



Transportation Systems Management & Operations (TSM&O) Master Plan

MetroPlan Orlando



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1 Introduction

MetroPlan Orlando is the metropolitan planning organization (MPO) leading transportation planning within Orange, Osceola, and Seminole counties. MetroPlan Orlando coordinates closely with elected officials, industry experts, and the community to shape a safe and reliable transportation system that provides travel choices. This is conducted through various efforts and initiatives that lead to prioritization of federal and state transportation dollars and allocation of funds towards regional transportation improvements.

One of these important efforts is **Transportation Systems Management & Operations**, or **TSM&O** (pronounced “tizmo”). TSM&O is a set of strategies that can be employed to maintain and/or improve mobility through relatively low-cost solutions that yield a range of benefits, including:

- Improved safety for all users
- Smoother, more reliable traffic flow
- Reduced fuel consumption and improved air quality

TSM&O solutions can be applied to the existing transportation network and, in the right locations, may even serve as a viable alternative to constructing new or expanded transportation infrastructure.

This Master Plan was developed to define TSM&O needs and priorities for the three-county MPO area. **The Master Plan serves as a means of identifying the TSM&O-related needs that will be incorporated into the 2050 Metropolitan Transportation Plan (MTP)**, building on other planning efforts such as MetroPlan Orlando’s Intelligent Transportation Systems (ITS) Master Plan, Connected and Automated Vehicle (CAV) Readiness Study, and 2045 MTP.

A Steering Committee made up of agency partners was formed to advise MetroPlan Orlando with development of the Master Plan. As defined by the Steering Committee, the TSM&O Master Plan Vision is to establish:

A regional multimodal transportation network that strategically leverages cost-effective technology and operations to maximize system mobility and safety.

The central component of this plan is the identification and prioritization of TSM&O projects that will move forward into other planning processes.

2 What is TSM&O?

TSM&O is an approach to maintain, improve, and even restore the transportation system through relatively low-cost improvements. TSM&O utilizes ITS and other approaches to improve how the transportation system operates. These improvements can enhance safety and reliability through technologies and communications in infrastructure and vehicles, and increased efficiency in operation. TSM&O strategies are wide-ranging and include examples such as:

- Traffic Incident Management – This strategy supports the detection, verification, clearance, and management associated with incidents (crashes, etc.) on roadways to reduce unnecessary delay, idling, fuel consumption, emissions, and secondary crashes.
- Adaptive Signal Control – This strategy is intended to respond more intelligently to fluctuations in traffic patterns by utilizing sensors for traffic data and algorithms to develop and implement customized signal timings that continuously adapt to changes.
- Transit Signal Priority – This strategy is deployed to maintain schedule adherence for transit agencies by slightly modifying existing timing plans at signalized intersections to give priority to transit vehicles to pass through.
- Real Time/En-Route Driver Information/Route Guidance – This strategy provides information through smart phones or in-vehicle information systems to improve real-time decision-making for drivers.

While these strategies range from low-tech to high-tech solutions, there are also no-tech options to be considered to achieve the same goals, such as queue jump lanes and bike facilities. The complete set of strategies considered in this Master Plan can be found in **Section 6.1 (Page 16)**.

Due to the “behind-the-scenes” nature of TSM&O, it is often not as readily understood or “seen” by roadway users. In recognition of this, a targeted outreach effort was coordinated in conjunction with the Master Plan - a tour of the Florida Department of Transportation’s (FDOT) Regional Transportation Management Center for MetroPlan Orlando’s Community Advisory Committee representing the citizens within the planning area. More information on this event is provided in **Section 4.3 (Page 7)**.

3 Why This Master Plan and How Was it Developed?

The purpose of this Master Plan is to align past and present TSM&O related planning efforts within the MetroPlan Orlando area and to identify TSM&O-related needs in the region for inclusion in the 2050 Metropolitan Transportation Plan (MTP). Importantly, it also builds upon the MetroPlan Orlando ITS Master Plan (2017) and other planning and program efforts of MetroPlan Orlando and its partners.

The Master Plan was developed to provide a coordinated vision with defined goals and objectives that reflect existing planning efforts and lay the foundation for future TSM&O planning and project selection. The vision of the TSM&O Master Plan is to establish:

A regional multimodal transportation network that strategically leverages cost-effective technology and operations to maximize system mobility and safety.

To advance this vision, the TSM&O Master Plan Steering Committee defined the comprehensive goals and objectives outlined in **Table 3-1**. These goals and objectives incorporate the diverse areas of emphasis to be considered in TSM&O planning ranging from safety to environment. Collectively, the goals and objectives provide overarching direction for future TSM&O planning efforts and were used to shape the Master Plan’s prioritization criteria.

Table 3-1: TSM&O Master Plan Goals and Objectives

TSM&O Master Plan Goals	TSM&O Master Plan Objectives
<p>Safety and Security: Provide a safe and secure transportation system for all users</p>	<ul style="list-style-type: none"> ▪ In support of Vision Zero, eliminate the rate and occurrence of transportation system fatalities, injuries, and crashes with emphasis on the most vulnerable users. ▪ Increase transportation system resiliency through TSM&O solutions that improve emergency response and help prepare for, respond to, and recover from emergencies. ▪ Increase the resiliency of infrastructure to risks, including extreme weather and environmental conditions. ▪ Prevent and mitigate cybersecurity and transportation-related security risks.
<p>Reliability and Performance: Leverage innovative solutions to optimize system performance, efficiency, and reliability</p>	<ul style="list-style-type: none"> ▪ Collaborate to enhance and expand the region’s ITS, adaptive, and actively managed traffic systems to improve reliability and support effective corridor management. ▪ Improve the reliability and predictability of travel by monitoring the use of the transportation system and through the collection of pertinent data. ▪ Implement TSM&O solutions on priority corridors to reduce delay and travel time for automobiles, commercial vehicles, transit, and bicyclists/pedestrians. ▪ Adapt transportation infrastructure and technologies to enhance system performance to address evolving traveler needs and preferences.

Table 3-1: TSM&O Master Plan Goals and Objectives (continued)

TSM&O Master Plan Goals	TSM&O Master Plan Objectives
<p>Investment and Economy: Support economic prosperity through strategic transportation investment</p>	<ul style="list-style-type: none"> ▪ Promote collaborative regional TSM&O projects that are cost feasible and support, expand and enhance economic prosperity. ▪ Improve regional transportation efficiency and economic performance through the reduction of per capita delay for residents, visitors, and businesses. ▪ Utilize data and information to promote the business case for TSM&O to elected officials, the public, and industry groups such as freight and tourism. ▪ Implement TSM&O solutions to address identified freight movement needs and enhance efficient transport and delivery of goods.
<p>Access and Connectivity: Integrate information, communication, and technology to improve access and empower users to make informed choices</p>	<ul style="list-style-type: none"> ▪ Collaborate regionally to improve access for all users to essential services across all modes of transportation. ▪ Implement TSM&O strategies that reduce reliance on single-occupant vehicle travel through improved convenience of and access to all modes. ▪ Improve service to underserved populations through TSM&O solutions that facilitate access to multimodal transportation options and information to empower choices. ▪ Strive to eliminate transportation-related obstacles and improve equitable outcomes for individuals in transportation underserved communities, especially communities of color. ▪ Improve access, mobility, and trip decision-making for all users through specialized traveler information systems.
<p>Health & Environment: Protect and preserve our region’s public health, environment, and quality of life</p>	<ul style="list-style-type: none"> ▪ Pursue regional collaborative efforts to improve air quality and reduce greenhouse gas emissions. ▪ Reduce fuel consumption through TSM&O strategies that support electric mobility alternatives and efficient management of traffic volumes across the transportation network. ▪ Encourage transit use and increase the number of passengers per vehicle mile through implementation of TSM&O solutions such as real-time dynamic travel information. ▪ Ensure that active transportation modes are meaningfully considered and incorporated in TSM&O planning and implementation. ▪ Leverage TSM&O projects to minimize the physical capacity expansion of transportation infrastructure which can lead to environmental and socioeconomic impacts, particularly to individuals in transportation underserved communities.

Following establishment of the vision, goals and objectives, Master Plan development included the following steps and components:



- 1. Define Needs**
 - Conduct Documentation Review
 - Conduct Existing Conditions Review
 - Conduct Regional Intelligent Transportation Systems Architecture (RITSA) Review
 - Conduct Gap Analysis
 - Strategies & Operations
 - Agency & Organizational
 - Corridors and Intersections
- 2. Identify How to Address Needs**
 - Define Principal Strategies
 - Identify Funding Opportunities
- 3. Develop Prioritized Projects List**
 - Define Priority Scoring Criteria Framed on Goal Areas and Shaped by Objectives
 - Prioritize Corridors and Intersections from Gap Analysis
 - Prioritize Advanced ITS Projects
 - Apply Strategies to Corridors
- 4. Identify Regionwide Strategies and Future Considerations**

With Master Plan completion, the resulting priorities and strategies will advance into the 2050 MTP development process.

4 Who Helped to Shape the Master Plan?

The Master Plan is a result of the feedback and ideas provided by many with primary input coming from agency partners who serve as the implementers of TSM&O planning and programs in the MetroPlan Orlando area. The TSM&O Master Plan Steering Committee provided the principal mechanism for input to develop the Master Plan (Section 4.1). In addition, presentations to MetroPlan Orlando’s committees and Board at strategic points during Master Plan development and for its final review offered opportunities for input from elected officials, agency staff, citizen representatives, and the public. Targeted outreach was also conducted with Metroplan Orlando’s Community Advisory Committee through a workshop that provided committee members opportunity to learn more about TSM&O as well as provide input.

4.1 TSM&O MASTER PLAN STEERING COMMITTEE

A Steering Committee was established to support TSM&O Master Plan development and ensure a high-level of coordination among MetroPlan Orlando and its partner agencies. Steering Committee membership (Table 4-1) consisted of nine agency representatives who administer, implement, and support TSM&O programs and projects.

Table 4-1: TSM&O Master Plan Steering Committee Membership

Agency	Member
MetroPlan Orlando (Convening Agency)	Eric Hill
Central Florida Expressway Authority	Bryan Homayouni
City of Orlando	Akil Toussaint
Florida Department of Transportation	Jeremy Dilmore
Florida’s Turnpike Enterprise	Eric Gordin
LYNX	Doug Jamison
Orange County	Hazem El-Assar
Osceola County	Gary Yeager
Seminole County	Charlie Wetzel

Steering Committee meetings provided a forum for the planning team to engage with and receive input from partner agency staff who are among the key TSM&O implementers in the region. Their input informed identification of needs, development of priorities, and the approach to evaluating effectiveness of strategies. These meetings were noticed on the MetroPlan Orlando website. The schedule for Steering Committee meetings is summarized in Table 4-2 below:

Table 4-2: Steering Committee Meetings

Meeting	Principal Topic	Date
#1	Input on Vision, Goals, and Objectives	June 29, 2022
#2	Input on TSM&O Needs	October 4, 2022
#3	Input on Regional ITS Architecture (RITSA)	January 24, 2023
#4	Input on Prioritization Support Matrix	March 28, 2023
#5	Input on Proposed Priority Projects	August 8, 2023
#6	Input on Intersection/Turn-Lane Projects	September 27, 2023
#7	Input on Draft Master Plan	March 20, 2024

4.2 METROPLAN ORLANDO BOARD AND COMMITTEES

During Master Plan development, status updates were provided at appropriate check-in points to the MetroPlan Orlando Board and the following committees:

- Community Advisory Committee
- Technical Advisory Committee
- Transportation Systems Management & Operations Advisory Committee
- Municipal Advisory Committee

These updates were for the purpose of informing Board and committee members regarding the status of plan development and the direction the plan was moving in terms of defining priorities. Collectively, these groups consist of elected officials as decision-makers, agency staff as program decision-makers and implementers, and community members representing the public as transportation system users. These presentations provided a continuing forum where the public could follow, learn about, and provide input regarding the Master Plan during publicly noticed meetings. The Board’s engagement with the plan development process culminated in their final review and acceptance on [date to be inserted].

4.3 COMMUNITY INPUT

Because of their technical and “behind the scenes” characteristics, TSM&O improvements are often not as readily understood or “seen” by the public in contrast to other types of transportation projects. This makes engagement through a public workshop approach challenging because participation may be limited. In consideration of this, the Community Advisory Committee (CAC) which represents the citizens of the MetroPlan Orlando planning area was determined to be an appropriate group for engagement on this topic. A TSM&O Master Plan Workshop was held for the CAC at the FDOT Regional Traffic Management Center in Sanford on September 27, 2023. Committee members were given a tour of the facility, and then viewed a presentation on MetroPlan Orlando’s TSM&O Master Plan where they provided feedback through a facilitated discussion. Through this discussion, committee members emphasized areas where they would like to see more TSM&O strategies and which strategies they find the most valuable.



Jeremy Dilmore, FDOT District 5, gives a guided tour of the FDOT Regional Traffic Management Center facilities.



Eric Hill, MetroPlan Orlando, presents the vision and goals of the TSM&O Master Plan to CAC members.

Example comments from the committee members attending the workshop included the follow:

- It is recognized that TSM&O acronyms and technology can be confusing, so it is important to communicate future improvements and projects to the public in a simple way.
- Traffic signal timing coordination has been experienced along certain roadways and is appreciated as a means to keep traffic moving efficiently.
- Considering bicyclists and pedestrians in TSM&O planning is critical.
- The traffic incident information provided in Dynamic Messaging Signs is valuable to the public.

All Steering Committee meetings and MetroPlan Orlando Board and committee meetings where status of the Master Plan was presented were open to the public and included opportunity to provide comments and learn about TSM&O and development of the Master Plan.

5 What Are Our Needs?

5.1 NEEDS ASSESSMENT

To define TSM&O needs within the region, an assessment was performed to obtain a programmatic view of needs for each stakeholder agency and a project view for needs for each local stakeholder agency. The Needs Assessment was developed with consideration of the Master Plan's Goals and Objectives and based upon the following:

- TSM&O Master Plan Steering Committee Input
- Documentation Review (**Appendix 1**)
- Existing Conditions Review (**Appendix 2**)
- Regional ITS Architecture (RITSA) Review (**Appendix 3**)
- Stakeholder Agency Interviews

The complete Needs Assessment can be viewed in **Appendix 4**.

The assessment consisted of the following for each stakeholder agency:

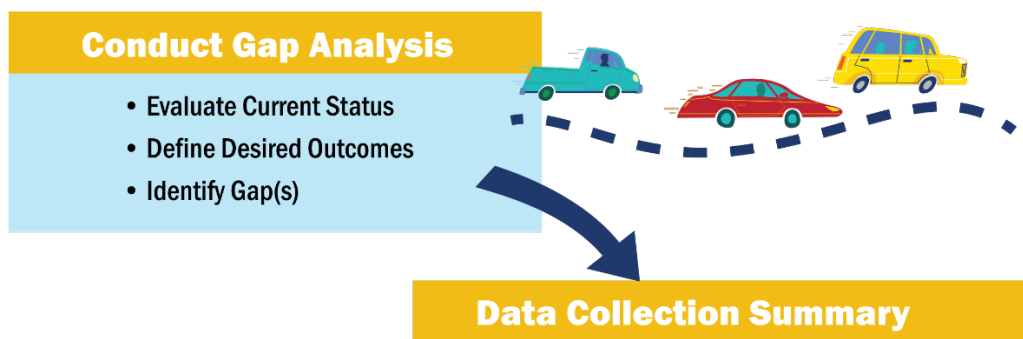


Table 5-1 and **Table 5-2** include matrices which summarize gaps and opportunities for the agencies at a Strategies & Operations level and Agency & Organizational level, respectively. The strategies in this matrix are drawn from the Federal Highway Administration's Capability Maturity Frameworks guidance that facilitates the review of common barriers to adoption and success of TSM&O.

The gaps identified from Seminole County, Osceola County, Orange County, and the City of Orlando were used to develop the Prioritization Matrix and subsequent sections of this Master Plan. Additionally, gaps in fiber optic and ITS at traffic signals were identified for Seminole County, Osceola County, Orange County, and the City of Orlando. These gaps are illustrated in **Figure 5-1** through **Figure 5-4**. More detail regarding these gaps is included in the complete Needs Assessment (**Appendix 4**).

Table 5-1: Strategies & Operations Gap Analysis

Strategy	FDOT D5	Orange	Osceola	Seminole	Orlando	Turnpike	LYNX	CFX
Annual Financial Plan with TSM&O Capital Improvements	●	○	●	◐	◐	●	◐	●
Education of Staff/Leadership on Benefits of Technology-Supported Enhancements	●	○	●	◐	◐	●	◐	●
Organizational Approach for Assessing System Performance	●	◐	○	◐	○	◐	●	◐
Regional Traffic Management Center-to-Center Connectivity	◐	◐	◐	◐	○	◐	○	◐
Identification of output and outcome measures for determining agency efficiency	●	○	●	○	○	●	◐	◐
Use regional architecture to identify data to be measured	●	○	●	●	◐	●	◐	●
Standardized Performance reports to Assess Project-Level Impacts	◐	○	◐	◐	○	◐	◐	◐
Establish Performance benchmarks and targets for traffic management	●	●	○	◐	○	●	◐	●
Procedures for Data Standardization	●	◐	◐	○	○	◐	○	◐
Agency Policy Linking Performance Measures to Operational Objectives	◐	●	○	○	○	○	○	●
Action Plan to Utilize Performance Measures for Managing the System	●	○	◐	◐	◐	◐	◐	◐
Establish Shared Data Feed Requirements	◐	○	○	◐	○	◐	◐	◐
Develop roles, responsibilities, and conditions/rules for sharing data and resources	●	◐	●	●	◐	●	○	●
Expand business models to involve new private-sector partnerships	●	○	●	◐	◐	●	◐	●
Identify corridor programs and data feeds to be considered in multi-agency context	●	○	●	◐	◐	●	◐	●
○ = Gap Identified		◐ = Partial Gap Identified			● = No Gap Identified			

Table 5-2: Agency & Organizational Gap Analysis

Strategy	FDOT D5	Orange	Osceola	Seminole	Orlando	Turnpike	LYNX	CFX
Comprehensive List of Roles and Responsibilities	●	◐	◐	◐	◐	●	◐	●
High-Level Training Mechanisms for TSM&O Staff	●	◐	◐	◐	○	●	◐	●
Immediate Action Plan to Address Critical Vacancies	◐	○	○	○	○	◐	○	◐
Professional Capacity Building Activities and Materials	●	◐	◐	◐	◐	◐	◐	◐
Regular Cross-Training of Staff on All Critical Functions	◐	○	○	○	○	◐	○	●
Staff Retraining to Facilitate Job Reassignments	●	◐	◐	◐	◐	◐	◐	●
Documentation of TSM&O Project Benefits and Lessons Learned	●	◐	○	◐	○	●	○	●
TSM&O Resource Library for Training Plans	◐	○	○	◐	○	◐	○	●
Performance Measure Reporting Process	●	◐	○	◐	○	●	●	●
Link Agency Strategic Plan with Traffic Management and Core Functions	●	◐	○	◐	○	●	◐	●
○ = Gap Identified		◐ = Partial Gap Identified			● = No Gap Identified			

Figure 5-1: Seminole County CAV Corridors and Fiber Optic & ITS Devices Gaps

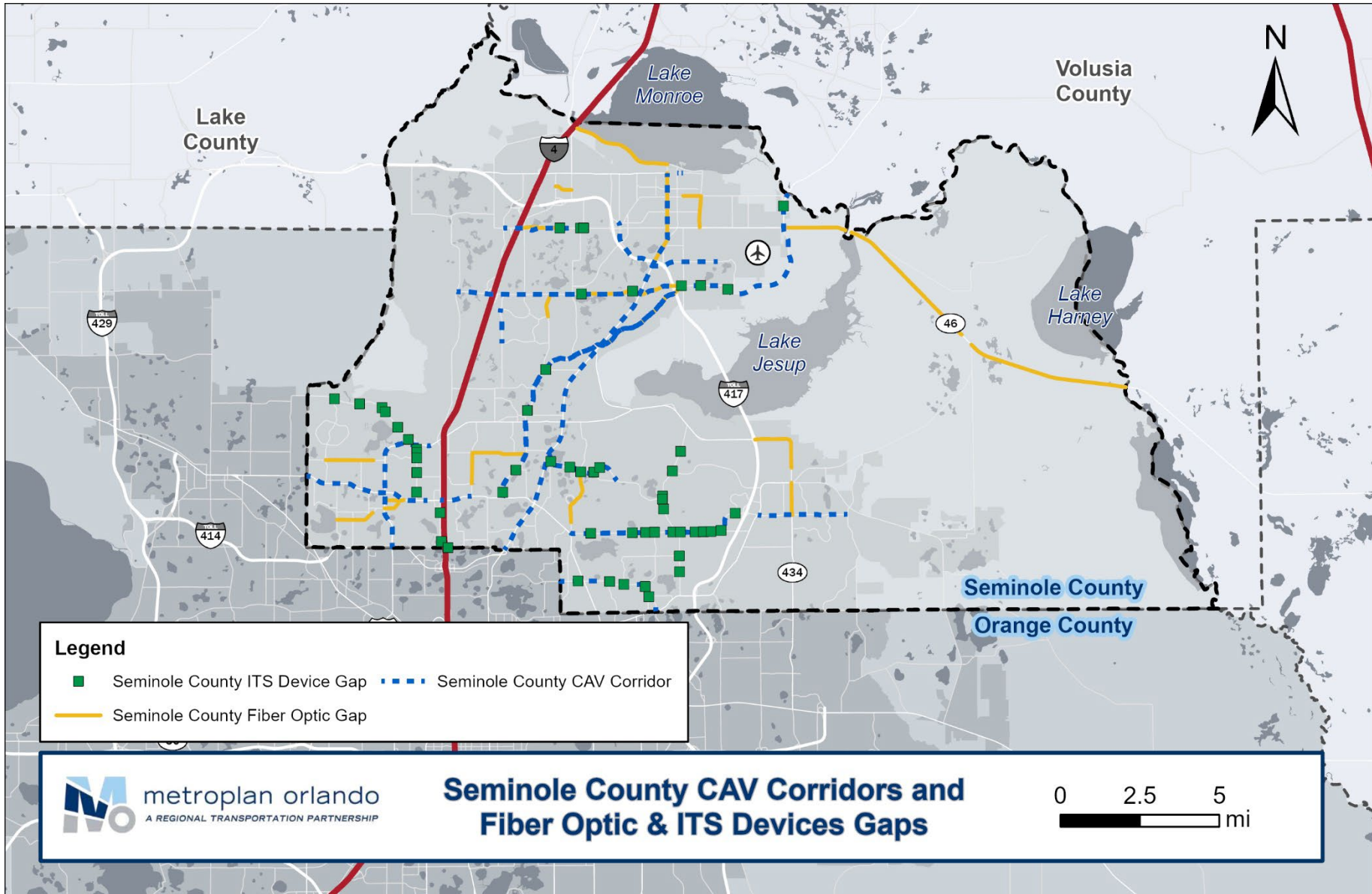


Figure 5-2: Osceola County Fiber Optic & ITS Devices Gaps

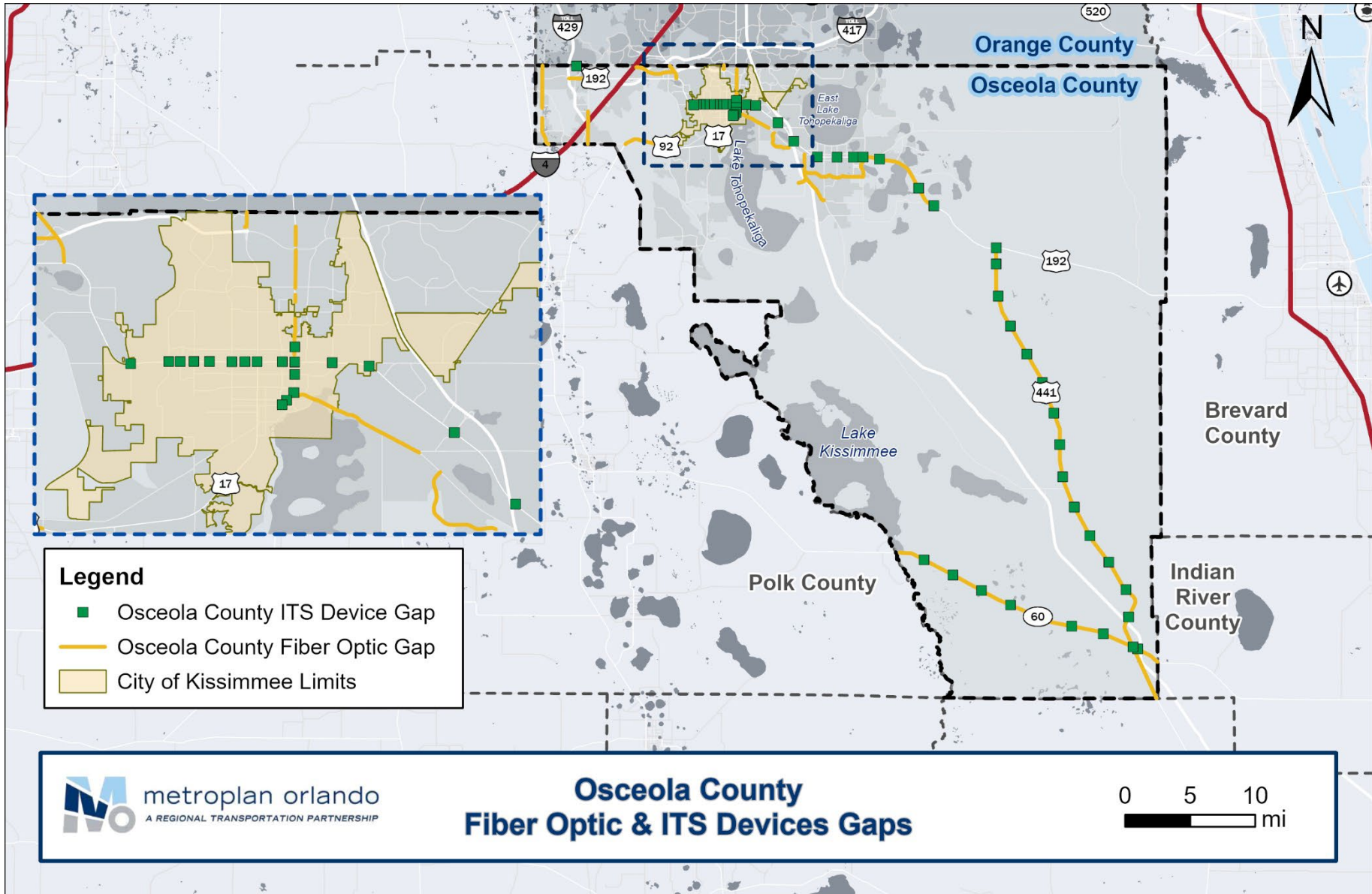


Figure 5-3: Orange County Fiber Optic & ITS Devices Gaps

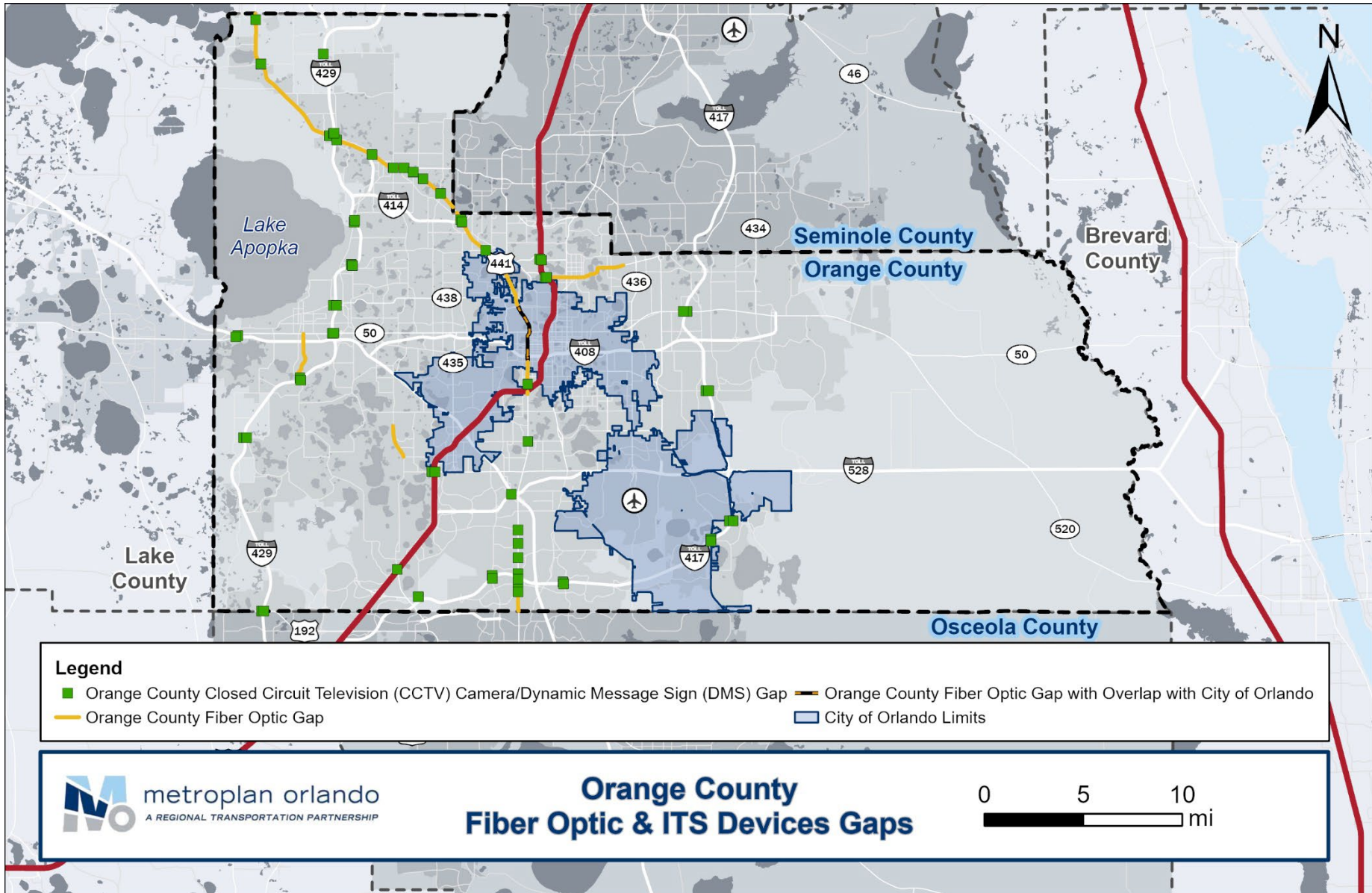
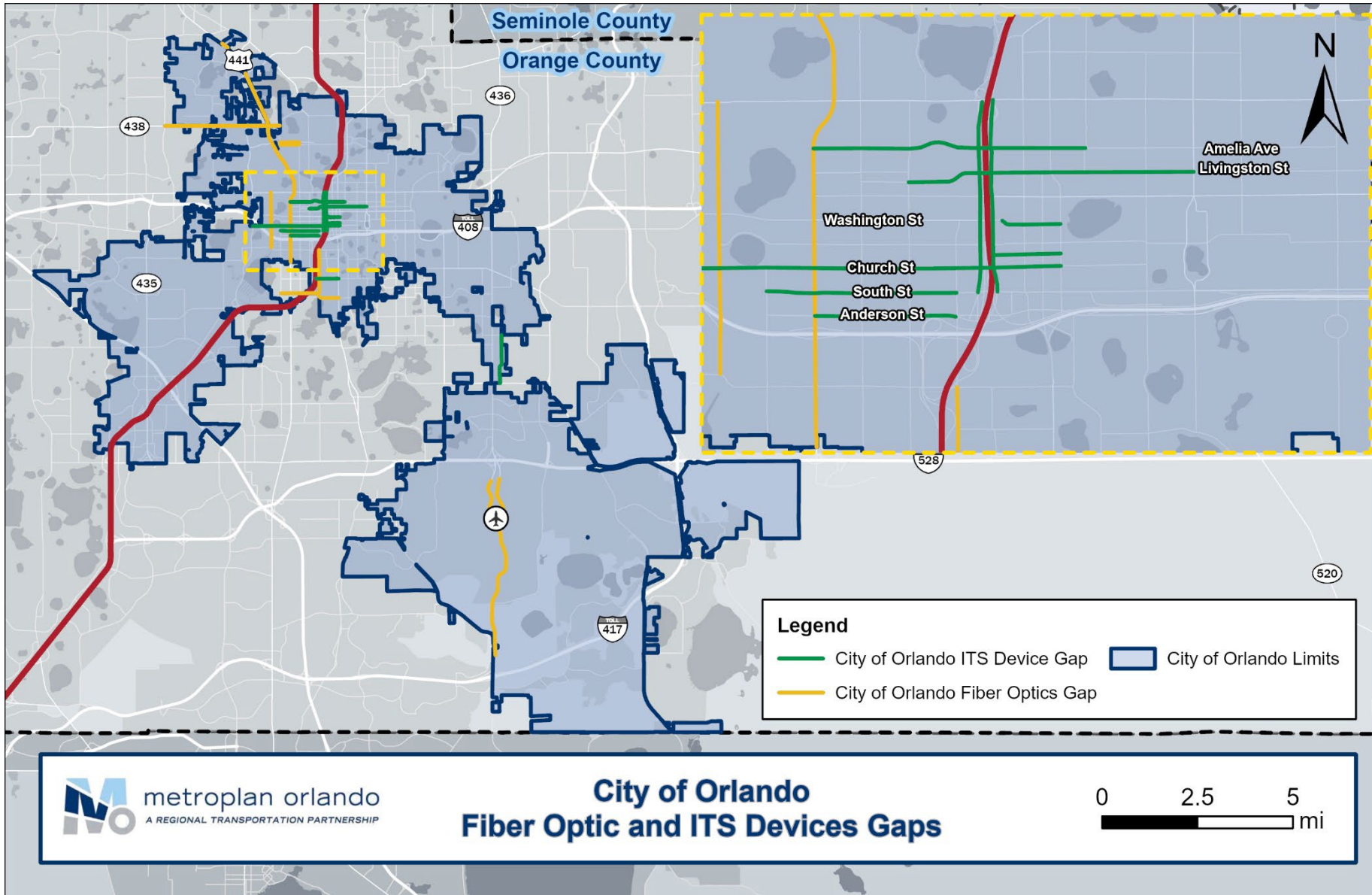


Figure 5-4: City of Orlando Fiber Optic and ITS Devices Gaps



6 How Can We Address Our Needs?

6.1 INTRODUCTION

The strategies outlined in this section are organized by the Master Plan’s five goal areas which also serve as the Priority Scoring Framework (Section 7.1). The strategies are defined through subcategories of key information. One subcategory is “Focus Area” which is the specific prioritization criteria that a given strategy best corresponds to. These linkages ensure that the strategies and prioritization approach are connected and collectively advance the Master Plan’s goals and objectives. **Table 6-1** provides an overview of the Prioritization Criteria/Focus Areas in the context of the goals.

Table 6-1: Overview of Prioritization Criteria/Focus Areas within the Master Plan Goals

TSM&O Master Plan Goals	Prioritization Criteria/Focus Areas
Safety	Crash Rate
	Fatalities/Serious Injuries
	Bicycle/Pedestrian Crash Rate
Reliability & Performance	Level of Travel Time Reliability
	Communication Presence
	Volume-to-Capacity
	Evacuation Route Designation
Investment & Economy	Commercial Vehicle Traffic
	MetroPlan Truck Bottlenecks
	Regional Project
	Truck Parking Locations (Existing/Planned)
	Multimodal Hub/Regional Activity Centers
Access & Connectivity	LYNX System Headway
	Express Route/Critical Routes
	Stop Density
	Transit Ridership
	SunRail Stations/Crossings
	Priority Active Transportation Corridor
Health & Environment	Public Health Indicator Rates
	Intensity & Proximity: Environmental Justice Populations

6.2 STRATEGIES

To address the needs summarized in the previous section, several strategies were identified from the FDOT TSM&O Strategy Guide (2018). Each project is associated with a “menu” of strategies that can be selected based

on the criteria, or focus areas, that need to be addressed. **Table 6-2** to **Table 6-6** organize the strategies by the five goal areas, as noted above, and summarize each through the following subcategories:

- **Description:** Provides a simple definition of the strategy.
- **Key Goals Addressed:** Identifies which goal areas of the prioritization the strategy aligns with. Each strategy corresponds to one primary goal that it is intended to address but may also be tied to other secondary goals. The primary goal is represented with a green check mark (✓), while secondary goals are represented with a blue check mark (✓).
- **Focus Area:** Identifies the specific prioritization criteria the strategy corresponds to.
- **Purpose:** Defines the reason the strategy is useful, based on the FDOT District 5 Strategy Guide.
- **What to Consider for Implementation:** Notes various factors that need to be evaluated when implementing the associated strategy.

These strategies have been applied to the specific projects that resulted from the prioritization process. **See Appendix 7 for the complete list of projects and the associated menu of strategies for each.**

6.3 FUNDING

Funding availability is a key factor in determining whether TSM&O recommendations and identified needs can move forward to project deployment. A comprehensive summary of Funding Guidance is included in **Appendix 8** as a supporting resource for implementation of this Master Plan. It addresses funding all phases of TSM&O projects and outlines a funding and programming protocol that draws from the FDOT Work Program (WP) guidance, Regional ITS Architecture, and current statewide and district-level practices. This guidance also considers any existing maintenance agreements and the established guidelines for local support. Federal, state, and local funding sources are summarized with eligibility criteria and the requirements applicable to TSM&O projects. This document helps to identify any existing gaps and provides a succinct summary of the recommendations pertaining to the funding of TSM&O initiatives.

Due to competing demands, the amount of an eligible fund available for TSM&O may be small. Therefore, a combination of several funds is usually needed to provide sufficient support for a TSM&O project. More information about programming can be found in FDOT Work Program Instructions, found here: http://www.fdot.gov/workprogram/Development/WP_instructions.shtm.

Table 6-2: Safety and Security Strategies













 Adaptive Signal Control	
Key Goals Addressed:	
Safety & Security	
Reliability & Performance	
Investment & Economy	
Access & Connectivity	
Health & Environment	
Focus Area: Crash Rate, Fatal/Serious Injury Crashes	
Description: This strategy adjusts signal timings to accommodate changing traffic patterns and ease congestion by utilizing sensors for and algorithms.	
What to Consider for Implementation: <ul style="list-style-type: none"> ▪ Project costs based on number of intersections and existing infrastructure. ▪ Implementation cost based on training and increased operations and maintenance. 	
 Traffic Incident Management	
Key Goals Addressed:	
Safety & Security	
Reliability & Performance	
Investment & Economy	
Access & Connectivity	
Health & Environment	
Focus Area: Fatal/Serious Injury Crashes	
Purpose: This strategy uses CCTV, traffic sensors, and telecommunications to support the detection, clearance, and management associated with incidents on roadways. This reduces unnecessary delay, idling, fuel consumption, emissions, and crashes.	
What to Consider for Implementation: <ul style="list-style-type: none"> ▪ Programmatic costs for sustained traffic incident management; partnerships based on roadway ownership. ▪ Robust and sustained funding required to implement an agency-specific program in an arterial environment. 	
 Bicycle/Pedestrian Safety Systems	
Key Goals Addressed:	
Safety & Security	
Reliability & Performance	
Investment & Economy	
Access & Connectivity	
Health & Environment	
Focus Area: Bicycle/Pedestrian Crash Rate	
Description: This strategy utilizes ITS solutions to help protect pedestrians and bicyclists, such as bicycle alert systems, infrared detectors, illuminated pushbuttons, and rectangular rapid flashing beacons. This enhances the comfort and safety of pedestrians and bicyclists and encourage travelers away from single-occupant vehicles.	
What to Consider for Implementation: <ul style="list-style-type: none"> ▪ Varied costs based on needs and available systems. ▪ Coordination with other departments within the agency and other agencies to determine system location(s), planned use(s), and desired data to collect, process, and use for informed future deployments. 	

Table 6-3: Reliability and Performance Strategies



















 Integrated Corridor Management											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td></td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>	Safety & Security		Reliability & Performance		Investment & Economy		Access & Connectivity		Health & Environment		<p>Focus Area: Level of Travel Time Reliability, Regional Project</p> <p>Description: This strategy involves coordination between multiple agencies to optimize the operational efficiency of the transportation network while managing the corridor as one multimodal system.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> ▪ Close coordination required between multiple agencies and operational stakeholders. ▪ Implementation cost is typically high, with many variables.
Safety & Security											
Reliability & Performance											
Investment & Economy											
Access & Connectivity											
Health & Environment											
 Fiber, CCTV, Data Collection											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td></td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>	Safety & Security		Reliability & Performance		Investment & Economy		Access & Connectivity		Health & Environment		<p>Focus Area: Communication</p> <p>Description: This strategy involves the implementation of fiber optic cable and CCTV to enable data transmission and real-time monitoring of roadways to support traffic management and improve efficiency of transportation systems.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> ▪ Current and future use cases for the communications components, including traffic signal systems uses. ▪ Implementation costs associated with implementation vary based on devices used and maintenance costs for long-term planning.
Safety & Security											
Reliability & Performance											
Investment & Economy											
Access & Connectivity											
Health & Environment											
 Active Arterial Management											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td></td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>	Safety & Security		Reliability & Performance		Investment & Economy		Access & Connectivity		Health & Environment		<p>Focus Area: Volume-to-Capacity</p> <p>Description: This strategy uses sensors and traffic signal control on major arterials to collect traffic flow and travel time data, which maximizes safety and minimizes delay.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> ▪ Enhanced operations and maintenance resources to perform real-time monitoring and coordination. ▪ Implementation costs based on existing systems and availability of space to house operations staff.
Safety & Security											
Reliability & Performance											
Investment & Economy											
Access & Connectivity											
Health & Environment											

Table 6-3: Reliability and Performance Strategies (continued)


 Disaster Response and Evacuation	
Key Goals Addressed:	
Safety & Security	
Reliability & Performance	✓
Investment & Economy	
Access & Connectivity	✓
Health & Environment	
Focus Area: Evacuation Route Description: This strategy provides access to the scene for incident response personnel and resources via smart phones or in-vehicle instrumentation to provide a more effective response to disasters and evacuations. What to Consider for Implementation: <ul style="list-style-type: none"> Close coordination with state and federal agencies for intervention during major events; assessment of existing infrastructure. Implementation costs require capital expenditures and allocation of resources to support staff training and infrastructure improvements for targeted response strategies. 	

Table 6-4: Investment and Economy Strategies



 Freight Mobility	
Key Goals Addressed:	
Safety & Security	
Reliability & Performance	✓
Investment & Economy	✓
Access & Connectivity	✓
Health & Environment	
Focus Area: Commercial Vehicle Traffic, Truck Parking, Truck Bottlenecks Description: This strategy includes applications to take advantage of real-time traffic information, such as Freight Real-Time Traveler Information with Performance Measures and Freight Dynamic Route Guidance, to optimize operations by providing traffic, vehicle, and load information to truck drivers. What to Consider for Implementation: <ul style="list-style-type: none"> Close coordination with freight operators, project designers, and enforcement agencies. Implementation costs based on right-of-way availability for truck parking facilities and existing systems in the area. 	
 Freight Signal Priority	
Key Goals Addressed:	
Safety & Security	
Reliability & Performance	✓
Investment & Economy	✓
Access & Connectivity	✓
Health & Environment	
Focus Area: Commercial Vehicle Traffic, Truck Bottlenecks Description: This strategy gives priority to freight vehicles as they approach a signal to reduce stops and delays, which increases travel time reliability for freight traffic and enhances safety at intersections. What to Consider for Implementation: <ul style="list-style-type: none"> Improvements to the traffic signal system should accommodate additional detection devices and hi-resolution data. Implementation costs based on the existing infrastructure and vehicle detection infrastructure. 	

Table 6-4: Investment and Economy Strategies (continued)



 Freight Parking											
Key Goals Addressed: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Safety & Security</td> <td style="width: 20%;"></td> </tr> <tr> <td>Reliability & Performance</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Investment & Economy</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>		Safety & Security		Reliability & Performance	✓	Investment & Economy	✓	Access & Connectivity		Health & Environment	
Safety & Security											
Reliability & Performance	✓										
Investment & Economy	✓										
Access & Connectivity											
Health & Environment											
Focus Area: Truck Parking Description: This strategy informs truck drivers of available parking spaces in rest areas and provides suitable parking locations to provide access to safe, secure, and accessible truck parking. What to Consider for Implementation: <ul style="list-style-type: none"> ▪ Determine most suitable location for truck parking, ingress, and egress through detailed siting analysis. ▪ Implementation costs include right-of-way, detection devices, and dynamic message signage. 											
 Advanced Traffic Management System (ATMS)											
Key Goals Addressed: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Safety & Security</td> <td style="width: 20%;"></td> </tr> <tr> <td>Reliability & Performance</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Investment & Economy</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Access & Connectivity</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>		Safety & Security		Reliability & Performance	✓	Investment & Economy	✓	Access & Connectivity	✓	Health & Environment	
Safety & Security											
Reliability & Performance	✓										
Investment & Economy	✓										
Access & Connectivity	✓										
Health & Environment											
Focus Area: Multimodal Hub/Regional Activity Center Description: This strategy utilizes ITS infrastructure to improve the efficiency of existing infrastructure by allowing traffic engineers to adjust signals, react to traffic incidents, and maneuver cameras to determine traffic issues. This reduces traffic congestion in urban environments. What to Consider for Implementation: <ul style="list-style-type: none"> ▪ Upgrade systems based on size and scale on the existing system while planning for future expansion. ▪ Implementation costs include capital expenditures for centralized software and traffic signal cabinet enhancements. 											

Table 6-5: Access and Connectivity Strategies


 Transit Signal Priority											
Key Goals Addressed: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Safety & Security</td> <td style="width: 20%;"></td> </tr> <tr> <td>Reliability & Performance</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Investment & Economy</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Access & Connectivity</td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>		Safety & Security		Reliability & Performance	✓	Investment & Economy	✓	Access & Connectivity	✓	Health & Environment	
Safety & Security											
Reliability & Performance	✓										
Investment & Economy	✓										
Access & Connectivity	✓										
Health & Environment											
Focus Area: LYNX System Headway, Stop Density Description: This strategy modifies signal timings at intersections to give priority to transit vehicles to pass through. This provides schedule adherence for transit agencies. What to Consider for Implementation: <ul style="list-style-type: none"> ▪ Close coordination with the transit operating agency and determination of project locations. ▪ Implementation costs need to consider upgrades to the vehicles and devices or infrastructure at the signalized intersection. 											

Table 6-5: Access and Connectivity Strategies (continued)






 Transit Traveler Information											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td></td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>		Safety & Security		Reliability & Performance		Investment & Economy		Access & Connectivity		Health & Environment	
Safety & Security											
Reliability & Performance											
Investment & Economy											
Access & Connectivity											
Health & Environment											
<p>Focus Area: Transit Ridership</p> <p>Description: This strategy utilizes equipment on transit vehicles to inform the public of updates regarding the vehicle’s current transit stop, upcoming transit stops, and real-time schedule information.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> ▪ Various local stakeholders for the system, as well as project design teams and transit agencies; coordination with bus maintenance staff to determine availability of power and communication. ▪ Implementation costs are based on the current bus configuration and preferred system capabilities. 											
 Queue Jumps											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td></td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>		Safety & Security		Reliability & Performance		Investment & Economy		Access & Connectivity		Health & Environment	
Safety & Security											
Reliability & Performance											
Investment & Economy											
Access & Connectivity											
Health & Environment											
<p>Focus Area: Express/Critical Routes</p> <p>Description: This strategy uses separate lanes and signals to allow only a bus to proceed through an intersection, which supports on-time arrivals and reduces travel time delay for transit.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> ▪ Coordination with the transit operating agency and determination of project locations. ▪ Implementation costs consider upgrades to vehicles, infrastructure at signalized intersections, and potential campaigns for driver awareness. 											
 Real Time/En-Route Driver Information & Route Guidance											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td></td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td></td> </tr> </table>		Safety & Security		Reliability & Performance		Investment & Economy		Access & Connectivity		Health & Environment	
Safety & Security											
Reliability & Performance											
Investment & Economy											
Access & Connectivity											
Health & Environment											
<p>Focus Area: SunRail Station/Crossings</p> <p>Description: This strategy utilizes smart phones or in-vehicle technology to provide information to improve real-time decision-making for drivers en route.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> ▪ Regional goals for connected vehicle implementation and utilizing a platform for information distribution, assessment of communications platforms and end user interface. ▪ Implementation costs based on geographic footprint for deployment and target penetration rates for vehicles. 											

Table 6-6: Health and Environment Strategies

 Emissions Testing and Mitigation											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td>✓</td> </tr> <tr> <td>Investment & Economy</td> <td></td> </tr> <tr> <td>Access & Connectivity</td> <td>✓</td> </tr> <tr> <td>Health & Environment</td> <td>✓</td> </tr> </table>		Safety & Security		Reliability & Performance	✓	Investment & Economy		Access & Connectivity	✓	Health & Environment	✓
Safety & Security											
Reliability & Performance	✓										
Investment & Economy											
Access & Connectivity	✓										
Health & Environment	✓										
<p>Focus Area: Public Health</p> <p>Description: This strategy utilizes emissions sensors to determine traffic conditions and emissions levels in the vicinity of roads and highways. This information can be used to distribute idling vehicles by rerouting traffic or changing signal timings.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> Proposed requirements and associated legislative impacts to enforce testing; coordination with state and federal agencies to determine best practices. Implementation costs based on factors including enforcement, testing access, and continuous assessments to determine impacts. 											
 Dynamic Fare Reduction											
<p>Key Goals Addressed:</p> <table border="1"> <tr> <td>Safety & Security</td> <td></td> </tr> <tr> <td>Reliability & Performance</td> <td>✓</td> </tr> <tr> <td>Investment & Economy</td> <td>✓</td> </tr> <tr> <td>Access & Connectivity</td> <td></td> </tr> <tr> <td>Health & Environment</td> <td>✓</td> </tr> </table>		Safety & Security		Reliability & Performance	✓	Investment & Economy	✓	Access & Connectivity		Health & Environment	✓
Safety & Security											
Reliability & Performance	✓										
Investment & Economy	✓										
Access & Connectivity											
Health & Environment	✓										
<p>Focus Area: Environmental Justice Populations</p> <p>Description: This strategy utilizes sensors to monitor traffic conditions to adjust transit fares along corridors with high congestion, encouraging transit use and making it more appealing.</p> <p>What to Consider for Implementation:</p> <ul style="list-style-type: none"> Extensive studies and assessment to determine data collection needs, operational impacts, and end-user experience. Implementation costs based on the results of the desired impacts and fee reduction goals based on time-of-day use and/or ridership demand. 											

7 What Are Our Priorities?

Consistent with the Metropolitan Transportation Plan, MetroPlan Orlando uses a data-driven and context-informed approach to identify and assess candidate transportation projects for prioritization. The intent of this process is to identify, select, and fund projects which best address regional transportation goals, objectives, and targets. The Master Plan's comparative criteria and evaluation process were approved by the Steering Committee and are described in the following sections. This process was developed to assist in defining the priority order that projects might be implemented.

7.1 PRIORITY SCORING FRAMEWORK

The priority evaluation used a scoring framework that incorporated appropriate criteria within each of the Master Plan's goal areas, as shown in **Table 6-1: Overview of Prioritization Criteria/Focus Areas**. This ensured alignment of the framework with the long-range transportation systems goals from MetroPlan Orlando's MTP.

7.2 CRITERIA AND SCORING

The Criteria and Scoring applied to each project provides a quantitative assessment that serves as the foundation for project prioritization. This assessment provides decision-makers with the best information available for qualitative reviews and guide investments through a data-informed and performance-based process.

Each component of the Prioritization Criteria table is summarized below and is defined in detail within the Prioritization Matrix (**Appendix 5**):

- **Prioritization Criteria:** Defines the metric which was used to align with the objectives of each goal. This alignment is the basis of the quantitative assessment and was used to identify needs and prioritize based on performance.
- **Unit/Measure:** Identifies the unit used to determine the score, either through a quantitative unit such as "vehicles per lane per hour," or through a "Yes/No" scenario.
- **Data Source:** Provides the source of each indicator used within the data model.
- **Logic:** Ties the performance indicator back to the objective and explains the thought process on why the assessment will result in a priority need.
- **Scale:** Identifies the unit value needed to obtain points, typically either through a scale threshold of "less than," "between," or "greater than," or through a "Yes/No" scenario.

7.3 ANALYSIS TOOLS


The prioritization process used several tools for analysis, including the MetroPlan Orlando Data Viewer, the Climate and Economic Justice Screening Tool, and the US Department of Transportation Equitable Transportation Community Explorer.

7.3.1 METROPLAN ORLANDO DATA VIEWER

The MetroPlan Orlando Data Viewer is an interactive GIS web-based map that shares transportation-related spatial data at a regional scale. This tool provides layers relating to transit routes, demographics, bicycle/pedestrian facilities, and other characteristics for roadways and communities. It was the source of data for various criteria within this evaluation.

7.3.2 CLIMATE AND ECONOMIC JUSTICE SCREENING TOOL

The Climate and Economic Justice Screening Tool (CEJST), developed by the Council on Environmental Quality, highlights disadvantaged census tracts across the United States based on the 2010 US Census data. The tool defines disadvantaged communities as being within a census tract that meets the thresholds for at least one of the tool's categories of burden or being on land within the boundaries of Federally Recognized Tribes. The CEJST can be accessed here: <https://screeningtool.geoplatform.gov/en/>



The categories of burden include climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. Pursuant to the prioritization criteria, if a project falls within a census tract that is disadvantaged for any category, it receives points. If the disadvantage is in the transportation category of burden, the project receives an additional point.

7.3.3 USDOT EQUITABLE TRANSPORTATION COMMUNITY EXPLORER

The Equitable Transportation Community Explorer (ETC), developed by USDOT, is an interactive dashboard that provides information on how a community is experiencing transportation disadvantages within the state across five disadvantage component areas: Climate & Disaster, Environmental, Health Vulnerability, Social Vulnerability, and Transportation Insecurity. The ETC tool can be accessed here:

<https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/ETC-Explorer--National-Results/>

Among these categories, there are 40 indicators that show percentiles for specific disadvantages. In the Health Vulnerability component, there are five (5) indicators: Asthma Prevalence, Cancer Prevalence, High Blood Pressure Prevalence, Diabetes Prevalence, and Mental Health Prevalence. If a community is above the 65th Percentile for any of the indicators, they are considered disadvantaged in Health Vulnerability. The prioritization criteria states that a project earns the same number of points as there are indicators over the 65th Percentile.

7.4 PRIORITIZATION SUPPORT MATRIX

Based on the prioritization criteria and the outcome of the Needs Assessment and Gap Analysis, projects from each agency were identified and evaluated through the prioritization approach and placed in order based on their total score. These matrices include the project roadway and limits, the gap type identified in the Needs Assessment, the specific area location of the roadway, the project distance, and the score for each prioritization criteria. The projects are listed in order of the highest total score to the lowest.

The top projects for each agency are listed below in **Table 7-1** (Seminole County), **Table 7-2** (Osceola County), **Table 7-3** (Orange County), and **Table 7-4** (City of Orlando). The full project lists for each agency are in **Appendix 6** including the detailed scoring for each project.

Table 7-1: Seminole County Top Prioritized Projects

Project Roadway	Project Limits		Gap Type	Area Location	Distance (miles)	Total Points
	Start	End				
SR 436*	Orange County Limits (West)	Grace Boulevard	CAV	Altamonte Springs	4.0	75.5
US 17/92	1 st Street	Orange County Limits	CAV	Winter Springs/Sanford/Casselberry	13.4	71.5
Lake Mary Boulevard*	Markham Woods Road	Live Oak Boulevard	Signal – ATC Cabinets	-	5.6	63
Howell Branch Road	Orange County Limits	Aloma Avenue	CAV	Winter Park	3.6	61
SR 46*	Lake County Limits	US 17/92	CAV	-	5.9	58
Airport Boulevard*	Martin Luther King Jr. Boulevard	Airline Boulevard	ITS/Cameras	-	4.1	56
SR 434*	Maitland Boulevard	Sanlando Office Park	CAV	Winter Springs	4.6	55
Red Bug Lake Road*	Semorran Boulevard	Slavia Road	CAV	-	4.8	54
Mitchell Hammock Road*	SR 426	Lockwood Boulevard	CAV	-	2.8	53
Lake Mary Boulevard	Markham Woods Road	Volusia County Limits	CAV	Lake Mary/Sanford	13.4	53

*Roadway limits added or changed based on agency's feedback.

Table 7-2: Osceola County Top Prioritized Projects

Project Roadway	Project Limits		Gap Type	Area Location	Distance (miles)	Total Points
	Start	End				
US 441 (Orange Blossom Trail)	North of Whitney Street	South of Fletcher Street	Communication	Lake Buena Vista	0.2	71
US 441 (Orange Blossom Trail)	South of Carroll Street	SR 522 (Osceola Parkway)	Communication	Lake Buena Vista	0.8	69
US 192 (Vine Street)	Old Vineland Road/Bass Road	Florida Turnpike Interchange/Cross Prairie Parkway	ITS	-	3.9	62
Main Street	North of Cypress Street	South of Hilda Street	Communication	Lake Buena Vista	0.7	60
US 17/92*	Poinciana Boulevard	CR 532	Communication	-	3.6	59
US 192 (Irlo Bronson Memorial Highway)*	Denn John Lane/NeoCity Way	-	Span Cameras	-	Intersection	50.5
US 441 (Orange Blossom Trail)	North of Osceola Parkway	South of Orange County Limits	Communication	Lake Buena Vista	0.4	49
Main Street	Columbia Avenue	Ruby Avenue	ITS	-	1.3	47
Old Lake Wilson Road*	Sinclair Road	CR 532	Communication	-	2.5	46
US 192 (Irlo Bronson Memorial Highway)*	St. Cloud Commons/Turnpike Ramp	-	Span Cameras	-	Intersection	43

*Roadway limits added or changed based on agency's feedback.

Table 7-3: Sample of Orange County Top Project Bundles*

Project Bundle	Project Roadway	Project Limits		Project Type	Distance	Total Points
		Start	End			
A	US 441	Hunters Creek Blvd	Osceola County Limits	Communication/ITS/TSM&O Enhancements	1.0	63
B	I-4 Southern Ramps	US 441 North	US 441 South	Inter-Agency Communication, Intersection Improvements, CV Safety Applications	Intersection/Interchange	68
	I-4 Southern Ramps	SR 535 Off-Ramp	SR 535 On-Ramp		Intersection/Interchange	52
	I-4 Southern Ramps	SR 482/Sand Lake Rd SB Off Ramp	SR 482/Sand Lake Rd NB Off-Ramp		Intersection/Interchange	46.5
	I-4 Northern Ramps	Lee Rd SB Off-Ramp	Lee Rd NB On-Ramp		Intersection/Interchange	42
	I-4 Northern Ramps	Fairbanks Ave SB Off/On Ramp	Fairbanks Ave NB On/Off Ramps		Intersection/Interchange	33

* Orange County desired to group priority projects in bundles based on factors like functional goals, geographic proximity, and infrastructure type. The complete list of project bundles and further detail on the approach to develop the groupings is defined in Orange County's portion of the Prioritization Matrix (**Appendix 5**).

Table 7-4: City of Orlando Top Prioritized Projects

Project Roadway	Project Limits		Gap Type	Distance (miles)	Total Points
	Start	End			
Garland Avenue	South Street	SR 50 (Colonial Drive)	ITS	1.0	71
US 441 (Orange Blossom Trail)	Columbia Street	29 th Street	Communication	1.1	70
US 441 (Orange Blossom Trail)	Lee Road	Princeton Street	Communication	1.9	69
US 441 (Orange Blossom Trail)	Gore Street	Columbia Street	Communication	0.2	69
US 441 (Orange Blossom Trail)	City of Orlando Limit	City of Orlando Limit	Communication	5.5	68
South Street	Rio Grande Avenue	Division Street	ITS	60.6	67
Hughey Avenue	South Street	SR 50 (Colonial Drive)	ITS	1.0	67
SR 438/416 (Silver Star Road)	Pine Hills Road	Rio Grande Avenue	Communication	3	67
US 441 (Orange Blossom Trail)	Princeton Street	Gore Street	Communication	3.1	66
Church Street	John Young Parkway	Rosalind Avenue	ITS	2.3	65

7.5 ADVANCED ITS PROJECTS

Project lists were developed for each maintaining agency for corridors that lie under their jurisdiction and have existing fiber to account for Advanced ITS strategies beyond the strategies previously listed. These corridors have the potential for projects involving Connected/Automated Vehicles, Emergency Vehicle Preemption, Transit Signal Priority, Automated Traffic Signal Performance Measures, and implementation of Artificial Intelligence. Additionally, these advanced ITS projects are prime candidate projects for implementing regionwide strategies due to the existing infrastructure and systems that can be leveraged. These regionwide strategies could be implemented as part of a pilot project or as a part of a large-scale deployment that leverages the existing investments in infrastructure to support them. Regionwide strategies that could be considered for advanced ITS deployment include, but are not limited to: Unified Communication Platforms, Integrated Corridor Management Strategies, Arterial Traffic Incident Management, or Cross-Boundary Emergency Response Plans.

Table 7-5: Seminole County Advanced ITS Projects

Project Roadway	Project Limits		Distance (miles)	Total Points
	Start	End		
CR 4220 (Lake Mary Boulevard)	Markham Woods Road	SR 46	12.3	62
CR 46A (H E Thomas Parkway/W 25th Street)	S Orange Avenue	US 17/92	3.4	58.5
CR 427 (Reagan Boulevard)	SR 436	Lake Mary Boulevard	9.7	58
CR 4242 (Seminola Boulevard/Dog Track Road)	Ronald Reagan Boulevard	Tuskawilla Road	5.2	53.5
Howell Branch Road	Lake Howell Road	SR 426	3.6	52
CR 431B (Rinehart Road)	Lake Mary Boulevard	SR 46	4.4	51.5
CR 425 (Airport Boulevard/Martin Luther King, Jr. Boulevard)	Southgate Road/Windleshore Way	US 17/92	3.8	45
CR 4281 (Tuskawilla Road)	SR 426	SR 434	5.7	45
CR 4237 (Lake Emma Road)	Longwood Hills Road	Lake Mary Boulevard	3.0	46
CR 419 (E Broadway Street)	N Central Avenue	Sterling Creek Parkway/Snow Hill Road	4.8	42

Table 7-6: Osceola County Advanced ITS Projects

Project Roadway	Project Limits		Distance (miles)	Total Points
	Start	End		
CR 530 (Simpson Road)	US 192	Osceola Parkway	4.6	65
CR 522 (W Osceola Parkway)	Dyer Boulevard	Simpson Road	6.8	63
CR 525 (N John Young Parkway)	US 192	North of Thacker Avenue	3.0	60
CR 531 (Pleasant Hill Road)	Old Pleasant Hill Road	US 17/92	8.0	57
CR 522 (W Osceola Parkway)	I-4 EB Off-Ramp	CR 535	3.1	50
CR 15 (Narcoossee Road)	US 192	Boggy Creek Road	7.4	48
CR 545 (Old Lake Wilson Road)	Sinclair Road	US 192	2.6	42

Table 7-7: Orange County Advanced ITS Projects

Project Bundle	Project Roadway	Project Limits		Distance (miles)	Total Points
		Start	End		
A	US 441	Hunters Creek Boulevard	Osceola County Limits	5.8	75.5
	CR 526 (Old Winter Garden Road)	Good Homes Road	John Young Parkway	5.8	68
	CR 435 (Hiawassee Road)	Old Winter Garden Road	Maitland Boulevard (SR 414)	6.5	67
	CR 437 (Clarcona Ocoee Road)	SR 429	Edgewater Drive	7.7	60
	CR 424 (Edgewater Drive)	Rose Avenue	Forest City Road	2.0	53
	CR 439 (Conroy Windermere Road/Conroy Road)	S Apopka Vineland Road	Hidden Beach Boulevard	2.3	50
	CR 435 (Apopka Vineland Road)	SR 50 (Colonial Drive)	AD Mims Road	2.7	48.5
	CR 527A (Landstreet Road)	US 17	S Orange Avenue	2.2	47

Table 7-8: City of Orlando Advanced ITS Projects

Project Roadway	Project Limits		Distance (miles)	Total Points
	Start	End		
John Young Parkway	I-4	SR 50	3.2	76.5
South Street/Lake Underhill Road	Division Avenue	Oxalis Drive	5.5	69
US 441	Clarcona Ocoee Road	SR 423	1.4	65
Vineland Road	Turkey Lake Road	L B McLeod Road	4.0	64.5
Michigan Street	Orange Avenue	Homeland Street	1.3	62
Narcoossee Road	417 EB Off-Ramp	Conway Road	9.0	56
International Drive	Orange County Limits	Oak Ridge Road	2.0	55.5

7.6 INTERSECTION ANALYSIS

In addition to defined corridors, the Steering Committee determined that implementing intersection improvements was also essential to help address delay, safety, and other needs. To address this, the four maintaining agencies (Osceola County, Orange County, Seminole County, and City of Orlando) identified a total of twenty priority intersections, for which intersection improvements were identified. These intersections were evaluated through a prioritization process like the roadway segment prioritization, excluding the following criteria:

- Volume-to-capacity (under Reliability & Performance)
- Regional Project (under Investment & Economy)
- Stop Density (under Access & Connectivity)

Each agency defined its top intersection needs proportionate to the number of intersections it manages:

- Seminole County – Four (4) intersections
- Osceola County – Four (4) intersections
- Orange County – Seven (7) intersections
- City of Orlando – Five (5) intersections

The complete list of prioritization results is shown in **Appendix 6. Table 7-9** through **Table 7-12** shows the prioritized list of projects for each agency, and **Figure 7-1** shows the location of these intersections.

Table 7-9: Seminole County Prioritized Intersections

Major Street	Minor Street	Total Points
US 17/92	SR 434	74
SR 46	Sanford Avenue	51
Red Bug Lake Road	Oviedo Marketplace Boulevard	38
SR 434	Tuskawilla Road	36

Table 7-10: Osceola County Prioritized Intersections

Major Street	Minor Street	Total Points
US 192	Poinciana Boulevard	72
Narcoossee Elementary School	South Entrance	45
US 192	Hickory Tree Road	42
Pleasant Hill Road	Reaves Road	39

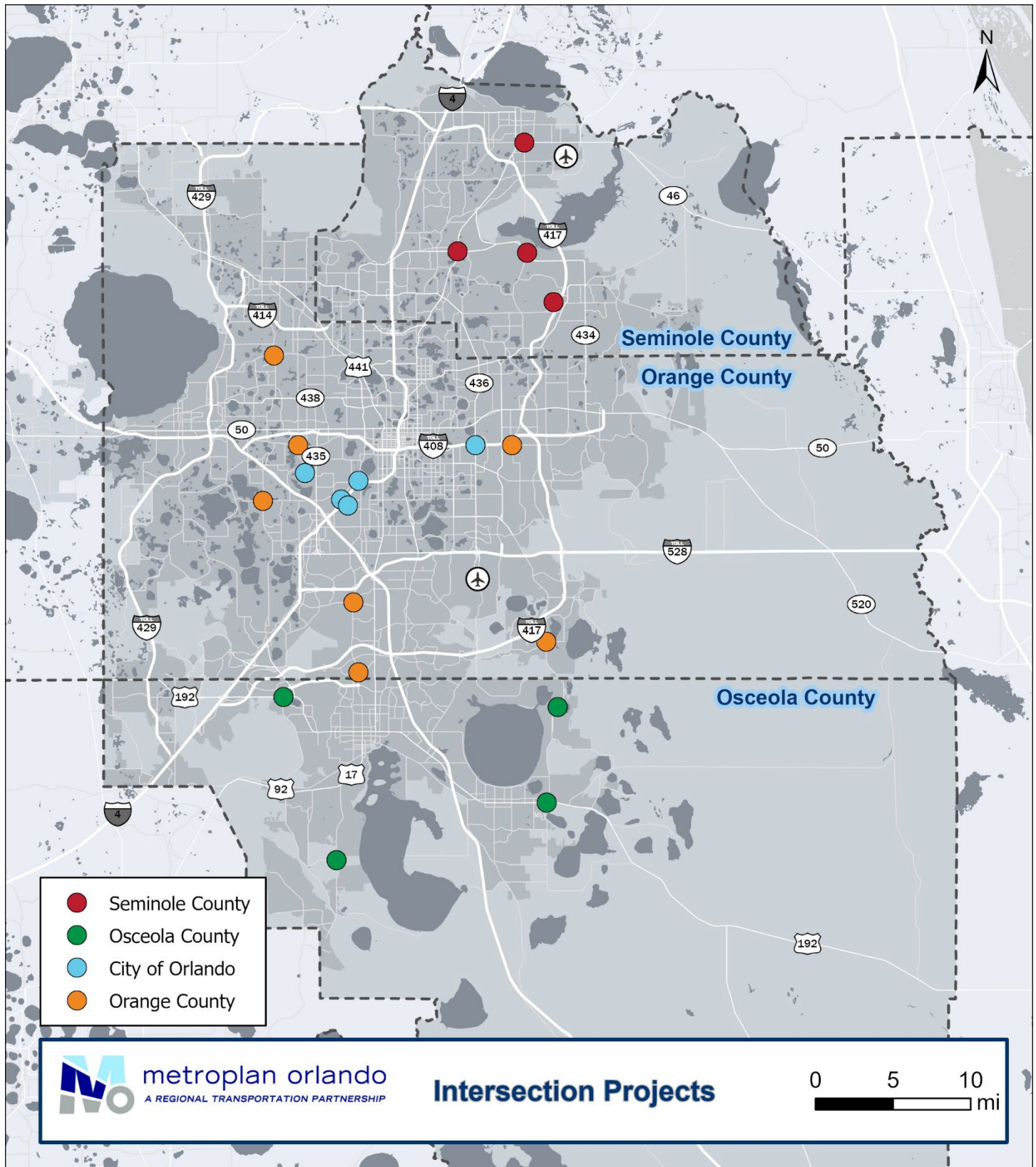
Table 7-11: Orange County Prioritized Intersections

Major Street	Minor Street	Total Points
Old Winter Garden Road	Hiawasse Road	69
John Young Parkway	Central Florida Parkway	59
Lake Underhill Road	South Chickasaw Trail	47
John Young Parkway	Hunters Creek Boulevard	42
Narcoossee Road	Tyson Road	41
Clarcona Ocoee Road	Apopka Vineland	40
Apopka Vineland Road	Conroy Windermere Road	38

Table 7-12: City of Orlando Prioritized Intersections

Major Street	Minor Street	Total Points
Lake Underhill Road	SR 436 (Seminole Boulevard)	61
Conroy Road	Millenia Boulevard	58
Conroy Road	Vineland Road	53
John Young Parkway	L.B. McLeod Road	47
MetroWest Boulevard	MetroCenter Boulevard	32

Figure 7-1: MetroPlan Orlando Region Intersection Projects



8 The Path Forward

As the TSM&O component of the 2050 Metropolitan Transportation Plan (MTP), this Master Plan sets the stage to define MetroPlan Orlando's long range TSM&O priorities. In companion with these priorities, the following regionwide strategies and key considerations help to shape the path forward for implementation.

8.1 REGIONWIDE STRATEGIES

Strategies that involve multiple agencies, cities, or counties provide the opportunity to advance a collaborative and coordinated approach. These strategies will require varying levels of collaboration, organizational and workforce development, assessments of systems and technology, refinement of business processes, and performance management. The implementation of regionwide strategies should relate to the goals and objectives identified in this master plan. The following aspirational regionwide strategies and associated next steps were identified through this planning process:

- Interagency Coordination – Establish a formalized interagency coordination mechanism involving MPOs, local governments, transit agencies, law enforcement, and emergency services to enhance communication and collaboration.
 - Next steps: Continued coordination through the already established TSM&O groups within the region, including but not limited to the Transportation System Management and Operations Advisory Committee (TSMOAC) organized by MetroPlan Orlando and/or the TSM&O Consortium facilitated by FDOT. Based on specific strategies being considered subcommittees can be created to evaluate specific needs, goals, objectives, and methods implementation and evaluation.
- Regional Transportation Management Center (TMC) – Collectively operate from the regional TMC to bring together representatives from multiple agencies to monitor and manage traffic conditions on a broader scale. Share real-time information and coordinate responses to incidents across jurisdictional boundaries.
 - Next steps: Refine any previously defined governance structure to operate from the RTMC collectively among the signal maintaining agencies, Update relevant Standard Operating Guidelines (SOGs) and/or Standard Operating Procedures (SOPs), especially as they relate to interagency operations and response to events.
- Unified Communication Platforms – Implement unified communication platforms for sharing information among agencies, such as a common traffic management system or a shared incident reporting platform.
 - Next steps: Begin by conducting a thorough assessment of current communication systems and identifying gaps or redundancies. The MetroPlan agencies could then engage in collaborative discussions to select a suitable unified communications platform that meets the needs of all participating agencies. This should include the development of an implementation plan outlining roles, responsibilities, training requirements, and timelines for deployment.
- Joint Planning and Funding – Collaborate on long-term transportation planning efforts, sharing resources and funding to collectively address regionwide needs.
 - Next steps: Identify common transportation projects or initiatives that benefit multiple jurisdictions and collaborate to develop a comprehensive funding proposal, highlighting the shared benefits and cost-sharing arrangements among participating agencies. Additionally, seeking funding opportunities from federal or state transportation grants that prioritize regional collaboration and multi-agency partnerships could be pursued. MetroPlan agencies will need to continue to establish formal agreements or memoranda of understanding outlining the financial commitments and responsibilities of each agency to help solidify any joint funding arrangements.

- Integrated Corridor Management Strategies – Identify key transportation corridors that span multiple jurisdictions and implement coordinated management strategies to improve overall corridor performance. Develop corridor-specific plans that address the needs of diverse stakeholders along the route.
 - Next Steps: Continue to collaborate in the development coordinated management strategies aimed at improving overall corridor performance. This includes implementing dynamic traffic signal timing in response to operational changes, prioritizing transit service, facilitating modal shifts, and coordinating incident response efforts. Also consider participation in joint task forces to oversee corridor management activities and facilitate ongoing communication and collaboration among MetroPlan agencies.
- Standardized Data Sharing Protocols – Establish standardized protocols for data sharing among agencies to ensure seamless exchange of information related to traffic conditions, incidents, and infrastructure status.
 - Next Steps: Continue to collaboratively work among the MetroPlan agencies to establish new and common data formats, protocols, and security standards. Through open dialogue and consensus-building, the agencies can define clear guidelines for data exchange, including data privacy and security measures. Regular communication and ongoing refinement of these protocols based on emerging technologies and best practices would be crucial to ensure compatibility and effectiveness across all participating MetroPlan agencies.
- Arterial Traffic Incident Management (ATIM) – Develop and implement arterial incident management plans that outline the roles and responsibilities of each agency in responding to cross-boundary events and resolving incidents that affect multiple jurisdictions.
 - Next Steps: By first establishing a coordinated response protocol that outlines roles and responsibilities for each MetroPlan agency involved, including law enforcement, emergency services, and transportation departments. The region could then invest in training programs to ensure personnel are equipped with the necessary skills to promptly detect, respond to, and clear incidents on arterial roadways. Consider regular evaluation and refinement of the ATIM procedures based on incident response data would help optimize performance and enhance the resilience of the arterial road network.
- Coordinated Public Outreach and Education – Collaborate on public outreach campaigns to educate residents and commuters about regionwide transportation initiatives. Conduct coordinated partner agency awareness programs to promote understanding of TSM&O approaches and their benefits.
 - Next Steps: Continue to coordinate public outreach and coordination by establishing a joint communication strategy common to the region that ensures consistent messaging and outreach efforts across MetroPlan agencies. Agencies can leverage various communication channels such as social media, websites, and community meetings to disseminate information about transportation projects, initiatives, and public engagement opportunities. Also, continuing to organize collaborative events and workshops that involve representatives from different agencies can foster community involvement and provide stakeholders with a platform to voice concerns and provide feedback on regional transportation matters.
- Shared Resources for Maintenance and Operations – Explore opportunities for shared resources, such as maintenance facilities, equipment, and personnel, to optimize efficiency and reduce costs across multiple agencies.
 - Next Steps: Share resources for maintenance and operations by establishing mutual agreements for the sharing of equipment, personnel, and maintenance facilities across jurisdictional boundaries.

- Cross-Boundary Emergency Response Plans – Develop and regularly update emergency response plans that involve multiple agencies to ensure a coordinated and effective response to incidents affecting transportation infrastructure.
 - Next Steps: Develop collaborative protocols that clearly define roles, responsibilities, and communication procedures during emergency situations that affect multiple jurisdictions. MetroPlan agencies should conduct joint training exercises and drills to familiarize personnel with the plan and enhance coordination between agencies, ensuring a swift and effective response to emergencies across boundaries.

By collaboratively focusing on these strategies, local agencies can foster a more integrated approach to TSM&O, maximizing the benefits for the entire region and its diverse stakeholders. Regular communication, collaborative planning efforts, and a commitment to shared goals are key elements in successfully implementing regionwide TSM&O initiatives across multiple agencies, cities, and counties.

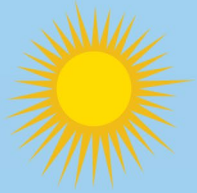
8.2 FURTHER CONSIDERATIONS

Certain planning efforts, topics, and issues were identified during this planning process as worthy of further consideration as the Master Plan moves forward to implementation which include:

- Active Transportation Plan (ATP) – MetroPlan Orlando’s ATP was developed in parallel to this Master Plan as another component of the 2050 MTP. While a specific criterion was used in TSM&O project prioritization to create a linkage between these two plans, there remains opportunity during the 2050 MTP to take a corridor approach that identifies areas where needs overlap. This is particularly important since one of the continuing themes discussed during Master Plan development was bicyclist and pedestrian related TSM&O strategies.
- Central Florida Vision Zero Effort – Coordinated at the regional level by MetroPlan Orlando, this comprehensive effort includes development of Safety Action Plans for the region as well as each of the counties and most municipalities. Evaluating which TSM&O priority projects correlate to Action Plan High Injury Networks would help identify synergistic opportunities within corridors to potentially address multiple needs.
- Artificial Intelligence (AI) – While AI is still evolving as an opportunity for TSM&O, partner agencies are evaluating how it can be leveraged for the benefit of improved operation and safety. Osceola County presented to the MetroPlan Orlando TSM&O Advisory Committee during its October 27, 2023 meeting on its project to explore how AI can be used to monitor intersections and identify safety improvements. During that same meeting, MetroPlan Orlando presented on FHWA’s broader effort to develop a self-assessment checklist to define a transportation agency’s readiness to deploy and manage AI for Intelligent Transportation Systems. As AI expands to serve TSM&O, it will become a greater consideration in future planning.
- Cybersecurity – A consistent theme throughout the planning process was the critical role of cybersecurity in safeguarding transportation infrastructure and communication systems from potential cyber threats and attacks. Considerations for the future include:
 - Collaborate on the development and implementation of cybersecurity measures to protect TSM&O technologies, data-sharing platforms, and communication networks across multiple agencies and jurisdictions.
 - Establish joint cybersecurity protocols and standards to ensure a consistent and robust defense against cyber threats, emphasizing the need for regular updates and monitoring of security measures.

- Conduct cross-agency training programs to enhance the cybersecurity awareness and skills of personnel involved in TSM&O operations, fostering a culture of vigilance and proactive risk management.
- Establish an incident response plan specific to cybersecurity events, outlining coordinated actions and responsibilities across agencies to mitigate potential disruptions to transportation systems.
- Common User-Based Platforms – Future development of integrated transit systems is an important consideration. For example, consistent with the LYNX ITS Strategic Plan Update (2022), there is opportunity to integrate LYNX and SUN Rail payment systems to ensure smooth transitions between different transit modes and reducing overall travel times.
- Adopting ITS Facility Management (ITSFM) – To adopt the ITSFM platform, an agency could follow a structured implementation process tailored to its specific needs and operational requirements. A critical step would involve the agency obtaining the appropriate enterprise license to utilize FDOT’s configuration. The agency would then need to integrate the ITSFM configuration into its existing infrastructure, allowing for seamless incorporation of assets, configuration details, and as-built documents related to the ITS system and the Statewide Telecommunication Network (STN). The agency can explore opportunities to collaborate with regional transportation partners, thus fostering regional data sharing and enhancing the overall effectiveness of the ITSFM platform in managing fiber and other critical infrastructure. Through this systematic approach, the agency would leverage the ITSFM platform to enhance asset management, streamline configuration processes, and improve overall operational efficiency.
- Regional TSM&O Strategic Plan – As this Master Plan was being finalized, a parallel effort was underway to develop a Regional TSM&O Strategic Plan for the Central Florida area. Development of the Strategic Plan, which is expected to be completed by the end of 2024, involves the collaborative effort of ten M/TPOs, FDOT, and other transportation agencies and authorities. If a Regional TSM&O Program follows completion of the Strategic Plan, it will be beneficial to the implementation of Master Plans like this and the ability to leverage partnerships to pursue funding and deliver regional TSM&O efforts.

Completion of the Master Plan sets the stage for “handing off” the Master Plan’s identified priorities to be used in the 2050 MTP development process.



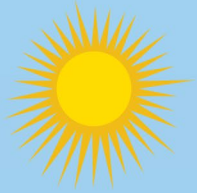
Documentation Review

Appendix 1

April 8, 2024

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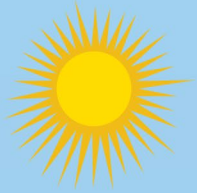


Existing Conditions Review

Appendix 2

January 19, 2023
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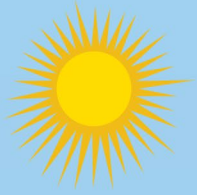


Regional ITS Architecture (RITSA) Review

Appendix 3

August 2, 2023
FINAL





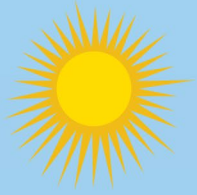
Needs Assessment

Appendix 4

August 1, 2023

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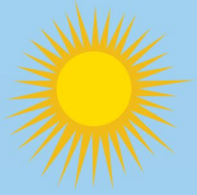


Prioritization Matrix

Appendix 5

April 8, 2024
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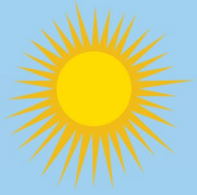


Intersection Evaluation

Appendix 6

April 8, 2024
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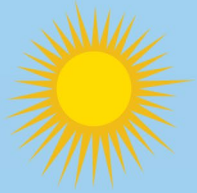
Project Strategies

Appendix 7

April 8, 2024

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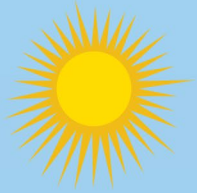


Funding Guidance

Appendix 8

April 8, 2024
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Coordination Summary

Appendix 9

April 8, 2024
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