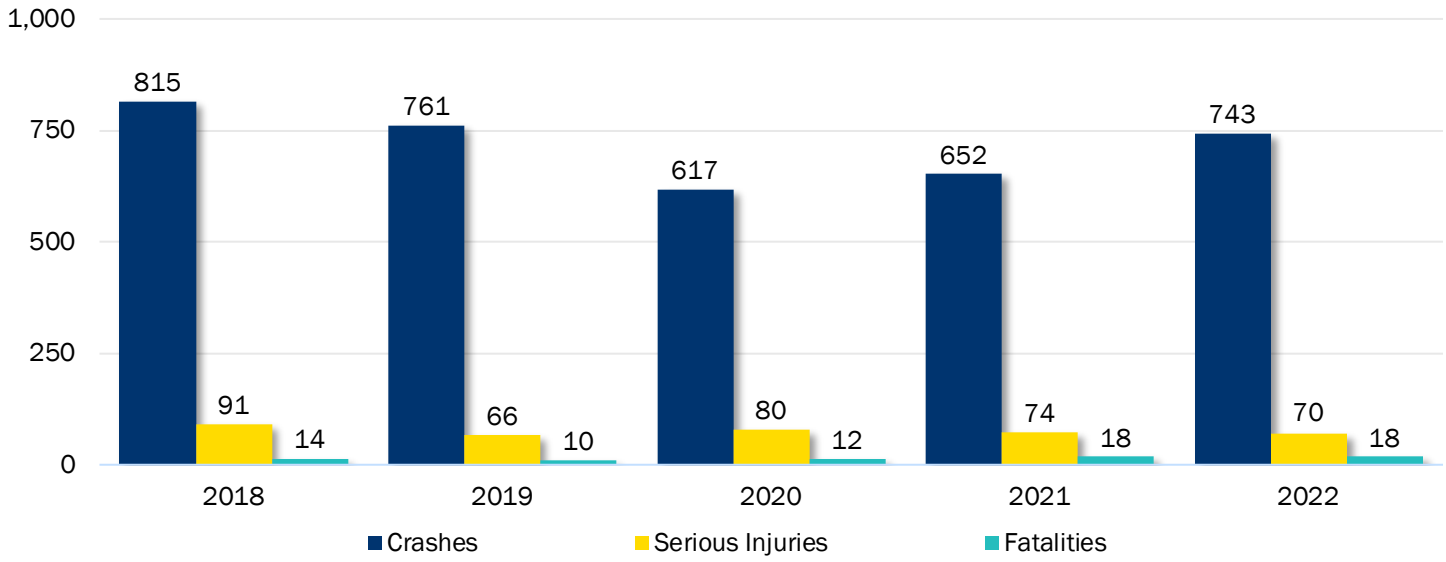


Source: xGeographic Wave, 2023 (Road Features); Signal Four Analytics, 2018-2022 (Crashes)

3.2.2.2 BICYCLE & PEDESTRIAN SAFETY

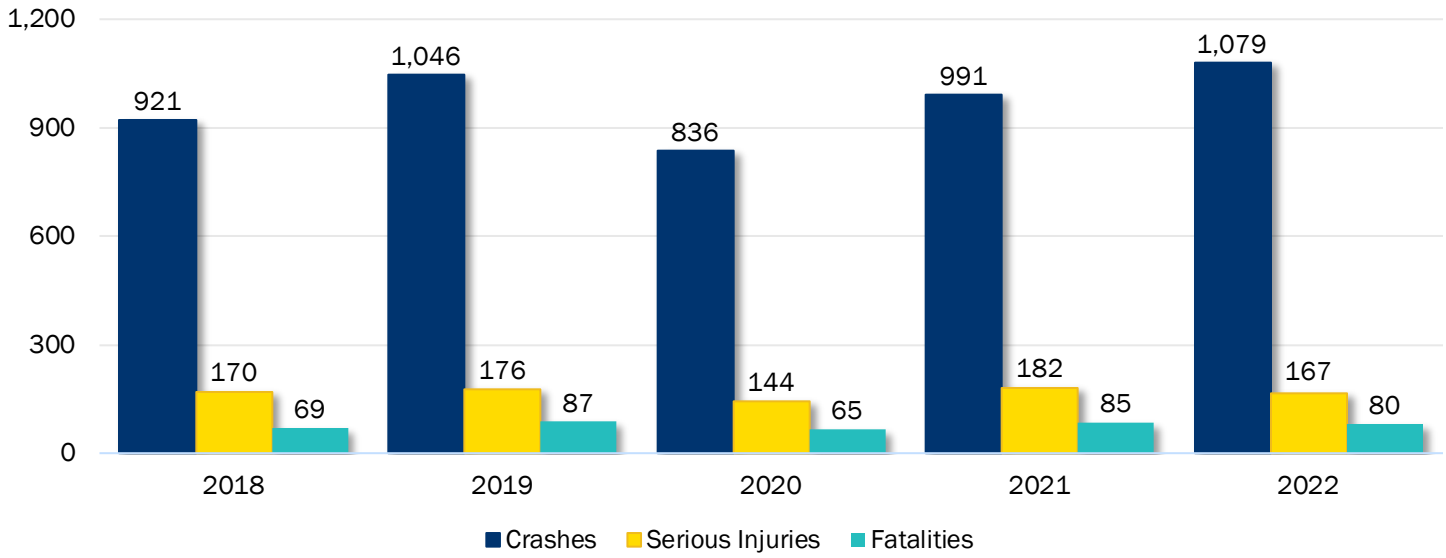
There is one group of road network users that are significantly impacted by road crashes. Bicyclists and pedestrians are vulnerable to death and serious injuries on our region's roadways. MetroPlan Orlando has taken numerous steps to improve safety for these and all other modes of transportation, which are detailed in Chapter 9. Figure 3-14 and Figure 3-15 below show bicycle and pedestrian crash trends from 2018 to 2022.

Figure 3-14 | Bicyclist Crash Trends by Severity, 2018-2022



Source: Signal Four Analytics, 2022

Figure 3-15 | Pedestrian Crash Trends by Severity, 2018-2022



Source: Signal Four Analytics, 2022

3.2.2.3 BICYCLE AND PEDESTRIAN CRASH RATES BY ROAD FEATURE

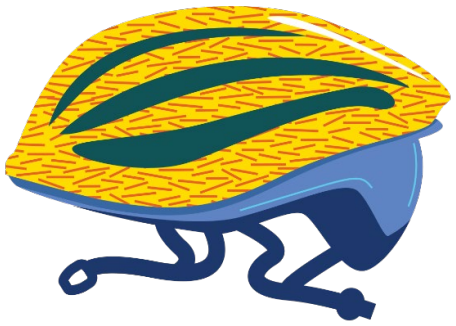
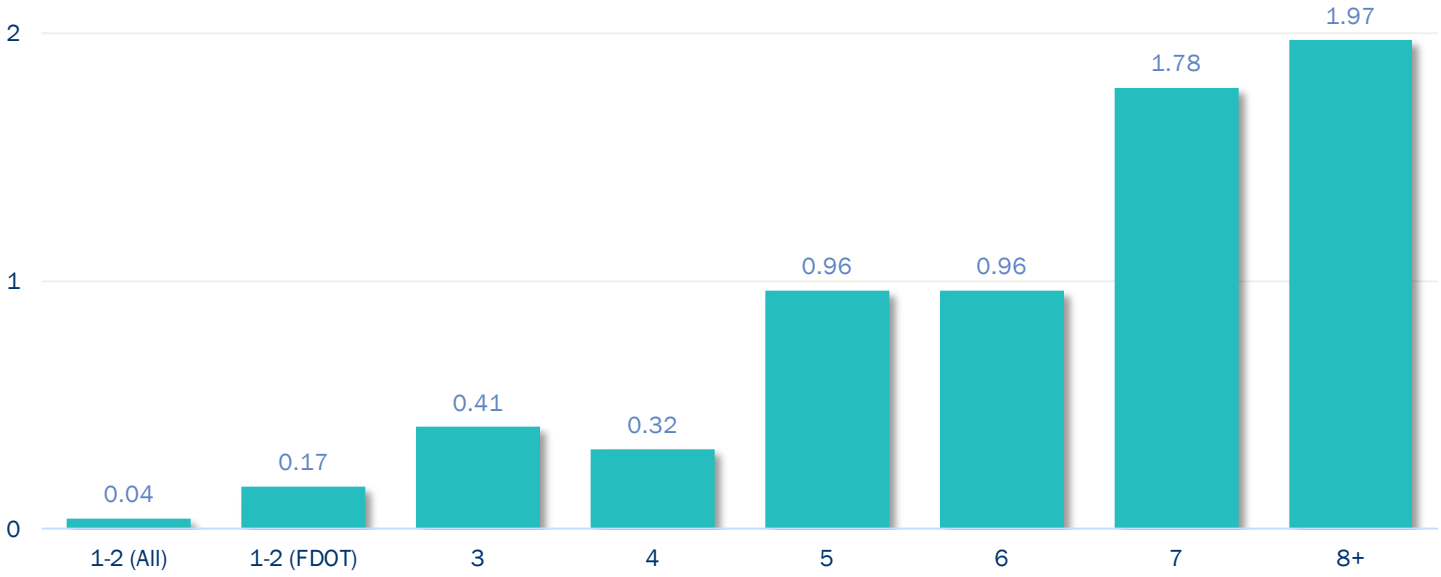


Figure 3-16 shows that bicycle and pedestrian crashes become more frequent as the number of lanes increase, a trend that was also observed for vehicle crashes. The xGeographic Wave database and the Signal Four Analytics crash database are cross-referenced in this section to associate crash rates with road features. Roads with less than 3 lanes are differentiated between all roads and FDOT. All statistics exclude limited access roadways. This data, along with crash data related to functional class and context class, is explored in greater detail in the Existing Conditions and Area Profile Technical Report.

Figure 3-16 | Bike/Ped Crashes Per Centerline Mile Per Year (2018-2022) – Total Number of Lanes



Source: Signal Four Analytics, 2022

3.2.3 RELIABILITY & PERFORMANCE

The transportation network's performance is largely a function of its reliability. In this context reliability means how predictable travel time is for the average trip. A journey that consistently takes 30 minutes can be counted upon. A less predictable journey that could take anywhere from 20 to 45 minutes can frustrate commuters and reduce quality of life. Reliability is tracked in the region through numerous data points such as vehicle miles traveled (VMT), licensed drivers, fuel consumption, transit trends, and level of traffic time reliability. These metrics are analyzed in this section of the report, and also discussed in greater detail in the Existing Conditions and Area Profile Technical Report (available under separate cover).

3.2.3.1 MAJOR NETWORK OVERVIEW

The region has a dense network of thoroughfares, highlighted by an extensive network of limited access roadways consisting of the region's backbone, Interstate 4 (I-4), along with several toll roads. Major thoroughfares include:

SR 417 (Central Florida GreeneWay, Seminole County Expressway)
Generally, travels around the eastern side of Orlando.

SR 429 (Daniel Webster Western Beltway, Western Expressway)
Provides an alternate north-south route to I-4 in western Orange County and Osceola County.

SR 414 (Maitland Boulevard, John Land Apopka Expressway)
An east-west facility connecting Maitland to the Apopka area in northwestern Orange County.

SR 528 (Martin B. Andersen Beachline Expressway)
An east-west facility connecting I-4 to the coast in Brevard County.

SR 91 (Florida's Turnpike, Ronald Reagan Turnpike)
Generally, travels in a north-south direction between I-75 and Miami.

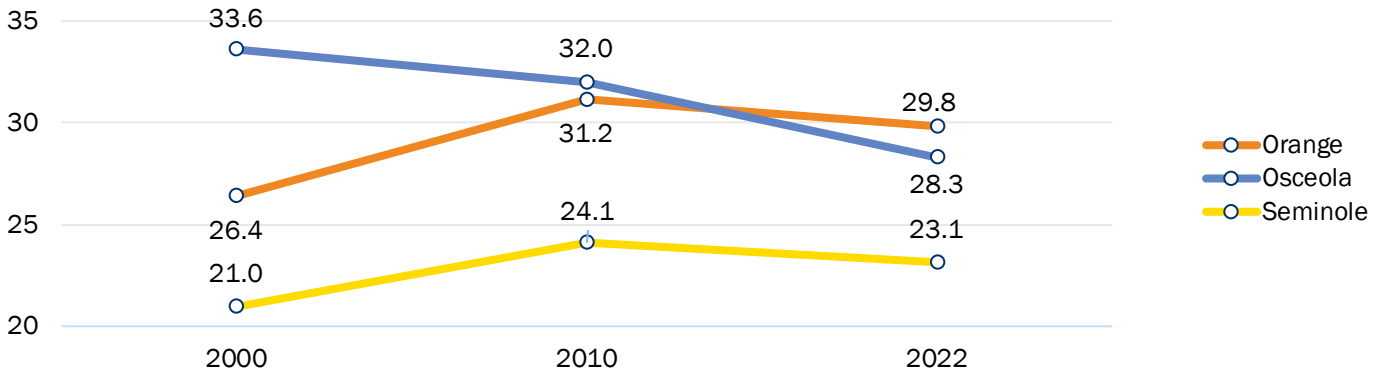
SR 408 (Spessard L. Holland East-West Expressway)
An east-west toll facility that connects Florida's Turnpike to Challenger Parkway.

3.2.3.2 VEHICLE MILES TRAVELED

Daily vehicle miles traveled (DVMT) is a metric used to indicate travel demand and behavior. DVMT is a product of a road's centerline miles and its annual average daily traffic (AADT). This calculation considers the fluidity of centerline mileage with vehicular use. Since 1997, FDOT has reported public road mileage and DVMT on an annual basis. DVMT continues to grow steadily and has approximately doubled in the region since the year 2000.

While the region has seen an increase in overall daily vehicle miles traveled over the past few decades, on a per capita basis, daily vehicle miles traveled has been decreasing since 2010. Figure 3-17 shows the daily vehicle miles traveled per capita trend since 2000, as compiled by FDOT.

Figure 3-17 | Daily Vehicle Miles Traveled Per Capita

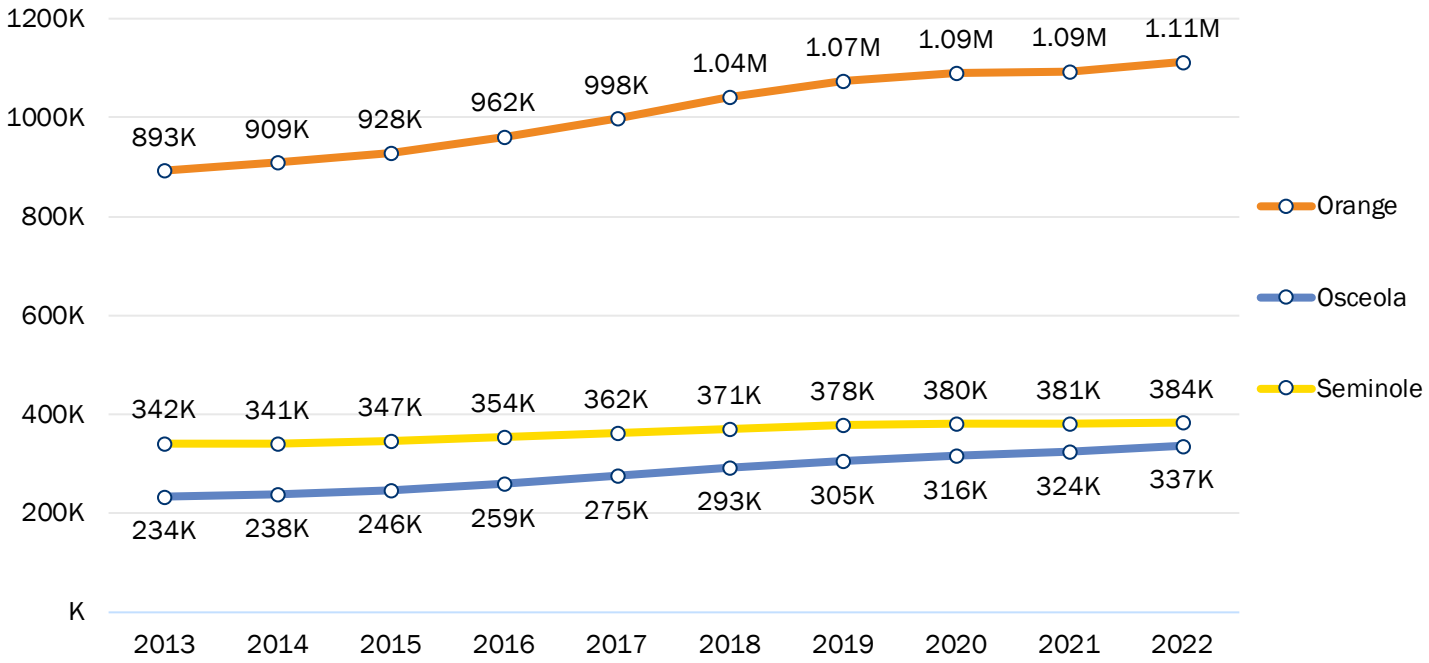


Source: Florida Department of Transportation, 2022

3.2.3.3 LICENSED DRIVERS

The number of licensed drivers in the region increased from 1.47 million in 2013 to 1.83 million in 2022, representing growth of approximately 25% during a time period when the region's population grew by approximately 20%. Osceola County saw the largest proportional increase during this time, with a 44% increase in licensed drivers from 2013 to 2022. Figure 3-18 shows the increases in licensed drivers across the three counties.

Figure 3-18 | Licensed Drivers

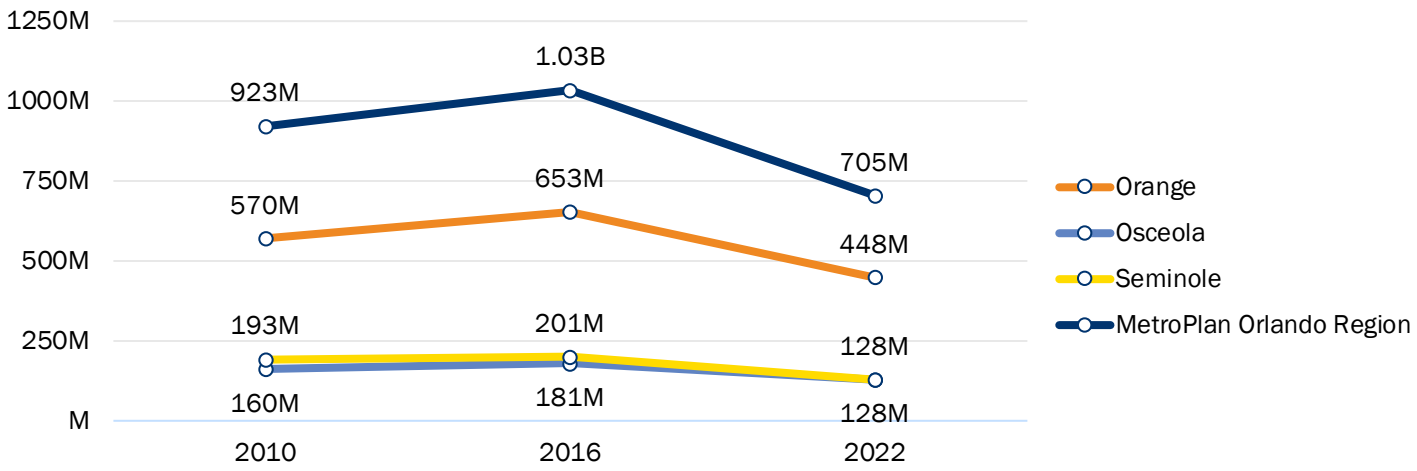


Source: Florida Department of Highway Safety and Motor Vehicles, 2022

3.2.3.4 FUEL CONSUMPTION

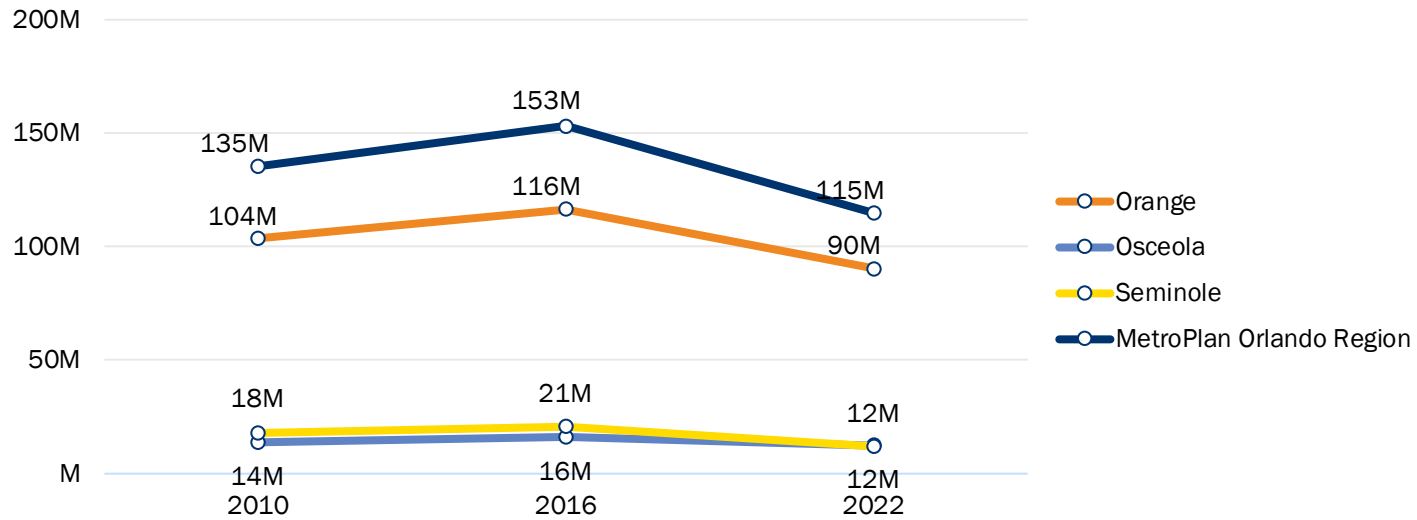
Fuel consumption has increased in line with the growth in population through previous decades but has begun to decline since the middle portion of the 2010's despite continued population growth. These trends can be seen below in Figure 3-19 and Figure 3-20. This can be attributed to more fuel-efficient vehicles, with increased vehicle miles per gallon resulting in fewer overall gallons utilized. As gas-powered automobiles became more efficient, a large disruption was also caused by the introduction and rapid adoption of electric vehicles that do not rely on gasoline or diesel fuel at all. Transit vehicles are also becoming increasingly more fuel efficient as well exploring alternative fuel sources. Fuel prices may impact the transportation choices for some residents and visitors, and this is discussed in greater detail in the Existing Conditions and Area Profile Technical Report.

Figure 3-19 | Annual Gasoline Consumption in Gallons



Source: Florida Department of Revenue, 2022

Figure 3-20 | Annual Diesel Consumption in Gallons



Source: Florida Department of Revenue, 2022

3.2.3.5 TRANSIT TRENDS

In February 2019, FDOT published a statewide document to address the national and statewide trend in declining ridership. This report, Understanding Ridership Trends in Transit, finds a peak in ridership during 2014. This has resulted in a drop in service productivity when combined with an increase in vehicle revenue miles of service.

Overall, it was noted in the FDOT report that service utilization has steadily been declining since 2002. This was measured by boardings per revenue mile and found a lower service utilization in 2017 than any previous year's reference data. The FDOT report showed Average Fixed Route Operating Speed as relatively stable since 2002, with a slight downward trend through the economic recovery from the Great Recession.

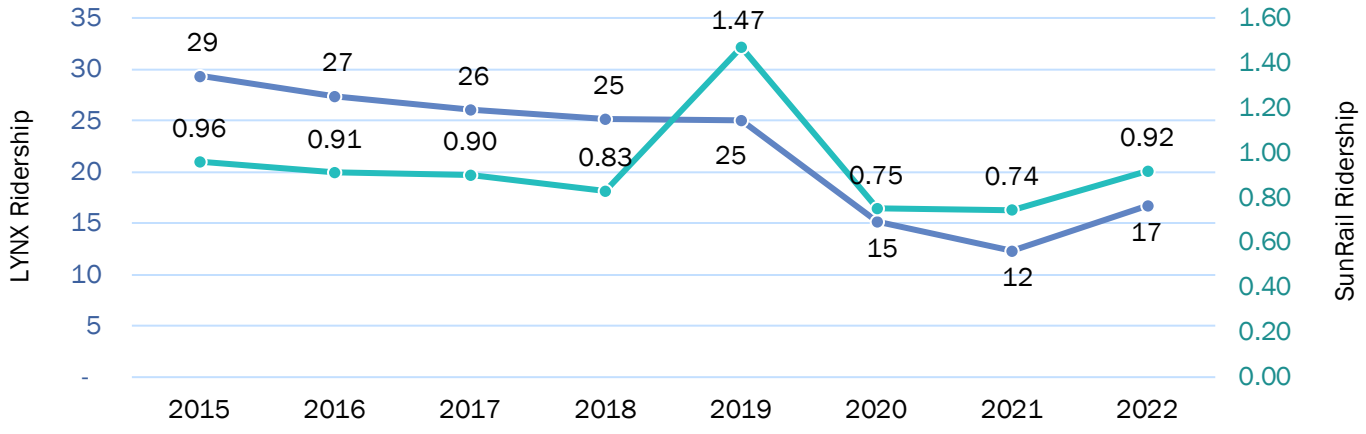
These trends have continued since the release of the 2045 Metropolitan Transportation Plan in 2020, as the COVID-19 pandemic caused a large decrease in overall ridership that has not fully recovered in the years since. However, LYNX and SunRail ridership figures are gradually rising, and are slowly returning to pre-pandemic levels.

TRANSIT RIDERSHIP

LYNX ridership has been on the decline since reaching its peak in 2014. A drop of approximately 30% in ridership occurred between 2019 and 2020 as a result of the COVID-19 pandemic, and ridership has not yet returned to pre-COVID levels. While not studied regionally, the shift from in-office work to a work-from-home dynamic may play a role in decreasing ridership among commuters.

SunRail ridership peaked during the 2018-19 fiscal year at 1.47 million annual passengers and has not reached those levels since. Ridership dropped in 2020 and 2021 as a result of the COVID-19 pandemic, but an uptrend has been observed in 2022 and 2023. Figure 3-21 below shows the ridership of both transit agencies.

Figure 3-21 | Historical Transit Ridership (Total Passengers, in Millions, by Year)



Source: LYNX, SunRail, 2023

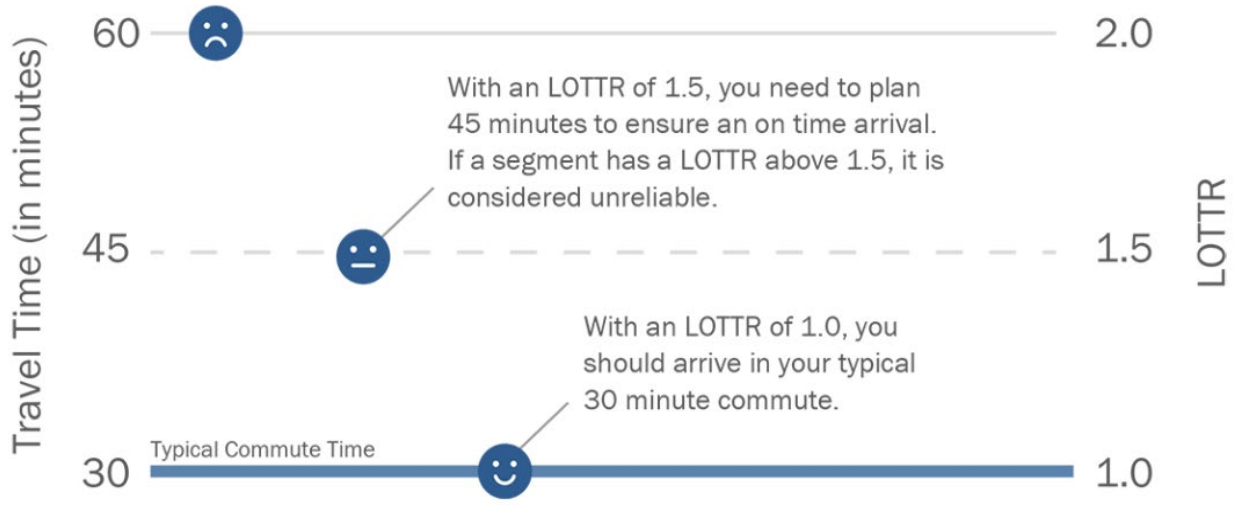
3.2.3.6 LEVEL OF TRAVEL TIME RELIABILITY

Travel reliability is how consistent, or predictable, travel conditions are for a trip or on a certain road. Some roads have very repeatable and consistent conditions day-to-day and are considered "reliable," while others are more inconsistent with delays and are considered "unreliable." A congested road is still considered reliable if the congestion is consistent and there are predictable travel times at certain times of the day.

Level of Travel Time Reliability (LOTTR) is a part of System Performance Measure 3 (PM3) and is how MetroPlan Orlando measures how reliable travel times are within the region. The LOTTR measures the variability of travel times that occur on a facility or a trip over a period of time. Reliability measures the benefit of traffic management and is significant to everyone who uses the transportation network, including motor vehicle users, transit riders, freight shippers, and others.

A segment of roadway is considered reliable when its LOTTR is less than 1.5, and it is generally considered unreliable above 1.5. Figure 3-22 illustrates how LOTTR may affect the average traveler. The example in this figure is of a typical 30 minute commute. With a LOTTR of 1.5, if your work commute takes 30 minutes on average, you would need to plan 45 minutes to ensure an on-time arrival, the majority of the time.

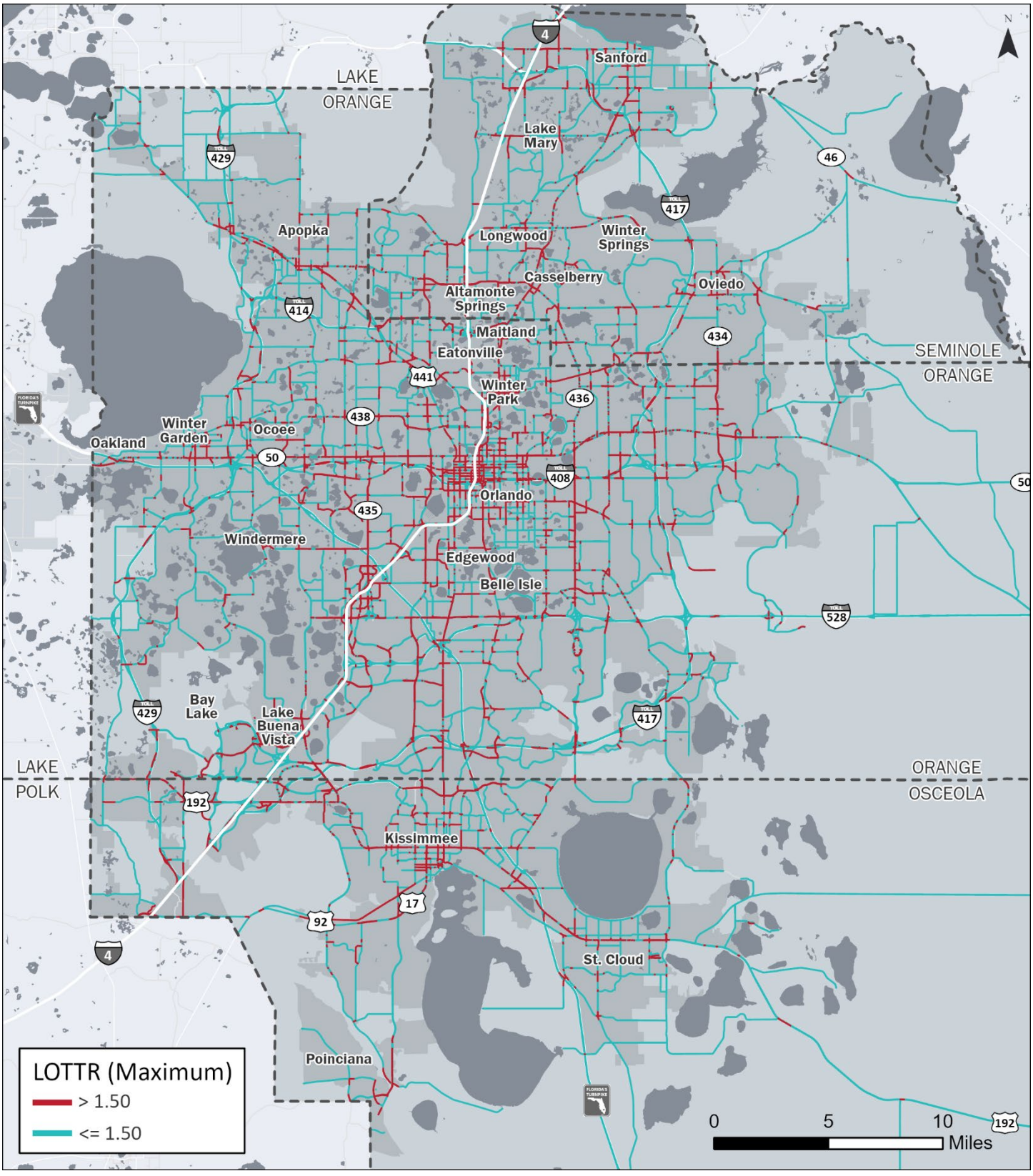
Figure 3-22 | LOTTR Example



Source: MetroPlan Orlando

MetroPlan Orlando uses data to evaluate vehicle travel speeds in order to measure the LOTTR on road segments within the region. This data is evaluated for weekdays, weekday mornings (AM peak), weekday midday peak, weekday evenings (PM peak), and on weekends. Figure 3-23 on the following page shows the maximum LOTTR, per roadway segment, of the five LOTTR metrics that are tracked.

Figure 3-23 | Maximum Level of Travel Time Reliability (LOTTR)



Source: Streetlight Data, 2022

3.2.4 ACCESS, CONNECTIVITY & TECHNOLOGY

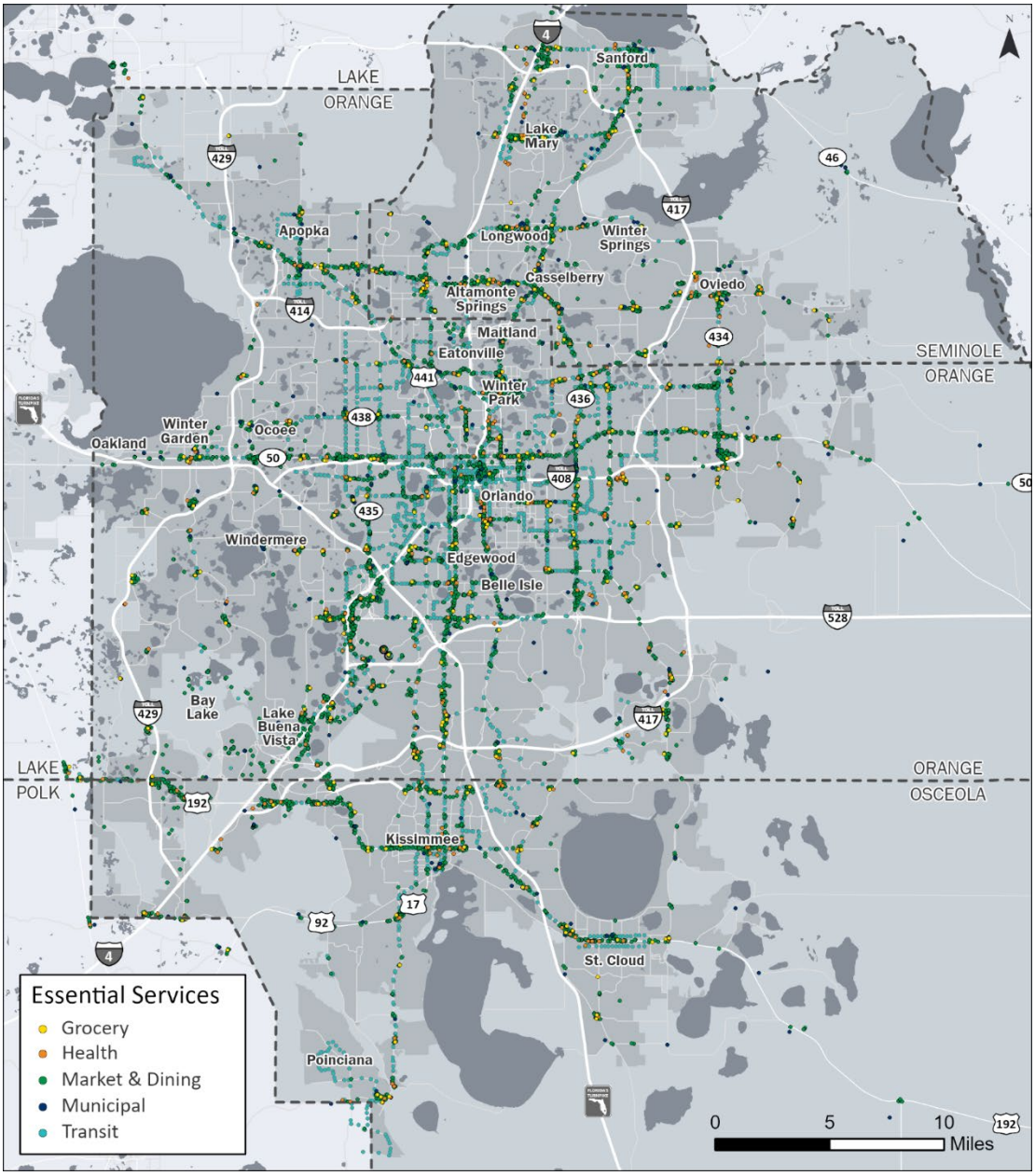
MetroPlan Orlando takes a holistic approach to tracking access and connectivity within the region while incorporating the use of technology to understand the ever-changing transportation landscape. Additionally, technological innovations such as micromobility, electric vehicles, and the use of artificial intelligence for autonomous vehicle training will continue to alter how we get around.

3.2.4.1 ACCESSIBILITY

Accessibility in the region is gauged relative to the types of destinations to which people drive, bike, walk, or roll. Figure 3-24 shows the selected points of interest that are most likely trip destinations. Having these points of interest nearby can relieve pressure on the transportation network, as citizens have the option to travel shorter distances for goods and services.

Further discussion on accessibility and a comprehensive set of maps are included in the Existing Conditions and Area Profile Technical Report. These maps show how accessible essential services and points of interest are around the region. Interactive maps can be found at the Tracking the Trends Accessibility Hub.

Figure 3-24 | Essential Service Points of Interest



Source: xGeographic Wave, 2023

3.2.4.2 TECHNOLOGY TRENDS | ELECTRIC VEHICLES

Mass-adoption of electric vehicles is among the biggest trends happening in the world of transportation. Implications associated with electric vehicle adoption include increased demand for electric batteries, decreased demand for fuels such as gasoline and diesel, improvements in air quality, and downstream impacts on policies that utilize funding mechanisms relying on gas taxes. Figure 3-25 below depicts the number of electric charging stations in Florida from 2018 through 2023, which more than doubled during this time span.

3.2.4.3 TECHNOLOGY TRENDS | ARTIFICIAL INTELLIGENCE & AUTONOMOUS VEHICLES

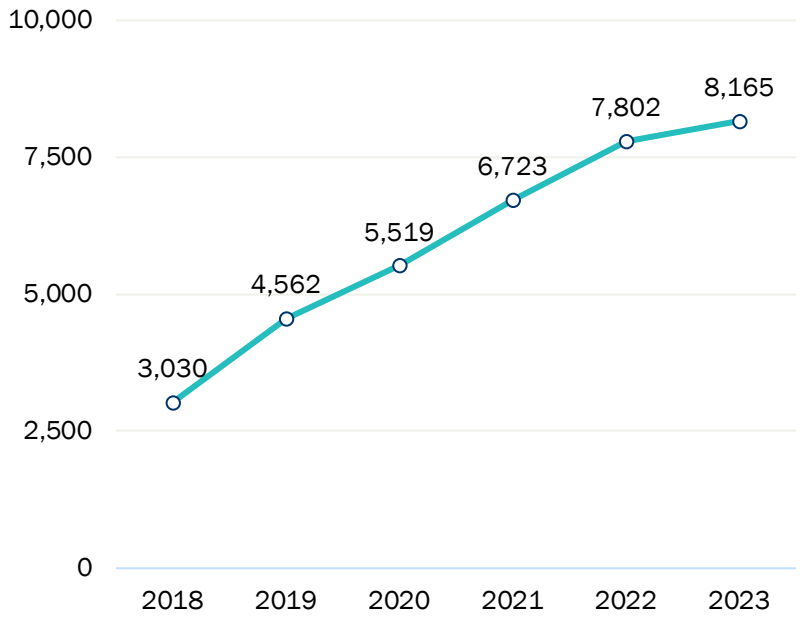
Numerous private companies are currently working to train artificial intelligence "neural networks" to be able to create self-driving vehicles. This innovation would likely have massive impacts on transportation logistics and safety if implemented at scale.

This trend is being undertaken using a wide range of strategies, from LIDAR and radar detection, to pure vision-based approaches. The impacts of these innovations would be wide-ranging in the world of transportation. Ride-hailing could become more popular, and the cost of transport per mile could be drastically reduced. Additionally, goods could likely be transported autonomously, which would have major impacts on employment in the transportation sector. Finally, automobile utilization could increase in terms of hours-per-day of usage per vehicle, which could decrease the demand for parking lots and allow for shared origin-destination trips.

As time progresses, the capacity to train neural networks is anticipated to increase in line with Moore's law, which states that the number of input transistors used by microchips doubles every two years. This increase in training capacity at a lower marginal cost is expected to greatly enhance the ability for artificial intelligence to be used to "train" cars to drive in extremely unique, novel circumstances without intervention from a driver. Eliminating crashes due to novel circumstances are key to overall safety improvements.

Alongside increased neural network training capacity, cars equipped with vision-and-radar-based monitoring systems continue to drive around on roads and collect visual information (and driver-intervention-information), which may further enhance the ability for vehicles to drive themselves over time. This self-propagating effect is fundamental to artificial intelligence and underscores the speed at which changes in the autonomous driving industry can occur.

Figure 3-25 | Electric Vehicle Charging Stations in Florida



Source: U.S. Bureau of Transportation Statistics, 2023

3.2.5 HEALTH & ENVIRONMENT

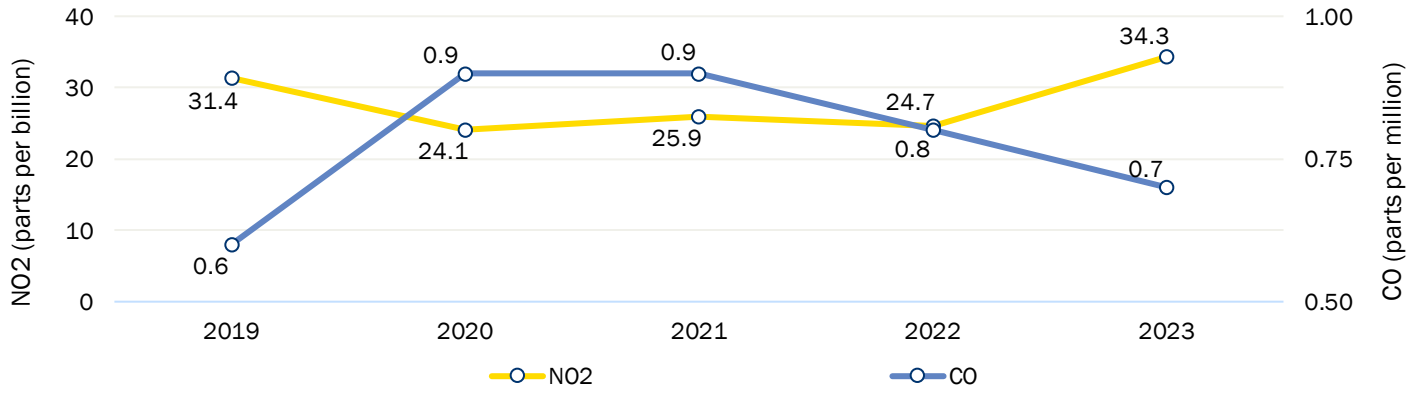
MetroPlan Orlando follows numerous data points relating to health indicators and environmental factors. The Florida Department of Environmental Protection (FDEP) monitors air quality at three locations in the region, one in each of the three counties. Additionally, the U.S. Centers for Disease Control and Prevention monitors the prevalence of numerous diseases as part of their PLACES datasets. This section summarizes the latest information from these sources.

3.2.5.1 AIR QUALITY

Nitrogen Oxide and Nitrogen Dioxide (NOx) and Volatile Organic Compounds (VOCs) are formed from the burning of gasoline and diesel fuels, among other sources. According to the US Environmental Protection Agency (EPA), health issues and ecological effects can result from high levels of these particulates. Vehicles and various forms of transportation contribute to the emission of these substances, so they are routinely tracked to make sure air quality continues to meet federal standards, as shown in Figure 3-26 below.

Air quality and ozone level readings from FDEP are measured at four locations around Orange, Osceola, and Seminole Counties. On the following page, Figure 3-27 shows the air quality readings from around the region alongside the daily traffic volumes of the region's major roadways. This map shows the presence of NOx and VOCs, which are common metrics for tracking air quality. A relationship between the air quality and the traffic levels can be inferred from this map as higher measures of emissions are located along or near major thoroughfares. Air quality data is explored in greater detail in the Existing Conditions and Area Profile Technical Report.

Figure 3-26 | Carbon Monoxide (CO) & Nitrogen Dioxide (NO2) Levels, (Fifth Highest Annual Reading)



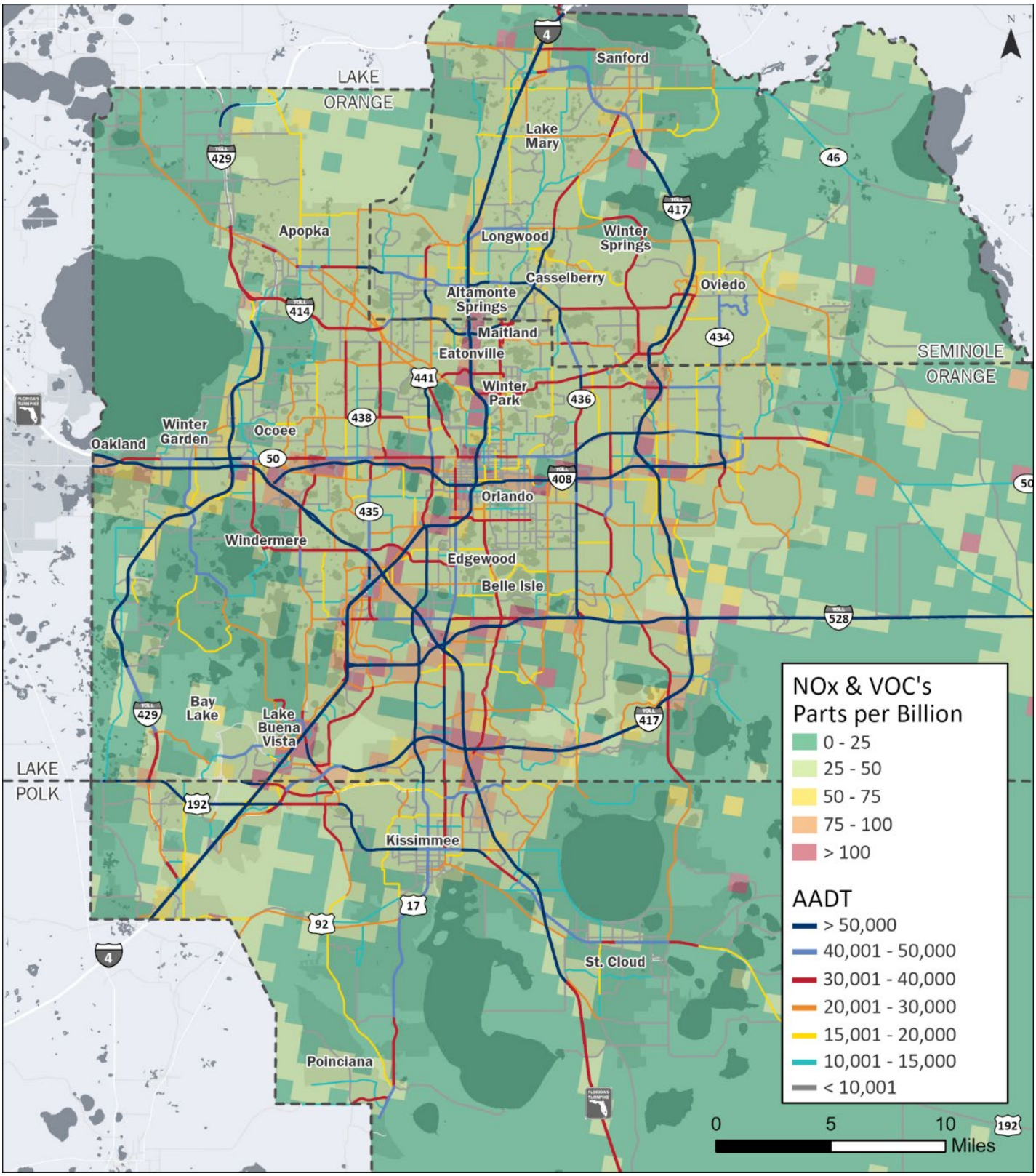
Source: Florida Department of Environmental Protection, 2023

3.2.5.2 HEALTH INDICATORS

MetroPlan Orlando takes a comprehensive approach to planning for community health and has developed strategies to improve health in the region using a transportation lens. In 2022, the Health Strategic Plan was published, which incorporates healthy transportation infrastructure, transportation safety, and access to health care into a unified vision to improve health outcomes in the region.

The Centers for Disease Control and Prevention (CDC) tracks health information at the zip code and census tract levels, such as prevalence of obesity and asthma in the region. Health indicators are further exported in Chapter 6, and the Existing Conditions and Area Profile Technical Report.

Figure 3-27 | NOx and Volatile Organic Compound (VOC) Levels with Daily Traffic



Sources: University of Central Florida (Air Quality), 2017; Florida Department of Transportation (AADT), 2023

3.2.6 INVESTMENT & ECONOMY

The Central Florida region is among the most-visited areas of the world, and our local economy is largely supported by accommodating visitors to the region. A large number of jobs are centered on the tourism and services industry, most of which are located in southwest Orange and northwest Osceola Counties. Numerous limited access highways and transit options accommodate visitors and workers in this area, including direct bus service from the Orlando International Airport. This section includes maps and data relating to tourism and the economic impacts of traffic delays, and these topics are explored in greater detail in the Existing Conditions and Area Profile Technical Report.

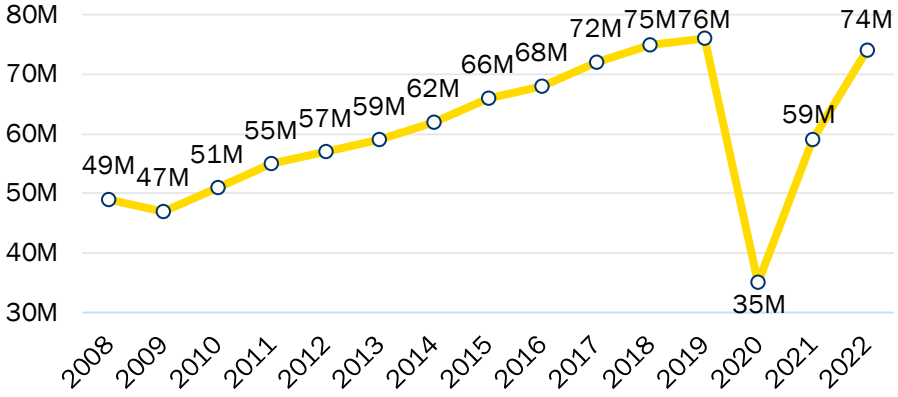
3.2.6.1 VISITATION

The MetroPlan Orlando region has numerous attractions, ranging from natural springs and state parks to theme parks. Figure 3-28 shows the number of annual visitors to the Central Florida region from 2008 through 2022. A 54% decrease occurred in 2020 as a result of the COVID-19 pandemic, but visitor numbers have since rebounded to the levels seen prior to the pandemic.

Figure 3-29 shows major attractions that are likely to be frequented by visitors. The modes of transportation chosen by these visitors have a direct impact on the overall transportation system, due to the sheer volume of visitors to the region.

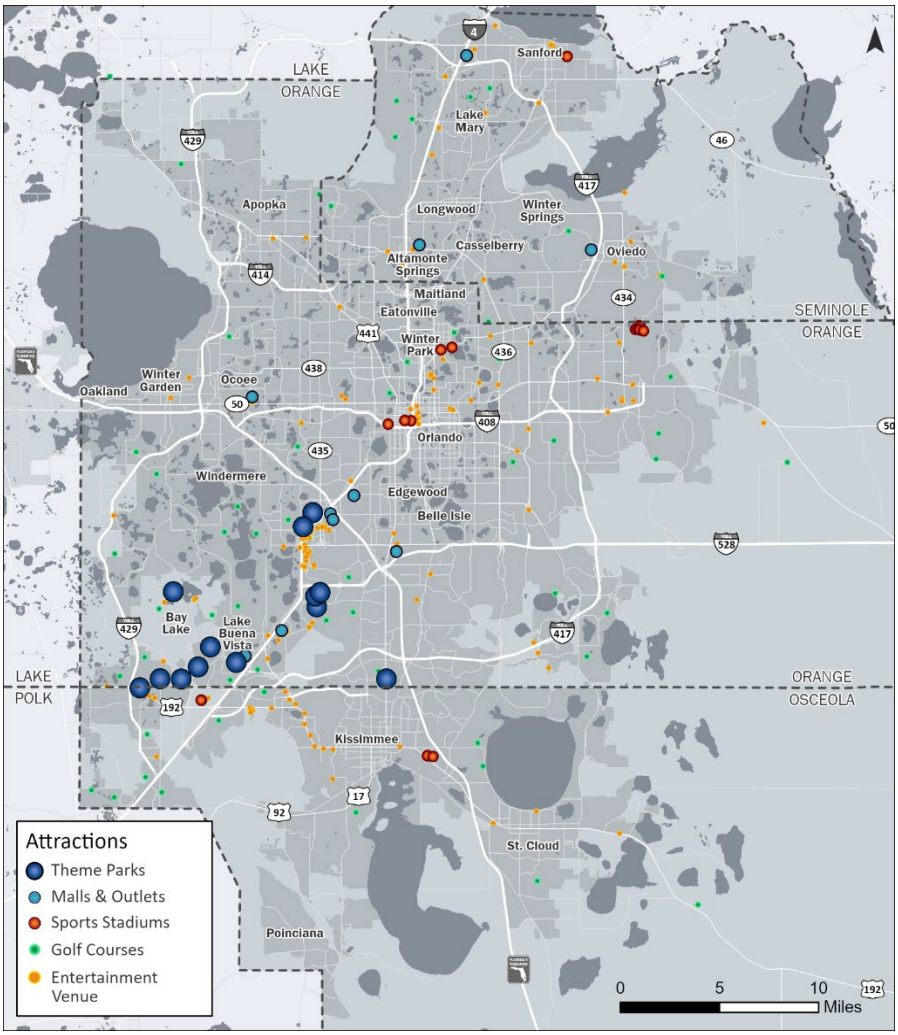
Source: xGeographic Wave, 2023

Figure 3-28 | Visitors by Year



Source: Visit Orlando (2022)

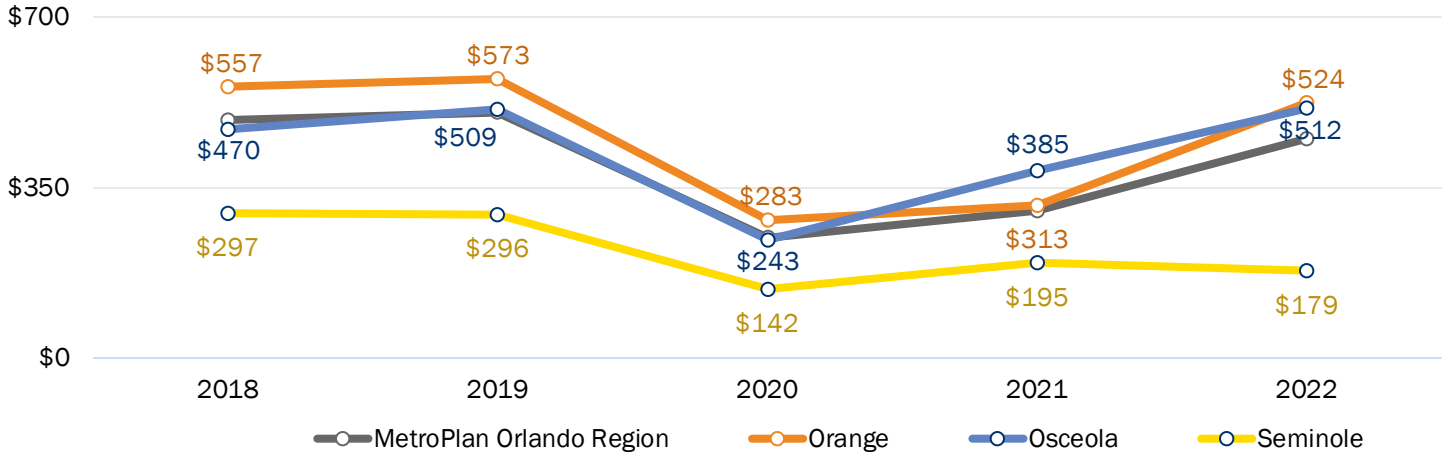
Figure 3-29 | Major Attractions & Entertainment Venues



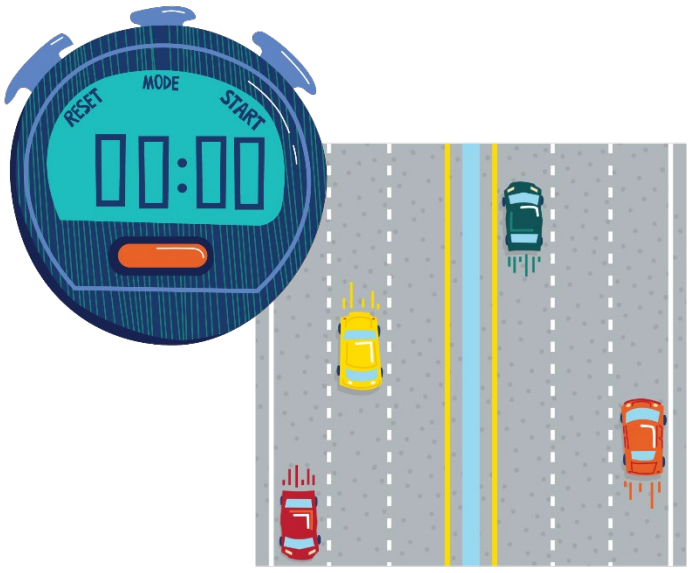
3.2.6.2 ECONOMIC COSTS | HOURS AND COST OF DELAY PER CAPITA

While tourism is an economic boon to the region, the fluctuations in seasonal visitation can put pressure on the transportation system. These pressures may result in congestion and delays. There are economic costs associated with travel delays, and the Florida Department of Transportation (FDOT) tracks this data through hours of delay per capita and cost of delay per capita. The hours of delay per capita calculates the average number of hours of delay that a person experiences in the region, per year, and the cost of delay per capita multiplies this figure by an hourly rate of $22.90, based on average wages per person (as reported by FDOT). FDOT calculates this figure based on fuel costs and share of truck and passenger traffic on the state highway system. Figure 3-30 shows the historic costs of these delays per person, annually.

Figure 3-30 | Annual Cost of Delay Per Capita (State Highway System)



Source: Florida Department of Transportation, 2022



3.3 Area Profile

The Area Profile provides detailed information on the community composition of the region and a snapshot of the infrastructure assets that help residents and visitors get around.

3.3.1 LAND USE & ACTIVITY CENTERS

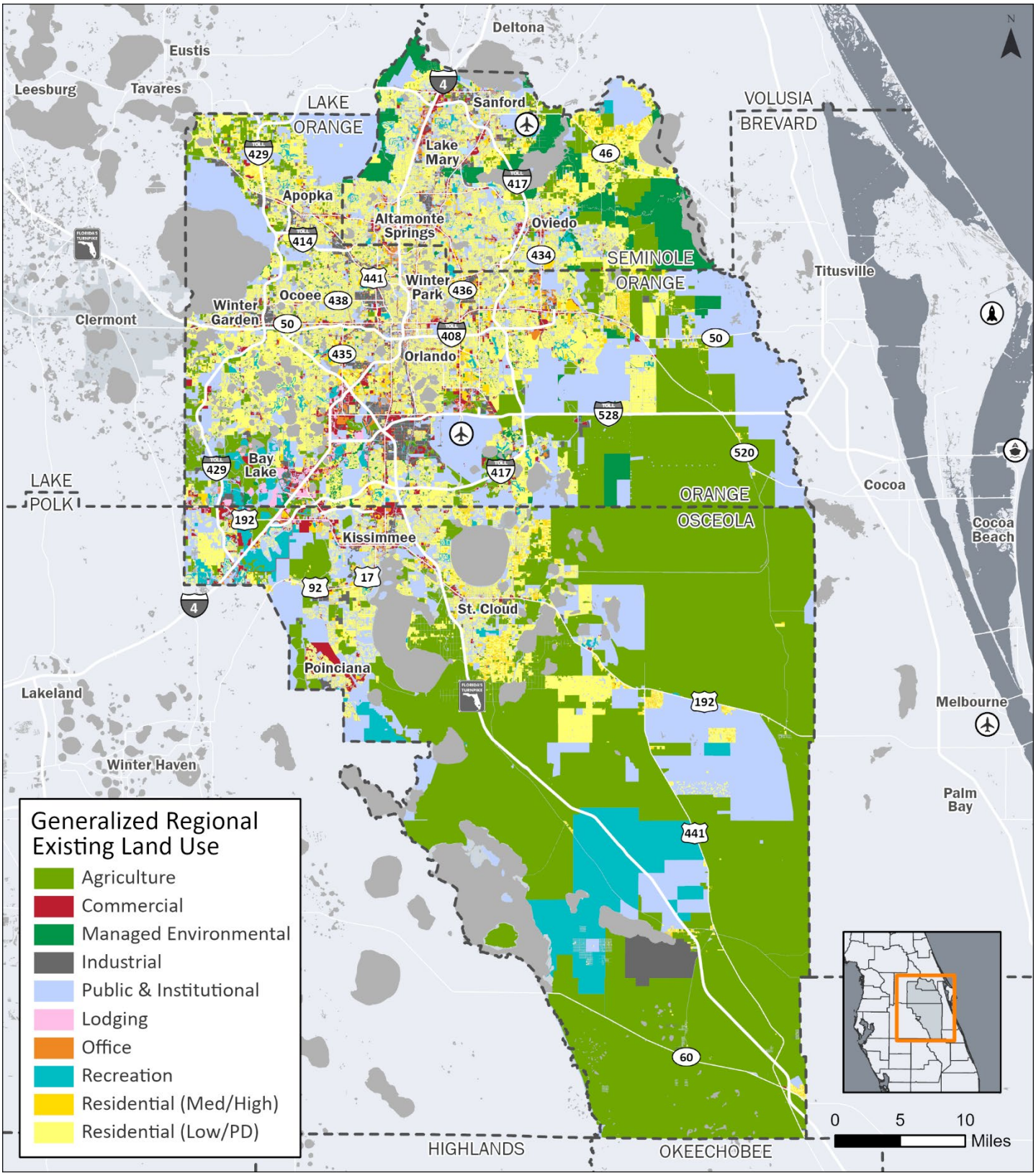
Development patterns provide insight into the strength of the construction sector, the pace of residential and commercial development. Current land uses showcase how Central Florida has developed to date, as shown in Figure 3-31. The region is a mixture of intense commercial development, concentrated residential use, agricultural land use, and undevelopable land due to different environmental factors. Green spaces and undevelopable land uses provide extensive areas for recreational use outside of the urban core.

The three MetroPlan Orlando counties comprise a total of 2,854 square miles, with 2,538 land area square miles and 316 water area square miles. Generally, development areas are located surrounding the I-4, US 17/92, and Florida's Turnpike transportation corridors; primarily where municipal services or large regional entertainment areas are located. Dense retail development occurs surrounding the Disney resort properties in Orange County and neighboring Osceola County. Employees supporting high visitor concentration areas in Central Florida predominately live within close proximity to their jobs. However as land values have increased around these tourist areas, more affordable residential communities, industry, and retail businesses have expanded into previously-undeveloped areas on the fringes of the urban boundary.

Some of the key regional activity centers serve as hubs of entertainment, employment and leisure. Many of these areas are hot spots for visitors to the region, including many on the Walt Disney World property and in the International Drive area. Other activity centers include, but are not limited to, historic downtowns, major shopping centers, state parks and springs, and the University of Central Florida.

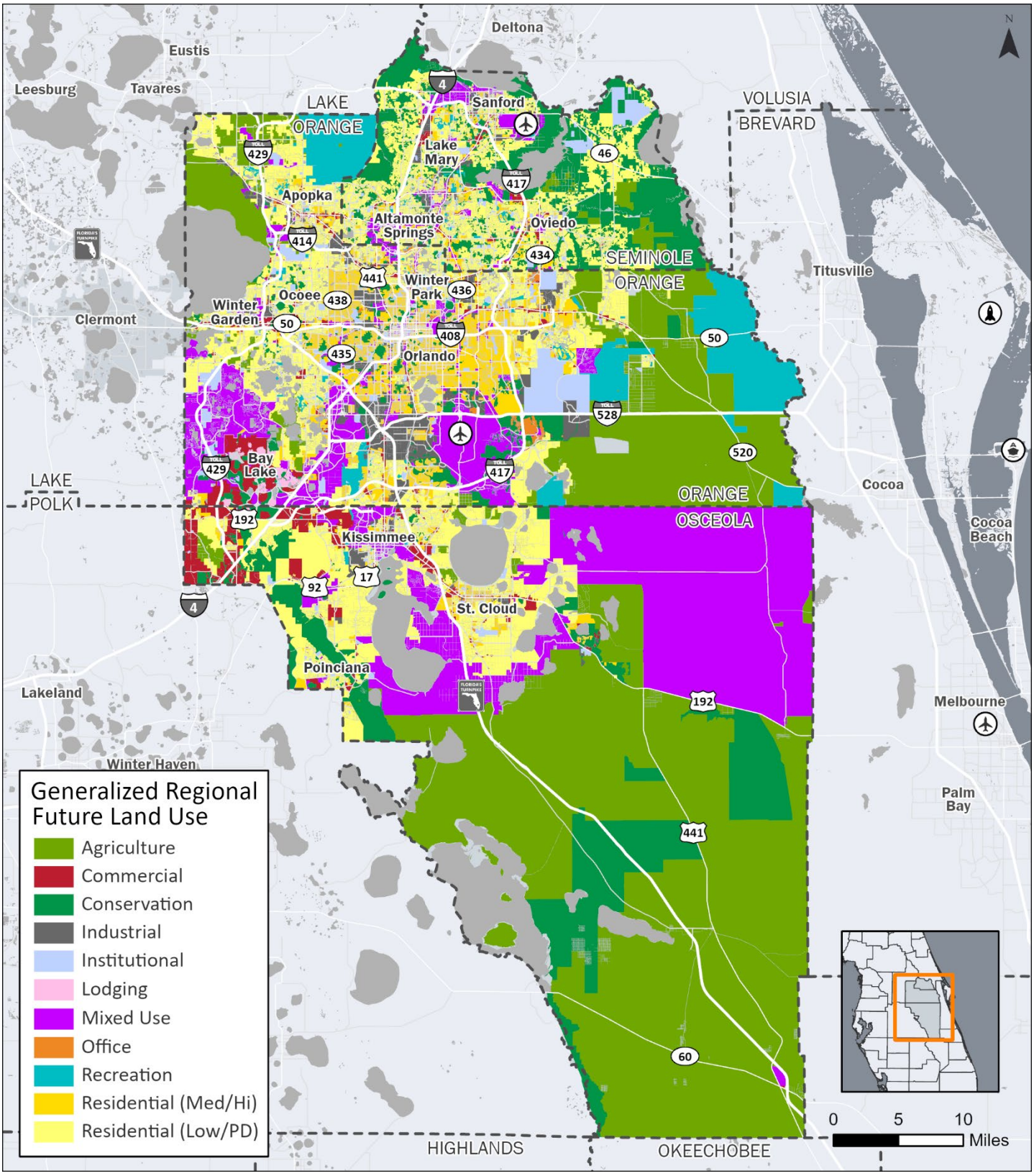
The current land uses serve as the foundation from which we will build our future infrastructure. Future land uses can show the general plan for development and growth, and these future land uses can be seen in Figure 3-32.

Figure 3-31 | Generalized Existing Land Use



Source: East Central Florida Regional Planning Council via Florida Department of Revenue, 2023

Figure 3-32 | Generalized Future Land Use

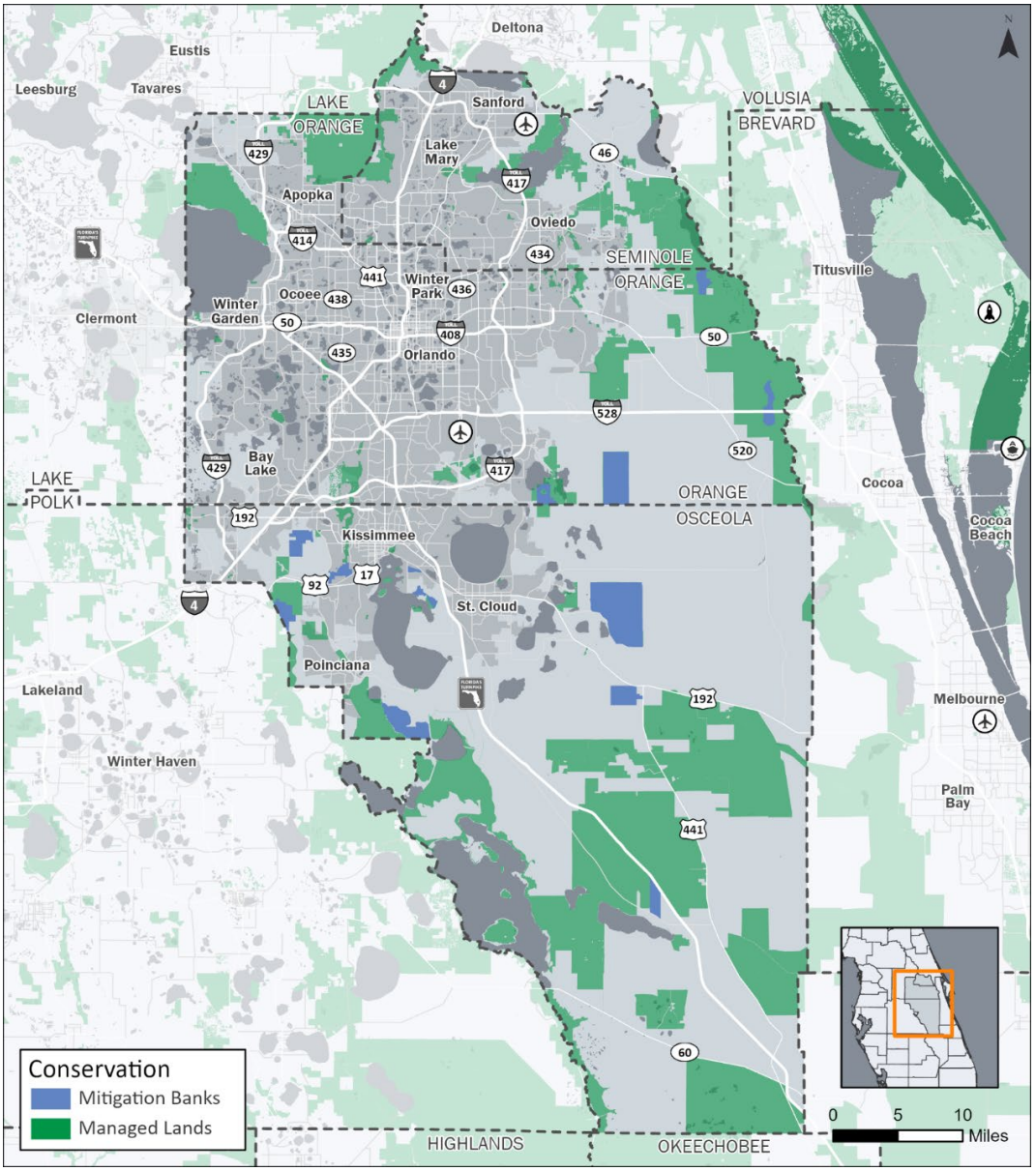


Source: East Central Florida Regional Planning Council via Municipalities, 2023

3.3.2 PARKS, CONSERVATION AREAS, & FLOOD ZONES

Parks, conservation areas and flood zones are important to the environmental health of the region and provide recreational activities for residents and visitors alike. The maps in this section show public parks and private/ Home Owner Association (HOA) parks, conservation lands, mitigation banks, and 100-year flood zones within the urbanized region. Figure 3-34 shows a map of all public and private parks on the following page.

Figure 3-33 | Conservation Areas

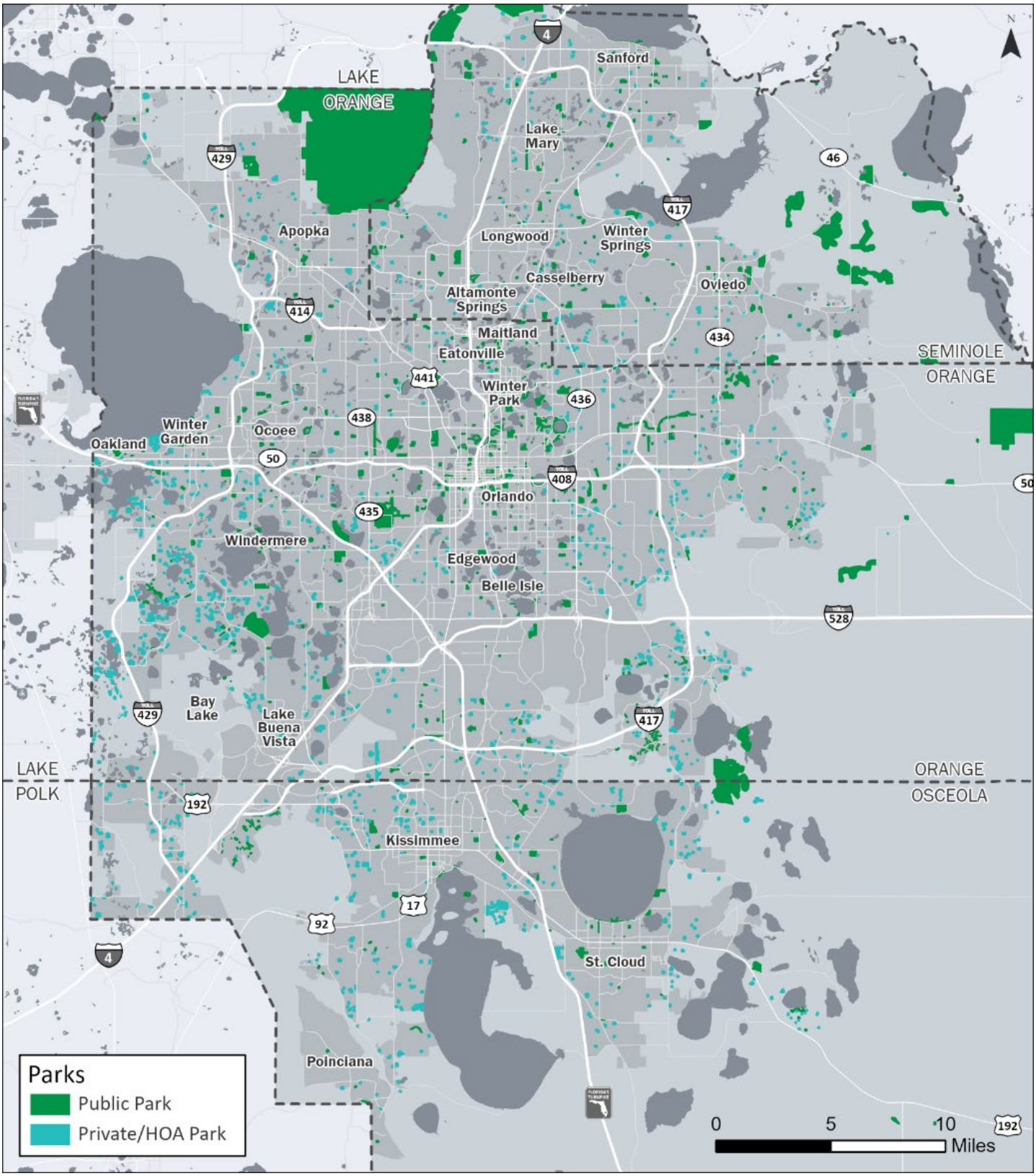


Source: Florida Natural Areas Inventory, 2023; FDEP, 2023

Parks provide recreational and a host of potential uses. Managed lands are environmentally sensitive lands that are generally conservation managed by local, state, or private agencies, such as the South Florida Water Management District or one of the counties. Mitigation banking is a practice in which an environmental enhancement and/or preservation project is conducted by a public agency or private entity ("banker") to provide mitigation for unavoidable wetland impacts within a defined mitigation service area. These managed lands and mitigation banks can be seen in Figure 3-33.

Some of the larger preservation areas include Wekiva Springs State Park in Orange and Seminole County, the Lake Jessup Conservation Area in Seminole County, the Tosohatchee State Reserve, the Rock Springs Run State Reserve in Orange County, and the Three Lakes Wildlife Management Area in Osceola County. These designated lands provide protection for area river basins, habitat preservation, and recreational opportunities in the region.

Figure 3-34 | Public and Private Parks



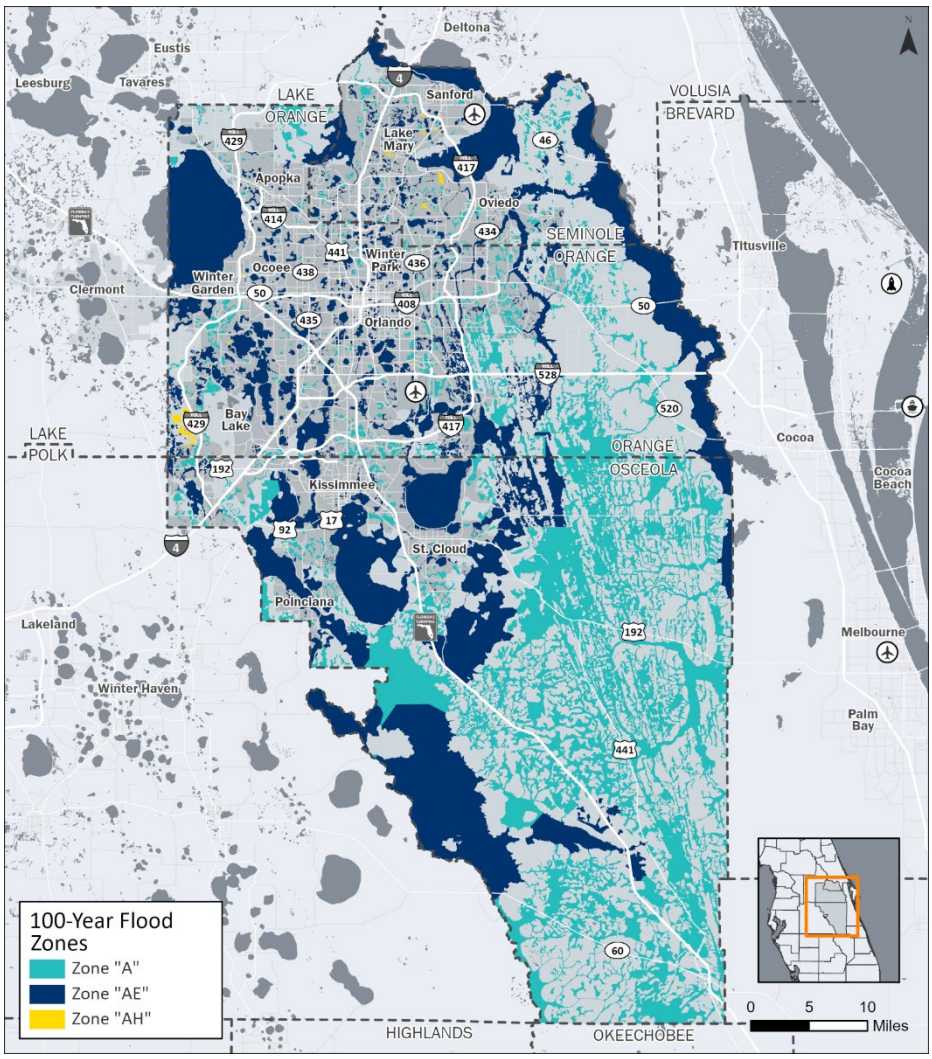
Source: xGeographic Wave, 2023

3.3.2.1 FLOOD ZONES

Due to the nature of scenic lowlands and water features, many of Central Florida's parks and conservation zones are located within flood zones. Federal Emergency Management Agency (FEMA) Flood Zones, also called FEMA Floodplains, are geographic areas that are defined by varying levels of flood risk. Figure 3-35 depicts a variety of Flood Zone levels in the region.

- **Zone A**: Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Detailed analyses are not performed for such areas, therefore no depths or base flood elevations are shown within these zones.
- **Zone AE**: The base floodplain where base flood elevations are provided. These areas have a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage.
- **Zone AH**: Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

Figure 3-35 | FEMA Flood Zones (100-Year Floodplain)



Source: Federal Emergency Management Agency (FEMA), 2023

- **Zone AO**: River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Mean (average) flood plain depths derived from detailed analyses are within these zones. Zone AO has been included for context, but is not shown in Figure 3-35 for map readability.
- **Zone X**: Areas with a 0.2% annual chance of shallow flooding. This zone is also referred to as the 500-year floodplain and is not shown in Figure 3-35.

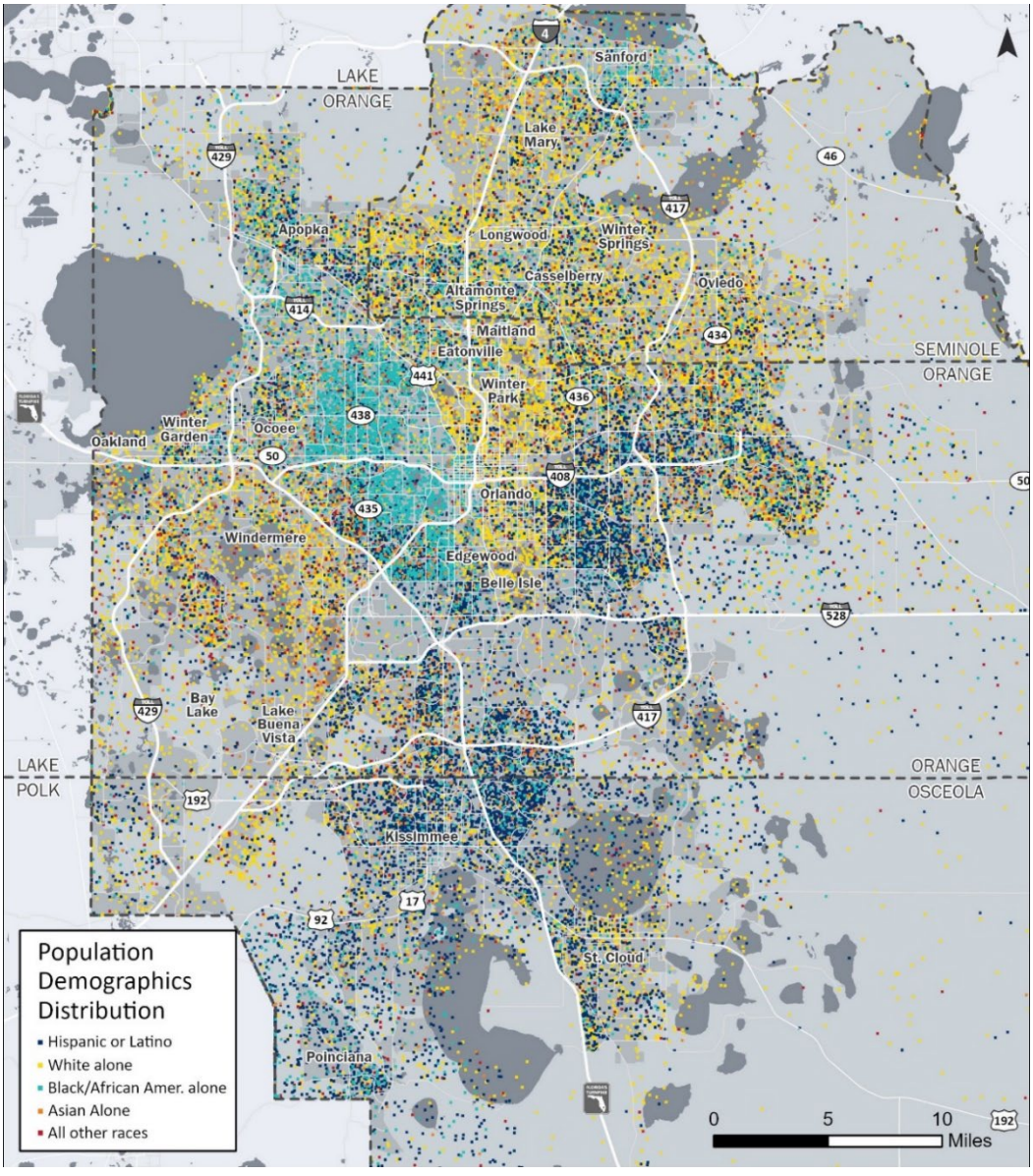
3.3.3 DEMOGRAPHICS AND SOCIOECONOMICS

This section highlights key demographic and socioeconomic indicators from a wide range of sources. These indicators help in reviewing the specific characteristics and needs of different portions of the region. Additional information and maps can be found in the Existing Conditions and Area Profile Technical Report, available under separate cover.

3.3.3.1 DEMOGRAPHIC DISTRIBUTION

Figure 3-36 depicts the distribution of demographic groups within the region. Each dot represents 50 people of that respective demographic group.

Figure 3-36 | Demographic Distribution

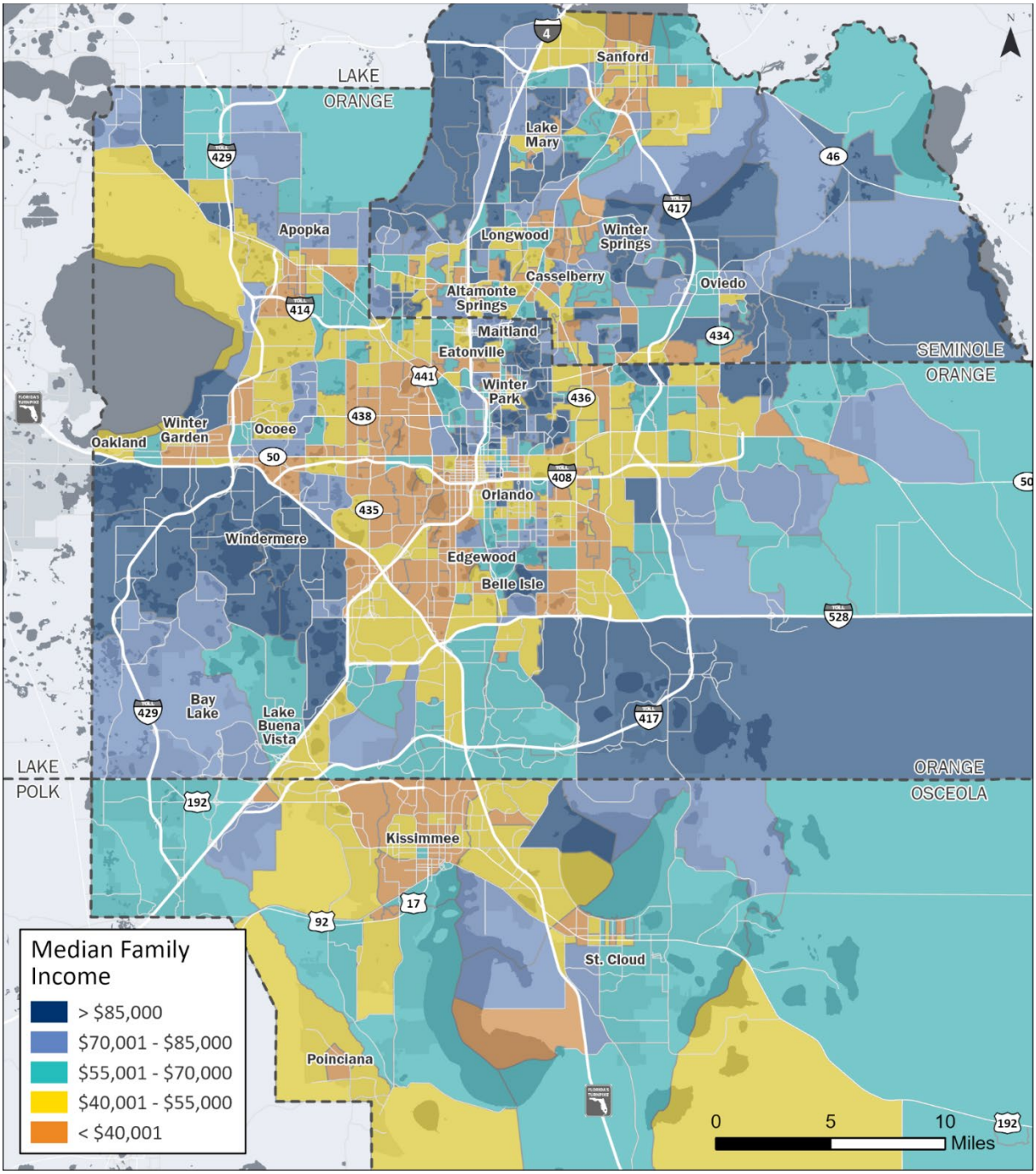


Source: U.S. Census, 2022

3.3.3.2 MEDIAN HOUSEHOLD INCOME

Median household income data is developed by the U.S. Census Bureau and is one of the main socioeconomic factors that determine how at-risk a community may be to transportation-related issues. Income levels may indicate how many cars a household may own or what modes of transportation the household may use when traveling around the region. Figure 3-37 depicts this metric.

Figure 3-37 | Median Household Income

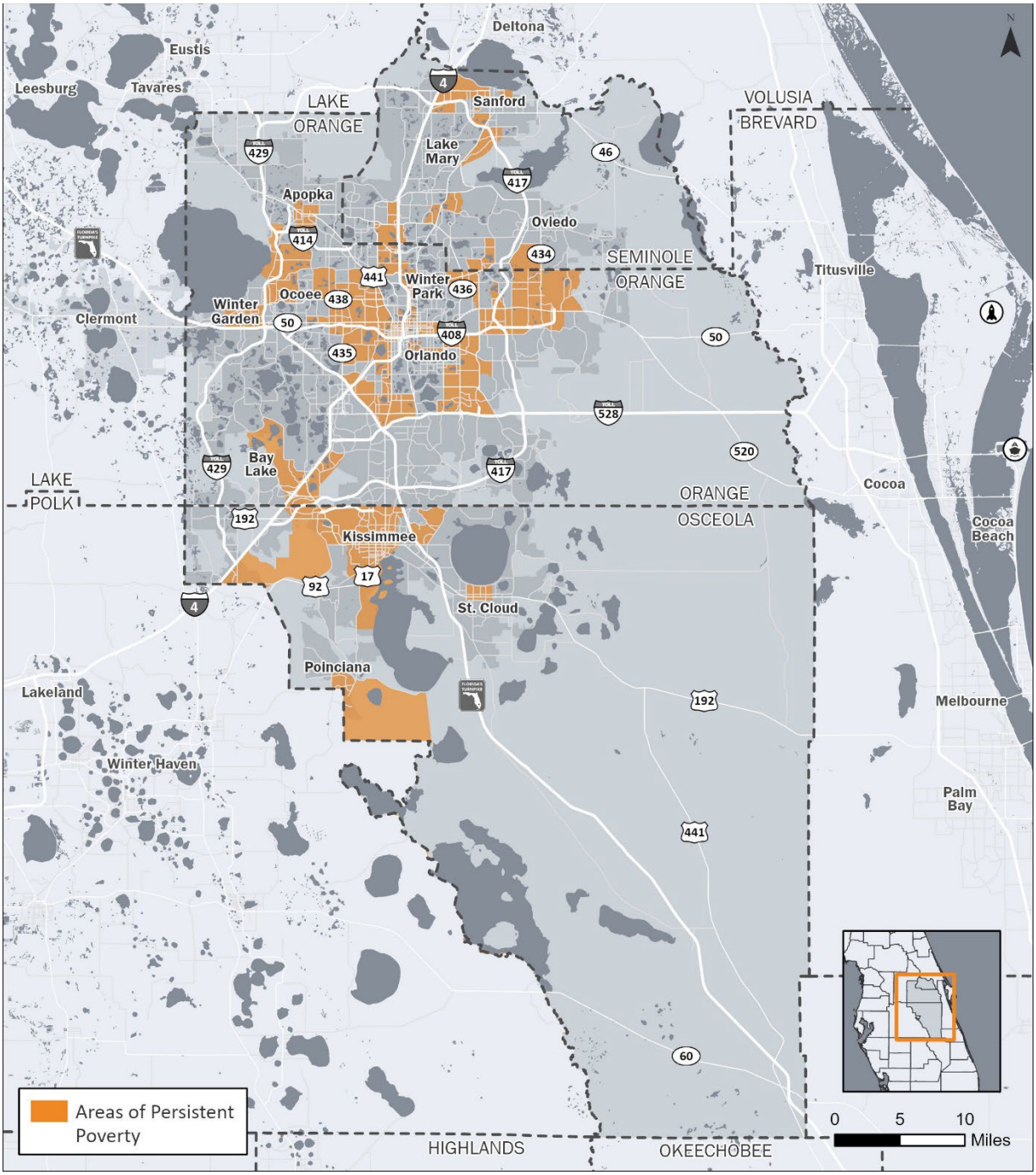


Source: U.S. Census Bureau ACS, 2018-2022

3.3.3.3 AREAS OF PERSISTENT POVERTY

The Areas of Persistent Poverty designation was established as part of the 2021 Bipartisan Infrastructure Law. Areas of persistent poverty have had a measured poverty rate of at least 20% for an extended period of time, typically at least five to ten years. People within these areas may rely more heavily on transit and non-automobile transportation, such as walking and biking. Figure 3-38 shows Areas of Persistent Poverty in the region.

Figure 3-38 | Areas of Persistent Poverty



Source: U.S. Census Bureau, 2022

3.3.4 ROADWAYS

Roadways handle the bulk of transportation-related needs in the region. This section of the report provides information and a map series related to existing roadways and roadway-related infrastructure.

3.3.4.1 NATIONAL & STATE HIGHWAY SYSTEMS

The national and state highway systems, managed by the U.S. and Florida Department of Transportation, are closely monitored to gauge travel patterns and roadway reliability. Within the region, the National Highway System (NHS) consists of 776 miles of roadway, while the State Highway System (SHS) consists of 729 miles of roadway.

3.3.4.2 STRATEGIC INTERMODAL SYSTEM

The Strategic Intermodal System (FDOT) is a critical network of infrastructure that ties the roadway system in with passenger rail, freight, and air travel. The region has numerous critical hubs across these domains, and Port Canaveral is located just to the east of the region in Brevard County. Figure 3-39 shows SIS airports, strategic growth airports, strategic growth freight terminals, passenger terminals, and strategic growth passenger terminals.

3.3.4.3 NATIONAL & REGIONAL FREIGHT NETWORK

The region is located at the crosshairs of a larger statewide network that connects freight to other large urban areas. Three national freight network corridors, Interstate-4, Florida's Turnpike, and State Road 528 intersect in south central Orange County and connect freight to Tampa Bay, Miami, Jacksonville, and urban areas along the Atlantic coast. The national freight network is shown alongside the regional freight network in Figure 3-40.

3.3.4.4 NUMBER OF LANES

The number of lanes in a roadway are important for a variety of infrastructure related needs. For example, the number of lanes on a road are considered when categorizing roadways by their functional classification, context classification, or identifying causes of traffic congestion as well as mitigation strategies to ease congestion. The vast majority of roadways in the region have five or fewer lanes, not including limited access roadways, like Interstates, freeways, and expressways. Including local roadways, 9,450 miles of roadway have two travel lanes. A map of the lane counts is shown in Figure 3-41.

3.3.4.5 FUNCTIONAL CLASSIFICATION

Functional classification is a tiered system of arterial and collector roadways originated by the U.S. Department of Transportation that classifies roads by factors such as their traffic volumes and importance to the overall network. The following list defines the various Federal Functional Classifications, and a map showing functional classification of our region's road network can be found in Figure 3-42.

- **Principal Arterials** – Arterials serve major centers of metropolitan areas, provide a high degree of mobility and can also provide mobility through rural areas. Some may be limited access (all crossings separated by grade), and some may have at-grade intersections to serve other roadways and services.
- **Minor Arterials** – These are used for trips of moderate distance and slower speeds than principal arterials.

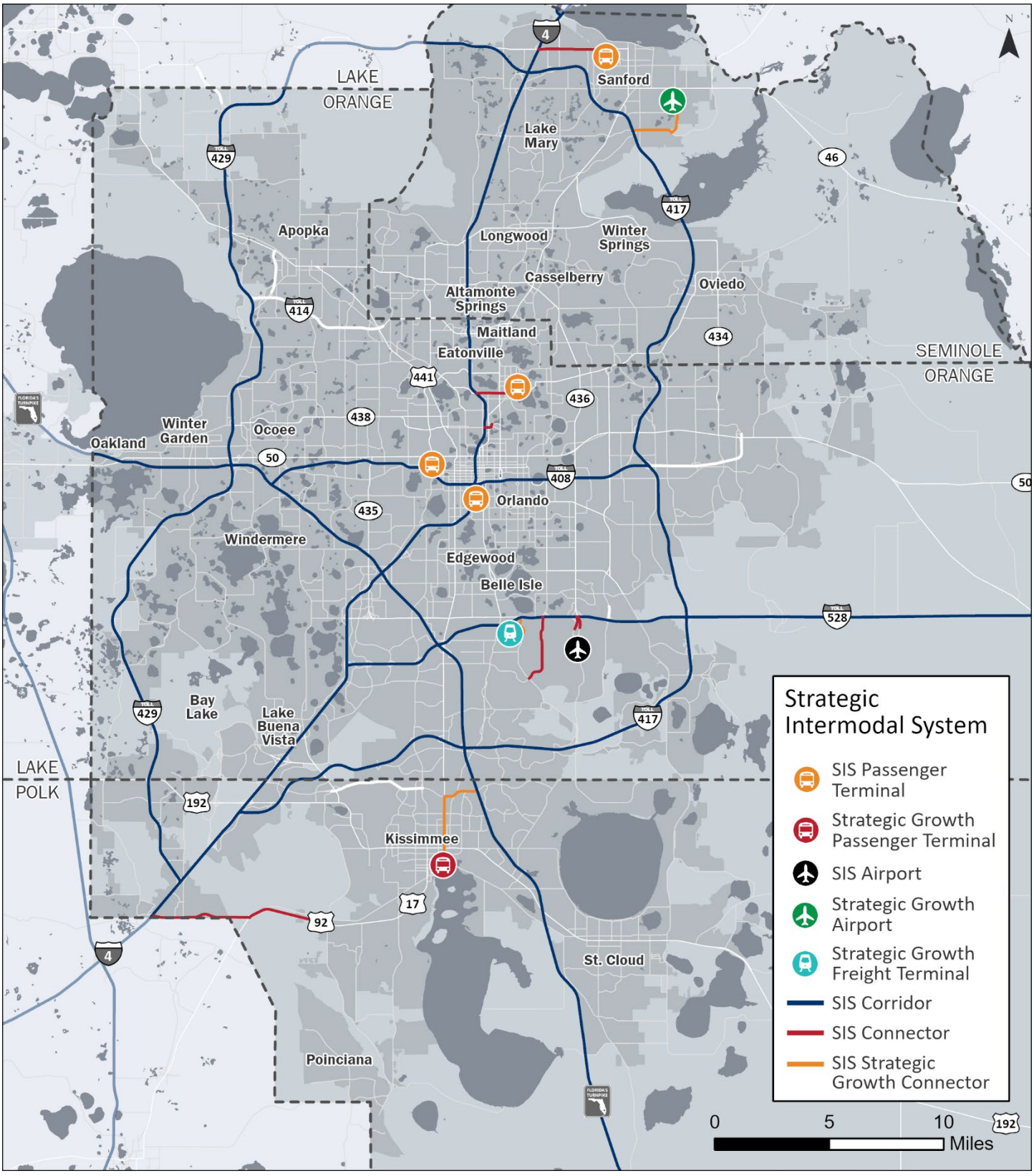
- **Major Collectors** – Collectors help "collect" traffic from local roads and funnel them to arterial roads. Compared to arterial roads, major collectors will have slower speeds, less traffic, and allow more access directly from neighborhood roads.
- **Minor Collectors** – These are used to connect neighborhoods to arterials or major collectors. However, unlike major collectors, they tend to be shorter, have fewer lanes, and can have driveways directly connect to them.

3.3.4.6 CONTEXT CLASSIFICATION

Context classification is a newer system that the Florida Department of Transportation has developed to classify roads based on the urban context of the area in which they operate. C1 is the lowest-intensity classification, consisting of roads traveling through rural areas, while C6 is the highest-intensity classification, consisting of roads traveling through high intensity urban areas. MetroPlan Orlando developed preliminary context classifications as part of the Speed Management Network Analysis in 2022. The following defines the various FDOT context classifications, and a map showing context classification in our region can be found in Figure 3-43.

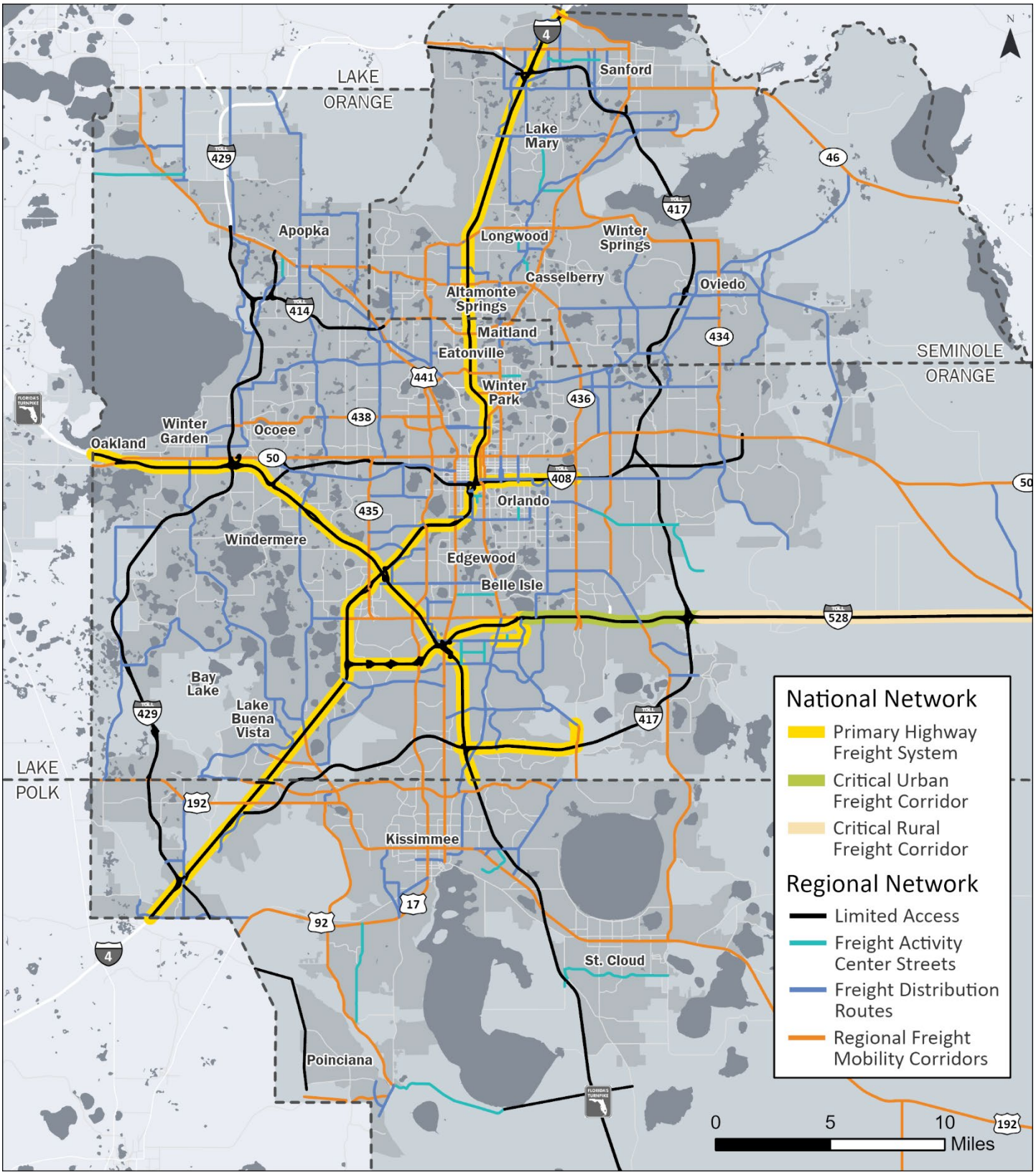
- **C1 / Natural** - Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural conditions.
- **C2 / Rural** - Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.
- **C2T / Rural Town** - Small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.
- **C3R / Suburban Residential** - Mostly residential uses within large blocks and a disconnected or sparse roadway network.
- **C3C / Suburban Commercial** - Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.
- **C4 / Urban General** - Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.
- **C5 / Urban Center** - Mix of uses set within small blocks with a well-connected roadway network. Typically concentrated around a few blocks and identified as part of a civic or economic center of a community, town, or city.
- **C6 / Urban Core** - Areas with the highest densities and building heights, and within FDOT classified Large Urbanized Areas (population greater than one million). Many are regional centers and destinations. Buildings have mixed uses, are built up to the roadway, and are within a well-connected roadway network.

Figure 3-39 | Strategic Intermodal System



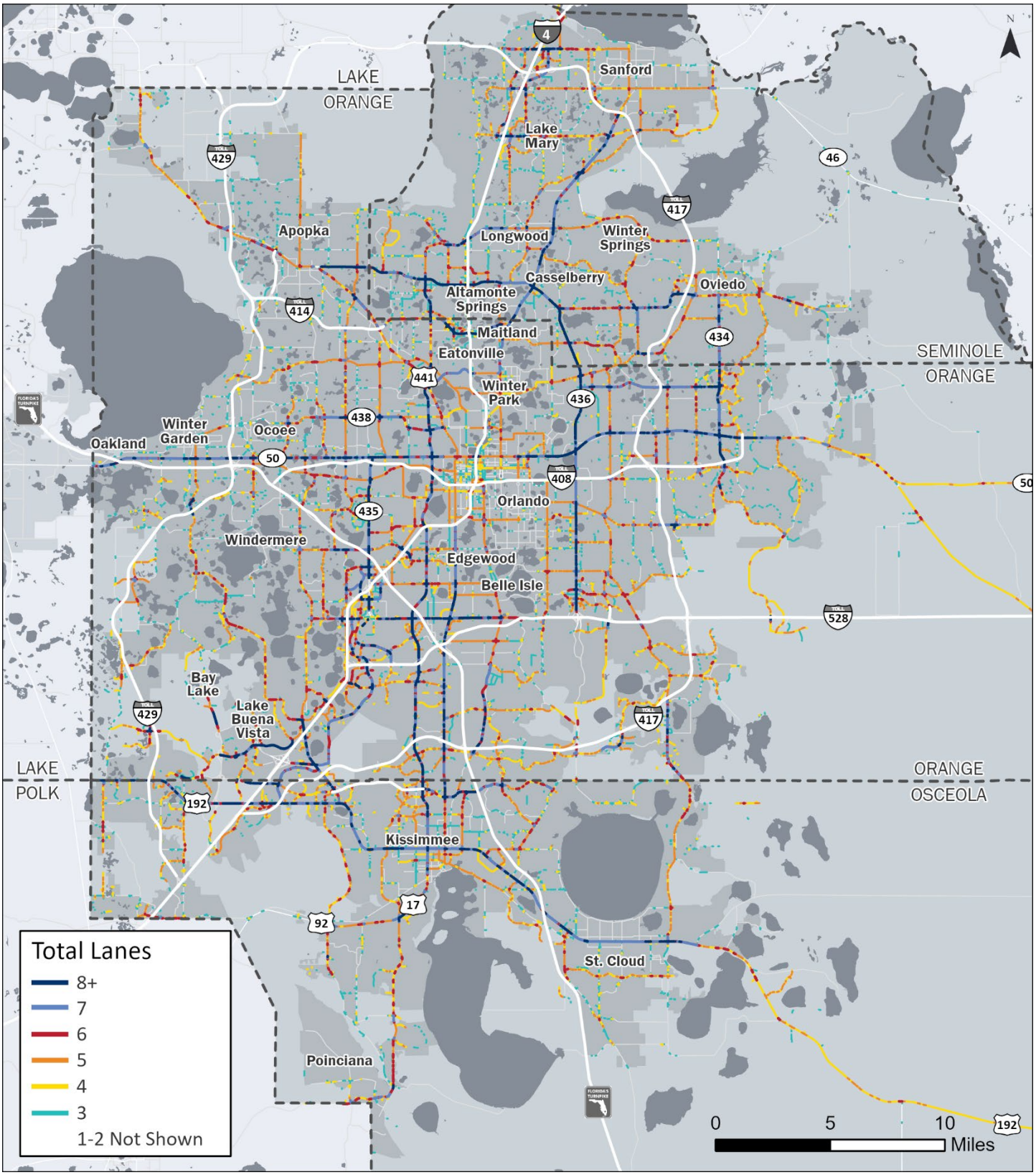
Source: Florida Department of Transportation, 2023

Figure 3-40 | National & Regional Freight Networks



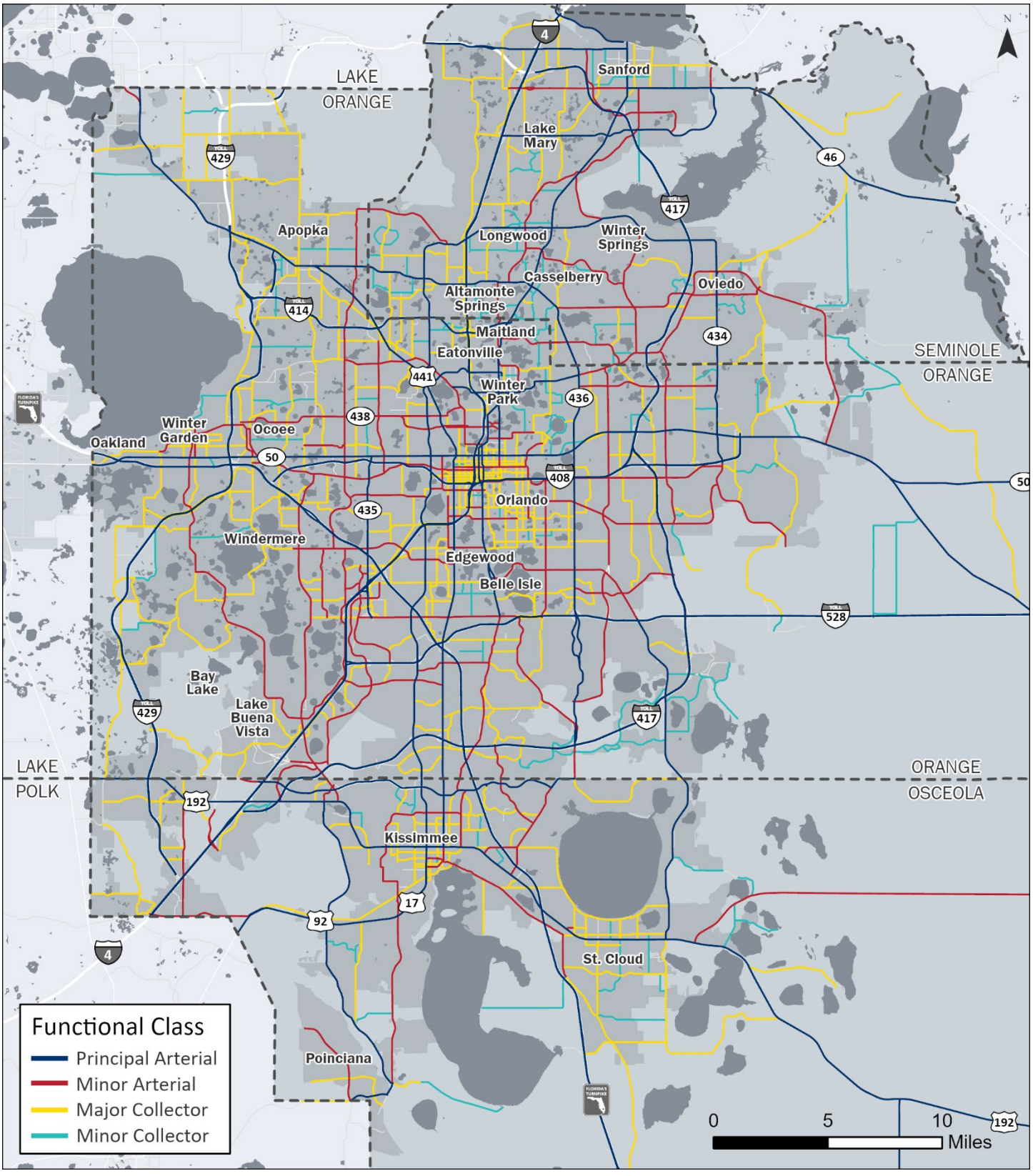
Sources: U.S. Department of Transportation (National), 2023; MetroPlan Orlando, 2023 (Regional)

Figure 3-41 | Total Number of Lanes, Excluding Limited Access Facilities



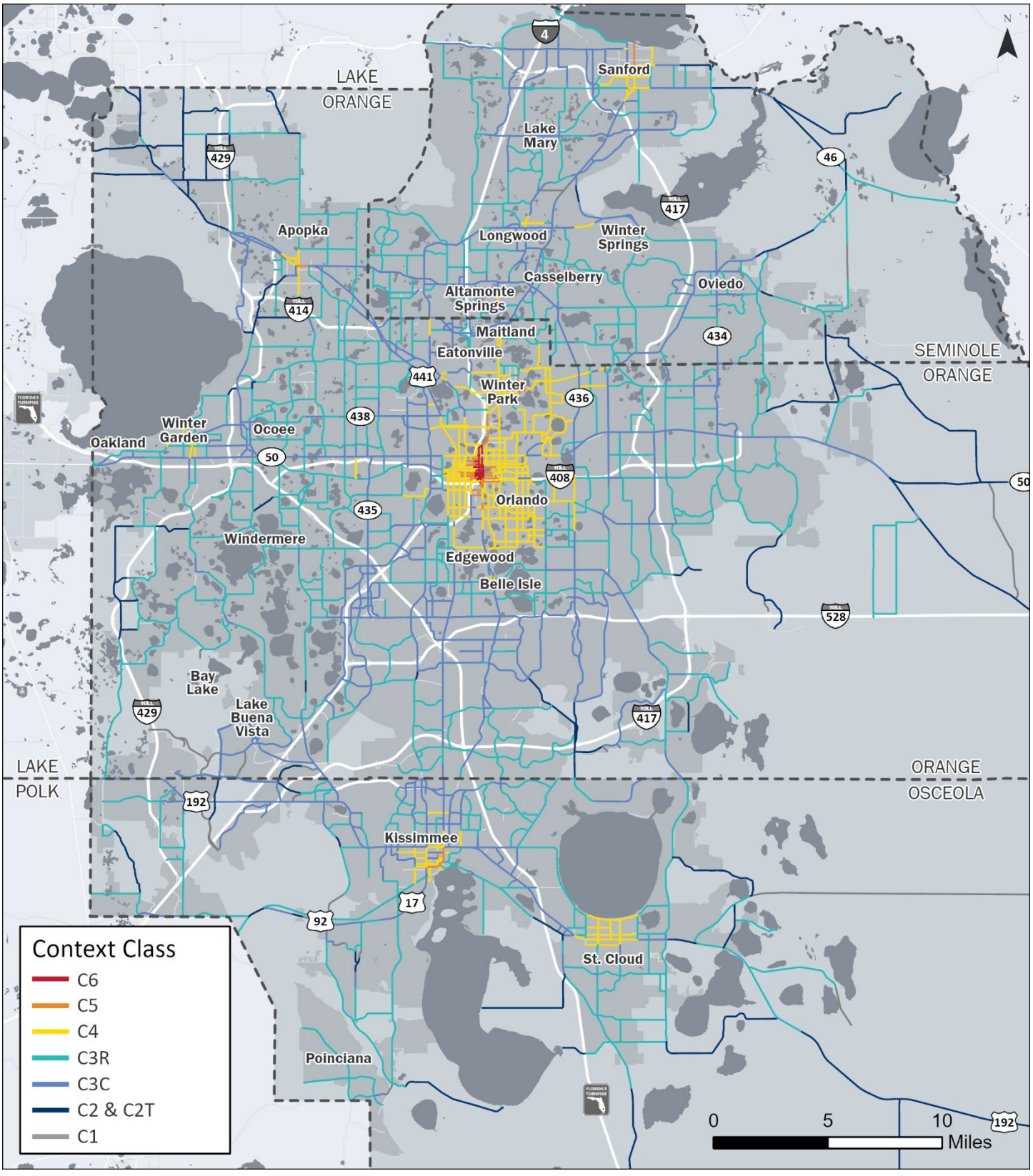
Source: xGeographic Wave, 2023

Figure 3-42 | Functional Classification



Source: Florida Department of Transportation, 2023

Figure 3-43 | Context Classification



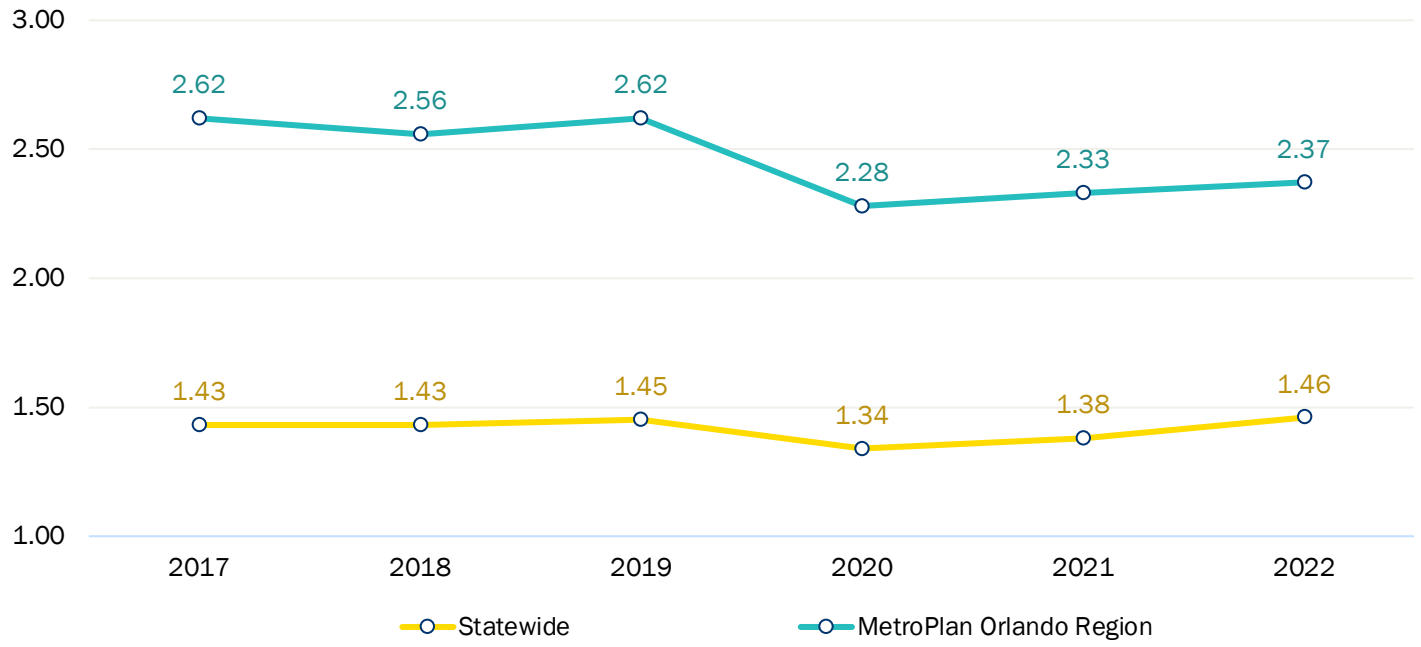
Source: MetroPlan Orlando Speed Management Network Analysis, 2022

3.3.5 TRUCK TRAFFIC & PARKING

Trucks are vital for shipping goods to businesses and consumers and rely on factors such as travel time reliability and a lack of congestion. Truck Travel Time Reliability (TTTR) is a measure of the 95th percentile truck travel time divided by the 50th percentile truck travel time, which provides information on the predictability of travel times for trucks on interstates. This metric is tracked by FDOT for the region and can be seen in Figure 3-44. Additional information about congestion on freight routes is included in the Existing Conditions and Area Profile Technical Report.

Truck parking is a significant factor in roadway safety, as truckers can work long hours and require time off of the road. Ensuring that the region has ample truck parking also helps to improve the efficiency and efficacy of the overall freight system. Figure 3-45, on the following page, shows publicly-and-privately-owned truck parking areas alongside daily truck traffic volumes.

Figure 3-44 | Truck Travel Time Reliability (TTTR) Index, Interstate Highway System



Source: Florida Department of Transportation, 2022

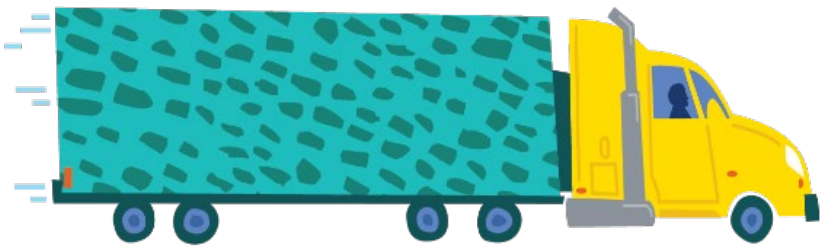
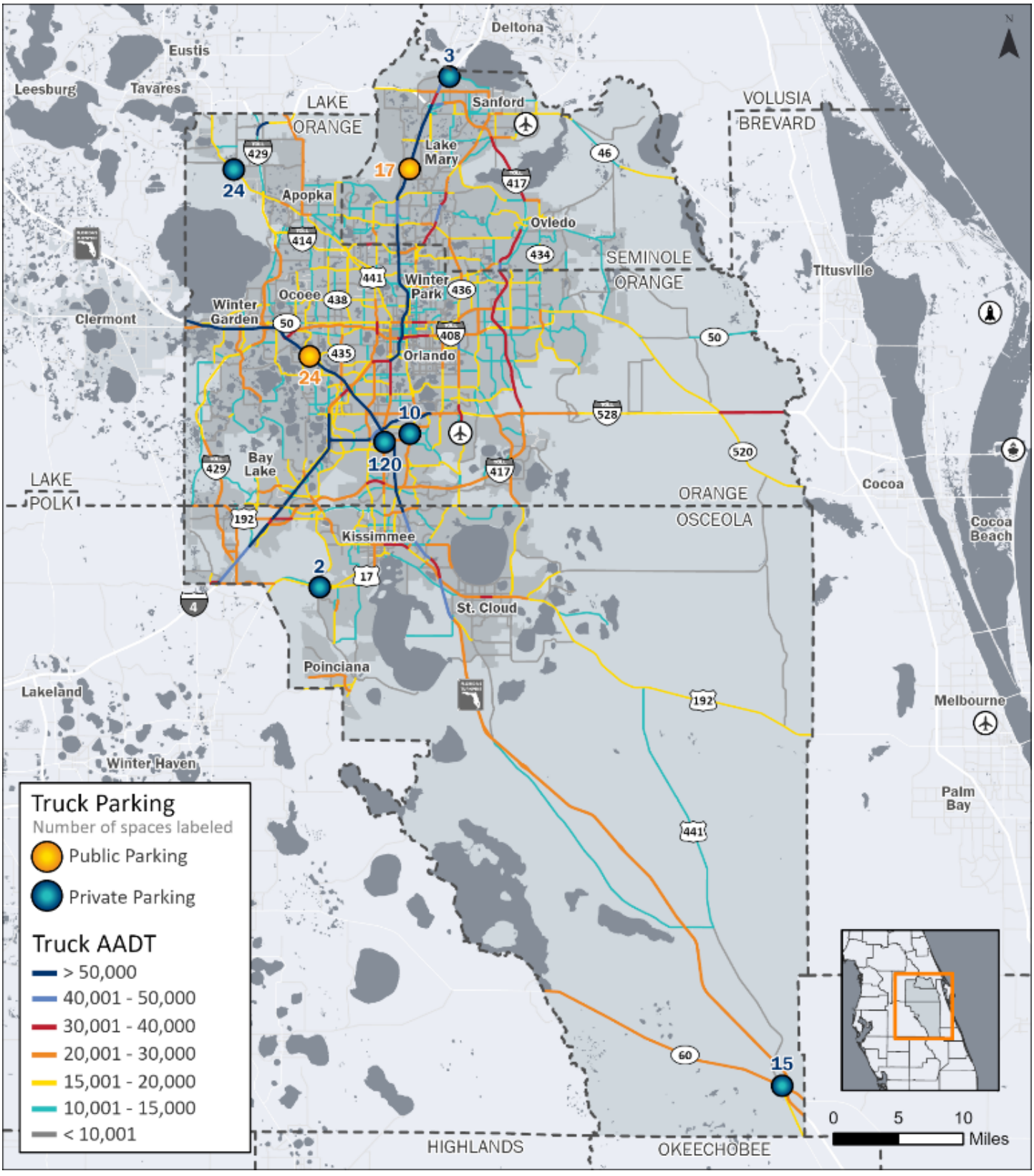


Figure 3-45 | Truck Parking Spaces & Truck Traffic Volumes



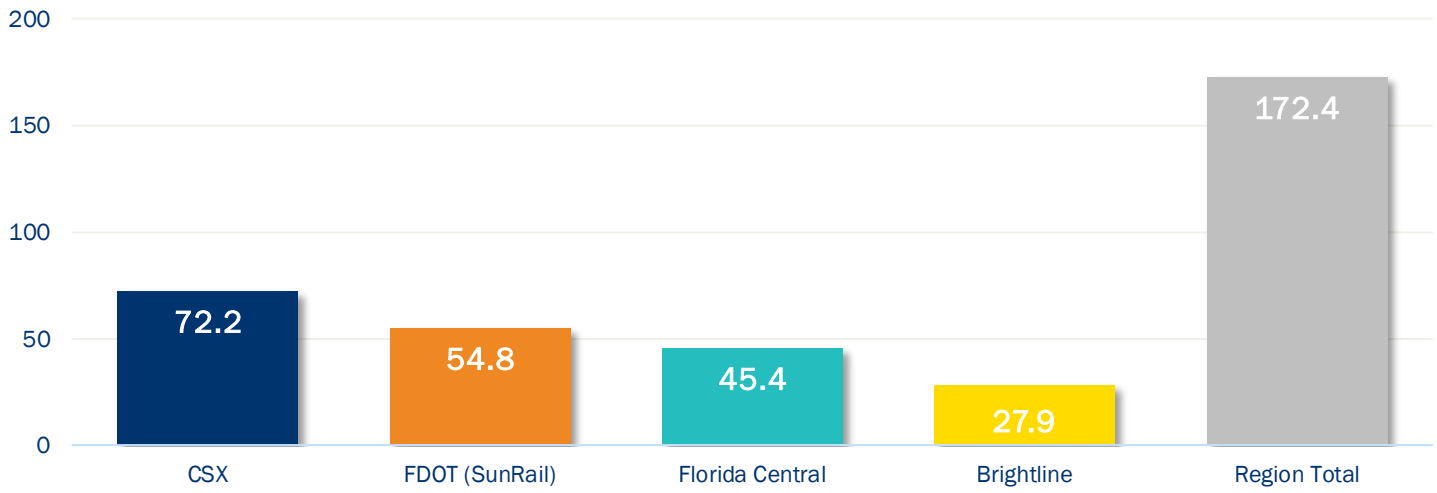
Source: FDOT, 2022 (Truck AADT, Truck Parking)

3.3.6 RAIL NETWORK

Several private companies and the Florida Department of Transportation (FDOT) own and operate the 172.4 miles of railroad within the MetroPlan Orlando region. This transportation infrastructure is critical to both passenger rail service (SunRail) and delivery of freight in the region and throughout the state. Figure 3-46 below shows the miles of railroad owned and operated by each of the owners. A map of rail ownership in the region is available in the Existing Conditions and Area Profile Technical Report. It is important to note that SunRail operates on some short segments of track owned by CSX Transportation.

- CSX Transportation operates throughout the 3-county region and owned the current SunRail tracks until 2011. The private company operates in all U.S. states east of the Mississippi River and has an extensive network in the state of Florida, with tracks running through Miami, Tampa, Jacksonville, Tallahassee and Pensacola.
- FDOT owns the SunRail tracks through the Central Florida Commuter Rail Commission and has been providing service along the line since 2014.
- Florida Central Railroad operates in western Orange County and has tracks that connect to the SunRail line near downtown Orlando. This line extends past Apopka in northwest Orange County to destinations in Lake County, including Mount Dora, Eustis, Tavares and Umatilla.
- Brightline recently began passenger rail service from Orlando International Airport to south Florida. The railroad extends eastward to the Atlantic seaboard of Florida, connecting to the Florida East Coast (FEC) railway in Brevard County. The FEC railway runs from Jacksonville to Miami and is a critical piece of railroad infrastructure for the state of Florida.
- Amtrak operates service on multiple private railroads, including CSX-owned and FEC-owned tracks, but does not own any trackage in the region. Amtrak passenger rail service extends from Orlando to Jacksonville, Tampa, and Miami.

Figure 3-46 | Railroad Miles within the MetroPlan Orlando Region, by Owner



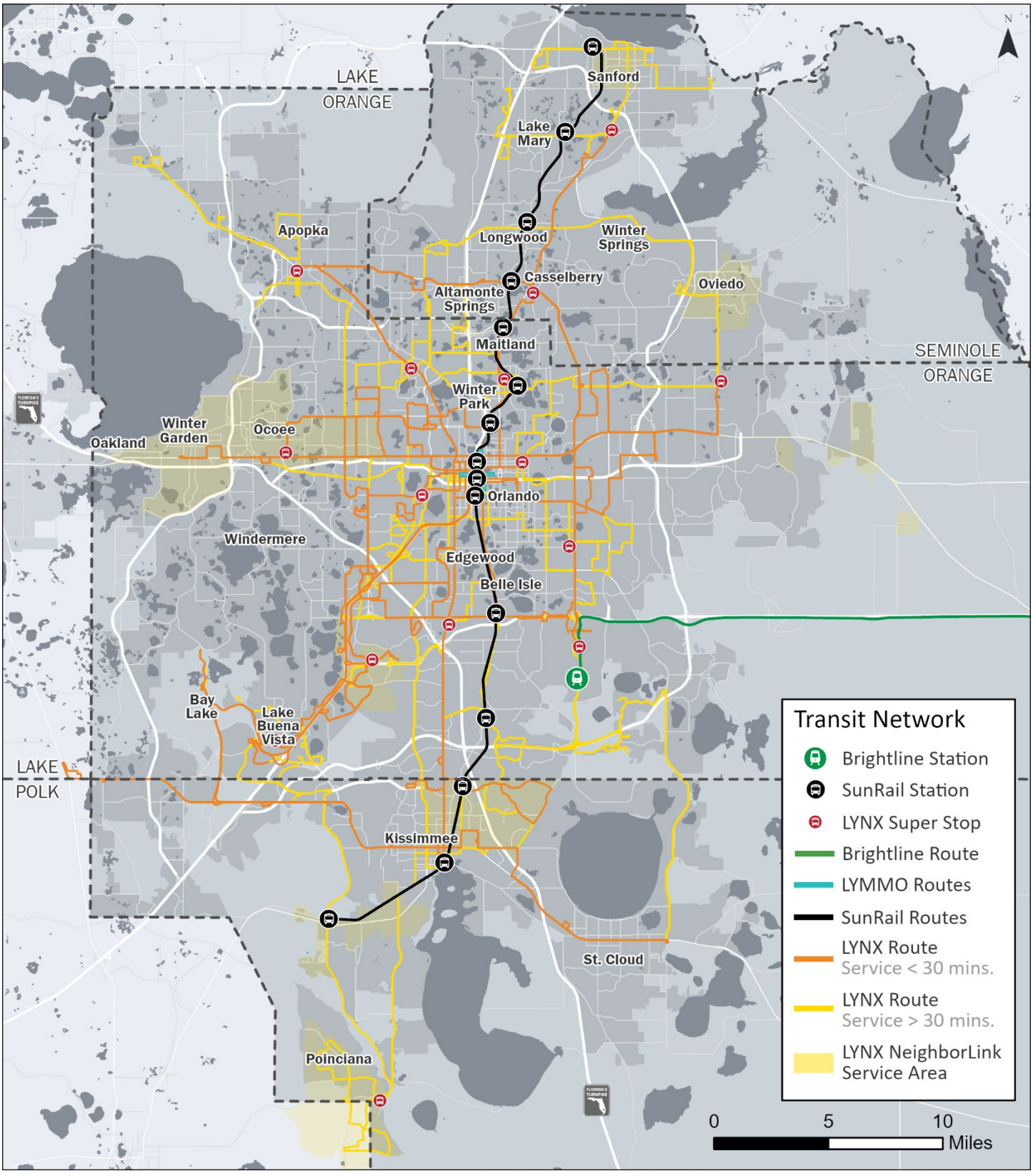
Source: Florida Department of Transportation, 2023

3.3.7 TRANSIT NETWORK

While the MetroPlan Orlando region is largely automobile-oriented, numerous transit services are available to residents. Information on these transit services is provided below. Figure 3-47 shows a map of the transit network across the region.

- **LYNX** provides busing services to a large service area in the region. This includes traditional busing in addition to numerous other options. Options include:
  - **Access LYNX:** Offers door-to-door shuttle services to eligible people with disabilities or other limitations.
  - **FastLink:** A commuter service that has a limited number of stops along specific corridors.
  - **LYMMO:** Offers bus rapid transit service in downtown Orlando.
  - **NeighborLink:** A flex service that serves less-populated areas.
  - **SWAN Shuttle:** An autonomous shuttle being tested in the City of Orlando.
  - **Vanpool:** Offers work trips to people living in close proximity to each other.
- **SunRail** has been operational in the region since 2014 and has 16 stations across Orange, Osceola, Seminole and Volusia County. SunRail accommodates commuters, stopping at multiple job hubs (such as downtown Orlando, downtown Kissimmee, and downtown Winter Park) while also stopping at suburban park and ride locations.
- **Brightline** began service in 2023 and is the first high-speed rail service offered in the state of Florida. The route spans from Orlando's International Airport Intermodal Terminal to Miami.
- **I-RIDE Trolley** operates in the International Drive area, providing bus services to numerous destinations in Orlando's primary tourism corridor.
- **Sanford Trolley** operates in downtown Sanford and provides a connection to the Sanford SunRail Station.
- **Pegasus:** The University of Central Florida provides a shuttle service called Pegasus through their Parking & Transportation Services Department. The shuttle operates Monday through Friday and has 15 regular, fixed shuttle routes.
- **Lake Xpress** operates a fixed-route system in Lake County, located to the west of the MetroPlan Orlando region. Destinations include Leesburg, Eustis, Mount Dora, Zellwood, Winter Garden, Clermont, and Four Corners.

Figure 3-47 | Transit Network & Hubs



Sources: LYNX, 2023; Brightline, 2023; SunRail, 2023

3.3.8 PEDESTRIAN, BICYCLE, AND TRAIL NETWORKS

Transit systems must be paired with bicycle and pedestrian facilities to allow connections between transit and destinations. This section of the report provides information on the region's bicycle and pedestrian infrastructure, including sidewalks, trails, and on-street bike lanes.

3.3.8.1 SIDEWALK NETWORK

Sidewalk networks assist in creating important multimodal connections within the region. Having sidewalks available for pedestrians helps to create a safer travel experience. Figure 3-48, below, shows regional sidewalk coverage by mileage on all roads in the three county region. Roughly half of roadways have sidewalks on both sides, while over one-third have no sidewalks whatsoever. Limited access roadways and areas under construction are not included or referenced in Figure 3-48. A map illustrating the region's existing sidewalk coverage is available in the Existing Conditions and Area Profile Technical Report.

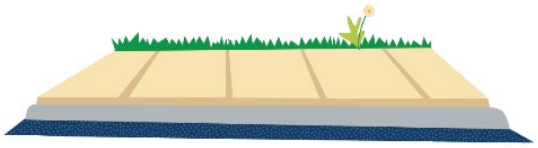
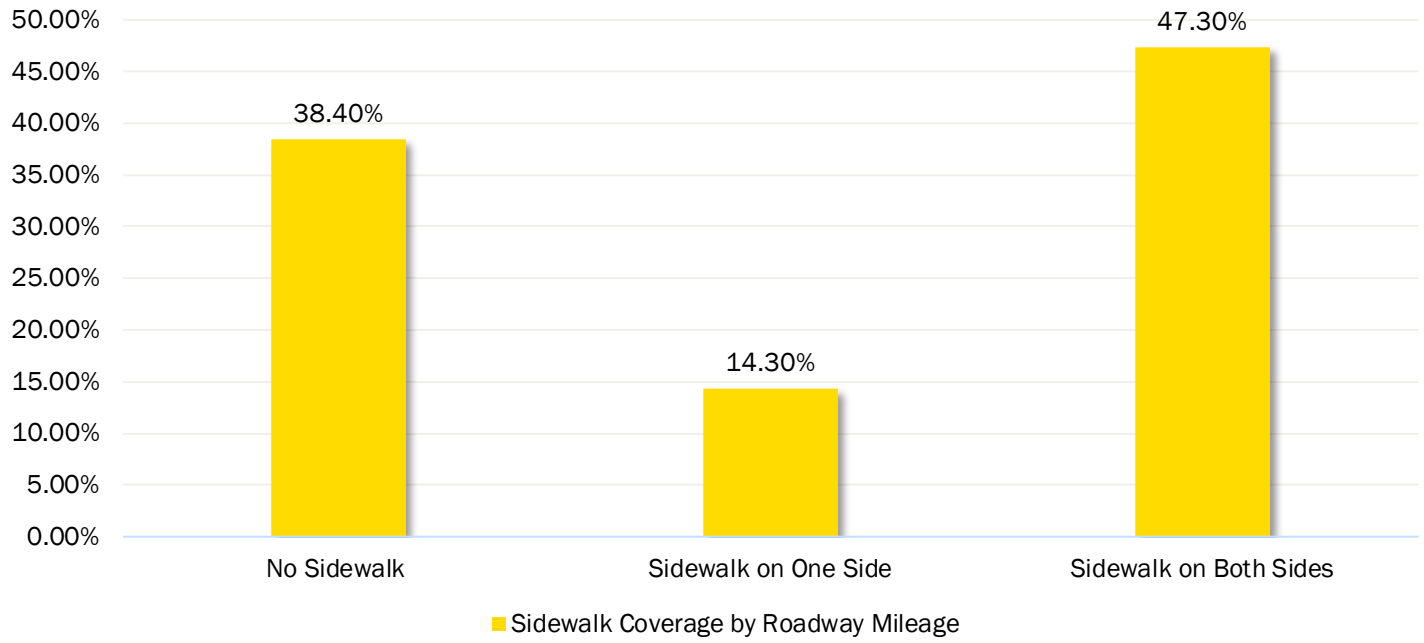


Figure 3-48 | Regional Sidewalk Coverage



Source: xGeographic Wave, 2023

3.3.8.2 BICYCLE AND TRAIL NETWORKS

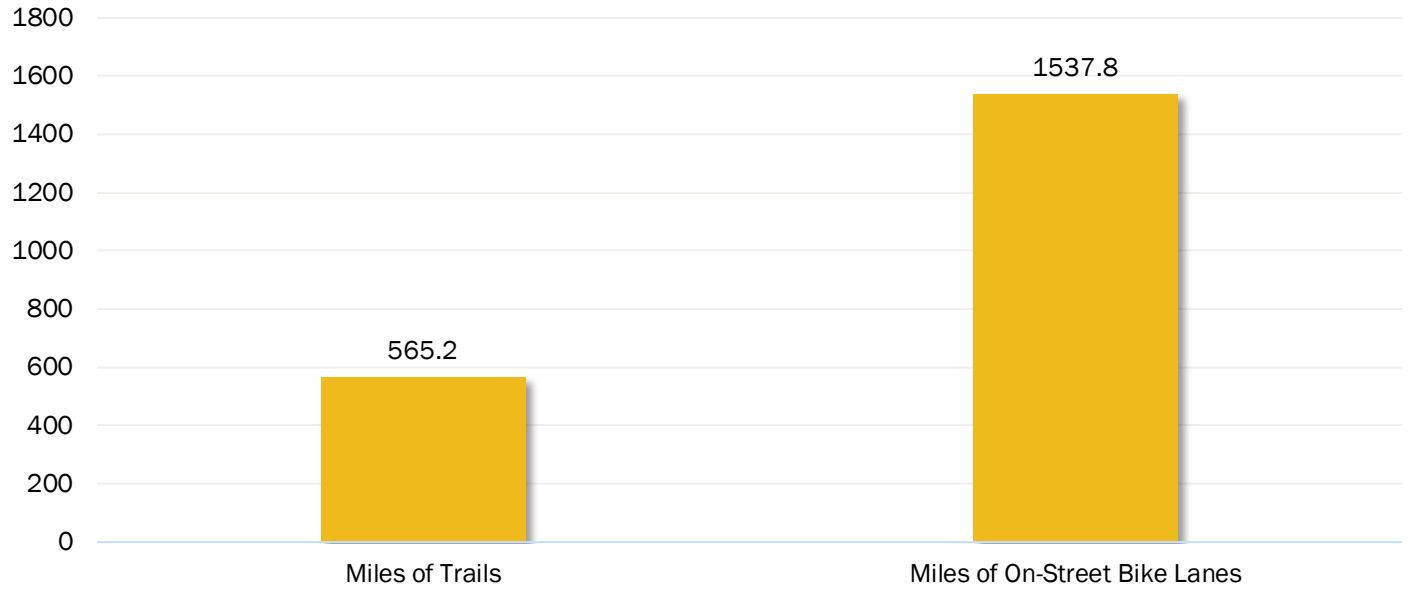
Bicycle network facilities within the region include shared use paths, bike lanes, and paved shoulders. Shared use paths and trails are physically separated from vehicle traffic by an open space or barrier in the right-of-way or are given their own right-of-way. Shared use paths are generally designed for both bicycles and pedestrians and have space for two-way traffic. These paths provide low-stress environments for bicyclists and pedestrians with minimal roadway crossings.

Bike lanes provide a portion of roadway exclusively for bicyclists. These lanes are generally one-way and carry bicyclists in the same direction as vehicle traffic. These areas generally have limited right-of-way, but also are in areas with lower travel speeds and volume.

Finally, paved shoulders are located where there is no curb and gutter, such as rural roads. Due to the rural nature of these paved shoulder lanes, they are located on high-speed facilities and wind blast effects can be felt. However, paved shoulder lanes provide another way to connect these rural areas, as well as provide a way to tour and visit scenic rural areas.

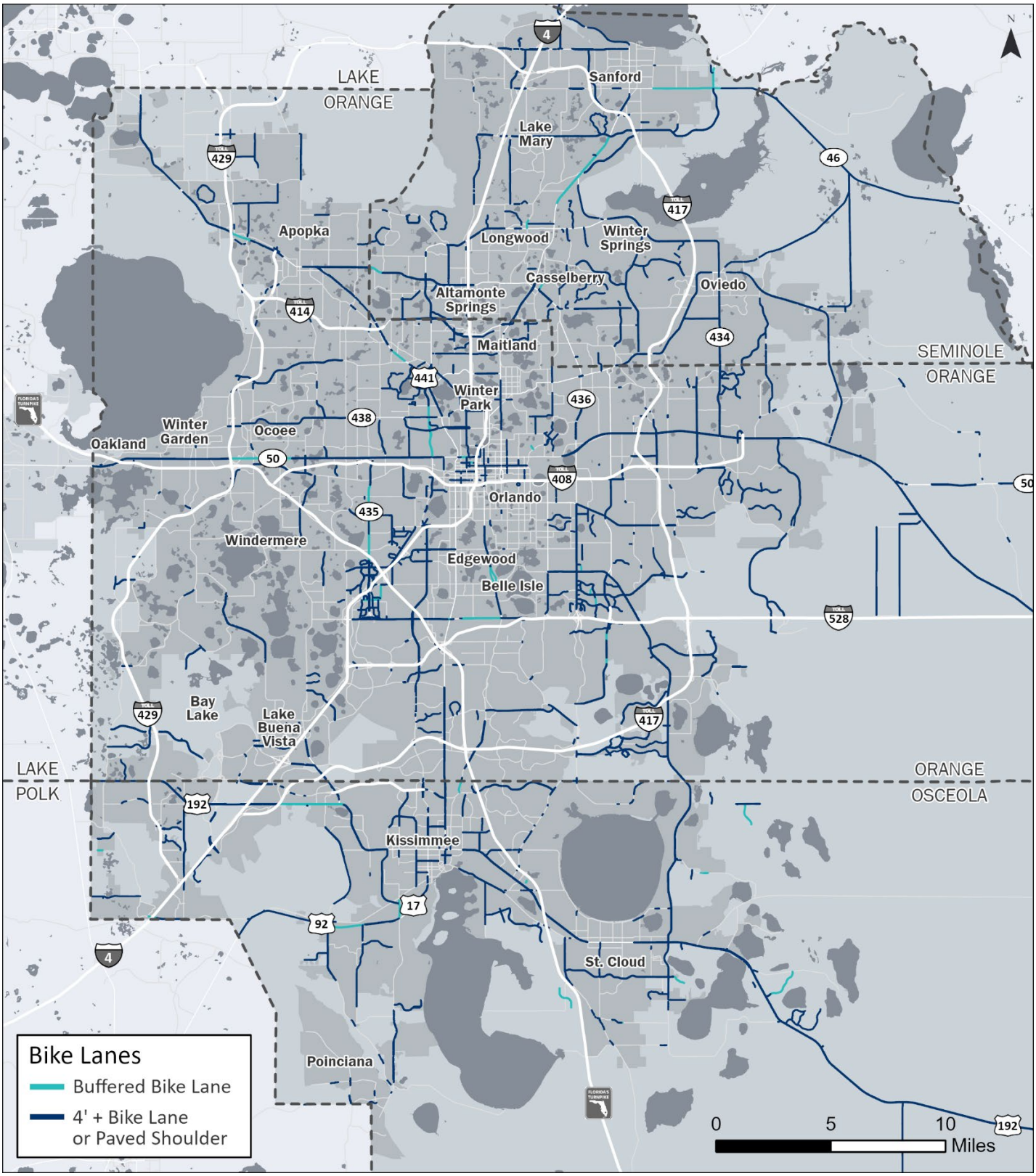
Bicycle infrastructure is important for connecting the region, especially in areas of persistent poverty or transportation disadvantaged areas, where residents may not have a vehicle. Figure 3-49 below shows an inventory of the bicycle facilities in the region. Figure 3-50 shows existing on-street bike lanes, and Figure 3-51 shows where the existing trails and wide sidewalks are located.

Figure 3-49 | Currnet Miles of Trails and On-Street Bike Lanes



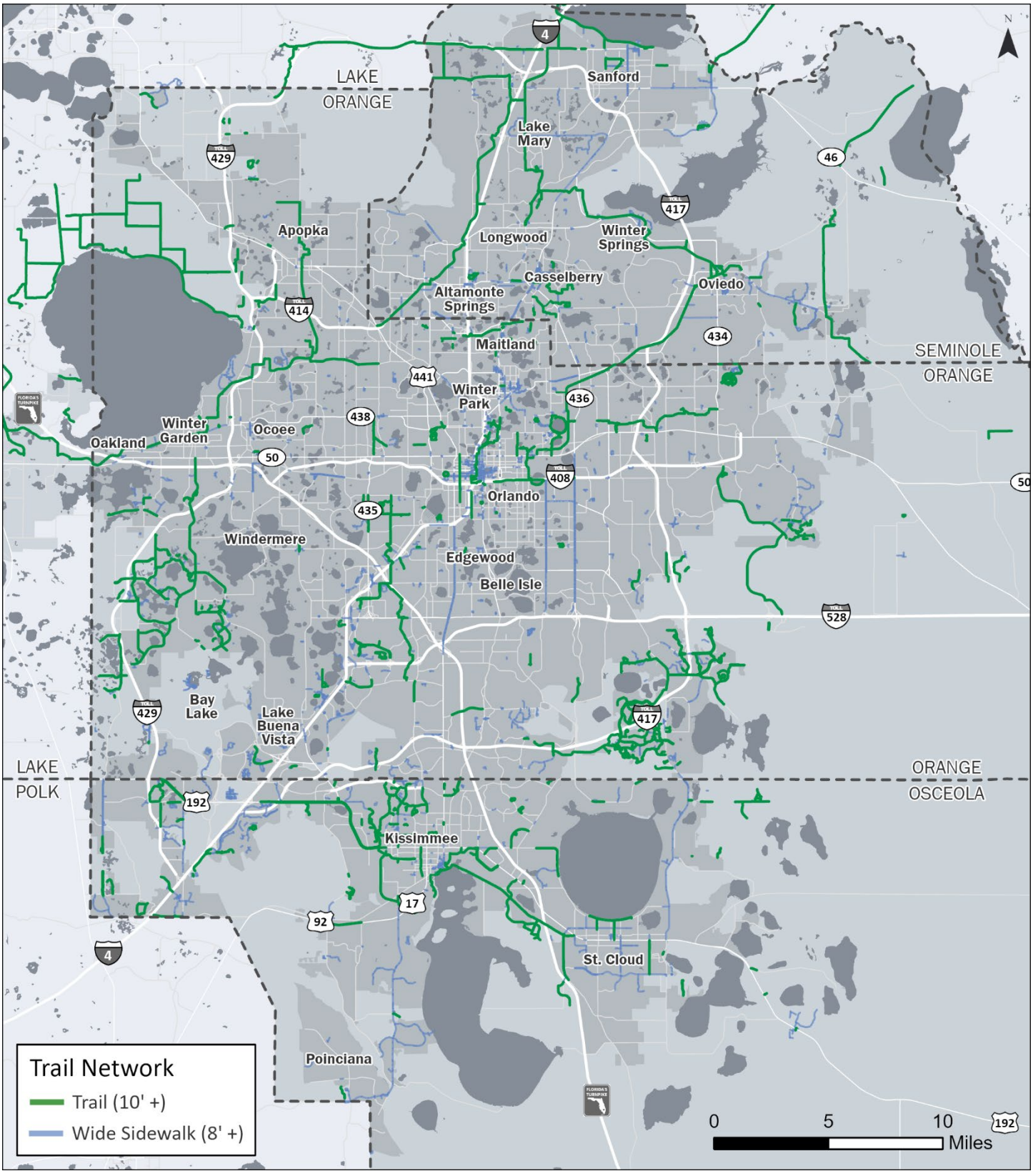
Source: xGeographic Wave, 2023; MetroPlan Orlando Active Transportation Plan, 2024

Figure 3-50 | Existing On-Street Bike Lanes



Source: xGeographic Wave, 2023; MetroPlan Orlando Active Transportation Plan, 2023

Figure 3-51 | Existing Trails & 8-Foot Wide Sidewalks



Source: xGeographic Wave, 2023; MetroPlan Orlando Active Transportation Plan, 2023

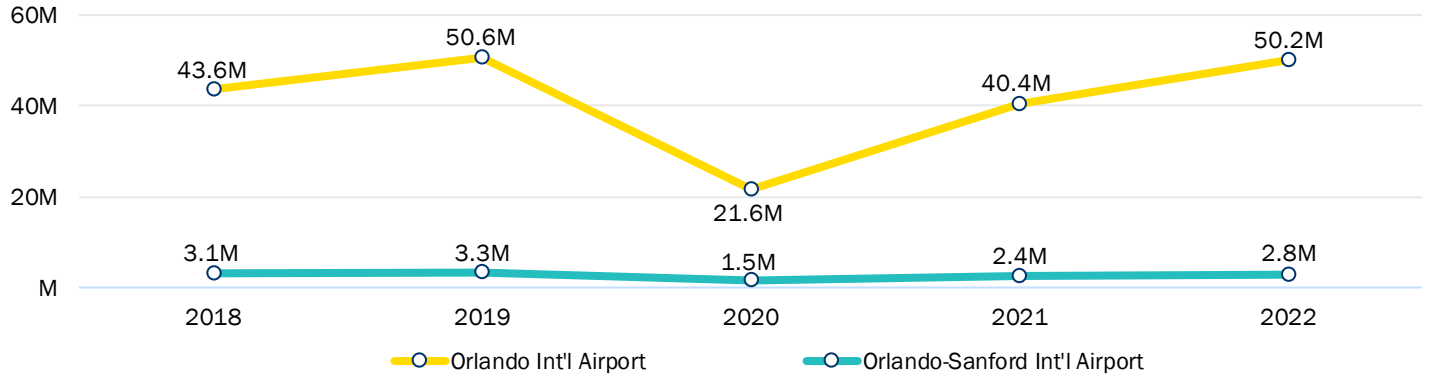
3.3.9 AIR, SEA & SPACE

The region and surrounding areas have air, sea, and space assets that are critical to global transportation. This section of the report provides information on the region's two largest commercial airports, Orlando International Airport (MCO) and Orlando-Sanford International Airport (SFB), as well as Port Canaveral and the Kennedy Space Center. A regional map of these facilities is available in the Existing Conditions and Area Profile Technical Report.

3.3.9.1 AIRPORTS

Orlando International Airport and Orlando-Sanford International Airport both serve more than one million annual passengers from around the world. Orlando International Airport (MCO) is among the top 20 busiest airports in the world. Following a large drop in passengers in 2020 due to the COVID-19 pandemic, MCO has since seen back-to-back years of large increases in ridership.

Figure 3-52 | Airport Annual Passengers (Departures & Arrivals)

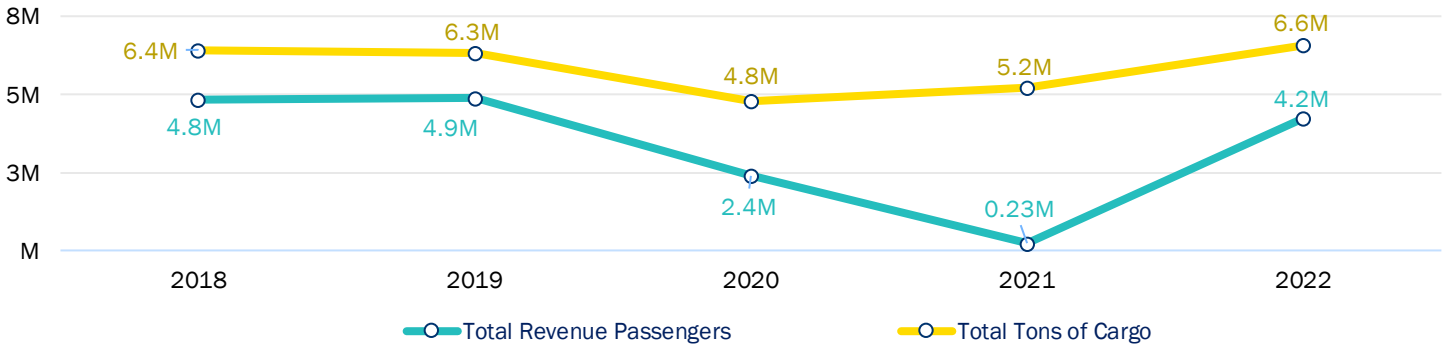


Source: Greater Orlando Aviation Authority, Sanford Airport Authority, 2022

3.3.9.2 SEAPORT

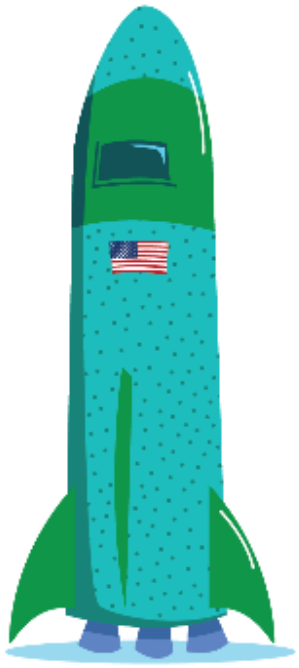
The closest seaport to the MetroPlan Orlando region is located in Brevard County at Port Canaveral and is an approximate one-hour drive east of Orlando. Port Canaveral saw a drastic reduction in service in 2020 and 2021 due to the COVID-19 pandemic, but has since seen increases in cargo and passengers back to normal levels.

Figure 3-53 | Port Canaveral Revenue Passengers and Tons of Cargo



Source: Port Canaveral, 2022

3.3.9.3 SPACEPORT

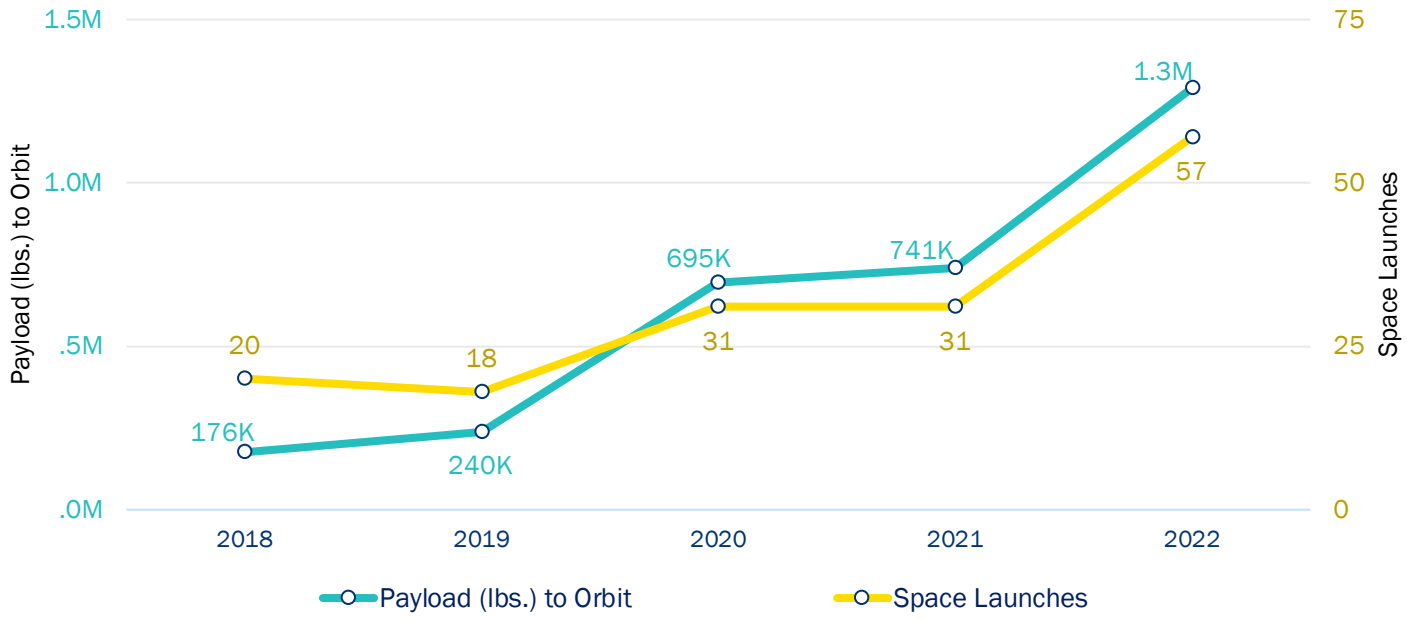


Approximately 60 miles southeast of Orlando's central business district is Cape Canaveral. Cape Canaveral includes both the Cape Canaveral Air Force Station and the Kennedy Space Center (on Merritt Island). The Kennedy Space Center contains both the National Aeronautics and Space Administration's (NASA) launch facility (spaceport), and an international visitor complex.

The Kennedy Space Center hosts manned space missions for the US government, launches private rockets, and has seen a large increase in both the number of commercial space launches and pounds of payload to orbit. From 2018 to 2022, annual payload to orbit increased by 185% and total launches increased by 638%. Figure 3-54 shows this data by year.

The growing space industry not only launches economic expansions, but also attracts visitors to the region to witness history in the making. Many residents and visitors watch rockets launch from Earth, which provides a rare experience that can support local businesses. Space tourism is also a growing trend, as numerous private companies are beginning to offer trips to low-Earth orbit.

Figure 3-54 | Kennedy Space Center Space Launches & Annual Payload to Orbit in Pounds



Source: NASA, 2022

3.4 Origin-Destination and Travel Patterns

The Origin-Destination and Travel Patterns section reviews different origin-destination (OD) datasets within the MetroPlan Orlando region to better understand travel patterns of those within it. This includes historic commute flows, short-distance car trips, larger travel trends, and origin-destination patterns specific to air, transit, and freight.

Datasets include StreetLight Data products, sourced from 2022 connected vehicle data (CVD), to better understand and visualize OD travel patterns. Regionally, StreetLight CVD trips are created by pings from personal vehicles embedded with location technology. CVD trips do not need mode classification since the data comes from personal vehicles. Short-term car trips and megaregional travel trends also used Streetlight CVD 2022 data.

3.4.1 COMMUNITY TRAVEL PROFILES

To develop a baseline of existing travel in the region, travel patterns and characteristics for 24 communities across the MetroPlan Orlando region were further developed. These 24 communities were developed using 2020 census block, City, and County boundaries, the transportation network, neighborhoods and activity centers. Each of the 24 community travel profiles was designed to include aggregated and detailed data of the specific area or communities about demographics, commute patterns, general travel characteristics, and top five travel interactions.

A standalone infographic sheet was developed for each of the 24 communities to highlight their unique travel patterns and differences from other areas. They can be found in Appendix C of this report.

3.4.2 HISTORIC COMMUTE FLOWS

Historic commute flows within Central Florida from 2020 back to 1990 are evaluated in this section, as well as looking at how commute patterns were changed and disrupted by the COVID-19 pandemic during this timeframe. Only commutes between Florida counties are summarized in this section.

When looking at historic commute flows, the data was taken primarily from the U.S. Census and simplified using the terms “workers” and “jobs”.

- **Workers** – Data referring to employed residents over the age of 16. Workers in Orange County are those that are employed, regardless of where the job is located.
- **Jobs** – Data referring to employment or place of business itself. Jobs would be places of employment in Orange County, regardless of where their employees live.

The following data sources were used for the analysis:

- **1990 data** – 1990 U.S. Census
- **2000 data** – 2000 U.S. Census
- **2010 data** – 2006–2010 CTPP
- **2016 data** – 2012–2016 CTPP
- **2020 data** – 2020 ACS 5-Year Commuting Flows

Since 1990, all three counties in the MetroPlan Orlando region have experienced rapid growth in the number of workers and in the number of jobs. The three-county region added approximately 523,000 workers and 597,000 jobs between 1990 and 2020, as shown in Figure 3-55.

In 1990, the MetroPlan Orlando region had 105 jobs per 100 workers. In 2020, it had 109 jobs per 100 workers. This growing imbalance—combined with the rapid growth in employment over the 30-year period—has meant that the three-county area has now imported an additional 74,000 workers since 1990.

The three-county area's rapid increase in workers and jobs has created more commuter travel in the region, but commuting has changed unevenly across Orange, Osceola, and Seminole Counties and the surrounding areas. The predominant commute flows occurred within each of the counties, rising considerably from 1990 to 2020, but inter-county commutes (commutes in which someone lives in one county and travel sto another for work) represent nearly one third of all commutes within Central Florida. Additional information and detailed graphics about historic commute flows are included in Appendix C.

Figure 3-55 | Change in Workers and Jobs since 1990

Note: Difference between 1990 US Census and 2016-2020 ACS.

Sources: 1990 U.S. Census; 2000 U.S. Census; 2006-2010, 2012-2016 CTPP; 2020 ACS 5-year Commuting Flows

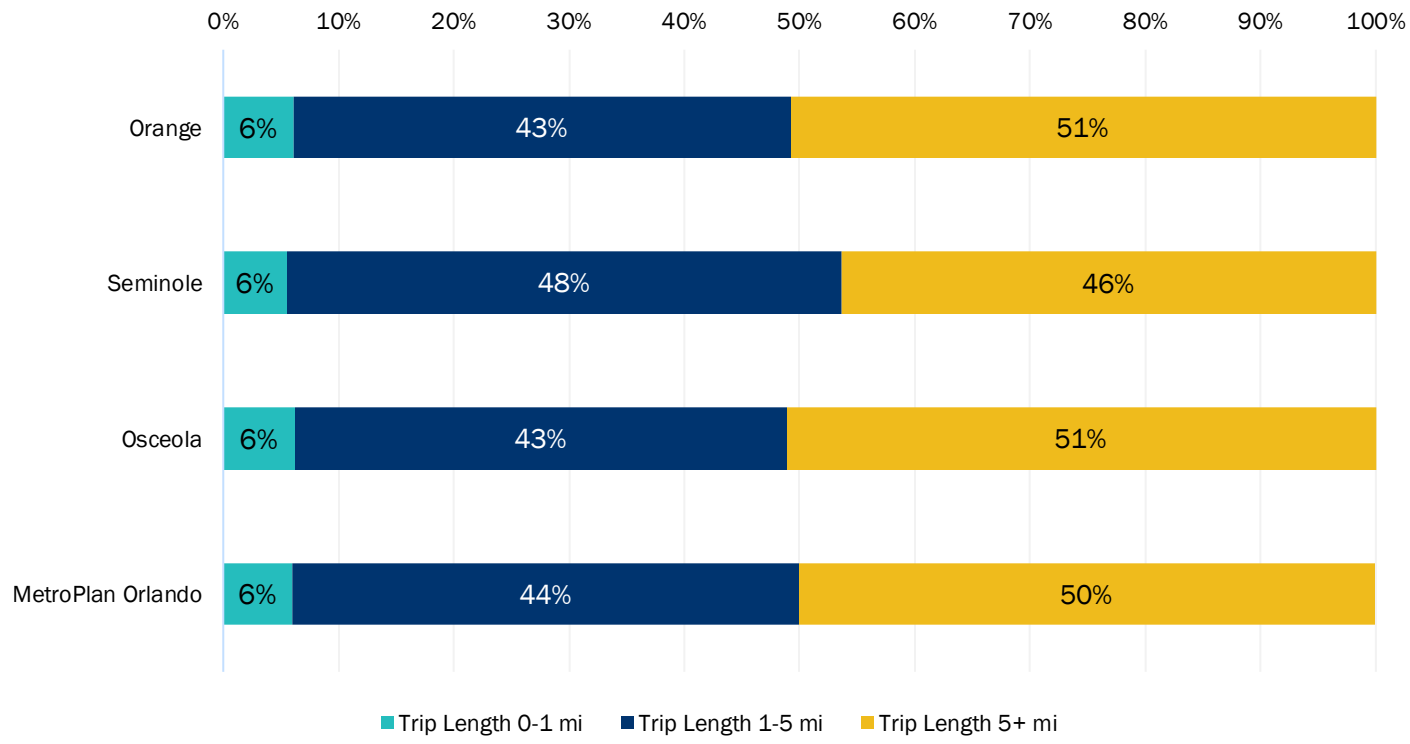
3.4.3 SHORT-DISTANCE CAR TRIPS

Short-distance car trips were defined by A Rails to Trails Conservancy study as U.S. car trips could be done with a 20-minute bike ride, and more than a quarter of trips could be done with a 20-minute walk.[1] For this analysis, trips were summarized as being less than one mile in length (roughly equivalent to a 20-minute walk) and less than five miles in length (roughly equivalent to a 30-minute bike ride).

3.4.3.1 SHORT-DISTANCE CAR TRIP FINDINGS

Millions of short-distance trips are made within the MetroPlan Orlando region every day. Figure 3-56 shows the percentage of trips by distance. The three counties have a similar share of trips by distance: about half of all trips are less than five miles. Additional information about the areas generating the most short trips is included in Appendix C.

Figure 3-56 | Percentage of Daily Trips by Trip Distance by County



Source: Streetlight CVD, 2022

[1] Torsha Bhattacharya, PhD, Kevin Mills, JD, and Tiffany Mulally, PhD, Active Transportation Transforms America: The Case for Increased Public Investment in Walking and Biking Connectivity (Washington, DC: Rails to Trails Conservancy, 2019).

3.4.4 MEGAREGIONAL TRAVEL TRENDS

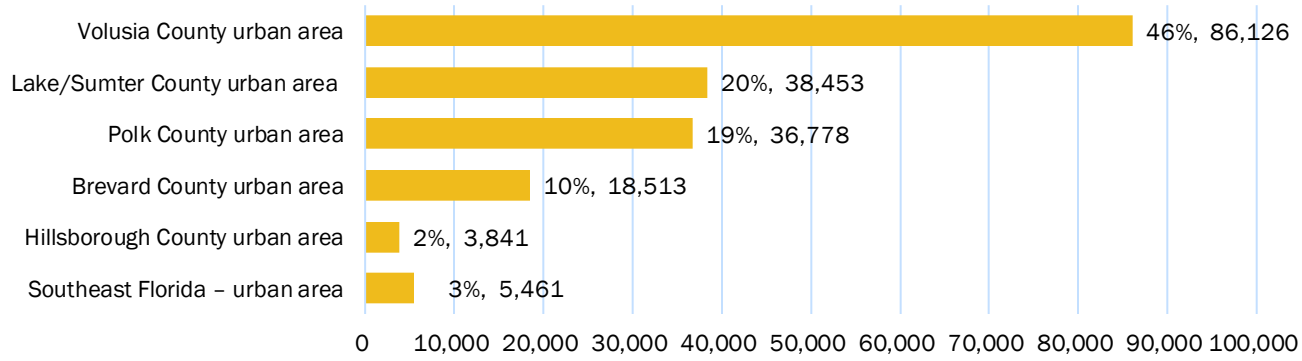
Megaregional travel looks at how people travel from the MetroPlan Orlando region to other parts of the state of Florida, such as between major cities in Central and South Florida. This can include by car, plane, bus, train, or new travel options such as advanced air mobility (AAM) or high-speed rail services. This section also evaluates factors like travel cost, time, and reliability, and it summarizes differences in travel cost, travel time, on-time performance, and service frequency. The megaregion was delineated here as the urbanized areas along Florida's Turnpike and the I-4 corridor, as shown in Figure 3-58 on the following page.

This analysis utilized 2022 Streetlight CVD and Location-Based Services (LBS) data, in addition to the following services providers:

- **Private Car** – Google Maps
- **Bus** – FlixBus, Red Coach, Megabus, Greyhound
- **Rail** – Amtrak, Brightline, SunRail
- **Air** – Google Flight

The total vehicle trips between the MetroPlan Orlando region and other Florida megaregions are showing in Figure 3-57. The Volusia County urban area has the most trips to and from the MetroPlan Orlando region (roughly 46% of trips), and the Hillsborough County urban area is the megaregion with the fewest number (roughly 2% of trips). The greater the distance, the less likely people are to choose using a private car to reach their destination.

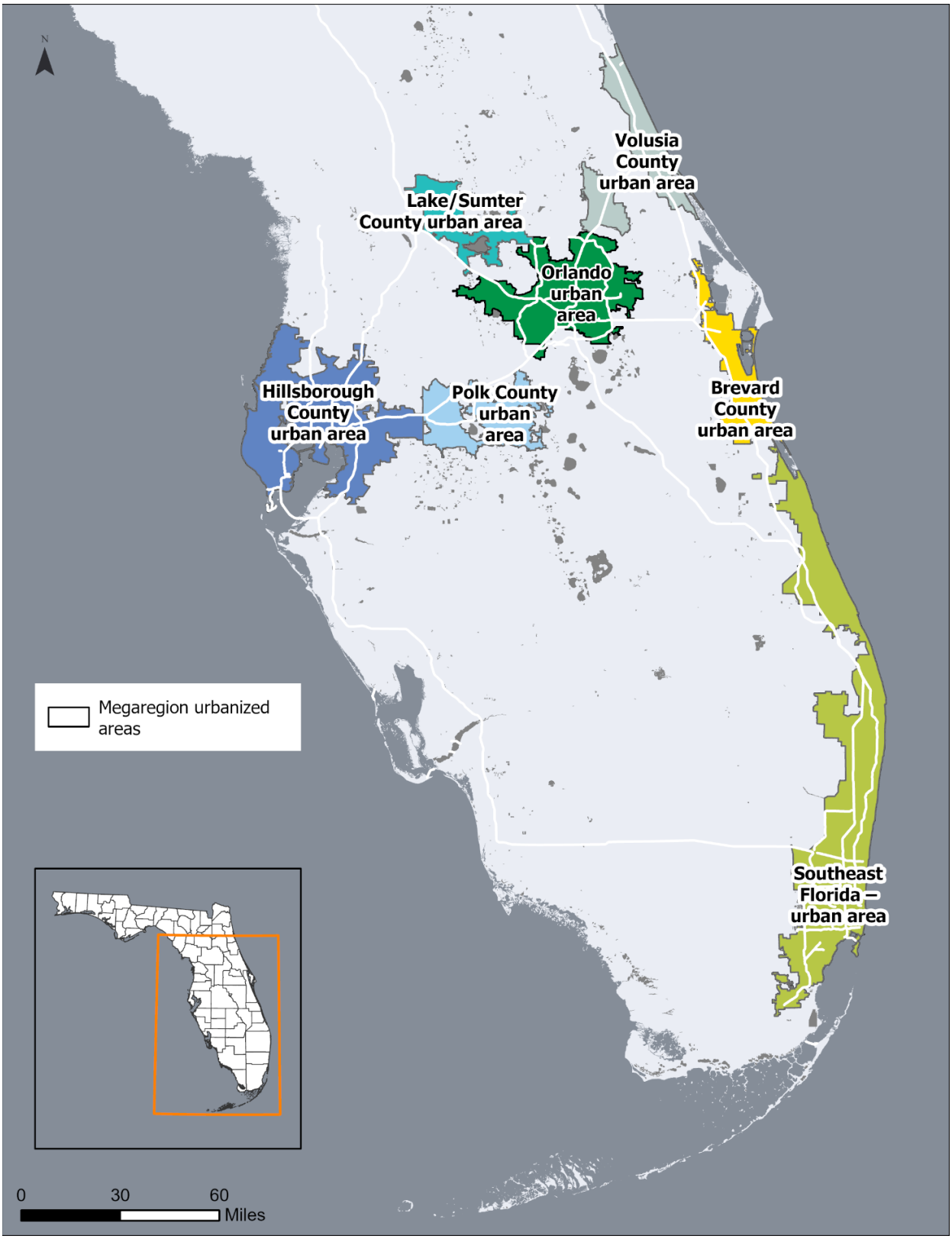
Figure 3-57 | Total Trips between MetroPlan Orlando and Florida Megaregions



Source: Streetlight CVD, 2022

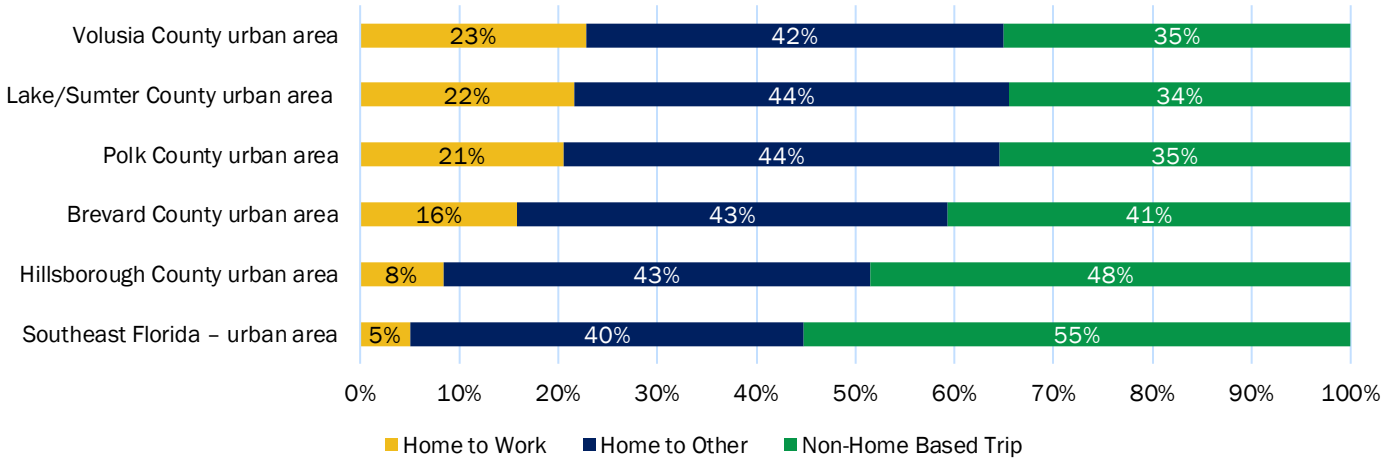
Similarly for travel purposes, a lower percentage of commute trips is observed as the travel distance increases, and a higher percentage of non-home-based trips are made in the regions as the travel distance increases. Figure 3-59 shows the percentage of trips between the Metroplan Orlando region and the Central and South Florida megaregions by trip purpose and ranked according to the average travel distance.

Figure 3-58 | Urbanized Areas along Florida's Turnpike and the I-4 Corridor



Source: U.S. Census Urbanized Areas, 2010

Figure 3-59 | Trip Purposes between the MetroPlan Orlando Region and Central/South Florida Megaregions



Source: Streetlight CVD, 2022

3.4.4.1 TRAVEL MODE PROFILE

Driving a private vehicle is the primary mode through which people travel into and out of the MetroPlan Orlando region, with one of the key advantages being that they provide the most flexibility for travelers. Private vehicles allow travelers to depart at their own convenience and without a set schedule. Additional benefits include privacy, comfort, and cost efficiency for larger groups. However, there are drawbacks, such as fuel costs, vehicle maintenance, environmental impacts, driver fatigue, traffic congestion, and parking challenges.

Table 3-1 summarizes the existing availability of various travel modes to serve trips between the MetroPlan Orlando region and the Central and South Florida megaregions.

Table 3-1| Existing Mode Availability by Megaregion

From/To	Car	Bus	Rail	Air	AAM
Volusia County	Yes	Yes	Yes	No	No
Lake/Sumter County	Yes	No	No	No	No
Polk County	Yes	Yes	Yes	No	No
Brevard County	Yes	Yes	No	No	No
Hillsborough County	Yes	Yes	Yes	No	No
Southeast Florida	Yes	Yes	Yes	Yes	No

Source: Google Flight, 2024; Megabus, 2024; Amtrak, 2024; Greyhound; 2024; FlixBus, 2024; RedCoach, 2024; SunRail, 2024; Brightline, 2024

Table 3-2 compares travel characteristics by mode and travel pair between the MetroPlan Orlando region and other megaregions. Regional trips and their characteristics were evaluated to determine which travel modes could be considered to serve each type of trip. Additional information about these results is included in Appendix C.

Table 3-2| Mode Profile by Megaregions

Measures	Volusia	Lake /Sumter	Polk	Brevard	Hillsborough	Southeast Florida
Car Travel Distance (miles)	54	44	63	64	112	187
Car Travel Time (mins)	60	61	67	67	124	171
Car Travel Cost ($)	9	7	11	11	19	31
Bus Travel Time (mins)	60	/	65	30[2]	140	150–300
Bus Travel Cost ($)	17–24	/	20	18	16–30	25–68
Bus Daily Frequency	8	/	9	2	17	90
Rail Travel Time (mins)	52–72	/	71–198	/	120	200
Rail Travel Cost ($)	4–11	/	12	/	12	39
Rail On-time Performance	26–96%	/	26–44%	/	26%	94%
Rail Daily Frequency	42	/	4	/	2	16
Aviation Travel Time (mins)	/	/	/	/	/	135
Aviation Travel Cost ($)	/	/	/	/	/	90
Aviation On-Time Performance	/	/	/	/	/	70.5%
Aviation Daily Frequency	/	/	/	/	/	20
AAM Travel Time (mins)	29	25	32	33	52	82
AAM Travel Cost ($)	162	132	189	192	336	561

Source: Google Map, 2024; Google Flight, 2024; Megabus, 2024; Amtrak, 2024; Greyhound; 2024; FlixBus, 2024; RedCoach, 2024; SunRail, 2024; Brightline, 2024

[2] The bus travel time between the MPO and the Brevard urban area is half that of car travel time. This discrepancy arises because bus travel time is calculated based on the route between Orlando and Titusville, which is the only available bus service connecting the two regions. In contrast, car travel time is measured between the centroids of the MPO and the Megaregion.

3.4.5 AIR, TRANSIT, AND FREIGHT ORIGIN-DESTINATION PATTERNS

This section looks at origin-destination patterns for air, transit, and freight for the MetroPlan Orlando region. Air refers to Orlando International Airport (MCO) and Orlando Sanford International Airport (SFB). Transit includes rail and bus services, such as SunRail and LYNX. Within air, transit, and freight patterns, data included:

- StreetLight and Replica Data products were used to summarize vehicle volumes on roadways leading to and from these airports and the origins and destinations of these airport trips.
- Daily boarding and alighting data from SunRail's ticketing and validation systems were obtained for fiscal year (FY) 2019 through fiscal year 2024. The data was manually associated with train direction, route starting station, and route ending station and then aggregated by train, segment between stations, day of week, and fiscal year to understand daily utilization as well as peak train utilization.
- The 2023 OD on-board survey was obtained from LYNX, along with boarding and alighting ridership data between January and March 2024 at the route and stop levels.
- StreetLight CVD for commercial vehicles was used for this analysis. The 2022 annual average weekday (Monday–Thursday) and all-day time periods were selected for the visualization.

Additional information about the findings for each of the air, transit, and freight origin-destination studies is included in Appendix C.

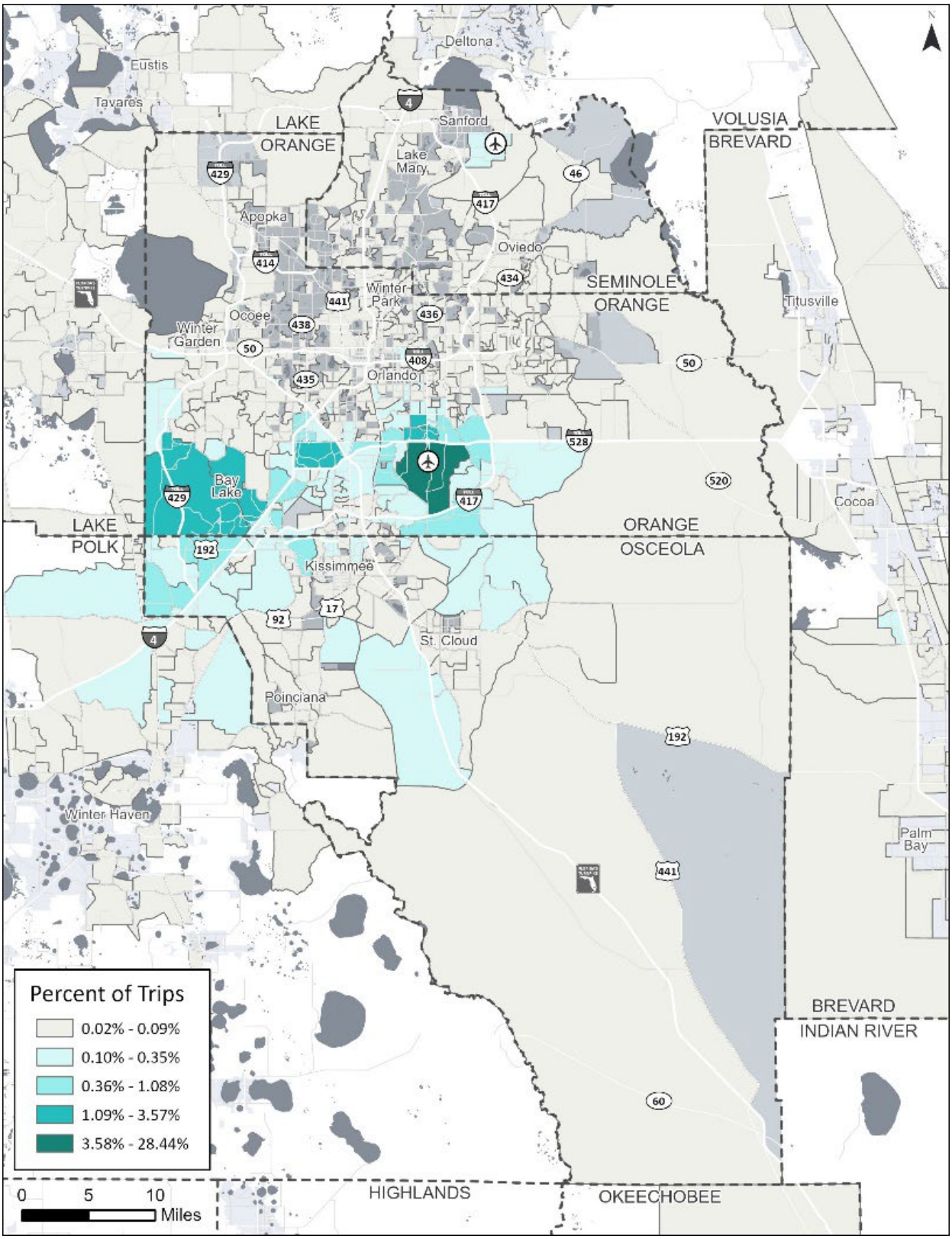
3.4.5.1 AIRPORT ACCESS FINDINGS

ORIGIN-DESTINATION PATTERNS

Origin-Destination (OD) patterns are visualized within the study area. These maps (Figure 3-60, Figure 3-61, Figure 3-62, and Figure 3-63) reveal the following key findings:

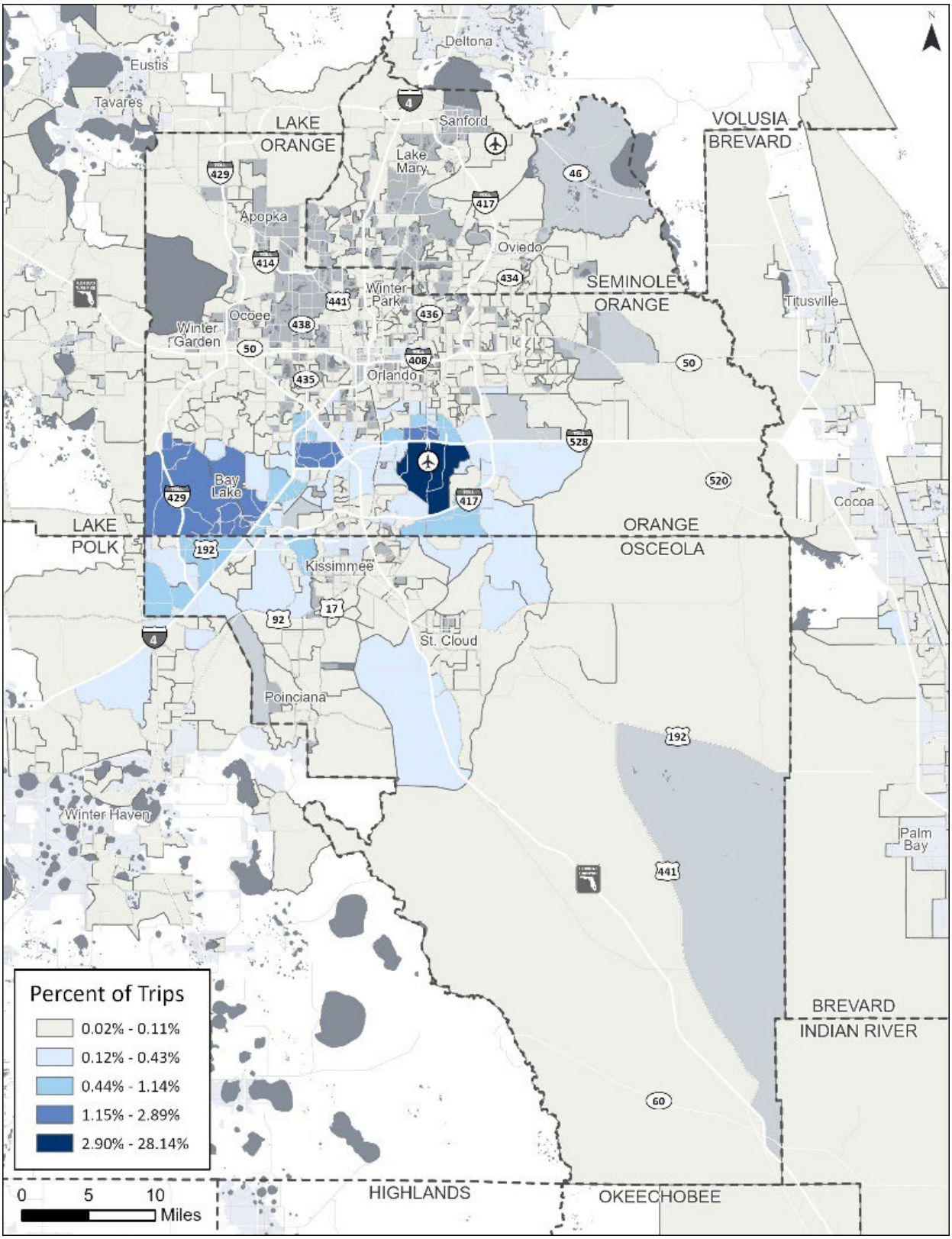
- Since Central Florida is a major attraction for domestic and international tourism, the common origins and destinations (outside of internal travel in and around MCO) for those traveling to or from MCO are the theme parks and supporting accommodation areas. Areas along Sand Lake Road (SR 482), Beachline Expressway (SR 528), and Interstate 4 are also top activity centers.
- Besides internal travel in and around the SFB airport, the most common OD for those traveling to or from the airport is the area that encompasses the Seminole Towne Center and Sanford Auto Train Station, both of which include many mixed-use land uses for convenient access. Other ODs of note for SFB are residential neighborhoods southwest and northeast of the airport, MCO, and the Walt Disney Resort area. SFB was accessed primarily by Central Florida residents.

Figure 3-60 | MCO Airport Origins



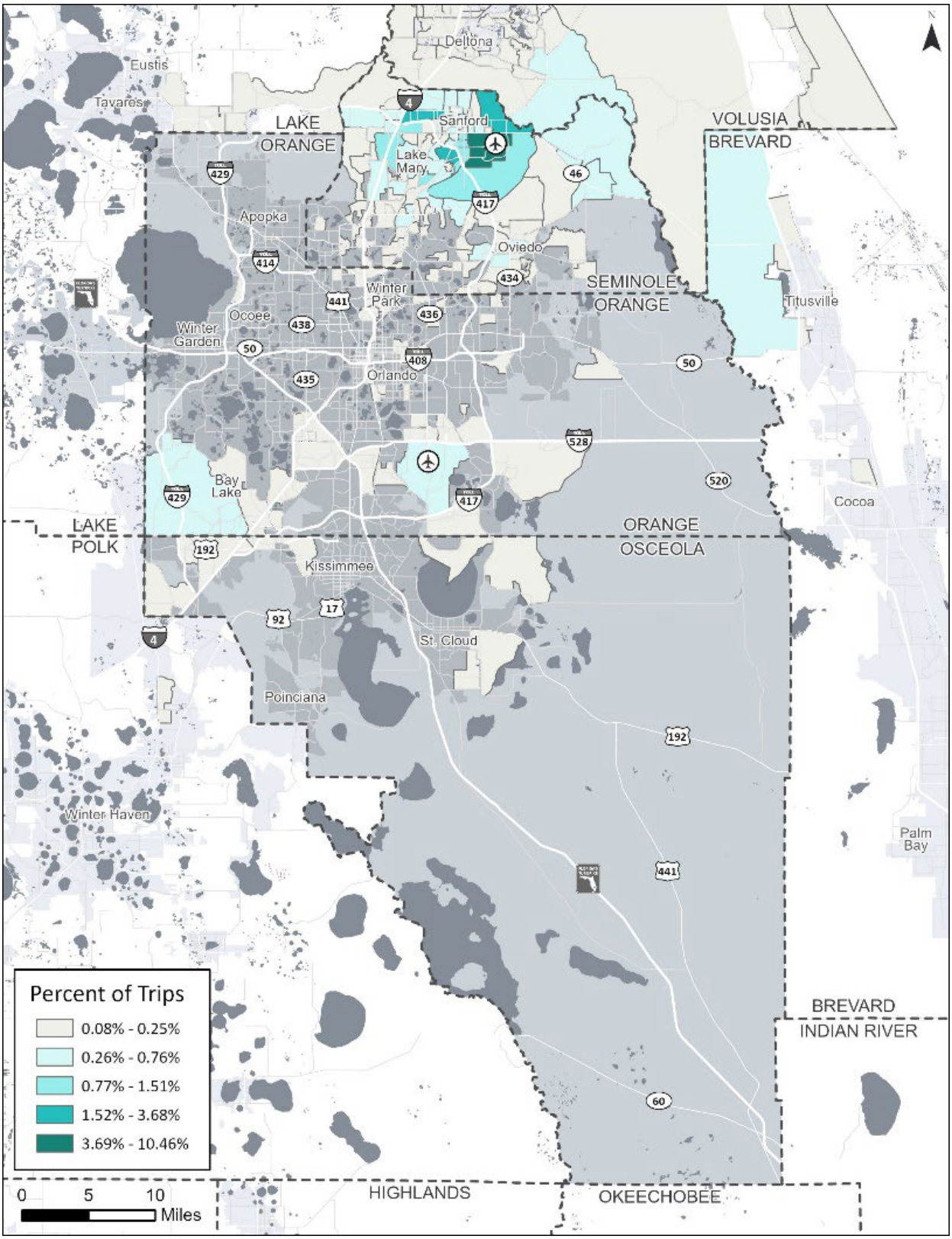
Sources: Streetlight CVD, 2022

Figure 3-61 | MCO Airport Destinations



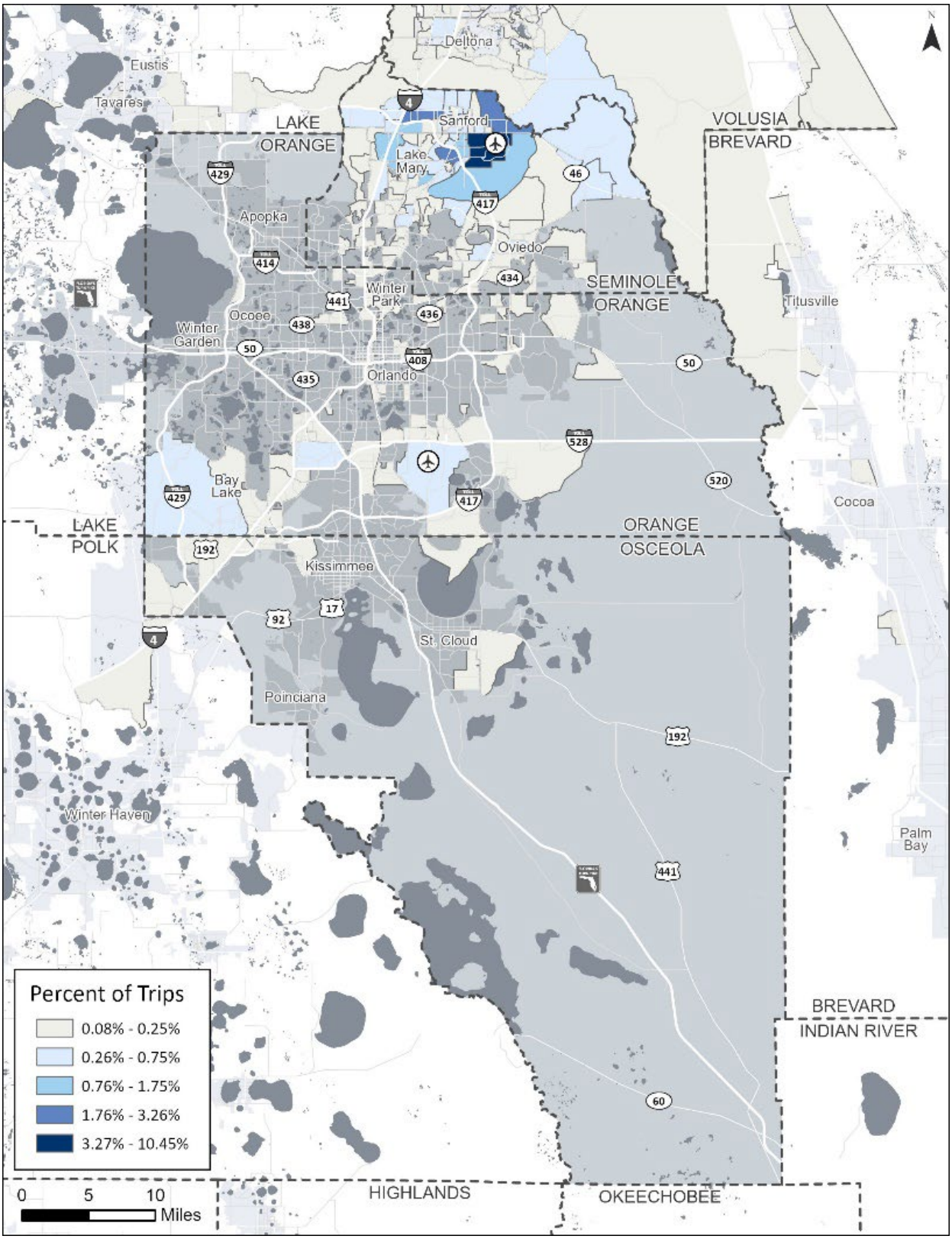
Sources: Streetlight CVD, 2022

Figure 3-62 | SFB Airport Origins



Sources: Streetlight CVD, 2022

Figure 3-63 | SFB Airport Destinations



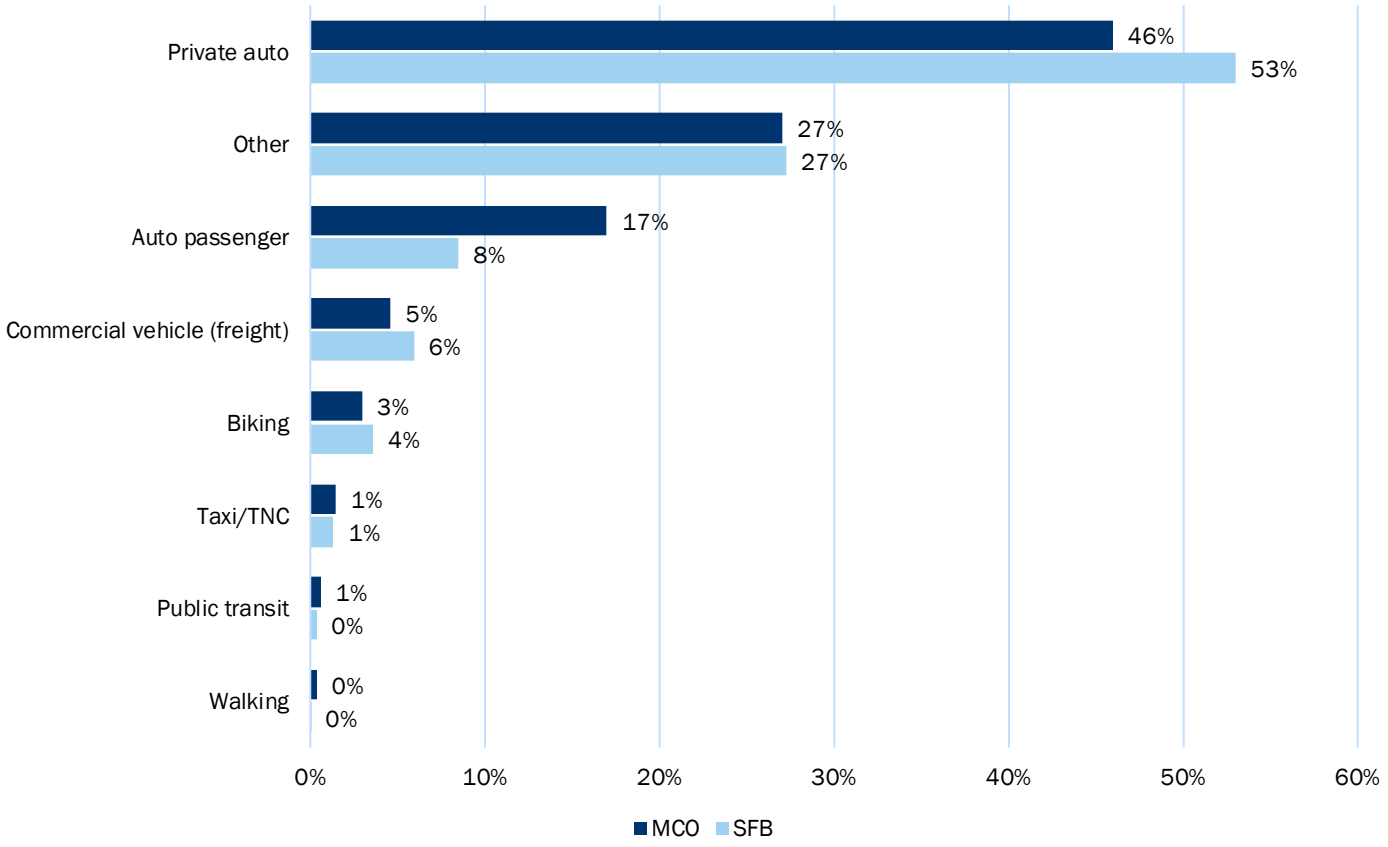
Sources: Streetlight CVD, 2022

MODE ACCESS

Mode access findings highlight the region's heavy dependence on private vehicles to and from MCO and SFB. These private vehicle trips could be mitigated by enhancing and promoting alternative transportation options, improving infrastructure for biking and public transit, and potentially expanding the availability and awareness of rideshare and shuttle services.

Seen in Figure 3-64, 46% of outbound and 53% of inbound trips for MCO and SFB use private vehicles. Additionally, 27% of trips fall under the "Other" category, which likely includes rental cars and shuttles. Auto passengers (17%) also represent a considerable portion of traffic for MCO access, indicating that many travelers are dropped off or picked up.

Figure 3-64 | Share of Mode Access



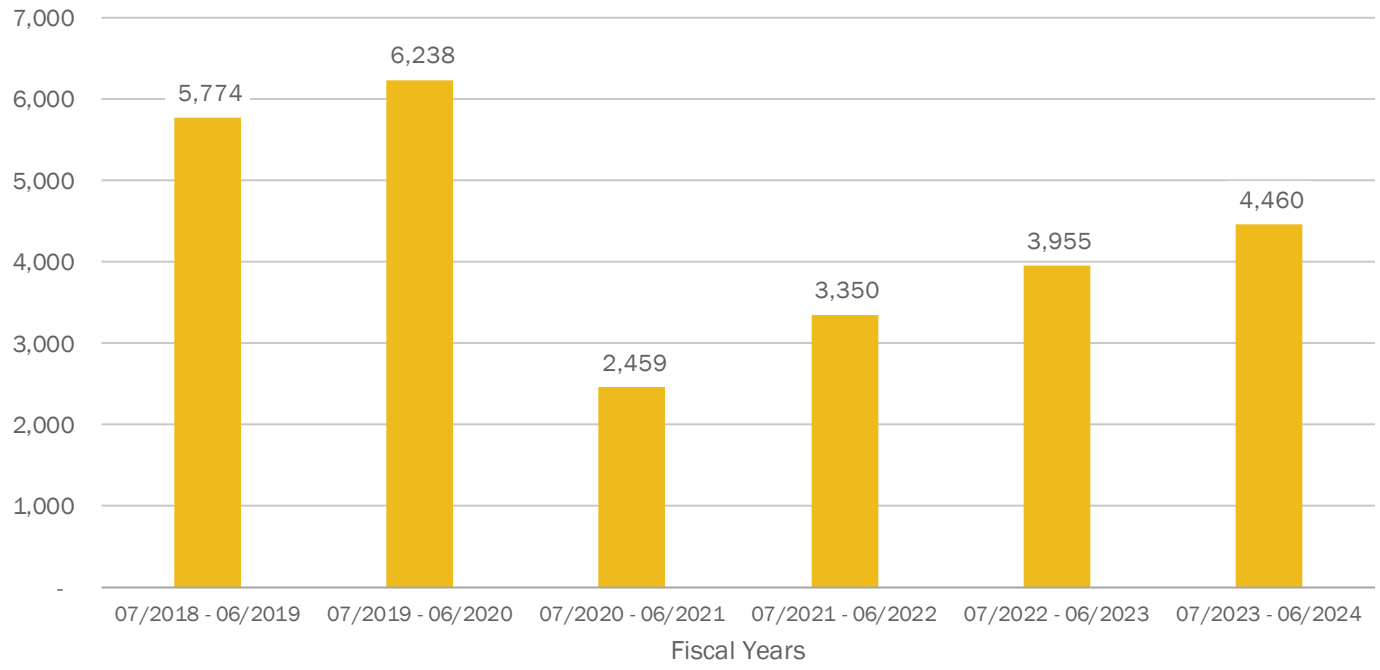
Sources: Replica Seasonal Data, Fall 2022

3.4.5.2 SUNRAIL RIDERSHIP PATTERNS

SunRail activity has been reported through total boardings and alightings by station. This subsection expands on these figures by looking into the travel patterns of SunRail riders. The average daily ridership trends for the SunRail system from fiscal year (FY) 2019 to FY 2024 reflect a significant decline in ridership due to the COVID-19 pandemic.

While still below pre-pandemic levels seen in FY 2019 and FY 2020, this steady growth suggests that SunRail is on its way to its previous performance levels, seen in Figure 3-65. There was average daily ridership of approximately 5,800 in FY 2019, which reflects stable and strong ridership before the pandemic. The first half of FY 2020 saw an average daily ridership increase to approximately 6,200, driven by strong performance in the first half of the fiscal year. However, the latter part of the FY was likely impacted by the early stages of the pandemic, which caused a drop in ridership toward the end of the period. Ridership plummeted to approximately 2,500 in FY 2021, reflecting the height of the pandemic's widespread lockdowns, travel restrictions, and a shift to remote work. Recovery began in FY 2022, with ridership increasing steadily as pandemic restrictions eased and more commuters returned to in-person activities. By FY 2024 average daily ridership climbed to approximately 4,500.

Figure 3-65 | Average Daily Ridership in a Fiscal Year (July of Previous Year to June of Current Year)



Sources: SunRail Boarding & Alighting Data FY2019 - FY2024

3.4.5.3 LYNX RIDERSHIP PATTERNS

A 2023 OD onboard survey was obtained from LYNX, along with boarding and alighting ridership data between January 2024 and March 2024 at the route and stop levels. This survey provides valuable data on several key aspects, including how passengers access and exit transit services, the number of transfers they make, and the duration of their trips.

The following characteristics for riders were obtained in the LYNX survey:

- Most respondents (83%) were not students.
- Half of respondents completed a round trip.
- Approximately 40% of respondents transferred at least once to get to their destination.
- The systemwide average transfer rate is 1.2.
- Most respondents (77%) reside within Orange County.
- Approximately 5% of respondents were Central Florida visitors (i.e., they do not live in Central Florida).

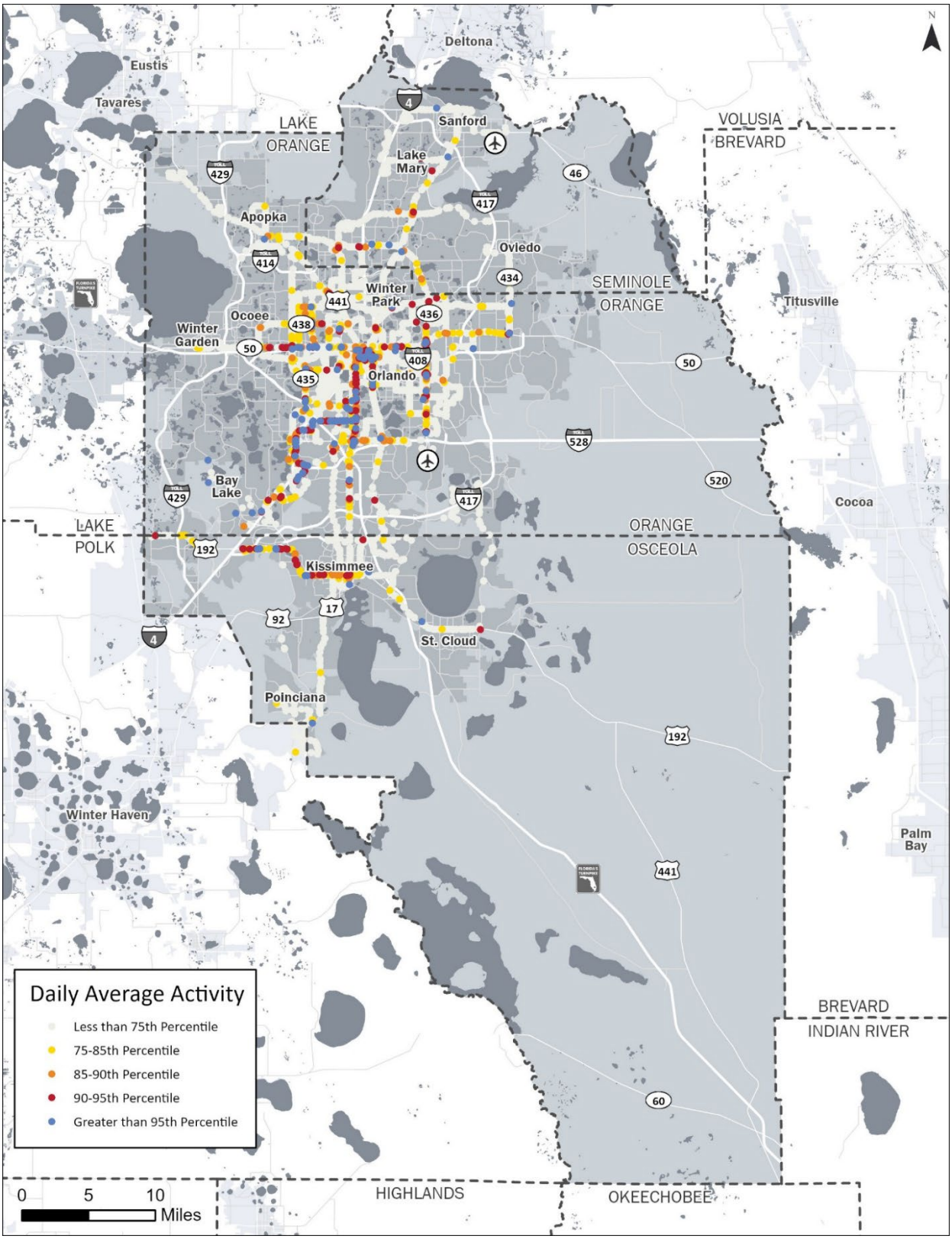
Based on the on-board survey responses, the top five most frequently traveled OD pairings are presented in Table 3-3. Most of these travel pairs are associated with large retail centers, which offer both shopping experiences and employment opportunities. The relatively long travel distances and times for these pairs suggest a need for long-distance travel and the demand for direct connectivity between major activity centers. The average daily activity of LYNX ridership is shown in Figure 3-66.

Table 3-3 | LYNX Top Five Origin-Destination Pairs

Origin/Destination	Origin/Destination	Distance	Travel Time
LYNX Central Station	Regency Village Drive & Vineland Avenue	17 miles	90 minutes
LYNX Central Station	Florida Mall Avenue & Crystal Clear Lane	8 miles	40 minutes
LYNX Central Station	Gemini Boulevard & Centaurus Drive	16 miles	60 minutes
Orlando International Airport	Destination Parkway & Tradeshow Boulevard	11 miles	40 minutes
LYNX Central Station	Mall Road & S Clarke Road	11 miles	40 minutes

Sources: LYNX 2023 OD Onboard Survey

Figure 3-66 | LYNX Average Weekday Activity



Sources: LYNX 2023 OD Onboard Survey

3.4.5.4 FREIGHT AND COMMERCIAL VEHICLE TRIPS

Freight movement connects markets and businesses and plays a vital role in supporting urban and regional development. Understanding urban freight movement helps planners and policy makers identify important freight hubs and corridors. This section discusses the movement of commercial vehicles in the MetroPlan Orlando area.

The major freight corridors are I-4 and Florida's Turnpike. Routes like SR 417, SR 429, and SR 528 have moderately high freight traffic likely due to their connection to major commercial centers, industrial areas, and the major freight corridors. These findings are consistent with the 2050 MTP Freight and Goods Movement assessments (Chapter 7).

Key considerations for commercial vehicles operating in the MetroPlan Orlando region include efficiency, speed, and congestion. Commercial vehicle operators might opt for lower traffic routes, especially during peak hours, even if those routes are slower or less direct. This analysis can help agencies prioritize projects on freight corridors in the MetroPlan Orlando area. Freight and commercial vehicle weekday average movements are found in Figure 3-67.

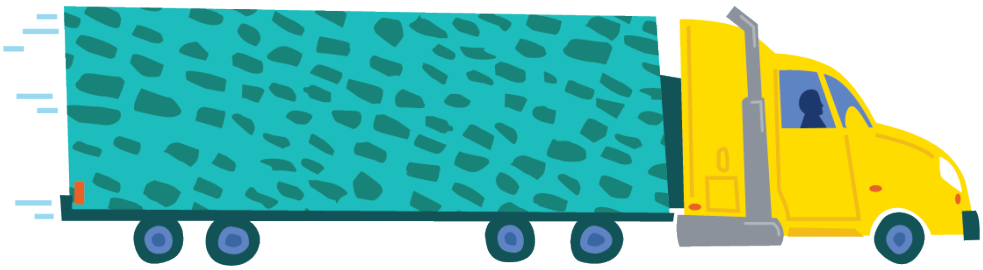
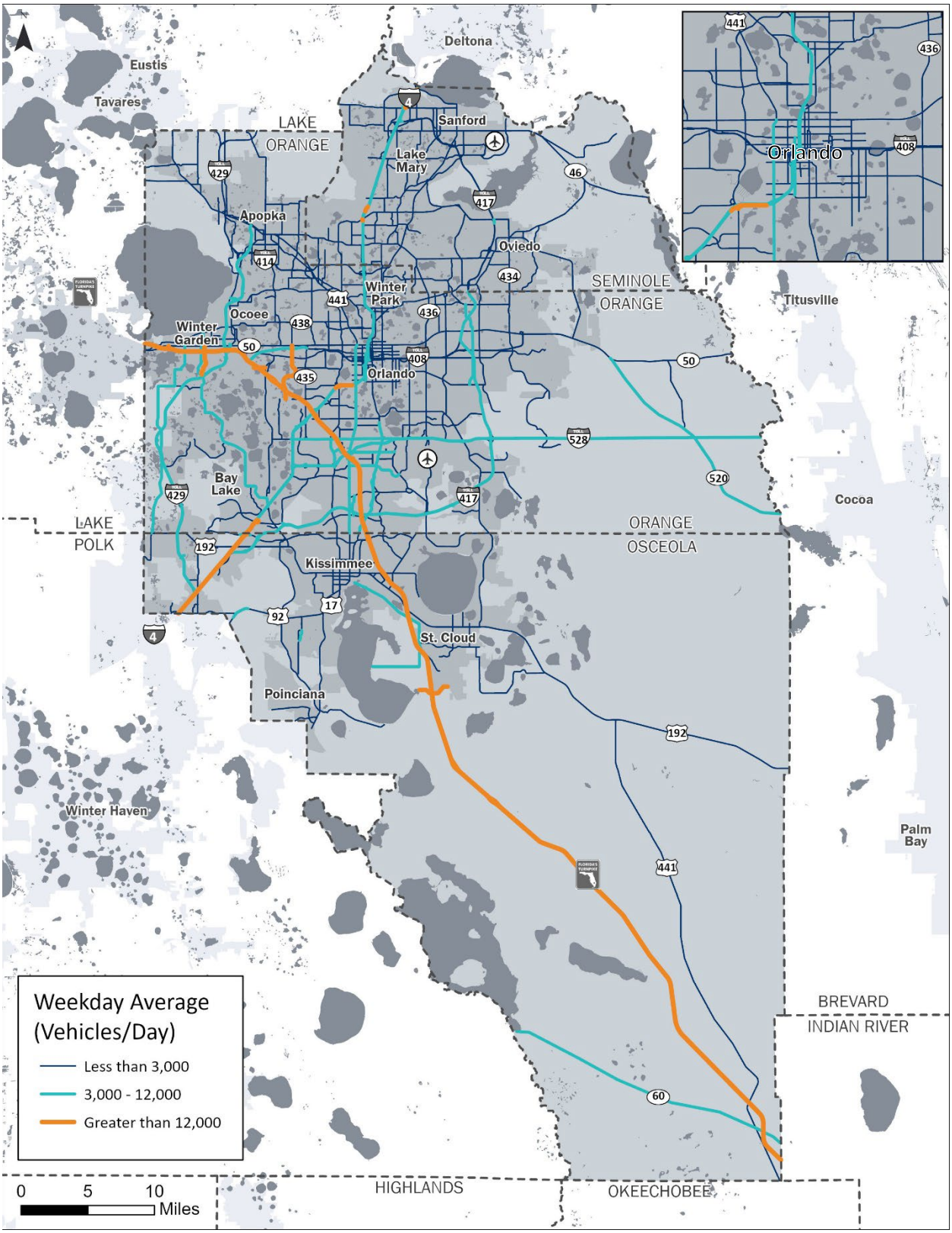


Figure 3-67 | Commercial Vehicle Movement (All Roads)



Sources: Streetlight CVD, 2022

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