

Your City. Your Roads.

City of Pembroke Pines

Transportation Master Plan



The City Of
PEMBROKE PINES

May 10th, 2023

Table of Contents

- List of Figures 6**
- List of Tables 8**
- List of Acronyms 10**
- Glossary of Terms 12**
- Executive Summary 17**
- 1. Introduction 25**
 - 1.1 Transportation Master Plan Goals and Objectives 26
- 2. Public Involvement 29**
 - 2.1 Stakeholder Coordination 29
 - 2.2 Virtual Kick-Off Meeting 30
 - 2.3 Commission Presentations 33
- 3. Existing Conditions 37**
 - 3.1 Traffic Data Collection 37
 - 3.2 Arrival and Dismissal Period Observations 38
 - 3.3 Desktop Analysis 41
 - 3.4 Field Review and Geometric Conditions 41
 - 3.5 Roadway Functional Classification 41
 - 3.6 Roadway Jurisdiction 42
 - 3.7 Major Public Transit Trip Generators and Attractors 43
 - 3.8 Public Transportation 44
 - 3.9 Bicycle Facilities 46
 - 3.10 Pedestrian Facilities 48
 - 3.11 Existing Level of Service Determination 50

3.12 Safety Analysis 51

3.13 Speed Management 55

4. Future Conditions 57

4.1 Future Traffic Demand 57

4.2 Future Level of Service Determination 57

4.3 Planned Improvements 60

5. Alternatives Evaluation 63

5.1 Develop Transportation Improvements 63

5.2 School Traffic Mitigation Alternatives 63

5.3 School Alternative Transportation Concepts..... 65

5.4 Traffic Calming Measures..... 74

5.5 Transportation Systems Management & Operations..... 77

5.6 Electric Vehicle Infrastructure 82

5.7 Recommended Improvements 85

6. Implementation 87

6.1 Phased Improvements 87

6.2 Prioritization..... 136

6.3 Funding and Financial Analysis..... 142

7. Conclusion..... 147

7.1 Summary of Recommendations..... 147

Appendices 149

A. Scope of Work 151

B. Public Survey 155

C. Traffic Data 157

D. School Observations 159

E. Cost Estimate 189

List of Figures

Figure E-1 Overall Multimodal Map.....	19
Figure E-2 Overall Safety and School Zone Improvements.....	20
Figure E-3 Overall Transportation Systems Management & Operations Improvements.....	21
Figure E-4 How To Map Guide	23
Figure 1-1 Overall Safety and Capacity Map.....	27
Figure 2-1 Major Transportation Issues	30
Figure 2-2 Daily Commuting Miles	31
Figure 2-3 Daily Commuting Time	31
Figure 2-4 Daily Highway Commute.....	31
Figure 2-5 Primary Commuting Purposes	31
Figure 2-6 Secondary Commuting Purposes	32
Figure 2-8 Secondary Mode of Transportation.....	32
Figure 2-7 Primary Mode of Transportation.....	32
Figure 2-9 School Commuting.....	32
Figure 2-10 Project Prioritization.....	34
Figure 2-11 Likelihood of Walking for Short Trips	34
Figure 2-12 Likelihood of Bicycling for Short Trips.....	34
Figure 2-13 Likelihood of Using Proposed Bus Services	34
Figure 2-14 School Aged Children.....	35
Figure 2-15 School Bus Eligibility	35
Figure 2-16 Interest in Micro Bus Program	35
Figure 2-17 Interest in Walking School Bus Program	35
Figure 3-1 Traffic Data Collection Locations	38
Figure 3-2 School Locations	38
Figure 3-3 Roadway Functional Classification.....	42
Figure 3-4 Roadway Jurisdiction.....	43
Figure 3-5 Broward County Traffic Signals	43
Figure 3-6 Existing Bus Routes.....	45
Figure 3-7 Potential City’s Community Bus Routes.....	45
Figure 3-8 Existing Bicycle Facilities	47
Figure 3-9 Potential Bicycle Facilities	47
Figure 3-10 Sidewalk Obstruction – Palm Avenue (East Side).....	49
Figure 3-11 Existing Pedestrian Facilities	49
Figure 3-12 Potential Pedestrian Facilities	49
Figure 3-13 Examples of Motorized Vehicle LOS.....	50
Figure 3-14 Existing LOS.....	51
Figure 3-15 Alcohol Involved Crashes.....	52
Figure 3-16 Light Condition Crashes.....	52
Figure 3-17 Fatality Map	53

Figure 3-18 Pedestrian & Bicycle Crashes 53

Figure 3-19 Angle, Left Turn, and Right Turn Crashes 54

Figure 3-20 Crash Heat Map 54

Figure 3-21 Speed Management Features..... 55

Figure 3-22 Speed Management Features Totals 55

Figure 4-1 Future LOS..... 57

Figure 4-2 Planned Improvements Location Map..... 61

Figure 5-1 Alternative Transportation Concept Zones 65

Figure 5-2 Potential Micro Bus Routes 67

Figure 5-3 Potential School Bus Hub Locations 69

Figure 5-4 WSB Program Potential Elementary School Locations..... 71

Figure 5-5 WSB Program Potential Middle School Locations..... 71

Figure 5-6 Potential Multi-Use Path for Golf Carts/LSVs..... 72

Figure 5-7 Golf Cart/Low Speed Vehicle Definitions and Requirements..... 73

Figure 5-8 Traffic Calming Measures 74

Figure 5-8 Traffic Calming Measures (continued)..... 75-76

Figure 5-9 Existing and Planned TSM&O Facilities 78

Figure 5-10 Potential Locations for TSM&O Improvements..... 78

Figure 5-11 Existing EV Charging Stations 84

Figure 5-12 Potential Future EV Charging Stations..... 84

Figure 6-1 City Districts Color Code..... 89

Exhibit 6-1 Location 1: Conceptual Design..... 90

Exhibit 6-2 Location 2: Conceptual Design..... 92

Exhibit 6-3 Location 3: Conceptual Design..... 94

Exhibit 6-4 Location 4: Conceptual Design..... 96

Figure 6-2 Sidewalk Improvements (West)..... 98

Figure 6-3 Bicycle Improvements (West)..... 100

Figure 6-4 School Zone Improvements (West)..... 102

Figure 6-5 Safety Improvements (West) 104

Figure 6-6 Traffic Calming Improvements (West) 106

Figure 6-7 TSM&O Improvements (West)..... 108

Figure 6-8 Sidewalk Improvements (Central) 110

Figure 6-9 Bicycle Improvements (Central) 112

Figure 6-10 School Zone Safety Improvements (Central) 114

Figure 6-11 Safety Improvements (Central) 116

Figure 6-11 Traffic Calming Improvements (Central) 118

Figure 6-12 TSM&O Improvements (Central)..... 120

Figure 6-13 Sidewalk Improvements (East) 122

Figure 6-14 Bicycle Improvements (East)..... 124

Figure 6-15 School Zone Improvements (East)..... 126

Figure 6-16 Safety & Traffic Calming Improvements (East) 128

Figure 6-17 Traffic Calming Improvements (East)..... 130

Figure 6-18 TSM&O Improvements (East)..... 132

Figure 6-19 Transit Improvements (All Districts)..... 134

List of Tables

Table 2-1 Stakeholder Coordination Meetings Breakdown 29

Table 3-1 Traffic Data Collection Locations..... 37

Table 3-2 School Field Observations 39

Table 3-2 School Field Observations (Continued) 40

Table 3-3 Type of Pedestrian Facilities..... 48

Table 3-4 Characteristics of Well-Designed Sidewalks 48

Table 3-5 HCM LOS Definitions 50

Table 3-6 Crash Severity vs. Crash Type 52

Table 4-1 Future Roadway Capacity..... 59

Table 5-1 Typical Functions of a Virtual TMC..... 79

Table 5-1 Typical Functions of a Virtual TMC (continued) 80

Table 5-2 Cost Estimate for Minimum Recommended ITS Network Staffing 82

Table 5-3 TSM&O/ITS Capital Investments 82

Table 5-4 TSM&O/ITS Implementation per Agency 82

Table 5-5 Maintenance Costs..... 82

Table 5-6 EV Technology Levels 83

Table 5-7 Existing EV Stations 85

Table 6-1 Sidewalk Improvement Needs (West)..... 99

Table 6-2 Bicycle Improvement Needs (West)..... 101

Table 6-3 School Zone Improvement Needs (West)..... 103

Table 6-4 Safety Improvement Needs (West) 105

Table 6-5 Traffic Calming Improvement Needs (West) 107

Table 6-6 TSM&O Improvement Needs (West)..... 109

Table 6-7 Sidewalk Improvement Needs (Central)111

Table 6-8 Bicycle Improvement Needs (Central) 113

Table 6-9 School Zone Improvement Needs (Central) 115

Table 6-10 Safety Improvement Needs (Central)117

Table 6-11 Traffic Calming Improvement Needs (Central) 119

Table 6-12 TSM&O Improvement Needs (Central)..... 121

Table 6-13 Sidewalk Improvement Needs (East)123

Table 6-14 Bicycle Improvement Needs (East)..... 125

Table 6-15 School Zone Improvement Needs (East)..... 127

Table 6-16 Safety Improvement Needs (East)129

Table 6-17 Traffic Calming Improvement Needs (East) 131

Table 6-18 TSM&O Improvement Needs (East)..... 133

Table 6-19 Transit Improvements (All Districts)135

Table 6-20 Priority Level I: Short-Term (2024-2029) 137

Table 6-21 Priority Level II: Mid-Term (2029-2034) 139

Table 6-22 Priority Level III: Long-Term (2034-2044)141

Table 6-23 Local Funding Sources 142

Table 6-24 State Funding Sources..... 143

Table 6-25 Federal Funding Sources.....144

List of Acronyms

AADT	.....	Annual Average Daily Traffic
AASHTO	.....	American Association of State Highway and Transportation Officials
ADA	.....	Americans with Disabilities Act
AFDC	.....	Alternative Fuels Data Center
ATMS	.....	Advanced Traffic Management System
AV	.....	Autonomous Vehicles
BCT	.....	Broward County Transit
BCTED	.....	Broward County Traffic Engineering Division
BEV	.....	Battery Electric Vehicles
CCTV	.....	Closed-Circuit Televisions
CIP	.....	Capital Improvement Program
CSMP	.....	Complete Streets Master Plan
CRISI	.....	Consolidated Rail Infrastructure and Safety Improvements
CV	.....	Connected Vehicle
DCFC	.....	Direct Current Fast Charger
DHSMV	.....	Department of Highway Safety and Motor Vehicles
DMS	.....	Dynamic Message Signs
EV	.....	Electric Vehicle
EVP	.....	Emergency Vehicle Preemption
EVSE	.....	Electric Vehicle Supply Equipment
FDOT	.....	Florida Department of Transportation
FHWA	.....	Federal Highway Administration
FLHMVS	.....	Florida Department of Highway Safety and Motor Vehicles
FTA	.....	Federal Transit Administration
FTO	.....	Florida Traffic Online
GIS	.....	Geographic Information System
ITE	.....	Institute of Transportation Engineers
ITS	.....	Intelligent Transportation Systems
LOS	.....	Level of Service

L RTP	.....	Long Range Transportation Plan
MAP	.....	Mobility Advancement Program
MUTCD	.....	Manual on Uniform Traffic Control Devices
MPO	.....	Metropolitan Planning Organization
MTP	.....	Metropolitan Transportation Plan
MVDS	.....	Microwave Vehicle Detection System
OF&	.....	Other Freeways & Expressways
OPA	.....	Other Principal Arterial
P3	.....	Public-Private Partnership
PAV	.....	Personal Air Vehicle
PHEV	.....	Plug-In Hybrid Electric Vehicle
Q/LOS	.....	Quality/Level of Service
RTMC	.....	Regional Transportation Management Center
RTP	.....	Recreational Trails Program
SRTS	.....	Safe Routes to School Programs
SERPM	.....	Southeast Regional Planning Model
TAZ	.....	Traffic Analysis Zones
TIP	.....	Transportation Improvement Program
TMC	.....	Transportation Management Center
TNC	.....	Transportation Network Companies
TOPS	.....	Paratransit Transportation Options
TRIP	.....	Transportation Regional Incentive Program
TSM&O	.....	Transportation Systems Management & Operations
TSP	.....	Transit Signal Priority
VTMC	.....	Virtual Transportation Management Center

Glossary of Terms

Accessibility for Handicap Persons: The Americans with Disabilities Act (ADA) mandated full accessibility in the transportation industry by standardizing accessible services and establishing requirements for both public and private sectors.

Accessibility: The additional qualification that desired destinations can be reached with reasonable effort or cost. Persons dependent on public transit may not be able to reach certain employment opportunities, for example.

Advanced Traffic Management System (ATMS): This field is a primary subfield within the Intelligent Transportation System (ITS) domain. The ATMS view is a top-down management perspective that integrates technology primarily to improve the flow of vehicle traffic and improve safety.

Americans with Disabilities Act: Federal legislation passed in 1990 to make public accommodations, including transportation facilities, accessible to individuals with handicaps.

Autonomous Vehicles (AV): AV are vehicles that can operate with varying levels of operation control without driver input. The National Highway Traffic Safety Administration created a scale of automation for vehicles that allows drivers to know specifically how autonomous their vehicles are from '0' (no automation) to '5' (fully automated with no human interaction needed).

Bicycle Lanes: A portion of a curbed roadway designated for the exclusive use of bicyclists.

Bike Sharing: Provides users with on-demand access to bicycles at a variety of pickup and drop-off locations for one-way (point-to-point) or round-trip travel. Bikesharing systems can be further categorized by their operational models: station-based, dockless, and hybrid.

Broward Metropolitan Planning Organization: Broward MPO is responsible for making policy on local transportation issues and deciding how to collaboratively spend federal money on important transportation projects that deliver solutions, help keep Broward County moving, and improve the quality of life for all.

Buffered Bike Lanes: Conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. A buffered bike lane is allowed as per MUTCD guidelines for buffered preferential lanes (section 3D-01).

Bus: The standard 35-foot bus has 35 to 45 seats and can carry about 70 passengers, including standees.

Capacity: The amount of goods, vehicles, and/or persons a system can handle before reaching saturation.

Car Sharing: Offers members access to vehicles by joining an organization that provides and maintains a fleet of cars and/or light trucks. These vehicles may be located within neighborhoods, public transit stations, employment centers, universities, etc.

Close Caption Television Cameras (CCTV): The

use of all CCTV cameras shall be confined to viewing roadways only. No CCTV camera shall ever be used to zoom in or to specifically focus on an individual, private property, vehicle or group of individuals either on or off the roadway. In cases where sensitive areas are visible, a privacy mask was enabled.

Conventional Bike Lanes: Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel lanes and flows in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge, or parking lane. This facility type may be located on the left side when installed on one-way streets, or may be buffered if space permits. See contra-flow bike lanes for a discussion of alternate direction flow.

Courier Network Services (Cns): Also referred to as flexible goods delivery, CNS provides for-hire delivery services for monetary compensation via an online application or platform (such as a website or smartphone app) to connect couriers using their personal vehicles, bicycles, or scooters with freight.

Crosswalks: Marked paths where pedestrians can safely cross a roadway. Marking of crosswalks helps drivers better identify the intersection and guides pedestrians to the best crossing location.

Demand: The requirement for goods or persons to be moved.

Design Year: The year used as the starting point for travel demand forecasts; usually a recent year for which data are available.

Driver Behavior: The behavior of drivers influences the set of issues that include safety and vehicle design. The setting of traffic signals, speed limits, and road markings are based on studies of driver behavior.

Equity: Transportation decisions can have an equitable effect on poor and underrepresented groups. Subway systems, for example, may provide quick efficient rides to the Central Business District (CBD) from a suburban area but may not serve the poor, whose jobs may be inaccessible or hard to reach using those same transit routes.

Fault Flash: Is an unscheduled event that puts a traffic signal into flashing operation due to a malfunction. Flashing operation may be yellow on the main street movement and red on the side street movement or red on all movements depending on the complexity of the intersection.

Fixed Route and Fixed Schedule: Some transit service is demand responsive, meaning that a vehicle is sent to a rider's location as close to the desired pick-up time as possible. However, most transit service is provided along a fixed route and according to a fixed schedule.

Florida Department of Transportation: FDOT is responsible for providing a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity and preserves the quality of our environment and communities.

Flow: Traffic volume converted to a rate per unit of time, most commonly vehicles per hour.

Geometric Design: The way in which highway

designers try to fit the highway to the terrain while maintaining design standards for safety and performance.

Horizon Year: The specified year for which a forecast is made; usually 5, 10 or 20 years into the future.

Intelligent Transportation Systems: The application of technologies to improve the efficiency and/or safety of transportation facilities and services.

Investment: Many transportation options are very expensive to install. The excellent road system in the United States has also required a large investment, primarily financed through gasoline taxes. If there is not likely to be ample return on the investment, the investment will not take place.

Isolated Traffic Signals: Are uncoordinated traffic signals that are in free operation.

Level of Service (LOS): LOS is a quantitative stratification of the quality of service to a typical traveler of a service facility into six letter grade levels, with "A" describing the highest quality and "F" describing the lowest quantity. Level of Service indicates the capacity per unit of demand for each public facility.

Metropolitan Planning Organization: MPO is an organization made up of local elected and appointed officials responsible for developing, in cooperation with the state, transportation plans and programs in metropolitan areas containing 50,000 or more residents. MPOs are responsible for the development of transportation facilities that will function as an intermodal transportation system and the coordination of transportation planning and funding decisions.

Microtransit: Privately or publicly operated, technology-enabled transit service that typically uses multi-passenger/ pooled shuttles or vans to provide on-demand or fixed-schedule services with either dynamic or fixed routing.

Midblock Crosswalks: Used to supplement pedestrian crossings in areas between intersections.

Mobility: The ability to make trips.

Mode: The form of transport - highway, air, carpool.

Multi-Use Paths: A multi-use pathway is physically separated from motor vehicle traffic, and can be either within the highway right-of-way or within an independent right-of-way. Multi-use pathways include bicycle paths, rail-trails or other facilities built for bicycle and pedestrian traffic.

Operations: Defines the resources and the manner in which a system functions.

Paratransit: A "safety net" for persons whose disabilities prevent them from using the regular fixed route system. Typically provided as an on-demand service through the use of taxis, carpools, vanpools, etc.

Personal Air Vehicle (PAV): Also referred to as passenger drone, this emerging mode of transportation is still in its infancy but is likely to further shape mobility and development patterns in the coming decades. PAVs provide another form of autonomous vehicle while taking up no space in the typical right-of-way. In order for these vehicles to operate, greater regulation on routes and right-of-way designation is needed.

Personal Vehicle Sharing: Defined as the

sharing of privately-owned vehicles, where companies broker transactions between vehicle hosts and guests by providing the organizational resources needed to make the exchange possible (e.g., technology, customer support, driver and motor vehicle safety certification, auto insurance, etc.)

Planning & Analysis: Transportation planning aims to predict the needs/demands for a particular service.

Project Development and Environmental (PD&E): Florida Department of Transportation process for design and environmental assessment of transportation projects.

Reliability: The percent of time the system performs according to its specifications.

Ride Sharing: Defined as the formal or informal sharing of rides between drivers and passengers with similar origin- destination pairings. Ridesharing includes vanpooling, which consists of 7 to 15 passengers who share the cost of a van and operating expenses, and may share driving responsibility.

Road Construction Monitoring: The active monitoring of road construction and maintenance activities will be conducted by the TMC for the purpose of knowing the condition of the roadway network. The data regarding specific conditions that could impact traffic will be monitored daily and action taken as needed to ensure signal coordination occurs. Timing changes will be implemented based on predetermined timing plans approved by the Traffic Timing Project Manager.

Safety: The number of fatalities or injuries per unit of operation.

Scooter Sharing: Allows individuals access

to scooters by joining an organization that maintains a fleet of scooters at various locations. Scooter sharing models can include a variety of motorized and non-motorized scooter types. The scooter service provider typically provides gasoline or charge (in the case of motorized scooters), maintenance, and may include parking as part of the service. Users typically pay a fee each time they use a scooter. Trips can be roundtrip or one way.

Separated Bicycle Facilities: One-way or two-way bicycle lanes that are adjacent to and physically separated from the vehicular travel lane. Bicyclists in these facilities are separated from vehicular traffic.

Shared Use Paths: Paved facilities physically separated from motorized vehicular traffic by an open space or barrier and are either within the highway right of way or an independent right of way. The term, “shared use path”, as used in this manual is synonymous with trails, multiuse trails, or other similar terms used in other Department manuals. Shared use paths are used by bicyclists, pedestrians, skaters, runners, and others.

Sharrows (or Shared Lane Markings): Road markings used to indicate a shared lane environment for bicycles and automobiles. Among other benefits shared lane markings reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance.

Shuttles: Shared vehicles (typically vans or buses) that connect passengers from a common origin or destination to public transit, retail, hospitality, or employment centers. Shuttles are typically operated by professional drivers, and many provide complimentary

services to the passengers.

Sidewalk: A continuous paved pedestrian walkway.

Speed Feedback Sign: A dynamic sign equipped with radar technology to provide approaching motorists with their speeds. This sign is used in conjunction with a speed limit sign so that motorists can adjust their speed based on the speed feedback and posted speed limit.

Sustainability: Transportation that will sustain a high quality of life with low pollution at a reasonable cost.

Taxi Service: Provide prearranged and on-demand transportation services for compensation through a negotiated price, zone pricing, or taximeter (either traditional or GPS-based). Passengers can schedule trips in advance (booked through a phone dispatch, website, or smartphone app), street hail (by raising a hand on the street, standing at a taxi stand, or specified loading zone), or e-Hail (by dispatching a driver on-demand using a smartphone app).

Terminal: The part of the trip where a line-haul segment stops. Because the trip may continue from a terminal, the term connection may be more precise.

Traffic Analysis Zone: A geographic subset of a study area.

Traffic Control Device: A sign or pavement marking that is used to regulate, warn, or guide drivers as they operate their vehicles.

Traffic Management Center (TMC): A TMC is where operator interfaces enable control and monitoring of the transportation infrastructure through the use of video and

electronic communications. Control may be applied through devices that manage roadway traffic signal operation.

Traffic Management System (TMS): A TMS is a system of field-located transportation devices capable of data collection and motorist communication. These devices are electronically linked to a transportation management center (TMC).

Traffic Monitoring: The basic concept of traffic monitoring relates to monitoring the roadway system via CCTV camera image viewing and traffic flow detector monitoring using VDS. The operations staff will monitor the system and take appropriate action once an incident is detected.

Traffic Signal: It is a traffic control device used to assign the right of way to intersecting vehicular and/or pedestrian movements.

Traffic Signal Coordination: Is used to progress arterial traffic while minimizing delay through a group of signalized intersections. Several different timing patterns are typically used depending on traffic volumes. Time of Day Flash: Is a scheduled program that puts a traffic signal into flashing operation. This type of signal control is used when traffic volumes are low, typically at night.

Transportation Improvement Program: Published the schedule of all transportation projects for an urban area or state.

Transportation Network Companies (TNCs): Also known as ridesourcing and ridehailing, TNCs provide prearranged and on-demand transportation services for compensation in which drivers and passengers connect via digital applications. Digital applications are

typically used for booking, electronic payment, and ratings (i.e. Uber, Lyft).

Transportation Regional Incentive Program (TRIP): The TRIP program was created as part of major Growth Management legislation enacted during the 2005 Legislative Session (SB 360). The purpose of the program is to encourage regional planning by providing state-matching funds for improvements to regionally significant transportation facilities identified and prioritized by regional partners.

Vehicle Classification: The process of breaking down the total number of vehicles observed into categories or classes.

Video Sequences: The use of pre-set camera sequences is important to monitor current roadway conditions since all cameras cannot be monitored continuously. The sequences are to be checked daily to verify that the cameras are correctly focused and viewing the proper direction. This monitoring will also allow operators to detect possible video and control communication failures that may have occurred with each CCTV cameras. Standard procedure for the video wall shall be to run one of the templates detailed in the template indexes as a starting place dependent on the situation and the time of day.

Virtual Private Network: VPN extends a private network across a public network, such as the Internet.

Virtual TMC (VTMC): A Virtual TMC performs the function of monitoring, controlling, and managing the functional elements of a transportation management system through the use of computers and computer networks without having a presence at a physical nerve center or without the existence of

such a physical nerve center. This includes monitoring, collecting, processing, and fusing transportation system data; disseminating transportation information to outside entities; implementing control strategies that affect changes in the transportation system; and coordinating responses to traffic situations and incidents.

Volume: A count of traffic past a point made for some specific time period.

Wide Area Network: WAN is a telecommunications network or computer network that extends over a large geographical distance.

Sources:

Fricker, John, and Whitford, Robert. Fundamentals of Transportation Engineering - A Multimodal Systems Approach. Pearson Prentice Hall, 2004.

<https://www.fdot.gov/roadway/fdm/2022-FDM>

<https://nacto.org/publication>



Executive Summary

Executive Summary

Metric Engineering, Inc. was retained by the City of Pembroke Pines, under RFO # PSEN-21-02, to prepare a citywide Transportation Master Plan document. The purpose of this document is to evaluate the existing conditions of the City's transportation system for all modes of travel within its roadways. Based on discussions and coordination with City staff, the Transportation Master Plan document was prepared in accordance with the requirements outlined in Section 1.4 (Scope of Work) of the RFO, including but not limited to the following tasks: public involvement, coordination efforts, data collection, existing and future traffic analyses, recommended improvements, and implementation strategies. An excerpt of the RFO is included in **Appendix A**.

The City of Pembroke Pines is a rapidly expanding community in the southwest region of Broward County, which is close to reaching its available potential development in the region. Pembroke Pines is planning for the future and is aware of the need to create solutions for traffic congestion in various parts of the city to meet demand for improved multimodal choices and transportation needs.

The City's transportation system was analyzed under existing and future conditions to help maintain and improve residents' quality of life as the community continues to grow. The transportation system in Pembroke Pines contributes to the City's economy by bringing in customers, goods, and activity to local businesses. The result of extensive research and development of the Transportation Master

Plan is anticipated to be the roadmap for the future of the City's transportation needs as it promotes multimodal alternatives that are safe, convenient, and accessible for all.

Public involvement was achieved using various platforms, including online web applications and stakeholder meetings that were held virtually and in person. Insight from community meetings was used to shape the Transportation Master Plan and address vital concerns faced in daily multimodal travel, whether one is traveling for business, pleasure, or education.

Existing traffic data was collected and available through Geographic Information System (GIS) data systems which were utilized to evaluate the existing conditions, identify the current deficiencies of the City's transportation system, and propose future improvement strategies.

Field observations were performed around different areas of the City to identify issues with the general traffic operating characteristics and to recommend options and solutions which will enhance the City's transportation system. One of the highlighted concerns of the field observations was the thirty-three (33) schools located within City limits. These schools were observed during the arrival and dismissal periods, which helped to determine that one of the main factors contributing to traffic congestion around schools is that most parents drive their children to school instead of using school buses or shuttles - leading to increased traffic congestion around school zones.



Pembroke Pines at a Glance

33 Schools

Top 5% of TAZ in Broward County

28,348 Incidents Over Past 5 Years

Incomplete Bicycle Network

A desktop analysis was conducted utilizing information from spatial imagery (Google Earth Pro) to obtain an inventory of existing conditions for the City of Pembroke Pines and determine whether roadways within the City of Pembroke Pines exceeded capacity during 2021 (existing year) and 2045 (design year).

Based on the City's Comprehensive Plan Transportation Element, Pembroke Pines ranks as a major public transit generator in Broward County and is one of the top 5% Traffic Analysis Zones (TAZ) with the highest population density. In response, the City proposes to incorporate two additional bus routes to increase service access.

A sidewalk inventory was performed to identify gaps in the City’s existing sidewalk network. The City currently provides sidewalk connectivity to most areas of concern for pedestrian safety, such as school zones, hospitals, transit routes and neighborhood commercial areas. However, specific segments require restoration or are missing sidewalks on one or both sides of the network.

The City’s overall bicycle network is incomplete, with most segments not connected with either bicycle lanes, shared lanes, or multi-use paths (shared-use paths). The City will continue to review and explore different initiatives to advance safe multimodal transportation to create a more welcoming and accessible network for all roadway users.

The existing Level of Service (LOS) was determined for the City’s roadway segments to evaluate existing conditions and identify any areas exhibiting deficient LOS. Based on the existing roadway analysis, all roadway segments are operating at LOS D or better, except for Pembroke Road (from SW 184th Avenue to SW 172nd Avenue), Pembroke Road (from SW 160th Avenue to SW 145th Avenue) and Johnson Street (from NW 89th Avenue to University Drive).

A safety analysis was conducted to determine where crashes frequently occur and identify potential priority improvement locations. The crash analysis shows that approximately 28,348 incidents occurred over the five years. Most of these locations are near the City’s business center and major roads, including Sheridan Street, Pines Boulevard and Pembroke Road, which have anticipated a future increase in pedestrian and bicyclist trips. Based on the safety analysis, some improvements can be implemented at intersections to help reduce

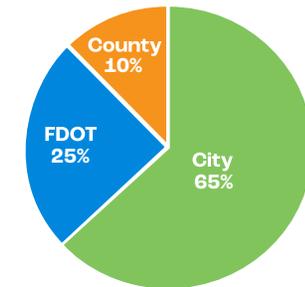
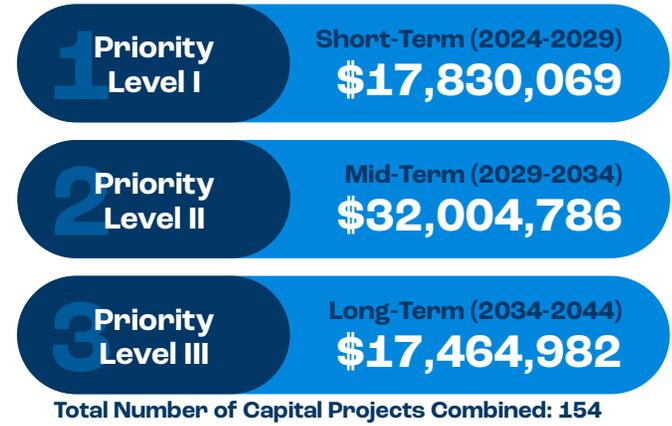
risks and increase safety.

Existing conditions were used to extrapolate future conditions based on the City’s projected growth. Based on the future roadway capacity analysis, all roadway segments within the City’s limits are expected to operate at LOS D or better, except for the following segments: Pembroke Road (from SW 184th Avenue to SW 160th Avenue/Dykes Road), Pembroke Road (from SW 145th Avenue to SW 136th Avenue), Pembroke Road (from Hiatus Road to Palm Avenue), Hiatus Road (from Taft Street to Pembroke Road), NW 89th Street (from Sheridan Street to Taft Street), NW 89th Street (from Johnson Street to Pines Boulevard), and University Drive (from NW 13th Street to Johnson Street).

The Transportation Master Plan identified potential issues based on future growth trends. Recommendations for short-term (5-Year/Priority Level I), mid-term (10-Year/Priority Level II), and long-term (20-Year/Priority Level III) timeframes were developed based on the evaluations performed. Transportation projects to promote mobility and accessibility in the City over the next 20 years were also analyzed across several documents and presented in the needs evaluation. The project-prioritizing process was developed based on transit routes, proximity to schools and neighborhood commercial areas organized within the three distinct City Districts: West, Central, and East.

The needs and local preferences were considered when choosing the order in which the projects should be implemented. Based on the analysis in this plan, 279 projects were identified and 154 projects were prioritized for implementation. **Figures E-1 through E-3** depict the City’s Overall Improvements Maps. **Figure E-4** explains how

Overall 20-Year Plan



Overall 20-Year Plan Estimated Capital Cost per Agency	
City	\$43,861,746
County	\$6,947,140
FDOT	\$16,490,951
Total	\$67,299,837

Estimated Operations & Maintenance Costs:

- \$1,451,700 per year** (Transportation Systems Management & Operations)
- \$818,950 per year** (Additional Transit Routes)

to read all the potential improvement maps included in the Implementation Section of this document (**Chapter 6**). Government agencies have jurisdiction over streets, highways, and structures depending on their location, which means that the agency is responsible for the conservation of that facility, including but not limited to construction, reconstruction, signing, and maintenance. Based on the roadway jurisdiction of each potential improvement, the overall 20-year plan estimated cost per agency was developed and is shown on the previous page.

A project can be funded from various

sources, including tax revenue or user fees. Finding available funding and financing is getting more challenging every year. Cities and counties face rising transportation project costs, growing traffic volumes and other restrictions based on their capacity to generate revenue. The City should reprioritize projects based on the understanding of local needs as funding opportunities arise. This effort is the initial step in the Transportation Master Plan process as a living document. The summarized information displayed in this document is a compilation of several inputs and data sources to provide an overview of the existing conditions and assessment of

the City of Pembroke Pines' transportation needs.

All in all, the Transportation Master Plan's main objective is to assist the City in implementing transportation improvement projects that align with best practices, forward-thinking design, and community-based needs. This plan will help the City advance and develop mobility projects by using the most recent data to validate issues and identify needs while guiding funding opportunities, project priorities, and the fair distribution of resources.

Figure E-1 Overall Multimodal Map

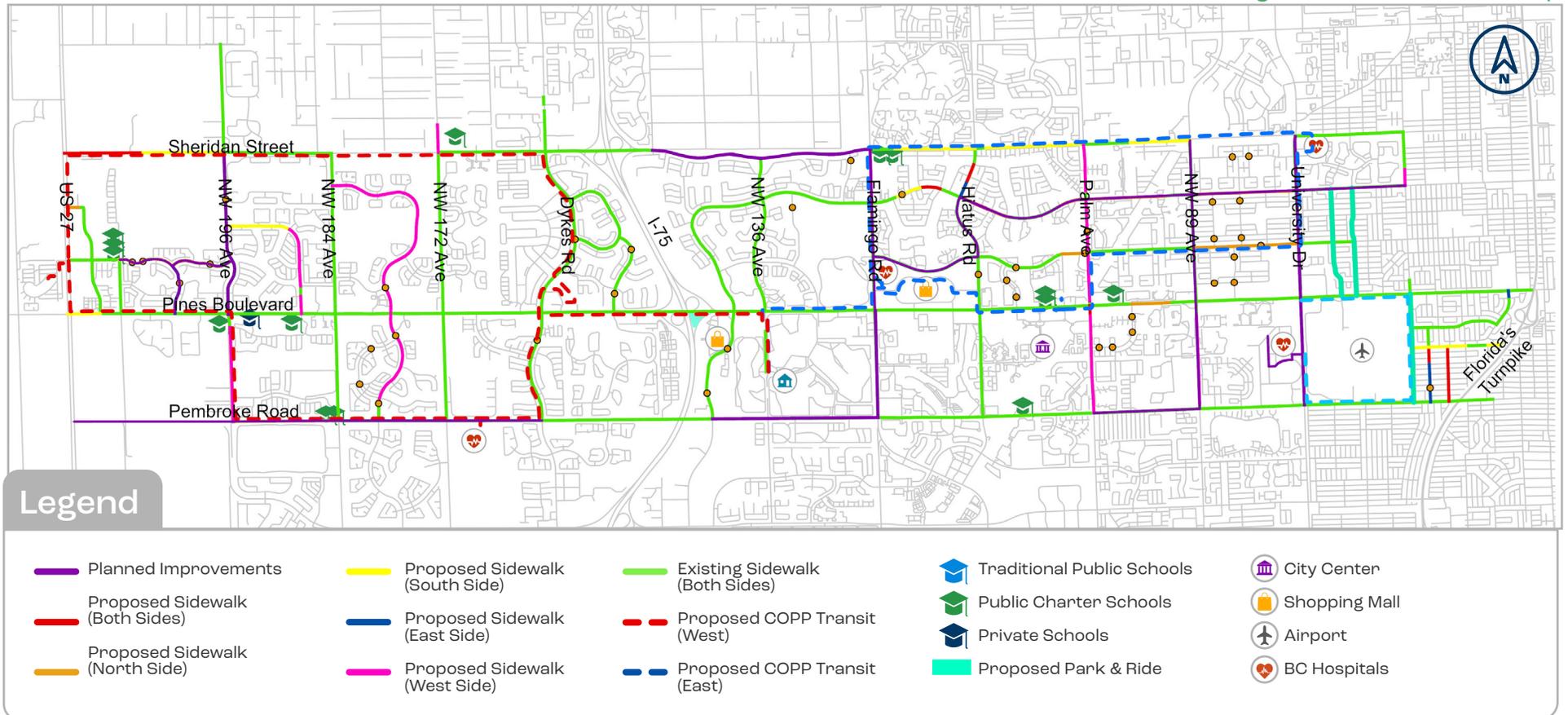
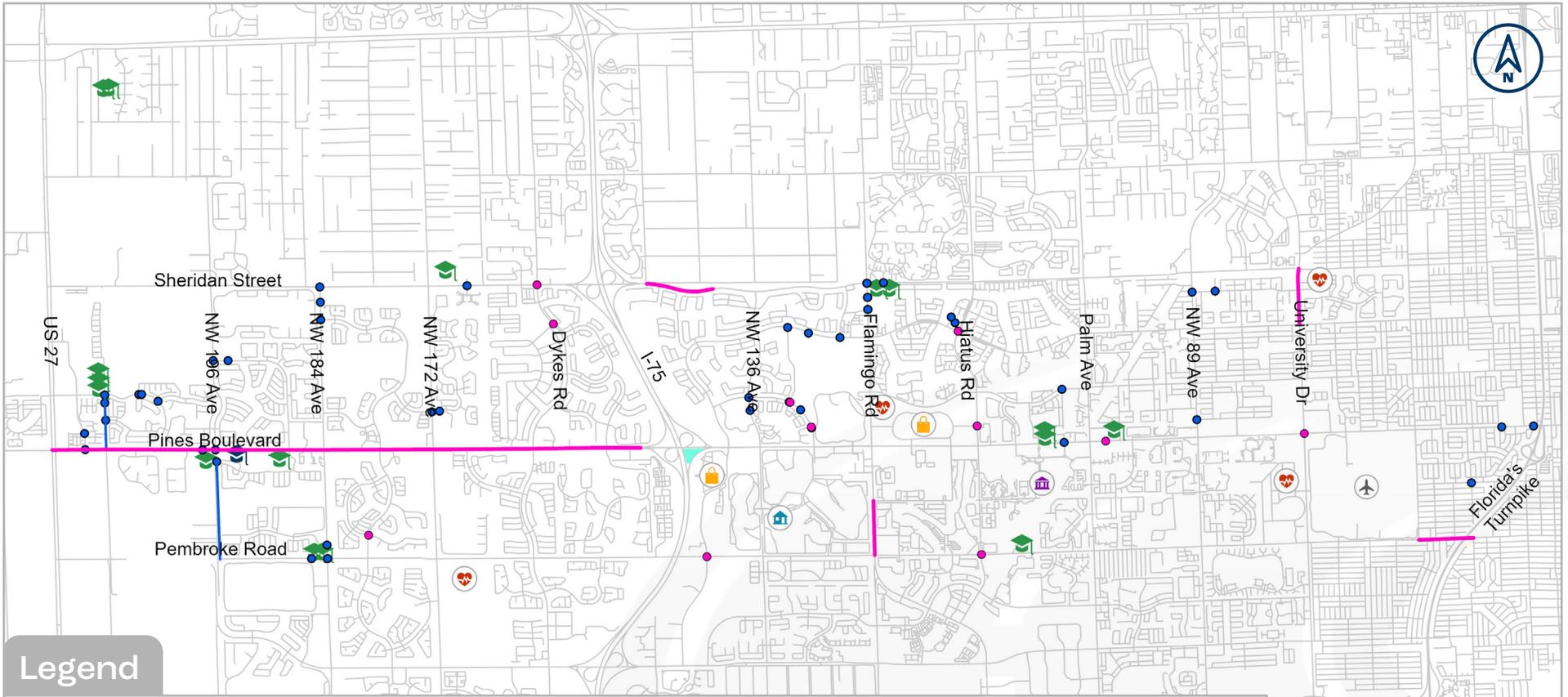


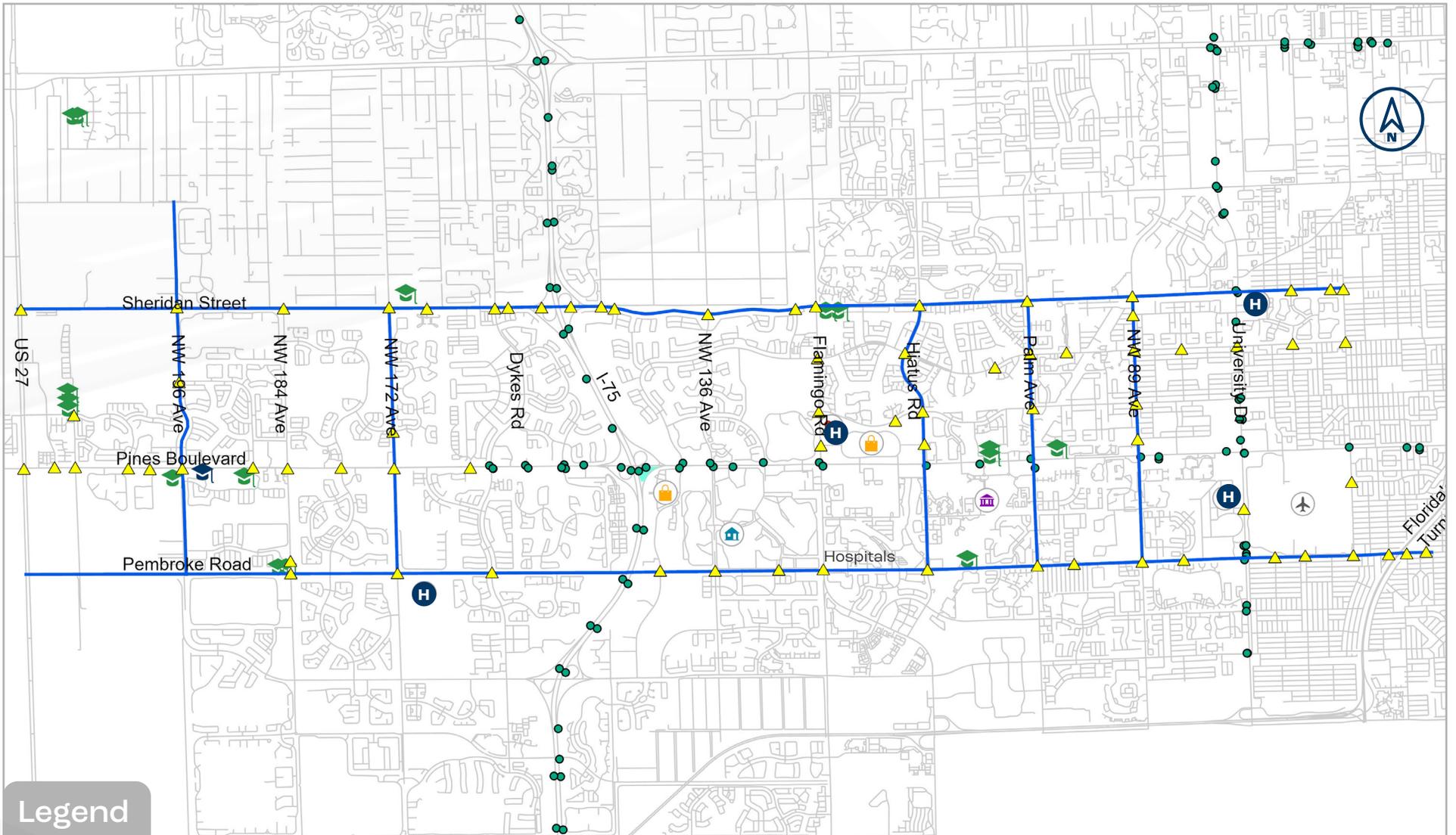
Figure E-2 Overall Safety and School Zone Improvements



Legend

 School Zone	 Safety Improvements	 City Center	 Traditional Public Schools
 School Zone	 Safety Improvements	 Hospitals	 Public Charter Schools
 Park	 Shopping Mall	 Airport	 Private Schools
			 Proposed Park & Ride

Figure E-3 Overall Transportation Systems Management & Operations Improvements



Legend

- | | | | |
|----------------------|----------------------|-----------------|----------------------------|
| Existing ITS Devices | Proposed ITS Devices | City Center | Traditional Public Schools |
| Proposed Fiber Optic | Airport | Hospitals | Public Charter Schools |
| Park | Shopping Mall | Private Schools | |



TSM&O Improvement Needs

2

CENTRAL



How To Map Guide

- 1 City's District Location Map Map
- 2 Type of Improvement
- 3 Legend
- 4 Improvement Location
- 5 Project Limits
- 6 Corresponding Table with Impr
- 7 Estimated Total Cost
- 8 Priority

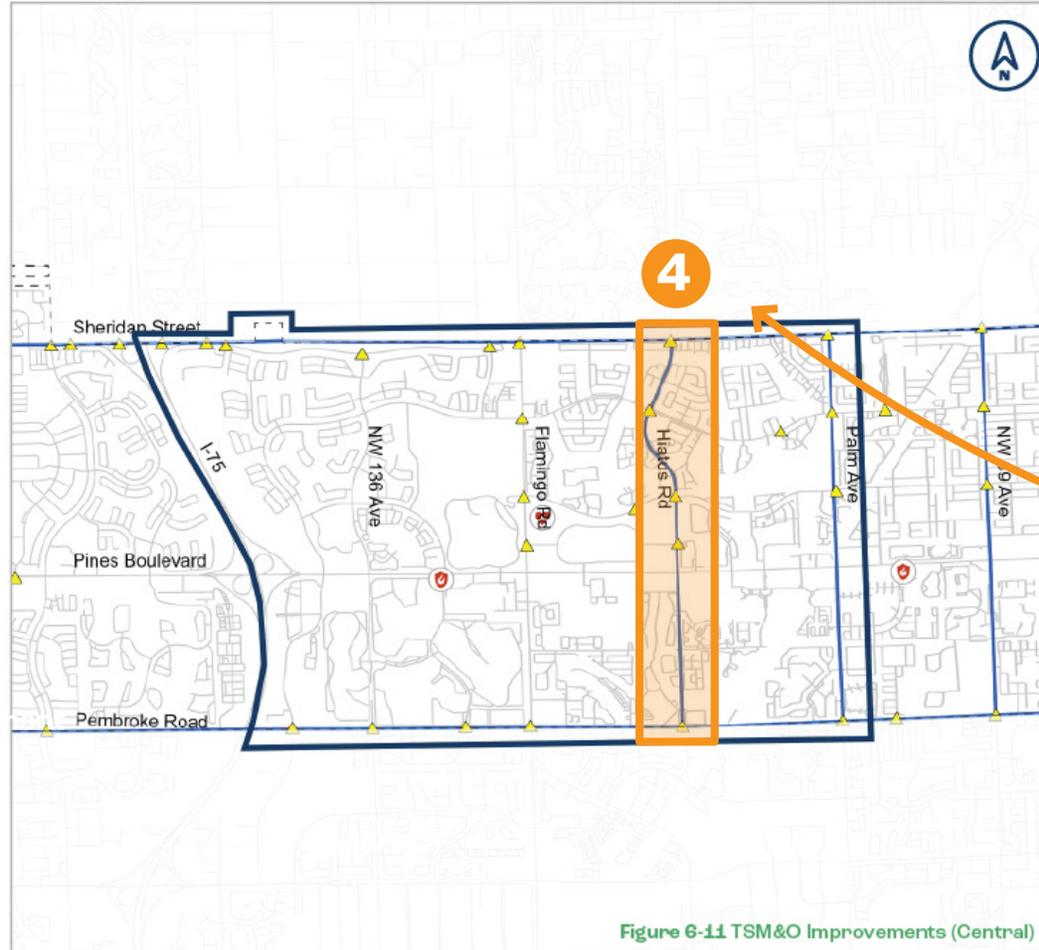


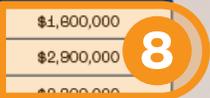
Figure 6-11 TSM&O Improvements (Central)

6. Implementation

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost
TSMO-05	Central	Hlatus Road	Install fiber optic network/connection & monitoring devices	City	City	\$1,800,000
TSMO-07	Central	Sheridan Street	Install fiber optic network/connection & monitoring devices	County/ City	County/City	\$2,900,000
TSMO-010	Central	Pembroke Road	Install fiber optic network/connection & monitoring devices	City	City	\$2,000,000
TSMO-03	Central/East	Palm Avenue	Install fiber optic network/connection & monitoring devices	City/County	City/County	\$1,500,000
ITS-020	Central	Sheridan St & I-75 Ramp	Install ITS Devices	County	County	\$100,000
ITS-021	Central	Sheridan St & SW 148th Ave	Install ITS Devices	County	County	\$100,000
ITS-022	Central	Sheridan St & NW 146th Ave	Install ITS Devices	County	County	\$100,000
ITS-023	Central	Sheridan St & NW 136th Ave	Install ITS Devices	County	County	\$100,000
ITS-024	Central	Sheridan St & NW 125th Ave	Install ITS Devices	County	County	\$100,000
ITS-025	Central	Sheridan St & Flamingo Rd	Install ITS Devices	City/County/FDOT	City/County/FDOT	\$100,000
ITS-026	Central	Sheridan St & Hlatus Rd	Install ITS Devices	City	City	\$100,000
ITS-040	Central	Taft St & NW 104th Ave	Install ITS Devices	City	City	\$100,000
ITS-041	Central	Taft St & Hlatus Rd	Install ITS Devices	City	City	\$100,000
ITS-042	Central	Johnson St & Hlatus Rd	Install ITS Devices	City	City	\$100,000
ITS-043	Central	Johnson St & Flamingo Rd	Install ITS Devices	City/FDOT	City/FDOT	\$100,000
ITS-044	Central	NW 4th St & Flamingo Rd	Install ITS Devices	FDOT	FDOT	\$100,000
ITS-045	Central	Johnson St & Colony Point Dr	Install ITS Devices	City	City	\$100,000
ITS-046	Central	NW 4th St & Hlatus Rd	Install ITS Devices	City	City	\$100,000
ITS-048	Central	Taft St & Flamingo Rd	Install ITS Devices	FDOT	FDOT	\$100,000
ITS-052	Central	Pembroke Rd & SW 145th Ave	Install ITS Devices	City	City	\$100,000
ITS-053	Central	Pembroke Rd & SW 136th Ave	Install ITS Devices	City	City	\$100,000
ITS-054	Central	Pembroke Rd & SW Flamingo West Dr	Install ITS Devices	City	City	\$100,000
ITS-055	Central	Pembroke Rd & Flamingo Rd	Install ITS Devices	FDOT	FDOT	\$100,000
ITS-056	Central	Pembroke Rd & Hlatus Rd	Install ITS Devices	City	City	\$100,000
ITS-027	Central/East	Sheridan St & Palm Ave	Install ITS Devices	City/County	City/County	\$100,000
ITS-039	Central/East	Taft St & Palm Ave	Install ITS Devices	City/County	City/County	\$100,000
ITS-047	Central/East	Johnson St & Palm Ave	Install ITS Devices	City	City	\$100,000
ITS-057	Central/East	Pembroke Rd & Palm Ave	Install ITS Devices	City/County	City/County	\$100,000

Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-10 TSM&O Improvement Needs (Central)





Introduction

1. Introduction

The City of Pembroke Pines is located on the southern side of Broward County with direct access to major highways and interstates such as I-75, Florida's Turnpike, and U.S. 27. The area was previously known as the "Village of Pembroke Pines" when it was formally incorporated as a city in 1960. The name "Pembroke Pines" was suggested by the City's first mayor, Walter Seth Smith Kipnis, due to the number of pine trees growing along Pembroke Road. Since then, the City has grown in size and population, with a particular boom in population in the mid-to-late 1990s stemming from the influx of residents relocating from Miami-Dade County following the impacts of Hurricane Andrew. This increased the need for schools, businesses and a robust transportation system to serve internal and external traffic for those coming into and out of the City.

The City of Pembroke Pines' roadway network is based on the mile-grid system and is numbered as a continuation of the neighboring City of Hollywood. There are existing opportunities to expand the City's grid system and add alternate access and routes for travel. The City of Pembroke Pines' streets are labeled as "west" within city limits, distinguishing them from City of Hollywood streets. Pines Boulevard serves as the north/south boundary where roads north of Pines Boulevard are labeled as "northwest" and roads south of Pines Boulevard are marked as "southwest."

According to the 2020 U.S. Census, the City has a recorded population of 171,178 persons, making it the second-most populous City in the County, second only to Fort Lauderdale. The female population

comprises 52.6% and males comprise 47.4%. The City's population continues to diversify, with approximately 45% of the population identified as Hispanic or Latino and 22.3% as Black or African American. The median age in Pembroke Pines is 39.5 years old. Senior citizens aged 65 and over make up 18.4% of the population, while children aged 18 and younger make up 20.1%. More than 93.4% of the residents have obtained a high school diploma and 33.6% have earned a bachelor's or higher college degree. The average household income in 2020 was nearly \$68,683 and the average home price was \$302,900 per unit.

Coordination with the public, including stakeholders and the community, aims to spread awareness of the project and obtain feedback on areas of concern, including overall congestion, access to mass transit, traffic signals, and pedestrian and bicyclist safety. All of us are impacted by transportation, regardless of where, how, or how frequently we travel. The transportation system in Pembroke Pines contributes to the City's economy by bringing customers, goods, and activity to local businesses. Pembroke Pines will be positioned for innovative transportation solutions that are safe, affordable, accessible, sustainable, livable, and appropriate for the City's diverse communities with the guidance of a comprehensive, long-term improvement plan.



Pembroke Pines Population Stats

171,178 Residents
(2020 Census)

52.6% Female
47.4% Male

45% Hispanic/Latino
22.3% Black

Median Age - 39.5

18.4% Seniors (65+)
20.1% 18 or Younger

93.4% HS Diploma
33.6% Bachelor's+

Average Household Income - \$68,683

1.1 Transportation Master Plan Goals and Objectives

The vision of the Transportation Master Plan aims to provide a 20-year measurable blueprint for improving the City's transportation system by addressing critical mobility needs while improving overall health and safety with infrastructure upgrades. Project needs are focused on enhancing connectivity through all modes

of travel, alleviating congestion, and using traffic calming measures to improve safety within the City's communities.

The main goal is to develop a Transportation Master Plan for the City, which includes gathering field data, projected data, and public input for a well-rounded, holistic result. The Transportation Master Plan will guide transportation investments over the next five (5), ten (10), and twenty (20) years. This document will assess the City's

transportation system and community as they are now and will plan to determine how mobility improvements can make Pembroke Pines an even more livable city.

The following flowchart shows major elements included in this Transportation Master Plan.

Figure 1-1 outlines some of the data used to complete the analysis.

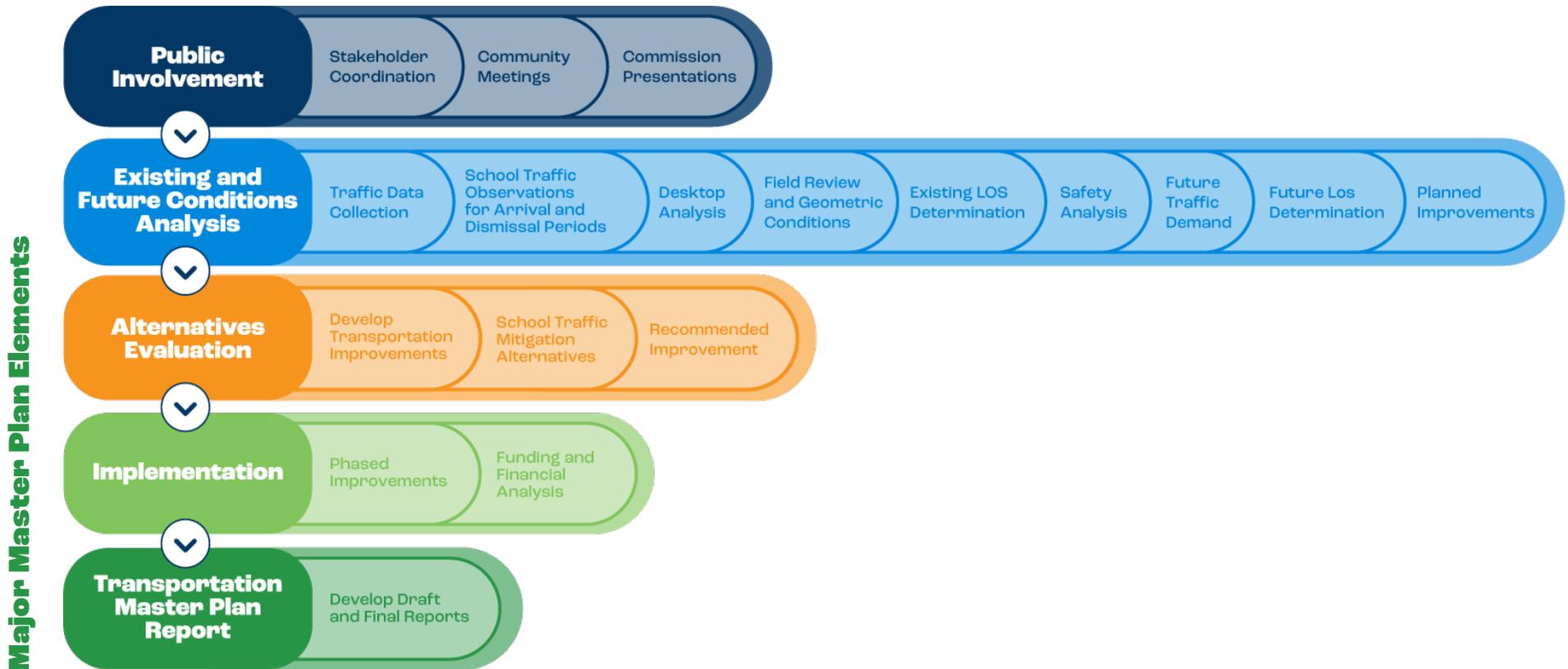
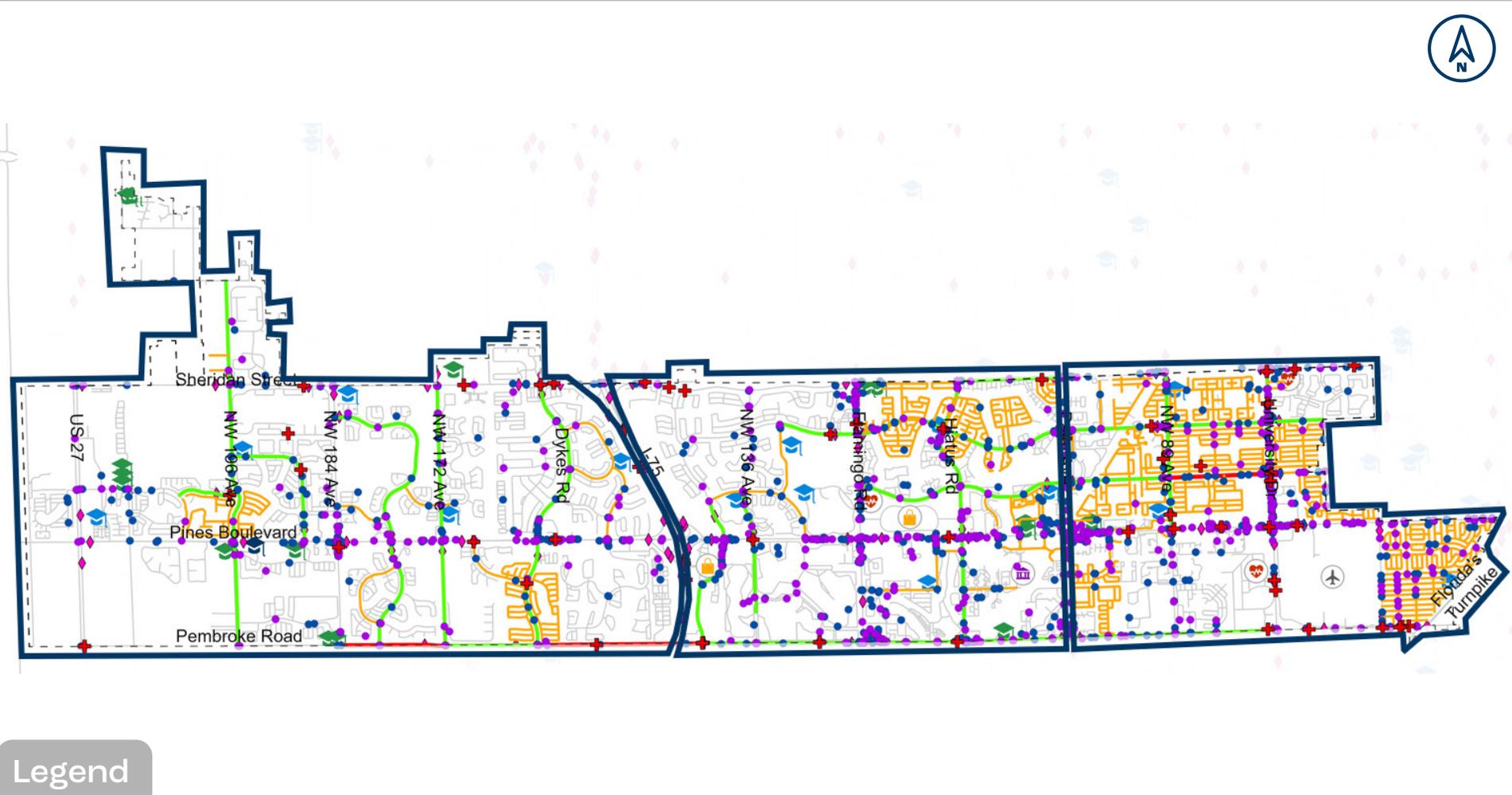


Figure 1-1 Overall Safety and Capacity Map



Legend

- | | | | | |
|-------------------|-----------------------------------|------------------|----------------------------|---------------|
| Left Turn Crashes | Zone Boundary | Exceeds Capacity | Traditional Public Schools | City Center |
| Angle Crashes | Portable Traffic Monitoring Sites | Meets Capacity | Public Charter Schools | Shopping Mall |
| Fatalities | | Below Capacity | Private Schools | Airport |
| | | | | BC Hospitals |

2.

Public Involvement

2. Public Involvement

One of the main goals of the Transportation Master Plan revolves around public involvement. The aim was to spread awareness of the project, receive feedback, discuss areas of concern, and discuss solutions with key stakeholders and the community. This effort was achieved using various platforms, including online web applications (such as GIS, which provides services capable of producing surveys, data collection maps, project websites, etc.), virtual and in-person meetings, informational videos, and presentations. Using information gathered from feedback surveys and coordination meetings, comprehensive approaches were developed to propose solutions based on identified needs from existing and projected data while using valuable public input.

2.1 Stakeholder Coordination

Coordination meetings were arranged with key stakeholders during various stages of the Master Plan development in order to spread project awareness, receive feedback regarding the City's transportation challenges, and discuss potential solutions to existing and anticipated issues. Input from key stakeholders helped guide the development of the Master Plan from its initial stages through alternative development, selection, and implementation discussions. These meetings included vital internal and external stakeholder coordination; **Table 2-1** provides a breakdown of the stakeholder meetings which took place and are planned as part of the public involvement effort for the Master Plan.

Stakeholder	Representative	Meeting Date
Planning and Economic Development Department	Michael Stamm	3/21/22
	Cole Williams	
Engineering Division	Karl Kennedy, P.E., CFM	
City Manager's Office	Charles F. Dodge	4/5/22
District 4 Commissioner	Angelo Castillo	4/5/22
Recreation and Cultural Arts Department	Christina Sorensen	4/5/22
City Mayor and Commission	Frank C. Ortis	4/6/22
District 1 Commissioner	Thomas Good Jr.	4/6/22
District 2 Commissioner	Jay D. Schwartz	4/6/22
District 3 Commissioner	Iris A. Siple	4/6/22
Community Services Director	Jay Shechter	4/6/22
City of Pembroke Pines Police Department	Jennifer Martin	4/7/22
	Matt Dolton	
Virtual Kick-Off Public Meeting	Public	6/7/22
Public Comment Survey 1	Total Respondents: 328	Public Comment Survey was available from 06/23/2022 to 09/21/2022
Transportation Master Plan Commission Presentation Video via YouTube	Total Views: 1300	N/A
Planning Department	Michael Stamm	10/06/2022
Engineering Division	Karl Kennedy, P.E., CFM	12/14/22
Commission Workshop Presentation Location: City Commission Chambers	Frank C. Ortis	
	Karl Kennedy, P.E., CFM	
	Michael Stamm	
	Jay Schwartz	
	Thomas Good Jr.	
	Iris Siple	
	Angelo Castillo	
	Charles F. Dodge	
	Members of the Public	
Public Comment Survey 2	Total Respondents: 187	Public Comment Survey was available from 12/19/2022 to 1/19/2023
Transportation Master Plan Commission Presentation Video via YouTube	Total Views: 1574	N/A
Planning Department	Michael Stamm	1/19/23
Engineering Division	Karl Kennedy, P.E., CFM	
Planning Department	Michael Stamm	2/21/23
Engineering Division	Karl Kennedy, P.E., CFM	

Table 2-1 Stakeholder Coordination Meetings Breakdown

2.2 Virtual Kick-Off Meeting

A Virtual Kick-Off Meeting video was published on the City’s website on June 7, 2022, introducing the Master Plan project and its goals and objectives.

The purpose of the virtual kick-off meeting was to present initial transportation master plan information to the public and to receive community feedback through a feedback survey.

The presentation gave a brief introduction of the project, an overview of existing transportation statistics within the City, a breakdown of the project schedule, and steps for the community to stay updated and provide feedback. The City encouraged the public to participate in developing the Transportation Master Plan by keeping up with the project using the project website and submitting comments through our feedback survey. The project website link was provided during the virtual presentation, and access to the public was given via City’s website, email blasts to City’s residents, and Homeowner Associations (HOA). The website was continuously updated throughout the project and included a link to the feedback survey. A link to the survey was also provided in the presentation, along with a QR code for fast access via mobile phone. All meeting participants were encouraged to submit feedback and raise awareness of the project by informing friends and family within the City. This strategy was crucial to developing the master plan document so

community concerns could be addressed.

A total of 328 responses were received from the Transportation Master Plan’s public involvement efforts. Approximately 78% of the participants reported being residents of the City of Pembroke Pines and identified congestion as the main transportation issue, followed by access to mass transit, and bicyclist and pedestrian safety. Most participants, 95%, selected the primary mode of transportation as a personal

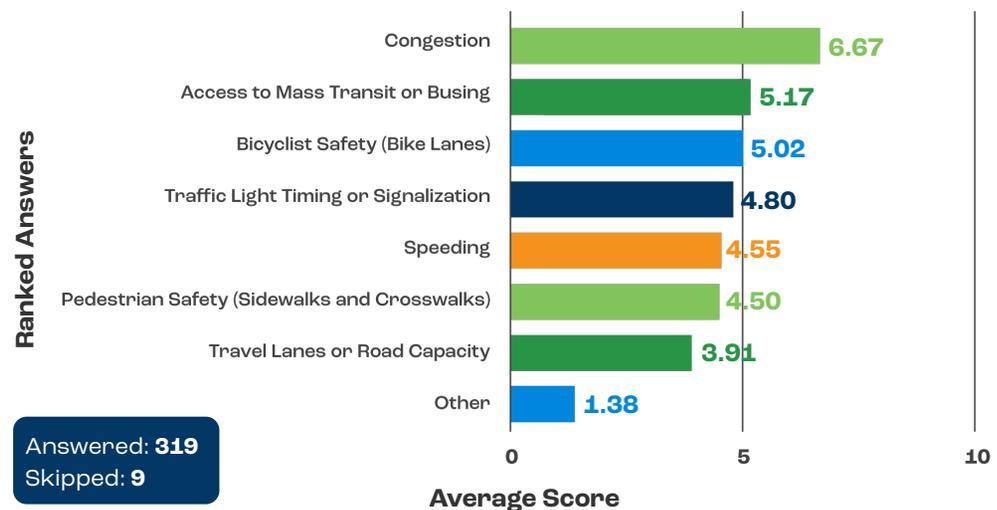
vehicle, followed by 2% stating mass transit. Approximately 31% of the participants indicated that their daily commute is between 11 to 20 miles, and more than 35% reported spending more than 30 minutes per day commuting. Of the participants, 26% indicated that their daily commute is within the city limits, while almost 30% is outside city limits.

Figures 2-1 to 2-9 depict the survey results.



Which topic below impacts the City of Pembroke Pines the most?

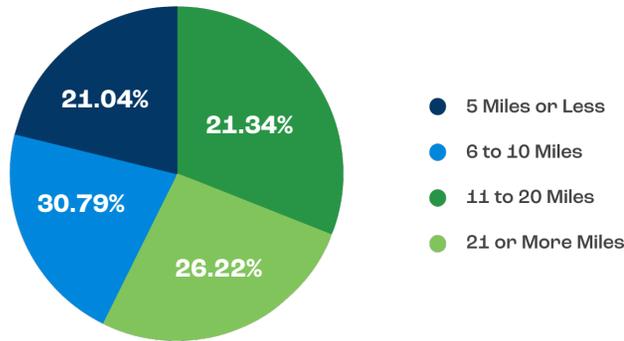
Figure 2-1 Major Transportation Issues



First Public Survey Results

How many miles do you travel or commute per day?

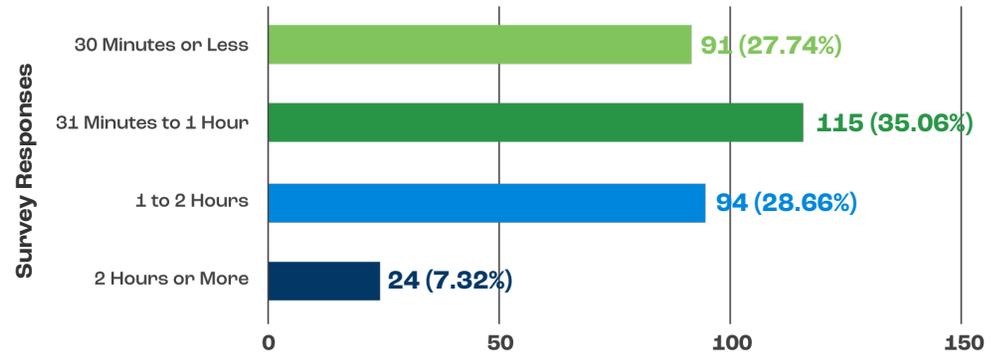
Figure 2-2 Daily Commuting Miles



Answered: 326
Skipped: 2

How much of your day is spent commuting?

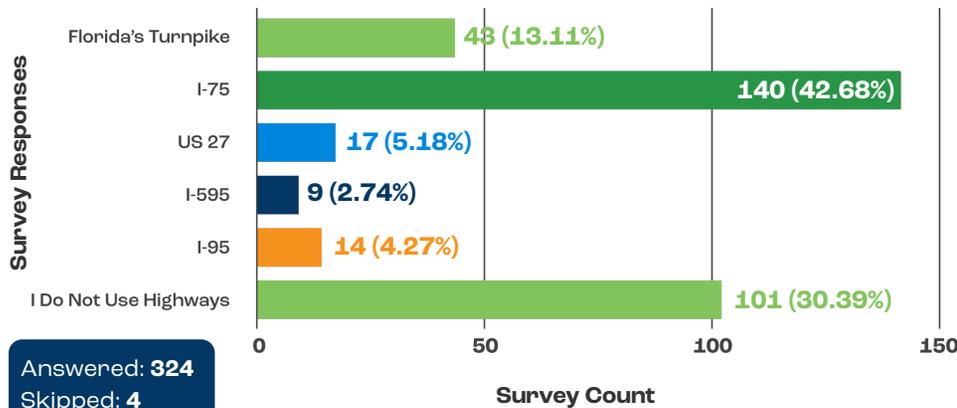
Figure 2-3 Daily Commuting Time



Answered: 324
Skipped: 4

Which highway do you use most often as part of your daily travel/commute?

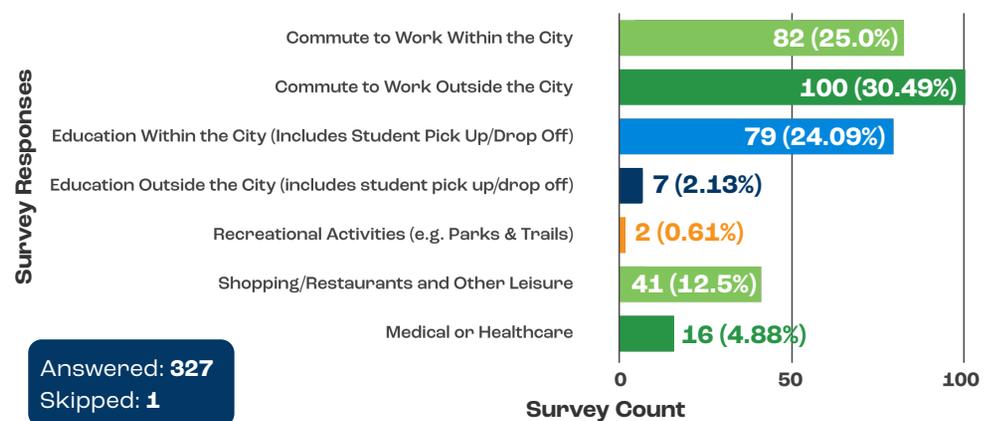
Figure 2-4 Daily Highway Commute



Answered: 324
Skipped: 4

What is your PRIMARY reason for travel?

Figure 2-5 Primary Commuting Purposes

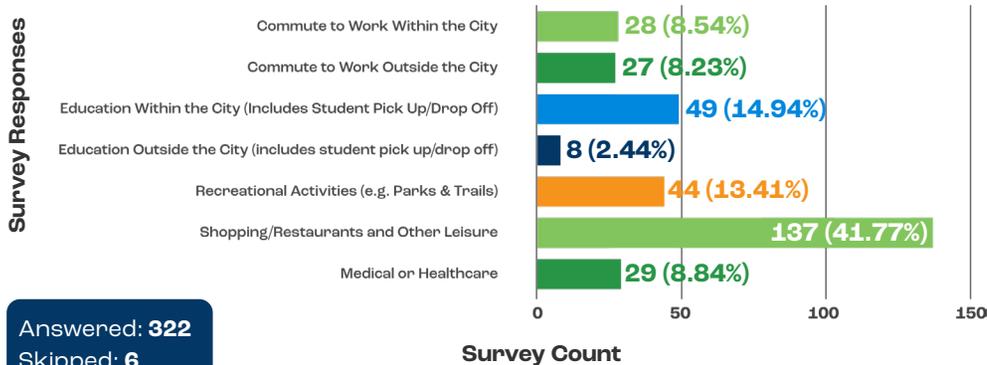


Answered: 327
Skipped: 1

First Public Survey Results (cont'd)

What is your **SECONDARY** reason for travel?

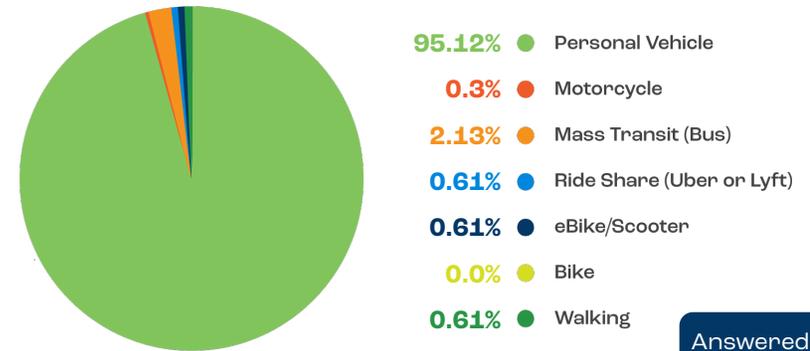
Figure 2-6 Secondary Commuting Purposes



Answered: 322
Skipped: 6

What is your **PRIMARY** mode of travel?

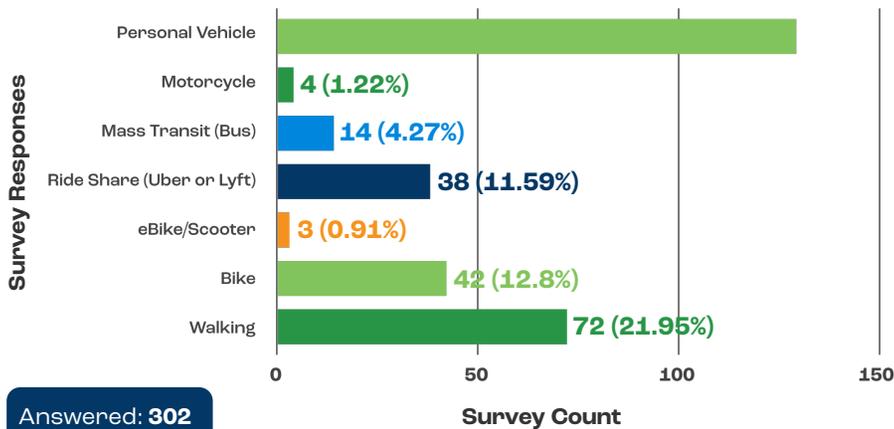
Figure 2-7 Primary Mode of Transportation



Answered: 326
Skipped: 2

What is your **SECONDARY** mode of travel?

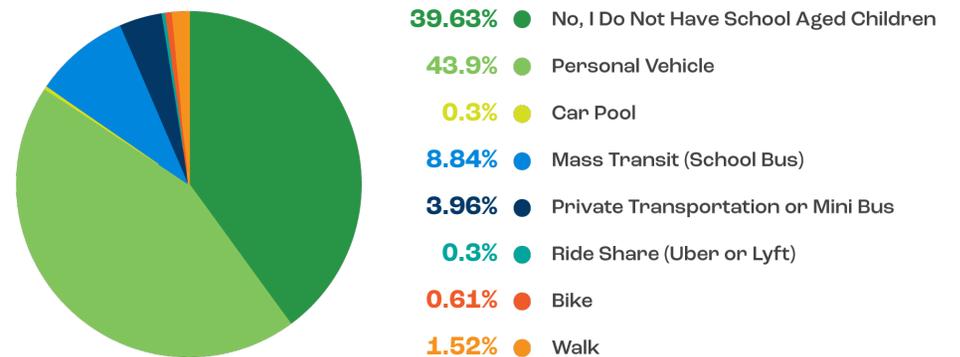
Figure 2-8 Secondary Mode of Transportation



Answered: 302
Skipped: 26

Do you have school aged children? If so, how do they commute to school?

Figure 2-9 School Commuting



Answered: 325
Skipped: 3

The following were the main topics discussed during stakeholder meetings, and virtual kick-off community meeting:

In-person (hybrid; i.e., also virtual) community meetings were held at later stages of the project as the Master Plan development delved into addressing existing and anticipated concerns based on future demand within the City. Like initial public involvement efforts, discussions

and feedback were collected to shape the Transportation Master Plan to address major problems and provide reliable, safe, and efficient solutions to transportation challenges. Final meetings were held to discuss the Master Plan document's finalization and the next steps regarding the adoption and implementation of the plan. **Appendix B** includes a copy of the final public survey results.



Major Topics During Stakeholder Meetings

- Improve connectivity within Parks
- Speeding
- Pedestrian & Vehicular Crashes
- Reduce Congestion Within Neighborhood Roadways
- Synchronization of Traffic Signals
- Transit Signal Priority Features
- Mass Transit Options/Solutions
- Pandemic-related school issues
- Traffic congestion
- Main traffic issues occur during the morning rush hour and school arrival/dismissal periods
- Improve community bus programs to help alleviate congestion
- Provide City-funded bus service
- Parents take students to school as opposed to riding the bus or walking
- Parents crossing streets to drop-off/pick-up students
- Parents parking on swales, neighborhood facilities, parks, etc.
- Stacking/access issues around schools
- Pedestrian crashes, vehicular crashes, and fatalities
- Stacking/blocking of intersections
- More than 50% of students live outside the City
- Review school zones
- Enforce traffic in school zones
- Improve sidewalk & bicycle condition by closing gaps in existing infrastructure
- Connect different travel modes
- Provide accessible connection
- Widening sidewalk to accommodate electric golf cart use
- Improvements must meet ADA requirements
- Traffic calming measures

2.3 Commission Presentations

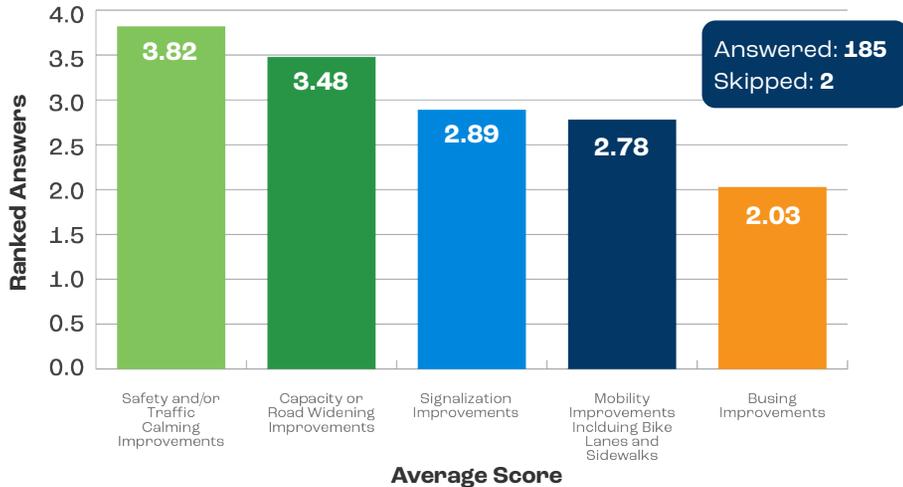
Commission presentations were held to inform vital members of the City's local and regional staff of the Master Plan's efforts. These presentations included initial and final presentations during the project's early developmental and conclusion stages. These crucial presentations provided a platform for key City of Pembroke Pines decision-makers to give valuable information regarding existing challenges, anticipated hurdles, and potential solutions to incorporate into the Master Plan.

On December 14, 2022, the consultant (Metric Engineering, Inc.) presented before the City Commission to introduce the Draft Master Transportation Plan. The City Commission provided some initial feedback during the workshop. A public comment period for review of the draft plan was opened to the public from Monday, December 19, 2022, to January 19, 2023. The City encouraged residents and business owners to review the draft plan and provide feedback. **Figures 2-10 to 2-17** on the following pages depict the second survey results used to update the final Transportation Master Plan document.

Second Public Survey Results

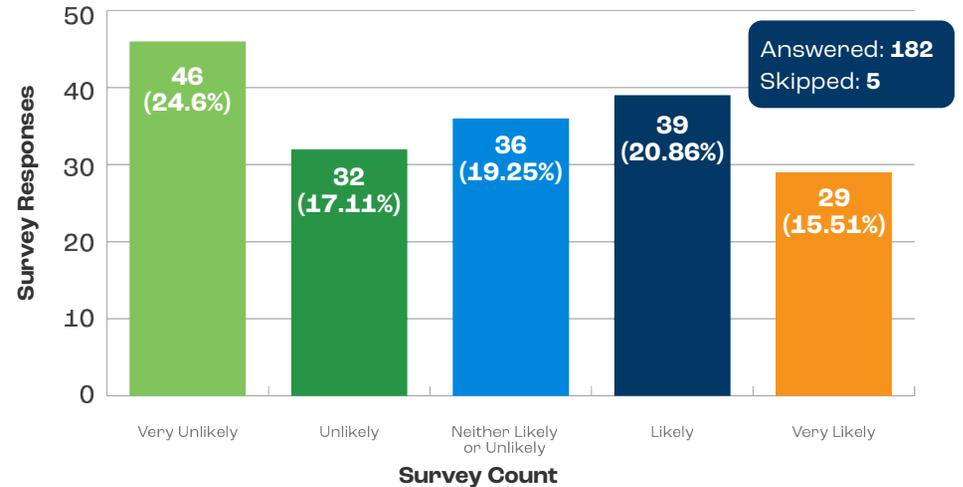
Based on the concepts in the draft Master Transportation Plan, what types of projects should the City prioritize?

Figure 2-10 Project Prioritization



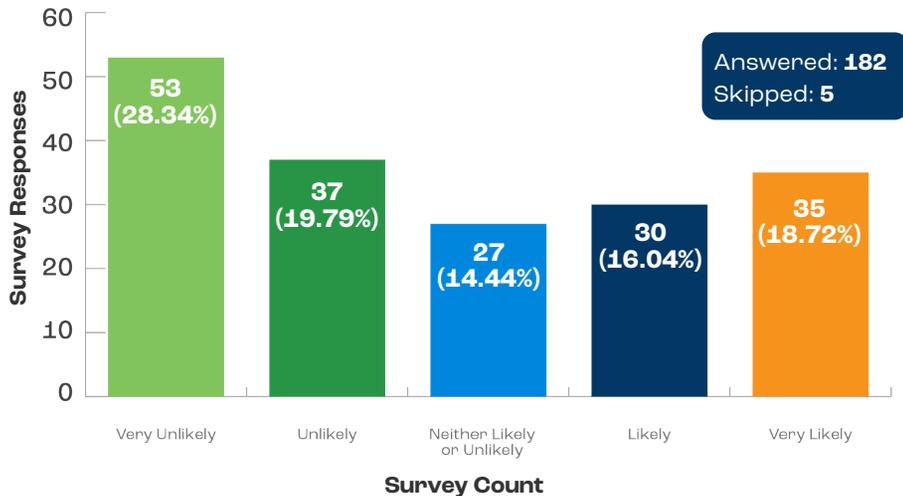
If sidewalk improvements were implemented in your community, how likely would you be to shift from using your vehicle to walking for short trips?

Figure 2-11 Likelihood of Walking for Short Trips



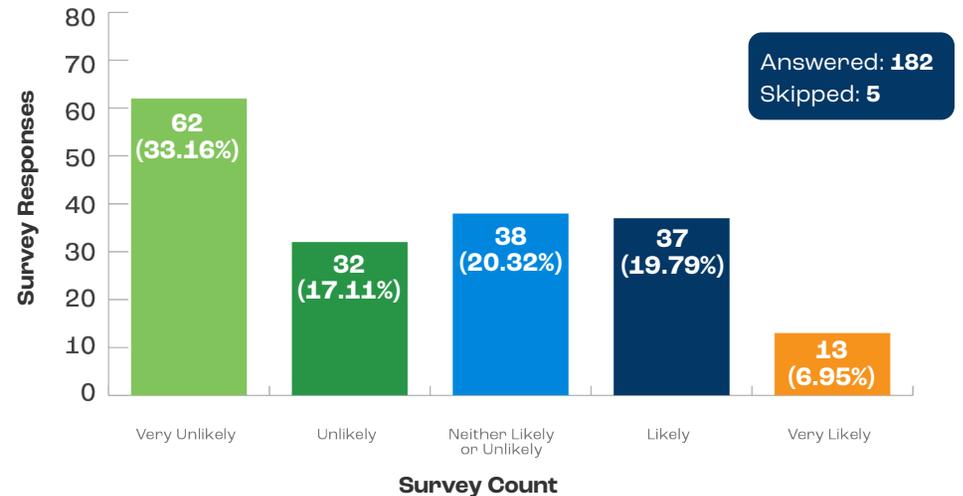
If dedicated bicycle improvements were implemented in your community, how likely would you be to replace short car trips with bicycling?

Figure 2-12 Likelihood of Bicycling for Short Trips



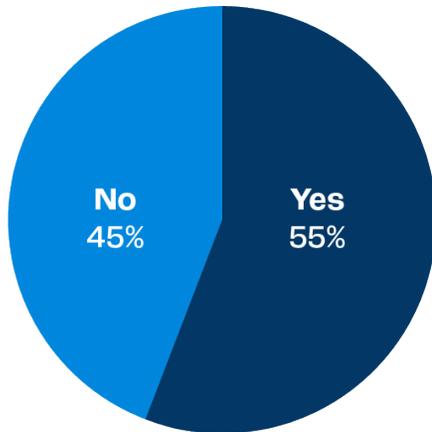
How likely would you be to use the City's bus services?

Figure 2-13 Likelihood of Using Proposed Bus Services



Do you have school aged children?

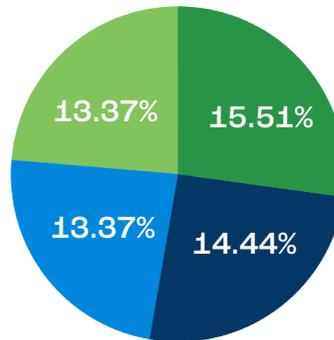
Figure 2-14 School Aged Children



Answered: **184**
Skipped: **3**

If you have school aged children, are you eligible for bus transportation and does your child ride a bus to school?

Figure 2-15 School Bus Eligibility

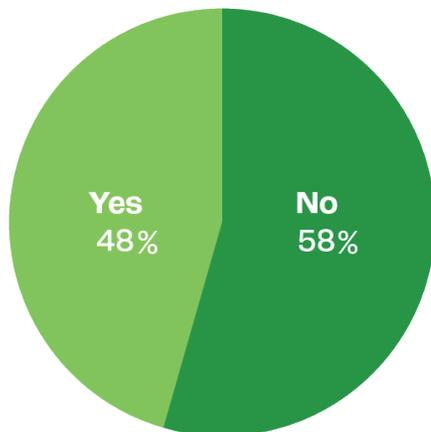


- No, my child is not eligible for bus transportation, but I am interested in a busing program for my child.
- Yes, my child is eligible, but they do not ride the bus.
- Yes, my child is eligible and they take the bus to school.
- No, my child is not eligible for bus transportation and I am not interested in a busing program.

Answered: **106 (57%)**
Skipped: **81 (43%)**

If you answered no to the school bus eligibility question, would you be interested in a micro bus program for children that live less than 2 miles from their school?

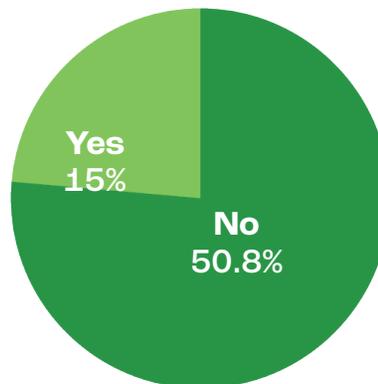
Figure 2-16 Interest in Micro Bus Program



Answered: **106**
Skipped: **81**

Would you be interested in learning more about the "Walking School Bus" program?

Figure 2-17 Interest in Walking School Bus Program



- No, I live too far from school to walk.
- Yes, I live within walking distance from the school.

Answered: **124**
Skipped: **63**

2nd Survey Response

187
Total Responses

36%
Walk for Short Trips

35%
Use Bike for Short Trips

27%
Use City's Bus Services

48%
Interested in Micro Bus Program

3. Existing Conditions

Terms You Should Know

Turning Movement Count (TMC): refers to traffic data counts collected at signalized and unsignalized intersections that summarize all the vehicles that pass through an intersection at various periods (generally 15-minute intervals). This compiled information is then used in making decisions at a planning level and operational analysis level. Depending on the type of analysis, pedestrian, bicycle, and truck movements can also be collected.

Source: Manual on Uniform Traffic Studies – MUTS Manual (Revised November 2022)

Pneumatic Road Tube Count: refers to traffic data collected at segments using pneumatic tube sensors that send bursts of air pressure along a rubber tube when a vehicle's tires pass over the tube. Typically, a pneumatic road tube is installed perpendicular to the traffic flow direction and is commonly used for bi-directional traffic volume counting, short-term traffic counting, vehicle classification by axle count and spacing, planning, and research studies.

Source: Federal Highway Administration (FHWA)

3. Existing Conditions

A transportation inventory assessment was performed to develop a baseline understanding of the City's existing roadway network, transit services, bicycle and pedestrian facilities, safety, capacity, and connection needs. Collected traffic data and available GIS data retrieved from the City, County, and State were utilized to evaluate the existing conditions and identify the current deficiencies of the City's transportation system. The results from the inventory were developed into GIS layers and spreadsheets providing a basis for the needs assessment as part of the Transportation Master Plan development.

3.1 Traffic Data Collection

For residents and commuters in Pembroke Pines, driving personal vehicles is currently the primary mode of transportation. The demand for a local and regional transportation network increases as the City's population and employment numbers rise. Cut-through traffic also occurs on residential streets that are not intended to handle significant volumes from traffic spillover. In order to identify typical traffic volumes generated by the general public, businesses, and schools and at other traffic-generating sites within the City, traffic count data was collected at twenty-five (25) locations during the typical weekday for A.M. and P.M. Peak periods. Intersection turning movement counts were collected at thirteen (13) locations during the A.M. Peak hour period (6:00 AM to 9:00 AM) and P.M. Peak period (4:00 PM to 7:00 PM). Additionally, pneumatic tube counts were

placed on twelve (12) segments to collect bi-directional traffic volumes for two (2) consecutive days. A copy of the traffic data is included in **Appendix C**.

Table 3-1 outlines the 25 data locations while **Figure 3-1** depicts each spot.

Location No.	Location Name	Traffic Data Type
1	NW 10th St & NW 136th Ave	Turning Movement Count
2	NW 129th Ave (N. of NW 3rd St)	Pneumatic Tube Counts
3	NW 129th Ave (S. of Flanagan Charles W. High School)	Pneumatic Tube Counts
4	Hiatus Rd (between Johnson St & Taft St)	Pneumatic Tube Counts
5	SW 145th Ave (S. of Pines Blvd)	Pneumatic Tube Counts
6	Johnson St & Hiatus Rd	Turning Movement Count
7	Taft St & Hiatus Rd	Turning Movement Count
8	Taft St & NW 125th Ave	Turning Movement Count
9	Taft St & NW 129th Ave	Turning Movement Count
10	Hiatus Rd & NW 19th St	Turning Movement Count
11	Sheridan St & Flamingo Rd	Turning Movement Count
12	Flamingo Rd & Memorial Hospital West	Turning Movement Count
13	Johnson St & Palm Ave	Turning Movement Count
14	Taft St & Palm Ave	Turning Movement Count
15	SW 9th St (E. of SW 69th Ave)	Pneumatic Tube Counts
16	SW 12th St (E. of SW 71st Ave)	Pneumatic Tube Counts
17	University Dr & Johnson St	Turning Movement Count
18	Pines Blvd & Palm Ave	Turning Movement Count
19	NW 155th Ave (N. of NW 5th St)	Pneumatic Tube Counts
20	Johnson St (E. of NW 209th Ave)	Pneumatic Tube Counts
21	NW 202nd Ave (N. of NW 4th St)	Pneumatic Tube Counts
22	Pembroke Rd (W. of Pembroke Pines Charter School)	Pneumatic Tube Counts
23	NW 208th Ave (N. of Pines Blvd)	Pneumatic Tube Counts
24	Pines Blvd & NW 155th Ave	Turning Movement Count
25	Washington St (E. of Hiatus Rd)	Tube Counts

Table 3-1 Traffic Data Collection Locations

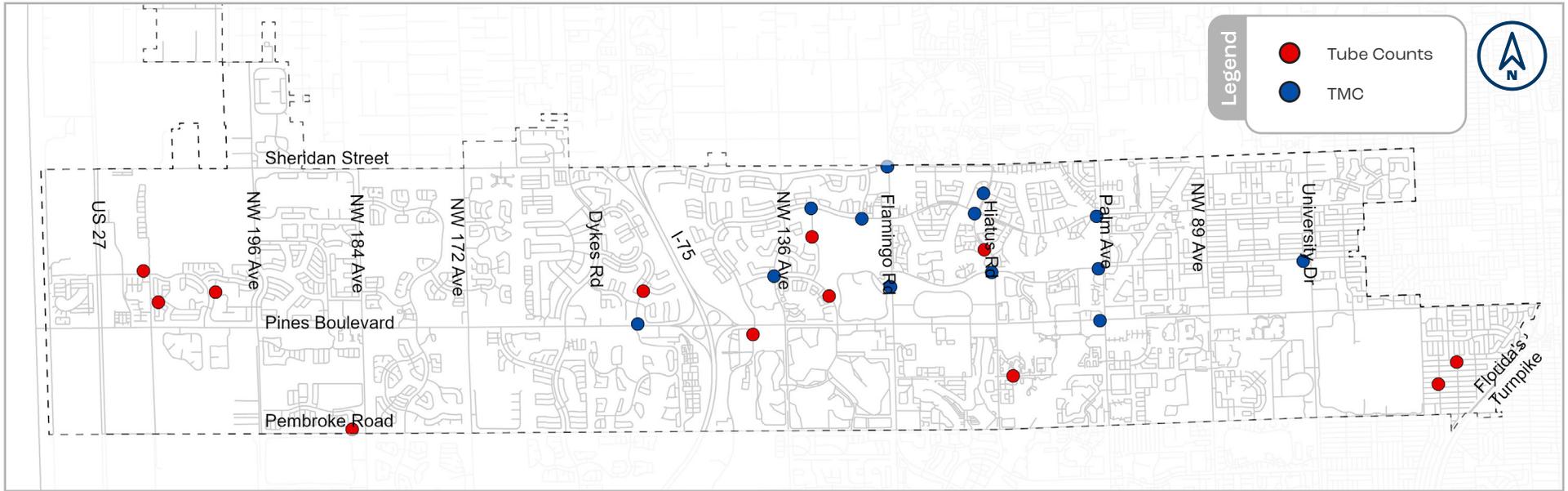


Figure 3-1 Traffic Data Collection Locations

3.2 Arrival and Dismissal Period Observations

Field observations were performed during the arrival and dismissal period at thirty-three(33)schoolswithintheCityofPembroke Pines, including public, public charter, and private schools. This information was used to identify existing traffic patterns (vehicular, pedestrian, bicycle, and school bus), congestion, deficiencies, and potential areas for improvement. School-related traffic congestion risks the safety of the students, teachers, neighbors, and drivers in and around schools. Based on the school field observation, the main factors contributing to traffic congestion around schools during arrival and dismissal periods are: parents taking students to school as opposed to having them ride the bus or walk, parents parking in illegal areas to drop-off/pick-up students, access issues around schools, blocking intersections, pedestrian

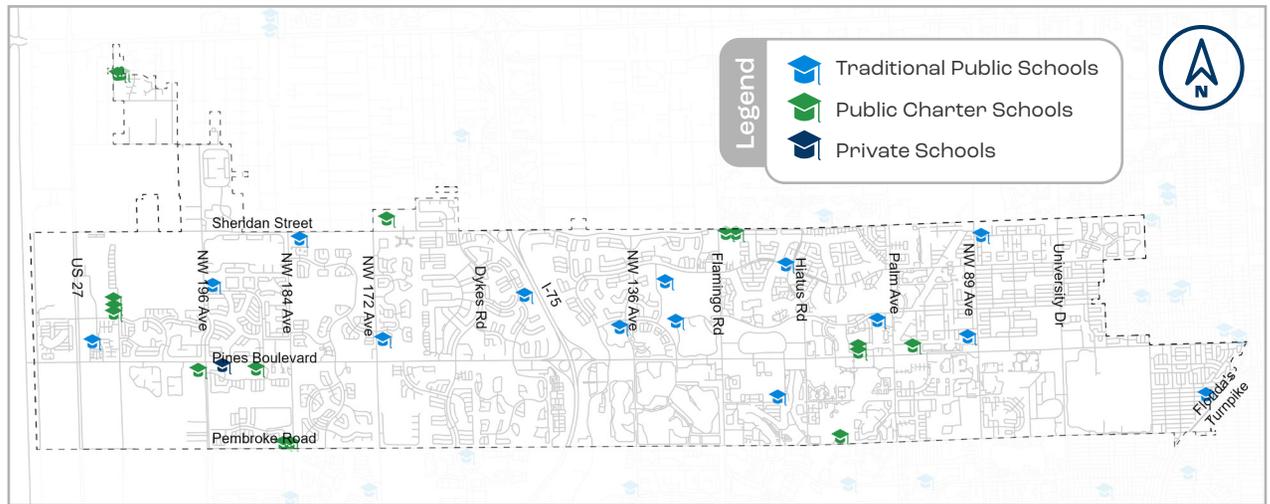


Figure 3-2 School Locations

crashes, lack of temporary parking spaces and poorly timed traffic signals.

Figure 3-2 shows the school locations, Tables 3-2 summarizes the school field observation,

and supporting documentation for each school is included in Appendix D.

#	School	Grade Levels	Address	Public/Charter	Arrival Time ^(*)	Dismissal Time ^(*)
1	Atlantic Montessori Charter School	K-3	9893 Pines Boulevard Pembroke Pines, FL 33024	Charter	9:00 AM	2:45 PM
2	Chapel Trail Elementary School	K-5	19595 Taft Street Pembroke Pines, FL 33029	Public	8:00 AM	2:00 PM
3	Charles W. Flanagan High School	9-12	12800 Taft Street Pembroke Pines, FL 33028	Public	7:40 AM	2:40 PM
4	City of Pembroke Pines Central Elementary School	K-5	12350 Sheridan Street Pembroke Pines, FL 33026	Charter	8:45 AM	3:15 PM
5	City of Pembroke Pines East Elementary School	K-5	10801 Pembroke Road Pembroke Pines, FL 33025	Charter	8:45AM	3:15 PM
6	City of Pembroke Pines High School	6-12	17189 Sheridan Street Pembroke Pines, FL 33331	Charter	7:15 AM	2:00 PM
7	City of Pembroke Pines Central Middle School	6-8	12350 Sheridan Street Pembroke Pines, FL 33026	Charter	8:15-8:45 AM	2:45-3:30 PM
8	City of Pembroke Pines West Elementary School	K-5	1680 SW 184th Avenue Pembroke Pines, FL 33029	Charter	8:15-8:45 AM	2:45-3:30 PM
9	City of Pembroke Pines West Middle School	6-8	18500 Pembroke Road Pembroke Pines, FL 33029	Charter	8:15-8:45 AM	2:45-3:30 PM
10	Franklin Academy High School (North)	9-12	5000 SW 207th Terrace Pembroke Pines, FL 33332	Charter	7:30 AM	2:30 PM
11	Franklin Academy Elementary School (North)	K-8	5000 SW 207th Terrace Pembroke Pines, FL 33332	Charter	8:30 AM	3:30 PM
12	Franklin Academy Elementary School	K-8	18800 Pines Boulevard Pembroke Pines, FL 33029	Charter	7:30 AM & 8:30 AM	2:15 PM & 3:15 PM
13	Lakeside Elementary School	K-5	900 NW 136th Avenue Pembroke Pines, FL 33028	Public	8:00 AM	2:00 PM
14	Montessori Academy of Broward	K-5	19200 Pines Boulevard Pembroke Pines, FL 33029	Charter	9:00 AM	2:45 PM
15	Palm Cove Elementary School	K-5	11601 Washington Street Pembroke Pines, FL 33025	Public	8:00 AM	2:00 PM
16	Panther Run Elementary School	K-5	801 NW 172nd Avenue Pembroke Pines, FL 33029	Public	8:00 AM	2:00 PM
17	Pasadena Lakes Elementary School	K-5	8801 Pasadena Blvd Pembroke Pines, FL 33024	Public	8:10 AM	2:10 PM

* **Disclaimer:** Please note that arrival and dismissal times vary from year to year. (Field observations were performed from April 21, 2022, to May 17, 2022. Field notes and aerial images are included in **Appendix D**).

Table 3-2 School Field Observations

#	School	Grade Levels	Address	Public/Charter	Arrival Time ^(*)	Dismissal Time ^(*)
18	Pembroke Lakes Elementary School	K-5	11251 Taft Street Pembroke Pines, FL 33026	Public	8:00 AM	2:00 PM
19	Pembroke Pines Elementary School	K-5	6700 SW 9th Street Pembroke Pines, FL 33023	Public	8:00 AM	2:00 PM
20	Pines Lake Elementary School	K-5	10300 Johnson Street Pembroke Pines, FL 33026	Public	7:50 AM	1:50 PM
21	Pines Middle School	6-8	200 Douglas Road Pembroke Pines, FL 33024	Public	9:05 AM	3:30 PM
22	Renaissance Charter Elementary School	K-8	10501 Pines Boulevard Pembroke Pines, FL 33026	Charter	8:00 AM	3:00 PM
23	Renaissance Charter Middle School	K-8	10501 Pines Boulevard Pembroke Pines, FL 33026	Charter	8:00 AM	3:00 PM
24	Silver Palms Elementary School	K-5	1209 NW 155th Ave Pembroke Pines, FL 33028	Public	8:00 AM	2:00 PM
25	Silver Trail Middle School	6-8	18300 Sheridan Street Pembroke Pines, FL 33331	Public	9:10 AM	3:40 PM
26	Somerset Academy Elementary School South	K-5	19620 Pines Boulevard Pembroke Pines, FL 33029	Charter	8:00 AM & 8:30 AM	2:30 AM & 3:00 PM
27	Somerset Academy Middle School	6-8	20803 Johnson Street Pembroke Pines, FL 33029	Charter	8:00 AM	3:00 PM
28	Somerset Arts Conservatory	9-12	20803 Johnson Street Pembroke Pines, FL 33029	Charter	8:00 AM	3:00 PM
29	Somerset Academy High School	9-12	20804 Johnson Street Pembroke Pines, FL 33029	Charter	8:00 AM	3:00 PM
30	Walter C. Young Middle School	6-8	901 NW 129th Avenue Pembroke Pines, FL 33028	Public	9:00 AM	3:30 PM
31	West Broward High School	9-12	500 NW 209th Avenue Pembroke Pines, FL 33029	Public	7:40 AM	2:40 PM
32	McArthur High School**	9-12	6501 Hollywood Blvd Hollywood, FL 33024	Public	7:40 AM	2:40 PM
33	West Hollywood Elementary School**	K-5	6301 Hollywood Blvd Hollywood, FL 33024	Public	8:10 AM	2:10 PM

***Disclaimer:** Please note that arrival and dismissal times vary from year to year. (Field observations were performed from April 21, 2022, to May 17, 2022. Field notes and aerial images are included in **Appendix D**).

Table 3-2 School Field Observations (Continued)

** Schools adjacent to the City, not located within the City limits

3.3 Desktop Analysis

A desktop analysis was conducted via GIS utilizing information obtained from spatial imagery (Google Earth Pro) to obtain an inventory of existing conditions for the following in the City of Pembroke Pines:

- Number of Lanes
- Sidewalks (Sidewalk Width)
- Median Presence and Type (Physical/Painted/Partially Physical)
- Bike Lanes
- Roadway Ownership
- Presence of Shared Used Paths

These were collected to assess existing conditions and determine any current deficiencies where improvements could be located. Furthermore, with the documentation of existing conditions, a capacity analysis was done with the information provided alongside data obtained from the Southeast Regional Planning Model (SERPM) v8.522 to determine whether roadways within the City of Pembroke Pines exceeded capacity during the existing year as determined from "FDOT's Quality/Level of Service Handbook, June 2020."

Additional infrastructure data was also collected and reviewed to perform this desktop analysis which contained relevant information regarding transit routes, fiber and ITS deployment, priority traffic signalization for emergency/transit vehicles, crosswalk signalization, pedestrian safety islands, and other traffic signal components.

3.4 Field Review and Geometric Conditions

In order to further assess existing conditions, an extensive field review was conducted to capture ADA compliance and signage conditions within the City of Pembroke Pines.

118 locations were surveyed to collect information on the following geometric conditions:

- Curb Ramp Presence
- Detectable Warning Signs
- Pushbutton Distance
- ADA Compliance Review
- Sidewalk Obstacles
- Crosswalk Markings
- Utility Conflicts
- Signage Condition
- Signage Visibility
- Horizontal Clearance issues
- Active construction
- Concrete pedestrian islands
- Site images

Regarding the sign inventory, information for the 1,247 collected signs include sign type, the direction it faces, speed (if it is a speed limit sign), condition, and power type (if powered). Additionally, all signs were photographed and uploaded to a web GIS layer. Of the 1,247 signs inventoried, 14 of them were found to be in poor condition.

3.5 Roadway Functional Classification

Roads are categorized according to the service they provide in relation to the overall road network. The main functional categories are limited access facilities, arterial roads, and connector roads. These groupings can be divided into principal, major, or minor levels which might also be subdivided into urban and rural categories. According to the Federal Highway Administration (FHWA) Highway Functional Classification Concepts, Criteria & Procedures - Section 3, the roadway functional classification categories are described as the following:

Principal Arterials

A roadway that serves the major centers of activity of an urbanized area, the highest traffic volume corridors. It carries most of the trips entering and leaving the urban area and most through movements bypassing the central City. It could be subdivided as follows:

- **Interstates:** The highest category of arterial roads built with mobility and long-travel distance in mind. Interstates provide high mobility while connecting the main urban areas in America.
- **Other Freeways & Expressways (OF&E):** A functional classification category operates very similarly to Interstates. Physical barriers typically separate the directional travel lanes on the highways in this category.
- **Other (OPA):** Roads that provide access to major metropolitan areas, high levels of mobility and the ability to go across rural areas.

Minor Arterials

A roadway that interconnects with and augments the urban principal arterial system. These facilities provide service for moderate-length trips and serve geographic areas. They connect to the higher arterial system and serve smaller geographical areas than those operated by their higher arterial counterparts including abutting land use access.

Collectors

A roadway that provides service with generally reasonable travel lengths, traffic volumes and operating speeds. Traffic is divided between local or arterial roads via collector roads.

- **Major Collector:** roads that provide land access and traffic circulation in more densely populated residential and commercial areas. They frequently offer great distances into residential areas. They divide and direct traffic between local and arterial roads across a distance that is typically larger than

three-quarters of a mile. They operate under facilities with higher speeds and more signalized intersections.

- **Minor Collector:** Roads that provide land access and traffic circulation in less densely populated residential and commercial areas. They frequently offer short distances to residential areas. They divide and direct traffic between local and arterial roads across a distance that is typically less than three-quarters of a mile. They operate under facilities with lower speeds and fewer signalized intersections.

Local

A roadway that provides service with low traffic volume, short trip duration or few traffic movements and high-volume land access for abutting property. Typically bus routes do not run on local roads as they are often designed to discourage traffic.

Figure 3-3 depicts the functional classification of the roadways within the City's limits.

3.6 Roadway Jurisdiction

Government agencies can have jurisdiction over streets, highways, and structures depending on their location, which means that the agency is responsible for the conservation of that facility, including but not limited to reconstruction, signing, and maintenance. Roads often fall under the following four categories of maintenance responsibilities:

State Roads

State highways are part of the interconnected State Highway System, built and maintained by the Florida Department of Transportation (FDOT).

County Roads

The County or unincorporated road system makes up most of the roads within Broward County, including most publicly owned or accessible roads and outside of city limits. Broward County maintains these roads.

City Roads

The City has jurisdiction over public roads located within city limits and not part of the state highway system.

Private Roads

These roads are privately-owned or administered by other agencies and typically are inside the following areas: public parks, gated communities, and educational facilities.

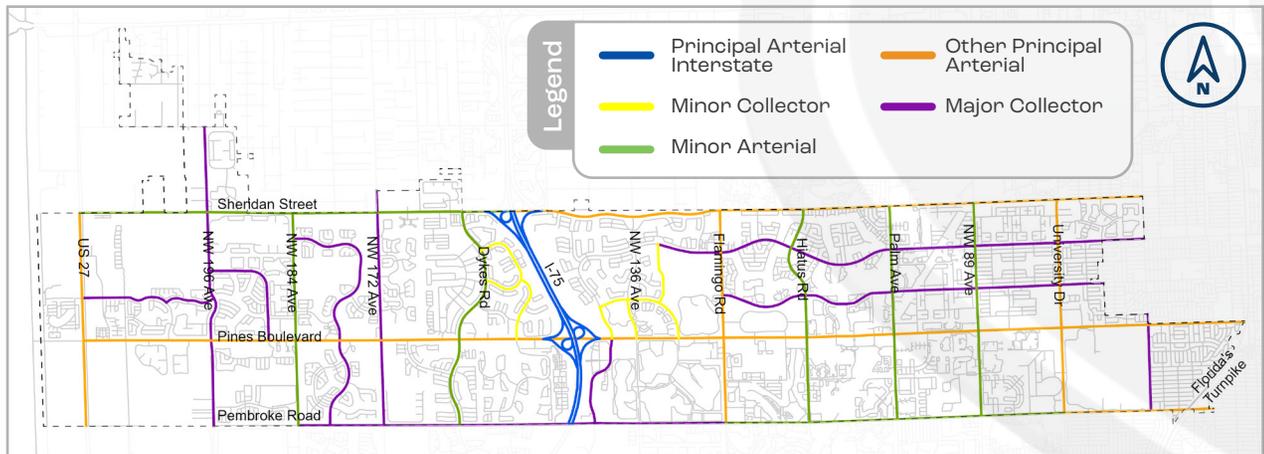


Figure 3-3 Roadway Functional Classification

Within the City of Pembroke Pines' limits, there are approximately 600 miles of roadways, of which the City maintains nearly 250 miles.

The State, County, and private entities are responsible for maintaining the remaining roads. Broward County is typically responsible for maintaining all County roads, and the State is responsible for maintaining principal arterial, minor arterial and collector roads. The City is responsible for minor arterials, collectors, and dedicated local streets.

Numerous miles of multi-use paths, bike lanes and sidewalks enable residents to move around the City in addition to the road system. **Figure 3-4** shows the existing maintenance responsibilities for roadways within the City of Pembroke Pines. Broward County Traffic Engineering Division (BCTED) is responsible for installing and maintaining all traffic signal systems in the County, and **Figure 3-5** depicts all signalized intersections within City's limits.

3.7 Major Public Transit Trip Generators and Attractors

The Transportation Element of the City of Pembroke Pines Comprehensive Plan was also reviewed during the existing conditions analysis. The document defines major public transit generators and attractors as intense land use activity locations that generate or attract a substantial number of

local trips. Residential land uses are typical examples of public transit generators. Commercial, industrial, office, commercial recreation, education, institutional and transportation land uses are attractors for public transportation. Major transit generators and major transit attractors must be connected by public transportation. Based on the City's Comprehensive Plan

Transportation Element, Pembroke Pines ranks as a major public transit generator in Broward County and is one of the top 5% Traffic Analysis Zones (TAZs) with the highest population density. According to the Broward County Transportation Map Series, the Pembroke Lakes Regional Mall is the only major existing and future transit attractor in the City.

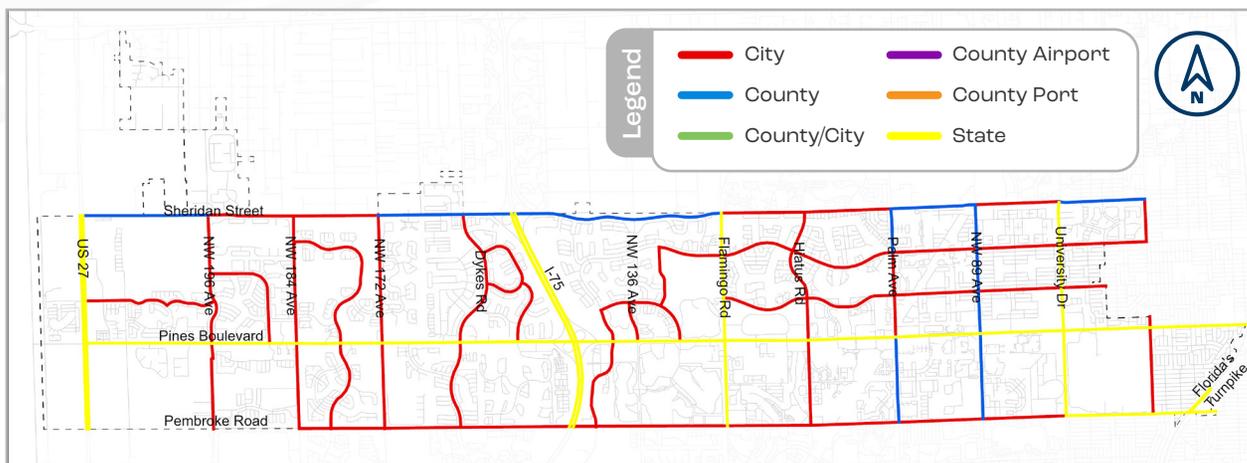


Figure 3-4 Roadway Jurisdiction

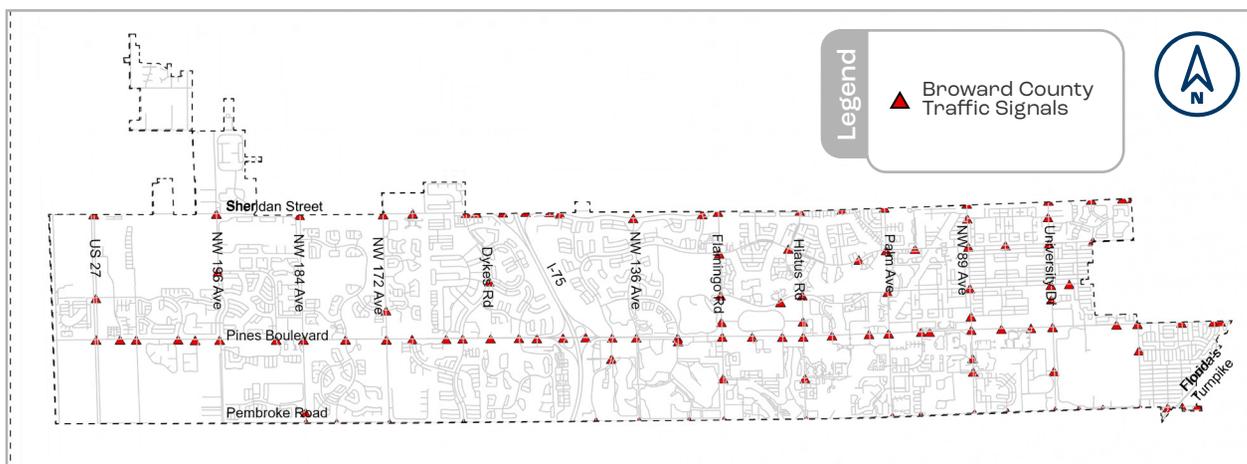


Figure 3-5 Broward County Traffic Signals

3.8 Public Transportation

The City's transportation network should offer safe, convenient and comfortable pedestrian connectivity to bus stops so that all users can benefit from public transit. Public transportation is critical in expanding access to employment, education, healthcare, and socialization. The Broward County Transit (BCT) fixed-route bus system serves almost all of Broward County's developed areas and is run by the Broward County Mass Transit Division. BCT transit buses also provide connectivity to the Hollywood Boulevard Tri-Rail terminal. There are currently twelve (12) bus routes that BCT offers on a fixed-schedule basis within the City's limits. According to BCT, fixed-route transit service is provided seven days a week, although at reduced levels on Sundays and certain holidays. Regular routes operate from as early as 4:45 a.m. until 12:25 p.m. on weekdays and Saturdays and from 6:45 a.m. to 10:15 p.m. on Sundays. Regular routes primarily operate on 30-minute headways during the weekdays and Saturdays and 60 minutes on Sundays. Each fixed-route trip serves the exact origins and destinations.

The existing BCT bus routes are listed as follows:

Existing BCT Bus Routes

- Route 2
- Route 5
- Route 7
- Route 8
- Route 9
- Route 12
- Route 16
- Route 23
- 95 Express
- Route 106
- 95 Express
- Route 108
- 95 Express
- Route 109
- 595 Express

BCT also offers other transportation options through Americans with Disabilities Act (ADA) Paratransit Transportation Options (TOPS) for qualified riders who cannot use the fixed bus routes. The City has partnered with BCT to provide additional complimentary community bus services for its residents, including three (3) different bus routes: Blue, Green, and Gold. The existing BCT and City of Pembroke Pines bus routes are shown in **Figure 3-6**. **Figure 3-7** depicts the potential community bus routes for the City.



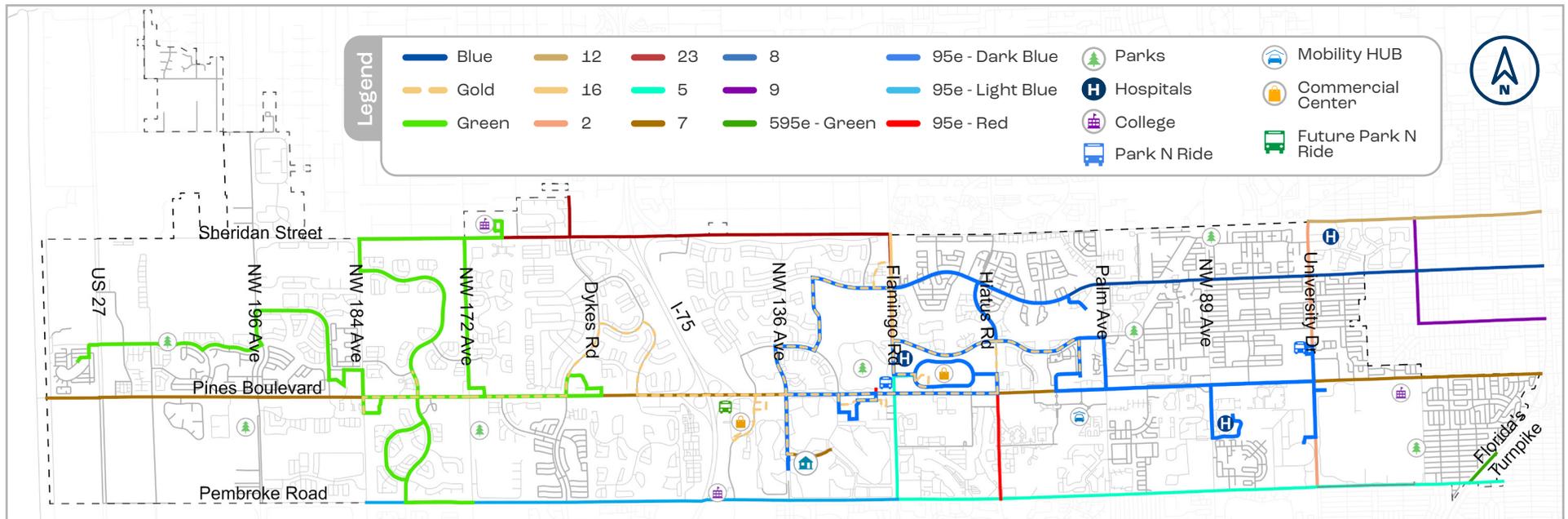


Figure 3-6 Existing Bus Routes

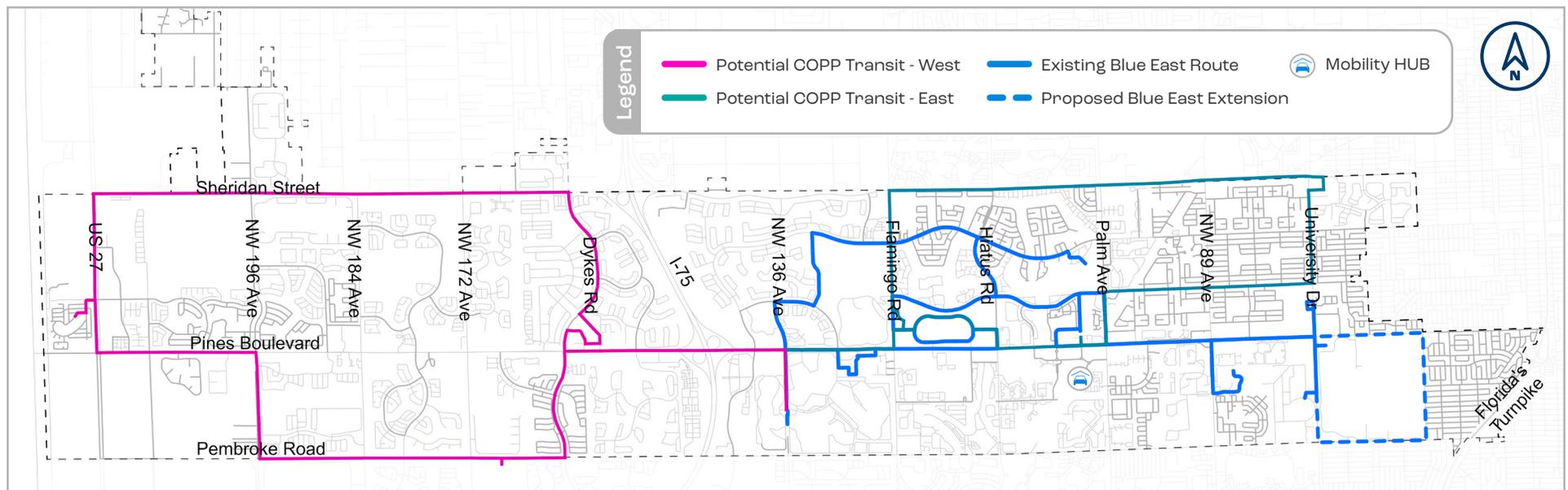


Figure 3-7 Potential City's Community Bus Routes

3.9 Bicycle Facilities

The existing bicycle network in the City of Pembroke Pines was also evaluated to identify gaps and deficiencies. Bicycling is another vital transportation mode that provides opportunities and advantages for communities by replacing short car trips to encouraging active, healthy transportation that is also environmentally friendly. The City also wants to improve its current bicycle infrastructure to help alleviate traffic congestion by encouraging more residents to ride their bikes instead of using their vehicles for short trips.

One of the critical components to improving the safety of the City's roadway is ensuring that bicyclists have dedicated bicycle infrastructure that allows them to safely share the roadway space with automobiles.

The City's overall bicycle network is incomplete, with most segments not connected with either bicycle lanes, shared lanes, or multi-use paths (shared-use paths). The only segment with a complete bicycle network is along Pines Boulevard, composed primarily of bicycle lanes throughout the entire corridor. The combined lack of bicycle infrastructure and education contributes to an attitude of entitlement among drivers, who sometimes view bicyclists as unwelcome obstructions on the road, which makes aggressive driving even more deadly. The City will continue to review and explore different initiatives to advance safe multimodal transportation creating a more welcoming and accessible network for all roadway users.

The existing bicycle facilities are shown in **Figure 3-8** and **Figure 3-9** shows the potential locations for bicycle facility improvements. The following are some areas of concern for safe bicycling, but are not limited to:

Areas of Concern for Safe Bicycling



- Sheridan Street
- Taft Street
- Johnson Street
- Pines Boulevard
- Pembroke Road
- University Drive
- NW 89th Avenue



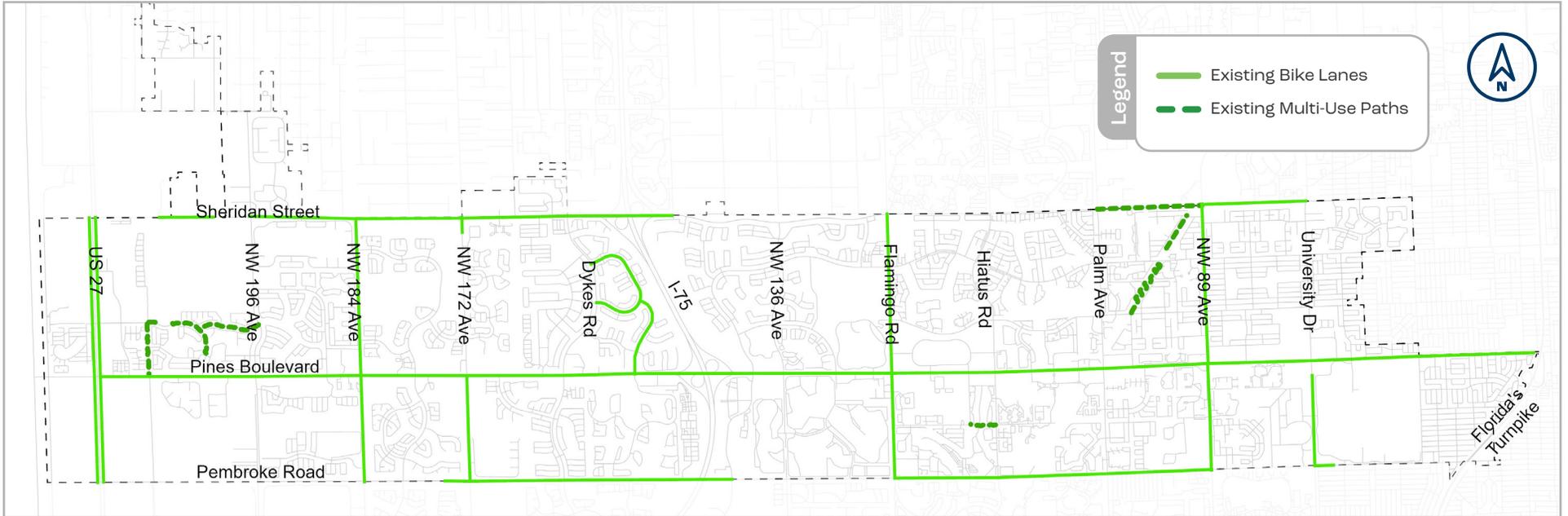


Figure 3-8 Existing Bicycle Facilities

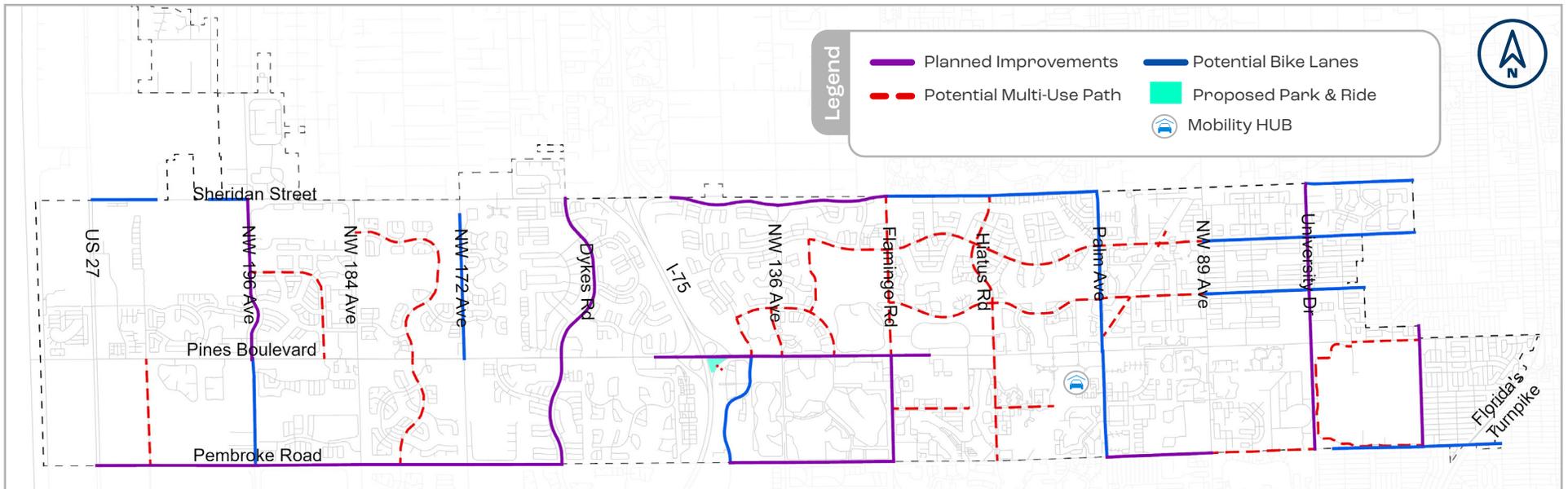


Figure 3-9 Potential Bicycle Facilities

3.10 Pedestrian Facilities

A sidewalk inventory was performed to identify gaps in the City's existing sidewalk network. Pedestrian travel is an essential part of the City's transportation system, and the pedestrians' needs were also included in the transportation assessment. Pedestrian safety is a main priority on the City's agenda. The City's vision is to provide high-quality pedestrian connections that encourage residents to shift from using their vehicles to walking for short trips and promote opportunities for "park once" travel for residents and visitors. Improving pedestrian connectivity will not only help reduce traffic congestion, especially around schools but also improve mobility and support long-term resiliency in the City. Even though the City currently provides sidewalk connectivity to the most frequently cited areas of concern for pedestrian safety, such as school zones, hospitals, transit routes, and neighborhood commercial areas, providing safe, adequate and accessible pedestrian facilities throughout the city should encourage more people to walk.

Typical Pedestrian Needs



- Safe Streets and Walking Areas
- Convenience
- Nearby Places to Walk
- Visibility
- Comfort and Shelter
- Attractive and Clean Environment
- Access to Transit
- Interesting Things to Look at While Walking
- Social Interactions

Type of Facility	Description
Sidewalks	Provided on both sides of a street are preferred but where one side of the street is undeveloped, sidewalks may be provided only on the developed side of the street. Sidewalks may also, in some cases, be built on easements. Sidewalks usually have a hard surface, but can also be constructed on compacted aggregate. Sidewalks widths are normally 5 to 6 feet. To comply with Americans with Disabilities Act ADA guidelines, newly constructed, reconstructed, or altered sidewalks must be accessible to persons with disabilities which dictates design aspects such as cross slope, offset, etc.
Off-Road Paths	An off-road path, paved or unpaved, can be an appropriate facility in rural or low-density suburban areas. Paths are generally set back from the road and separated by green areas, ditches, swales, or trees. Paths can be flexible in that they can deviate from the exact route of a road in order to provide more direct access for key destinations. Paths that generally follow the roadway alignment are sometimes known as "side paths."
Shared-Use Path	Where off-road paths are developed for use by both pedestrians and bicyclists, they are referred to as shared-use paths.
Shared Streets	In some circumstances, it may be possible to allow shared use of a street for people walking and driving. These are usually specially designed spaces, such as pedestrian streets or "woonerfs/living street," which are used on local urban streets with extremely low vehicle speeds.

Note: Typically, highway shoulders are not pedestrian facilities but can accommodate occasional pedestrian usage. When a shoulder serves as part of a pedestrian access route, ADA requirements for pedestrian walkways must be met. Source: American Association of State Highway and Transportation Officials (AASHTO)

Characteristics	Description
Accessibility	A network of sidewalks should be accessible to all users and meet ADA requirements.
Adequate Width (Min. 5-foot)	Two people should be able to walk side-by-side and pass a third person comfortably and different walking speeds should be possible. In areas of intense pedestrian use, sidewalks should be wider to accommodate the greater volume of walkers.
Safety	Design features of the sidewalk should allow pedestrians to have a sense of security and predictability. Sidewalk users should not feel they are at risk due to the presence of adjacent traffic.
Continuity	Walking routes should be obvious and should not require pedestrians to travel out of their way unnecessarily.
Landscape	Plantings and street trees within the roadside area should contribute to the overall psychological and visual comfort of sidewalk users, without providing hiding places for people
Social Space	Sidewalks should be more than areas to travel, they should provide places for people to interact. There should be places for standing, visiting, and sitting. The sidewalk area should be a place where adults and children can safely participate in public life.
Quality of Place	Sidewalks should contribute to the character of neighborhoods and business districts and strengthen their identity.

Source: American Association of State Highway and Transportation Officials (AASHTO)

“When pedestrian facilities are added and improved within a community, more people will walk.”

Source: Transportation Research Board – Pedestrian Facilities Guidebook

Elements used to support pedestrian travel may include ramps for elderly walkers and those with mobility disabilities, sidewalks, crosswalks, traffic control features. Bus stops and other loading areas, stairs, escalators, or elevators that are part of these elements are also considered pedestrian facilities. Public right-of-way, type of pedestrian facility and other sidewalk features must be considered when designing roadways where pedestrian traffic is anticipated. **Table 3-3** identifies the different types of pedestrian facilities that can be accommodated within the public right-of-way. **Table 3-4** includes characteristics of well-designed sidewalks that should be incorporated into the City's potential improvements.

According to the Transportation Research Board (TRB) Pedestrian Facilities Guidebook, research conducted by Washington University's Department of Urban Planning about pedestrian facilities that evaluated different variables in both urban and suburban areas while comparing population densities, land use characteristics, and demographics concluded that the number of pedestrians will always increase in an area if continuous sidewalks, walkways, crossings, and other pedestrian-related facilities are provided. When adequate facilities are available, walking can always be predictable to expand, even in locations where there may not initially be a demand for pedestrian facilities.

Comfortable pedestrian travel is influenced by various factors, including the safety of the roads and intersections, accessibility for those with mobility issues, and pavement conditions. Although the existing City's sidewalk network is comprehensive, specific segments require restoration due to feature obstructions such as lamp posts, electric boxes, or other obstacles that

create a barrier to pedestrians. **Figure 3-10** depicts an example of sidewalk obstruction at Palm Avenue.

Pembroke Pines is committed to providing its residents with a safe and complete pedestrian network. This document includes potential sidewalk improvements that will help close gaps in the existing sidewalk network while prioritizing safety for all roadway users. **Figure 3-11** shows that most locations include a sidewalk at least on one side of the road, and only a few places are missing a sidewalk on both sides. The potential locations for sidewalk improvements are shown in **Figure 3-12**.



Figure 3-10 Sidewalk Obstruction – Palm Avenue (East Side)

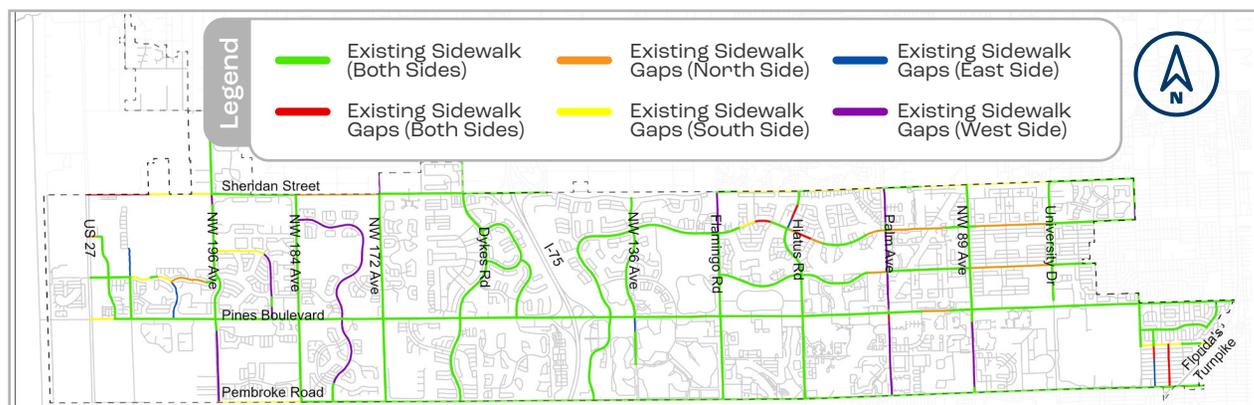


Figure 3-11 Existing Pedestrian Facilities

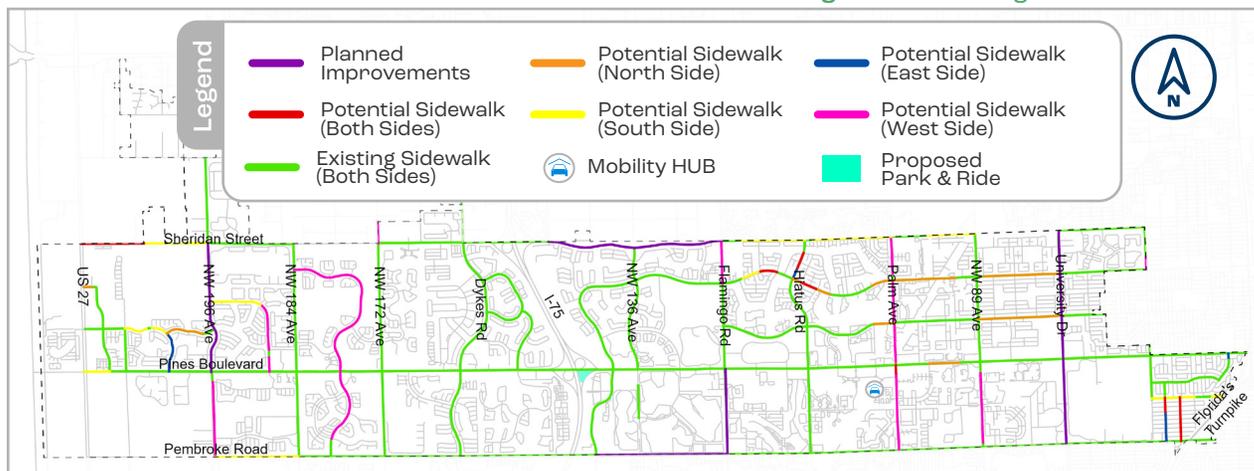


Figure 3-12 Potential Pedestrian Facilities

3.11 Existing Level of Service Determination

The Highway Capacity Manual (HCM) 6th Edition describes Level of Service (LOS) as “a quantitative stratification of a performance measure or performance measures that represent the quality of service measured on an A-F scale with LOS A representing the best operating conditions from the traveler’s perspective and LOS F the worst.” In general, LOS is a term often used to describe a set of metrics to measure the performance of transportation systems evaluating traffic congestion and travel time delay.

The American Association of State Highway and Transportation Officials (AASHTO)’s “A Policy on Geometric Design of Highways and Streets” (commonly known as the “Green Book”) provides industry guidance to transportation engineers and planners on highway and street geometric design. The Green Book has been adopted by the Federal Highway Administration (FHWA) as the standard for the National Highway System (NHS), utilizing the HCM-defined LOS performance measures to evaluate transportation systems. **Table 3-5** includes HCM LOS definitions.

LOS is intended to represent a traveler’s perception of the quality of service provided by an individual intersection or roadway segment, as measured by the standard of free-flow automobile traffic. **Figure 3-13** on the right shows an example of motorized vehicle LOS.

LOS can be assessed at a local level (for a particular roadway segment or intersection) and on the system level (for intersections and roadway segments throughout the network). State DOTs, MPOs, and local governments may establish an adopted LOS

and utilize LOS assessment to convey the adequacy of transportation infrastructure and to prioritize improvements. The City of Pembroke Pines uses the LOS “D” standard as the roadway concurrency metric for City’s roads.

The existing LOS was determined for the City’s roadway segments using the collected traffic data and historical Annual Average Daily Traffic (AADT) volumes obtained from the FDOT Florida Traffic Online (FTO) to evaluate the existing conditions and identify any areas exhibiting deficient LOS.

The FDOT’s 2023 Quality/Level of Service (Q/LOS) Handbook was utilized to develop the current LOS using the Generalized Service Volume Tables, determining how

each roadway facility operates. Using the LOS method, the quality of service was quantitatively assessed into six letter grades. The LOS establishes criteria for evaluating multimodal service that provides useful planning-level traffic information for analyzing existing and future conditions.

Capacity can be determined as the maximum sustainable traffic flow rate at which people or vehicles can reasonably be expected to travel over a particular place or a consistent portion of the roadway over a specific time, depending on typical conditions. Based on the existing roadway capacity analysis, all roadway segments within the City’s limits are operating at LOS “D” or better, except for the segments shown in **Figure 3-14**.

Level of Service (LOS)	General Operating Conditions
A	Free flow, with low volumes and high speeds.
B	Reasonably free flow, but speeds are beginning to be restricted by traffic conditions.
C	Stable flow, but most drivers are restricted in the freedom to select their own speeds.
D	Approaching unstable flow, drivers have little freedom to select their own speeds
E	Unstable flow, may be short stoppages
F	Forced or breakdown flow; unacceptable congestion; stop-and-go.

Source: AASTHO Green Book – 6th Edition

Table 3-5 HCM LOS Definitions



Figure 3-13 Examples of Motorized Vehicle LOS

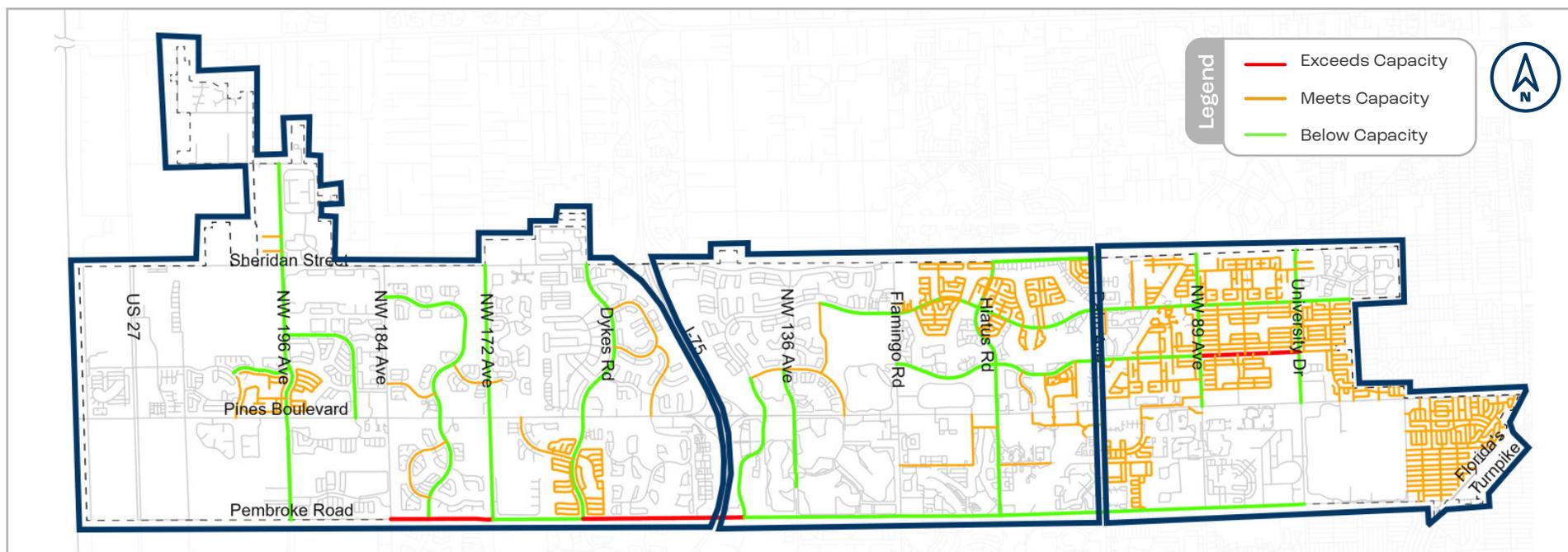


Figure 3-14 Existing LOS

3.12 Safety Analysis

The safety analysis was performed by utilizing the historical crash data obtained using Signal Four Analytics, a statewide interactive, web-based geospatial crash analytical tool developed and hosted by the University of Florida Geoplan Center. The web application is updated twice daily with the crash database provided by the Department of Highway Safety and Motor Vehicles (DHSMV). This safety analysis was conducted to determine where crashes frequently occur and identify potential priority improvement locations. The most recent 5-year crash data for the entire City were reviewed between January 1, 2017, and December 31, 2021. The crash analysis shows that approximately 28,348 incidents occurred over the five years. Most of

these locations are near the City's business center and major roads, including Sheridan Street, Pines Boulevard, Pembroke Road, which have anticipated a future increase in pedestrian and bicyclist trips. Crash severity and frequency data were evaluated to identify potential improvement locations for focus areas. Fatality crashes are shown in **Figure 3-17**. Crashes involving pedestrians and bicyclists brought severe concerns as they are the most vulnerable road users, crash types are shown in **Figures 3-18** and **Figure 3-19**.

There are a few traffic improvements that can be implemented at intersections that do not require a significant investment but can still help reduce risks and increase safety for all road users, especially pedestrians, as the following:

Low-Investment Safety Improvements

- Pedestrian facility improvements
- Bicycle facility improvements
- Curb extensions
- Travel lane and lane width reductions
- Signage and traffic calming at unsignalized intersections
- Traffic signal coordination and optimization
- Traffic calming and reduced speed limits

Table 3-6 summarizes the crash analysis for the city.

The Crash Heat Map shown in **Figure 3-20** was developed based on the crash database,

including the most affected crash locations.

Crash Type	Fatal	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	No Injury	Non-Traffic Fatal
Angle	0	9	122	255	952	0
Animal	0	0	0	1	23	0
Bicycle	3	5	68	64	28	0
Head On	2	6	18	33	128	0
Left-Turn	13	48	308	528	1722	0
Off-Road	13	36	150	239	1482	1
Other	5	16	99	263	6768	0
Pedestrian	10	25	84	93	16	0
Rear-End	4	40	397	1877	8090	0
Right-Turn	1	4	21	61	646	0
Rollover	2	3	15	7	24	0
Sideswipe	1	8	66	178	2845	1
Unknown	1	2	11	45	362	0
Total	55	202	1359	3644	23086	2

Table 3-6 Crash Severity vs. Crash Type

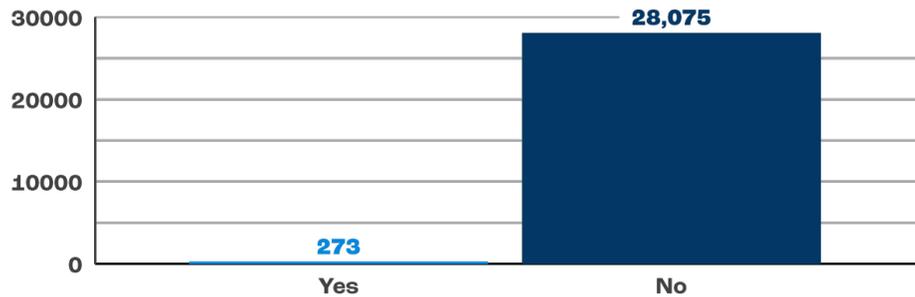


Figure 3-15 Alcohol Involved Crashes

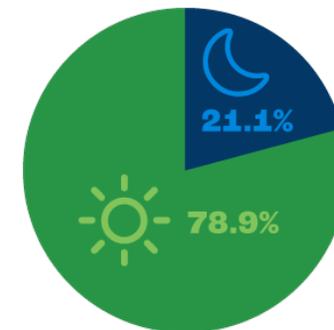


Figure 3-16 Light Condition Crashes

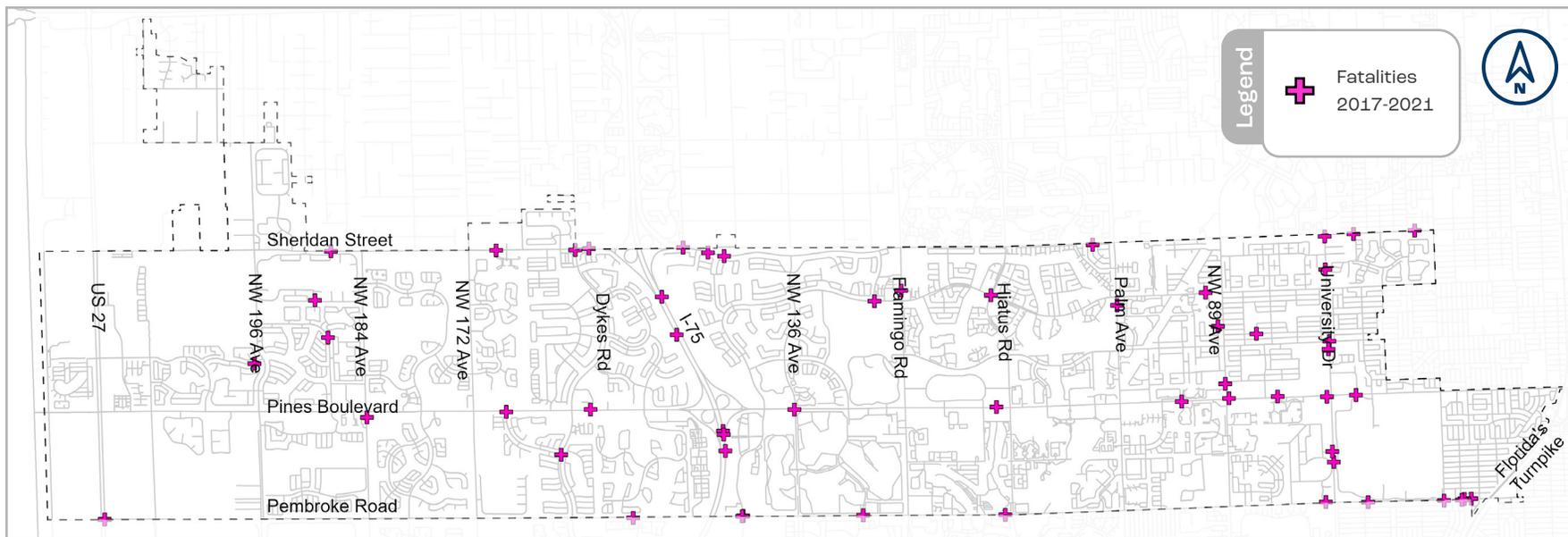


Figure 3-17 Fatality Map

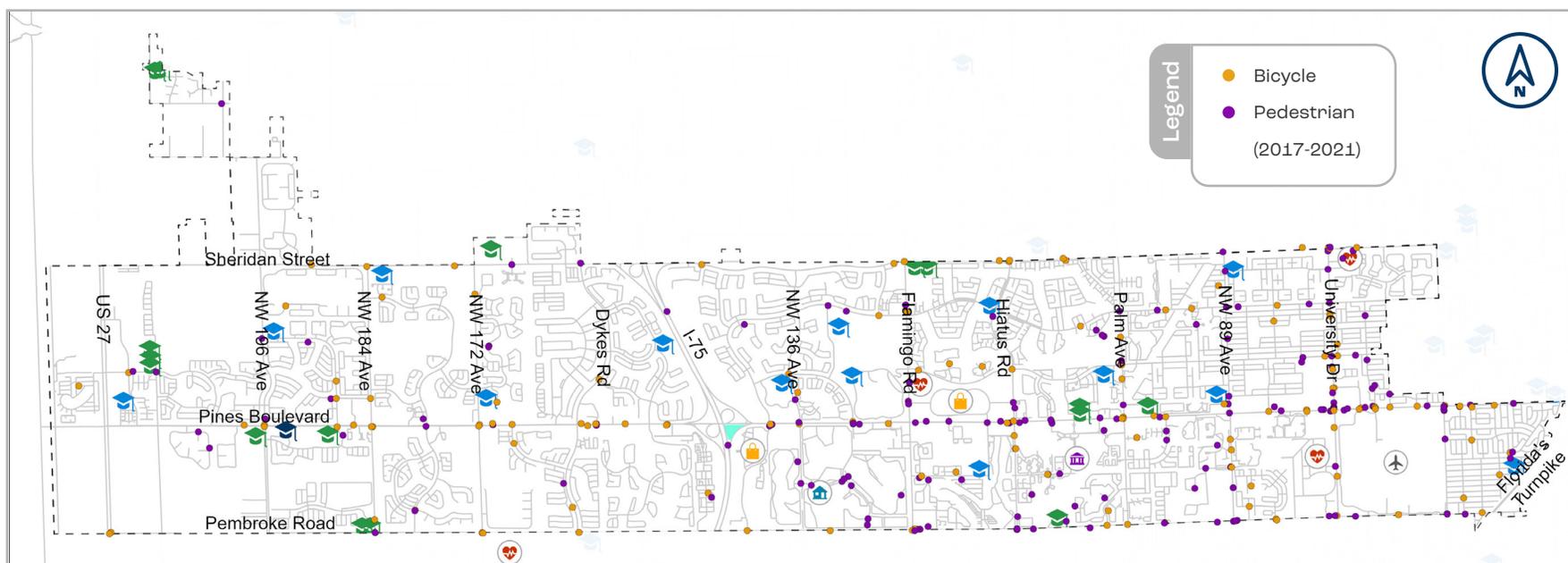


Figure 3-18 Pedestrian & Bicycle Crashes

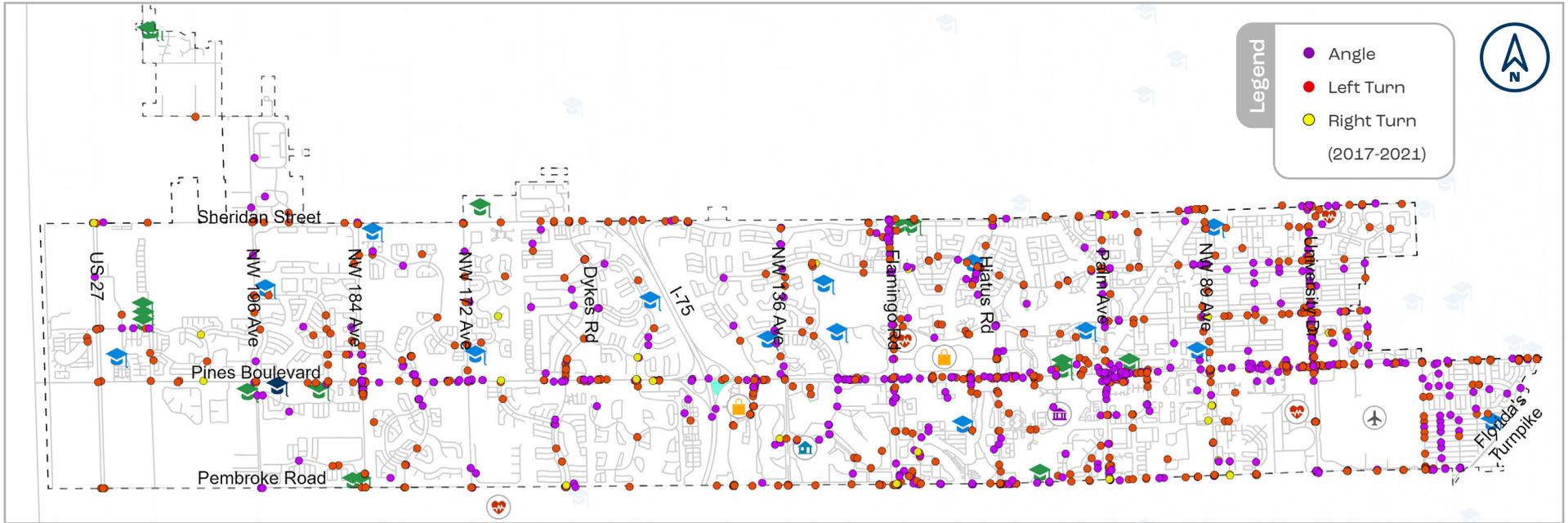


Figure 3-19 Angle, Left Turn, and Right Turn Crashes

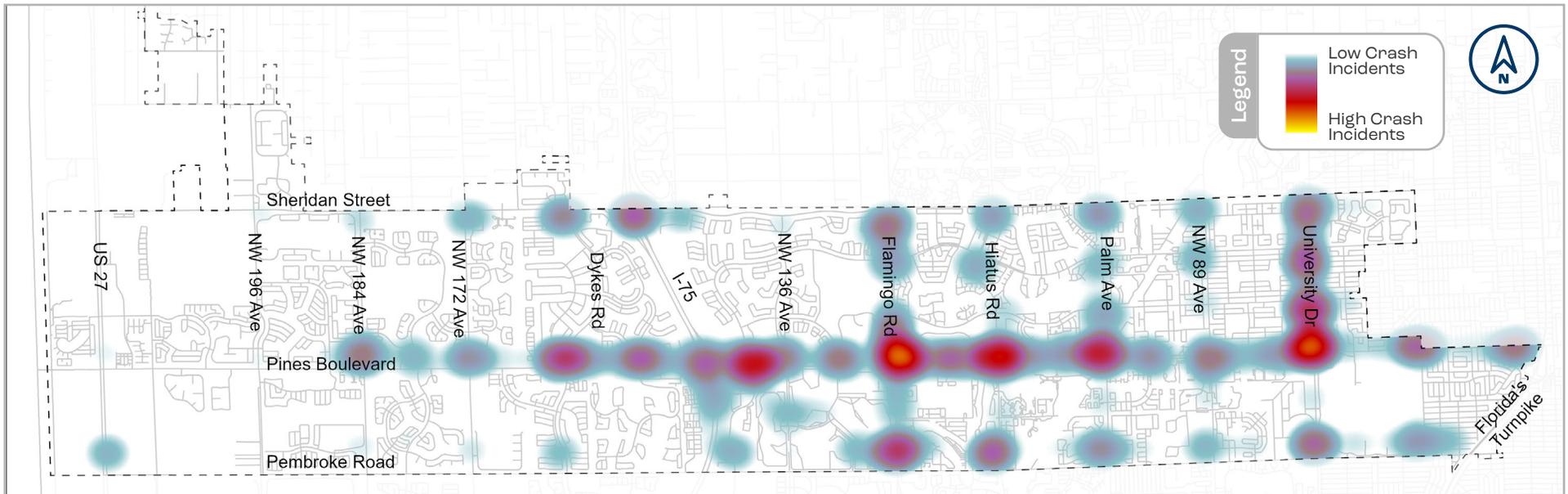


Figure 3-20 Crash Heat Map

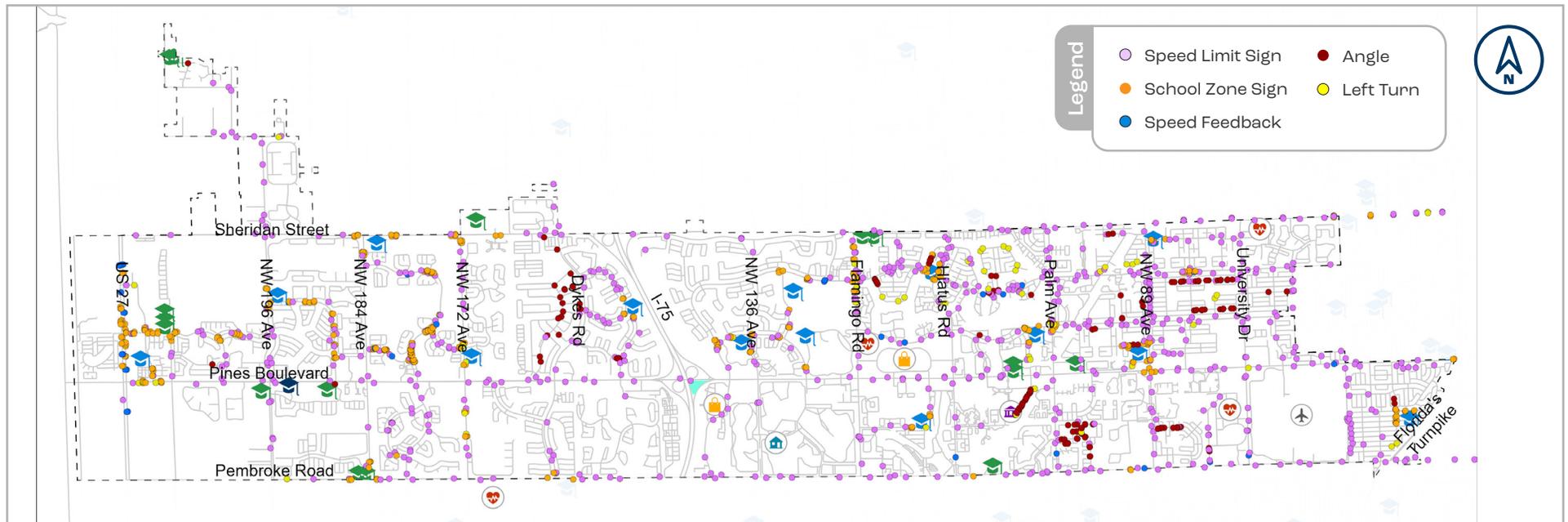


Figure 3-21 Speed Management Features

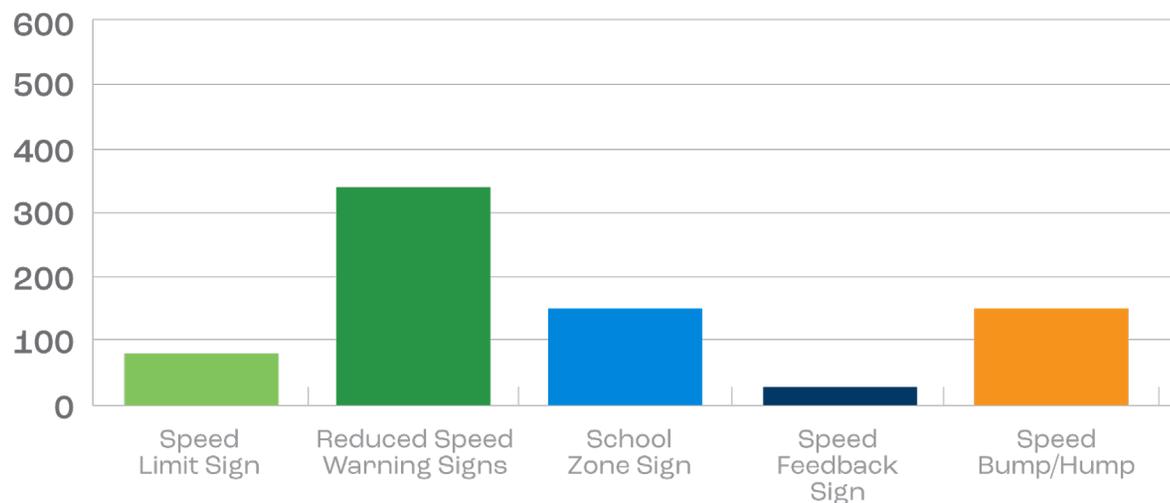


Figure 3-22 Speed Management Features Totals

3.13 Speed Management

In order to understand the most basic element of the City roadways, it was important to perform a detailed collection of speed management elements throughout the City including speed limits signs, school speed zones, speed feedback signs, speed humps/bumps, and speed warning signs, shown in **Figure 3-21**. This data collection effort provides the ability to identify gaps in speed information and areas in need of traffic calming measures to promote safe speeds in context with each roadway.

Figure 3-22 summarizes the counts of each speed management feature.

4. Future Conditions

4. Future Conditions

A future conditions assessment was performed based on the existing conditions data in conjunction with the future needs which were determined based on the City's projected growth. The forecasted results from the transportation inventory were developed into GIS layers providing a basis for assessing the future needs of all user groups in the City.

4.1 Future Traffic Demand

Future traffic demand for major roadways within the City of Pembroke Pines was generated by reviewing and using growth rates obtained from Southeast Florida Regional Planning Model (SERPM) v8.522 and applied to 2021 AADTs obtained from

FTO which is necessary for the future level of service determination. In order to determine an accurate forecast of 2045 volumes, growth rates were calculated for every roadway around every location that a station was present or an AADT could be located within FTO. Growth rates (from the SERPM model) within the City of Pembroke Pines varied from a negative annual growth (traffic volume decay) to a maximum annual growth rate of 3.61%.

4.2 Future Level of Service Determination

Using the data generated from the Future

Traffic Demand efforts, the future LOS was determined for each horizon 2045 year (based on the forecasted volumes). Areas exhibiting deficient future LOS were identified and documented, as shown in **Table 4-1**. Similar to the efforts for the existing LOS determination, the results of the future LOS determination were used to provide useful planning-level information in order to develop the future conditions analysis. Based on the future roadway capacity analysis, all roadway segments within the City's limits are expected to operate at LOS D or better, except for the following segments shown in **Table 4-1**. **Figure 4-1** depicts Future Roadway Capacity.

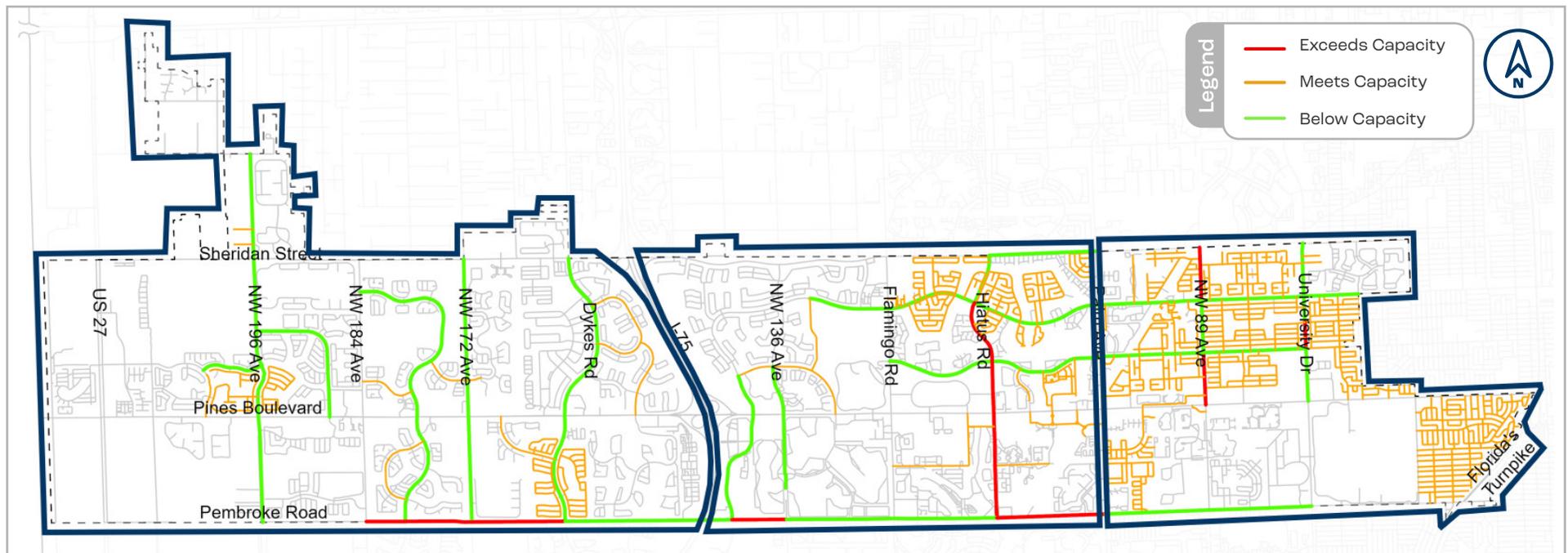


Figure 4-1 Future LOS

ID #	Road	From	Are accessible curb ramps present at all crosswalks?	To	Are accessible curb ramps present at all crosswalks?	Potential Trip Attractor	Number of Lanes	Speed Limit	Roadway Jurisdiction
1	Pembroke Road	SW 184th Avenue	yes	SW 178th Avenue	yes	Pembroke Pines Charter Elementary & Middle School	2	45 mph	City
2	Pembroke Road	SW 178th Avenue	yes	SW 172nd Avenue	yes	Pembroke Pines Charter Elementary & Middle School	2	45 mph	City
3	Pembroke Road	SW 172nd Avenue	yes	Dykes Road/SW 160th Avenue	yes	Memorial Hospital Miramar	2	45 mph	City
4	Pembroke Road	SW 145th Avenue	yes	SW 136th Avenue (T-intersection)	yes	"Broward College /FIU Miramar Keiser University"	4	45 mph	City
5	Pembroke Road	Hiatus Road	yes	Palm Avenue	yes	Pembroke Pines Charter Elementary School	4	45 mph	City
6	Hiatus Road	Taft Street	yes	Johnson Street	yes	Pembroke Lakes Elementary School	4	35 mph	City

ID #	Roadway Functional Classification	LOS	Sidewalk	Bike Lane	Multi-Use Path	Needs
1	Major Collector	F	Both Sides of Roadway	None	none	<ul style="list-style-type: none"> Widen 2L to 4L Add bike lanes/or shared paths in each direction Improve signal timing/synchronization at both signalized intersections: Pembroke Rd & SW 184th Ave and Pembroke Rd & SW 178th Ave. Add pedestrian crosswalk markings to reinforce the yielding of vehicles turning during a green signal phase at Pembroke Rd & SW 184th Ave. Address congestion and pick-up/drop-off operations at Pembroke Pines Charter Elementary & Middle School.
2	Major Collector	F	Both Sides of Roadway	Both Sides of Roadway	none	<ul style="list-style-type: none"> Widen 2L to 4L Improve signal timing/synchronization at both signalized intersections: Pembroke Rd & SW 178th Ave Pembroke Rd & SW 172nd Ave. Add pedestrian crosswalk markings to reinforce the yielding of vehicles turning during a green signal phase at Pembroke Rd & SW 172nd Ave.
3	Major Collector	F	Both Sides of Roadway	Both Sides of Roadway	none	<ul style="list-style-type: none"> Widen 2L to 4L Improve signal timing/synchronization at Pembroke Rd & SW 160th Ave. Add pedestrian crosswalk markings to reinforce the yielding of vehicles turning during a green signal phase at Pembroke Rd & SW 160th Ave (only EB & SB approaches).
4	Major Collector	F	Both Sides of Roadway	none	none	<ul style="list-style-type: none"> Improve signal timing/synchronization at Pembroke Rd & SW 145th Ave and Pembroke Rd & SW 136th Ave After review - if needed, implement adaptive traffic signal technology to improve congestion & delay. Add bike lanes Add pedestrian crosswalk markings to reinforce the yielding of vehicles turning during a green signal phase
5	Major Collector	F	Both Sides of Roadway	Both Sides of Roadway	none	<ul style="list-style-type: none"> Improve signal timing/synchronization at Pembroke Rd & Hiatus Rd and Pembroke Rd & Palm Ave After review - if needed, implement adaptive traffic signal technology to improve congestion & delay. Address congestion and pick-up/drop-off operations at Pembroke Pines Charter Elementary School.
6	Minor Arterial	F	Both Sides of Roadway	none	none	<ul style="list-style-type: none"> Improve signal timing/synchronization at both signalized intersections: Hiatus Rd & Taft St and Hiatus Rd & Johnson St. After review - if needed, implement adaptive traffic signal technology to improve congestion & delay. Add crosswalk markings to reinforce the yielding of vehicles turning during a green signal phase. Address congestion and pick-up/drop-off operations at Pembroke Lakes Elementary School.

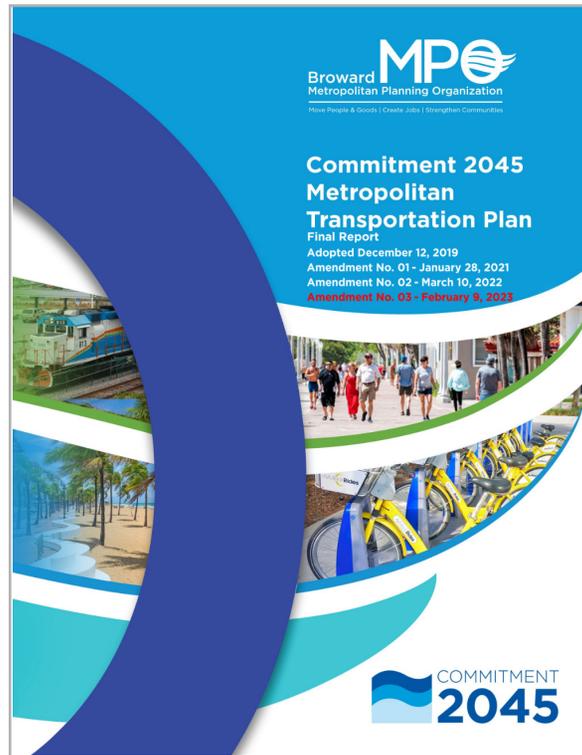
Table 4-1 Future Roadway Capacity

4.3 Planned Improvements

Planned transportation improvements were retrieved and reviewed from all relevant sources, such as the Broward MPO MTP – formerly known as Long Range Transportation Plan or LRTP, Broward MPO 5-Year TIP, the Broward County Mobility Advancement Program (MAP also known as Penny for Transportation Program), the Broward MPO Complete Streets Master Plan (CSMP), and other documents published by the City, County, State, Municipality, and local/private agencies.

Broward MPO’s MTP serves as the primary source for identifying priority projects to be included in the TIP. It guides how federal, state, and local transportation funds should be spent. It also offers a coordinated planning effort to minimize the reconstruction of existing facilities, reduce traffic congestion, and allow for adjustment to control management policies and transportation plans.

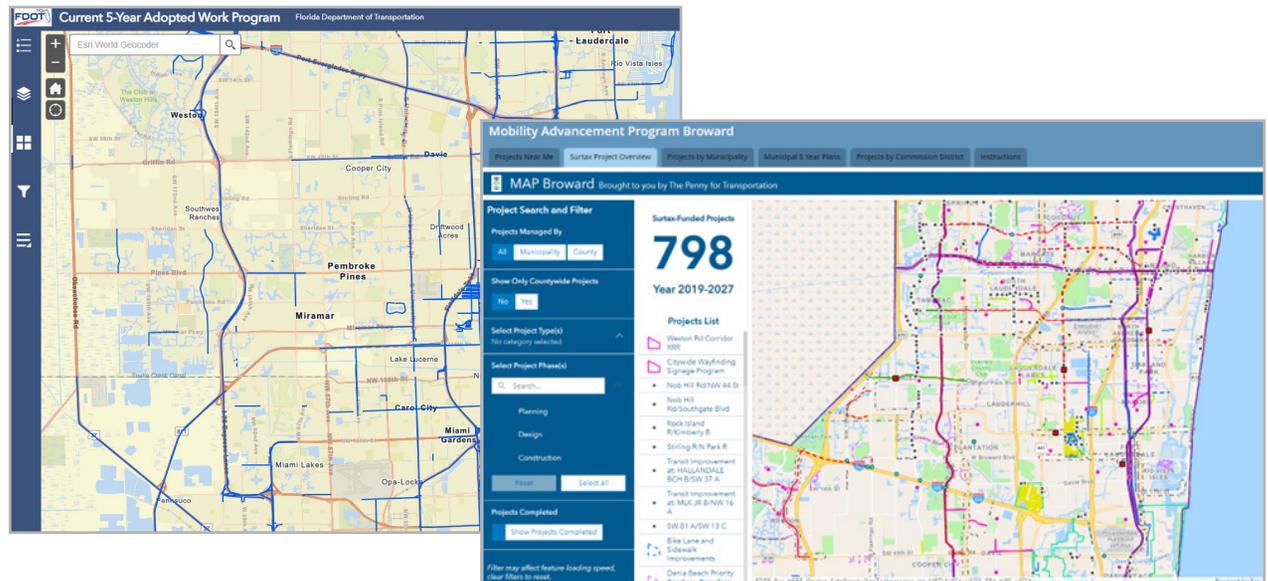
The TIP is a comprehensive list of transportation projects planned for funding during the next five years in Broward County. This program represents the collaborative integration of planning by local government, the FDOT, the MPO and implementing agencies. As a prerequisite for inclusion on an MPO priority list, projects need to be first identified as part of the Long-Range Planning Process, and then this priority list is submitted to FDOT for review. FDOT funds these priorities yearly, determined by the MPO in the Annual Work Program. The federal and state components of the TIP are created through the Annual Work Program. The priority list is subsequently revised to account for these financial initiatives and a new list is customized for FDOT each year.



The Broward County MAP focuses on developing projects and enhancements that provide additional transportation options other than vehicles. This program is funded by the transportation surtax, a 30-year project-based plan including transportation, public works, municipal projects, innovation investments, planning, operations, maintenance and administrative support services used to operationalize the program.

The MPO established the Broward CSMP as a roadmap for future investments by ranking projects according to their priority using technical, data-driven analysis and community feedback. Planned transportation projects were also considered when the future LOS was analyzed and used to identify any project overlap and determine if combining projects may result in cost savings.

Based on this review, **Figure 4-2** includes the planned Transportation and Mobility project locations within the City.



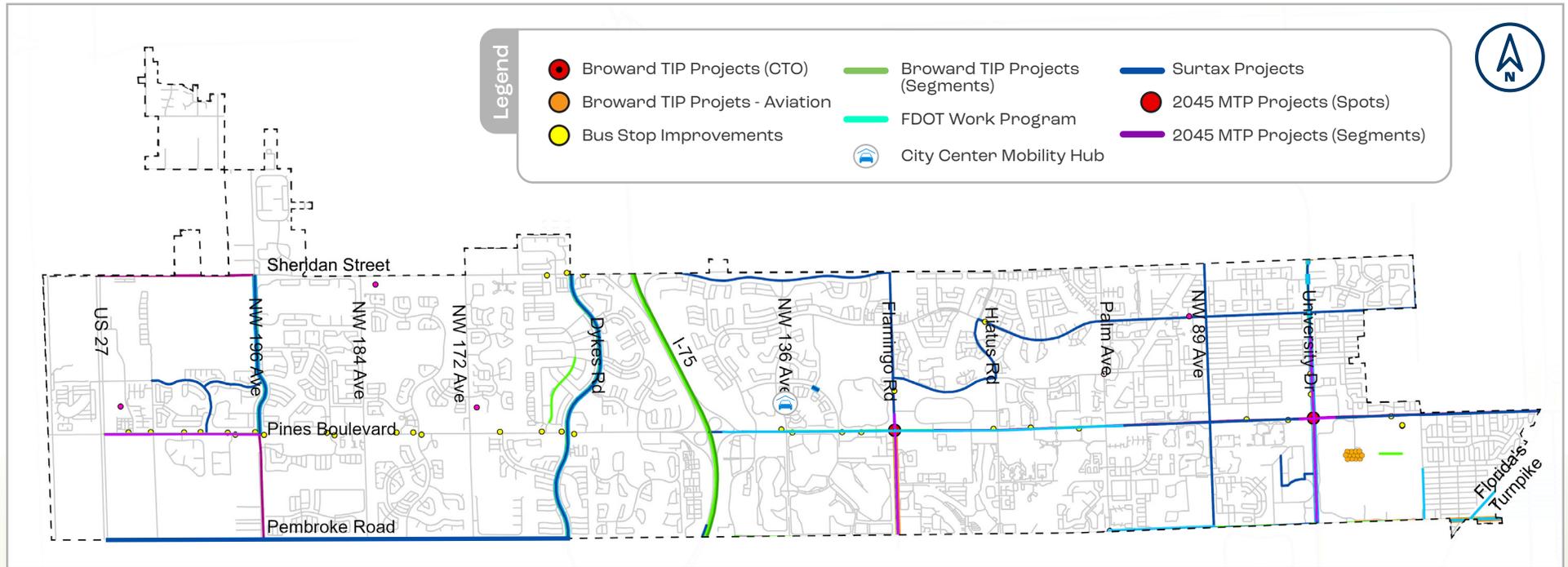


Figure 4-2 Planned Improvements Location Map



5. Alternatives Evaluation

5. Alternatives Evaluation

The needs evaluation reflects the City of Pembroke Pines' ongoing transportation planning efforts, incorporating the Long-Range Comprehensive Plan into the Transportation Master Plan. The transportation projects required to promote mobility and accessibility in the City over the next 20 years were analyzed and presented in the needs evaluation. The primary purpose of this analysis was to confirm if the City's transportation requirements will change over time to reflect new development patterns, the impact of recent transportation investments, other socioeconomic factors and regional and subregional trends. Using the data gathered for this assessment, existing determinations of future needs were made based on the City's projected growth, and problems were identified, such as traffic congestion or accessibility gaps.

In order to accommodate all road users, the transportation system should provide a safe network of facilities. The difficulty that agencies face is balancing the interest of each mode of transportation in a limited amount of right-of-way. All transportation network facilities are planned, designed, and operated with safety as a top priority. Managing future growth and reshaping existing urban areas are also essential components of improving conditions for all road users.

5.1 Develop Transportation Improvements

The existing transportation inventory and assessment were a key component in forecasting the City's future roadway network, transit services, multimodal facilities, safety, capacity and connection needs. Using the data gathered from the existing assessment, future improvement project recommendations were made based on the City's projected growth and deficiencies in its transportation system. The proposed transportation improvements were developed into GIS layers providing a basis for the needs assessment as part of the Transportation Master Plan development. The Transportation Master Plan serves as the basis for the needs assessment to allocate available funds for transportation projects in the City over the next five (5), ten (10), and twenty (20) years. The needs assessment expands on those funding commitments for transportation to identify what additional needs exist now or will exist during the following 20 years of planning. It is significant to emphasize that costs are not a factor in the needs assessment. Instead, it forecasts future transportation needs along the City's corridor based on the categories of congestion, economic activity or redevelopment and accessibility issues for those with mobility issues.

5.2 School Traffic Mitigation Alternatives

Based on the school field observations and input from Pembroke Pines' citizens and key stakeholders, each City's schools have distinct characteristics that require careful analysis and evaluation. However, the overall feedback received was aligned with the field observations findings. Based on the school field observations, the main factors contributing to traffic congestion around schools during arrival and dismissal periods are: parents taking students to school as opposed to having them ride the bus or walk, parents parking in illegal areas to drop-off/pick-up students, access issues around schools, blocking intersections, pedestrian crashes, lack of temporary parking spaces and poorly timed traffic signals.

School-related traffic congestion poses a risk to the safety of the students, teachers, neighbors, and drivers in and around schools. One of the major causes of traffic congestion around schools is parents picking up and dropping off their children. Traffic congestion causes inconvenience to drivers and can contribute to "road rage." Child pedestrian injuries or fatalities can be caused by traffic congestion and is more likely to occur due to high traffic volume and on-street parking, where children frequently emerge "masked" from behind parked vehicles. A lack of temporary parking spaces, poorly timed traffic signals, and entry and exit routes constructed without considering overall traffic commuting patterns also contribute to congestion.

As previously mentioned, safety is a main priority on the City's agenda, and its vision is to provide high-quality multimodal alternatives that encourage residents to shift from using their vehicles to walking or bicycling for short trips.

Improving multimodal connectivity will not only help reduce traffic congestion, especially around schools but also improve mobility and support long-term resiliency in the City. Creating a safe and comfortable environment for children is challenging but vital, and it also requires coordination and cooperation from parents, school staff, and local government agencies. Several strategies can help alleviate traffic congestion around schools and were considered during the review process as follows:



Strategies to Alleviate School Traffic Congestion

- Educating parents about their children using alternative transportation modes to and from school
- Encouraging students to walk or bike to school safely
- Encouraging carpooling
- Reducing the number of students taken to school in private vehicles
- Mapping out safe pedestrian routes (Safe Routes to School program)
- Improve the drop-off and pick-up operations
- Implementing a "walking school bus" program
- Improving school bus safety programs
- Altering drop-off and pick-up schedules
- Establishing curbing and parking zones
- Rerouting street networks
- Synchronizing traffic lights
- Enhancing the enforcement of existing traffic laws
- Increasing traffic fines
- Implementing traffic calming measures

The Manual on Uniform Traffic Control Devices (MUTCD) contains a variety of traffic control devices and crossing treatments for school zones and along school walking routes that can be implemented to improve safety and traffic congestion which were incorporated in the project improvements list:

MUTCD School Zone Safety and Traffic Recommendations



- Reduced speed zones
- Traffic-calming techniques
- Marked crosswalks or expanded parking controls
- Adult crossing guards
- Stop-controlled crosswalks
- Signalized crosswalks
- Signalized crossing (with pedestrian activators)
- Full accessibility for all road users
- Crossing islands at intersections
- Grade-separated crossings



5.3 School Alternative Transportation Concepts

The City of Pembroke Pines Charter School System was developed during the early 1990s as an alternative to help reduce the student population from public schools. Charter schools are independently operated but still public-funded. Several Pembroke Pines Charter Schools began providing transportation for students who live between 2 and 6 miles from the campus to alleviate traffic congestion; however, for students who live within 2 miles from their schools, their parents are still responsible for providing transportation to and from school. Broward County School Board also has specific transportation boundaries for traditional public schools where students living in the walking zone surrounding the school (less than a 2-mile radius) are not eligible for bus transportation. Only students residing in the bus zone (approximately 2–4 miles from the school) are eligible for free bus transportation.

Pembroke Pines is known for offering a high-quality education for its residents, which brings many outside students to take advantage of the City's unique education system. Pembroke Pines Charter School System currently has approximately 13,522 students enrolled in seven (7) elementary schools, five (5) middle schools, and three (3) high schools. Approximately 30-40% of Charter Schools students reside outside the City limits. These students would not be able to benefit from the potential of expanded school transportation programs. These statistics obtained from the City indicates that the need for effective and efficient School Traffic Operations Plans are critical to ensure safe and efficient traffic operations during arrival and dismissal periods. While the potential expanded

transportation programs may increase the opportunity for reducing the number of parent drop-offs/pick-ups, data suggests that high vehicular activity should be anticipated for Charter Schools.

Based on input from City's staff and stakeholders, a few transportation concepts were developed to explore and evaluate opportunities to help close gaps in the existing school transportation program. The preliminary transportation concepts include the following:

Preliminary Transportation Concepts



- Micro Bus Program
- School Bus Hubs
- Safe Routes to Schools (SRTS) Infrastructure/Walking School Bus (WSB) Program
- Golf Cart & Low-Speed Vehicle (LSV) Operation

In order to facilitate evaluating different school transportation concepts, the City was subdivided into four (4) zones, as shown in **Figure 5-1**.

The safety review analysis area was expanded from 0.5 miles to 2 miles around each school, identifying high-priority school locations currently affected by high traffic congestion and exploring additional transportation options for students living within 2 miles of the school. As previously mentioned, one of the significant causes of traffic congestion around schools is parents taking their children to school instead of having them ride the bus or walk. Based on the input from the community and stakeholders, additional transportation concepts that could be implemented around school areas were evaluated, and an overview of each concept is shown below. It is important to note that these concepts are preliminary and can be modified according to the City's understanding of local needs.

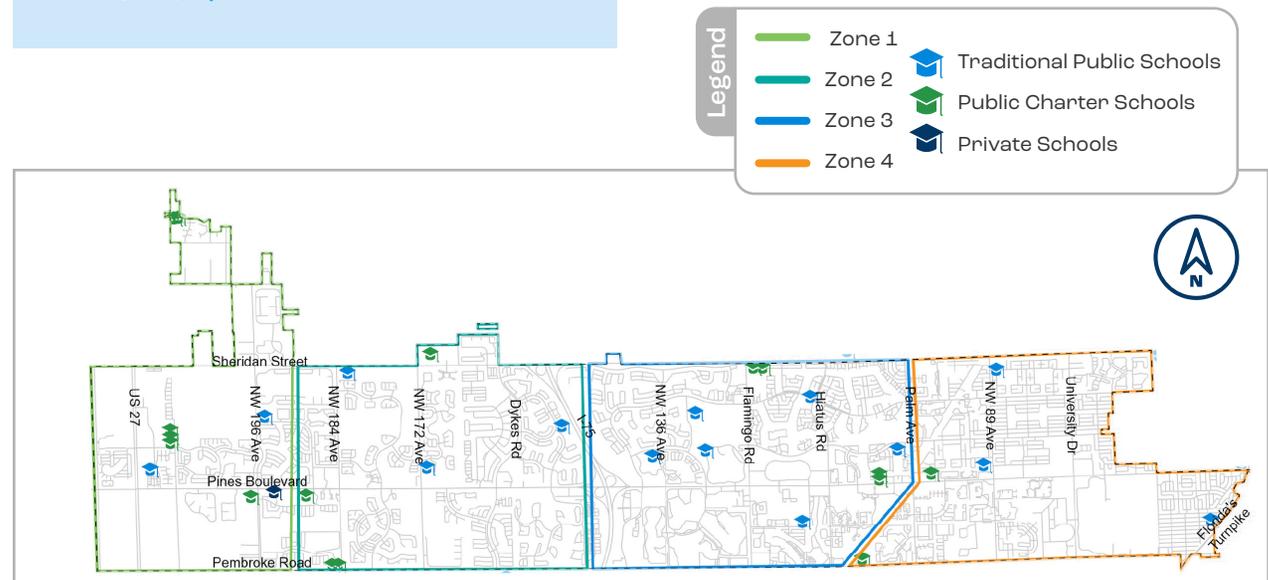


Figure 5-1 Alternative Transportation Concept Zones

Micro Bus Program

This proposed program focuses on providing additional transportation to students that live within 2 miles of their assigned school. Increasing school transportation services for the youth population is a strategy that could help alleviate some of the school-related traffic congestion by reducing the use of single vehicles.

Many constraints, such as distance, time, safety, violence, crime, and weather, affect

parents' decisions to allow their children to walk, bike, or take the bus to and from school. This program is still under development as the potential number of buses needed to accommodate the students are being calculated. This initiative could be an efficient alternative to solve the existing gap in transportation for those students who live within 2 miles of their school and rely on their parents for transportation.

The estimated cost per bus for 20 passengers (plus space for two wheelchairs) is approximately \$135,000, which can be purchased using Federal Transit Administration (FTA) matching funds. The remaining cost can be funded by a partnership between parents, charter schools, homeowners associations (HOA), or the City.

The buses will be equipped with safety features, seat belts, cameras, GPS

tracking systems, and emergency exits. Pembroke Pines Charter Schools have implemented safety features in their current transportation services, such as ReaXium where Charter school families can receive notifications through an application that can monitor their student boarding, estimated pick-up times, and it also offers comprehensive school bus tracking and telematics to monitor the bus. Similar safety features can also be implemented in this

Micro Bus Program. Based on the safety review evaluation, four (4) school bus routes were developed within the four (4) zone.

Figure 5-2 shows that each proposed route includes stops at between seven (7) to nine (9) schools. It should be noted that this is a preliminary concept that can be modified depending on the City's local needs.



NEW MOBILE APP FOR FAMILIES

REA X I U M
School Bus

Safety & peace of mind

- MONITOR YOUR STUDENTS' STATUS
- GET NOTIFIED OF UNFORESEEN CHANGES
- TRACK THE BUS LOCATION
- ENSURE THE RIGHT BUS AND STOP

Get on board!

CHARTER SCHOOLS
Pembroke Pines

<https://reaxium.com>

Micro Bus Program Details

Micro Bus Program	Objective Provide transportation to Charter school students living within two miles of their assigned school.		Potential Funding Source <ul style="list-style-type: none"> FTA Grants
	Benefits <ul style="list-style-type: none"> Reduced traffic congestion around schools Reduced Privately Own Vehicle (POV) Trips Enhanced security and safety systems 	Users <ul style="list-style-type: none"> Elementary School Students Middle School Students High School Students 	Infrastructure Requirements <ul style="list-style-type: none"> Buses/Shuttles Bus Operators Bus Stops Bus Routes Passenger pick-up & drop-off Bus GPS tracking Student ridership tracking Wifi Comprehensive training program for bus operators Develop transportation zone based on school's demand Explore partnership and/or agreement with current school bus contractors from BCS transportation
	Impediments <ul style="list-style-type: none"> Distance of travel for Charter school students Cost Safety Fleet Maintenance 	Operators <ul style="list-style-type: none"> Parents Homeowner Association (HOA) City 	

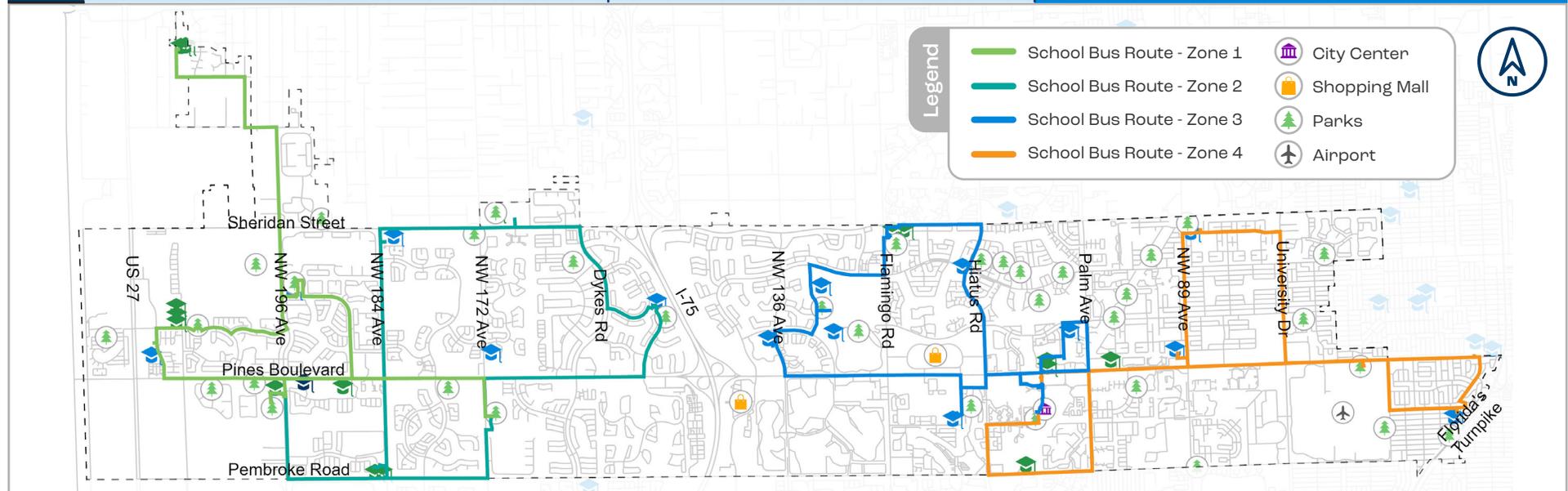


Figure 5-2 Potential Micro Bus Routes

School Bus Hubs

This proposed program focuses on implementing School Bus Hubs (or Micro Bus terminals) within the same zones shown in **Figure 5-1**.

This preliminary concept will complement the Micro Bus Program as both elements from each program must be planned together to help provide additional student transportation access. Traffic operation analyses should be conducted at each school (adjacent to the proposed bus hub) to further evaluate and develop the student loading operations at each location. Additionally, each school driveway should also be reviewed (along with a queueing analysis) to identify current deficiencies and to make recommendations to improve the main access point for parents to drop-off and pick-up their students during their arrival and dismissal times.

Figure 5-3 identifies the potential school bus hub locations, drop-off/pick-up hub locations, and the safe student routes.

A School Traffic Operation Plan (TOP), including safety study reviews, parking analysis, and queue analysis, should be developed for all potential existing sites that

are adjacent to schools. This will evaluate each location and recommend accessible pick-up and drop-off area hubs that could potentially become additional school pick-up and drop-off locations during arrival and dismissal periods. As shown in **Figure 5-3**, the potential bus hub location from Zone 1 could be located at the West Pines Soccer Park, which is adjacent to Somerset Academy Chapel Trail Elementary School. The preliminary concept would be to use the field parking lot to accommodate queueing demand and consider opening a connection/gate to the park on the south side of the school for direct access. The “red flag” icons adjacent to the schools represent the potential drop-off/pick-up hub locations, and the “red dash lines” show the pedestrian traffic from the drop-off/pick-up hubs to some schools. There are two (2) potential alternatives for this initiative:

Modify Existing Sites

such as parks and government facilities, to implement the hubs. Based on the safety review evaluation, the following locations can be considered as potential school bus hubs (see **Figure 5-3**):

Potential Design Features for Existing Sites:

- Wayfinding Signage
- Real-time transit information
- Bus/Shuttle Stops
- Route Schedule
- Minor site modifications, such as adding seating and shelter structure

Developing a New Site

This option could be expensive due to the costs associated with the infrastructure and requirements to develop a new terminal.

Potential Design Features for New Sites:

- Wayfinding Signage
- Real-time Transit information
- Shelter/Shade Structure
- ADA Compliant
- Safe Pedestrian Crossings
- Convenience Retail
- Passenger Pick-up & Drop-off Area

Image Source: DeWitt & Associates, Inc.



School Bus Hubs Details

School Bus Hubs	<p>Objective Identify potential school bus hub locations where students can gather to catch the bus together, facilitating multimodal travel.</p>		<p>Potential Funding Source</p> <ul style="list-style-type: none"> Broward County Surtax 		
	<p>Benefits</p> <ul style="list-style-type: none"> Reduced traffic congestion around schools Reduced Privately Own Vehicle (POV) Trips Replace short car trips w/ transit Encourage students to use public transit 	<p>Users</p> <ul style="list-style-type: none"> Elementary School Students Middle School Students High School Students 	<p>Infrastructure Requirements</p> <p>Existing Sites:</p> <ul style="list-style-type: none"> Regional Locations on east side of City: Parks, City Center Wayfinding Signage Real-time transit information Bus/Shuttle Stops <p>New Site:</p> <ul style="list-style-type: none"> Seating Wifi Parking Bike racks ADA compliant Shelter Passenger pick-up & drop-off 		
	<p>Impediments</p> <ul style="list-style-type: none"> Safety Select Locations Build new site Cost 	<p>Operators</p> <ul style="list-style-type: none"> Charter Schools 			
	<p>School Bus Hub – Zone 1</p> <p>West Pines Soccer Park & Nature Preserve 350 SW 196th Ave</p>		<p>School Bus Hub – Zone 2</p> <p>Pembroke Shores Park - Government 501 SW 172nd Ave</p>		
<p>School Bus Hub – Zone 3</p> <p>City Center Pembroke Pines 601 City Center Way</p>		<p>School Bus Hub – Zone 4</p> <p>Pines Recreation Center 7401 Pines Blvd</p>			

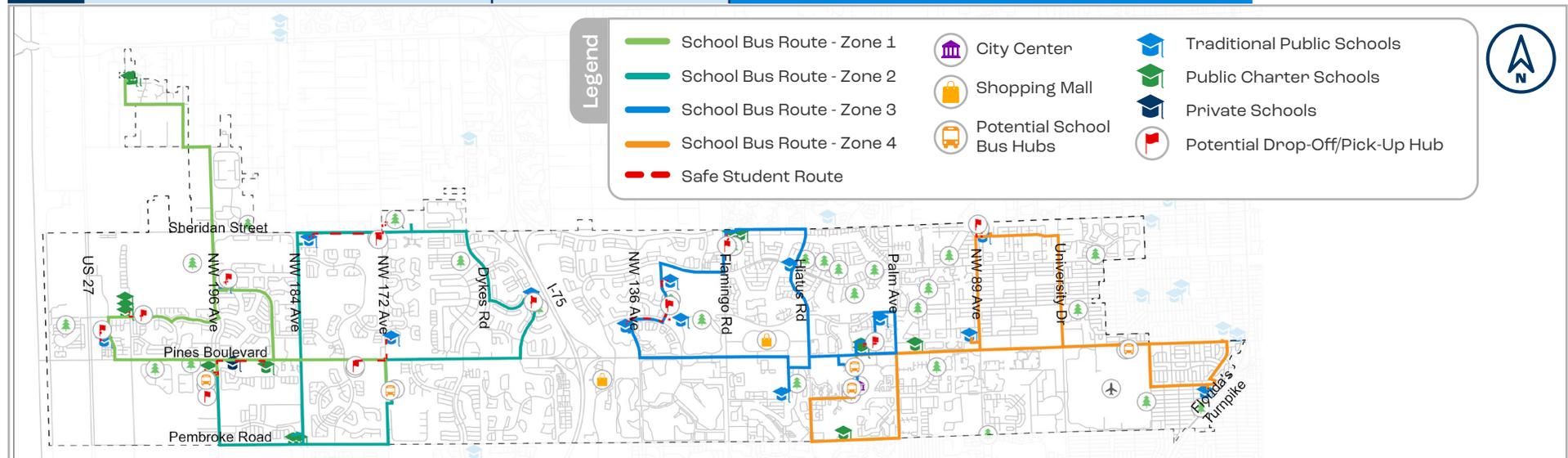


Figure 5-3 Potential School Bus Hub Locations

Safe Routes to School (SRTS)/Walking School Bus (WSB) Program

In the late 1990s, Florida was one of the leading states in the United States to begin working on Safe Routes to School (SRTS). SRTS uses different approaches to promote walking and bicycling to schools, including infrastructure improvements, enforcement, tools, safety education, and other incentives. Improving safety and levels of physical activity for students is another benefit of SRTS initiatives. According to SRTS, programs can be implemented by a department of transportation, metropolitan

planning organization, local government, school district, or even a school. There are extensive resources available through a national center, including an SRTS Guide, parent surveys and student tallies, and simple strategies, such as the Walking School Bus (WSB), that schools can use to support bicycling and walking. SRTS created the WSB program to encourage children to walk in a safe and supervised manner. This program aims to organize interested schools, families, and classes to walk in groups of all sizes to

public and private schools. A 0.5-mile buffer area was analyzed to identify high-priority schools with the greatest need for SRTS infrastructure improvements evaluating safety, capacity, and connectivity for each location. These high-priority schools can also be considered for WSB program implementation. The selected elementary and middle schools are shown in **Figures 5-4 and 5-5**.

Safe Routes to School (SRTS)/ Walking School Bus (WSB) Program	Objective Organize interested schools, families, and classes to walk in groups of all sizes to public and private schools.	Infrastructure Requirements <ul style="list-style-type: none"> ▪ Sidewalk Network 	
	Benefits <ul style="list-style-type: none"> ▪ Promote physical activity ▪ Improve Safety: children walk together with adult supervision ▪ Create a sense of community among the children ▪ Reduce traffic congestion around schools 	Users <ul style="list-style-type: none"> ▪ Elementary School Students ▪ Middle School Students 	Potential Funding Source <ul style="list-style-type: none"> ▪ Florida SRTS Grants ▪ Local Agency Program (LAP) ▪ Transportation Alternatives (TA) Program for Sidewalk Improvements
	Impediments <ul style="list-style-type: none"> ▪ Weather ▪ Large Gated Communities (Distance) ▪ Sprawl 	Operators <ul style="list-style-type: none"> ▪ Parent Groups ▪ Schools 	



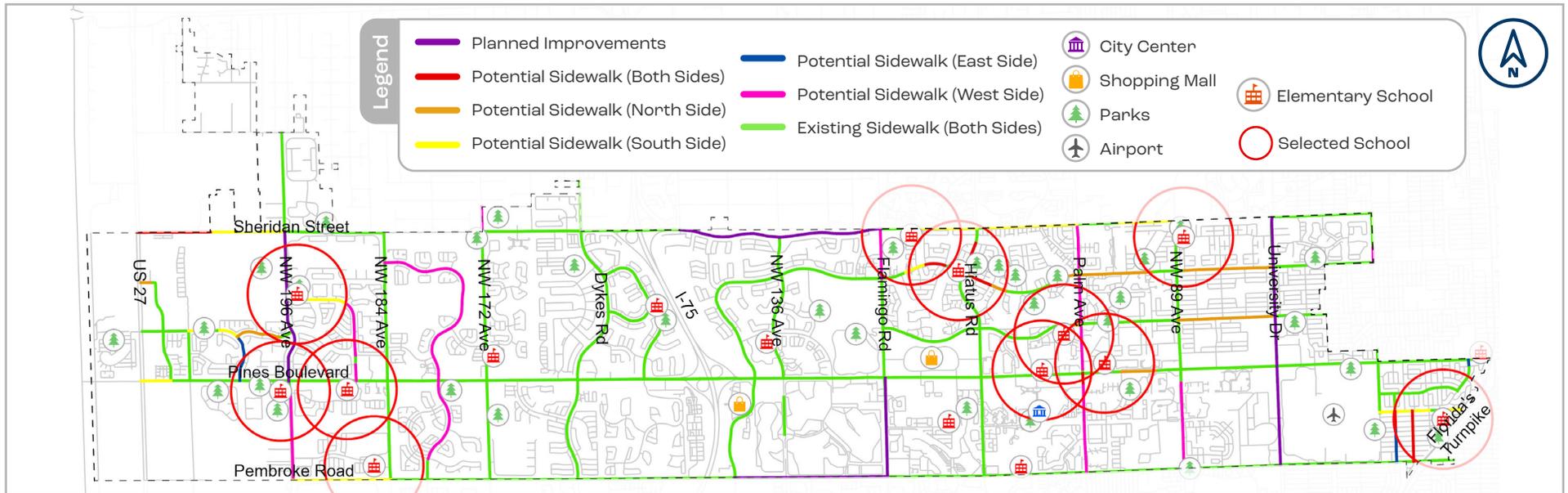


Figure 5-4 WSB Program Potential Elementary School Locations

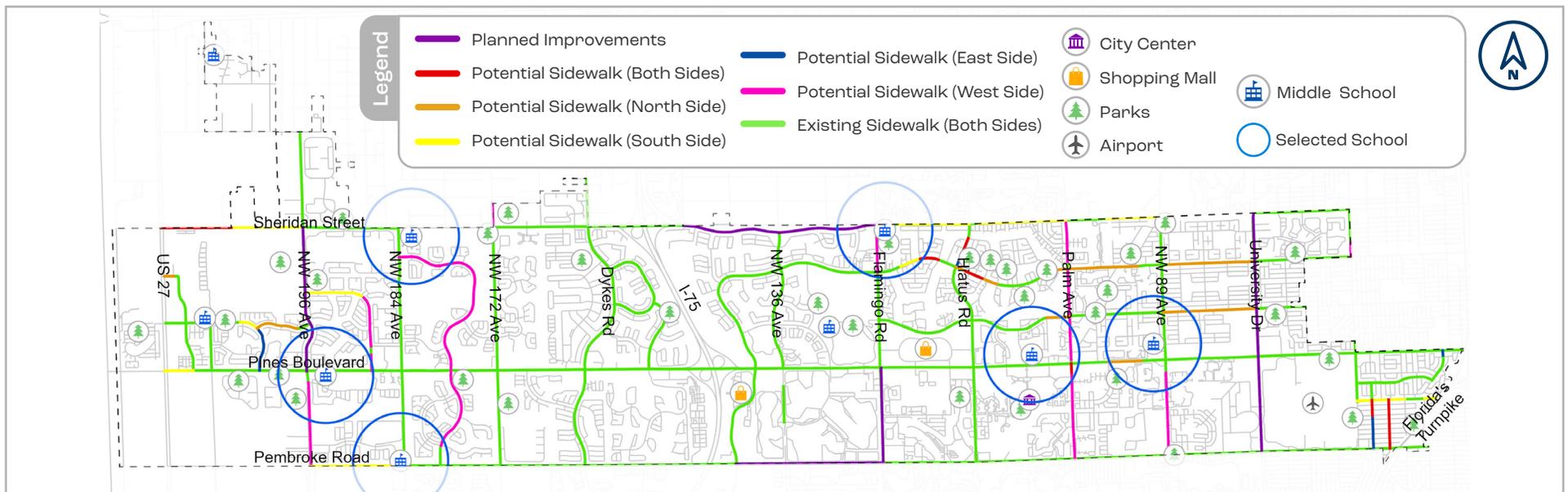


Figure 5-5 WSB Program Potential Middle School Locations

Golf Cart and Low Speed Vehicle Operations

Most municipalities have restrictions on operating golf carts on roadways and are also prohibited on city sidewalks. Usually, drivers are not allowed to operate golf carts and LSVs on city sidewalks unless a municipality designates specific multimodal networks, such as multi-use paths, including appropriate traffic control signs and pavement markings following the MUTCD and FDOT Standard Plan guidelines. For golf carts to be used on city streets, golf carts must be converted to LSV equipped with the following safety equipment: seat belts, a

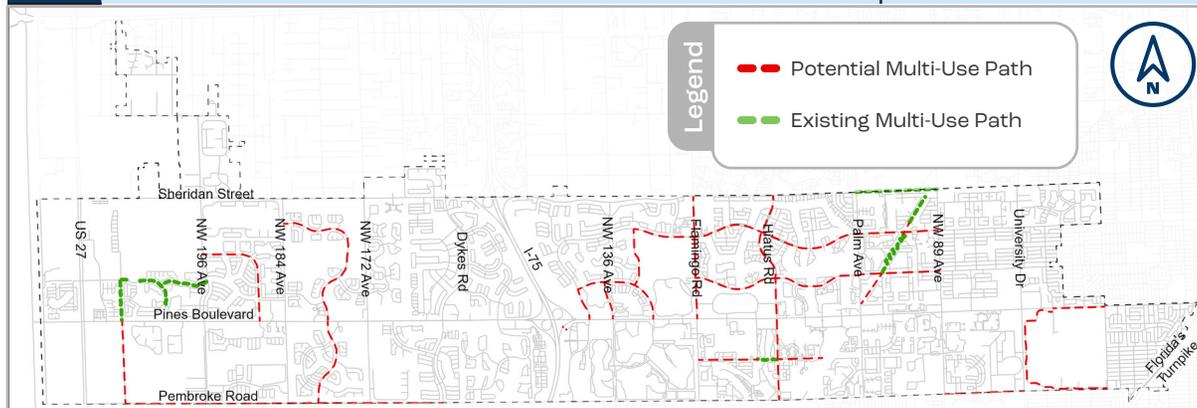
windshield, near view mirror, headlights, tail lights, stop lamps, side reflectors, a parking brake, turn signals and a VIN number.

Relevant sources such as Florida Statute regulating Golf Carts (FS 316.212), Florida Statutes Defining Golf Carts (FS 320.01), Florida Highway Safety & Motor Vehicles (FLHSMV), City of Palmetto Bay Golf Cart Program and Code of Ordinances (ARTICLE II. – GOLF CART USE ON CERTAIN DESIGNATED STREETS OR ROADS) were retrieved and reviewed. This information can be used as a

reference to establish the City's Ordinance and designate areas for golf cart and LVS operation. Operators of a golf cart or LVS will have to comply with the City's regulations and requirements.

Figure 5-6 depicts potential multi-use path locations where golf cart operations can be implemented, and **Figure 5-7** includes additional information regarding golf carts and low-speed vehicles.

Golf Carts/Low Speed Vehicles	<p>Objective Develop rules and regulations for driving Golf Carts/Low-Speed Vehicles in the city of Pembroke Pines, designating which locations can be allowed for golf cart/LSV operations.</p>		<p>Potential Funding Source:</p> <ul style="list-style-type: none"> City
	<p>Benefits</p> <ul style="list-style-type: none"> Environmentally friendly transportation Replace short car trips w/ driving golf carts/LSVs Alternative more of transportation 	<p>Users</p> <ul style="list-style-type: none"> Parents 	<p>Infrastructure Requirements</p> <ul style="list-style-type: none"> Multi-Use Path Improvements Develop City's Program Establish City's Code Signage (per MUTCD) Applicable Statutes Create rules for golf carts and LSVs Establish & Designate City's Golf Cart Program
	<p>Impediments</p> <ul style="list-style-type: none"> Weather Confusion with statutes 	<p>Operators</p> <ul style="list-style-type: none"> Individuals 	



- Per F.S.S. 316.003(29) and 320.01(22) A golf cart is defined as a motor vehicle that is designed for operation on a golf course or for sporting or recreation and is not capable of exceeding 20 mph.
- Per F.S.S. 316.613(1)(a) Child restraint requirements.— Every operator of a motor vehicle as defined in this section, while transporting a child in a motor vehicle operated on the roadways, streets, or highways of this state, shall, if the child is 5 years of age or younger, provide for protection of the child by properly using a crash-tested, federally approved child restraint device.
- Per F.S.S. 316.2122, a LSV is defined as a four wheeled vehicle whose top speed is greater than 20 mph, but less than 25 mph.
- A LSV must have a registered license plate and be insured, F.S.S. 320.02.
- Also per F.S.S 316.3122, a LSV must be equipped with the following safety equipment: Seat belts, a windshield, near view mirror, headlights, tail lights, stop lamps, side reflectors, a parking brake, turn signals and a VIN number.

Figure 5-6 Potential Multi-Use Path for Golf Carts/LSVs

1	Golf Carts	<p>Definition A golf cart is a motor vehicle that is designed and manufactured for operation on a golf course for sporting or recreational purposes and is not capable of exceeding speeds of 20 miles per hour.</p>	<p>Speed Limit 20 MPH</p>	<p>Vehicle Requirements</p>		
		<p>Driver Restrictions A person must be 14 years or older to operate a golf cart.</p>		<p>Registration No</p> <p>Title No</p> <p>PIP/PDL Insurance No</p>		
2	Low Speed Vehicles (LSV)	<p>Definition Low speed vehicles are vehicles with top speeds of 20 to 25 MPH. Golf carts can be converted to low speed vehicles and vice versa so the two of them are often confused. Owners of low speed vehicles have higher Federal safety standards as well as other requirements.</p>	<p>Speed Limit 25 MPH</p>	<p>Vehicle Requirements</p>		
		<p>Driver Restrictions Any person operating an LSV must have a valid driver's license.</p>		<p>Registration Yes</p> <p>Title Yes</p> <p>PIP/PDL Insurance Yes</p>		
3	Converted Golf Carts	<p>Definition Similar to LSV.</p>	<p>Speed Limit 25 MPH</p>	<p>Vehicle Requirements</p>		
		<p>Driver Restrictions Any person operating an LSV must have a valid driver's license.</p>		<p>Registration Yes</p> <p>Title Yes</p> <p>PIP/PDL Insurance Yes</p>		
4	All-Terrain Vehicles (ATVs)	<p>Definition Florida law, states that all-terrain vehicles (ATV) may only be operated on unpaved roadways where the posted speed limit is less than 35 MPH and only during daylight hours.</p>	<p>Speed Limit 35 MPH</p>	<p>Vehicle Requirements</p>		
		<p>Driver Restrictions Anyone under the age of 16 must be under the supervision of an adult and must have proof of completion of a Department of Agriculture and Consumer Services (DACs) approved safety course. ATV operators and riders under the age of 16 must wear a USDOT approved safety helmet and eye protection.</p>		<p>Registration No</p> <p>Title Yes</p> <p>PIP/PDL Insurance No</p>		

Figure 5-7 Golf Cart/Low Speed Vehicle Definitions and Requirements

Figure 5-8 Traffic Calming Measures

5.4 Traffic Calming Measures

Traffic Calming Measures are improvements designed to reduce the speed and traffic volumes in residential and commercial areas, increasing traffic safety for pedestrians and cyclists. An overall safety assessment was performed within the City's limits to identify potential locations where traffic calming measures can be implemented to address physical setting issues for intersections or segments depending on their roadway characteristics. Based on the assessment, some locations require traffic calming signs, speed limit signs, or traffic lights using appropriate signage and pavement markings following the guidelines outlined in the MUTCD, supplemented by state and local practice. Other locations require traffic calming improvements such as speed humps, traffic circles, road diets, raised crosswalks, roundabouts, and other physical barriers. Implementing traffic calming measures can help to reduce the risk of collisions and improve residents' quality of life.

It is important to note that these recommendations were developed based on the City's overall safety assessment, and further analysis should be conducted. A traffic study and report shall be submitted to Broward County Traffic Engineering Division (BCTED), the City's Traffic Management Team, and the City's police department for review and approval.

A description of each traffic calming measure was obtained from the FHWA Traffic Calming ePrimer and the Institute of Transportation Engineers (ITE) Traffic Calming Measures Fact Sheets. **Figure 5-8** summarizes some of these measures:

1

Roundabout

A **Roundabout** is an intersection design that contrasts with designs that require traffic signal control or stop control. A roundabout is often used as a replacement for a signalized intersection. A roundabout is sized to accommodate all large vehicles circulating the center island and the center island is non-traversable.

Roundabout benefits include dramatic reductions in severe injury and fatality crashes and delays for road users. Approaching motorists yield to motorists already in the intersection, which requires drivers to slow to a speed that allows them to maneuver around the roundabout comfortably.



2

Mini-Roundabout

A **Mini-Roundabout** is a raised island, placed within an unsignalized intersection, around which traffic circulates. The center island forces a motorist to use reduced speed when entering and passing through an intersection, whether the vehicle path is straight through or involves a turn onto an intersecting street. It is also expected to reduce the number of angle and turning collisions.

Mini-Roundabouts can be considered a small version of a roundabout recommended for local or collector streets with low volumes of large trucks and buses. This measure is intended to keep speeds to a minimum, improving traffic safety for all road users.



3

Traffic Circle

A **Traffic Circle** is a raised island, placed within an unsignalized intersection, around which traffic circulates. A circle forces a motorist to use reduced speed when entering and passing through an intersection, whether the vehicle path is straight through or involves a turn onto an intersecting street. A traffic circle can have Stop signs or Yield signs on the intersection approaches.

The primary benefit of a traffic circle is an expected reduction in the number of angle and turning collisions.



4

Landscaped Median Island

A **Landscaped Median Island** is a raised island located along the street centerline that narrows the travel lanes at that location. The visual appearance of narrowed lanes encourages a motorist to reduce speed.



5

Speed Hump

A **Speed Hump** is an elongated mound in the roadway pavement surface extending across the travel way at a right angle to the traffic flow. A speed hump is typically 3 inches in height (with applications as high as 4 inches) and 12 feet in length along the vehicle travel path axis.

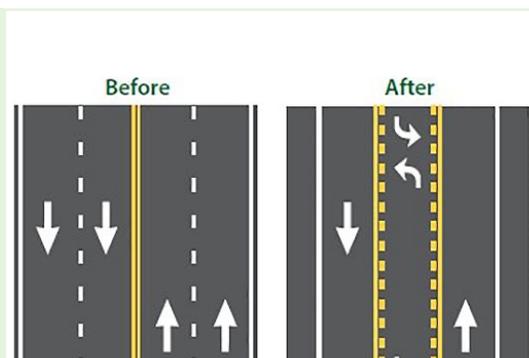
Speed humps are generally used on local residential streets to force drivers to slow down, improving traffic safety.



6

Road Diet

A **Road Diet** is the conversion of an undivided roadway to a cross-section with fewer or narrower through motor vehicle travel lanes. The most common application is the conversion of an undivided four-lane roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane. The reduction in the number of lanes permits the inclusion of facilities for other uses, such as bicycle lanes, sidewalks, pedestrian refuge islands, transit uses, and on-street parking.



7

Pedestrian Refuge Island

A **Pedestrian Refuge Island** is a pedestrian island that is typically constructed in the middle of a 2-way street and provides a place for pedestrians to stand and wait for motorists to stop or yield. This countermeasure is highly desirable for midblock pedestrian crossings on roads with four or more lanes, and should be considered for undivided crossings of four or more lanes with speed limits of 35 mph.

A pedestrian refuge island reduces the exposure time experienced by a pedestrian in the intersection.



8

Speed Cushion

A **Speed Cushion** (also known as speed lump or speed pillow) has cushions placed longitudinally in the roadway specifically to match the wheel tracks of fire vehicles.



9

Speed Feedback Sign

Speed feedback Sign is a dynamic sign equipped with radar technology to provide approaching motorists with their speeds. This sign is used in conjunction with a speed limit sign so that motorists can adjust their speed based on the speed feedback and posted speed limit.



10

Speed Table

A **Speed Table** is a raised area placed across the roadway designed to physically limit the speed at which a vehicle can traverse it. Like a speed hump, it extends across the travelway.



11

Raised Crosswalk

A **Raised Crosswalk** is a variation of a flat-topped speed table. A raised crosswalk is marked and signed as a pedestrian crossing. A raised crosswalk improves pedestrian safety by causing motorist speed to decrease at the crossing.



Figure 5-8 Traffic Calming Measures (continued)

5.5 Transportation Systems Management & Operations

The Federal Highway Administration (FHWA) defines Transportation Systems Management & Operations (TSM&O) as an integrated program that aims to maintain capacity and enhance the security, safety, and dependability of our transportation system by implementing systems, services, and projects that will optimize the performance of existing multimodal infrastructure. The TSM&O program's objective is to enhance the existing road network with innovative systems and technologies, implementing traffic safety measures, operations, and reliability to improve existing and future traffic demands.

TSM&O strategies demonstrate their effectiveness as a viable solution to roadway congestion by improving and expanding the ITS/communication networks, providing opportunities for detecting traffic, and compiling historical traffic data that can be analyzed to make future improvements. Limited right-of-way space and rising construction costs motivate cities to pursue TSM&O strategies. The examples shown to the right are some TSM&O strategies that can be implemented to improve traffic demand.

FDOT and its partner agencies can help identify and apply TSM&O initiatives in the early stage of project development. FDOT has taken the lead in implementing Intelligent Transportation Systems infrastructure across the state, including Regional Transportation Management Centers (RTMCs). Collaboration and cooperation among stakeholders, including public and private organizations, are necessary for implementing TSM&O strategies. Many TSM&O strategies, as well as data collection

TSM&O Strategies

- Work Zone Management
- Traffic Incident Management
- Special Event Management
- Road Weather Management
- Freight Management
- Traffic Signal Coordination
- Traveler Information
- Ramp Management
- Transportation Demand Management
- Congestion Pricing
- Active Transportation and Demand Management
- Integrated Corridor Management
- Access Management
- Connected and Automated Vehicle Deployment

and monitoring, are based on standard traffic management equipment, such as fiber optics and communication systems, that should be installed when needed to facilitate the deployment of TSM&O solutions.

A high-level TSM&O review was completed to identify opportunities to expand and improve the existing TSM&O network within the City limits. Existing and planned TSM&O facilities were reviewed using relevant data provided by FDOT. These resources were utilized to identify gaps in the current transportation network and to consider potential locations with higher needs for TSM&O implementations. The existing

equipment and development opportunities from relevant plans and projects were reviewed to determine specific TSM&O treatments; however, further analysis should be conducted for particular projects in order to identify the specifics of the TSM&O implementation. Three service areas were considered as possible implementation strategies:

TSM&O Implementation

Traffic Management

- To develop systems to monitor traffic flow and roadway conditions.



Transit Management

- To develop systems to provide transit traveler information, transit signal priority, electronic fare payment, and other transit communication and management systems.

Safety and Emergency Management

- To provide a rapid and effective response to incidents and emergencies.

TSM&O systems and technologies used to connect devices deployed on the street with traffic operations centers can ensure better communication as the following:

TSM&O Systems + Tech

- Fiber optic network
- ITS devices to compile traffic data collection
- Traffic monitoring and management facilities
- Traffic signal priority
- Enhance signal technology
- Implement Dynamic Message Signs (DMS)
- Expand arterial traffic management with CCTVs
- Implement vehicle/pedestrian/bicycle detection
- Implement connected vehicle applications

Figure 5-9 depicts the existing and planned TSM&O facilities within the City of Pembroke Pines.

Based on the TSM&O review, segments with the highest transit ridership, crash density, and most congested (based on the roadway capacity analysis) were identified, and the potential locations for improvement are shown in **Figure 5-10**.

Figure 5-9 Existing and Planned TSM&O Facilities

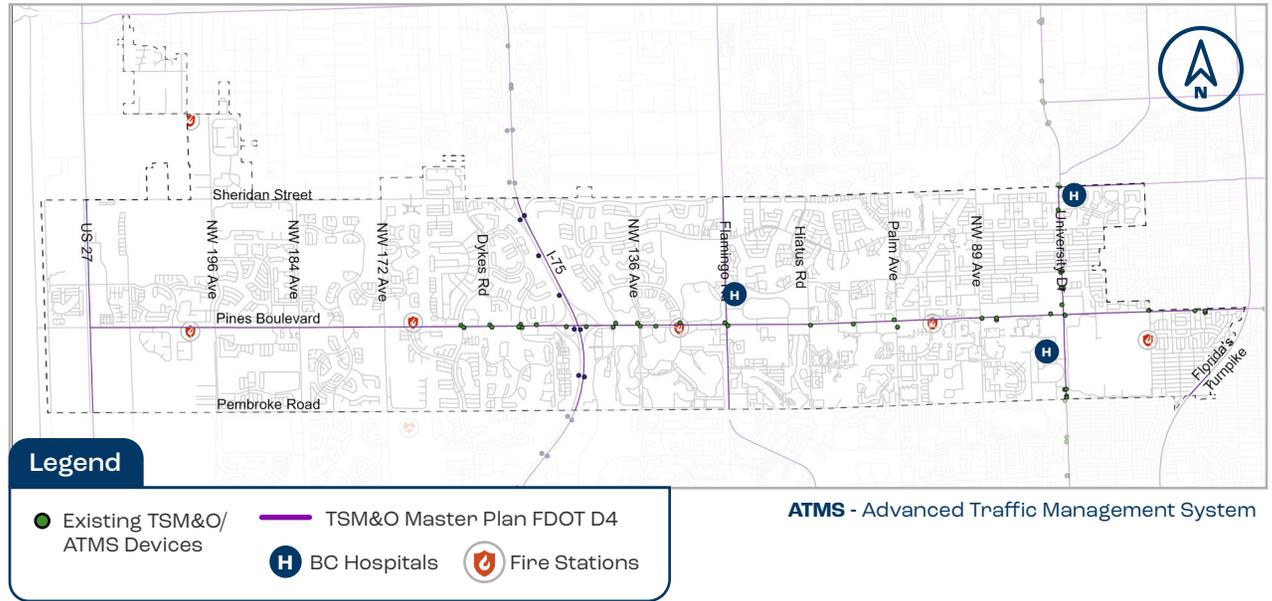


Figure 5-10 Potential Locations for TSM&O Improvements



Transportation Management Center Implementation

Based on the public survey responses, a significant amount of input received was related to traffic signals. In order to address such concerns and improve traffic operations, implementing Active Arterial Management through the provision of a Transportation Management Center (TMC) facility is recommended to be implemented within City's limits.

Given that traffic management operations within Broward County are housed at the FDOT District Four Regional Transportation Management Center (RTMC) (located at 2300 West Commercial Boulevard in Fort Lauderdale), evaluating the opportunity to collocate City staff at the RTMC or implementing a Virtual TMC at a City facility should be considered. This will be done in coordination with FDOT District Four and Broward County Traffic Engineering Division.

FHWA defines TMC as a traffic management network hub or nerve center where information about the traffic signal system is collected and processed. A Virtual TMC (VTMC) setting could also be feasible depending on the jurisdiction, scope, and operational approach. A VTMC will require extensive coordination and cooperation from participating agencies and stakeholders to assist with allocating federal funding, shared data, use of existing infrastructure, and installation of new devices to fill gaps. Virtual access to the system may include both agency and interagency personnel.

Table 5-1 shows the typical functions of a VTMC that may be applicable to the City for implementation, along with any primary constraints.



No.	Typical TMC Function	Description	Feasible in Virtual TMC Model	Potential Constraints
1	Traffic flow monitoring	Involves viewing traffic data and video images in real time to evaluate traffic conditions for delays and hazards.	Yes	
2	Traffic signal system management	Involves implementing appropriate traffic signal timing plans to optimize arterial street traffic flow, and responding to signal malfunction reports.	Yes	Highly likely to require coordination with Broward County Traffic Engineering Division (BCTED)
3	Transit vehicle monitoring	Involves monitoring and evaluating transit vehicle operations to ensure schedule adherence and to identify and minimize delays.	Yes	
4	Advanced Public Transportation Systems (APTS) system management	Involves monitoring and evaluating the performance of public transit vehicles and systems to improve system performance, and providing transit information to improve service to users.	Yes	
5	Provide travel information	Involves reporting highway conditions, delays, accidents, scheduled construction or other events, and preferred routes. The information may be disseminated through various means, including dynamic message signs, highway advisory radio, the Internet, and telephone traveler information systems	Yes	Applicable if additional Dynamic Message Signs are deployed on City roadways.

Table 5-1 Typical Functions of a Virtual TMC

No.	Typical TMC Function	Description	Feasible in Virtual TMC Model	Potential Constraints
6	Records management	Involves archiving and retrieving data about the operations and maintenance activities of the TMC. Activities include entering or recording data, generating and storing reports, and facilitating data warehousing.	Yes	Adopt event logging and Standard Operating Procedures (SOP) currently in use by FDOT and Broward County.
7	Congestion management	Involves identifying and responding to recurring congestion resulting from peak travel periods, as well as non-recurring congestion associated with incidents. Responses may include activating ramp meters, posting messages to dynamic message signs, traveler information sites (e.g. 511, wireless apps, etc.), HARs, adjusting signal timing plans among others.	Yes	
8	Failure management	Involves identifying, responding to, and repairing failures of transportation system-related field equipment.	Yes	Typically repairing failures would be responsibility of the maintaining agency
9	Incident management	Involves detection, verification, response, and clearance of events including multi-car accidents, vehicle breakdowns, and accidents resulting from road debris or weather conditions.	Yes	
10	Special event management	Involves accommodating non-recurring events (such as sporting events, parades, motorcades, and construction) that are expected to have significant impact on the transportation system.	Yes	
11	Emergency management	Involves coordinating the response of emergency service providers (such as police, fire, EMS, and towing agencies) to emergency conditions (such as incidents, disabled vehicles, and signal malfunctions).	Yes	Depending on the systems the VTMC has in place and the operational setting for the VTMC.
12	Provide/coordinate service patrols	Involves identifying, verifying, and responding to requests for roadside assistance.	Yes	Depending on the systems the VTMC has in place.

Table 5-1 Typical Functions of a Virtual TMC (continued)

TMC’s traffic operators and network managers can monitor and control traffic volumes using Advanced Traffic Management Systems (ATMS) by remotely collecting data, detecting issues, and providing real-time information to the public. ATMS integrates technologies to analyze the network and demand of each signalized intersection to optimize traffic signal performance. These technologies connect devices deployed on the street with traffic operation centers ensuring communication maximizes the performance of multimodal infrastructure.

Assessing the existing TSM&O network is another critical step in updating the traffic signal infrastructure to determine which locations need to be upgraded and which require new traffic signal controllers and detection devices. ATMS incorporates the following ITS components to help manage and monitor traffic flow:

ITS Components

- Fiber optic network
- Closed-Circuit Televisions (CCTV)
- Video Detections
- Dynamic Message Sign (DMS)
- Emergency/Transit Vehicle Pre-emption
- Connected Vehicle (CV) Technology
- Pedestrian and Bicycle Detections
- Traffic Signalization Timing applications

As previously mentioned, further TSM&O assessment and planning should be conducted for particular locations to identify specific devices required for each potential signalized intersection. FDOT's relevant resources were utilized to develop an estimated cost for maintenance and operation to fund a VTMC facility (shown in **Tables 5-2 to 5-5**), including the subsequent efforts but not limited to:



Estimated VTMC Operation and Maintenance Costs

- **Operation Costs:** traffic monitoring efforts, acquiring additional hardware/software, day-to-day funding operations, period retiming, staff recruitment costs, training funds, and data management.
- **Hours of Operation:** VTMC facility can operate from 7:00 am to 8:00 pm and extended hours for special events.
- **Function:** The intent of the VTMC would be to supplement the existing FDOT District Four RTMC 24/7 operations with expanded arterial management to utilize the additional devices proposed throughout the City.
- **Staffing:** Minimum recommended ITS Network Staffing is:
 - 4 Operators
 - 2 Engineers
 - 1 Manager
- **Maintenance Costs:** ITS preventive maintenance and equipment repairs.

Potential ITS Components/Capital Investments

- Deploy **Adaptive Traffic Signal Control Systems (ATCS)** with the capability of implementing Transit Signal Priority (TSP) and Emergency Vehicle Preemption (EVP), if desired.
- Install **Microwave Vehicle Detection System (MVDS)** detector devices to collect data for volume, occupancy, and speed data (typically located on segments)
- Coordinate with FDOT District Four and Broward County for potential **connected vehicle applications and initiatives**.
- Install **thermal passive pedestrian detectors** at key intersections.
- **Closed-Circuit Televisions (CCTV)**
- **Fiber Optic Network**

Note: Extensive coordination and cooperation will be required from participating agencies and stakeholders to assist with allocating federal funding, shared data, use of existing infrastructure, and installation of new devices to fill gaps. Potential ITS implementation will be based on agreements between BCTED and FDOT District Four. Please refer to **Figure 5-9** for additional information regarding potential locations for improvements.

Position	Estimated Staff	Cost per Employee*	Total Proposed Cost
VTMC Operator	4	\$114,000	\$456,000
Traffic Signal/VTMC Manager	1	\$284,000	\$284,000
TSM&O Engineer	1	\$298,000	\$298,000
Source: FDOT Consultant Wage Report for District Four - Fort Lauderdale			Total
			\$1,038,000

Table 5-2 Cost Estimate for Minimum Recommended ITS Network Staffing

Note: Positions required would ultimately be based on agreements with FDOT District 4 and the BCTED.

Capital Investments	Description	Cost/Unit	Units	Total
ITS Components	Installing ITS Devices	\$100,000	24 Locations	\$2,400,000
TSM&O Strategies	<ul style="list-style-type: none"> Installing Fiber Optic Network/Connection (ITS/TSM&O Devices for Approx. 39.40 Miles) 			
	Priority Level I	\$583,635	6.22 Miles	\$3,630,210
	Priority Level II	\$597,870	16.73 Miles	\$10,002,365
	Priority Level III	\$626,340	16.45 Miles	\$10,303,293
Assumption per Intersection: 1 CCTV, 1 MVDS, Bluetooth Device				Total
				\$26,335,868

Table 5-3 TSM&O/ITS Capital Investments

TSM&O Strategies Implementation		ITS Components	Source: TSM&O Master Plan - Broward & Palm Beach Counties (2021) (4) Joint Participation Agreement might be required between the City of Pembroke Pines and the City of Miramar for potential improvements at Pembroke Road.
Agency	Estimated Cost	Cost	
City	\$11,193,256	\$2,400,000	
FDOT (4)	\$2,169,310	Potential Work Program Project	
County	\$10,573,299	Potential Broward County Surtax Projects	
Subtotal	\$23,935,865	\$2,400,000	Total: \$26,335,868

Table 5-4 TSM&O/ITS Implementation per Agency

Maintenance Costs	Description	Cost/Unit	Units	Total
Maintenance Services	Scheduled maintenance services each year	\$1,000	89 Locations	\$89,000
VTMC	Includes maintenance of servers, software licenses, network equipment, computers, etc.	\$75,000	1 Location	\$75,000
Existing Locations: 21, Proposed Locations: 68, Total: 89 Locations				Total
				\$164,000

Table 5-5 Maintenance Costs

5.6 Electric Vehicle Infrastructure

Electric Vehicles (EV) technology is rapidly evolving, demanding state and local agencies to implement EV infrastructure. Using electricity to power EVs is now more affordable than gasoline, although EVs are often more expensive than regular vehicles. However, upfront vehicle costs can be offset by energy cost savings, federal tax credits, and state incentives.

According to the US Department of Energy Alternative Fuels Data Center (AFDC), there are two (2) categories of EVs available on the market:

- **Plug-In Hybrid Electric Vehicles (PHEV):** use batteries to power an electric motor, as well as another fuel, such as gasoline or diesel, to power an internal combustion engine or other propulsion sources.
- **Battery Electric Vehicles (BEV):** use batteries to store the electrical energy that powers the motor. The batteries are charged by plugging the vehicle into an electric power source.

Powering vehicles with electricity offers opportunities to improve and transform the transportation and energy sectors by creating efficient and environmentally friendly travel options while fostering energy independence. Electric Vehicle Supply Equipment (EVSE) or EV charging stations are a key component of the future

of EV infrastructure. EV charging stations allow EV owners to charge their vehicles quickly and conveniently. Public EV charging stations are available to EV owners in numerous locations, including shopping malls, public parking garages and lots, hotels, and other establishments. Most EV owners charge their vehicles at home, where the cost of charging is often lower than at public stations. There are currently three (3) types of EV technologies, Level 1, Level 2, and Direct Current Fast Charger (DCFC). **Table 5-6** includes additional information on each EV technology:

EV Technology	Features
Level 1 Charger	<ul style="list-style-type: none"> Standard equipment for most electric vehicles Slower charging speed > eight hours (full charge) Foundational technology that is aging out
Level 2 Charger	<ul style="list-style-type: none"> Slower charging speed > two hours (full charge) Short-range travel (commuting, intra-regional) Currently accounts for approximately 80% of all charging demand
Direct Current Fast Charger (DCFC)	<ul style="list-style-type: none"> Fast charging speed of approximately 30 minutes (full charge) Long-range travel (evacuation, inter-regional) Future-oriented

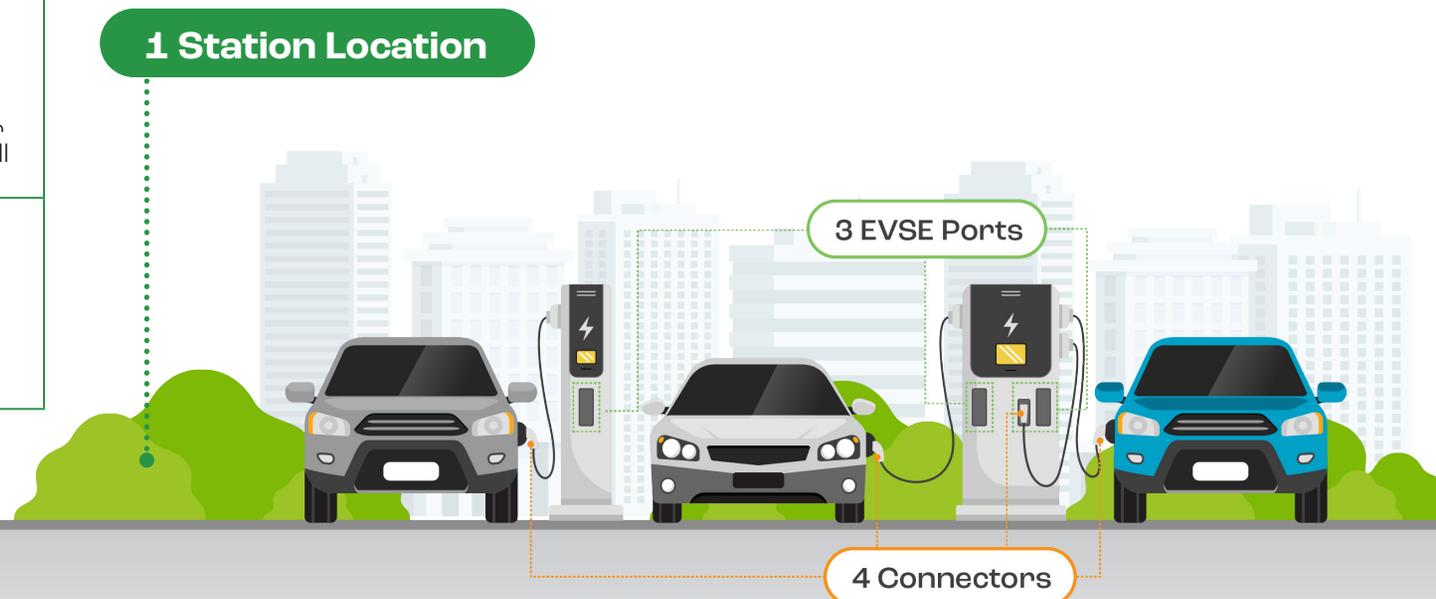
Table 5-6 EV Technology Levels
Source: FDOT EV Infrastructure Master Plan (2021)



Charging Infrastructure Terminology

- **Station Location:** A station location is a site with one or more EVSE ports at the same address. Examples include a parking garage or a mall parking lot.
- **EVSE Port:** An EVSE port provides power to charge only one vehicle at a time even though it may have multiple connectors. The unit that houses EVSE ports is sometimes called a charging post, which can have one or more EVSE ports.
- **Connector:** A connector is what is plugged into a vehicle to charge it. Multiple connectors and connector types (such as CHAdeMO and CCS) can be available on one EVSE port but only one vehicle will charge at a time. Connectors are sometimes called plugs.

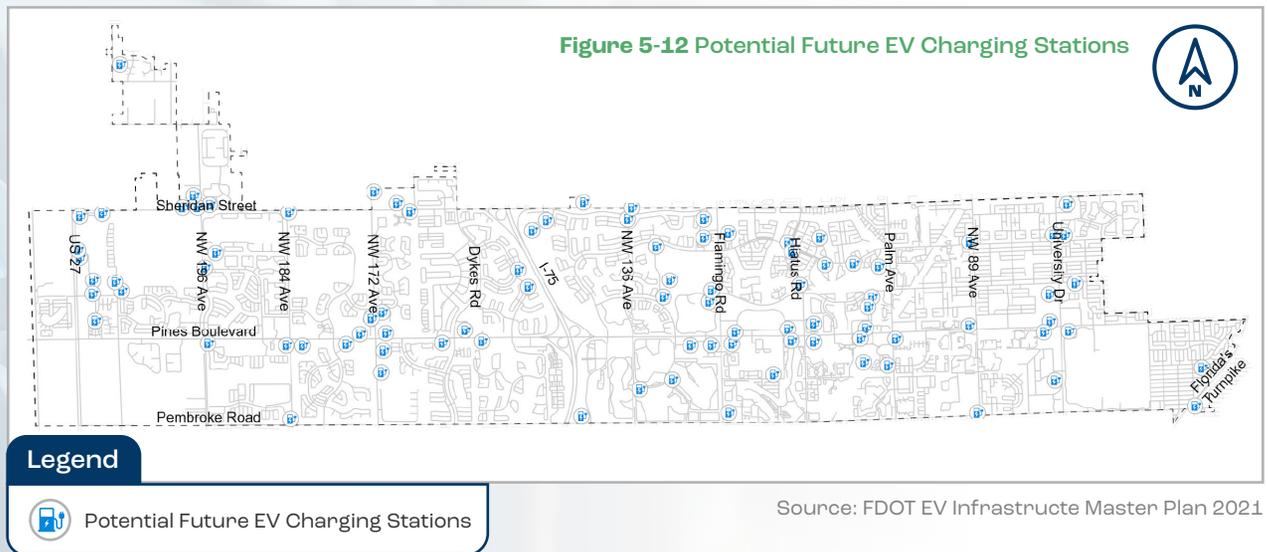
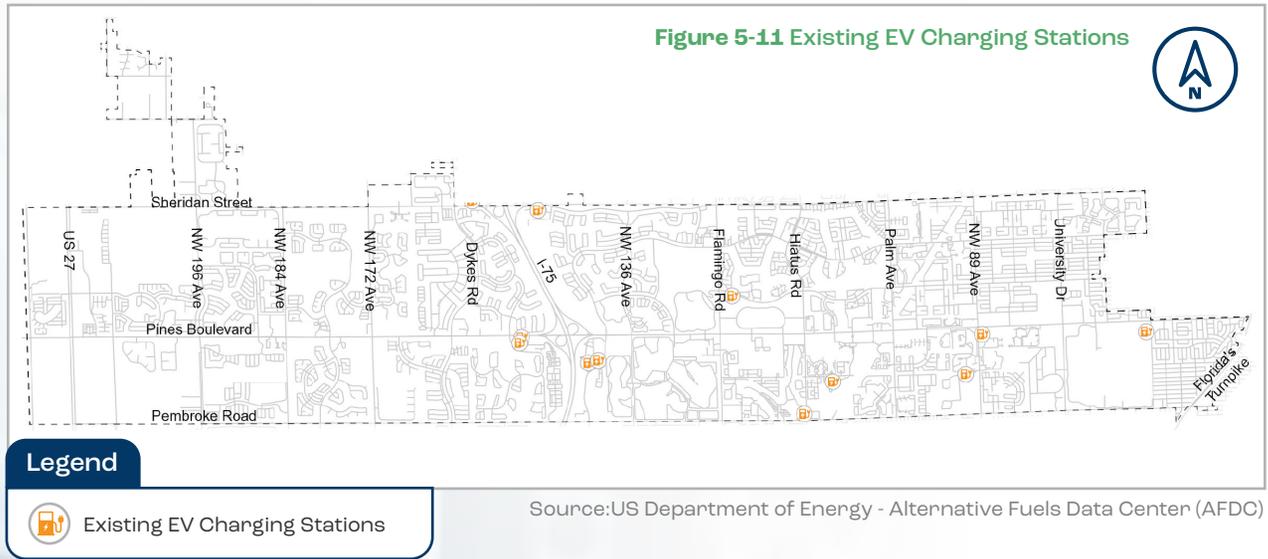
Source: FDOT EV Infrastructure Master Plan (2021)



Even though Level 1 and Level 2 charging stations are more affordable, DCFC charging stations are faster. EV charging stations can also have various features, including payment options, access control, and energy management. Implementing a comprehensive EV infrastructure will help to make electric vehicles more accessible and convenient for drivers.

Figure 5-11 depicts the existing EV charging stations within the City's limits, obtained from the US Department of Energy AFDC. **Table 5-7** provides additional information regarding each station, including the address, number of EVSE ports, charger type, and connector type.

The potential future EV charging stations were determined based on data from the FDOT EV Infrastructure Master Plan (2021), which included a GIS Gap Analysis for Short-Range Travel to identify potential charging sites within urban areas, considering low-income communities and multi-family residential buildings. **Figure 5-12** was adapted from the FDOT EV Infrastructure Master Plan to include the potential charging sites. Florida Power Light (FPL) is partnering with local agencies to expand the EV infrastructure and lead transportation electrification in Florida. FPL plans to install more than 1,000 EV charging stations in Florida through the Evolution program. The City could explore partnership opportunities with FPL to install a few new public EV charging stations throughout Pembroke Pines, including public parks, shopping malls, and large companies with many employees.



Object ID	Station Location	Type	EVSE Ports	Connectors	Charging Network
1	14804-14954 Pines Blvd Pembroke Pines, FL 33027	DC Fast	16	Tesla	Tesla Supercharger
2	10650 Washington St Pembroke Pines, FL 33025	Level 2	1	J1772	SemaConnect
3	900 Hollybrook Dr Pembroke Pines, FL 33025	Level 2	1	J1772	Blink
4	8890 Pines Blvd Pembroke Pines, FL 33024	Level 2	1	J1772	None
		DC Fast	1	CHAdEMO	
5	1600 S. Hiatus Rd Pembroke Pines, FL 33025	DC Fast	8	Tesla	Tesla Supercharger
6	703 N. Flamingo Rd Pembroke Pines, FL 33026	Level 2	4	J1772	SemaConnect
7	527 SW 145th Terrace Pembroke Pines, FL 33027	Level 2	2	J1772	SemaConnect
8	500 SW 145th Ave Pembroke Pines, FL 33027	Level 2	9	J1772	SemaConnect
9	15701 Sheridan St Pembroke Pines, FL 33331	Level 2	1	J1772	Electrify America
		DC Fast	3	CHAdEMO & CCS	
10	Lauderdale BMW of Pembroke Pines 14800 Sheridan St Pembroke Pines, FL 33331	Level 2	2	J1772	ChargePoint Network
11	Broward College South Campus - Parking Lot B 7200 Pines Blvd Pembroke Pines, FL 33024	Level 2	6	J1772	ChargePoint Network
12	Whole Foods 14956 Pines Blvd Pembroke Pines, FL 33027"	Level 2	2	J1772	ChargePoint Network

Table 5-7 Existing EV Stations

Source: US Department of Energy - Alternative Fuels Data Center (AFDC)

5.7 Recommended Improvements

The assessment of immediate needs and availability of financing options are important factors that initially influence the order of project prioritization. However, the City should reprioritize based on its understanding of local needs as circumstances, and funding opportunities arise. The selecting process was developed based on transit routes, proximity to schools, and neighborhood commercial areas organized within the three distinct City Districts: West, Central, and East.

The main roads with high traffic volumes, transit use, and crashes were identified. Using GIS, a 2.0-miles zone was drawn around each school, locations that attract the elderly or people with disabilities. Streets with deficiencies within these zones were analyzed and identified as areas with the highest priority for transportation improvements. Encouraging residents and commuters to walk, ride their bicycles, and use transit and other shared mobility options, especially for short trips, can reduce the number of vehicles on the road, save users and the City money and promote healthier lifestyles.

Based on the analysis in this plan, 338 projects were identified, and 82 projects were prioritized for Implementation and divided into three categories as follows:

Project Prioritization Categories

- **Priority Level I**
Short-Term: 2024-2029
- **Priority Level II**
Mid-Term: 2029-2034
- **Priority Level III**
Long-Term: 2034-2044

6. Implementation

6. Implementation

The most important projects the City intends to undertake in the short-term, mid-term and long-term planning periods have been prioritized as a result of multiple meetings, community feedback, and the City's staff involvement. The various projects will be implemented over several years, depending on the funding sources. The needs and local preferences were taken into account when choosing the order in which the projects should be implemented. Several restrictions were also considered, such as project cost and financing availability. In order to identify any project overlap and determine if combining projects may result in cost savings, the regional MTP, Broward MPO 5-Year TIP, Broward County Mobility Advancement Program, the MPO CSMP, and other documents published by the City, County, State, Municipality, and local/private agencies were reviewed.

As previously mentioned, the priority of the projects included in this plan is a recommendation, and the City should reprioritize based on its local needs and funding availability.

6.1 Phased Improvements

The Transportation Master Plan's final stage, which involves constraining and programming of projects and programs, has been completed following the input received, analysis of the needs, and identification of funding sources.

Based on the City's overall transportation assessment and project prioritization process, the improvements identified in this chapter, were divided into five (5) categories:



Implement improvements that are safe for ALL road users.



Sidewalk Improvement Needs



Bicycle Improvement Needs



School Zone Safety Improvement Needs

(including only projects located around school zones)



Safety Improvement Needs

(including projects within the City's limits)



Traffic Calming Improvement Needs

(including projects within the City's limits)



TSM&O Improvement Needs

The potential improvements can be implemented to improve traffic safety, reduce traffic congestion and provide multimodal transportation options for all of the City's residents.

It should be noted that these recommendations were developed based on the City's overall transportation assessment, and further analysis should be conducted (an engineering study based on inputs like traffic volumes, operating speeds, roadway characteristics, and crash history, etc. shall be submitted to Broward County Traffic Engineering Division (BCTED), the City's Traffic Management Team, and the City's police department for review and approval).

School Zone Improvement Needs



Total Number of Projects: 47

Intersection Improvements

- Total Cost: **\$2,840,000**

Traffic Calming Improvements

- Total Cost: **\$1,255,000**

Traffic Operations/Circulation

- Total Cost: **\$620,000**

Overall Cost Estimate:
\$4,685,000

Sidewalk Improvement Needs



Total Number of Projects: 49

Both Sides

- Total Cost: **\$768,276**
Cost/mi: **\$360,000**

East Side

- Total Cost: **\$190,584**

West Side

- Total Cost: **\$1,600,204**

North Side

- Total Cost: **\$802,717**

South Side

- Total Cost: **\$1,136,843**

Overall Cost Estimate:
\$4,498,624

Bicycle Improvement Needs



Total Number of Projects: 45

Bicycle Lanes

- Total Cost: **\$39,814,769**
Cost/mi: **\$1,972,265**

Multi-Use Path

- Total Cost: **\$10,325,125**
Cost/mi: **\$355,563**

Overall Cost Estimate:
\$50,139,894

TSM&O Improvement Needs



Total Number of Projects: 79

TSM&O Improvements

- Total Cost: **\$24,220,000**

ITS Component Installation

- Total Cost: **\$6,800,000**

Overall Cost Estimate:
\$31,020,000

Traffic Calming Improvement Needs



Total Number of Projects: 43

Landscaped Median Island/Traffic Circle

- Total Cost: \$650,000

Raised Crosswalks

- Total Cost: \$480,000

Speed Feedback Signs

- Total Cost: \$500,000

Various Traffic Calming Improvements

- Total Cost: \$1,500,000

Roundabout

- Total Cost: \$1,400,000

Overall Cost Estimate:
\$4,530,000

Safety Improvement Needs



Total Number of Projects: 16

Intersection Improvements

- Total Cost: \$825,000

Segment Improvements

- Total Cost: \$8,110,000

Overall Cost Estimate:
\$8,935,000

Four (4) conceptual designs were created based on the information gathered from the existing conditions analysis, public and stakeholders' input, and the priority list to help residents and stakeholders visualize how the improvements could be developed, shown in **Exhibits 6-1 to 6-4**. A copy of the cost estimation worksheets is included in **Appendix E. Tables 6-20 to 6-22** include the project list based on priority and funding.

Figure 6-1 represents the color code applied to identify each distinct City District throughout Chapter 6. **Figures 6-2 to 6-19** show the locations for each potential improvement.

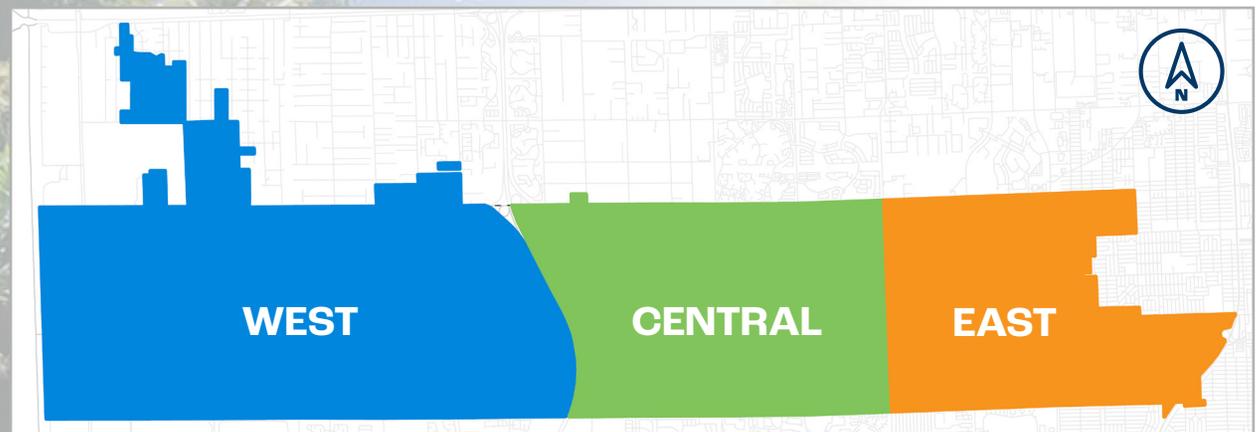


Figure 6-1 City Districts Color Code

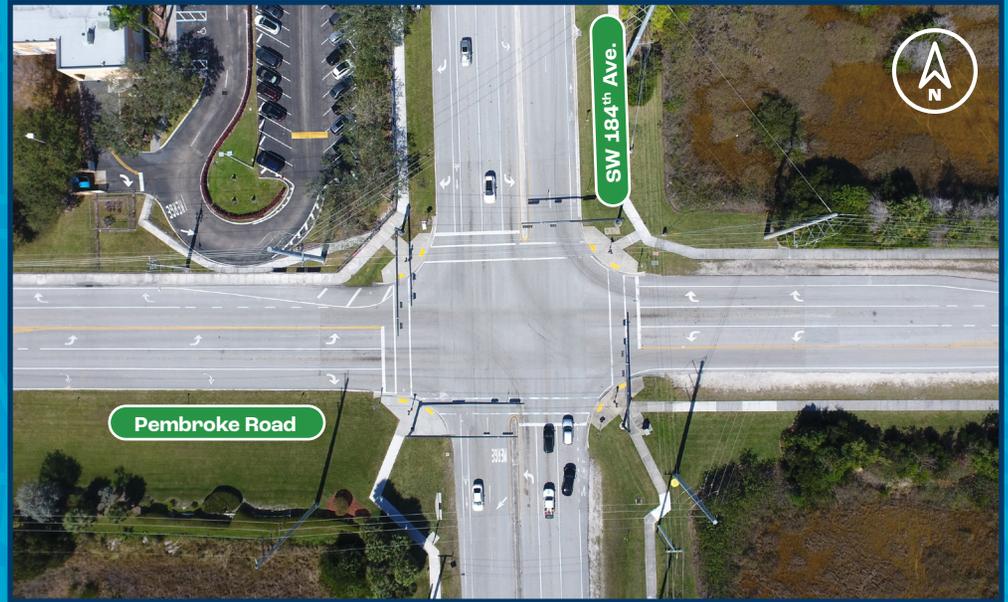
Conceptual Designs

WEST

Location # 1:
Pembroke Road & SW 184th Ave.

- Potential Multi-Use Path
- Installation of TSM&O/ITS Devices: CCTV& MSDV
- Installation of Fiber Optic Network/ Connection & Monitoring Devices (Blue TOAD)

Joint Participation Agreement might be required between the City of Pembroke Pines and the City of Miramar for potential improvements at Pembroke Road.



City District: West

Roadway Jurisdiction: City

Speed Limit: 45 MPH

Project ID: SCHOOL-019

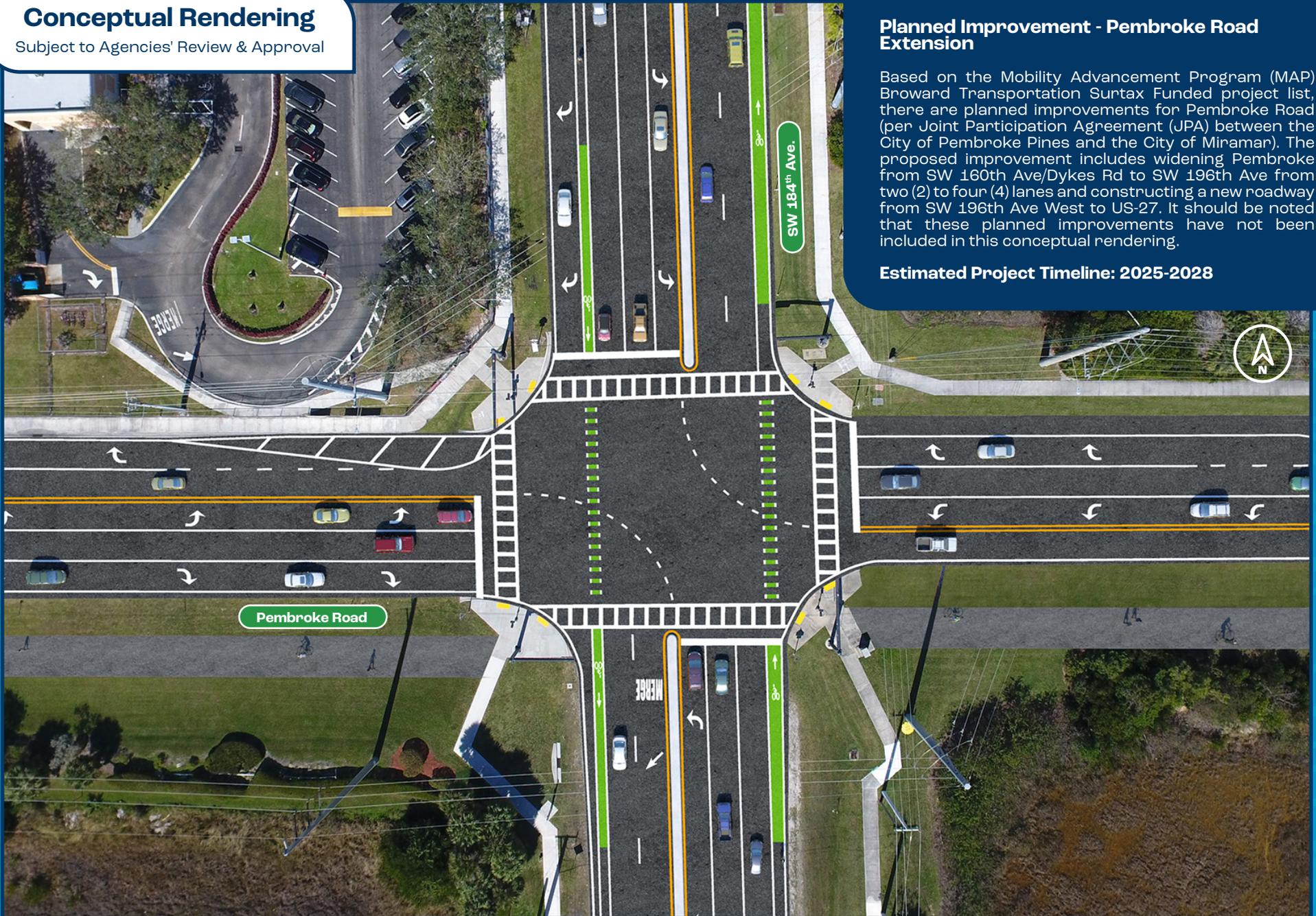
Existing Conditions



Exhibit 6-1 Location 1: Conceptual Design

Conceptual Rendering

Subject to Agencies' Review & Approval



Planned Improvement - Pembroke Road Extension

Based on the Mobility Advancement Program (MAP) Broward Transportation Surtax Funded project list, there are planned improvements for Pembroke Road (per Joint Participation Agreement (JPA) between the City of Pembroke Pines and the City of Miramar). The proposed improvement includes widening Pembroke from two (2) to four (4) lanes and constructing a new roadway from SW 196th Ave West to US-27. It should be noted that these planned improvements have not been included in this conceptual rendering.

Estimated Project Timeline: 2025-2028

Conceptual Designs

WEST

Existing Conditions

Location # 2:

**SW 178th Ave Corridor (from
Pembroke Rd to NW 184th Ave)**

- Potential Multi-Use Path

City District: West

Roadway Jurisdiction: City

Speed Limit: 35 MPH

Project ID: PATH-11 & PATH-12

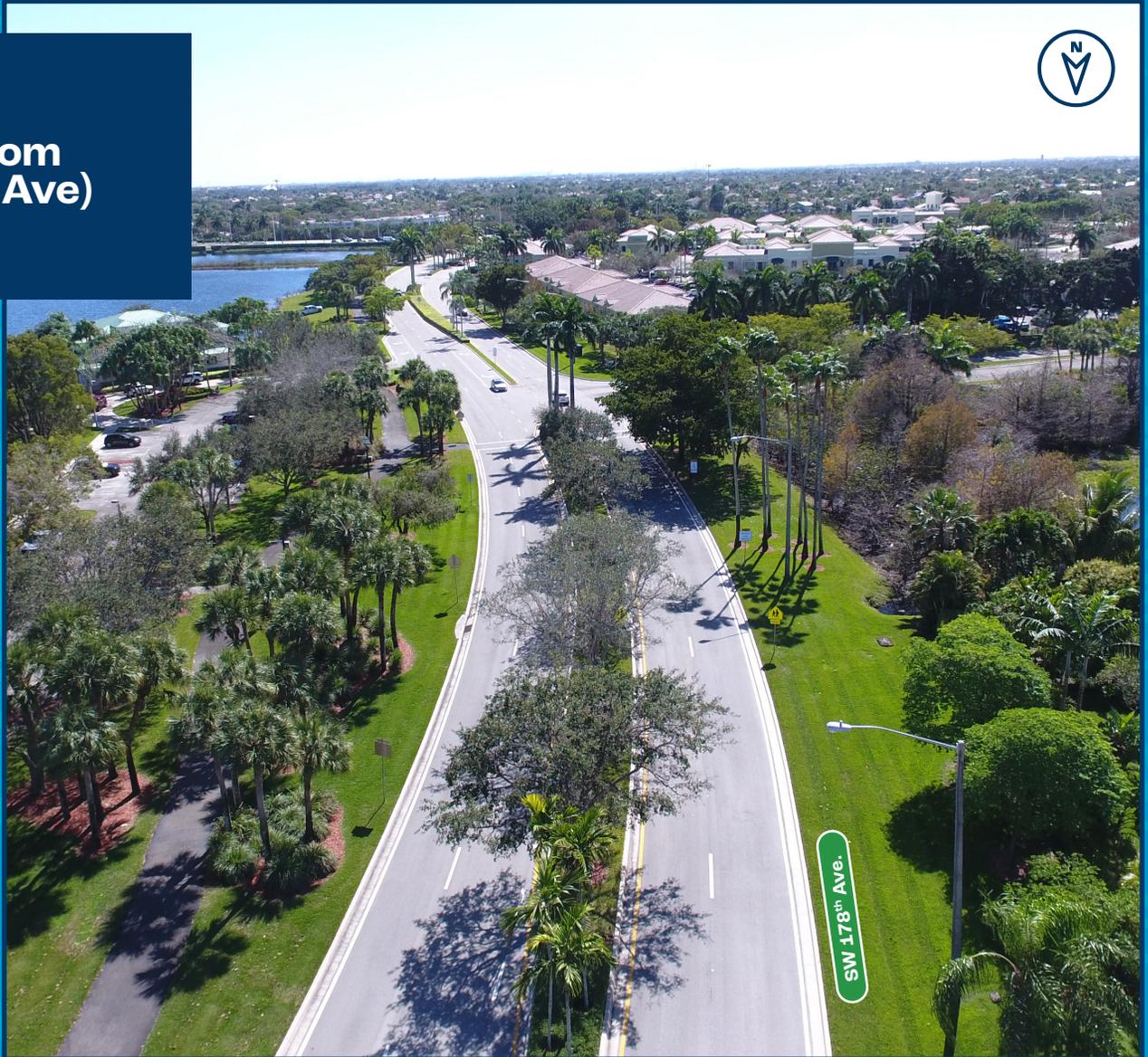
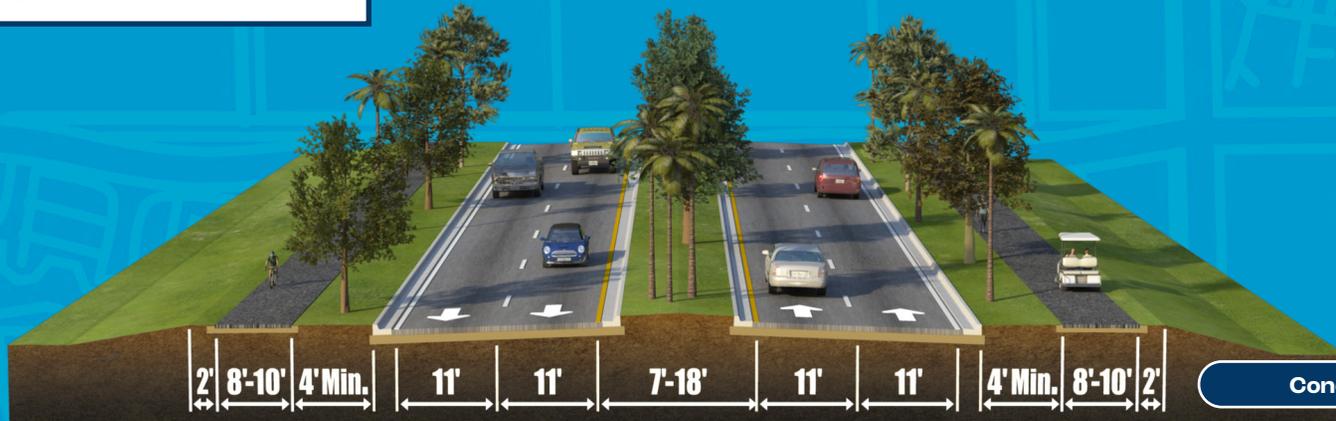


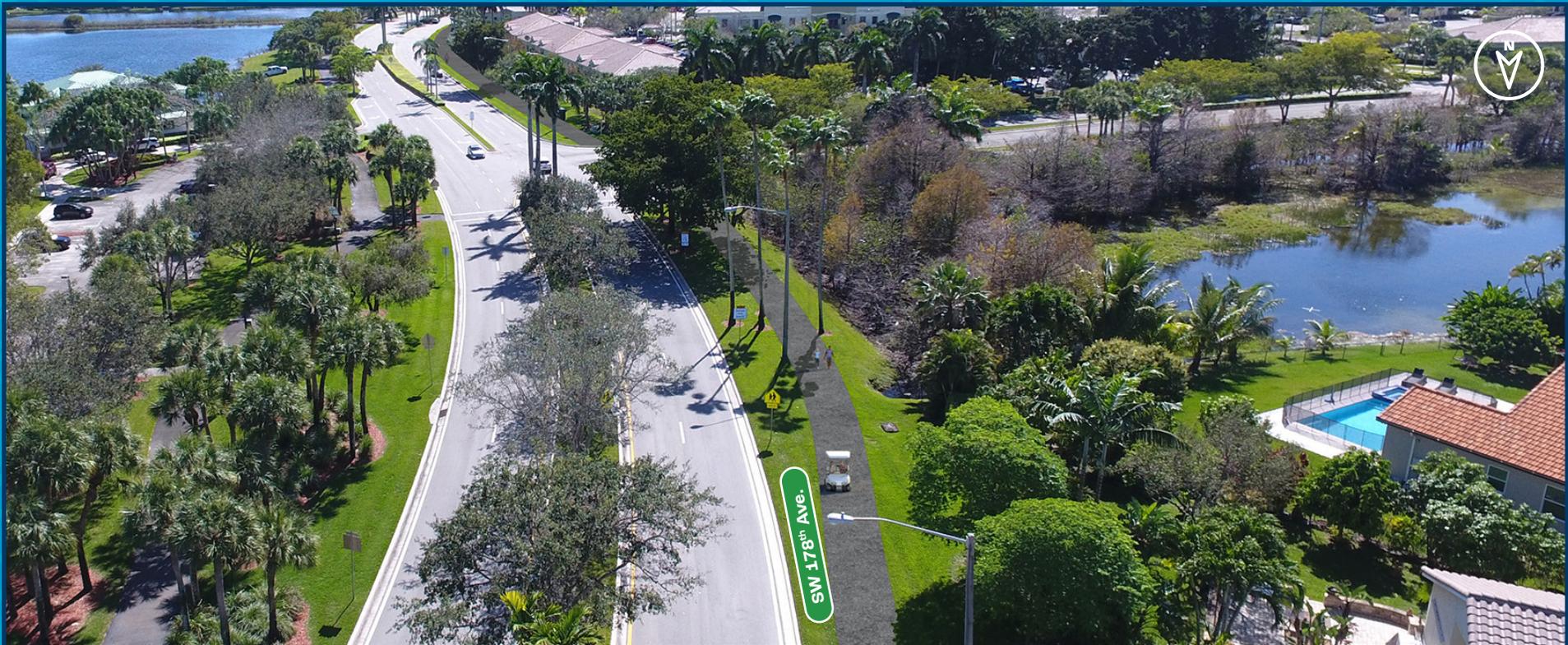
Exhibit 6-2 Location 2: Conceptual Design

Conceptual Rendering

Subject to Agencies' Review & Approval



Conceptual 3D Typical Section



Conceptual Designs

CENTRAL

Location # 3:
NW 10th St. & NW 136th Ave.

- Potential Roundabout

City District: Central

Roadway Jurisdiction: City

Speed Limit: 35 MPH

Project ID: SCHOOL-053



Existing Conditions

Please Note: That a roundabout's implementation must be supported by an engineering study (feasibility analysis) that demonstrates how the potential installation of a roundabout at the particular location will enhance the intersection's overall safety and operation. Supporting documentation must be submitted for agencies' review & approval.



Exhibit 6-3 Location 3: Conceptual Design

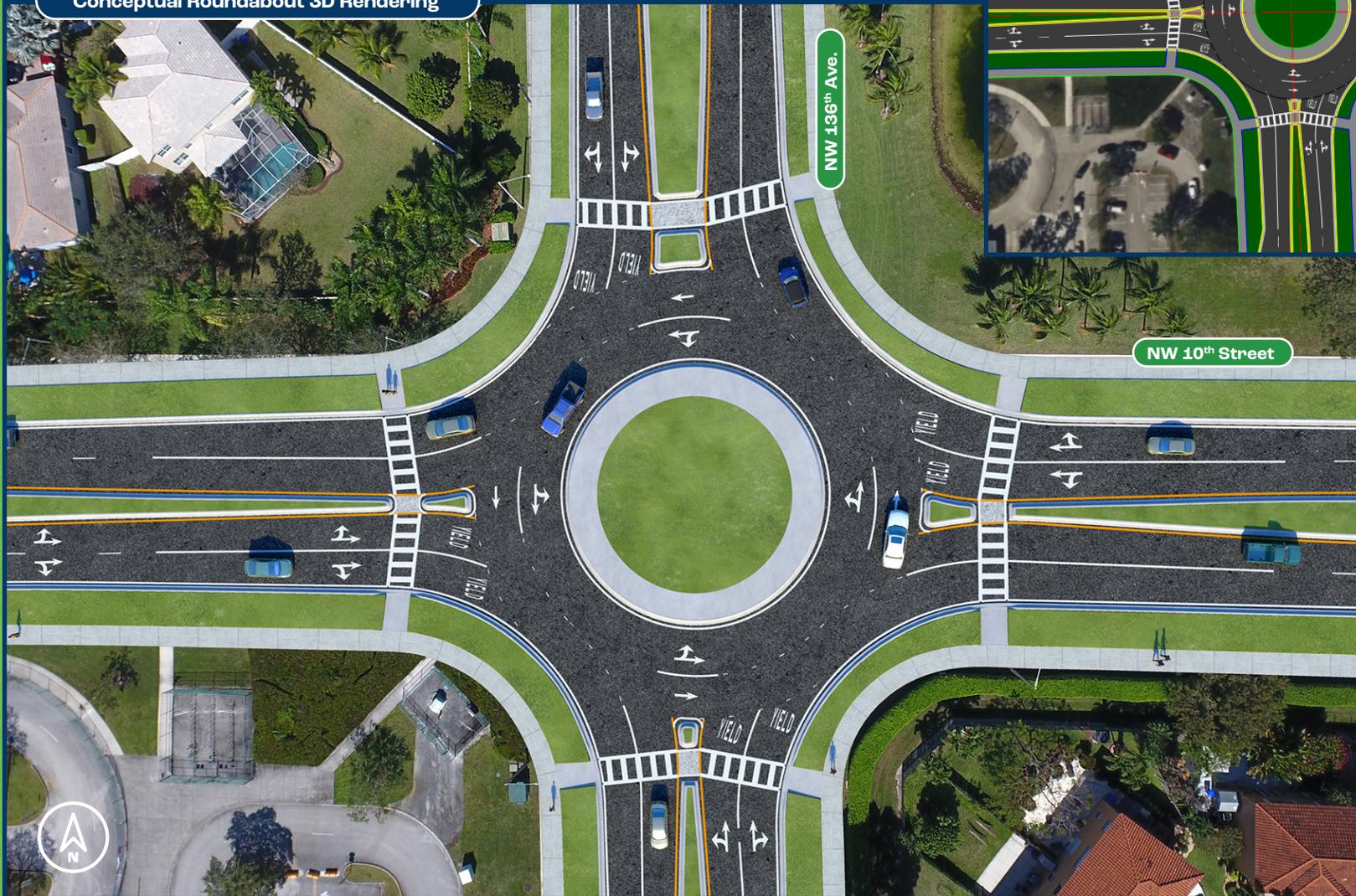
Conceptual Rendering

Subject to Agencies' Review & Approval

Conceptual Roundabout Design



Conceptual Roundabout 3D Rendering



Conceptual Designs

EAST

Existing Conditions

Location # 4:
SW 9th St. & SW 68th Blvd.

- Potential Traffic Circle

City District: East

Roadway Jurisdiction: City

Speed Limit: 25 MPH

Project ID: SCHOOL-078

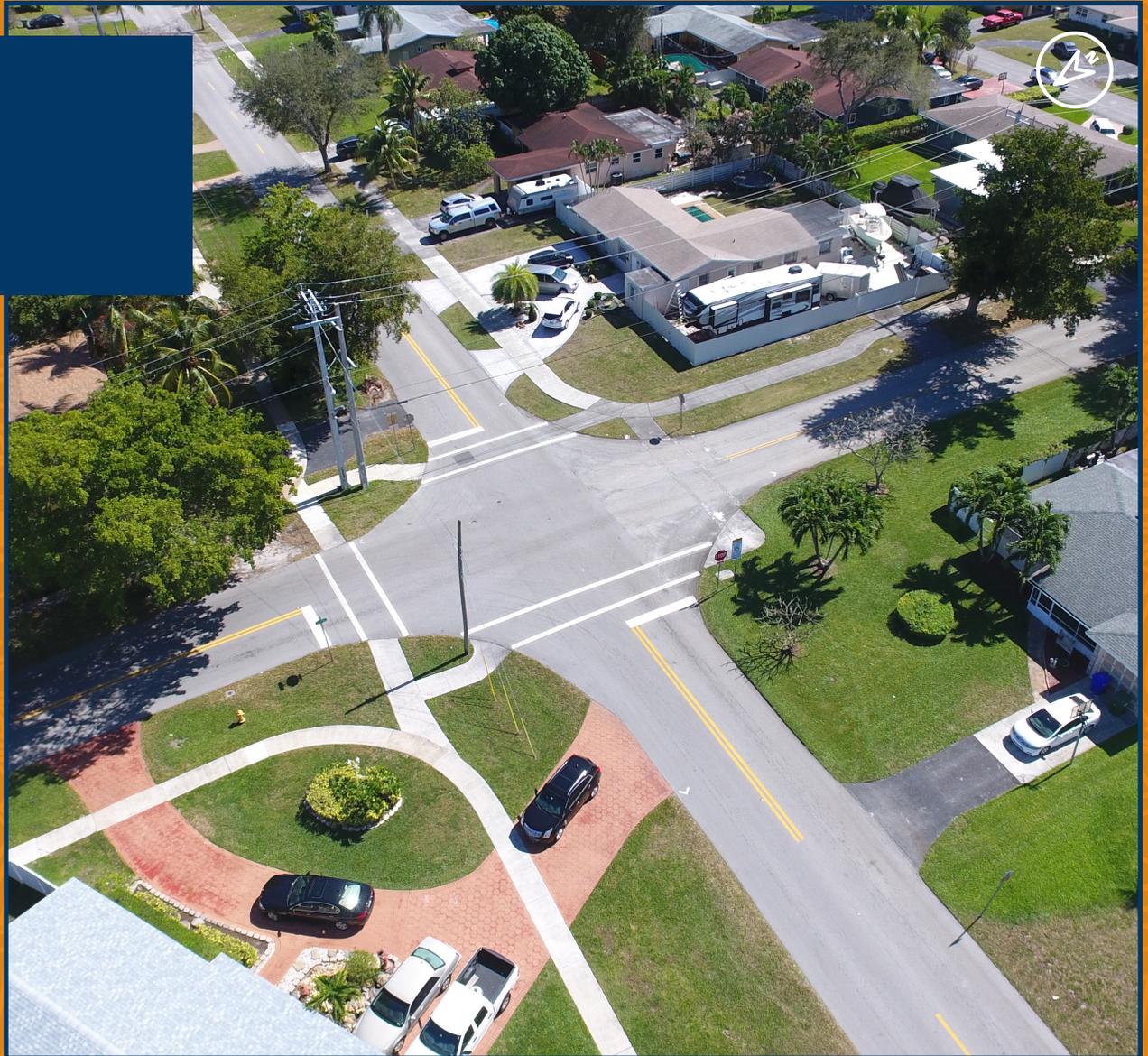
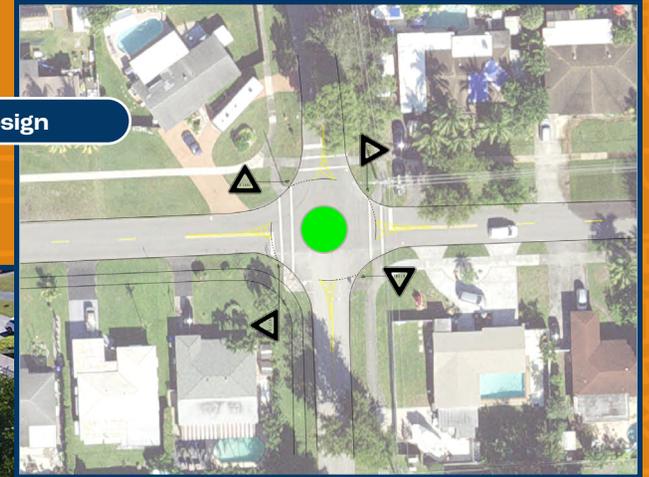


Exhibit 6-4 Location 4: Conceptual Design

Conceptual Rendering

Subject to Agencies' Review & Approval

Conceptual Traffic Circle Design



Conceptual Traffic Circle 3D Rendering





Sidewalk Improvement Needs

WEST

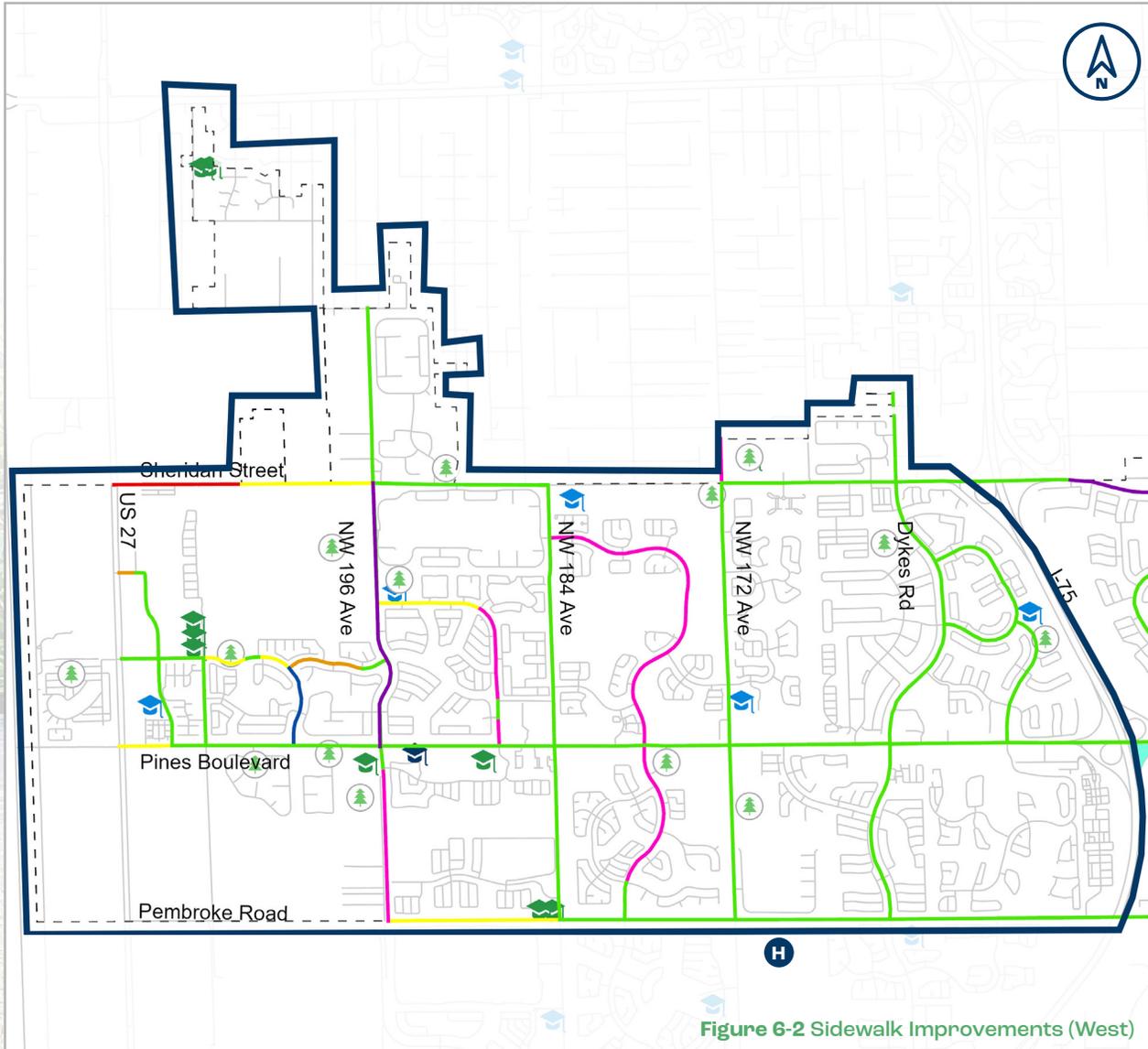
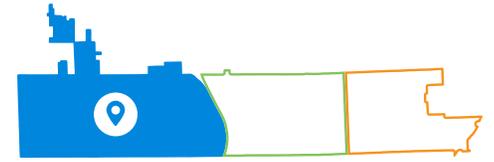


Figure 6-2 Sidewalk Improvements (West)

Legend

- Existing Sidewalks
- Planned Improvements
- Potential Sidewalk (Both Sides)
- Potential Sidewalk (North Side)
- Potential Sidewalk (South Side)
- Potential Sidewalk (East Side)
- Potential Sidewalk (West Side)
- Proposed Park & Ride
- District Boundary
- Park
- Hospital
- Traditional Public Schools
- Public Charter Schools
- Private Schools

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
PED-1	West	Sheridan Street	From US-27 to SW 205th Ave	Add Sidewalk (Both Sides)	City	City	\$277,498
PED-9	West	Johnson Street	From NW 202nd Ave to 198th Ave	Add Sidewalk (North Side)	City	City	\$83,325
PED-8	West	Taft Street	From US-27 to Caliber Collision Dwy	Add Sidewalk (North Side)	City	City	\$18,499
PED-20	West	Pines Boulevard	From US-27 to NW 209th Ave	Add Sidewalk (South Side)	State	FDOT	\$55,761
PED-25	West	Pembroke Road	From SW 196th Ave to SW 184th Ave	Add Sidewalk (South Side)	City	City	\$181,848
PED-21	West	Johnson Street	From NW 208th Ave to NW 203rd Ave	Add Sidewalk (South Side)	City	City	\$48,571
PED-22	West	Johnson Street	From NW 203rd Ave to NW 202nd Ave	Add Sidewalk (South Side)	City	City	\$35,842
PED-24	West	Taft Street	From NW 196th Ave to NW 20th St	Add Sidewalk (South Side)	City	City	\$110,279
PED-23	West	Sheridan Street	From SW 205th Ave to NW 196th Ave	Add Sidewalk (South Side)	City	City	\$142,406
PED-34	West	NW 202nd Ave	From Pines Blvd to Johnson St	Add Sidewalk (East Side)	City	City	\$88,569
PED-41	West	SW 196th Ave	From Pembroke Rd to Pines Blvd	Add Sidewalk (West Side)	City	City	\$166,034
PED-42	West	NW 196th Avenue	S. of Sheridan Street	Add Sidewalk (West Side)	City	City	\$26,629
PED-43	West	NW 186th Avenue	From Pines Blvd to NW 3rd Ct	Add Sidewalk (West Side)	City	City	\$29,999
PED-44	West	NW 186th Avenue	From Johnson St to NW 11th St	Add Sidewalk (West Side)	City	City	\$29,663
PED-45	West	NW 186th Avenue	From NW 11th St to NW 20th St	Add Sidewalk (West Side)	City	City	\$73,091
PED-46	West	SW 178th Avenue	From SW 12th St to SW 4th St	Add Sidewalk (West Side)	City	City	\$116,898
PED-47	West	SW 178th Avenue	From SW 4th St to Pines Blvd	Add Sidewalk (West Side)	City	City	\$45,772
PED-48	West	SW 178th Avenue	From Pines Blvd to NW 184th Ave	Add Sidewalk (West Side)	City	City	\$372,776
PED-56	West	SW 172nd Avenue	N. of Sheridan St	Add Sidewalk (West Side)	City	City	\$48,468

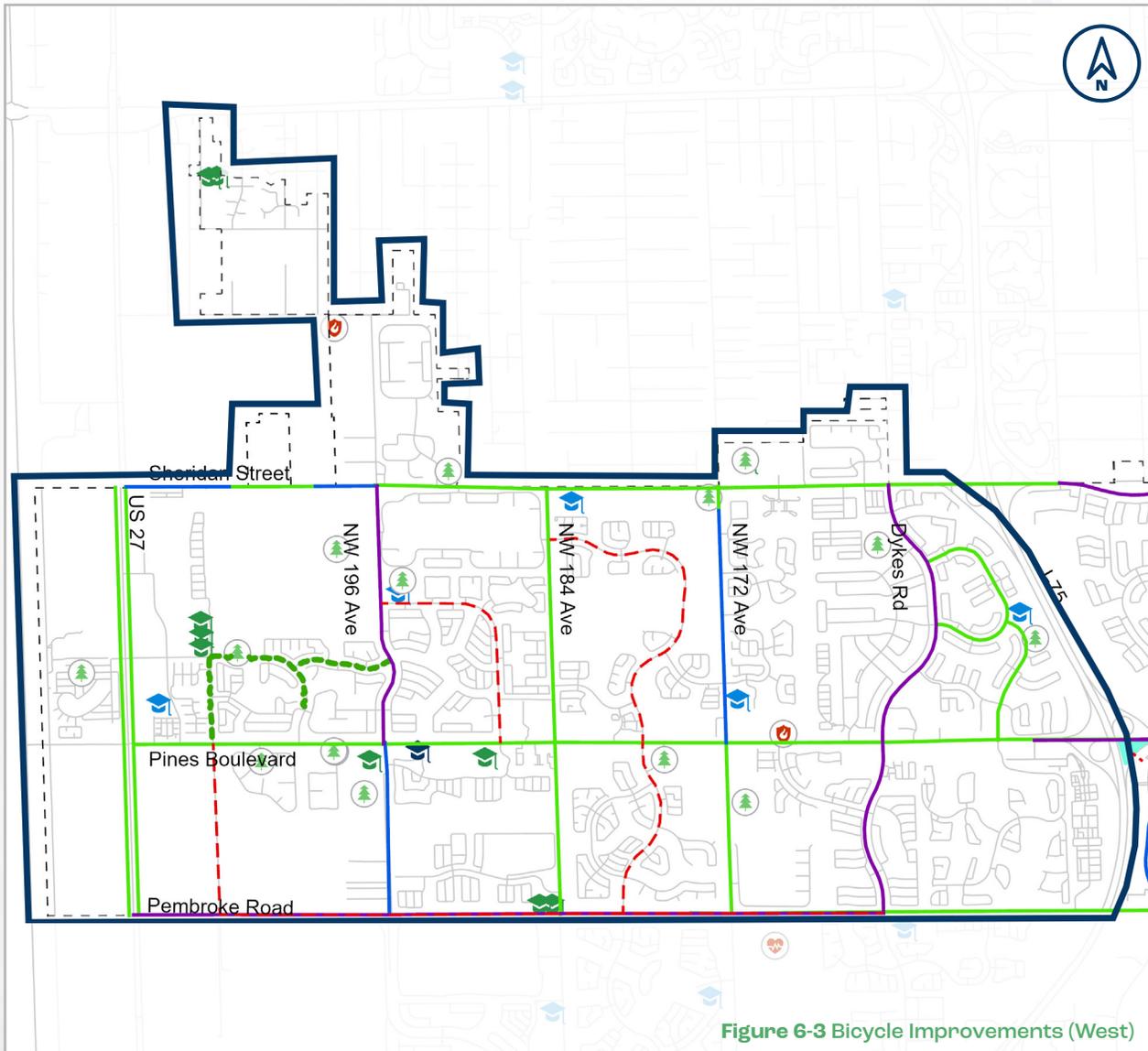
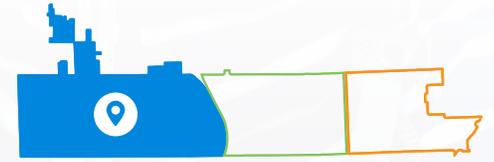
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-1 Sidewalk Improvement Needs (West)



Bicycle Improvement Needs

WEST



Legend

- Existing Bike Lanes
- Planned Improvements
- Potential Multi-Use Path
- Potential Bike Lanes
- Proposed Park & Ride
- District Boundary
- Park
- Hospital
- Traditional Public Schools
- Public Charter Schools
- Private Schools

Figure 6-3 Bicycle Improvements (West)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
BIKE-01	West	Sheridan Street	From US-27 to SW 205th Ave	Add Bicycle Lanes	County	County	\$1,681,450
BIKE-02	West	Sheridan Street	From E. of SW 202nd Ave to SW 196th Ave	Add Bicycle Lanes	County	County	\$1,012,124
BIKE-04	West	NW 196th Ave	From Pembroke Rd to Pines Blvd	Add Bicycle Lanes	City	City	\$2,798,278
BIKE-030	West	SW 172nd Avenue	From Pines Blvd to S. of Sheridan St	Add Bicycle Lanes	City	City	\$3,618,285
PATH-11	West	NW 178th Avenue	From Pembroke Rd to Pines Blvd	Add Multi-Use Path	City	City	\$413,974
PATH-12	West	NW 178th Avenue	From Pine Blvd to SW 184th Ave	Add Multi-Use Path	City	City	\$759,934
PATH-13	West	NW 186th Avenue	From Pines Blvd to NW 196th Ave	Add Multi-Use Path	City	City	\$533,800
PATH-14	West	NW 208th Avenue	From Pembroke Rd to Pines Blvd	Add Multi-Use Path	City	City	\$381,192
PATH-027	West	Pembroke Rd	From US-27 to Dykes Rd	Add Multi-Use Path	City of Pembroke Pines/City of Miramar	City of Pembroke Pines/ City of Miramar	\$1,405,671

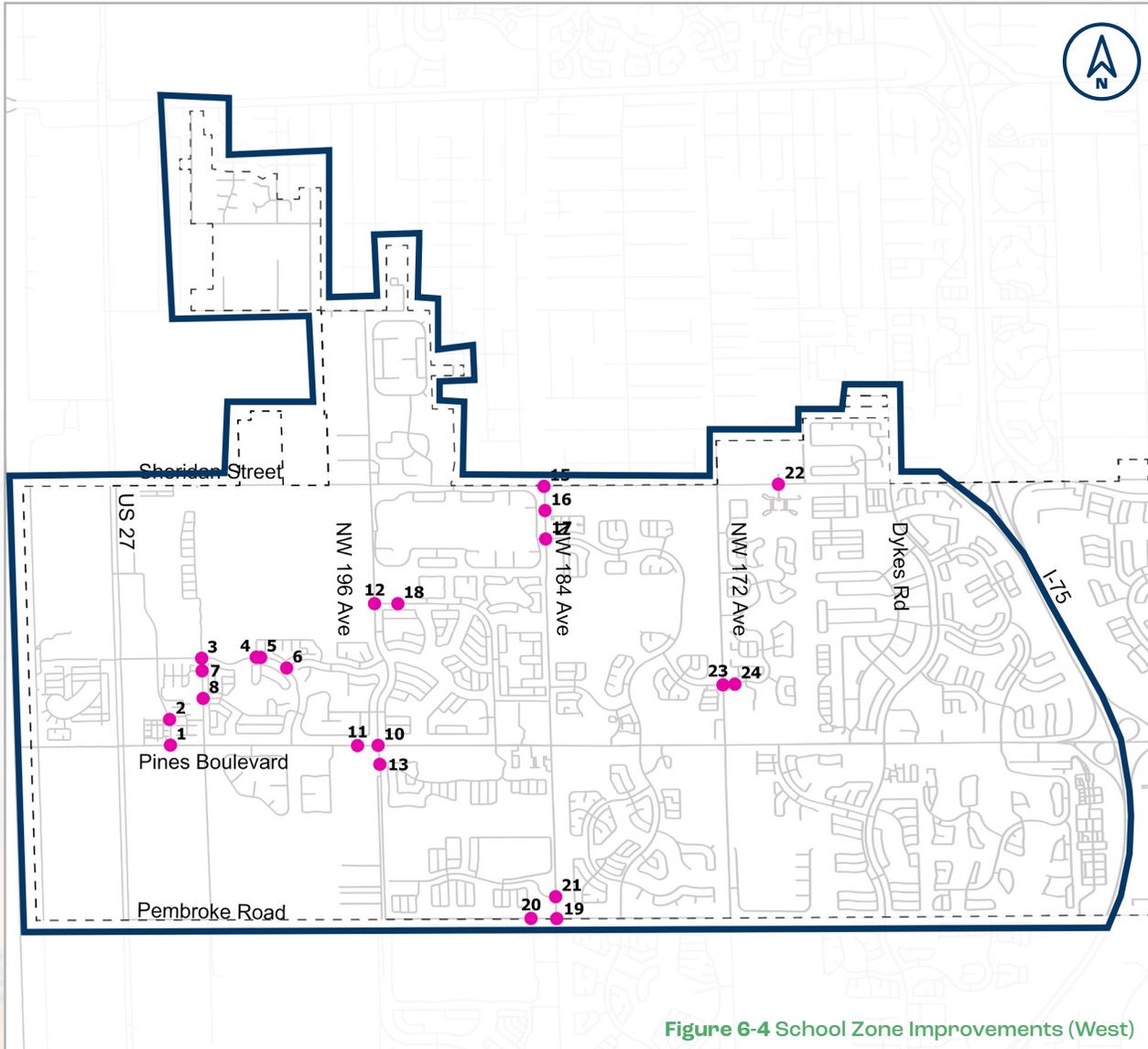
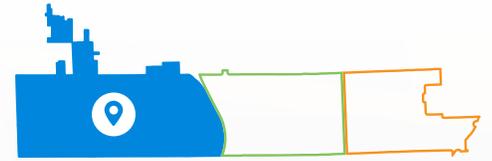
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-2 Bicycle Improvement Needs (West)



School Zone Safety Improvement Needs

WEST



Legend

- Safety Improvements

Figure 6-4 School Zone Improvements (West)

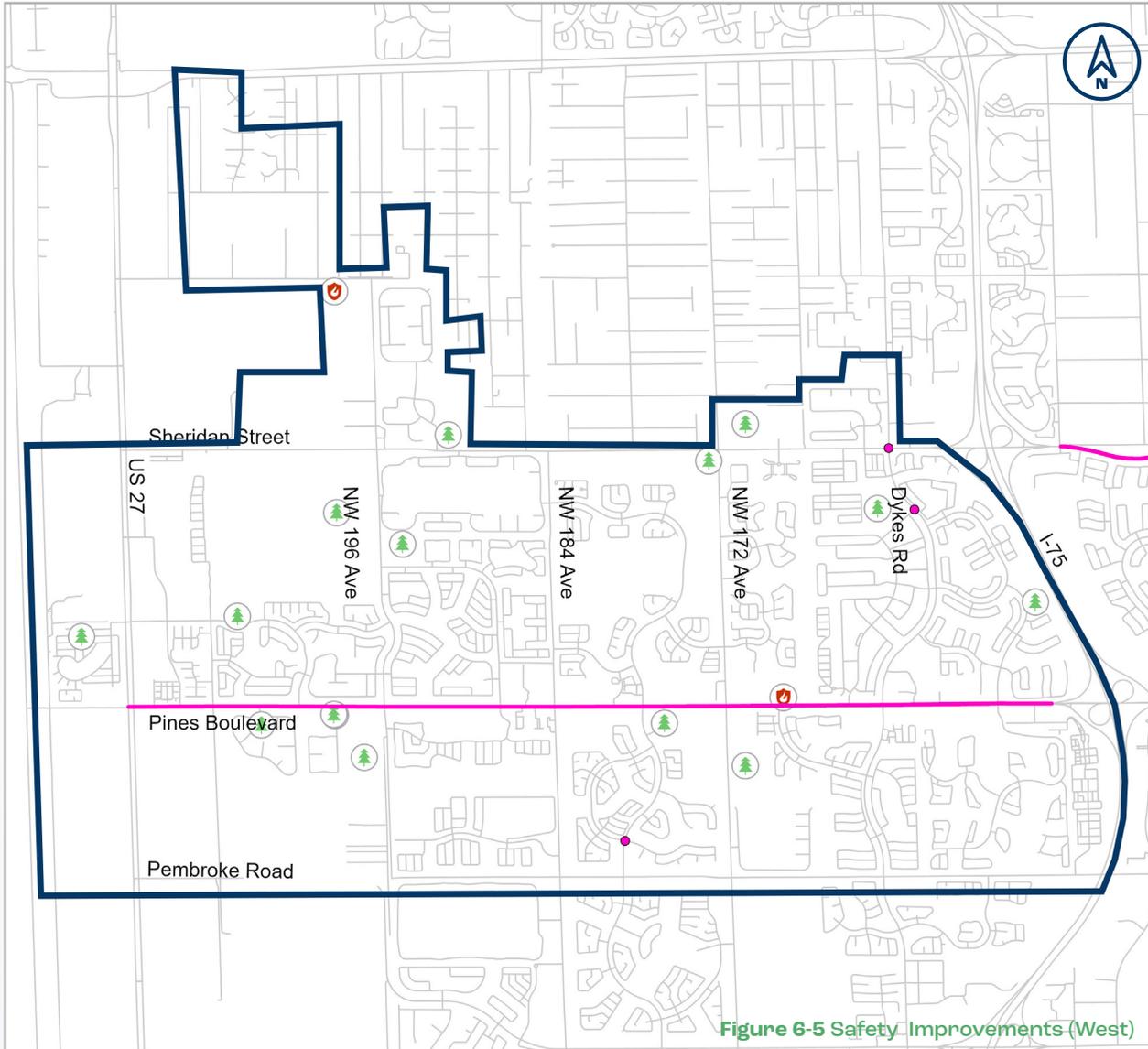
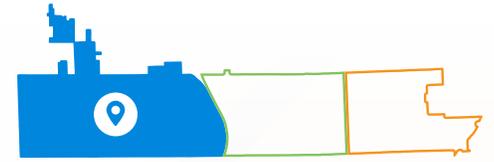
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
SCHOOL-001	West	Pines Blvd at NW 209 Ave	<ul style="list-style-type: none"> Intersection Improvements Extend WBR storage 	State	FDOT	\$60,000
SCHOOL-002	West	NW 2 St at NW 209 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Add crosswalk on west leg and ramps 	City	City	\$50,000
SCHOOL-003	West	Johnson St at NW 208 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Add detectable warning Add No through traffic during arrival and dismissal period Add night turn prohibited Add do not block the intersection 	City	City	\$100,000
SCHOOL-004	West	Johnson St at NW 203 Ave	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) Queue Analysis 	City	City	\$25,000
SCHOOL-005	West	Johnson St at NW 203 Terr	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) Queue Analysis 	City	City	\$25,000
SCHOOL-006	West	Johnson St at NW 202 Ave	<ul style="list-style-type: none"> Traffic Calming Improvements - Roundabout Feasibility 	City	City	\$500,000
SCHOOL-007	West	NW 7 St at NW 208 Ave	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) Queue Analysis 	City	City	\$25,000
SCHOOL-008	West	NW 4 St at NW 208 Ave	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) Queue Analysis 	City	City	\$25,000
SCHOOL-010	West	Pines Blvd at NW 196 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Mast Arm Upgrade 	State	FDOT	\$500,000
SCHOOL-011	West	Pines Blvd at Exxon Gas Station	<ul style="list-style-type: none"> Traffic Control Devices (No Stopping/Standing/Parking signs) 	City	City	\$25,000
SCHOOL-012	West	NW 196 Ave at Taft St	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Mast Arm Upgrade 	City	City	\$500,000
SCHOOL-013	West	SW 196 Ave at SW 3 St	<ul style="list-style-type: none"> No Stopping, standing, parking signs for southbound turn lane to enter the western entrance of Somerset South campus 	City	City	\$25,000
SCHOOL-015	West	Sheridan St at NW 184	<ul style="list-style-type: none"> Intersection Enhancement Add Do not block the intersection signs for west bound Sheridan traffic No U-Turn during school zone times for north bound 184th turn lane to go west bound on Sheridan Street No turn on red during school hours for east bound 	State	FDOT	\$75,000
SCHOOL-018	West	Taft St at NW 194 Ave	<ul style="list-style-type: none"> Intersection Improvement Enhance pedestrian access between parking lot and school Add crosswalk on the north and south legs 	City	City	\$40,000
SCHOOL-016	West	NW 184 Ave at 2100 block	<ul style="list-style-type: none"> Intersection Improvement - Add No Stopping, Standing, Parking Signs in the NB turn lane 	City	City	\$25,000
SCHOOL-017	West	NW 184 Ave at NW 17 St	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) Add "No Stopping/Standing/Parking" Signs 	City	City	\$25,000
SCHOOL-019	West	Pembroke Rd at SW 184 Ave	<ul style="list-style-type: none"> Intersection Enhancement - Add No Right Turn on Red during school zone times on SB Add dedicated turn arrows for east and westbound traffic 	City	City	\$50,000
SCHOOL-020	West	Pembroke Rd at South School Entrance	<ul style="list-style-type: none"> MUTCD R3-2 sign: implement left-turn restriction 	City	City	\$25,000
SCHOOL-021	West	SW 184 Ave at SW 14 St	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) 	City	City	\$25,000
SCHOOL-022	West	Sheridan St at Jaguar Way	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement 	County	County	\$40,000
SCHOOL-023	West	NW 9 St at NW 172 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement 	City	City	\$100,000
SCHOOL-024	West	NW 9 St at Main School Entrance	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement 	City	City	\$100,000

Table 6-3 School Zone Improvement Needs (West)



Safety Improvement Needs

WEST



Legend

- Safety Improvements
- Safety Improvements
- Park

Figure 6-5 Safety Improvements (West)

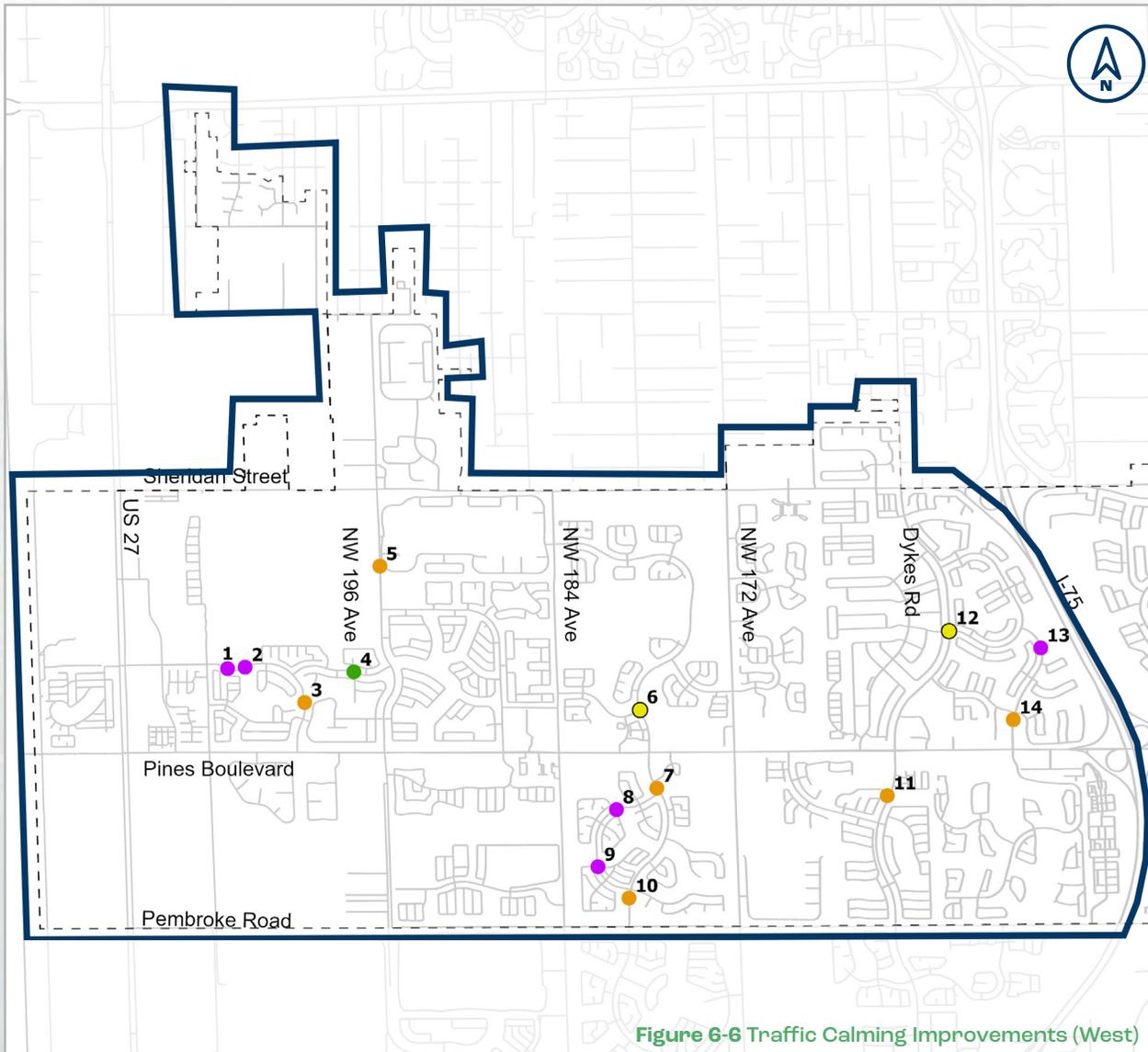
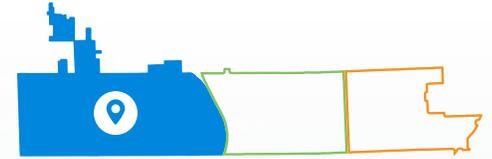
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
SAFETY-001	West	SW 178th Ave at SW 12th St	Pedestrian Crossing Improvements	City	City	\$75,000
SAFETY-005	West	Pines Blvd from US 27 to I-75	Buffered Bike Lanes	State	State	\$8,000,000
SAFETY-015	West	NW 160th Ave & NW 15th St	Southbound U-Turn Additional Pavement	City	City	\$60,000
SAFETY-016	West	Sheridan St & NW 160th Ave	Before & After Study	County	County	\$30,000

Table 6-4 Safety Improvement Needs (West)



Traffic Calming Improvement Needs

WEST



Legend

- Landscaped Median Island
- Raised Crosswalks
- Roundabout
- Speed Feedback Signs
- Speed Limit Sign (R2-1)
- Traffic Circle

Figure 6-6 Traffic Calming Improvements (West)

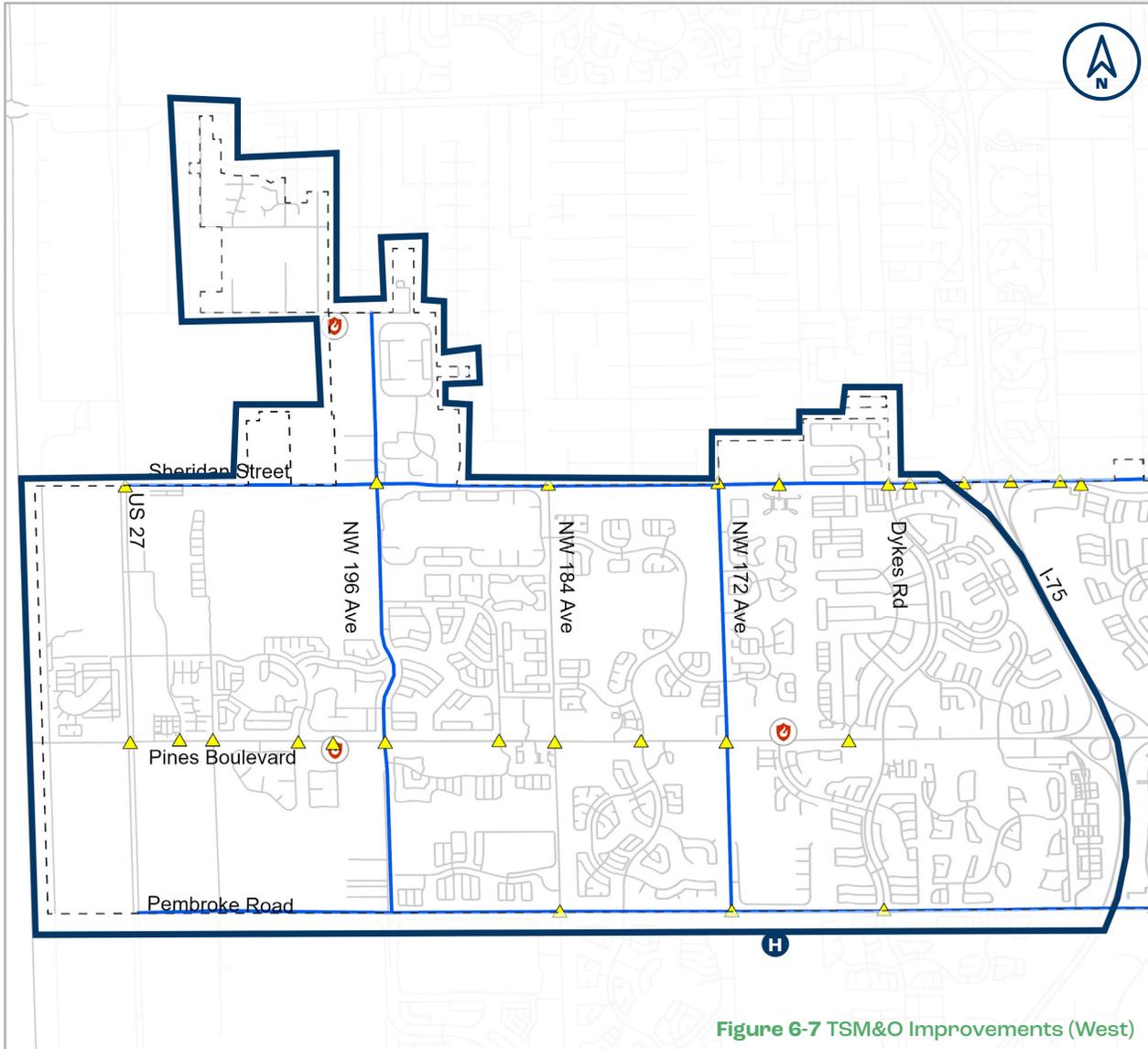
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
TRAF. CALM.-001	West	Johnson St at Rose G. Price Park (west driveway)	Raised Crosswalk	City	City	\$30,000
TRAF. CALM.-002	West	Johnson St West of NW 203rd Ave	Raised Crosswalk	City	City	\$30,000
TRAF. CALM.-003	West	NW 202nd Ave North of NW 4th St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-004	West	Johnson St West of NW 198th Ave	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-005	West	NW 196th Ave South of NW 23rd Manor	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-006	West	NW 178th Ave & NW 9th St	Roundabout	City	City	\$700,000
TRAF. CALM.-007	West	SW 178th Ave & SW 4th St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-008	West	SW 4th St West of SW 179th Ave	Raised Crosswalks	City	City	\$60,000
TRAF. CALM.-009	West	SW 12th St North/West of SW 180th Ave	Raised Crosswalks	City	City	\$60,000
TRAF. CALM.-010	West	SW 178th Ave & SW 12th St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-011	West	SW 160th Ave & SW 3rd St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-012	West	NW 160th Ave & NW 12th St	Roundabout	City	City	\$700,000
TRAF. CALM.-013	West	NW 155th Ave at Towngate Park	Raised Crosswalks & Provide Crosswalks across NW 155th Ave	City	City	\$100,000
TRAF. CALM.-014	West	NW 155th Ave South of NW 5th St	Speed Feedback Sign	City	City	\$35,000

Table 6-5 Traffic Calming Improvement Needs (West)



TSM&O Improvement Needs

WEST



Legend

- Potential ITS Devices
- Potential Fiber Optics
- BC Hospitals
- Fire Stations
- District Boundary

Figure 6-7 TSM&O Improvements (West)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
TSMO-01	West	SW 196th Avenue	From Stirling Rd to Pembroke Rd	Install fiber optic network/connection & monitoring devices	City	City	\$2,220,000
TSMO-02	West	SW 172nd Avenue	From Sheridan St to Pembroke Rd	Install fiber optic network/connection & monitoring devices	City	City	\$1,600,000
TSMO-06	West	Sheridan Street	From US-27 to I-75	Install fiber optic network/connection & monitoring devices	County/City	County/City	\$3,000,000
TSMO-09	West	Pembroke Road	From US-27 to I-75	Install fiber optic network/connection & monitoring devices	City	City	\$3,600,000
ITS-01	West	Pines Blvd & NW 172nd Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-02	West	Pines Blvd & SW 184th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-03	West	Pines Blvd & NW 196th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-04	West	Pines Blvd & SW 208th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-05	West	Pines Blvd & US-27		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-06	West	Pines Blvd & NW 202nd Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-07	West	Pines Blvd & NW 208th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-08	West	Pines Blvd & Pembroke Pines Fire Rescue Station 79		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-09	West	Pines Blvd & NW 186th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-010	West	Pines Blvd & SW 178th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-011	West	Pines Blvd & NW 163rd Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-012	West	Sheridan St & US-27		Install ITS Devices	County	County	\$100,000
ITS-013	West	Sheridan St & SW 196th Ave		Install ITS Devices	County/City	County/City	\$100,000
ITS-014	West	Sheridan St & SW 184th Ave		Install ITS Devices	City	City	\$100,000
ITS-015	West	Sheridan St & SW 172nd Ave		Install ITS Devices	City/County	City/County	\$100,000
ITS-016	West	Sheridan St & Jaguar Way		Install ITS Devices	County	County	\$100,000
ITS-017	West	Sheridan St & NW 160th Ave/ Dykes Rd		Install ITS Devices	County	County	\$100,000
ITS-018	West	Sheridan St & Coquina Plaza		Install ITS Devices	County	County	\$100,000
ITS-019	West	Sheridan St & I-75 Ramps		Install ITS Devices	County	County	\$100,000
ITS-049	West	Pembroke Rd & SW 184th Ave		Install ITS Devices	City	City	\$100,000
ITS-050	West	Pembroke Rd & SW 172nd Ave		Install ITS Devices	City	City	\$100,000
ITS-051	West	Pembroke Rd & SW 160ht Ave		Install ITS Devices	City	City	\$100,000

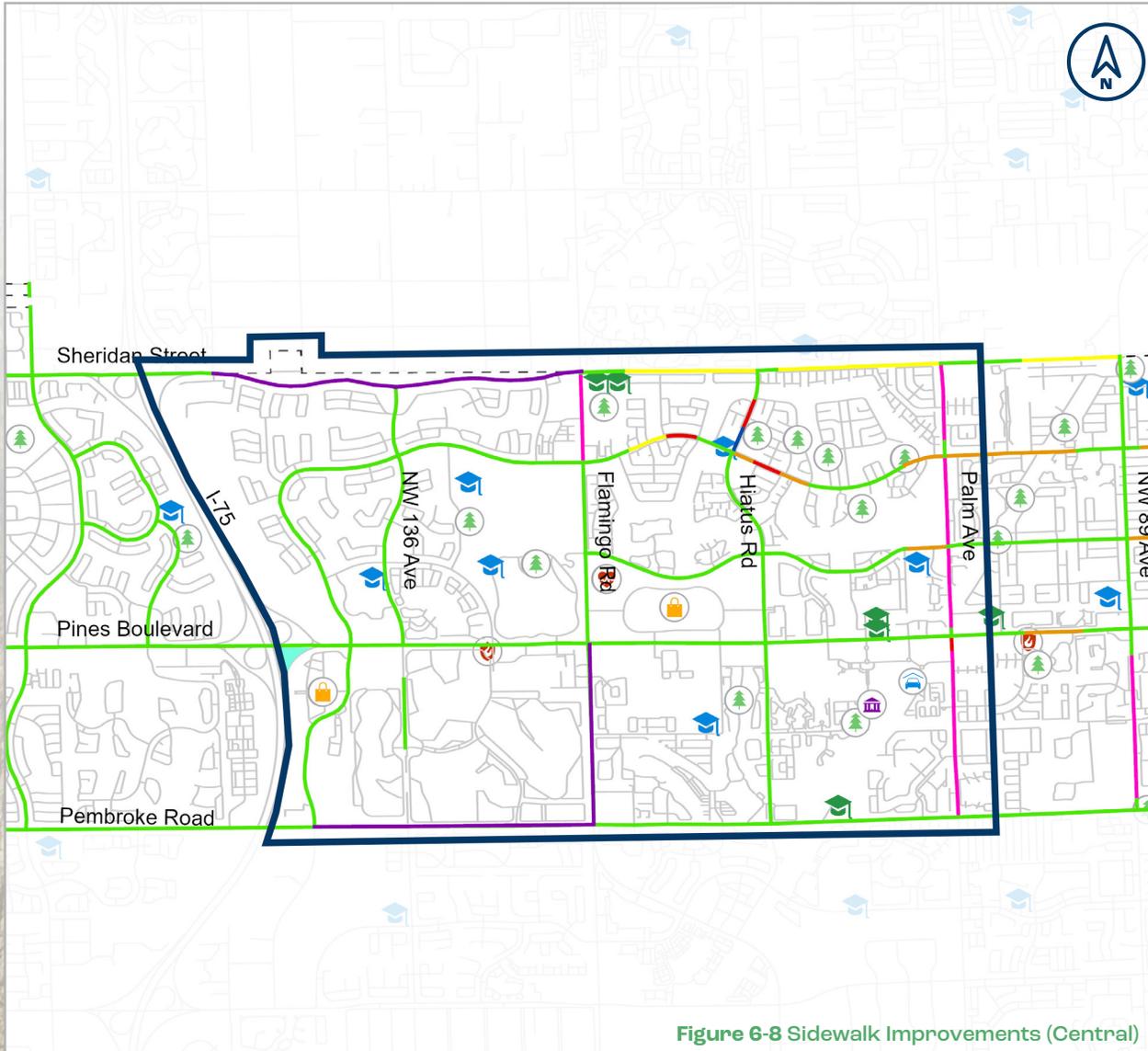
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-6 TSM&O Improvement Needs (West)



Sidewalk Improvement Needs

CENTRAL



Legend

- Existing Sidewalks
- Planned Improvements
- Potential Sidewalk (Both Sides)
- Potential Sidewalk (North Side)
- Potential Sidewalk (South Side)
- Potential Sidewalk (East Side)
- Potential Sidewalk (West Side)
- Proposed Park & Ride
- District Boundary
- Park
- Commercial Center
- Traditional Public Schools
- Public Charter Schools
- Private Schools
- City Center Mobility Hub

Figure 6-8 Sidewalk Improvements (Central)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
PED-2	Central	Taft Street	From NW 118th Ave to NW 114th Ave	Add Sidewalk (Both Sides)	City	City	\$71,131
PED-3	Central	Hiatus Road	From Access Rd to NW 22nd St	Add Sidewalk (Both Sides)	City	City	\$69,230
PED-4	Central	Taft Street	From E. of Hiatus rd to NW 109th Ave	Add Sidewalk (Both Sides)	City	City	\$67,865
PED-12	Central	Taft Street	From Hiatus Rd to Publix at Village Square Driveway	Add Sidewalk (North Side)	City	City	\$20,965
PED-13	Central	Taft Street	From NW 109th Ter to NW 108th Ave	Add Sidewalk (North Side)	City	City	\$31,221
PED-14	Central	Taft Street	From Ben Fiorendino Park Entrance to Palm Ave	Add Sidewalk (North Side)	City	City	\$47,581
PED-16	Central	Johnson Street	From NW 103rd Ave to Palm Ave	Add Sidewalk (North Side)	City	City	\$44,181
PED-26	Central	Sheridan Street	From S. Lake Blvd to Hiatus Rd	Add Sidewalk (South Side)	City	City	\$137,133
PED-27	Central	Sheridan Street	From E. of Hiatus Rd to Palm Ave	Add Sidewalk (South Side)	City	City	\$167,972
PED-28	Central	Taft Street	From E. of NW 122nd Ave to NW 118th Ave	Add Sidewalk (South Side)	City	City	\$40,861
PED-36	Central	Hiatus Road	From Taft St to Acces Rd	Add Sidewalk (East Side)	City	City	\$25,845
PED-50	Central	Palm Avenue	From Pembroke Rd to S. of Pines Blvd	Add Sidewalk (West Side)	County	County	\$167,010
PED-51	Central	Palm Avenue	From N. of Pines Blvd to Johnson St	Add Sidewalk (West Side)	City	City	\$82,680
PED-52	Central	Palm Avenue	From Johnson St to Taft St	Add Sidewalk (West Side)	City	City	\$92,436
PED-53	Central	Palm Avenue	From N. of Taft St to Sheridan St	Add Sidewalk (West Side)	County	County	\$80,130
PED-49	Central	Flamingo Road	From Taft St to Sheridan St	Add Sidewalk (West Side)	State	FDOT	\$91,781
PED-5	Central/East	Palm Avenue	From Bru's Room Driveway to Pines Blvd	Add Sidewalk (Both Sides)	County	County	\$35,172

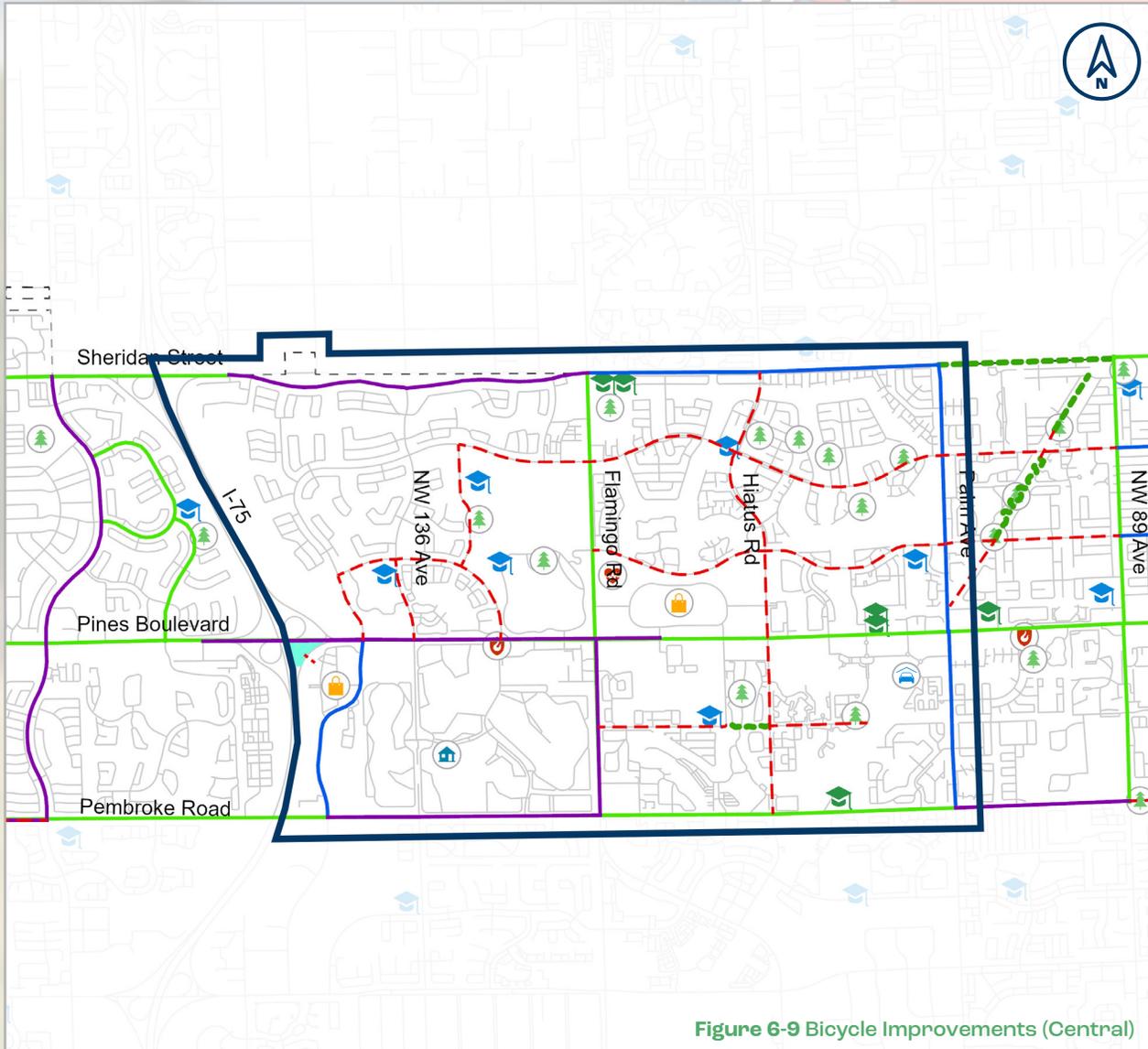
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-7 Sidewalk Improvement Needs (Central)



Bicycle Improvement Needs

CENTRAL



Legend

- Existing Bike Lanes
- Planned Improvements
- Potential Multi-Use Path
- Potential Bike Lanes
- Proposed Park & Ride
- District Boundary
- Park
- Commercial Center
- Traditional Public Schools
- Public Charter Schools
- Private Schools
- City Center Mobility Hub

Figure 6-9 Bicycle Improvements (Central)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
BIKE-011	Central	Sheridan Street	From Flamingo Rd to Hiatus Rd	Add Bicycle Lanes	City	City	\$2,530,567
BIKE-012	Central	Sheridan Street	From Hiatus Rd to Palm Ave	Add Bicycle Lanes	City	City	\$2,637,029
BIKE-031	Central	SW 145th Avenue	From Pembroke Rd to Pines Blvd	Add Bicycle Lanes	City	City	\$2,977,883
PATH-022	Central	Taft Street	From NW 129th Ave to Flamingo Rd	Add Multi-Use Path	City	City	\$267,365
PATH-019	Central	Hiatus Road	From Pembroke rd to Sheridan st	Add Multi-Use Path	City	City	\$915,942
PATH-04	Central	NW 129th Avenue	From NW 10th St to Taft St	Add Multi-Use Path	City	City	\$252,229
PATH-03	Central	NW 129th Avenue	From NW 129th Ave to Pines Blvd	Add Multi-Use Path	City	City	\$179,339
PATH-014	Central	Washington Street	From Flamingo Rd to SW 114th Ave	Add Multi-Use Path	City	City	\$259,250
PATH-015	Central	Washington Street	From Hiatus Rd to City Center	Add Multi-Use Path	City	City	\$195,788
PATH-02	Central	NW 10th Street	From SW 136th Ave to NW 129th Ave	Add Multi-Use Path	City	City	\$132,153
PATH-01	Central	SW 136th Avenue	From Pines Blvd to SW 10th St	Add Multi-Use Path	City	City	\$165,867
PATH-05	Central	Taft Street	From Flamingo Rd to Hiatus Rd	Add Multi-Use Path	City	City	\$353,280
PATH-06	Central	Taft Street	From Hiatus Rd to Palm Ave	Add Multi-Use Path	City	City	\$440,557
PATH-09	Central	Johnson Street	From Flamingo Rd to Hiatus Rd	Add Multi-Use Path	City	City	\$363,119
PATH-010	Central	Johnson Street	From Hiatus Rd to Palm Ave	Add Multi-Use Path	City	City	\$380,465
PATH-024	Central	NW 10th Street	From NW 142nd Ave to NW 136th Ave	Add Multi-Use Path	City	City	\$123,429
PATH-025	Central	NW 142nd Ave	From Pines Blvd to NW 10th ST	Add Multi-Use Path	City	City	\$140,714
PATH-10	Central	Park & Ride Facility	From Park & Ride Facility to Shops at Pembroke Gardens	Add Multi-Use Path	City	City	\$26,938
BIKE-014	Central/East	Palm Avenue	From Pembroke Rd to Pines Blvd	Add Bicycle Lanes	County	County	\$2,601,972
BIKE-015	Central/East	Palm Avenue	From Pines Blvd to Johnson St	Add Bicycle Lanes	City	City	\$1,291,739
BIKE-016	Central/East	Palm Avenue	From Johnson St to Taft St	Add Bicycle Lanes	City	City	\$1,301,963
BIKE-017	Central/East	Palm Avenue	From Taft St to Sheridan St	Add Bicycle Lanes	County	County	\$1,334,508

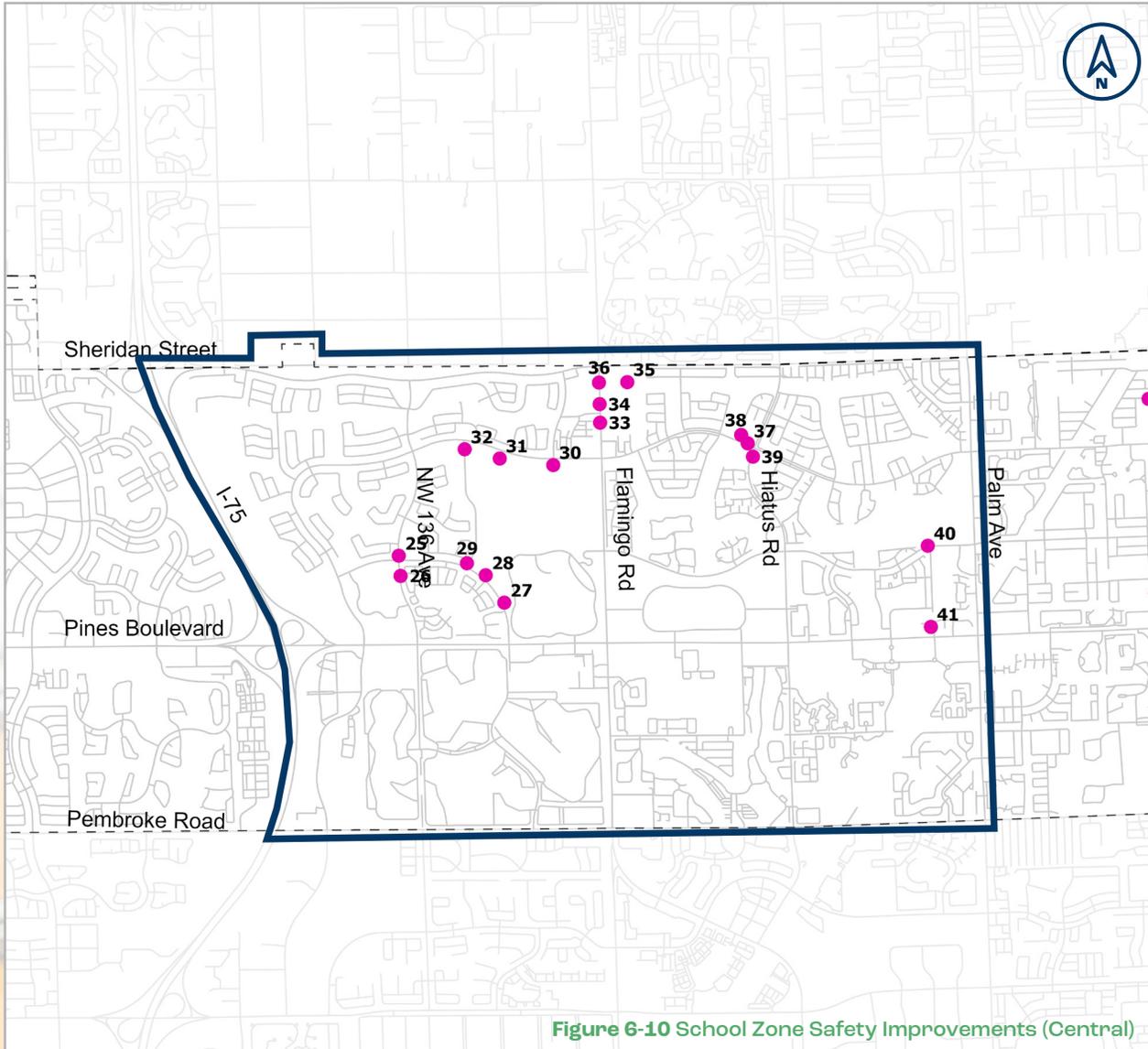
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-8 Bicycle Improvement Needs (Central)



School Zone Improvement Needs

CENTRAL



Legend

- School Zone Improvements

Figure 6-10 School Zone Safety Improvements (Central)

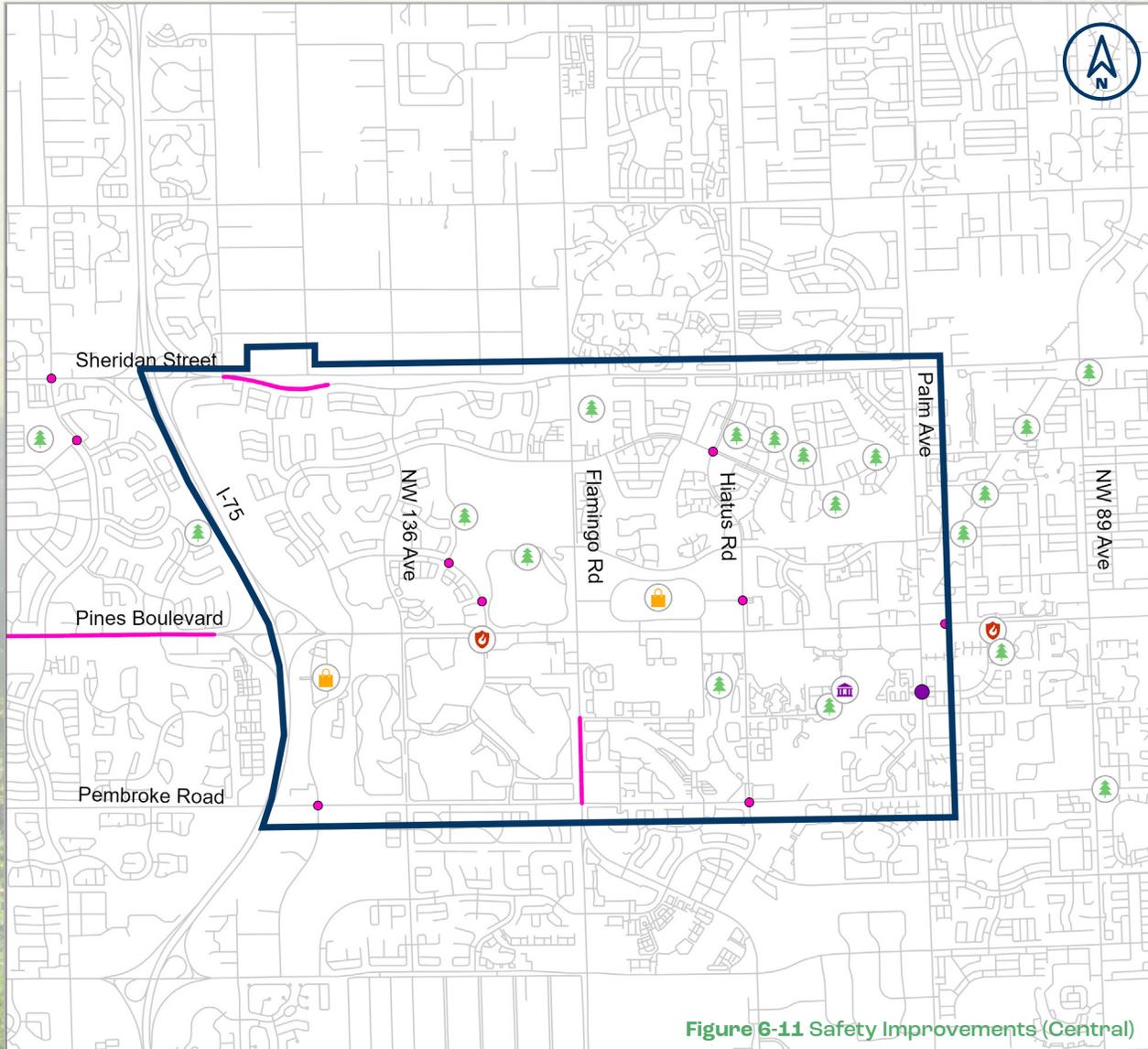
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
SCHOOL-025	Central	NW 10 St at NW 136 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancements 	City	City	\$500,000
SCHOOL-026	Central	NW 136 Ave at NW 8 Ct	<ul style="list-style-type: none"> Intersection Improvement Medians & Pedestrian Refuge Island Rectangular Rapid Flashing Beacons (RRFB) 	City	City	\$50,000
SCHOOL-027	Central	NW 3 St at NW 129 Ave	<ul style="list-style-type: none"> Upgrade Pedestrian Refuge Island (Rectangular Rapid Flashing Beacons - RRFB) 	City	City	\$50,000
SCHOOL-028	Central	NW 6 St at NW 129 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancements Pedestrian Refuge Island 	City	City	\$50,000
SCHOOL-029	Central	NW 6 St at NW 129 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement 	City	City	\$25,000
SCHOOL-030	Central	Taft St at NW 125 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Pedestrian Refuge Island (Rectangular Rapid Flashing Beacons - RRFB) 	City	City	\$100,000
SCHOOL-031	Central	Taft St at North Parking lot	<ul style="list-style-type: none"> Upgrade Pedestrian Refuge Island (Rectangular Rapid Flashing Beacons - RRFB) 	City	City	\$50,000
SCHOOL-032	Central	Taft St at Northwest Parking Lot	<ul style="list-style-type: none"> Intersection Improvement - Mini-Roundabout Crosswalk Enhancements 	City	City	\$100,000
SCHOOL-033	Central	Flamingo Rd at South Parking Entrance	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancements 	State	FDOT	\$25,000
SCHOOL-034	Central	Flamingo Rd at North Parking Entrance	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancements 	State	FDOT	\$25,000
SCHOOL-035	Central	Sheridan St North Parking Entrance	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Mast Arm Upgrade 	State	FDOT	\$25,000
SCHOOL-036	Central	Flamingo Rd at Sheridan St	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement Mast Arm Upgrade 	State	FDOT	\$500,000
SCHOOL-037	Central	Inside School Campus	<ul style="list-style-type: none"> Internal circulation modification to utilize Hiatus Rd for overflow stacking to relief blocking at the intersection on Hiatus Rd and Taft St 	County	County	\$200,000
SCHOOL-038	Central	NW 113 Ave at West School Entrance	<ul style="list-style-type: none"> Enforce "Right Turn Only" on the exit of the student pick up zone 	City	City	\$25,000
SCHOOL-039	Central	Taft St at Hiatus Rd	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) 	City	City	\$25,000
SCHOOL-040	Central	Johnson St at NW 103 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancement 	City	City	\$50,000
SCHOOL-041	Central	Pines Blvd at SW 103 Ave	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) on the east leg of intersection 	State	FDOT	\$25,000

Table 6-9 School Zone Improvement Needs (Central)



Safety Improvement Needs

CENTRAL



Legend

- Safety Improvements
- Safety Improvements
- Park
- Commercial Center
- Fire Stations

Figure 6-11 Safety Improvements (Central)

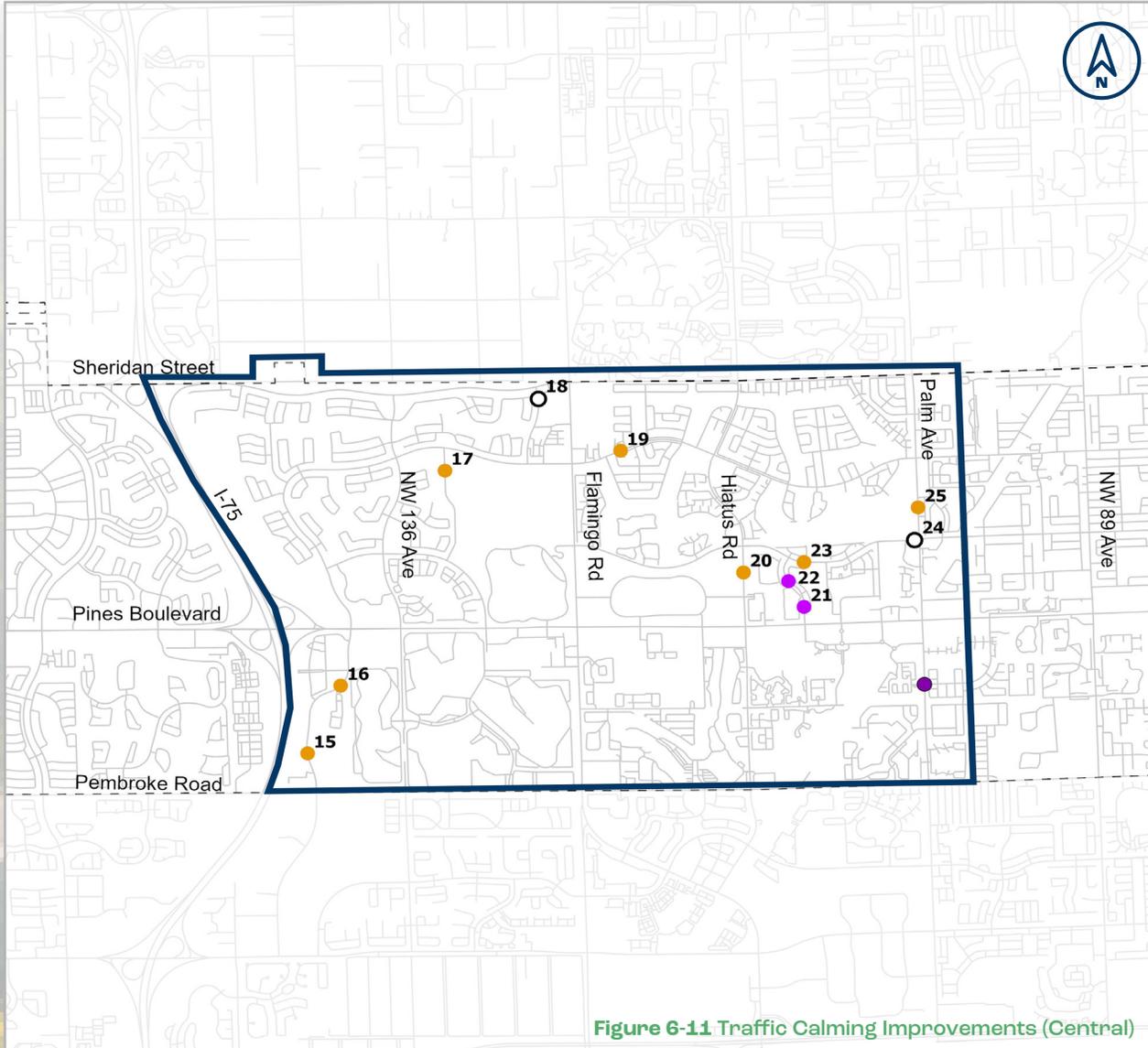
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
SAFETY-002	Central	NW 129th Ave at NW 3rd St	Pedestrian Crossing Refuge	City	City	\$50,000
SAFETY-003	Central	NW 129th Ave at NW 10th St	Pedestrian Crossing Refuge	City	City	\$50,000
SAFETY-004	Central	Taft St at Hiatus Rd	Left-Turn Flashing Yellow Arrow	City	City	\$75,000
SAFETY-009	Central	Hiatus Rd at NW 4th St	Left-Turn Flashing Yellow Arrow and Split Phase Removal Evaluation	City	City	\$15,000
SAFETY-011	Central	Flamingo Rd SB from Washington St to Pembroke Rd	Speed Zone Evaluation & Safety Improvements	State	FDOT	\$20,000
SAFETY-012	Central	Pembroke Rd at Hiatus Rd	Traffic Signal Retro-Reflective Backplates and Left Turn Flashing Yellow Arrow	City	City	\$70,000
SAFETY-013	Central	Sheridan St from NW 148 Ave to NW 138 Terr	Horizontal Curve Safety Evaluation	County	County	\$30,000
SAFETY-014	Central	Pembroke Rd & SW 145th Ave	<ul style="list-style-type: none"> ▪ Westbound Turn Lanes Storage Bay Extension ▪ Congestion Management Strategies (i.e. Adaptive Traffic Signal Control) 	City	City	\$150,000

Table 6-10 Safety Improvement Needs (Central)



Traffic Calming Improvement Needs

CENTRAL



Legend

- Landscaped Median Island
- Raised Crosswalks
- Roundabout
- Speed Feedback Signs
- Speed Limit Sign (R2-1)
- Traffic Circle

Figure 6-11 Traffic Calming Improvements (Central)

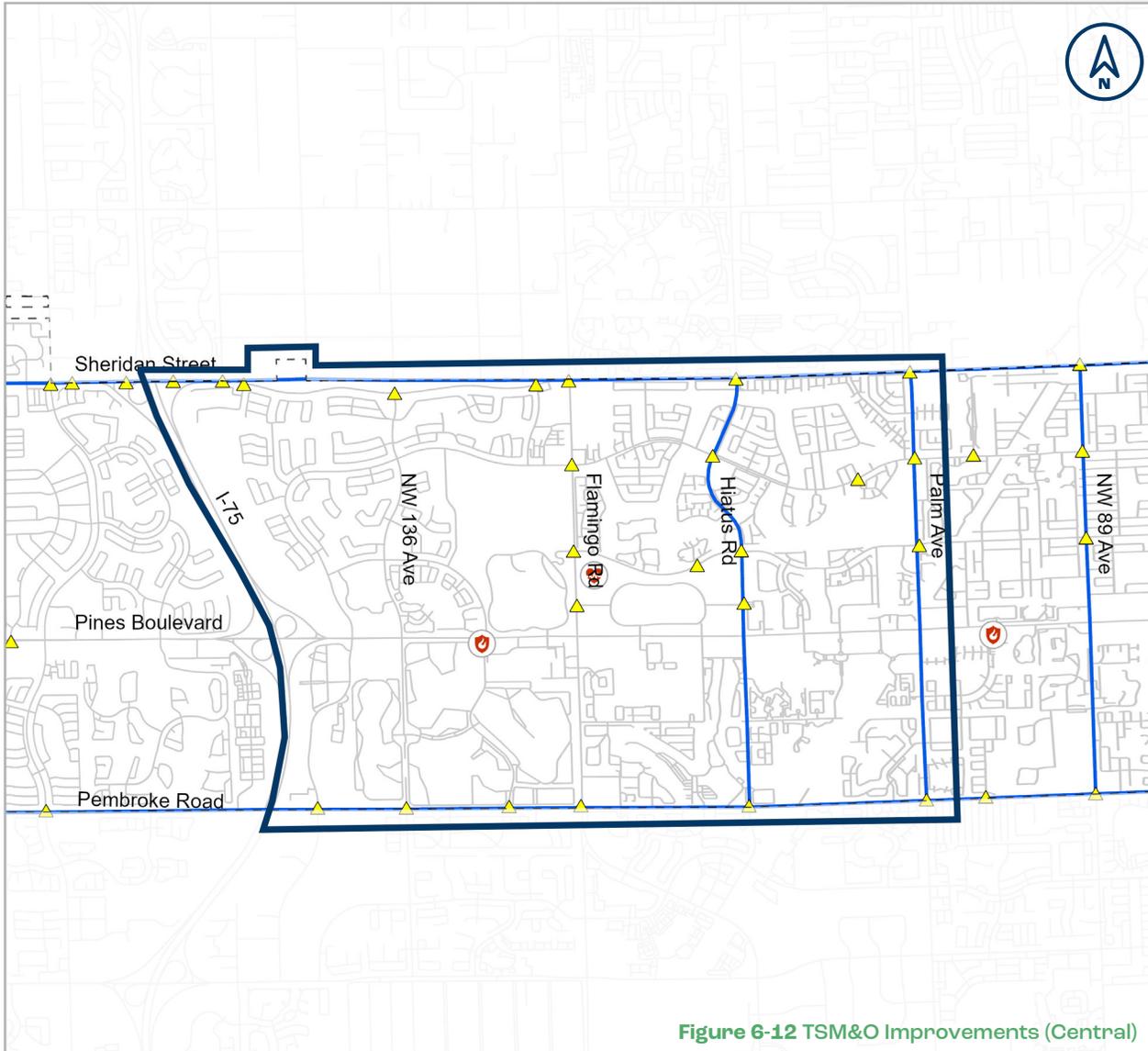
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
TRAF. CALM.-015	Central	SW 145th Ave North of Pembroke Road	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-016	Central	SW 145th Ave South of SW 5 St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-017	Central	NW 129th Ave South of Taft Street	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-018	Central	NW 125th Ave SB South of Sheridan Street	Speed Limit Sign (R2-1)	City	City	\$5,000
TRAF. CALM.-019	Central	Taft Street West of NW 119th Ave	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-020	Central	Hiatus Rd South of Johnson St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-021	Central	NW 108th Ave at NW 2nd St	Raised Crosswalks	City	City	\$100,000
TRAF. CALM.-022	Central	NW 108th Ave at NW 8th St	Raised Crosswalks	City	City	\$100,000
TRAF. CALM.-023	Central	Johnson Street East of NW 108th Ave	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-024	Central	Johnson St WB West of Palm Ave	Speed Limit Sign (R2-1)	City	City	\$5,000
TRAF. CALM.-025	Central	Palm Ave South of Westview Blvd	Speed Feedback Signs	City	City	\$35,000

Table 6-11 Traffic Calming Improvement Needs (Central)



TSM&O Improvement Needs

CENTRAL



Legend

- Proposed ITS Devices
- Proposed Fiber Optics
- BC Hospitals
- Fire Stations
- District Boundary

Figure 6-12 TSM&O Improvements (Central)

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost
TSMO-05	Central	Hiatus Road	Install fiber optic network/connection & monitoring devices	City	City	\$1,600,000
TSMO-07	Central	Sheridan Street	Install fiber optic network/connection & monitoring devices	County/City	County/City	\$2,900,000
TSMO-010	Central	Pembroke Road	Install fiber optic network/connection & monitoring devices	City	City	\$2,300,000
TSMO-03	Central/East	Palm Avenue	Install fiber optic network/connection & monitoring devices	City/County	City/County	\$1,500,000
ITS-020	Central	Sheridan St & I-75 Ramp	Install ITS Devices	County	County	\$100,000
ITS-021	Central	Sheridan St & SW 148th Ave	Install ITS Devices	County	County	\$100,000
ITS-022	Central	Sheridan St & NW 146th Ave	Install ITS Devices	County	County	\$100,000
ITS-023	Central	Sheridan St & NW 136th Ave	Install ITS Devices	County	County	\$100,000
ITS-024	Central	Sheridan St & NW 125th Ave	Install ITS Devices	County	County	\$100,000
ITS-025	Central	Sheridan St & Flamingo Rd	Install ITS Devices	City/County/FDOT	City/County/FDOT	\$100,000
ITS-026	Central	Sheridan St & Hiatus Rd	Install ITS Devices	City	City	\$100,000
ITS-040	Central	Taft St & NW 104th Ave	Install ITS Devices	City	City	\$100,000
ITS-041	Central	Taft St & Hiatus Rd	Install ITS Devices	City	City	\$100,000
ITS-042	Central	Johnson St & Hiatus Rd	Install ITS Devices	City	City	\$100,000
ITS-043	Central	Johnson St & Flamingo Rd	Install ITS Devices	City/FDOT	City/FDOT	\$100,000
ITS-044	Central	NW 4th St & Flamingo Rd	Install ITS Devices	FDOT	FDOT	\$100,000
ITS-045	Central	Johnson St & Colony Point Dr	Install ITS Devices	City	City	\$100,000
ITS-046	Central	NW 4th St & Hiatus Rd	Install ITS Devices	City	City	\$100,000
ITS-048	Central	Taft St & Flamingo Rd	Install ITS Devices	FDOT	FDOT	\$100,000
ITS-052	Central	Pembroke Rd & SW 145th Ave	Install ITS Devices	City	City	\$100,000
ITS-053	Central	Pembroke Rd & SW 136th Ave	Install ITS Devices	City	City	\$100,000
ITS-054	Central	Pembroke Rd & SW Flamingo West Dr	Install ITS Devices	City	City	\$100,000
ITS-055	Central	Pembroke Rd & Flamingo Rd	Install ITS Devices	FDOT	FDOT	\$100,000
ITS-056	Central	Pembroke Rd & Hiatus Rd	Install ITS Devices	City	City	\$100,000
ITS-027	Central/East	Sheridan St & Palm Ave	Install ITS Devices	City/County	City/County	\$100,000
ITS-039	Central/East	Taft St & Palm Ave	Install ITS Devices	City/County	City/County	\$100,000
ITS-047	Central/East	Johnson St & Palm Ave	Install ITS Devices	City	City	\$100,000
ITS-057	Central/East	Pembroke Rd & Palm Ave	Install ITS Devices	City/County	City/County	\$100,000

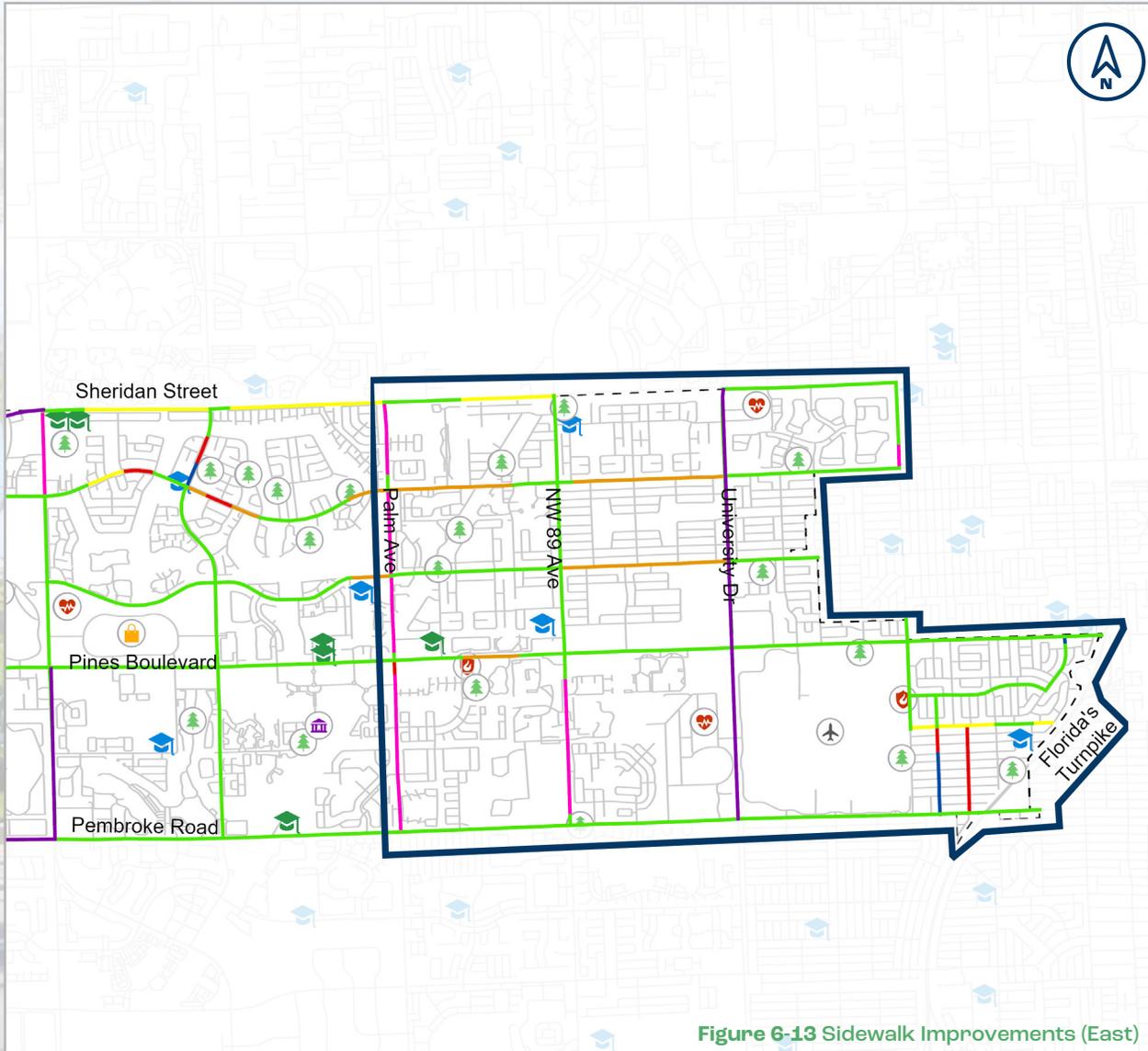
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-12 TSM&O Improvement Needs (Central)



Sidewalk Improvement Needs

EAST



Legend

- Existing Sidewalks
- Planned Improvements
- Potential Sidewalk (Both Sides)
- Potential Sidewalk (North Side)
- Potential Sidewalk (South Side)
- Potential Sidewalk (East Side)
- Potential Sidewalk (West Side)
- Proposed Park & Ride
- District Boundary
- Park
- Commercial Center
- Traditional Public Schools
- Public Charter Schools
- Private Schools

Figure 6-13 Sidewalk Improvements (East)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
PED-6	East	SW 71st Avenue	From SW 11th St to SW 9th St	Add Sidewalk (Both Sides)	City	City	\$58,994
PED-7	East	SW 69th Avenue	From Pembroke Rd to SW 9th St	Add Sidewalk (Both Sides)	City	City	\$188,386
PED-17	East	Pines Boulevard	From SW 96th Ave to E. of Palm Cln	Add Sidewalk (North Side)	State	FDOT	\$64,050
PED-15	East	Taft Street	From Palm Ave to NW 92nd Ave	Add Sidewalk (North Side)	City	City	\$138,750
PED-18	East	Taft Street	From NW 88th Ter to University Dr	Add Sidewalk (North Side)	City	City	\$169,212
PED-19	East	Johnson Street	From NW 89th Ave to University Dr	Add Sidewalk (North Side)	City	City	\$184,933
PED-29	East	Sheridan Street	From E. of NW 98th Ave to NW 89th Ave	Add Sidewalk (South Side)	County	County	\$102,618
PED-31	East	SW 9th Street	From SW 72nd Ave to SW 68th Ave	Add Sidewalk (South Side)	City	Cit	\$92,138
PED-32	East	SW 9th Street	From SW 66th Ave to SW 64th Pkwy	Add Sidewalk (South Side)	City	City	\$21,414
PED-39	East	SW 71st Ave	From Pembroke Rd to SW 11th Ave	Add Sidewalk (East Side)	City	City	\$66,548
PED-40	East	SW 64th Way	From N. of SW 2nd St to Pines Blvd	Add Sidewalk (East Side)	City	City	\$9,622
PED-54	East	NW 89th Ave	From Pembroke Rd to S. of Pines Blvd	Add Sidewalk (West Side)	County	County	\$149,334
PED-55	East	N 72nd Avenue	From Taft St to Harding St	Add Sidewalk (West Side)	City	City	\$27,503

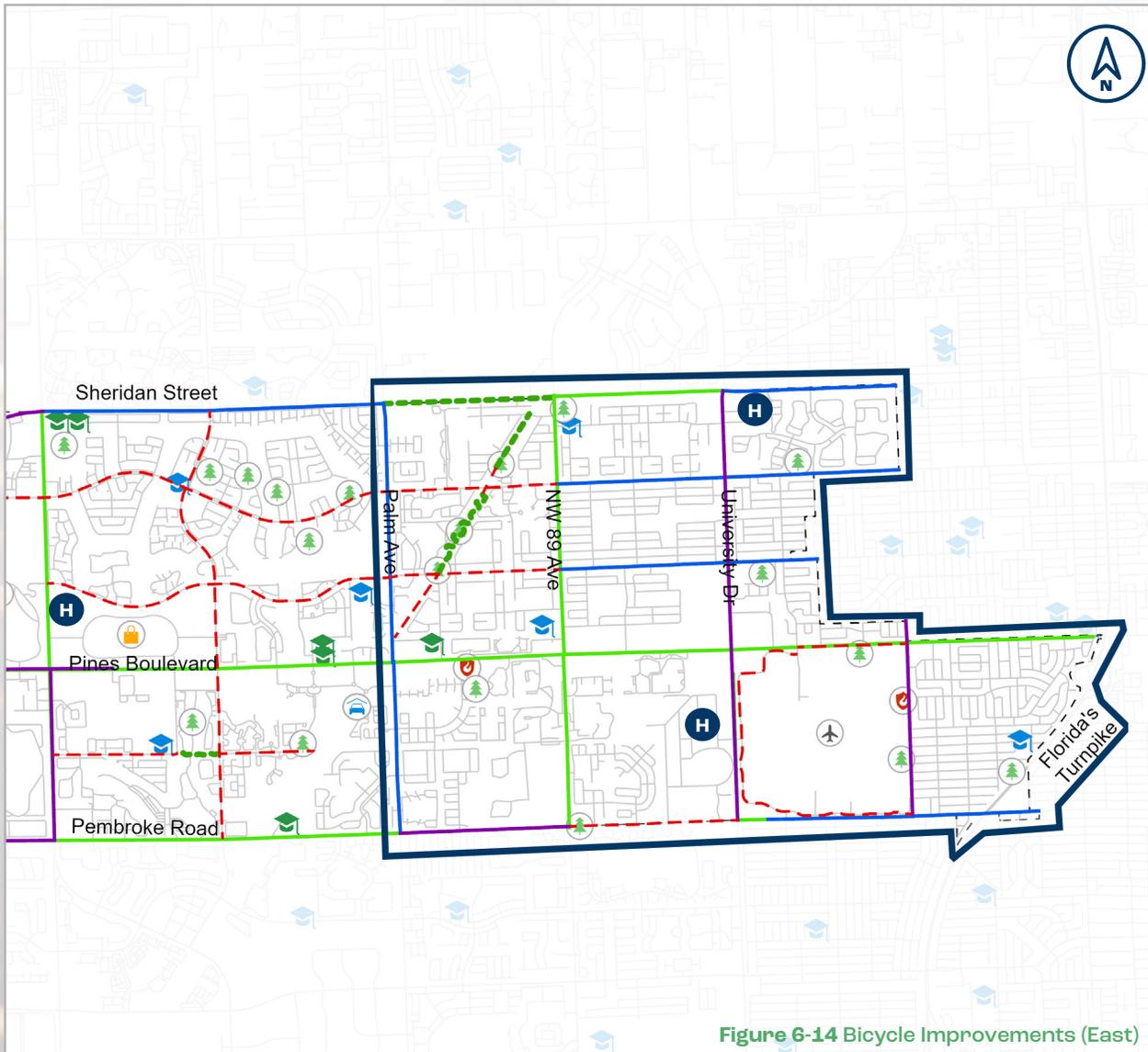
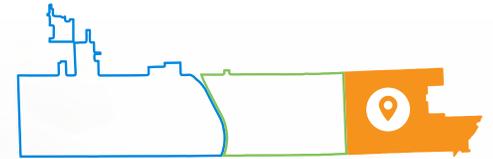
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-13 Sidewalk Improvement Needs (East)



Bicycle Improvement Needs

EAST



Legend

- Existing Bike Lanes
- Planned Improvements
- - - Potential Multi-Use Path
- Potential Bike Lanes
- Proposed Park & Ride
- District Boundary
- City Center Mobility Hub
- Park
- Commercial Center
- Traditional Public Schools
- Public Charter Schools
- Private Schools
- BC Hospitals
- Fire Stations

Figure 6-14 Bicycle Improvements (East)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
BIKE-027	East	Sheridan Street	From University Dr to N 72nd Ave	Add Bicycle Lanes	County	County	\$2,682,752
BIKE-028	East	Pembroke Road	From E. of University Dr to N. 72nd Ave	Add Bicycle Lanes	State	FDOT	\$2,193,932
BIKE-029	East	Pembroke Road	From N. 72nd Ave to SW 66th Ave	Add Bicycle Lanes	State	FDOT	\$1,912,208
BIKE-018	East	Taft Street	From NW 89th Ave to University Dr	Add Bicycle Lanes	City	City	\$2,536,467
BIKE-019	East	Taft Street	From University Dr to N 72nd Ave	Add Bicycle Lanes	City	City	\$2,711,665
BIKE-020	East	Johnson Street	From NW 89th Ave to University Dr	Add Bicycle Lanes	City	City	\$2,606,766
BIKE-021	East	Johnson Street	From University Dr to NW 76th Ave	Add Bicycle Lanes	City	City	\$1,385,181
PATH-013	East	FPL Easement	From Palm Ave to Johnson St	Add Multi-Use Path	City	City	\$159,854
PATH-020	East	North Perry Airport	North Perry Airport	Add Multi-Use Path	County	County	\$788,266
PATH-021	East	Pines Boulevard	From NW 77th Way to SW 72nd Ave	Add Multi-Use Path	State	FDOT	\$226,623
PATH-07	East	Taft Street	From Palm Ave to NW 89th Ave	Add Multi-Use Path	City	City	\$350,214
PATH-011	East	Johnson Street	From Palm Ave to NW 89th Ave	Add Multi-Use Path	City	City	\$349,240
PATH-012	East	North of Taft Street	From Taft St to NW 19th St	Add Multi-Use Path & Bridge over Canal on the north side of Taft st.	City	City	\$414,679
PATH-026	East	Pembroke Rd	From NW 89th Ave to University Dr	Add Multi-Use Path	City	City	\$345,243

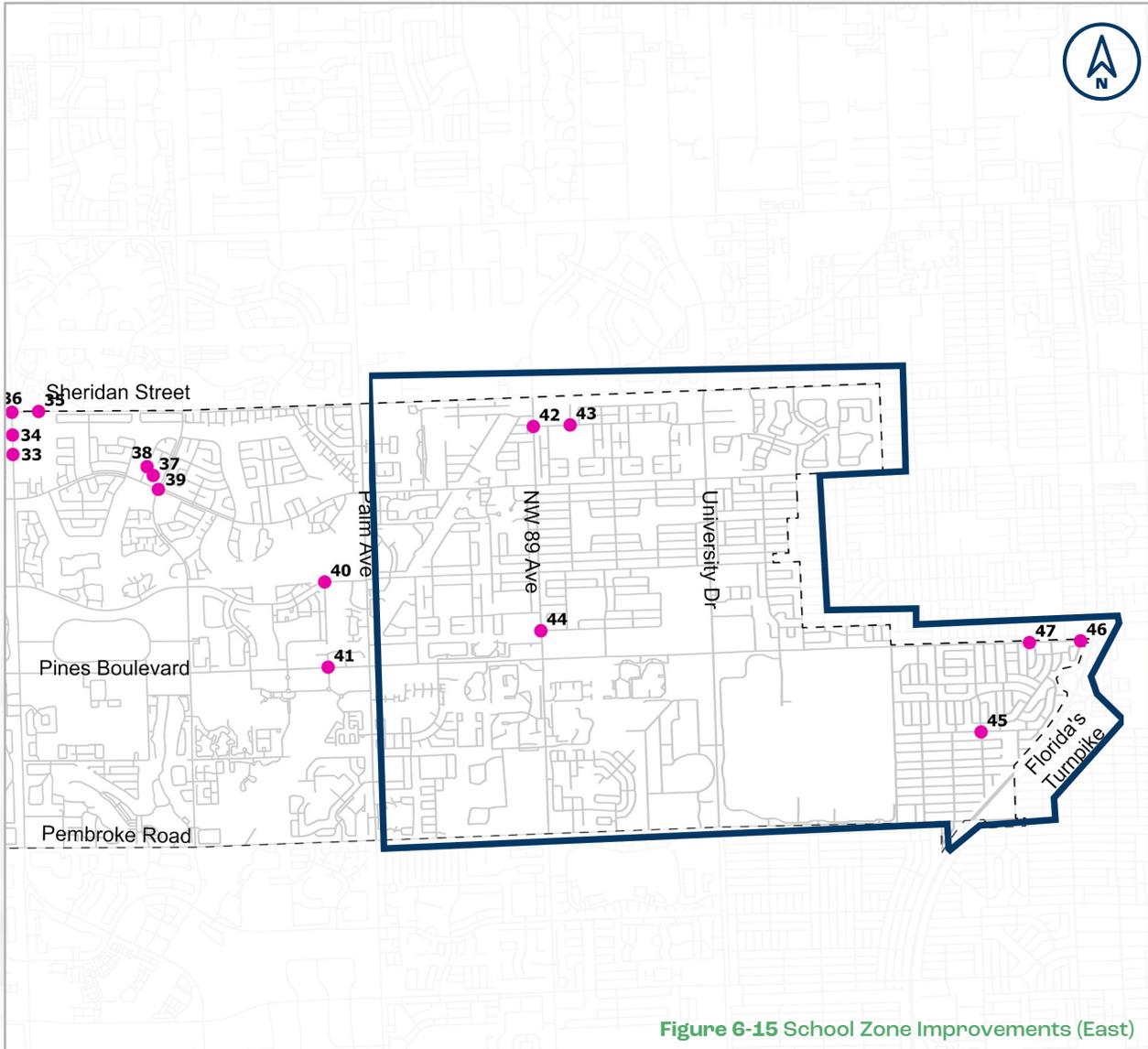
Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-14 Bicycle Improvement Needs (East)



School Zone Safety Improvement Needs

EAST



Legend

-  Safety Improvements

Figure 6-15 School Zone Improvements (East)



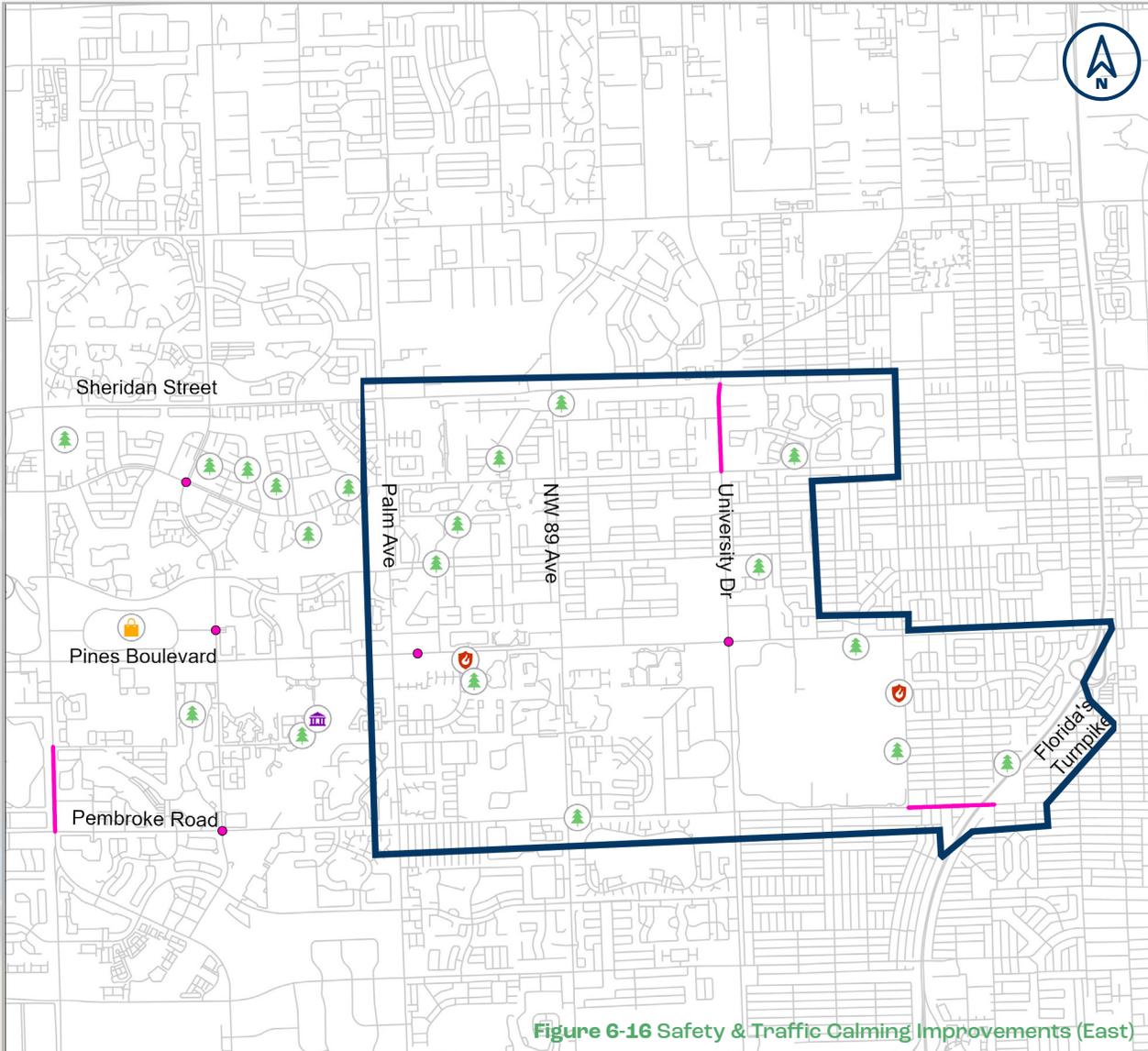
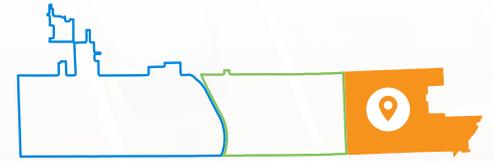
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
SCHOOL-042	East	Pasadena Blvd at NW 89 Ave	<ul style="list-style-type: none"> Intersection Improvements Crosswalk Enhancements 	City	City	\$100,000
SCHOOL-043	East	Pasadena Blvd at NW 87 Terr	<ul style="list-style-type: none"> Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) 	City	City	\$20,000
SCHOOL-044	East	NW 89 Ave at NW 3 St	<ul style="list-style-type: none"> Intersection Improvement Crosswalk Enhancements 	County	County	\$300,000
SCHOOL-045	East	SW 9 St at SW 68 Ave	<ul style="list-style-type: none"> Traffic Calming Improvements - Traffic Circle 	City	City	\$25,000
SCHOOL-046	East	Pines Blvd at SW 63 Terr	<ul style="list-style-type: none"> Intersection Improvement (Restrict illegal U-turns) 	City	City	\$25,000
SCHOOL-047	East	Pines Blvd at West Parking Lot	<ul style="list-style-type: none"> Intersection Improvement-Enforce "No Stopping or Standing" on the right turn lane into the school 	City	City	\$25,000

Table 6-15 School Zone Improvement Needs (East)



Safety Improvement Needs

EAST



Legend

- Safety Improvements
- Safety Improvements
- Park
- Commercial Center
- Fire Stations

Figure 6-16 Safety & Traffic Calming Improvements (East)

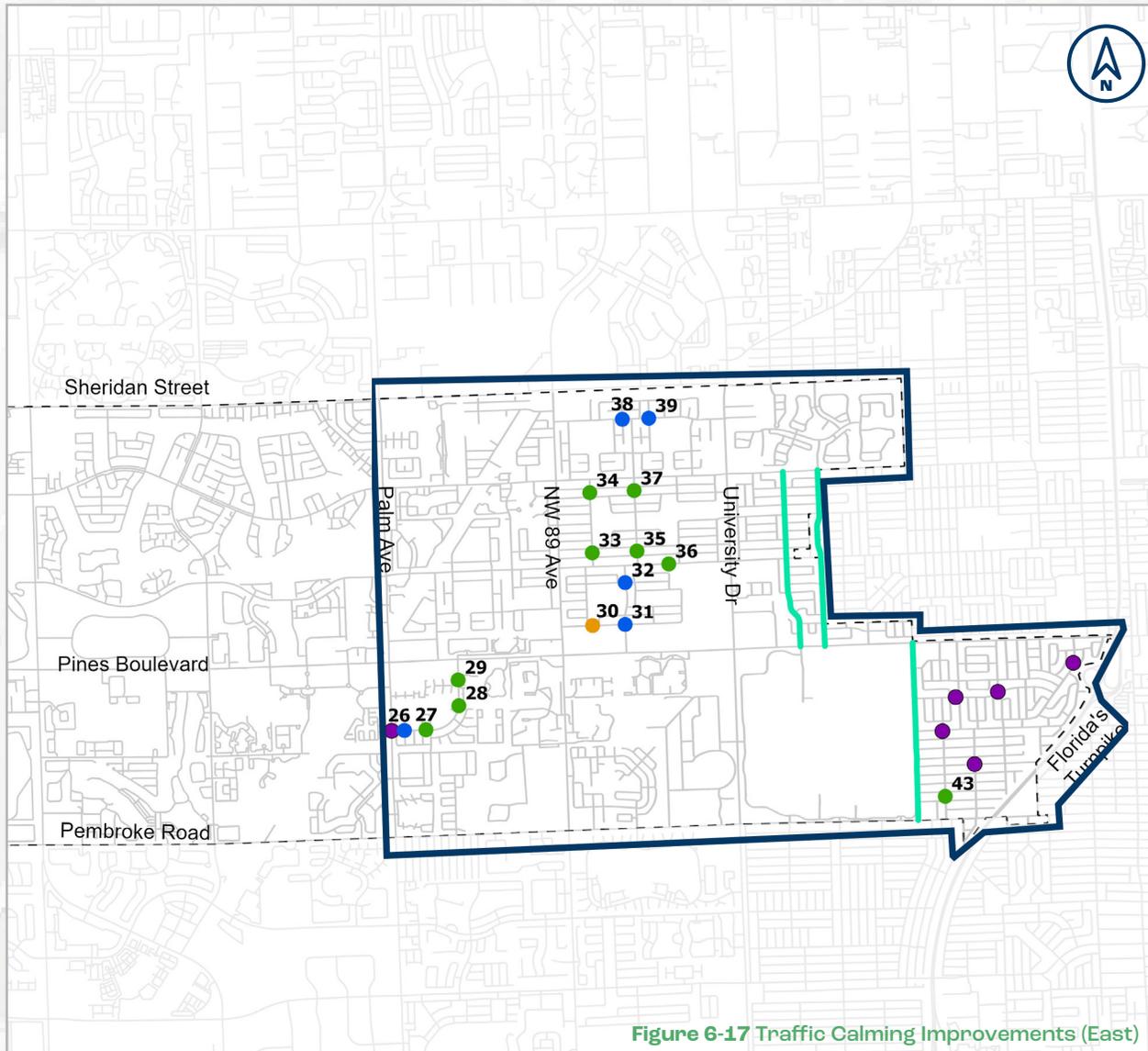
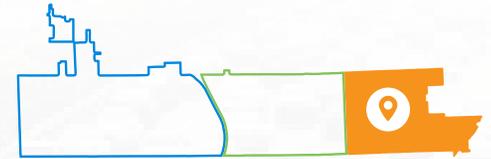
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
SAFETY-006	East	Pines Blvd at University Dr	Pedestrian Activated No Turn on Red Blank-Out Signs	State	FDOT	\$150,000
SAFETY-007	East	Pembroke Rd from SW 72 Ave to SW 68 Ave	Eastbound Outside Through Auxiliary Lane Extension Evaluation	State	FDOT	\$30,000
SAFETY-008	East	Pines Blvd, 700 ft East	Frontage Rd & Directional Median Opening Safety Evaluation. Access Management Improvements	State	FDOT	\$100,000
SAFETY-010	East	University Dr from Taft St to Sheridan St	High Serious Injury & Fatal Crash Segment Evaluation	State	FDOT	\$30,000

Table 6-16 Safety Improvement Needs (East)



Traffic Calming Improvement Needs

EAST



Legend

- Landscaped Median Island
- Raised Crosswalks
- Roundabout
- Speed Feedback Signs
- Speed Limit Sign (R2-1)
- Traffic Circle

Figure 6-17 Traffic Calming Improvements (East)

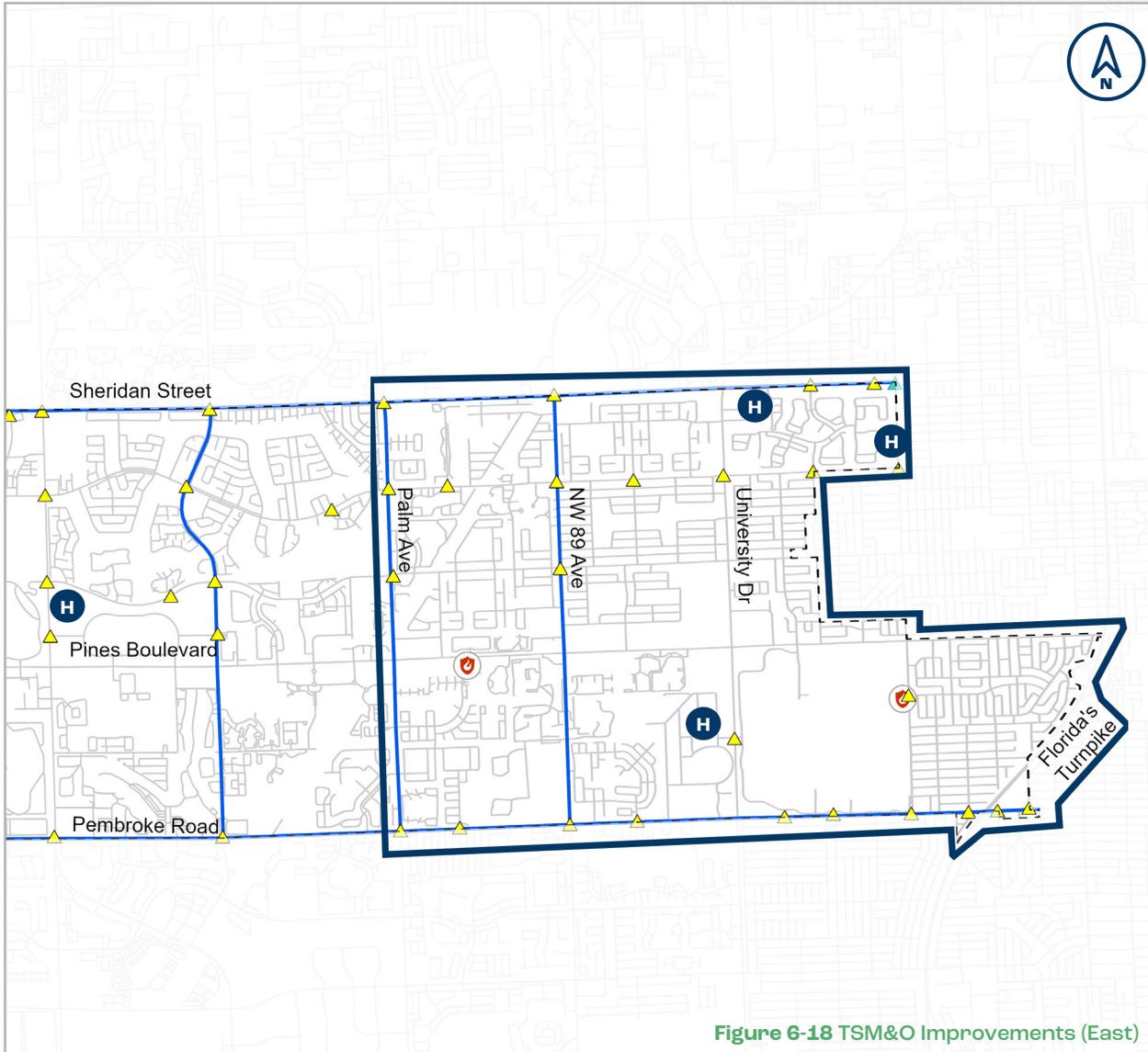
Project ID	District	Area Location	Project Description	Road Jurisdiction	Funding Source	Cost Estimate
TRAF. CALM.-026	East	SW 7th St at SW 100th Ave	Traffic Circle	City	City	\$50,000
TRAF. CALM.-027	East	SW 7 St at SW 99 Ave	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-028	East	SW 96th Ave South of SW 3rd Ct	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-029	East	SW 96th Ave North of SW 2nd St	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-030	East	NW 3rd St East of NW 88th Ave	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-031	East	NW 86th Ave at NW 3rd St	Traffic Circle	City	City	\$50,000
TRAF. CALM.-032	East	NW 86th Ave at NW 7th Ct	Traffic Circle	City	City	\$50,000
TRAF. CALM.-033	East	NW 87th Way North of NW 10 St	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-034	East	NW 87th Way North of NW 15th Ct	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-035	East	NW 85th Way North of NW 10th St	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-036	East	Johnson St West of NW 83 Way	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-037	East	NW 85th Way North of NW 15th Ct	Landscaped Median Island	City	City	\$40,000
TRAF. CALM.-038	East	Pasadena Blvd at NW 86th Ave	Traffic Circle	City	City	\$50,000
TRAF. CALM.-039	East	Pasadena Blvd at NW 84th Ter	Traffic Circle	City	City	\$50,000
TRAF. CALM.-040	East	NW 77th Way from Pines Blvd to Taft St	Various Traffic Calming Improvements Opportunity Segment	City	City	\$500,000
TRAF. CALM.-041	East	NW 76th Ave from Pines Blvd to Taft St	Various Traffic Calming Improvements - Opportunity Segment (Coordinate with City of Hollywood)	City	City	\$500,000
TRAF. CALM.-042	East	NW 72nd Ave from Pembroke Rd to Pines Blvd	Various Traffic Calming Improvements Opportunity Segment	City	City	\$500,000
TRAF. CALM.-043	East	SW 71st Ave North of SW 16 St	Landscaped Median Island	City	City	\$40,000

Table 6-17 Traffic Calming Improvement Needs (East)



TSM&O Improvement Needs

EAST



Legend

- Proposed ITS Devices
- Proposed Fiber Optics
- BC Hospitals
- Fire Stations
- District Boundary

Figure 6-18 TSM&O Improvements (East)

Project ID	District	Location	Limits	Project Description	Road Jurisdiction	Funding Source	Total Cost
TSMO-04	East	NW 89th Avenue	From Sheridan St to Pembroke Rd	Install fiber optic network/connection & monitoring devices	County	County	\$1,500,000
TSMO-08	East	Sheridan Street	From Palm Ave to NW 72nd Ave	Install fiber optic network/connection & monitoring devices	County/City	County/City	\$1,800,000
TSMO-011	East	Pembroke Road	From Palm Ave to SW 66th Ave	Install fiber optic network/connection & monitoring devices	City/FDOT	City/FDOT	\$2,200,000
ITS-028	East	Sheridan St & NW 89th Ave		Install ITS Devices	City/County	City/County	\$100,000
ITS-029	East	Sheridan St & NW 76th Ave		Install ITS Devices	County	County	\$100,000
ITS-030	East	Sheridan St & NW 73rd Ave		Install ITS Devices	County	County	\$100,000
ITS-031	East	Sheridan St & NW 72nd Ave		Install ITS Devices	County	County	\$100,000
ITS-032	East	Taft St & NW 72nd Ave		Install ITS Devices	City	City	\$100,000
ITS-033	East	Taft St & NW 76th Ave		Install ITS Devices	City	City	\$100,000
ITS-034	East	Taft St & University Dr		Install ITS Devices	City/FDOT	City/FDOT	\$100,000
ITS-035	East	Taft St & NW 85th Way		Install ITS Devices	City	City	\$100,000
ITS-036	East	Taft St & NW 89th Ave		Install ITS Devices	City/County	City/County	\$100,000
ITS-037	East	Johnson St & NW 89th Ave		Install ITS Devices	City/County	City/County	\$100,000
ITS-038	East	Taft St & NW 97th Ave		Install ITS Devices	City	City	\$100,000
ITS-058	East	Pembroke Rd & SW 97th Ave		Install ITS Devices	City	City	\$100,000
ITS-059	East	Pembroke Rd & SW 89th Ave		Install ITS Devices	City/County	City/County	\$100,000
ITS-060	East	Pembroke Rd & Oleander Dr		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-061	East	Pembroke Rd & SW 86th Ave		Install ITS Devices	City	City	\$100,000
ITS-062	East	Pembroke Rd & Island Dr		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-063	East	Pembroke Rd & SW 72nd Ave		Install ITS Devices	City	City	\$100,000
ITS-064	East	Pembroke Rd & SW 63rd Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-065	East	Pembroke Rd & SW 68th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-066	East	Pembroke Rd & SW 66th Ave		Install ITS Devices	FDOT	FDOT	\$100,000
ITS-067	East	SW 6th St & SW 72nd Ave		Install ITS Devices	City	City	\$100,000
ITS-068	East	S. University Dr & University Dr		Install ITS Devices	FDOT	FDOT	\$100,000

Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-18 TSM&O Improvement Needs (East)

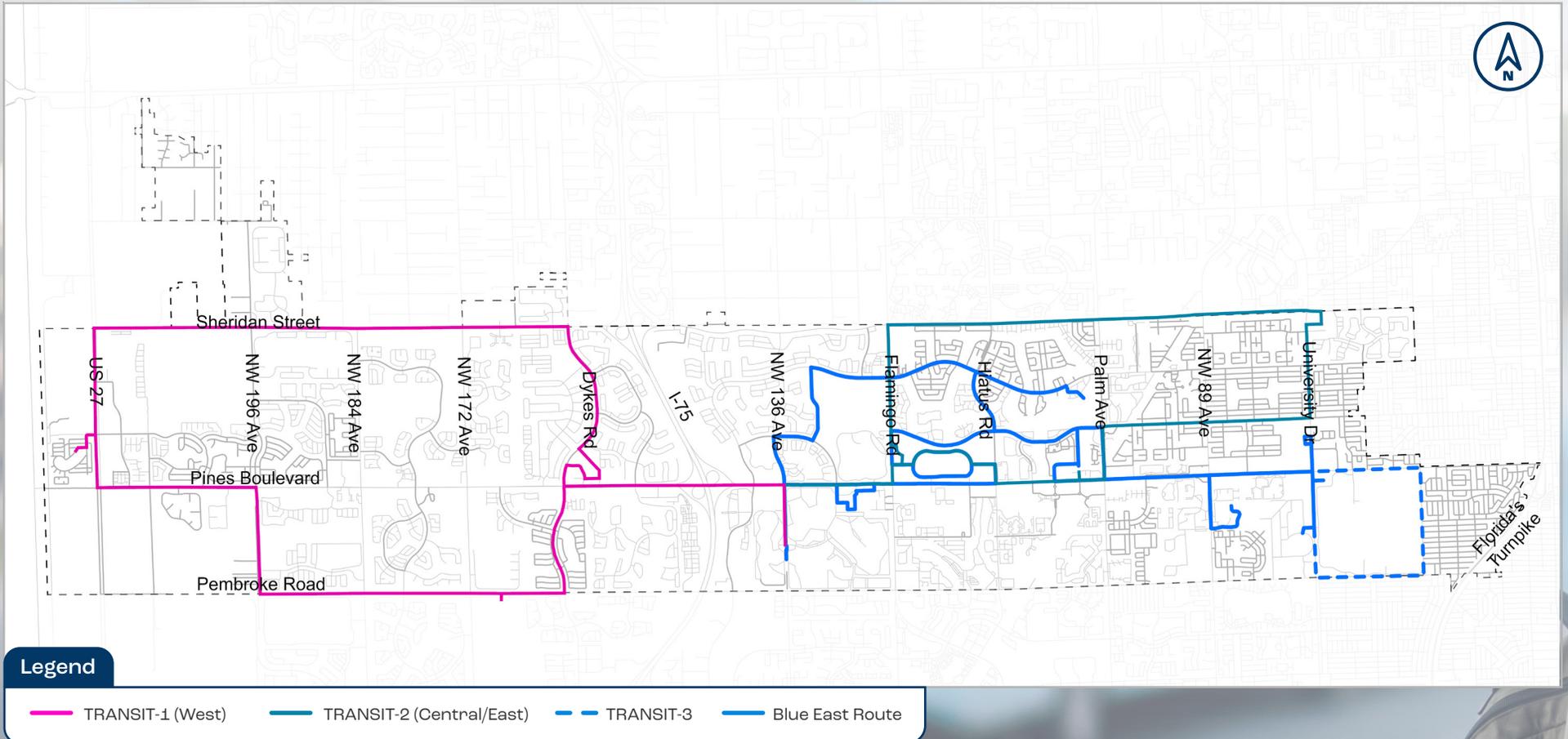


Transit Improvements

ALL DISTRICTS



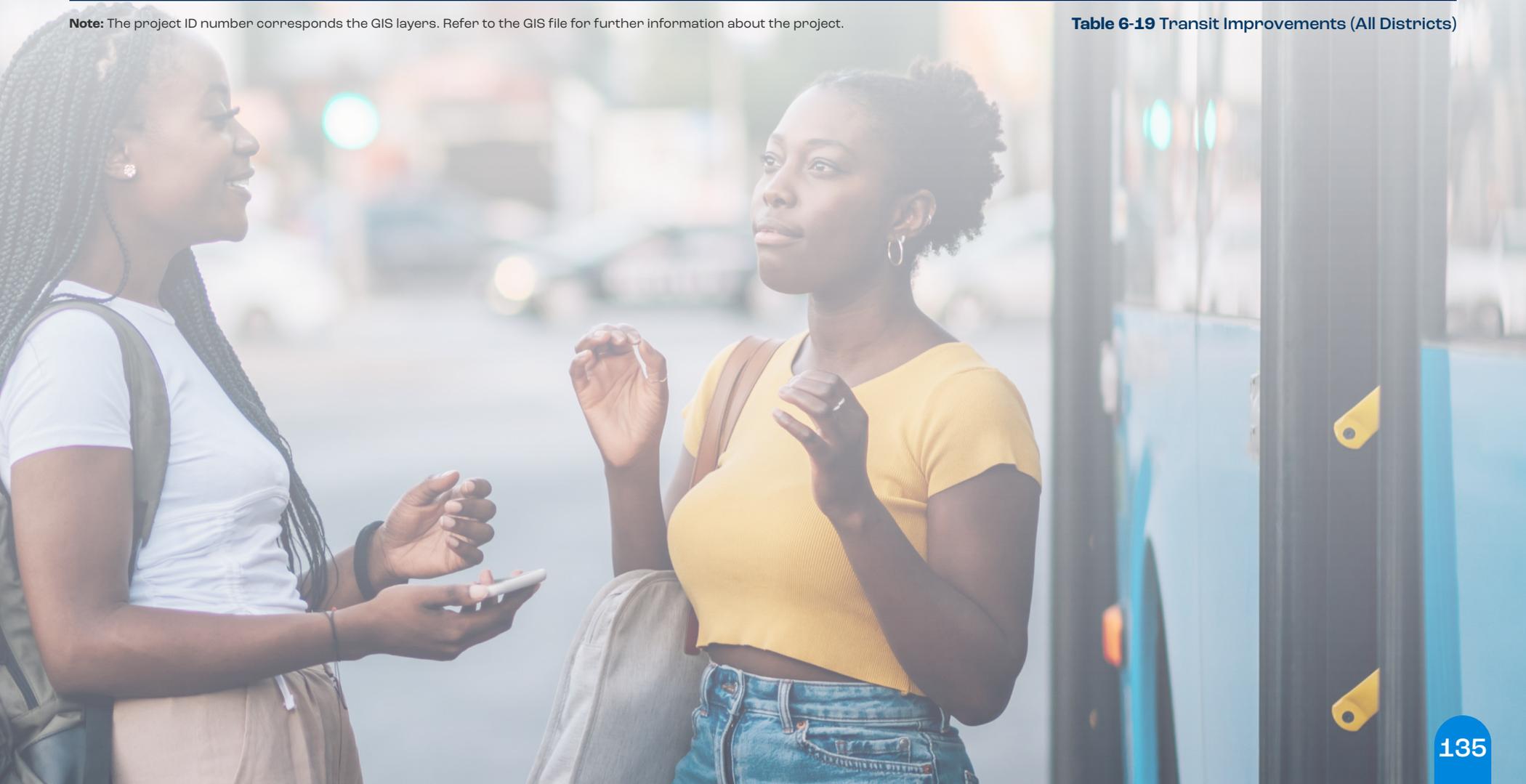
Figure 6-19 Transit Improvements (All Districts)



Project ID	District	Location	Project Description	Funding Source	Total Cost
TRANSIT-1	West	West of I-75	Proposed Community Shuttle Bus Service to provide transit access and connectivity to City's bus routes.	City	\$320,000
TRANSIT-2	Central East	East of I-75	Proposed Community Shuttle Bus Service to provide transit access and connectivity to City's bus routes.	City	\$320,000
Transit-3	East	North Perry Airport Area	Extension of the existing Blue-East Route	City	\$ 165,000

Note: The project ID number corresponds the GIS layers. Refer to the GIS file for further information about the project.

Table 6-19 Transit Improvements (All Districts)



6.2 Prioritization

The prioritization process was developed based on transit routes, proximity to schools, and neighborhood commercial areas organized within the three City districts: West, Central, and East. The main roads with high traffic volumes, transit use, and crashes were identified. A 2.0-mile buffer area was analyzed around each school and locations that attract the elderly or people with disabilities. Streets with deficiencies within these zones were analyzed as areas with the highest for transportation improvement needs. Approximately 156 projects were reviewed and identified as

part of the existing conditions and needs assessment for the City of Pembroke Pines. The number of identified projects exceeds the potential amount of funding available. Even though projects can be funded from various sources, finding available funding gets challenging every year. Cities and counties face rising transportation costs, growing traffic volumes, and other restrictions based on their capacity to generate revenue. It should be noted that the identified projects included in this document are a recommendation based on this transportation assessment, and the City should reprioritize projects based on its local needs and funding availability.

Pembroke Pines is committed to providing its residents with safe and complete transportation infrastructure.

The Transportation Master Plan document includes improvements that will guide transportation investments over the next five (5), ten (10), and twenty (20) years, closing gaps in the existing infrastructure while prioritizing safety for all roadway users.

The selected priority projects resulting from the transportation assessment are shown in this list, including five (5) different project categories, and are sorted as follows:

Priority Level I: Short-Term (2024-2029)

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost
Capital Improvements						
PED-2	Central	Taft Street	Add Sidewalk (Both Sides)	City	City	\$71,131
PED-3	Central	Hiatus Road	Add Sidewalk (Both Sides)	City	City	\$69,230
PED-4	Central	Taft Street	Add Sidewalk (Both Sides)	City	City	\$67,865
PED-6	East	SW 71st Avenue	Add Sidewalk (Both Sides)	City	City	\$58,994
PED-7	East	SW 69th Avenue	Add Sidewalk (Both Sides)	City	City	\$188,386
PATH-014	Central	Washington Street	Add Multi-Use Path	City	City	\$259,250
PATH-015	Central	Washington Street	Add Multi-Use Path	City	City	\$195,788
BIKE-028	East	Pembroke Road	Add Bicycle Lanes	State	FDOT	\$2,193,932
BIKE-029	East	Pembroke Road	Add Bicycle Lanes	State	FDOT	\$1,912,208
BIKE-030	West	SW 172nd Avenue	Add Bicycle Lanes	City	City	\$3,618,285
SCHOOL-001	West	Pines Blvd at NW 209 Ave	School Zone: Intersection Improvements/ Extend WBR storage	State	FDOT	\$60,000
SCHOOL-002	West	NW 2 St at NW 209 Ave	School Zone: Intersection Improvements/Crosswalk Enhancement/ Add crosswalk on west leg and ramps	City	City	\$50,000
SCHOOL-010	West	Pines Blvd at NW 196 Ave	School Zone: Intersection Improvements/Crosswalk Enhancement/Mast Arm Upgrade	State	FDOT	\$500,000
SCHOOL-012	West	NW 196 Ave at Taft St	School Zone: Intersection Improvements/Crosswalk Enhancement/Mast Arm Upgrade	City	City	\$500,000
SCHOOL-018	West	Taft St at NW 194 Ave	Intersection Improvement/ Enhance pedestrian access between parking lot and school/ Add crosswalk on the north and south legs.	City	City	\$40,000
SCHOOL-025	Central	NW 10 St at NW 136 Ave	School Zone: Intersection Improvements - Roundabout Feasibility/Crosswalk Enhancement	City	City	\$500,000
SCHOOL-026	Central	NW 136 Ave at NW 8 Ct	School Zone: Intersection Improvements/Medians & Pedestrian Refuge Island/ Rectangular Rapid Flashing Beacons (RRFB)	City	City	\$50,000
SCHOOL-027	Central	NW 3 St at NW 129 Ave	School Zone: Traffic Calming: Upgrade Pedestrian Refuge Island (Rectangular Rapid Flashing Beacons - RRFB)	City	City	\$50,000
SCHOOL-028	Central	NW 6 St at NW 129 Ave	School Zone: Traffic Calming: Intersection Improvements/Crosswalk Enhancement/ Pedestrian Refuge Island	City	City	\$50,000
SCHOOL-029	Central	NW 6 St at NW 129 Ave	School Zone: Traffic Calming: Intersection Improvement/Crosswalk Enhancement	City	City	\$25,000
SCHOOL-037	Central	Inside School Campus (Pembroke Lakes Elementary)	Internal circulation modification to utilize Hiatus Rd for overflow stacking to relief blocking at the intersection on Hiatus Rd and Taft St	County	County	\$200,000
SCHOOL-044	East	NW 89 Ave at NW 3 St	School Zone: Intersection Improvements/Crosswalk Enhancement	County	County	\$300,000
SCHOOL-045	East	SW 9 St at SW 68 Ave	School Zone: Traffic Calming Improvements - Traffic Circle	City	City	\$25,000

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost	
TRAF. CALM.-001	West	Johnson St at Rose G. Price Park (west driveway)	Raised Crosswalk	City	City	\$30,000	
TRAF. CALM.-002	West	Johnson St West of NW 203rd Ave	Raised Crosswalk	City	City	\$30,000	
TRAF. CALM.-003	West	NW 202nd Ave North of NW 4th St	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-004	West	Johnson St West of NW 198th Ave	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-005	West	NW 196th Ave South of NW 23rd Manor	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-007	West	SW 178th Ave & SW 4th St	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-010	West	SW 178th Ave & SW 12th St	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-011	West	SW 160th Ave & SW 3rd St	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-019	Central	Taft Street West of NW 119th Ave	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-024	Central	Johnson St WB West of Palm Ave	Speed Limit Sign (R2-1)	City	City	\$5,000	
TRAF. CALM.-025	Central	Palm Ave South of Westview Blvd	Speed Feedback Signs	City	City	\$35,000	
TRAF. CALM.-026	East	SW 7th St at SW 100th Ave	Traffic Circle	City	City	\$50,000	
TRAF. CALM.-027	East	SW 7 St at SW 99 Ave	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-028	East	SW 96th Ave South of SW 3rd Ct	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-029	East	SW 96th Ave North of SW 2nd St	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-031	East	NW 86th Ave at NW 3rd St	Traffic Circle	City	City	\$50,000	
TRAF. CALM.-032	East	NW 86th Ave at NW 7th Ct	Traffic Circle	City	City	\$50,000	
TRAF. CALM.-036	East	Johnson St West of NW 83 Way	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-042	East	NW 72nd Ave from Pembroke Rd to Pines Blvd	Various Traffic Calming Improvements	City	City	\$500,000	
TRAF. CALM.-043	East	SW 71st Ave North of SW 16 St	Landscaped Median Island	City	City	\$40,000	
SAFETY-006	East	Pines Blvd at University Dr	Pedestrian Activated No Turn on Red Blank-Out Signs	State	FDOT	\$150,000	
SAFETY-007	East	Pembroke Rd from SW 72 Ave to SW 68 Ave	Eastbound Outside Through Auxiliary Lane Extension Evaluation	State	FDOT	\$30,000	
SAFETY-009	Central	Hiatus Rd at NW 4th St	Left-Turn Flashing Yellow Arrow and Split Phase Removal Evaluation	City	City	\$15,000	
SAFETY-011	Central	Flamingo Rd SB from Washington St to Pembroke Rd	Speed Zone Evaluation & Safety Improvements	State	FDOT	\$20,000	
SAFETY-013	Central	Sheridan St from NW 148 Ave to NW 138 Terr	Horizontal Curve Safety Evaluation	County	County	\$30,000	
TSM&O-03	Central/ East	Palm Avenue	Install fiber optic network/connection & monitoring devices	City/County	City/County	\$1,500,000	
TSMO-011	East	Pembroke Road	Install fiber optic network/connection & monitoring devices	City/FDOT	City/FDOT	\$2,200,000	
ITS-01	West	Pines Blvd	ITS Component Installation (11 Intersections)	FDOT	FDOT	\$1,100,000	
ITS-02	Central	Flamingo Rd	ITS Component Installation (3 Intersections)	FDOT	FDOT	\$300,000	
ITS-03	East	University Dr	ITS Component Installation (2 Intersections)	FDOT	FDOT	\$200,000	
ITS-03	East	East	ITS Component Installation (1 Intersection)	City	City	\$100,000	
Capital Improvements Subtotal						\$17,830,069	
Operations & Maintenance							
VTMC-01	All Districts	5-Year VTMC Maintenance Costs: \$380,000 (Server, software licenses, networking, etc.) +\$297,000 (Device Maintenance) + \$4,603,000 (Staffing)			Shared	Shared	\$5,280,000
TRANSIT-01,-02,-03		5-Year Additional Transit Route Operations			City	City	\$2,979,000
Operations & Maintenance Subtotal						\$8,259,000	
Total Cost Estimate						\$26,089,069	

Table 6-20 Priority Level I: Short-Term (2024-2029)

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost
Capital Improvements						
PED-50	Central	Palm Avenue	Add Sidewalk (West Side)	County	County	\$167,010
PED-51	Central	Palm Avenue	Add Sidewalk (West Side)	City	City	\$82,680
PED-52	Central	Palm Avenue	Add Sidewalk (West Side)	City	City	\$92,436
PED-53	Central	Palm Avenue	Add Sidewalk (West Side)	County	County	\$80,130
PED-25	West	Pembroke Road	Add Sidewalk (South Side)	City	City	\$181,848
BIKE-018	East	Taft Street	Add Bicycle Lanes	City	City	\$2,536,467
BIKE-019	East	Taft Street	Add Bicycle Lanes	City	City	\$2,711,665
PATH-09	Central	Johnson Street	Add Multi-Use Path	City	City	\$363,119
PATH-010	Central	Johnson Street	Add Multi-Use Path	City	City	\$380,465
PATH-13	West	NW 186th Avenue	Add Multi-Use Path	City	City	\$533,800
SCHOOL-003	West	Johnson St at NW 208 Ave	School Zone: Intersection Improvements/Crosswalk Enhancement/Add detectable warning/ Add No through traffic during arrival and dismissal period/ Add right turn prohibited/ Add do not block the intersection	City	City	\$100,000
SCHOOL-006	West	Johnson St at NW 202 Ave	School Zone: Traffic Calming Improvements - Roundabout Feasibility	City	City	\$500,000
SCHOOL-009	West	NW 208 Ave	Widening-Add 1 Northbound and 1 Southbound lane	City	City	\$1,883,197
SCHOOL-014	West	NW 196 Ave	Widening-Add 1 Northbound and 1 Southbound lane	City	City	\$496,969
SCHOOL-019	West	Pembroke Rd at SW 184 Ave	Intersection Enhancement - Add No Right Turn on Red during school zone times on SB/ Add dedicated turn arrows for east and westbound traffic	City	City	\$50,000
SCHOOL-022	West	Sheridan St at Jaguar Way	School Zone: Intersection Improvements/Crosswalk Enhancement	County	County	\$40,000
SCHOOL-023	West	NW 9 St at NW 172 Ave	School Zone: Intersection Improvements/Crosswalk Enhancement	City	City	\$100,000
SCHOOL-024	West	NW 9 St at Main School Entrance	School Zone: Traffic Calming: Intersection Improvements/Crosswalk Enhancement	City	City	\$100,000
SCHOOL-030	Central	Taft St at NW 125 Ave	School Zone: Traffic Calming: Intersection Improvements/Crosswalk Enhancement/ Pedestrian Refuge Island (Rectangular Rapid Flashing Beacons - RRFB)	City	City	\$100,000
SCHOOL-031	Central	Taft St at North Parking lot	School Zone: Traffic Calming: Upgrade Pedestrian Refuge Island (Rectangular Rapid Flashing Beacons - RRFB)	City	City	\$50,000
SCHOOL-032	Central	Taft St at Northwest Parking Lot	School Zone: Traffic Calming: Intersection Improvement - Mini-Roundabout/Crosswalk Enhancement	City	City	\$100,000
SCHOOL-033	Central	Flamingo Rd at South Parking Entrance	School Zone: Traffic Calming: Intersection Improvement/Crosswalk Enhancement	State	FDOT	\$25,000
SCHOOL-034	Central	Flamingo Rd at North Parking Entrance	School Zone: Traffic Calming: Intersection Improvement/Crosswalk Enhancement	State	FDOT	\$25,000
SCHOOL-035	Central	Sheridan St North Parking Entrance	School Zone: Intersection Improvements/Crosswalk Enhancement/Mast Arm Upgrade	State	FDOT	\$25,000
SCHOOL-036	Central	Flamingo Rd at Sheridan St	School Zone: Intersection Improvements/Crosswalk Enhancement/Mast Arm Upgrade	State	FDOT	\$500,000
SCHOOL-040	Central	Johnson St at NW 103 Ave	School Zone: Intersection Improvements/Crosswalk Enhancement	City	City	\$50,000
SCHOOL-043	East		School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)	City	City	\$20,000
SCHOOL-046	East		School Zone: Intersection Improvement (Restrict illegal U-turns)	City	City	\$25,000
SCHOOL-047	East		Intersection Improvement-Enforce "No Stopping or Standing" on the right turn lane into the school	City	City	\$25,000
TRAF. CALM.-008	West	SW 4th St West of SW 179th Ave	Raised Crosswalks	City	City	\$60,000
TRAF. CALM.-009	West	SW 12th St North/West of SW 180th Ave	Raised Crosswalks	City	City	\$60,000
TRAF. CALM.-013	West	NW 155th Ave at Towngate Park	Raised Crosswalks & Provide Crosswalks across NW 155th Ave	City	City	\$100,000
TRAF. CALM.-014	West	NW 155th Ave South of NW 5th St	Speed Feedback Sign	City	City	\$35,000
TRAF. CALM.-015	Central	SW 145th Ave North of Pembroke Road	Speed Feedback Sign	City	City	\$35,000

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost	
TRAF. CALM.-016	Central	SW 145th Ave South of SW 5 St	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-017	Central	NW 129th Ave South of Taft Street	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-018	Central	NW 125th Ave SB South of Sheridan Street	Speed Limit Sign (R2-1)	City	City	\$5,000	
TRAF. CALM.-020	Central	Hiatus Rd South of Johnson St	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-021	Central	NW 108th Ave at NW 2nd St	Raised Crosswalks	City	City	\$100,000	
TRAF. CALM.-022	Central	NW 108th Ave at NW 8th St	Raised Crosswalks	City	City	\$100,000	
TRAF. CALM.-023	Central	Johnson Street East of NW 108th Ave	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-030	East	NW 3rd St East of NW 88th Ave	Speed Feedback Sign	City	City	\$35,000	
TRAF. CALM.-033	East	NW 87th Way North of NW 10 St	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-034	East	NW 87th Way North of NW 15th Ct	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-035	East	NW 85th Way North of NW 10th St	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-037	East	NW 85th Way North of NW 15th Ct	Landscaped Median Island	City	City	\$40,000	
TRAF. CALM.-040	East	NW 77th Way from Pines Blvd to Taft St	Various Traffic Calming Improvements	City	City	\$500,000	
SAFETY-001	West	SW 178th Ave at SW 12th St	Pedestrian Crossing Improvements	City	City	\$75,000	
SAFETY-002	Central	NW 129th Ave at NW 3rd St	Pedestrian Crossing Refuge	City	City	\$50,000	
SAFETY-003	Central	NW 129th Ave at NW 10th St	Pedestrian Crossing Refuge	City	City	\$50,000	
SAFETY-004	Central	Taft St at Hiatus Rd	Left-Turn Flashing Yellow Arrow	City	City	\$75,000	
SAFETY-005	West	Pines Blvd from US 27 to I-75	Buffered Bike Lanes	State	FDOT	\$8,000,000	
SAFETY-008	East	Pines Blvd, 700 ft East	Frontage Rd & Directional Median Opening Safety Evaluation. Access Management Improvements	State	FDOT	\$100,000	
SAFETY-010	East	University Dr from Taft St to Sheridan St	High Serious Injury & Fatal Crash Segment Evaluation	State	FDOT	\$30,000	
SAFETY-014	Central	Pembroke Rd & SW 145th Ave	Westbound Turn Lanes Storage Bay Extension, Congestion Management Strategies (i.e. Adaptive Traffic Signal Control)	City	City	\$150,000	
TSMO-04	East	NW 89th Avenue	Install fiber optic network/connection & monitoring devices	County	County	\$1,500,000	
TSMO-05	Central	Hiatus Road	Install fiber optic network/connection & monitoring devices	City	City	\$1,600,000	
TSMO-07	Central	Sheridan Street	Install fiber optic network/connection & monitoring devices	County/City	County/City	\$2,900,000	
TSMO-08	East	Sheridan Street	Install fiber optic network/connection & monitoring devices	County/City	County/City	\$1,800,000	
TSMO-010	Central	Pembroke Road	Install fiber optic network/connection & monitoring devices	City	City	\$2,300,000	
ITS-04	Central	Johnson St & Colony Point Dr	ITS Component Installation (1 Intersection)	City	City	\$100,000	
ITS-05	Central	Taft St & NW 104th Ave	ITS Component Installation (1 Intersection)	City	City	\$100,000	
ITS-06	East	Taft St	ITS Component Installation (5 Intersections)	City	City	\$500,000	
Capital Improvements Subtotal						\$32,004,786	
Operations & Maintenance							
VTMC-01	All Districts	5-Year VTMC Maintenance Costs: \$462,000 (Server, software licenses, networking, etc.) +\$362,000 (Device Maintenance) + \$5,602,000 (Staffing)			Shared	Shared	\$6,426,000
TRANSIT-01,-02,-03		5-Year Additional Transit Route Operations			City	City	\$3,625,000
Operations & Maintenance Subtotal						\$10,051,000	
Total Cost Estimate						\$42,055,786	

Table 6-21 Priority Level II: Mid-Term (2029-2034)

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost
Capital Improvements						
PED-20	West	Pines Boulevard	Add Sidewalk (South Side)	State	FDOT	\$55,761
PED-21	West	Johnson Street	Add Sidewalk (South Side)	City	City	\$48,571
PED-22	West	Johnson Street	Add Sidewalk (South Side)	City	City	\$35,842
PED-48	West	SW 178th Avenue	Add Sidewalk (West Side)	City	City	\$372,776
PED-17	East	Pines Boulevard	Add Sidewalk (North Side)	State	FDOT	\$64,050
PATH-027	West	Pembroke Rd	Add Multi-Use Path	City	City	\$1,405,671
PATH-14	West	NW 208th Avenue	Add Multi-Use Path	City	City	\$381,192
PATH-12	West	NW 178th Avenue	Add Multi-Use Path	City	City	\$759,934
PATH-019	Central	Hiatus Road	Add Multi-Use Path	City	City	\$915,942
PATH-026	East	Pembroke Rd	Add Multi-Use Path	City	City	\$345,243
SCHOOL-004	West	Johnson St at NW 203 Ave	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)/ Queue Analysis	City	City	\$25,000
SCHOOL-005	West	Johnson St at NW 203 Terr	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)/ Queue Analysis	City	City	\$25,000
SCHOOL-007	West	NW 7 St at NW 208 Ave	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)/ Queue Analysis	City	City	\$25,000
SCHOOL-008	West	NW 4 St at NW 208 Ave	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)/ Queue Analysis	City	City	\$25,000
SCHOOL-011	West	Pines Blvd at Exxon Gas Station	School Zone: Traffic Operation/Circulation: Traffic Control Devices (No Stopping/Standing/Parking signs)	City	City	\$25,000
SCHOOL-013	West	SW 196 Ave at SW 3 St	"Signs – No Stopping, standing, parking signs for south bound turn lane to enter the western	City	City	\$25,000
SCHOOL-015	West	Sheridan St at NW 184	entrance of Somerset South campus. These signs would provide an enforcement possibility	State	FDOT	\$75,000
SCHOOL-016	West	NW 184 Ave at 2100 block	for the parents that park there well before the school permits them in an"	City	City	\$25,000
SCHOOL-017	West	NW 184 Ave at NW 17 St	"Intersection Enhancement/ Add Do not block the intersection signs for west bound Sheridan traffic./ No U-Turn during school zone times for north bound 184th turn lane to go west	City	City	\$25,000
SCHOOL-020	West	Pembroke Rd at South School Entrance	bound on Sheridan Street/ No turn on red during school hours for east bound."	City	City	\$25,000
SCHOOL-021	West	SW 184 Ave at SW 14 St	Intersection Improvement - Add No Stopping, Standing, Parking Signs in the NB turn lane/	City	City	\$25,000
SCHOOL-038	Central	NW 113 Ave at West School Entrance	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)/ (No Stopping/Standing/Parking Signs).	City	City	\$25,000
SCHOOL-039	Central	Taft St at Hiatus Rd	School Zone: Traffic Operation/Circulation: MUTCD R3-2 sign: implement left-turn restriction	City	City	\$25,000
SCHOOL-041	Central	Pines Blvd at SW 103 Ave	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)	State	FDOT	\$25,000
SCHOOL-042	East	Pasadena Blvd at NW 89 Ave	Enforce "Right Turn Only" on the exit of the student pick up zone	City	City	\$100,000
TRAF. CALM.-006	West	NW 178th Ave & NW 9th St	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection)	City	City	\$700,000
TRAF. CALM.-012	West	NW 160th Ave & NW 12th St	School Zone: Traffic Operation/Circulation: Traffic Control Devices (MUTCD R10-7 sign: Do Not Block Intersection) on the east leg of the inter	City	City	\$700,000
TRAF. CALM.-038	East	Pasadena Blvd at NW 86th Ave	School Zone: Intersection Improvements/Crosswalk Enhancement	City	City	\$50,000
TRAF. CALM.-039	East	Pasadena Blvd at NW 84th Ter	Roundabout	City	City	\$50,000
TRAF. CALM.-041	East	NW 76th Ave from Pines Blvd to Taft St	Roundabout	City	City	\$500,000
SAFETY-012	Central	Pembroke Rd at Hiatus Rd	Traffic Circle	City	City	\$70,000

Project ID	District	Location	Project Description	Road Jurisdiction	Funding Source	Total Cost
SAFETY-015	West	NW 160th Ave & NW 15th St	Traffic Circle	City	City	\$60,000
SAFETY-016	West	Sheridan St & NW 160th Ave	Various Traffic Calming Improvements - Coordinate with City of Hollywood	County	County	\$30,000
TSMO-01	West	SW 196th Avenue	Traffic Signal Retro-Reflective Backplates and Left Turn Flashing Yellow Arrow	City	City	\$2,220,000
TSMO-02	West	SW 172nd Avenue	Southbound U-Turn Additional Pavement	City	City	\$1,600,000
TSMO-06	West	Sheridan Street	Before & After Study	County/City	County/City	\$3,000,000
TSMO-09	West	Pembroke Road	Install fiber optic network/connection & monitoring devices	City	City	\$3,600,000
Capital Improvements Subtotal						\$17,464,982
Operations & Maintenance						
VTMC-01	All Districts	10-Year VTMC Maintenance Costs: \$1,244,000 (software licenses, networking, etc.) +\$977,000 (Device Maintenance) + \$15,107,000 (Staffing)		Shared	Shared	\$17,328,000
TRANSIT-01,-02,-03		10-Year Additional Transit Route Operations		City	City	\$9,775,000
Operations & Maintenance Subtotal						\$27,103,000
Total Cost Estimate						\$44,567,982

Table 6-22 Priority Level III: Long-Term (2034-2044)

6.3 Funding and Financial Analysis

The three primary sources for funding transportation projects come from local, state, and federal agencies. A project's funding might come from various sources, including tax revenue or user fees. Finding available funding and financing is getting more challenging every year. Cities and counties face rising transportation project costs, growing traffic volumes, and other restrictions on their capacity to generate revenue. Local governments are looking for new sources of funding and financing for transportation projects due to rapidly rising construction costs and traffic volumes, such as partnerships with other jurisdictions and the private sector. The financial options that can be used to support transportation projects are outlined in this section. It also includes a summary of each source. **Tables 6-23 to 6-26** summarize the potential funding sources for the proposed transportation projects.

Funding Source	Funding Program	Description
Local	Broward County Transportation Surtax	Broward Mobility Advancement Program (MAP) is funded by the transportation surtax, a 30-year project-based plan including transportation, public works, municipal projects, innovation investments, planning, operations, maintenance, and administrative support services used to operate the program. Broward County voters adopted a local one-cent sales tax to promote mobility and address the region's many transportation issues.
Local	Complete Streets and other Localized Initiatives Program (CSLIP)	The MPO's Complete Streets and other Localized Initiatives Program (CSLIP) provides funding for small local transportation projects that will improve the safety and mobility for all transportation users in Broward. This competitive grant program can fund projects such as (but not limited to): complete streets projects, traffic calming and intersection improvements, ADA upgrades, mobility hubs, bus shelters, bike racks, and technology advancements such as transit signal priority and traffic control devices.
Local	Local Option Gas Tax	<p>The County has permission to levy up to 10 cents of local option fuel taxes in three separate levies for every gallon of motor and diesel fuel sold.</p> <p>Pursuant to F.S. 336.025(1)(a) the county has exercised its authority in levying a 6-cent tax on every gallon of motor and diesel fuel sold in the county. The proceeds must be used for transportation expenditures.</p> <p>Pursuant to F.S. 336.025(1)(b) the county has exercised its authority in levying a 3-cent tax on every gallon of motor fuel (excluding diesel fuel) sold in the county. The proceeds may be used for transportation expenditures needed to meet the requirements of the capital improvement elements of the City's comprehensive plan.</p> <p>Pursuant to F.S. 336.025(1)(b)(2) the county has exercised its authority in levying a 1-cent tax on every gallon of motor fuel (excluding diesel fuel) sold in the county.</p>

Table 6-23 Local Funding Sources

Funding Source	Funding Program	Description
State	Florida Department of Transportation (FDOT)	<p>FDOT is one of several funding sources for the State of Florida. Governor DeSantis' budget for the Fiscal Year 2022-2023 includes \$9.27 billion for FDOT's Work Program. The department identifies needs-based projects, which must be consistent with laws, policies, program objectives, and priorities. This includes the following transportation investments:</p> <ul style="list-style-type: none"> ▪ \$3.6 billion for highway construction to include 138 new lane miles ▪ \$1.2 billion in resurfacing to include 2,637 lane miles ▪ \$117.3 million in seaport infrastructure enhancements ▪ \$297.2 million for aviation improvements ▪ \$185.5 million for scheduled repairs of 52 bridges and replacement of 17 bridges ▪ \$597.7 million for rail/transit program advancements ▪ \$154.9 million for safety initiatives
State	Florida Department of Transportation (FDOT) State Safety Office	<p>The Florida Department of Transportation (FDOT) State Safety Office awards subgrants to traffic safety partners that undertake priority area programs and activities to improve traffic safety and reduce crashes, serious injuries, and fatalities. Subgrants may be awarded for assisting in addressing traffic safety deficiencies, expansion of an ongoing activity, or development of a new program.</p> <ul style="list-style-type: none"> ▪ Aging Road Users ▪ Community Traffic Safety ▪ Distracted Driving ▪ Impaired Driving ▪ Motorcycle Safety ▪ Occupant Protection and Child Passenger Safety ▪ Pedestrian and Bicycle Safety ▪ Public Traffic Safety Professionals Training ▪ Speed and Aggressive Driving ▪ Teen Driver Safety ▪ Traffic Records ▪ Traffic Record Coordinating Committee (TRCC) ▪ Work Zone Safety
State	Transportation Regional Incentive Program (TRIP)	<p>The Transportation Regional Incentive Program (TRIP) was created as part of major Growth Management legislation enacted during the 2005 Legislative Session (SB 360). The program's purpose is to encourage regional planning by providing state-matching funds to improve regionally significant transportation facilities identified and prioritized by regional partners. Eligible partners include contiguous MPOs or single MPOs. These partners must form a regional transportation area, pursuant to an interlocal agreement, and develop a regional transportation plan that identifies and prioritizes regionally significant facilities, priority and traffic control devices.</p>

Table 6-25 State Funding Sources

Funding Source	Funding Program	Description
Federal	Safe Routes to School Programs (SRTS)	Safe Routes to School (SRTS) is an approach that promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school. SRTS initiatives improve safety and levels of physical activity for students. SRTS programs can be implemented by a department of transportation, metropolitan planning organization, local government, school district, or even a school. Extensive resources are available through a national center, including an SRTS Guide, parent surveys and student tallies, and simple strategies, such as the walking school bus, that schools can use to support bicycling and walking.
Federal	Buses and Bus Facilities Program	The Bus and Bus Related Equipment and Facilities program (Bus program) provides capital assistance for new and replacement buses, related equipment, and facilities. It is a discretionary program to supplement formula funding in both urbanized and rural areas. Section 5318 is the Bus Testing Facility program. Under this program, one facility is used for testing a new bus model for maintainability, reliability, safety, performance (including braking performance), structural integrity, fuel economy, emissions, and noise. The program is administered under the Section 5309 Bus and Bus Related Equipment and Facilities program.
Federal	Recreational Trails Program (RTP)	The Recreational Trails Program (RTP) is an assistance program of the U.S. Department of Transportation's Federal Highway Administration (FHWA). The RTP provides funds to the States to develop and maintain recreational trails and trail-related facilities for motorized and nonmotorized recreational trail uses.
Federal	Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	The Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve national objectives. Previously known as the Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants, Congress has dedicated nearly \$9.9 billion for thirteen rounds of National Infrastructure Investments to fund projects that have a significant local or regional impact. The eligibility requirements of RAISE allow project sponsors at the State and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional DOT programs.
Federal	Consolidated Rail Infrastructure and Safety Improvements (CRISI)	CRISI funds projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail (including short-line and regional rail).
Federal	Transportation Alternatives (TA)	It was directed through MAP-21 and updated with FAST Act. The applications are sent to FDOT for review. MPOs normally prioritize projects in their area.
Federal	Surface Transportation Block Grant (STBG)	The STBG program provides flexible funding to best address State and local transportation needs.

Table 6-25 Federal Funding Sources

Funding Source	Funding Program	Description
Federal	National Highway Performance Program	NHPP provides support for the condition and performance of the National Highway System, supports the construction of new facilities, ensures that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets in a State's asset management plan, and supports activities to increase the resiliency of the nation's highways.

Table 6-25 Federal Funding Sources (Continued)

7.

Conclusion

7. Conclusion

The City of Pembroke Pines' transportation infrastructure was evaluated under the existing and future conditions to identify current deficiencies and propose future improvement strategies to help maintain and improve residents' quality of life as the community continues to grow. This document assessed the City's transportation system and community as they are now and forecasted how mobility improvements could make Pembroke Pines an even more livable city. The transportation system in Pembroke Pines contributes to the City's economy by bringing in customers, goods, and increased activity to local businesses. Pembroke Pines is positioned for innovative transportation solutions that are safe, affordable, accessible, sustainable, livable and appropriate for the City's diverse communities with the guidance of a comprehensive, long-term improvement plan.

Through discussions with City residents and other stakeholders, the City's future vision was developed to ensure that the high quality of living standards currently enjoyed by Pembroke Pines' residents are maintained and improved. The insight from community meetings was used to shape the Transportation Master Plan and address vital concerns faced in daily multimodal travel, whether traveling for business, pleasure, or education.

Using the data gathered for the transportation inventory assessment, future needs were evaluated based on the City's projected growth and certain problems identified such as traffic congestion or accessibility gaps. Every

community in Pembroke Pines has unique needs, strengths and opportunities. The City's goal was considered as the Transportation Master Plan established recommendations to address the challenges in each area. The results from the transportation inventory were developed into GIS layers as part of the Transportation Master Plan development that may be used as a guidance tool for transportation investments over the next five (5), ten (10) and twenty (20) years.

7.1 Summary of Recommendations

The City of Pembroke Pines' goal is to have a community where its residents can easily access neighborhoods with enhanced mobility and where all transportation systems are complete and integrated to facilitate the City's movement of people and goods.

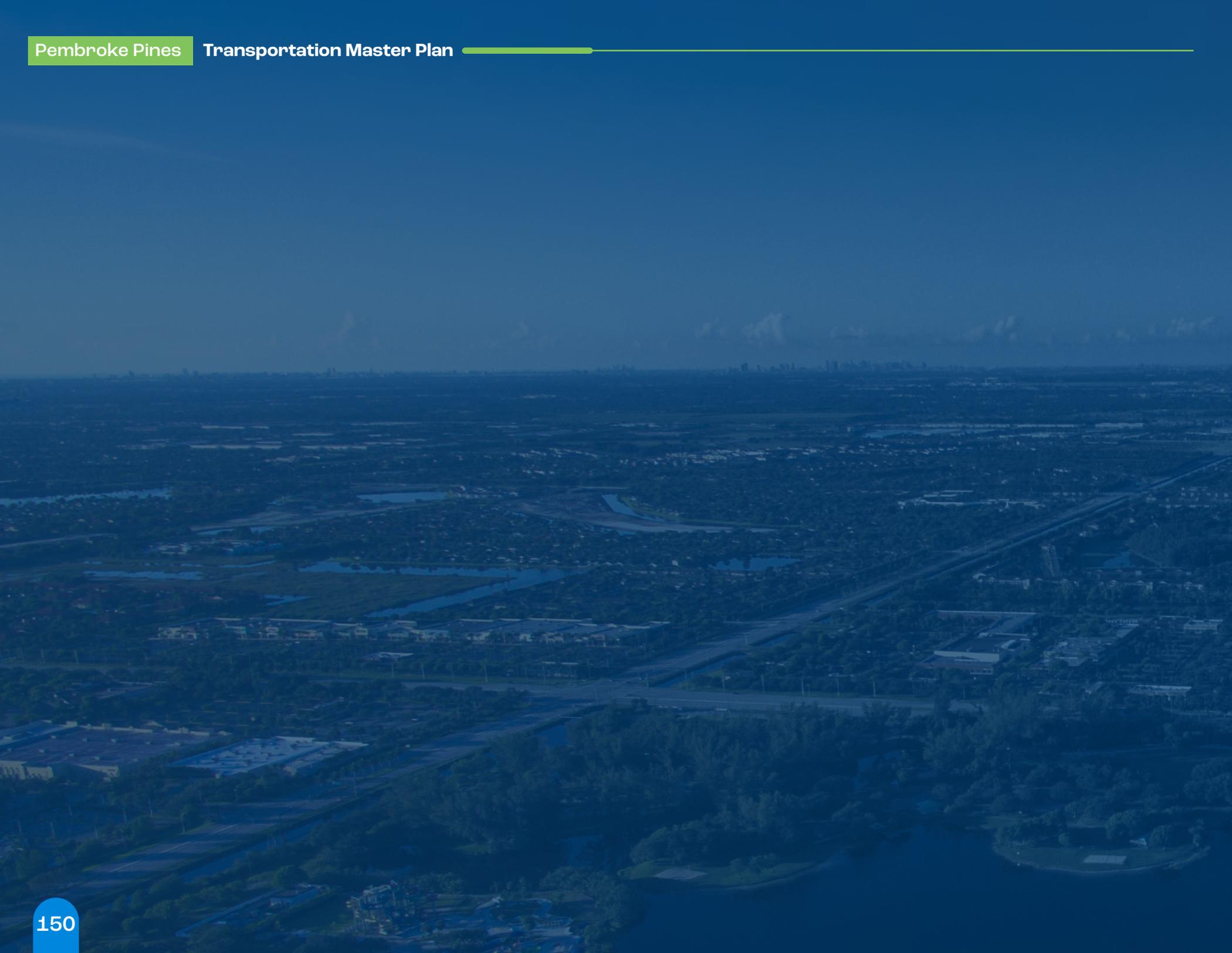
The transportation infrastructure in Pembroke Pines is planned to sustain and improve the community's quality of life while advancing the City's goals and strategies with several areas of emphasis for mobility improvements:

Areas of Emphasis



- Improve safety and multimodal accessibility for all road users
- Promote pedestrian-friendly developments
- Expand bicycle and pedestrian networks
- Create transit-oriented developments
- Integrate transportation and land use
- Improve public transportation
- Provide multimodal alternatives to short vehicular trips
- Demand management and scheduling for school traffic
- Traffic calming, street and intersections improvements
- Improve school drop-off and pick-up operations
- Improve walking conditions around schools
- Traffic calming and enforcement of reckless driving around schools
- Create safe, signalized pedestrian crossings at busy intersections
- Optimize traffic signals to improve operations

Appendices



Appendix A

Scope of Work

SCOPE OF WORK

The City would like to conduct a City-wide comprehensive traffic and transportation study to review existing and future peak and off-peak hour traffic patterns, cut-through traffic, speeding traffic, existing traffic control devices, signage and traffic signals and to propose alternatives to decrease travel times, traffic calming in neighborhood areas and enhancements for vehicular, pedestrian and bicycle mobility. In addition, a review of the Pembroke Pines Community Bus Services shall be conducted to analyze operational opportunities to further enhance transportation within the City. The project boundaries shall be the City of Pembroke Pines municipal boundary. The project shall also include analysis, review and coordination with the adjacent communities, the region and with future planned projects along the Broward County Transit (BCT) fixed bus routes, express and community shuttles and paratransit routes. The Plan shall consider all other City plans, particularly those associated with land use, parks and recreation, and capital improvement projects as they relate to the potential impacts on the transportation system. In addition, the Plan shall consider existing and potential schools, private sector project developments, as well as projects under the jurisdiction of Broward County, the Florida Department of Transportation, Florida's Turnpike Enterprise, within and adjacent to the City. As projects are recommended, the Plan shall include cost estimates to possibly be included in the City's 5-year Capital Improvement Plan. As circumstances and opportunities arise in funding and construction costs, the City may wish to reprioritize based on its evolving understanding of local needs.

The Plan shall review and analyze the existing conditions of roadways, pedestrian, bicycle, and transit level of service as well as intersection analyses. Consultant must take the following

into consideration when collecting data:

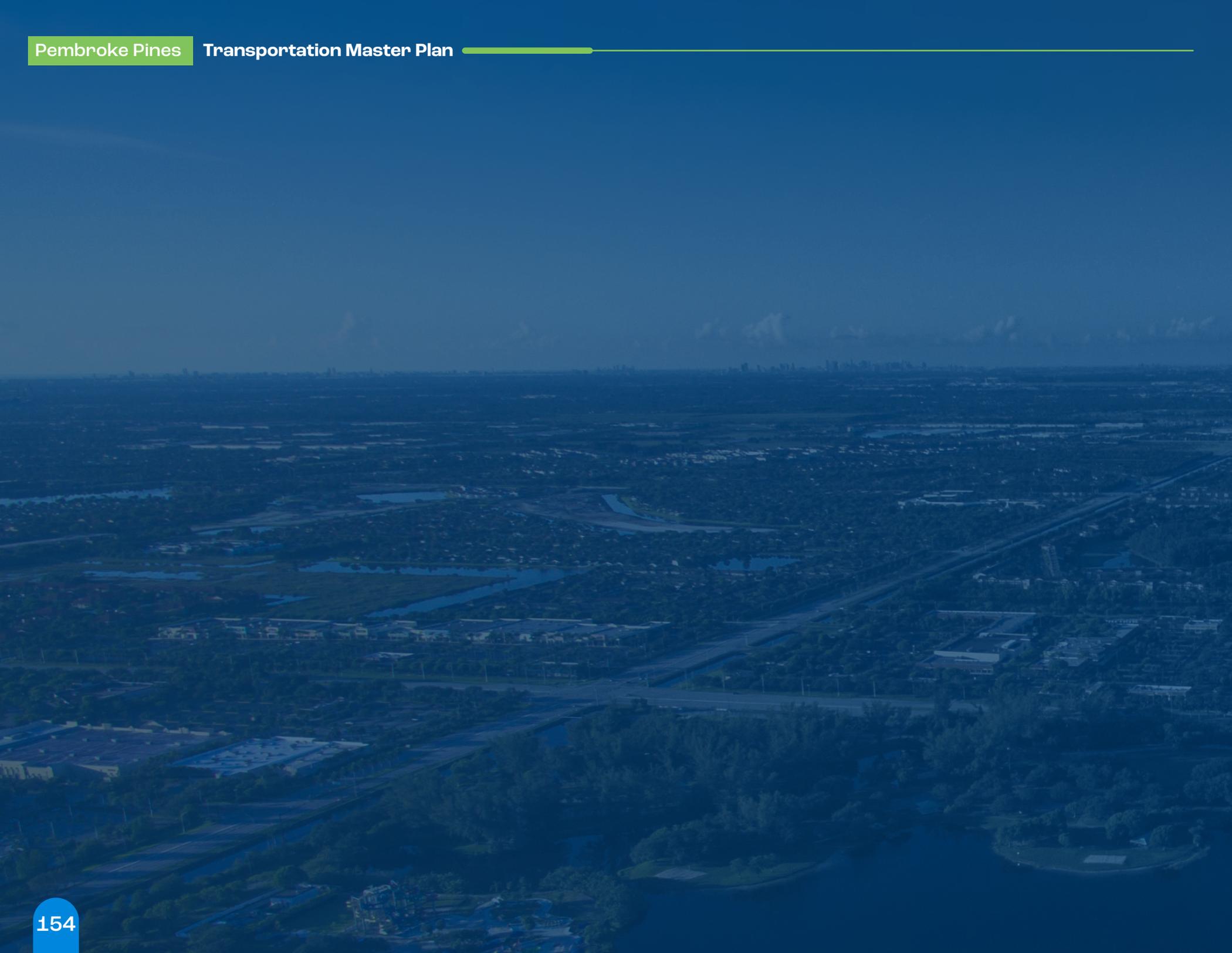
- Traffic generated by Public, Public Charter and Private Schools
- Bike Routes
- Pedestrian Crosswalk Signalization and Pedestrian Safety Islands
- Priority Signalization for Emergency Vehicles and Transit
- American Disabilities Act Compliance
- Streetlight Patterns
- Streetscape
- Broward MPO Long Range Comprehensive Plan
- Metropolitan Planning Organization (MPO) Complete Streets Master Plan
- Broward County's Mobility Advancement Program (Penny for Transportation Program)

The selected firm shall provide, at a minimum, the following services:

- Public Engagement at a minimum of four (4) public community meetings
- Stakeholder meetings with:
 - City Mayor and Commission
 - City Manager's Office
 - Public Works Department
 - Police Department
 - Planning Department
 - Recreation and Cultural Arts Department
 - Community Services Department
 - City of Pembroke Pines Charter Schools

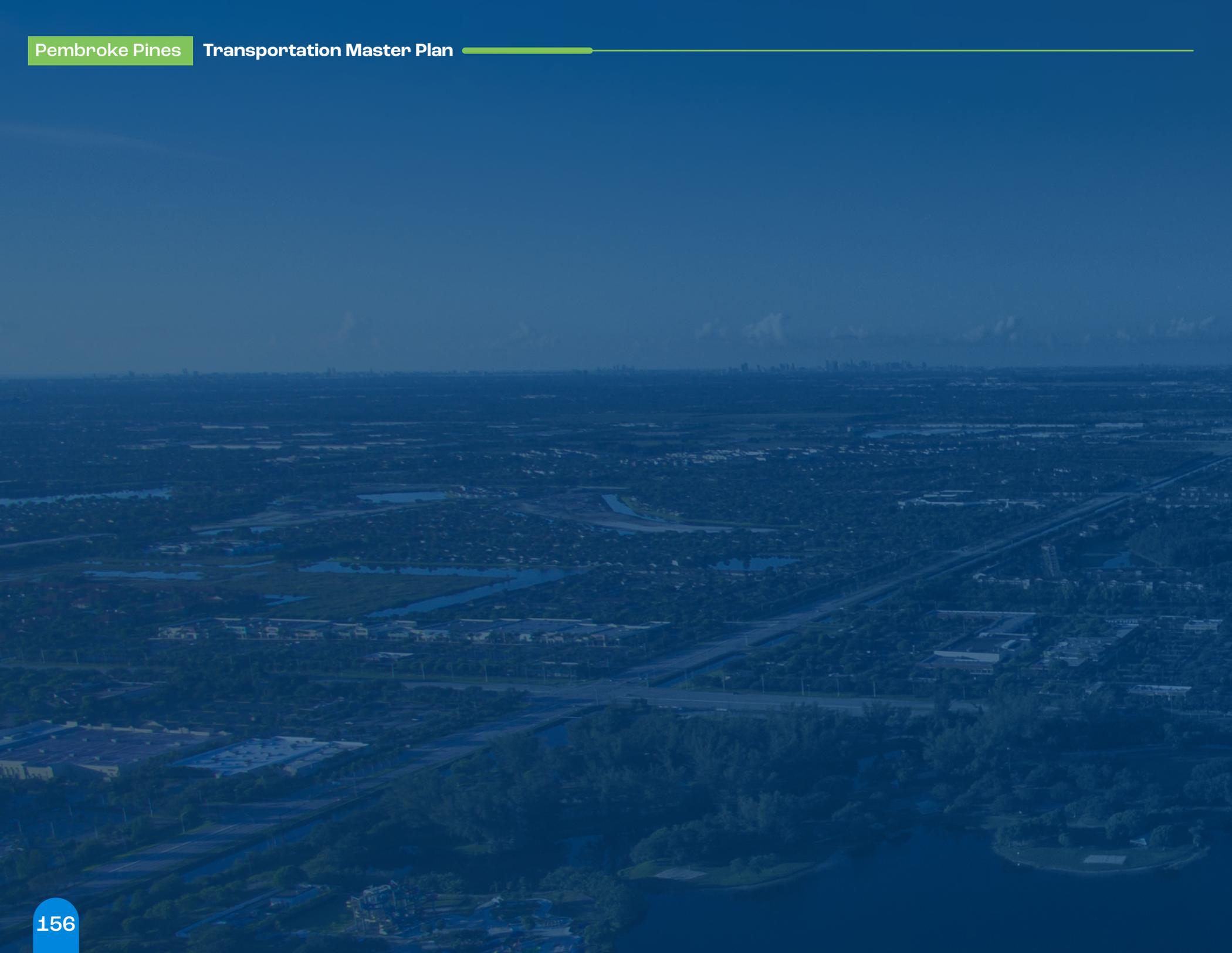
- Commission Presentation of Master Plan
- Address 5-year (short-range), 10-year (mid-range), and 20-year (long-range) transportation plans.
- Review and analyze existing conditions of City infrastructure to account for recent improvements, development plans, and changes in socioeconomic data.
- Perform a minimum of 25 traffic counts where appropriate. Data is to be collected during the typical weekday (Tuesday, Wednesday or Thursday) A.M. peak period and P.M. peak period or during certain school hours or on weekends, if appropriate.
- Collect and analyze new volume data including an operational analysis, accident information, and geometric conditions in order to document existing deficiencies.
- Evaluate the performance of the system and include a level of service (LOS) for each of the horizon years and document the future deficiencies.
- Develop a set of alternative actions to address the existing and future deficiencies as well as any special topics identified by the project stakeholders. This should include a separate section addressing schools.
- Provide implementation recommendations.
- Explore creative financing opportunities to fund recommended improvements.
- Document the results of the study and the recommendations in a "reader-friendly" report and Executive Summary.

This space intentionally left blank



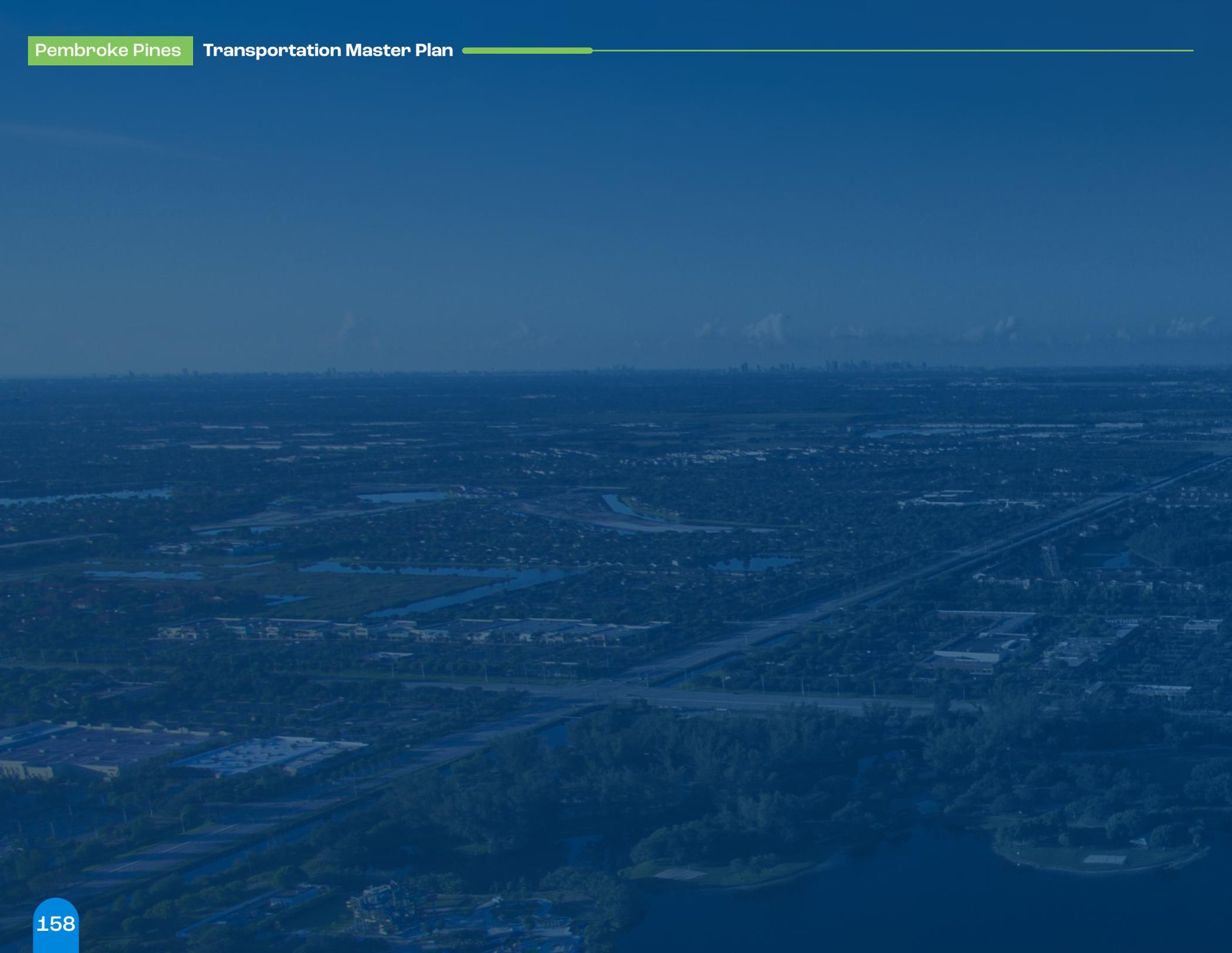
Appendix B Public Survey

Appendix B is provided electronically via the City's Website:
<https://www.ppines.com/1534/Transportation>



Appendix C Traffic Data

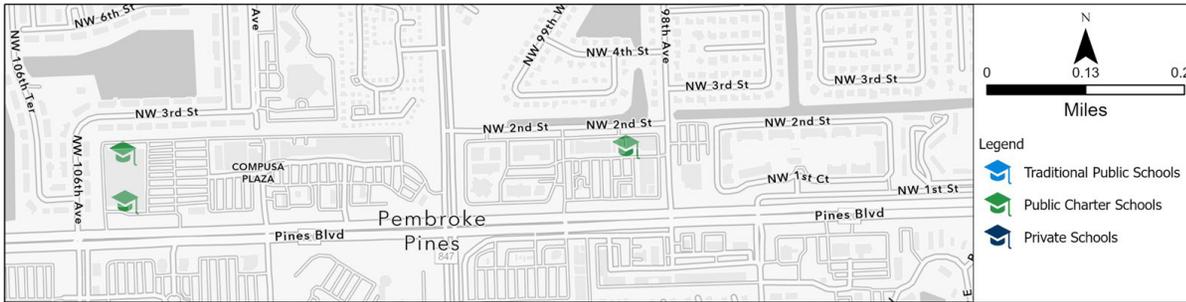
Appendix C is provided electronically via the City's Website:
<https://www.ppines.com/1534/Transportation>



Appendix D

School Observations

Atlantic Montessori Charter School



School Info	Location: 9893 Pines Blvd, Pembroke Pines, FL 33024
	City District: East District
	School Type: Charter
Bell Schedule	Arrival: 09:00 AM
	Dismissal: 02:45 PM

Field Notes

Arrival:

- No significant congestion during arrival period..

Dismissal:

- Vehicles are parked behind the school.
- Vehicle queue was observed to extend about 400 feet from the back entrance of the pickup area.

VIEW: Looking N from NW 209 Avenue

TIME: 7:30 AM

VIEW: Looking N from NW 209 Avenue

TIME: 7:35 AM



VIEW: Looking N from NW 209 Avenue

TIME: 7:40 AM

VIEW: Looking N from NW 209 Avenue

TIME: 2:40 PM



VIEW: Looking SW from NE of US 1

TIME: 2:50 PM



Chapel Trail Elementary School

School Info	Location: 19595 Taft St, Pembroke Pines, FL 33029
	City District: West District
	School Type: Public
Bell Schedule	Arrival: 08:00 AM
	Dismissal: 02:00 PM

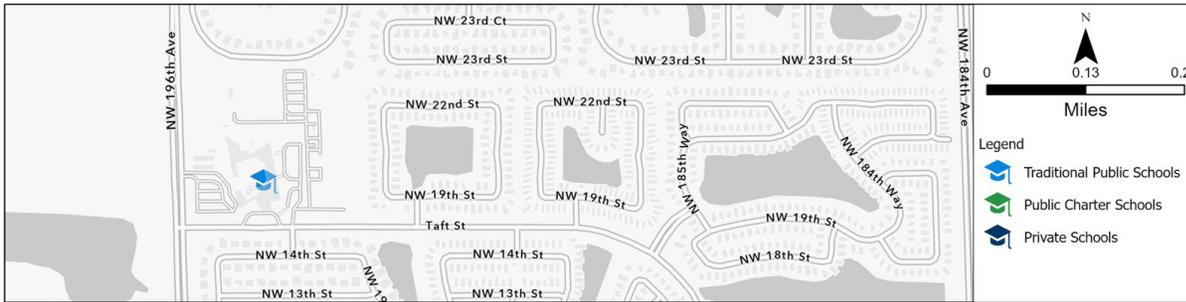
Field Notes

Arrival:

- Vehicles were observed parking inside Chapel Trail Park for student drop off.
- Westbound queue lengths on Taft Street extend 600 ft from the park entrance.

Dismissal:

- Vehicles were parked on the sides of NW 196 Avenue, north and south of Taft Street to wait for student pick up.
- Vehicles were observed parking on the right turn lane on Taft Street east of Chapel Trail Park entrance.
- Student pick up queue on the west side of the school extends out of the campus.



VIEW: Looking S from Chapel Trail Park

TIME: 7:45 AM

VIEW: Looking S from Chapel Trail Park

TIME: 02:00 PM



VIEW: Looking S from Chapel Trail Park

TIME: 2:41 PM

VIEW: Looking S from Chapel Trail Park

TIME: 2:05 PM

VIEW: Looking S from Chapel Trail Park

TIME: 2:07 PM



Charles W. Flannagan High School

School Info	Location: 12800 Taft St, Pembroke Pines, FL 33028
	City District: Central District
	School Type: Public
Bell Schedule	Arrival: 07:40 AM
	Dismissal: 02:40 PM

Field Notes

Arrival:

- Students used Pembroke Pines Ice Arena and Public Library parking lot for parking and then walked to school.
- Westbound Left queue lengths on Taft Street extend approximately 1,280 feet.

Dismissal:

- Vehicles were observed parking on the right turn bay northside of the campus waiting for student pick up.
- A few vehicles were observed parking on the south side of Taft Street (eastbound), near NW 129 Avenue to wait for student pick-up.
- Vehicles were observed parking on east side of NW 129 Avenue, south of school entrance, to wait for student pick-up.



VIEW: Looking W from NW 125 Avenue

TIME: 7:25 AM

VIEW: Looking W from NW 125 Avenue

TIME: 07:30 AM



VIEW: Looking W from NW 125 Avenue

TIME: 2:41 PM

VIEW: Looking W from NW 125 Avenue

TIME: 2:45 PM

VIEW: Looking W from NW 125 Avenue

TIME: 2:50 PM



Pembroke Pines Charter Central Campus

School Info	Location: 12350 Sheridan St, Pembroke Pines, FL 33026
	City District: Central District
	School Type: Charter
Bell Schedule	Arrival: 08:45 AM
	Dismissal: 03:15 PM

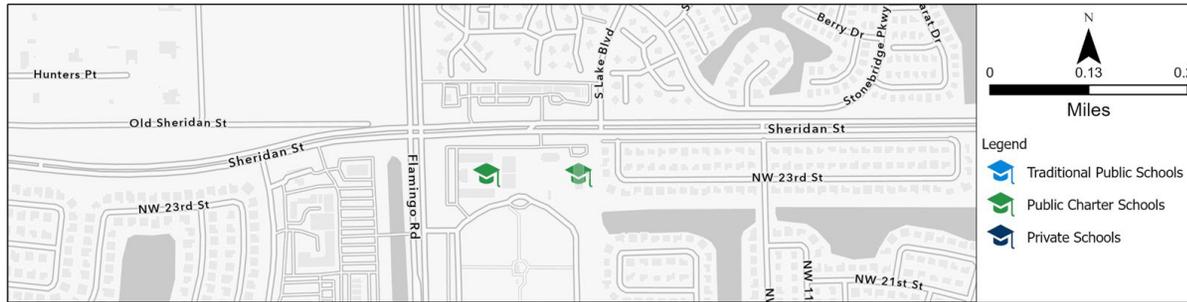
Field Notes

Arrival:

- Vehicles were observed parking in the Flamingo Park parking lot for student drop off.
- Vehicle queue for student drop off area starts from the south of the school entrance to Taft Street.

Dismissal:

- Vehicles parked on the west side of the school for student pick up.
- Vehicles parked on the right turn bays on the westside of the campus waiting for student pick up.



VIEW: Looking E from Flamingo Road

TIME: 8:40 AM

VIEW: Looking E from Flamingo Road

TIME: 08:45 AM



VIEW: Looking E from Flamingo Road

TIME: 3:20 PM

VIEW: Looking E from Flamingo Road

TIME: 3:25 PM



VIEW: Looking E from Flamingo Road

TIME: 3:30 PM



Pembroke Pines East Elementary School

School Info	Location: 10801 Pembroke Rd, Pembroke Pines, FL 33025
	City District: Central District
	School Type: Charter
Bell Schedule	Arrival: 08:45 AM
	Dismissal: 03:15 PM

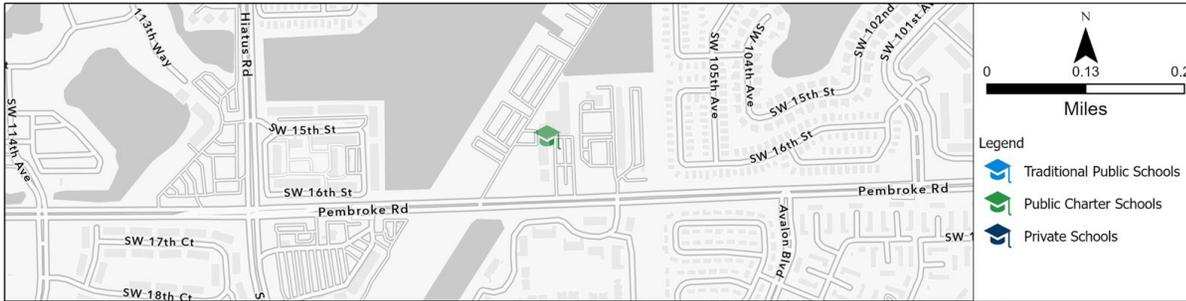
Field Notes

Arrival:

- Vehicles parked in parking lot west of SW 13 Court for student drop off.
- Police Officer blocked one lane on Pembroke Road westbound.

Dismissal:

- Vehicles parked on SW 13 Court extends to the right turn bay on Pembroke Road.
- Police Officer blocked one lane westbound on Pembroke Road for vehicles to exit out the school quicker.
- Vehicle queue extends to about 1,200 feet from the entrance of the school entrance.



VIEW: Looking E from Hiatus Road

TIME: 8:30 AM

VIEW: Looking E from Hiatus Road

TIME: 03:00 PM



VIEW: Looking E from Hiatus Road

TIME: 3:05 PM

VIEW: Looking E from Hiatus Road

TIME: 3:10 PM



VIEW: Looking E from Hiatus Road

TIME: 3:15 PM



Pembroke Pines High School

School Info	Location:	17189 Sheridan St, Davie, FL 33331
	City District:	West District
	School Type:	Charter
Bell Schedule	Arrival:	07:15 AM
	Dismissal:	02:00 PM

Field Notes

Arrival:

- There are three student drop off locations within the school, student parking lot, east and south side of the school.
- Moderate congestion was observed entering the student parking lot.
- Westbound right-turn queue length at Sheridan Street and Jaguar Way intersection extends almost 900 feet.

Dismissal:

- Southbound left turn queue at SW 172 Street and Sheridan Street requires two green intervals to clear.
- Moderate traffic congestion in front of the school on both eastbound and westbound directions.



VIEW: Looking N from Sheridan Street

TIME: 7:05AM

VIEW: Looking N from Sheridan Street

TIME: 07:15 AM



VIEW: Looking N from Sheridan Street

TIME: 2:05 PM

VIEW: Looking N from Sheridan Street

TIME: 2:10 PM



VIEW: Looking N from Sheridan Street

TIME: 2:15 PM



Pembroke Pines Charter West Campus

School Info	Location: 1680 SW 184th Ave, Pembroke Pines, FL 33029
	City District: West District
	School Type: Charter
Bell Schedule	Arrival: 08:15 AM
	Dismissal: 03:30 PM

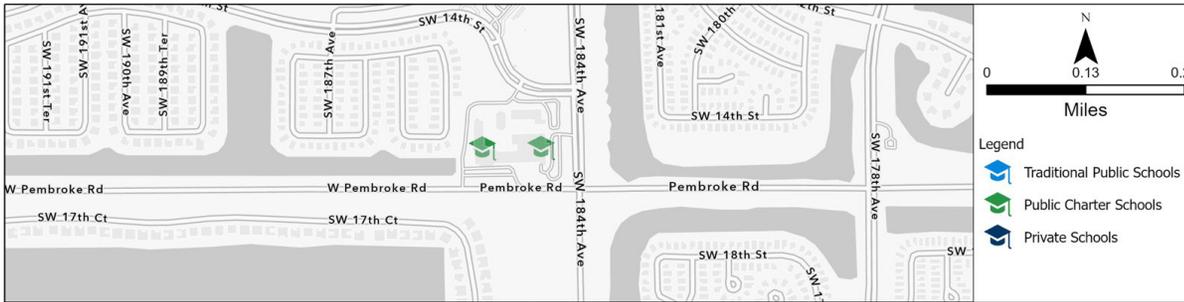
Field Notes

Arrival:

- Vehicles parked on Pembroke Road west of SW 184 Avenue on the right turn bay for student drop off before allowed time.
- Vehicles parked on Pembroke Road east of SW 184 Avenue on both sides for student drop off.
- After allowed time for drop off, vehicles perform illegal U-turn on Pembroke Road west of the school entrance.

Dismissal:

- Vehicles parked on the south side of SW 172 Street right before Pembroke Road intersection waiting for student pick up.
- Vehicles parked on the grass east side of Pembroke Road right before SW 184 Street for student pick up.
- Student car pick up lane extends the turn bay length and curls onto SW 184 Street.
- High vehicle congestion eastbound on Pembroke Road from SW 172 Street to SW 184 Street.



VIEW: Looking S from W Pembroke Road

TIME: 8:02AM

VIEW: Looking S from W Pembroke Road

TIME: 08:10 AM



1

VIEW: Looking NW from Pembroke Road

TIME: 3:40 PM



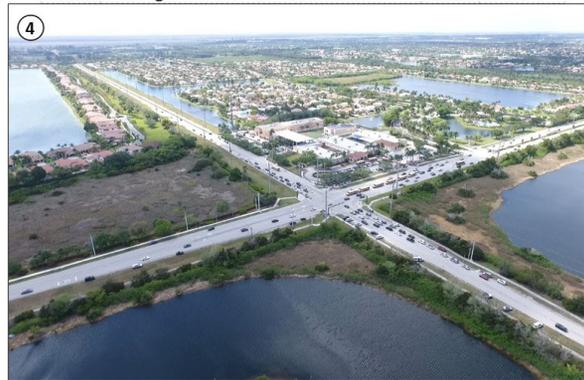
2

VIEW: Looking NW from Pembroke Road

TIME: 3:45 PM



3



4



5

VIEW: Looking E from Pembroke Road

TIME: 3:55 PM

Franklin Academy High School

School Info	Location:	5000 SW 207th Terrace, Pembroke Pines, FL 33332
	City District:	West District
	School Type:	Charter
Bell Schedule	Arrival:	07:30 AM
	Dismissal:	02:30 PM

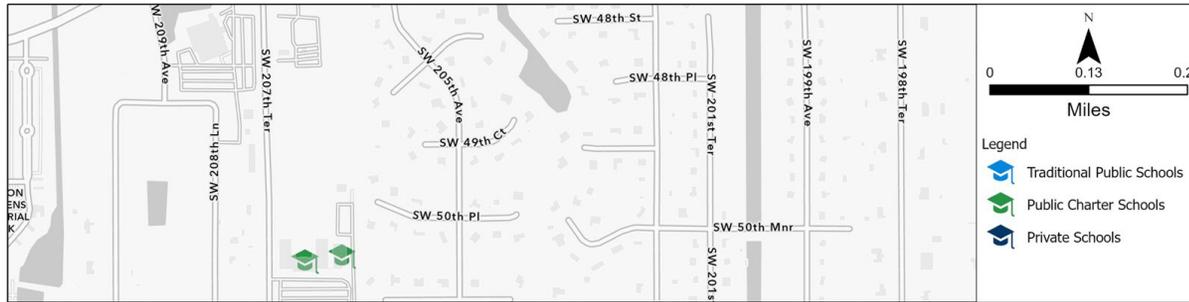
Field Notes

Arrival:

- Police officer was observed controlling traffic on Griffin Road at SW 207 Terrence.
- Westbound left turn queue at Griffin Road and SW 207 Terrace extends to about 800 feet.
- Student drop off Car lane queue spills over onto SW 207 Terrace.
- Northbound left turn queue length extends to approximately 450 feet.

Dismissal:

- Police officer was observed controlling traffic on Pines Boulevard at SW 207 Terrence.
- No major congestion was observed.



VIEW: Looking NE from SW 208 Lane

TIME: 8:02AM

VIEW: Looking NE from SW 208 Lane

TIME: 08:10 AM



VIEW: Looking SE from SW 208 Lane

TIME: 2:30 PM

VIEW: Looking SE from SW 208 Lane

TIME: 2:35 PM

VIEW: Looking SE from SW 208 Lane

TIME: 2:40 PM



Franklin Academy Elementary School

School Info	Location:	5000 SW 207th Terrace, Pembroke Pines, FL 33332
	City District:	West District
	School Type:	Charter
Bell Schedule	Arrival:	08:30 AM
	Dismissal:	03:30 PM

Field Notes

Arrival:

- Police officer was observed controlling traffic on Griffin Road at SW 207 Terrence.
- Westbound left turn queue at Griffin Road and SW 207 Terrace extends to about 800 feet.
- Student drop off Car lane queue spills over onto SW 207 Terrace.
- Northbound left turn queue length extends to approximately 450 feet.

Dismissal:

- Police officer was observed controlling traffic on Pines Boulevard at SW 207 Terrence.
- No major congestion was observed.



VIEW: Looking SE from SW 208 Lane

TIME: 8:15AM

VIEW: Looking NE from SW 208 Lane

TIME: 08:22 AM



VIEW: Looking SE from SW 208 Lane

TIME: 3:35 PM

VIEW: Looking SE from SW 208 Lane

TIME: 3:40 PM

VIEW: Looking SE from SW 208 Lane

TIME: 3:45 PM



Franklin Academy Elementary School

School Info	Location: 18800 Pines Blvd, Pembroke Pines, FL 33029
	City District: West District
	School Type: Charter
Bell Schedule	Arrival: 07:30 AM
	Dismissal: 02:15 PM

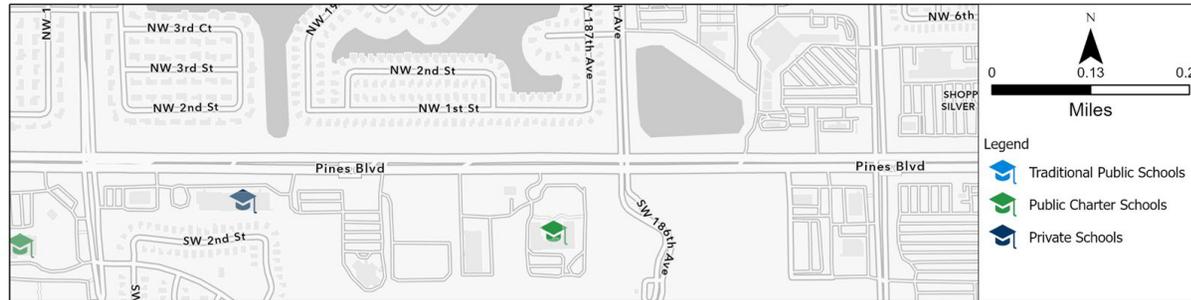
Field Notes

Arrival:

- Police officer was observed controlling traffic on Pines Boulevard at school entrance.
- Police Officer blocked one eastbound through lane on Pines Boulevard at the school entrance.
- Westbound vehicles perform a U-turn maneuver at the church/Extra Space Storage building to cut the westbound left turn queue.
- Police Officer prioritizes the westbound left turn queue over the eastbound through vehicles, thus causing major congestion to approximately 1000 feet from the school entrance.

Dismissal:

- Police officer was observed controlling traffic on Pines Boulevard at school entrance
- Police Officer blocked one eastbound through lane on Pines Boulevard at the school entrance.
- Westbound vehicles perform a U-turn at the church/Extra Space Storage building to cut the westbound left turn queue.
- Police Officer prioritizes the westbound left turn queue over the eastbound through vehicles, thus causing major congestion to approximately 500 feet from the school entrance.



VIEW: Looking N from SW 189 Avenue

TIME: 7:16AM

VIEW: Looking N from SW 189 Avenue

TIME: 07:25 AM



VIEW: Looking N from SW 189 Avenue

TIME: 2:03 PM

VIEW: Looking N from SW 189 Avenue

TIME: 2:18 PM

VIEW: Looking N from SW 189 Avenue

TIME: 2:23 PM



Lakeside Elementary School



School Info	Location:	900 NW 136th Ave, Pembroke Pines, FL 33028
	City District:	West District
	School Type:	Public
Bell Schedule	Arrival:	08:00 AM
	Dismissal:	02:00 PM

Field Notes

Arrival:

- Vehicles Parked on the northside of the school for student drop off
- There are two student drop off areas: northside parking lot and east side parking lot.
- Minor congestion from vehicles turning into east side parking lot

Dismissal:

- Vehicles parked on eastbound right turn lane storage on NW 10 Street for student pick up
- Moderate congestion on the east side pick up area where southbound right turn and northbound left turning vehicles queue.

VIEW: Looking W from NW 129 Avenue

TIME: 7:46 AM

VIEW: Looking W from NW 129 Avenue

TIME: 07:51 AM



VIEW: Looking W from NW 129 Avenue

TIME: 2:00 PM

VIEW: Looking W from NW 129 Avenue

TIME: 2:10 PM

VIEW: Looking W from NW 129 Avenue

TIME: 2:15 PM



Montessori Academy of Broward

School Info	Location:	19200 Pines Blvd, Pembroke Pines, FL 33029
	City District:	West District
	School Type:	Private
Bell Schedule	Arrival:	09:00 AM
	Dismissal:	02:45 PM

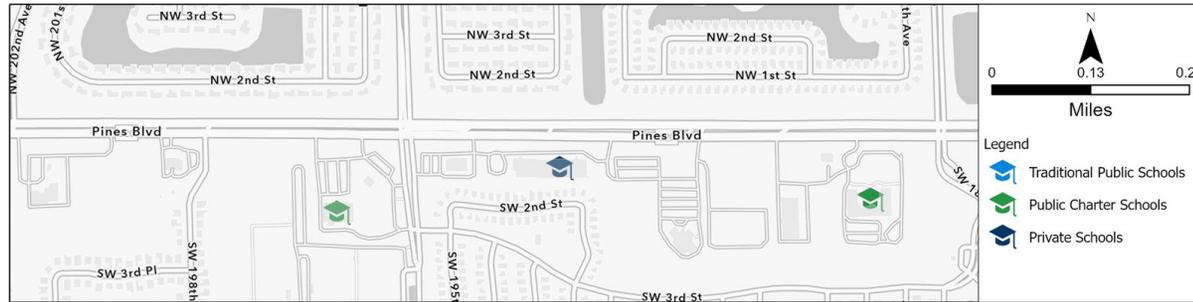
Field Notes

Arrival:

- No significant congestion was observed during field observation.

Dismissal:

- No significant congestion was observed during field observation.



VIEW: Looking W from SW 189 Avenue

TIME: 8:46 AM

VIEW: Looking W from SW 189 Avenue

TIME: 08:51 AM



VIEW: Looking W from SW 189 Avenue

TIME: 2:45 PM

VIEW: Looking W from SW 189 Avenue

TIME: 2:50 PM

VIEW: Looking W from SW 189 Avenue

TIME: 2:55 PM



Palm Cove Elementary School

School Info	Location: 11601 Washington St, Pembroke Pines, FL 33025
	City District: Central District
	School Type: Public
Bell Schedule	Arrival: 08:00 AM
	Dismissal: 02:00 PM

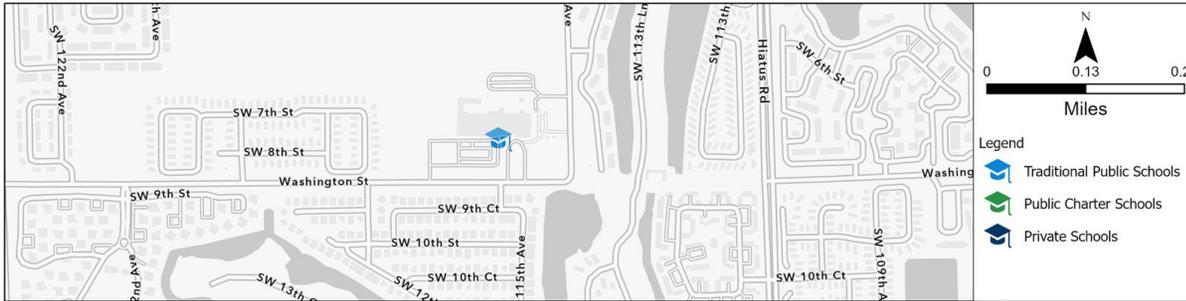
Field Notes

Arrival:

- No significant congestion was observed during field observation.
- Two school student drop off zones were used, one south of the school and another on the east side of the school.

Dismissal:

- No significant congestion was observed during field observation.



VIEW: Looking S from SW 2 Street

TIME: 7:46 AM

VIEW: Looking S from SW 2 Street

TIME: 07:51 AM



VIEW: Looking S from SW 2 Street

TIME: 2:00 PM

VIEW: Looking S from SW 2 Street

TIME: 2:10 PM



VIEW: Looking S from SW 2 Street

TIME: 2:15 PM



Panther Run Elementary School

School Info	Location: 801 NW 172nd Ave, Pembroke Pines, FL 33029
	City District: West District
	School Type: Public
Bell Schedule	Arrival: 08:00 AM
	Dismissal: 02:00 PM

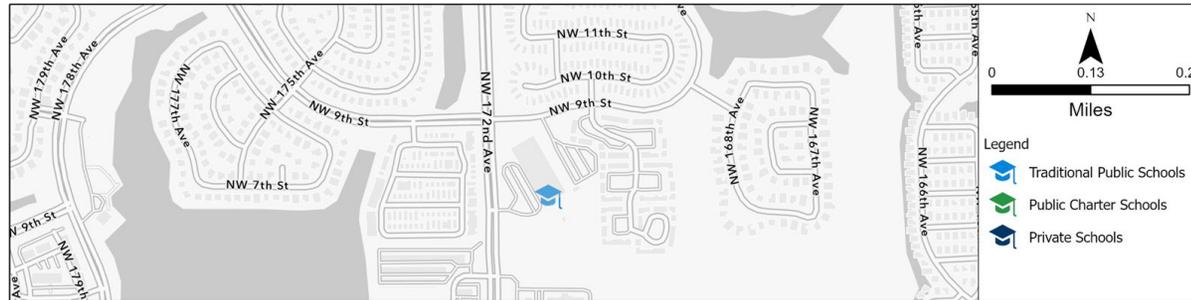
Field Notes

Arrival:

- The North student drop off zone gets slightly congested from the westbound left turn on NW 9 Street.
- Outgoing vehicles from the student drop of zone can only make a left turn since the right turn leads into a gated community (Pembroke Isles).
- Parents were observed parking in the shopping plaza located south of the school to walk their children into the school.
- Even though the north drop off zone was congested, there was a small amount of vehicles dropping of their children in the bus drop off zone.

Dismissal:

- Parents were parked on the departing right turn lane of the shopping plaza south of the school to pick up their children.
- The student pick up line extending beyond NW 9 Street and wrapped around NW 172 Avenue to the near bus pick up zone.
- Few parents were able to pick up their children from the bus pick up zone on NW 172 Avenue.



VIEW: Looking NE from Pines Boulevard

TIME: 7:46 AM

VIEW: Looking NE from Pines Boulevard

TIME: 07:51 AM



VIEW: Looking NE from Pines Boulevard

TIME: 2:00 PM

VIEW: Looking NE from Pines Boulevard

TIME: 2:10 PM

VIEW: Looking NE from Pines Boulevard

TIME: 2:15 PM



Pasadena Lakes Elementary School

School Info	Location: 8801 Pasadena Blvd, Pembroke Pines, FL 33024
	City District: East District
	School Type: Public
Bell Schedule	Arrival: 08:10 AM
	Dismissal: 02:10 PM

Field Notes

Arrival:

- Moderate congestion was observed on the west student drop off zone where congestion would extend to NW 89 Street.
- No congestion was observed from the east student drop off zone.
- Parents were observed parking in the Pasadena Park Parking lot to walk their children through the back entrance of the school.
- Due to congestion on Pasadena Boulevard from the student drop off zone, the one lane eastbound was blocked from the student drop off zone, the one lane eastbound was blocked from the student drop off zone, the one lane eastbound was blocked from the student drop off zone.

Dismissal:

- Parents were observed parking in the Pasadena Lakes Parking lot to pick up their children from the back entrance of the school.
- Two lines of congestion was observed from the student pick up zone, one eastbound on Pasadena Boulevard and the other going eastbound.
- The east bound congestion on Pasadena Boulevard extended to NW Avenue.
- The westbound congestion extended to NW 87 Terrace.
- A Police officer was observed directing traffic flow.



0 0.13 0.25 Miles

Legend

- Traditional Public Schools
- Public Charter Schools
- Private Schools

VIEW: Looking S from NW 25 Street

TIME: 7:56 AM

VIEW: Looking S from NW 25 Street

TIME: 08:00 AM



VIEW: Looking S from NW 25 Street

TIME: 2:10 PM

VIEW: Looking S from NW 25 Street

TIME: 2:15 PM



VIEW: Looking S from NW 25 Street

TIME: 2:20 PM



Pembroke Lakes Elementary School

School Info	Location: 11251 Taft St, Pembroke Pines, FL 33026
	City District: Central District
	School Type: Public
Bell Schedule	Arrival: 08:10 AM
	Dismissal: 02:10 PM

Field Notes

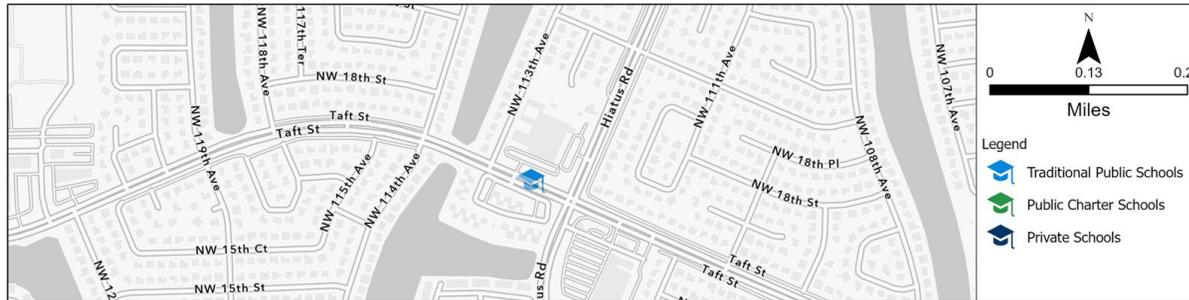
Arrival:

- Parents were observed parking in the Publix parking lot to walk their children to the school.
- Northbound left turn queue had moderate to high congestion.
- A police officer was observed controlling traffic on the south side of the school for the south entrance/exit of the student drop off zone.
- The police officer would stop the west bound traffic to allow the south student drop off zone parking lot vehicles to exit.
- Southbound through traffic on Hiatus Road has moderate congestion.

Dismissal:

- Parents were observed parking in the Publix parking lot to then walk over and pick up their children.
- Queue on the west side of the pickup zone wrapped around Taft Street onto a through lane, only allowing one through lane to be used.
- Queue on the south student pick up zone wraps around to Hiatus Road onto a through lane, only allowing one through lane to be used.
- A police officer was observed controlling traffic and stopping the westbound traffic to allow the vehicles leave from the south student pick up zone.
- Vehicles were observed parking on the east side of the school on the grass to pick up their children.

VIEW: Looking W from NW 111 Avenue **TIME:** 2:20 PM



VIEW: Looking W from NW 111 Avenue **TIME:** 7:45 AM

VIEW: Looking W from NW 111 Avenue **TIME:** 07:51 AM

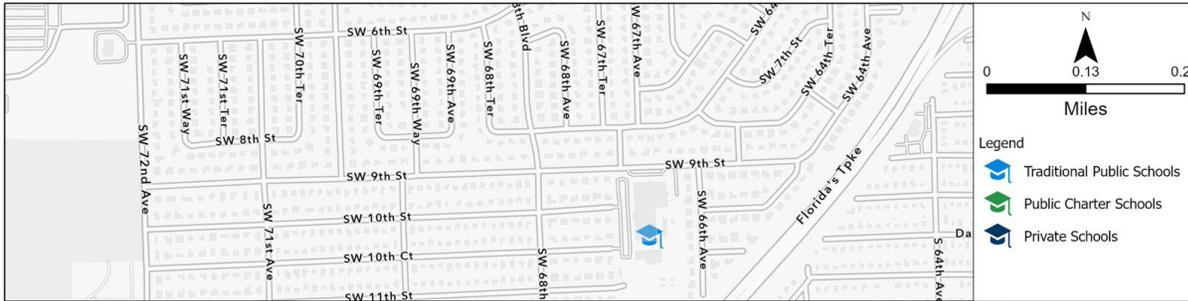


VIEW: Looking W from NW 111 Avenue **TIME:** 2:10 PM

VIEW: Looking W from NW 111 Avenue **TIME:** 2:15 PM



Pembroke Pines Elementary School



School Info	Location:	6700 SW 9th St, Pembroke Pines, FL 33023
	City District:	East District
	School Type:	Public
Bell Schedule	Arrival:	08:00 AM
	Dismissal:	02:00 PM

Field Notes

Arrival:

- Vehicles were observed entering the student drop off zone through SW 10 Ct and departing through SW 10 Street.
- Vehicles were observed parking on the north side grass area to drop off their children.
- No Major congestion was observed during field review.

Dismissal:

- Queue on the entrance of the student pick up zone on SW 10 Ct extended to SW 68 Boulevard to then extending to SW 9 Street.
- Southbound and northbound though lane on SW 68 Boulevard was blocked due to vehicles trying to get on to SW 10 Court.
- Queue on SW 9 Street had moderate congestion in the eastbound direction.

VIEW: Looking W from SW 129 Avenue

TIME: 7:46 AM

VIEW: Looking W from SW 129 Avenue

TIME: 07:51 AM



VIEW: Looking W from SW 129 Avenue

TIME: 2:00 PM

VIEW: Looking W from SW 129 Avenue

TIME: 2:10 PM



VIEW: Looking W from SW 129 Avenue

TIME: 2:15 PM



Pines Lakes Elementary School

School Info	Location: 10300 Johnson St, Pembroke Pines, FL 33026
	City District: East District
	School Type: Public
Bell Schedule	Arrival: 08:00 AM
	Dismissal: 02:00 PM

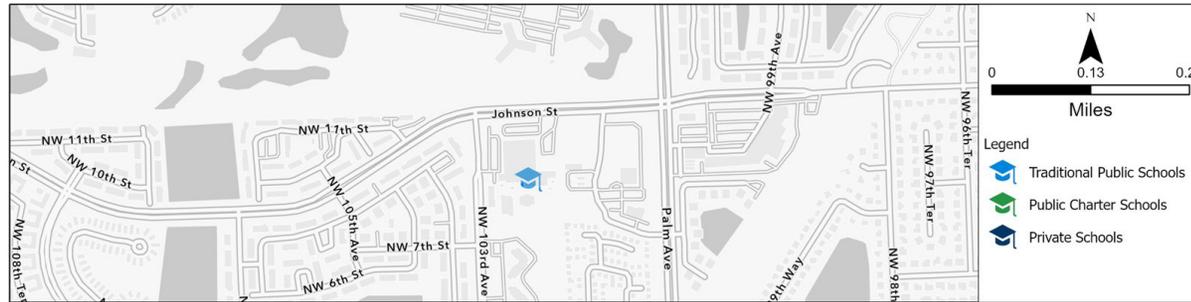
Field Notes

Arrival:

- The queue on NW 103 Avenue left turning into the student drop off zone exceeded its storage space leading to blocking the through lane.

Dismissal:

- Parents were observed parking in the Pines Baptist Church property to walk and pick up their children.
- NW 103 Avenue southbound left turn has heavy congestion from the high number of U-turns on NW 7 Street.
- NW 103 Avenue northbound have heavy congestion from the entrance of the student pick up zone to near NW 3 Street.
- Vehicles were parked on the right turn only storage lane for Pines Baptist Church to walk and pick up their children.



VIEW: Looking N from NW 7 Street

TIME: 7:46 AM

VIEW: Looking N from NW 7 Street

TIME: 07:51 AM



VIEW: Looking W from N 7 Street

TIME: 2:00 PM



VIEW: Looking N from NW 7 Street

TIME: 2:05 PM

VIEW: Looking N from NW 7 Street

TIME: 2:10 PM



Pines Middle School

School Info	Location: 200 Douglas Rd, Pembroke Pines, FL 33024
	City District: East District
	School Type: Public
Bell Schedule	Arrival: 09:05 AM
	Dismissal: 03:30 PM

Field Notes

Arrival:

- Moderate congestion was observed when vehicles were departing from the school on NW 3 Street.

Dismissal:

- Congestion occurred in the pick up line for the school but was all kept in the campus vicinity.



VIEW: Looking N from Pines Boulevard

TIME: 8:46 AM

VIEW: Looking N from Pines Boulevard

TIME: 08:51 AM



VIEW: Looking N from Pines Boulevard

TIME: 3:30 PM



VIEW: Looking N from Pines Boulevard

TIME: 3:35 PM



VIEW: Looking N from Pines Boulevard

TIME: 3:40 PM

Renaissance Charter School

School Info	Location:	10501 Pines Blvd, Pembroke Pines, FL 33026
	City District:	Central District
	School Type:	Charter
Bell Schedule	Arrival:	08:00 AM
	Dismissal:	03:00 PM

Field Notes

Arrival:

- The eastbound U-turn queue has heavy congestion extending beyond its storage capacity.
- A police officer was observed closing a through lane to allow the departing vehicles to exit the campus.
- The westbound right turn queue extends beyond SW 103 Avenue and wraps around SW 103 Avenue.
- Northbound left turn vehicles were observed blocking the intersection from the congestion of vehicles entering the school.
- Westbound through vehicles were observed blocking the intersection to get into the queue for the school entrance.

Dismissal:

- Vehicles were observed after picking up their children they would travel behind the Pembroke Place Building to get to the SW 103 Avenue.
- Southbound congestion on SW 103 Ave was heavy during the first 7 min of the dismissal period.
- Westbound right turn queue extends beyond NW 103 Avenue.
- Westbound through lane was blocked from westbound through and northbound left turning vehicles merging to the right turn queue.



VIEW: Looking W from NW 3 Street

TIME: 7:46 AM

VIEW: Looking W from NW 3 Street

TIME: 07:55 AM



VIEW: Looking W from NW 3 Street

TIME: 3:00 PM

VIEW: Looking W from NW 3 Street

TIME: 3:05 PM



VIEW: Looking W from NW 3 Street

TIME: 3:15 PM



Silver Palms Elementary School

School Info	Location:	1209 NW 155th Ave, Pembroke Pines, FL 33028
	City District:	West District
	School Type:	Public
Bell Schedule	Arrival:	08:00 AM
	Dismissal:	02:00 PM

Field Notes

Arrival:

- Parents were observed parking in Towngate Park and Pool Park to walk their children to the school.
- No major congestion was observed.

Dismissal:

- Parents were observed parking in Towngate Park and Pool Park to pickup their children to the school.
- Congestion on NW 12 Street from the school entrance extended to NW 155 Avenue.



VIEW: Looking N from NW 8 Street

TIME: 7:50 AM

VIEW: Looking N from NW 8 Street

TIME: 07:55 AM



VIEW: Looking N from NW 8 Street

TIME: 2:00 PM

VIEW: Looking N from NW 8 Street

TIME: 2:05 PM



VIEW: Looking N from NW 7 Street

TIME: 2:10 PM



Silver Trail Middle School

School Info	Location:	18300 Sheridan St, Davie, FL 33331
	City District:	West District
	School Type:	Public
Bell Schedule	Arrival:	09:10 AM
	Dismissal:	03:40 PM

Field Notes

Arrival:

- A police officer was observed to be controlling traffic on NW 184 Avenue at the student drop off entrance.
- Southbound left turn on NW 184 Avenue exceeded its storage capacity, leading to blocking the through lane.
- Northbound right turn on NW 184 Avenue exceeded its storage capacity, leading to blocking the through lane.
- Vehicles were observed parked on the eastbound right turn lane to drop off their children.
- High volume of northbound U-turn was observed due to the only exit from the student drop off zone.

Dismissal:

- Northbound right turn queue extended from the student pick up zone to past NW 17 Street.
- A police officer was observed controlling traffic at the entrance of the pickup zone.
- Southbound left turn queue on NW 184 Avenue had heavy congestion, which lead to the westbound left turning vehicles to block the intersection.
- Eastbound right turn queue on Sheridan Street had moderate to heavy congestion from the southbound left turning vehicles.

• VIEW: Looking S from SW 185 Way TIME: 3:50 PM



VIEW: Looking S from SW 185 Way

TIME: 9:10 AM

VIEW: Looking S from SW 185 Way

TIME: 9:15 AM



1



2

VIEW: Looking S from SW 185 Way

TIME: 3:40 PM

VIEW: Looking S from SW 185 Way

TIME: 3:45 PM



3



4



5

Somerset Academy Elementary School

School Info	Location:	19620 Pines Blvd, Pembroke Pines, FL 33029
	City District:	West District
	School Type:	Charter
Bell Schedule	Arrival:	08:00 AM
	Dismissal:	02:30 PM

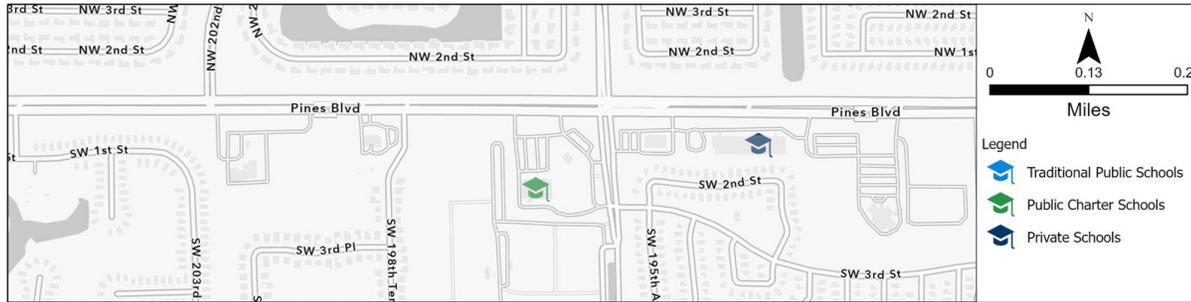
Field Notes

Arrival:

- A police officer was observed to have closed an eastbound through lane and right turn lane on Pines Boulevard.
- Moderate to high congestion was observed from eastbound Pines Boulevard.

Dismissal:

- A police officer was observed to have closed an eastbound through lane and right turn lane on Pines Boulevard.
- Vehicles line up in the school campus a few minutes before the dismissal period started.
- Vehicle queue extended from the entrance of the school pick up zone to the entrance of the Speedway gas station.
- Northbound left turn queue from NW 196 Avenue extended beyond its storage capacity leading to blocking a through lane.



VIEW: Looking E from SW 198 Terrace

TIME: 7:50 AM

VIEW: Looking E from SW 198 Terrace

TIME: 07:55 AM



VIEW: Looking E from SW 198 Terrace

TIME: 2:30 PM

VIEW: Looking E from SW 198 Terrace

TIME: 2:35 PM

VIEW: Looking E from SW 198 Terrace

TIME: 2:40 PM



Somerset Academy Campus

School Info	Location:	20803 Johnson St, Pembroke Pines, FL 33029
	City District:	West District
	School Type:	Charter
Bell Schedule	Arrival:	08:00 AM
	Dismissal:	03:00 PM

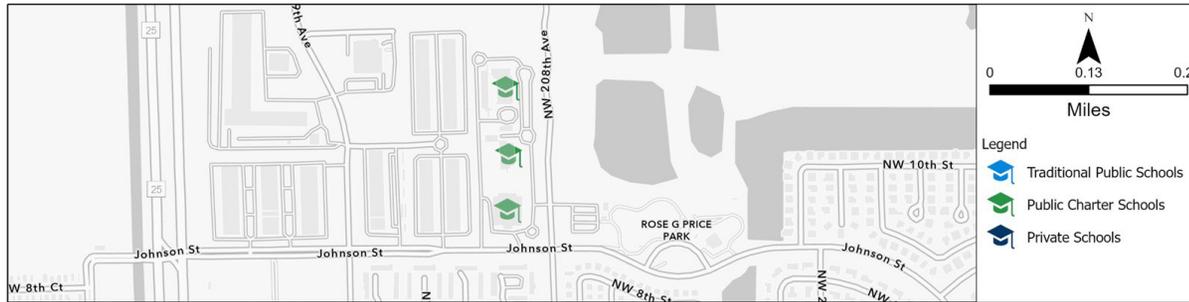
Field Notes

Arrival:

- Westbound queue on Johnson Street extends from NW 208 Avenue to beyond NW 202 Avenue.
- Northbound queue on NW 208 Avenue extends from Johnson Street to NW 3 Street.
- A police officer was observed to be controlling the unsignalized intersection of NW 208 Avenue at Johnson Street.
- Northbound left turn queue extends beyond its storage capacity leading tot blocking the though lane.
- Parents were observed parking in the Rose G. Park Parking lot to walk their children to school.

Dismissal:

- Parents were observed to park in the Chapel Trail Trade Center parking lot to pick up their children.
- Students were observed to wait on the north leg of NW 208 Avenue to wait for their parents for pick up.
- A few cars were observed to be parked in the grass on NW 208 Avenue north leg.
- Parents were observed parking in the Rose G. Park Parking lot to pick up their children from school.



VIEW: Looking SW from SW 208 Avenue TIME: 7:50 AM

VIEW: Looking SW from SW 208 Avenue TIME: 07:55 AM



VIEW: Looking SW from SW 208 Avenue TIME: 3:00 PM

VIEW: Looking SW from SW 208 Avenue TIME: 3:10 PM



VIEW: Looking SW from SW 208 Avenue TIME: 3:15 PM



West Broward High School

School Info	Location: 500 NW 209th Ave, Pembroke Pines, FL 33029
	City District: West District
	School Type: Public
Bell Schedule	Arrival: 07:40 AM
	Dismissal: 02:40 PM

Field Notes

Arrival:

- Eastbound left turn queue extends passed the allowed storage, leading to clocking a through lane.
- Northbound left turn queue from the entrance of the student drop off zone extends to Pines Boulevard, then to passed NW 208 Avenue.
- Southbound left and right turn lanes had heavy congestion from being the only exit from the school.

Dismissal:

- Few vehicles were observed parked and waiting at NW 209 Avenue south leg.
- Many vehicles were observed to be parked on the southbound through lane on NW 210 Avenue.
- Few vehicles were observed parked on the grass on pines boulevard near NW 210 Avenue.
- Students were observed to walk north to Johnson Street to get picked up.



VIEW: Looking N from NW 209 Avenue

TIME: 7:30 AM

VIEW: Looking N from NW 209 Avenue

TIME: 7:35 AM



VIEW: Looking N from NW 209 Avenue

TIME: 7:40 AM

VIEW: Looking N from NW 209 Avenue

TIME: 2:40 PM



VIEW: Looking SW from NE of US 1

TIME: 2:50 PM



McArthur High School

School Info	Location:	6501 Hollywood Blvd, Hollywood, FL 33024
	City District:	East District
	School Type:	Public
Bell Schedule	Arrival:	07:40 AM
	Dismissal:	02:40 PM

Field Notes

Arrival:

- Heavy congestion was observed on eastbound and westbound Pines boulevard.
- Vehicles were observed to stop on the right turn lane right before the entrance of the school drop off zone, to allow their children to get off the car from there.
- Northbound queue on SW 64 Way experienced moderate to high congestion.

Dismissal:

- Vehicles were observed parking on their right turn lane on the school entrances to pick up their children. Many vehicles blocked the through lane for not having enough space to park on the right turn lane.
- Vehicles were observed to make an eastbound U-turn on westernmost school entrance to then park on the bike lane to pick up their children.
- Westbound on Pines Boulevard experienced heavy congestion.



VIEW: Looking E from NW 66 Avenue

TIME: 7:36 AM

VIEW: Looking E from NW 66 Avenue

TIME: 07:40 AM



VIEW: Looking E from NW 66 Avenue

TIME: 2:40 PM

VIEW: Looking E from NW 66 Avenue

TIME: 2:45 PM

VIEW: Looking E from NW 66 Avenue

TIME: 2:50 PM



West Hollywood Elementary School

School Info	Location:	6301 Hollywood Blvd, Hollywood, FL 33024
	City District:	East District
	School Type:	Public
Bell Schedule	Arrival:	08:10 AM
	Dismissal:	02:10 PM

Field Notes

Arrival:

- No significant congestion during arrival period.

Dismissal:

- No significant congestion during the dismissal period.



VIEW: Looking E from NW 66 Avenue

TIME: 7:56 AM

VIEW: Looking E from NW 66 Avenue

TIME: 08:10 AM



VIEW: Looking E from NW 66 Avenue

TIME: 2:10 PM

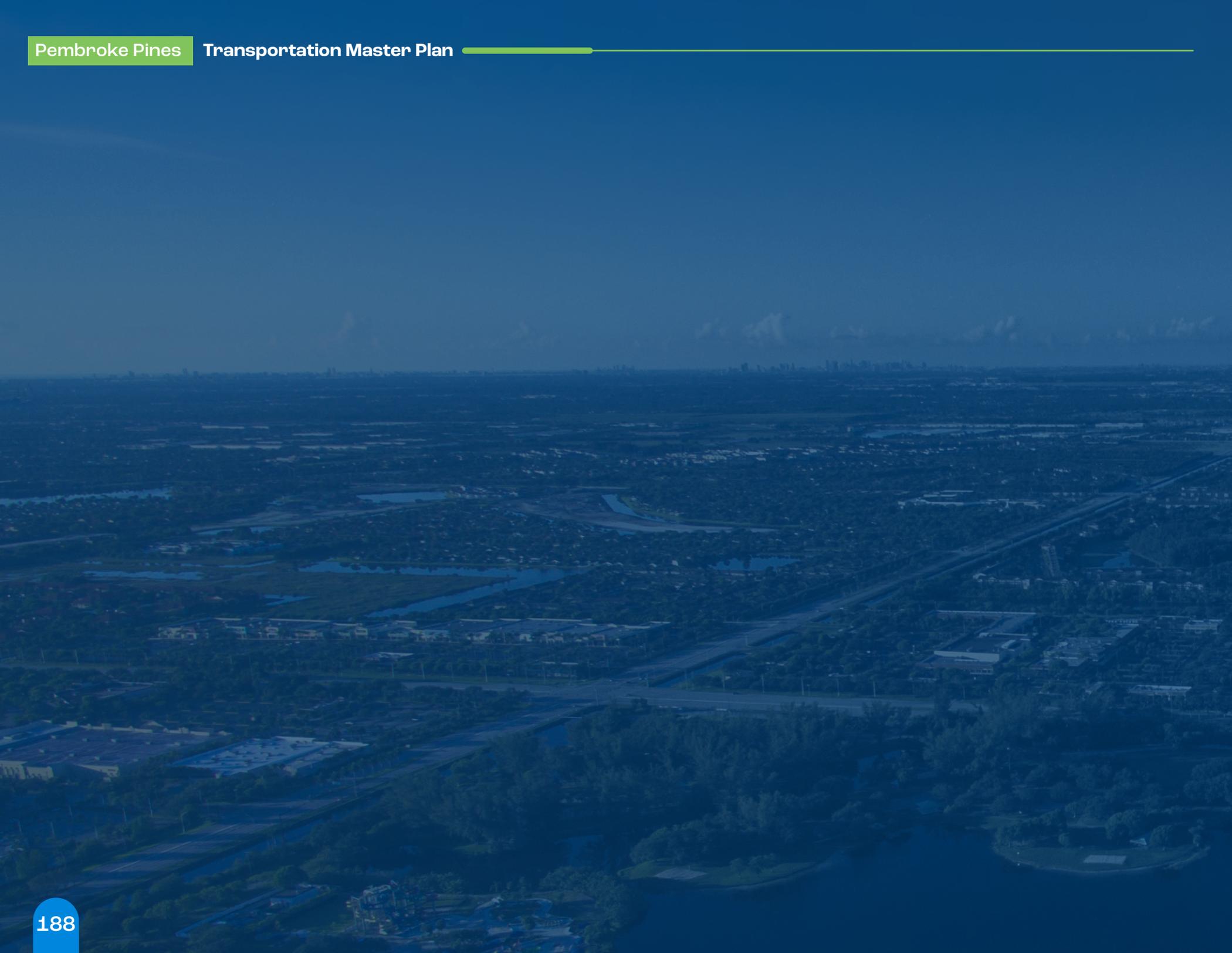
VIEW: Looking E from NW 66 Avenue

TIME: 2:15 PM

VIEW: Looking E from NW 66 Avenue

TIME: 2:20 PM





Appendix E Cost Estimate

Appendix E is provided electronically via the City's Website:
<https://www.ppines.com/1534/Transportation>