Arterial Connectivity Study along I-595 Corridor

FM#441954-1-12-01

Local Planning Actions

Technical Report #2

July 2021

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1. INTRODUCTION

1.1 Introduction

The Arterial Connectivity Study along I-595 Corridor is being conducted to identify and define transportation problems and develop effective solutions to fulfill the goal of providing better connectivity for all modes and to provide congestion relief for travel along the north-south study roadways and their access points with I-595 and SR 84. All types of improvement strategies are being considered including land use and policy strategies; geometric modifications to roadways; pedestrian, bicycle, greenway, and transit infrastructure improvements; and technology and traffic signal improvements.

The Arterial Connectivity Study along I-595 Corridor is being conducted in four main tasks as listed below. Technical Report 2 is part of Task Two and is the sixth of seven deliverables being completed for the Arterial Connectivity Study along I-595 Corridor.

- Task One – Data Collection, Compilation, Development, and Analysis
- Task Two - Develop Deficiency Mitigation Concepts (MCs) and Mitigation Measures (MMs)
- Task Three - Develop a Master Improvement List and Implementation Packages for Mitigation Measures
- Task Four – Outreach and Meetings

This Technical Report describes Local Planning Actions (LPA) which are needed to address transportation deficiencies along the north-south arterial study roadways. Local Planning Actions (LPA) are recommended actions outside of infrastructure construction improvements which can be implemented within the study area to help address deficiencies identified from the existing and future (2045) conditions analysis. The purpose of this report is to document the recommended LPAs needed to help address safety, congestion, and connectivity issues within the study area.

1.2 Study Goal and Objectives

The overall study goal is to provide congestion relief for north-south travel and improve access to and from SR 84 and I-595.

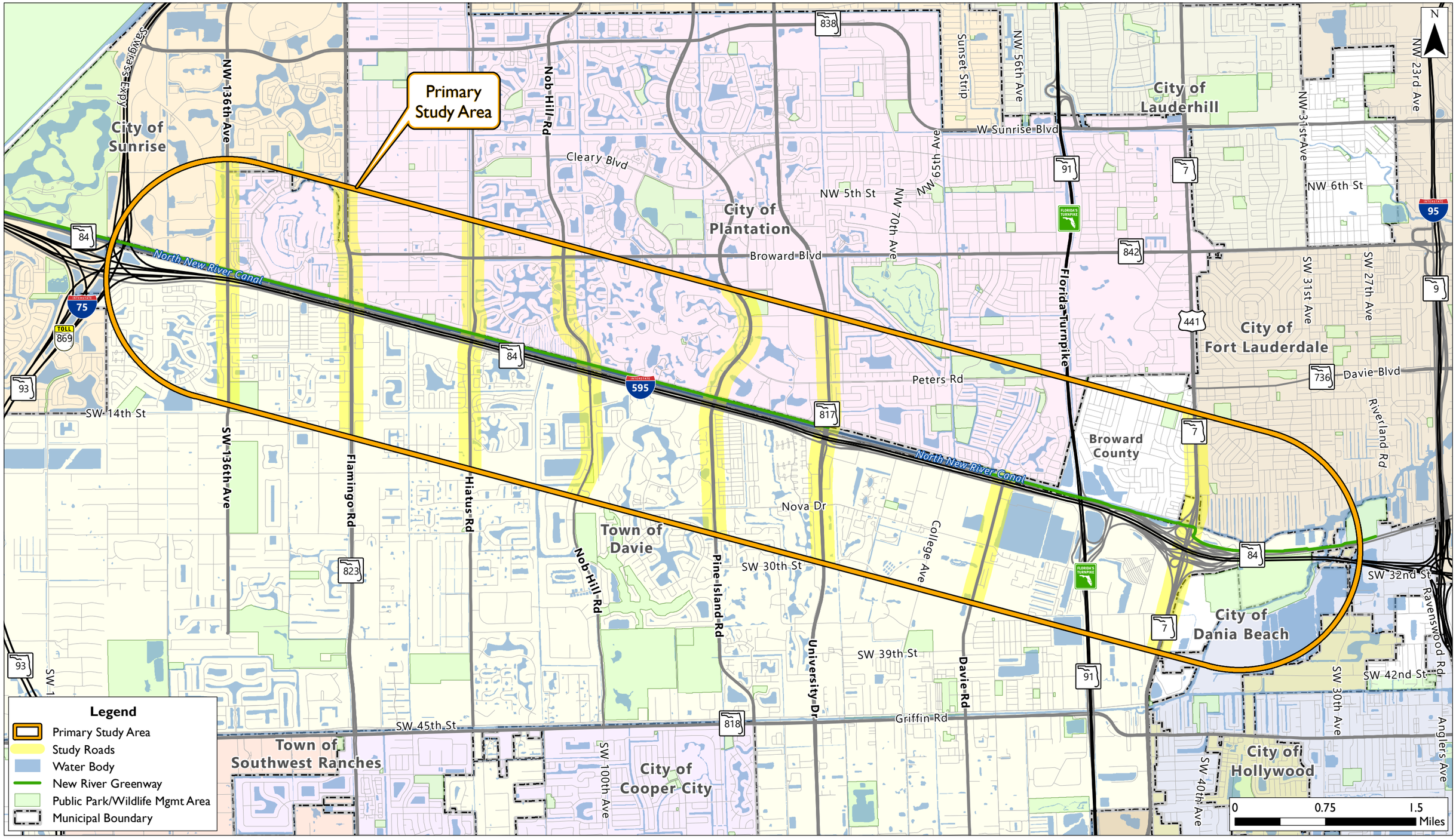
The key objectives for the study are to:

- Identify deficiencies,
- Collaborate with stakeholders to develop effective solutions, and
- Implement a plan of mitigation measures.

1.3 Study Area

The study area is in central Broward County, Florida along the I-595 and SR 84 corridor, between SW 136th Avenue and SR 7/US-441. The study limits extend approximately one mile north and one mile south of I-595 and include the eight north-south arterials that cross I-595 and SR 84. The primary study area and study roadways are shown in Figure 1-1. Below is a list of the primary study roadways along with the approximate limits on each road.

1. SW 136th Avenue from north of NW 8th Street to north of SW 14th Street
2. Flamingo Road / SR 823 from south of NW 8th Street to south of SW 15th Place
3. Hiatus Road from north of Broward Boulevard to south of SW 16th Street / S Harmony Lake Circle
4. Nob Hill Road from Broward Boulevard to SW 22nd Court
5. Pine Island Road from SW 3rd Street to south of Nova Drive
6. University Drive / SR 817 from Federated Road to SW 30th Street
7. Davie Road from I-595 / SR 84 to Broward College entrance / SW 35th Street
8. US-441 / SR 7 from SW 16th Street to Powells Road
9. SR 84 eastbound and westbound from I-75 to I-95



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Arterial Connectivity Study Along I-595
FM# 441954-1-12-01

Study Area

Figure 1-1
March 2020

1.4 Deficiency Analysis Methodology Overview

The analysis methodology for the overall study is summarized in Figure 1-2. First, the types of transportation deficiencies were identified based on traffic, safety, bicycle, pedestrian, and transit analyses. Deficiencies were also identified from input received from stakeholders and comments from the public. Next, the deficiencies were prioritized and classified into either simple or complex and either short-term or long-term deficiencies, with information regarding duration and severity considered as well.

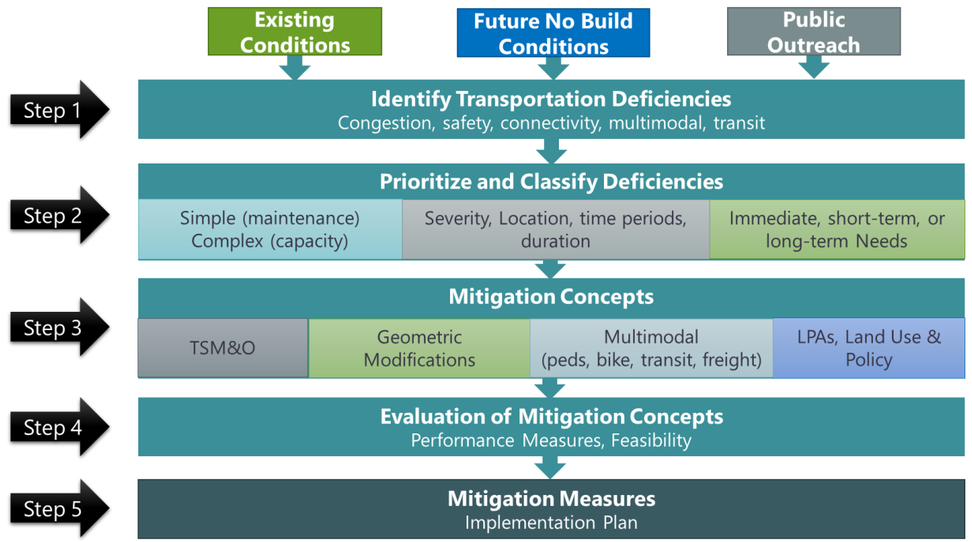
Based on the types of deficiencies and needs that were identified, various types of mitigation concepts were then brainstormed for each corridor. Among those considered were Transportation System Management and Operations (TSM&O) improvements, geometric modifications, and multimodal improvements. Where physical infrastructure mitigation concepts cannot completely address deficiencies, various Local Planning Actions (LPA) strategies were considered including land use, development, access management, safety, and travel demand management strategies.

Mitigation concepts were identified for each north-south arterial study corridor. They were analyzed from a traffic operations and safety standpoint, and conceptual design plans were then prepared. The Deficiency Mitigation Measures Technical Report #1 documents the Build Alternative traffic analysis along with the benefits for each mitigation concepts. The benefits and impacts were identified for each of the mitigation concepts. Although significant benefits are provided by the recommended mitigation concepts, they cannot fully address all deficiencies. Where the 2045 Level of Service (LOS) for the roadway segments and intersections are projected to exceed the Florida Department of Transportation (FDOT) target LOS D thresholds even with the mitigation concepts in place, LPAs were identified to further help address traffic congestion, multimodal connectivity, and safety deficiencies.

A workshop was held on April 20, 2021 with FDOT and Broward Metropolitan Planning Organization (MPO) staff to review and receive input regarding proposed LPAs. A workshop was then held with the Project Advisory Committee (PAC) on April 30, 2021 to receive their input on the feasibility and acceptability of the proposed LPAs. The initial proposed LPAs were reviewed by FDOT and MPO staff, as well as the PAC members. The recommended LPAs are documented herein as recommended Mitigation Measures.

The recommended LPA Mitigation Measures are described in more detail in the following sections of the report.

Figure 1-2: Deficiency Analysis Methodology Overview



1.5 Overview of Local Planning Actions

LPAs are recommended actions which go beyond the geometric mitigation strategies, to help address the safety, congestion, and connectivity deficiencies within the study area. The purpose of this report is to document the recommended LPAs which could be implemented to improve conditions of the north-south study arterials.

In 2020, the study team reviewed traffic volumes and data collected from various sources and documented information regarding existing and future (2045) conditions. Based on the results, three study roadways were identified as currently exceeding capacity. These roadways include sections of State Road 84 (SR 84), University Drive, and State Road 7 (SR 7). If no improvements are implemented by year 2045, the number of roadways exceeding capacity will increase from three to six and include sections of SR 84, University Drive, SR 7, Davie Road, Nob Hill Road, and Pine Island Road.

The project team identified several LPAs for locations where the travel demands will exceed the effectiveness of the short-term or long-term geometric mitigation measures being proposed. These strategies are intended to supplement the other mitigation measures recommended by the study, and will require further coordination between FDOT, Broward County and the local planning agencies to accomplish. The complete list of recommended LPAs can be found in Appendix A.

1.6 Approach

The study team utilized a multifaceted approach to identify multiple LPA recommendations within five different categories, as shown in Figure 1-3. These recommendations will help to improve safety, reduce congestion, and/or improve multimodal connectivity within the study limits. The five categories of LPAs, also known as the 5 E's, are: Engineering, Education, Encouragement, Enforcement, and Evaluation. Each of these categories is described below:

- Engineering – Designing and constructing physical or geometric changes to improve the physical environment for travelers and help increase safety, reduce congestion (delay, travel times, etc.), and/or provide better connectivity.
- Education – Improve safety, reliability, or connectivity by educating travelers to change behavior when operating or riding in a vehicle, walking, and/or bicycling.
- Encouragement – These types of strategies promote or reward positive choices or actions by others that are needed to help obtain an overall shared goal of improving safety, reducing congestion, and/or improving connectivity.
- Enforcement – Strategies of this type are punitive actions taken to compel people to comply with transportation laws and rules. They are mostly targeted at improving safety but can also help achieve other goals.
- Evaluation – This category involves actions to assess conditions and strategies to determine if they are working and meeting goals or targets.

To identify LPAs within each of these five categories, the study team reviewed resources available from the Florida Highway Administration (FHWA) and other various sources to identify best practices from different agencies and municipalities dealing with similar issues throughout the country. A list of forty-eight LPA recommendations was developed based on the needs and conditions of the study area. These recommendations were categorized based on the five E's. Each of these recommendations was then scored based on benefit potential, as well as level of difficulty to implement on a scale of high, medium, or low. The list of recommendations was identified as Tier One LPAs. A list of the Tier One LPAs is provided in Appendix A.

The study team then narrowed down the Tier One list and developed a smaller Tier Two list of LPA recommendations. The nine Tier Two LPA recommendations are shown in Table 1-1. Each of the nine Tier Two LPA recommendations is fully described in Section 2 of this report.

Figure 1-3: Five Categories of LPAs

Table 1-1: Tier Two Recommended Local Planning Actions

LPA No.	Category	Best-suited Recommendations	Level of Implementation Difficulty	Level of Potential Benefits
1	Engineering	Develop Access Management	Medium	Medium
2		Implement ITS / TSM&O Strategies	High	High
3	Education	Inform of Transportation Demand Management (TDM) Strategies	Low	Medium
4		Conduct Educational Safety Campaign	Low	Medium
5	Encouragement	Encourage Transit-Oriented Development (TOD) Planning	High	High
6		Establish Regional Transportation Management Association (TMA)	High	High
7		Support Parallel Relievers	High	Medium
8	Enforcement	Increase Law Enforcement	Low	Medium
9	Evaluation	Track LPAs and Performance Measures	Low	Medium

1.7 Summary of Unmitigated Deficiencies and Unmet Needs by Location

Deficiencies identified from the existing and future (2045) conditions analysis include roadway and intersection capacity needs, safety improvement needs, and addressing connectivity gaps.

There are five roadways within the study limits which will not meet a LOS D through year 2045 with only infrastructure improvements. Below is a list of the locations where the roadway capacity (at a LOS D target threshold) will be exceeded based on year 2045 traffic volume projections, even with recommended roadway infrastructure improvements in place. Also, Figure 1-4 shows the locations where LPAs are needed to help further address safety, congestion, and connectivity.

- Nob Hill Road north of SR 84
- Pine Island Road north of SR 84
- University Drive north and south of SR 84
- Davie Road south of SR 84
- SR 7 north and south of SR 84

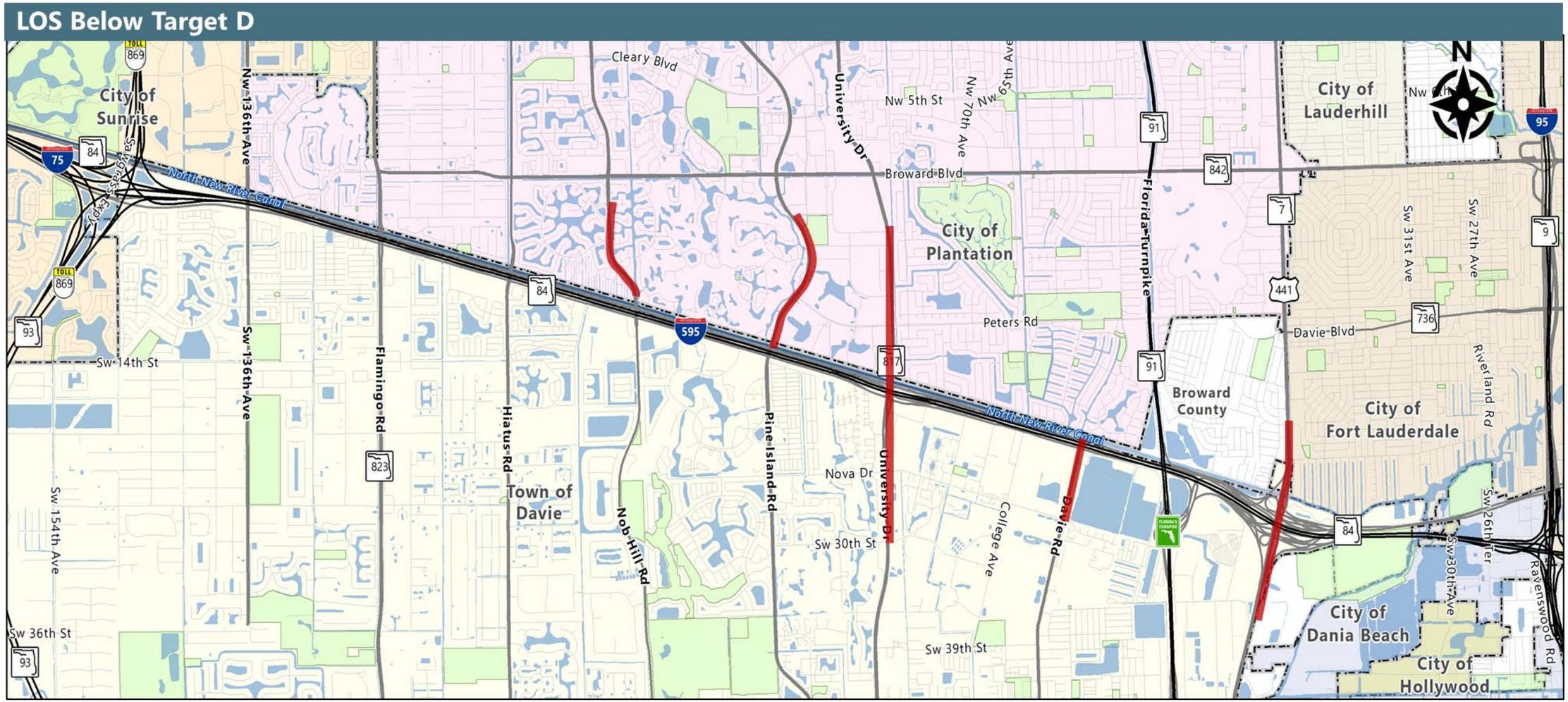
1.8 Workshop and Stakeholder Coordination

The project team hosted two virtual workshops to present the proposed LPAs and obtain input from project stakeholders and partners. Below is a list of the workshops and the meeting dates:

- Local Planning Actions Workshop with FDOT and Broward MPO staff held on April 20, 2021.
- Mitigation Concepts and Local Planning Actions Workshop with the Project Advisory Committee (PAC) held on April 30, 2021.

The input obtained from these workshops was used to help develop new ideas for LPA recommendations, determine the feasibility of the LPAs, and shape the recommended LPAs.

Figure 1-4: Locations of Unmitigated Deficiencies



2. TIER TWO LOCAL PLANNING ACTIONS

Each of the nine Tier Two recommended LPAs is classified into one of the five E categories (Engineering, Education, Encouragement, Enforcement, Evaluation), and described in greater detail below. These LPAs are recommended to help address the previously identified unmitigated deficiencies: improve safety, reduce congestion, and enhance connectivity.

2.1 Engineering

2.1.1 Develop Access Management Plans

The goal of this recommendation is to improve safety by reducing existing conflict points through consolidating existing driveways and providing shared access where appropriate. The recommended locations identified for this LPA would be along University Drive (north / south of I-595) and the east bound direction of SR 84. Implementing an access management plan in these areas would likely result in a reduction in traffic queues and crashes.

An example of this issue within the study area can be found along south University Drive between SR 84 and Nova Drive (see Figure 2-1). There are approximately 13 access points identified within a 3000-foot distance. Four of the 13 access points are signalized with approximately 500 feet between the northern two intersections and 725 feet between the southern two. This spacing does not meet FDOT access management guidelines for spacing for a roadway with Access Classification 3. Per the FDOT Access Management Guidebook, the recommended spacing standard and distance from other connections for this section of University Drive should be at least 660 feet apart. The minimum recommended signal spacing is 2,640 feet.

To accomplish this goal, it will first require FDOT to develop an Access Management Plan in coordination with Broward County and the local municipality in this area (Town of Davie). Next, it requires each agency to cooperatively request or require new or redevelopment applications to comply with the Access Management Plan, and for future driveways to be designed and constructed in the optimal locations.

The level of difficulty compared with the other recommended LPAs is high and the benefit potential of this recommendation is medium.

Figure 2-1: Example Location Where Access Management Plan is Recommended

Existing University Drive south of I-595

2.1.2 Implement Transportation Systems Management and Operations (TSM&O) Strategies

Transportation Systems Management and Operations (TSM&O) is a set of strategies that focus on operational improvements that can help optimize the performance of the existing transportation facilities to maintain or improve performance. These types of strategies are relatively low cost, however, implementing these strategies will require stakeholder coordination making it more difficult to implement. TSM&O is an integrated set of strategies, and performance is considered from a systems perspective, not just one strategy, project, or corridor individually. These strategies are needed to preserve capacity, improve safety, and improve reliability of the transportation facilities. TSM&O strategies are not only useful for improving operations for vehicles on roadways, but can also be useful for improving bicycle, pedestrian, and transit mobility.

The TSM&O strategies recommended for the study roadways to help address congestion and safety are traffic signal optimization, and active traffic management (ATM). Both would require additional coordination with and involvement from local partner agencies. Additional detail regarding recommended TSM&O strategies is provided in Technical Report #1.

Traffic signal optimization involves implementing improved time settings for traffic signal controllers which govern the operation of the traffic signals. Optimizing traffic signal timings can produce noticeable benefits to the traveling public and will reduce congestion, fuel consumption, and travel times. Signal optimization can be done in various ways. One way is through traditional signal optimization studies typically performed once every few years, which rely on a set of static traffic volume data. Another way is through adaptive signal control technology which can continuously help optimize signal timings based on real-time, dynamic traffic demand. Traffic optimization for the study corridors should also take into consideration the volume of pedestrians and bicyclist utilizing these corridors. The goal is to synchronize traffic signals to help reduce the number of times vehicles must stop, and to reduce the length of time vehicles, pedestrians, and bicyclists must wait at each traffic signal.

Traffic signal optimization will lead to a reduction in vehicular stops and delays and help to improve travel times along these corridors resulting in safer and more efficient corridors. This TSM&O strategy is recommended to continue being implemented on a regular basis by Broward County in coordination with FDOT for each of the eight north-south study arterials as well as SR 84. With traffic volumes expected to increase every year, if adaptive signal control is not employed, then manual signal optimization is recommended to be implemented at least every two to three years. Recommended performance measures to use for measuring the success of this strategy once implemented are driver satisfaction, delay, throughput, and travel time.

ATM is the ability to dynamically manage recurrent and non-recurrent congestion through real-time traffic monitoring. This recommendation involves establishing an integrated corridor management network and installing devices in the field that can continuously collect information regarding traffic conditions on the study roads. It also involves installing devices that can convey information to drivers or change traffic controls dynamically in the field. In addition, an operator(s) is required at the local Traffic Management Center (TMC) to actively monitor and take actions to react to real-time changing traffic conditions. A photo of the TMC is shown in Figure 2-2.

Figure 2-2: Transportation Management Center

ATM will allow the study roadways to be actively monitored and managed. There are multiple types of management strategies that can be employed as needed. It is recommended to begin with an initial set of strategies that will provide the ability to deploy informational messages to drivers on dynamic message signs (DMS), and to remotely change traffic signal timings, speed limits, and lane control signs as needed. A picture of a DMS sign is shown in Figure 2-3.

Figure 2-3: Dynamic Messaging Sign

The goal of these initial strategies is to provide opportunity to warn drivers of accidents or congestion ahead and shift some traffic to less congested routes during high traffic periods, during construction, or during incidents. This recommendation will help to address congestion and safety issues. An integrated corridor management network should be planned for the study area that will also allow for expansion and additional management strategies to be implemented as appropriate. This is expected to include Transit Signal Priority (TSP) for future high-capacity transit corridors such as University Drive or SR 7.

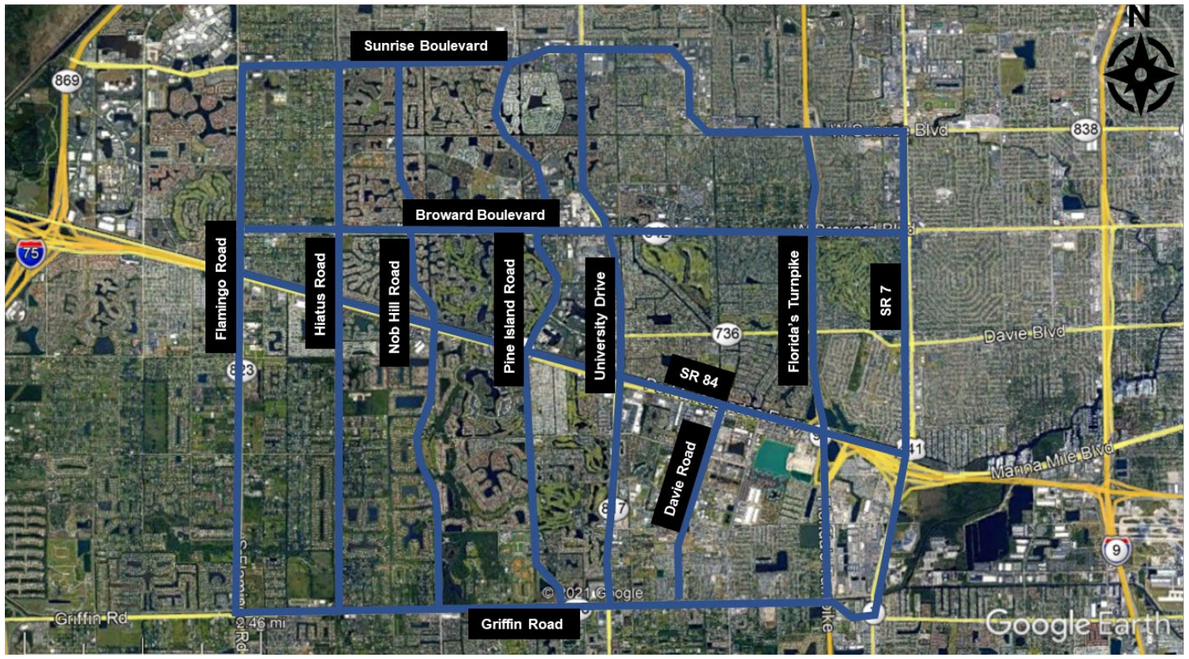
An integrated corridor management network of roadways was defined for the study area, based on physical characteristics of the roadway network and locations of roads outfitted with existing Intelligent Transportation Systems (ITS) devices. The recommended integrated corridor management network is shown in Figure 2-4 and is bounded by Sunrise Boulevard to the north, Griffin Road to the south, Flamingo Road to the west, and SR 7 to the east. The proposed network is primarily intended to manage traffic along the north-south study corridors which extend between Sunrise Boulevard and Griffin Road. The roads to be included in the network are: Flamingo Road, Hiatus Road, Nob Hill Road, Pine Island Road, University Drive, Davie Road, and SR 7. The portions

of the freeway facilities that surround and cross through the area are also recommended to be included. These are: I-75, I-595, and Florida's Turnpike.

The primary stakeholder responsible for taking the lead to implement the integrated corridor management network strategy would be FDOT. Planning and funding for the integrated corridor management network should be closely coordinated with Broward County Traffic Engineering, Broward County Transit, and the municipalities, to ensure all needs are met and appropriate funding is provided.

The level of benefit to the study area and the north-south arterials is ranked as high. This study area is expected to remain one of the most critical areas within Broward County for congestion and high volume of traffic. It is a key transportation area in South Florida that can benefit from active traffic management. The level of difficulty of implementation is ranked as high, due to the level of coordination needed and because additional planning, funding, design, construction, and operations and maintenance costs is needed. To successfully implement these strategies, it will require funding to first install fiber optic cable missing from the proposed integrated corridor management network along these roadways. The fiber optic cable is needed to provide communication between the devices and the people that will monitor the devices at the TMC.

Figure 2-4: Integrated Corridor Management Network



2.2 Education

2.2.1 Transportation Demand Management (TDM) Information and Ordinances

Transportation Demand Management (TDM) programs focus on changing or reducing travel demand particularly in peak hours. These programs are often associated with providing incentives and strategies in areas of large clusters of employment to encourage travelers to utilize the various transportation systems in ways that will reduce the number of trips along these roadways resulting in less congestion.

This recommended local planning action is for the municipalities to distribute TDM information to local communities, and for local agencies to develop TDM ordinances where appropriate. The goal of distributing TDM information is to encourage commuters to try carpooling and other modes. In addition, TDM ordinances passed by local governments can encourage developers to incorporate strategies into their design and operations that will encourage commuters to consider other modes of travel or carpooling. This local planning action will further reduce congestion on the overcapacity study roadways, and enhance connectivity,

To accomplish this recommendation, it will require developing ways to educate local employers and employees on existing TDM strategies for them to utilize to reduce traffic and parking issues. It is recommended for local municipalities to develop TDM programs which will encourage local businesses (employers and employees) and developers to participate in strategies and services such as providing ride sharing options (carpools, van pools, and bus pools), public transit improvements, transit subsidies, businesses offering flex time to employees, businesses providing telecommuting options for employees, commuter van services etc. South Florida Commuter Services (SFCS) is a commuter assistance program funded by the FDOT to provide travel choices to ensure mobility, sustain the quality of the environment, and preserve community values a reduce energy consumption. The purpose of this program is to utilize various TDM strategies to reduce vehicle miles traveled. This group can help share TDM information and support municipalities with TDM strategies and ordinances.

The primary stakeholders responsible for this recommendation are the municipalities in the study area with over capacity roadway corridors: the City of Sunrise, City of Plantation, and Town of Davie. SFCS will also be an important partner in this effort and will be able to provide guidance based off their existing programs. FDOT, Broward County, and the Broward MPO can help support the municipalities with this LPA.

This recommendation is most applicable to the University Drive corridor which has a high-density, mixed-use development cluster located in the Plantation Midtown area north of SR 84. South of SR 84, it provides access to dense shopping centers and the South Florida Education Center south of Nova Drive. Another applicable area is the Davie Road corridor south of SR 84, which also provides access to the South Florida Education Center.

The level of implementation difficulty for sharing TDM information with communities and businesses is expected to be low, especially if resources from SFCS are utilized. It is recommended for the municipalities to contact SFCS to obtain assistance with distributing TDM information and developing TDM ordinances. It is expected to take longer and be more difficult for a municipality to adopt a new TDM ordinance, as elected officials would need to be briefed, and would then need to vote to pass a new ordinance. The benefit potential for these recommended local planning actions is a medium impact when compared with the other local planning actions. These are beneficial actions that can be implemented over time and should continue to be an initiative to provide people with options for travel.

2.2.2 Safety Education Campaign

Education and outreach are critical components to raise public awareness and promote safer practices for driving, bicycling, and walking. Since there are many hotspot locations with a high number of pedestrian- and bicycle-related crashes within the study area, mostly along University

Drive and SR 7, this local planning action is recommended to try to reduce crashes and improve safety. The goals of this recommendation are to:

- Educate the public on driver laws and safe driving behaviors through media informational campaigns, like FDOT's safety program "Put it Down Distracted Driving Campaign" to promote safer driving practices and combat aggressive driving in the study area.
- Provide information to communities and schools regarding bicycle and pedestrian safety laws and safe practices, especially for school children to learn how to safely cross the street.

Accomplishing this will require coordination with the local municipalities, schools, and planning committees to promote safe walking and biking particularly in areas with high pedestrian and bicycle activity. The areas where targeted outreach is recommended are communities and schools near high crash areas such as University Drive near the South Florida Education Center, and SR 7 north of I-595. This local planning action could be done through public awareness campaigns conducted by the municipalities and possibly through partnerships with the MPO, FDOT, or other stakeholders. Campaigns such as FDOT's safety initiative "Put it Down Distracted Driving Campaign" or the Safe Routes to Schools campaigns may be able to assist. Schools may be able to disseminate information through their social media platforms and could develop school programs to educate the children and local communities. In addition, temporary signs could be posted along key roadways to promote the campaign and safe driving, walking and biking practices.

The primary stakeholder required to accomplish this recommendation would be the municipalities in coordination with Broward County, the Broward MPO, FDOT, and the schools themselves.

The level of difficulty of implementation for this recommendation is low as it may be done through existing partnerships and can be accomplished for relatively low costs. The benefit potential is medium, as it can reach many people to promote safer travel.

2.3 Encouragement

2.3.1 Coordinate with Broward County Transit and Encourage Transit Oriented Development

Transit oriented development (TOD) is a dense, walkable area with mixed-used (commercial, residential, and office) developments centered around or within proximity to transit stations. This recommendation is for the municipalities to coordinate with Broward County Transit (BCT) as they begin work on a Transit Systems Plan and to encourage transit oriented developments or redevelopments in areas with plans to offer premium transit services and in areas with higher transit ridership. The mixed-use development that is part of TOD will encourage people who live in that area to use modes other than single-occupancy vehicles, and the proximity to transit stops or stations will encourage commuters to utilize the transit services being offered. This LPA strategy could reduce individual vehicular trips and reduce congestion in these areas.

Based on past plans developed by FDOT and the Broward MPO, premium transit services are anticipated along eastbound SR 84, University Drive, and SR 7 within the study area. In addition, these corridors have some of the higher density development, and higher levels of congestion. Therefore, these are the corridors within the study limits where TOD may be most effective in helping to reduce trips and congestion, while providing alternative travel choices and better connectivity for people. Moving forward, it is important to coordinate with BCT regarding updated plans for premium transit which are expected to come from the Transit Systems Plan.

The primary stakeholders needed to implement this recommendation are the local municipalities (City of Plantation, Town of Davie, City of Fort Lauderdale, and City of Sunrise), Broward MPO and BCT.

The level of difficulty of implementation for this recommendation is low. It will require municipalities to review their land use plans and development codes to help facilitate land use or site plan changes where appropriate. High-density development currently exists in the Plantation

Midtown area along University Drive. A rendering of the Plantation Midtown Transit Oriented Development is shown in Figure 2-5 below. The Plantation Midtown Square is in central Plantation and bounded on the north by Cleary Boulevard, south by Interstate 595, east by University Drive, and on the west by Pine Island Road.

The benefit potential of this LPA is high, as this is a critical component to making premium transit a viable option within the study area, which can in turn reduce trips on the roadways and help alleviate congestion.

Figure 2-5: Rendering of Plantation Midtown Transit Oriented Development

Plantation Midtown Square Rendering

2.3.2 Transportation Management Association or Working Group

The goal of this recommendation is to establish a Transportation Mobility Association (TMA) or working group which would focus on evaluating and addressing mobility and congestion issues within the study area and moving the LPA recommendations forward. This Transportation Mobility Association (TMA) or working group will regularly review the status of planned and needed improvements for given areas, evaluate the effectiveness of implemented recommendations, and determine the need for other mobility improvements. Such a working group can ensure that recommended actions are taken to continue addressing the identified safety, congestion, and connectivity issues in the study area, especially since it is a long-term plan to address the issues which requires coordination between multiple agencies.

Accomplishing this recommendation will require first establishing the working group that spans multiple municipalities/jurisdictions, its members, its authority, and area of focus, as well as coordination with existing working groups to identify best practices. There are two existing local working groups identified as in Broward County; the Fort Lauderdale Transportation Mobility Association (TMA) and the South Florida Educational Center Transportation Mobility Association (SFEC TMA). It is recommended to explore whether it would be possible to expand the one of the existing TMAs to cover some or all the study corridors. It is recommended that the working group or TMA cover at a minimum University Drive north and south of I-595 to include the Plantation Midtown area, and NW 136th Avenue north and south of I-595 including the Sawgrass Corporate Business Park area.

Establishing a new working group will be difficult to implement due to the challenges associated with finding a champion to lead the working group and funding the working group. It may be difficult to find a champion to lead the working group and funding for the working group. That is why it may be easier to work with an existing group such as the SFEC TMA or the Fort Lauderdale TMA, which could consider expanding its boundaries to cover applicable corridors within the study limits. Although the implementation difficulty may be high, the benefit would also be high of

implementing a working group to continue focusing on the issues within the study area. This group would help ensure that long-term recommendations are being implemented and tracked, and progress is made with respect to addressing the issues of safety, connectivity, and congestion.

2.3.3 Parallel Roadway Relievers

This recommendation is to support the use of existing parallel relivers, and to develop parallel relievers to provide more north / south roadway connections, and multimodal connections for bicyclists, pedestrians, and transit users. The goal of this LPA is to enhance the efficiency of the current transportation network and help to address congestion and connectivity issues.

It is recommended for the FDOT, Broward MPO, Broward County, and municipalities to support the use of existing parallel roadway relievers, and for municipalities to implement new parallel roadway relievers where feasible to help address congestion on existing north-south study roads and improve connectivity. There are multiple existing roadways that already act as beneficial parallel relievers to the north-south study roadways. These existing parallel relievers should continue to be maintained and their connections to the adjacent roadway network should be maintained, so they may continue to serve as parallel routes. If they cannot continue serving as parallel routes, it is expected this will negatively impact the north-south study roadways. The roadways which serve as existing parallel relievers are listed below.

<u>Existing Parallel Roadway Relievers</u>

- International Parkway, a local road located north of SR 84, west of NW 136th Avenue, and connecting to westbound SR 84
- Commodore Drive, a local road located north of SR 84, east of NW 136th Avenue, and connects to westbound SR 84
- SW 130th Avenue, a local road located south of SR 84, east of NW 136th Avenue, and connects to eastbound SR 84
- Pine Ridge Drive, a local road located south of SR 84, west of Pine Island Road, and connects to eastbound SR 84
- SW 81st Avenue, a local road located south of SR 84, west of University Drive, and connects to eastbound SR 84
- College Avenue, a local road located south of SR 84, west of Davie Road, and connects to eastbound SR 84

The other part of this recommendation is to support the implementation of new parallel roadway relievers to help address congestion on the north-south study roads. The City of Plantation is currently conducting a PD&E Study to evaluate the conceptual design and environmental impacts of a new Midtown Bridge, which would connect SW 17th Street across the New River Canal to westbound SR 84. A preliminary model run was completed and the change to the Annual Average Daily Traffic (AADT) for roadways within the vicinity of the bridge was documented in a *Midtown Bridge Traffic Data and Traffic Projections Technical Memorandum* dated September 2020. The proposed Midtown Bridge was evaluated from a daily traffic perspective, and it was found that it could provide a benefit to University Drive and Pine Island Road north of SR 84, by reducing the daily traffic on those roads by approximately 10%. Figure 2-6 which shows the approximate location of the proposed bridge and the benefits to Pine Island Road and University Drive.

Figure 2-6: Proposed Midtown Bridge

Through research the study team also found a concept for a spine road or main street to be created, within the Midtown Plantation area. The concept was considered by the City of Plantation in 2017. This concept would be an effective alternative route that could work in tandem with the Midtown Bridge to provide an even more attractive parallel relieve route for vehicles, pedestrians, bicyclists, and transit to use in lieu of University Drive and Pine Island Road. The proposed spine road concept would provide an alternative route for local trips to travel north-south between Peters Road and Broward Boulevard providing access to the residences, offices, and retail developments in this area. A conceptual diagram of the spine road concept available from a 2017 City of Plantation City Council presentation is shown in Figure 2-7. To implement this would be the responsibility of the City of Plantation working together with developers in the area. They would need to redesign and improve the existing roadway connections including SW 10th Street, SW 78th Avenue, Federated Road, and Perimeter Road. This would allow the local area to experience the benefits of having a slower, safer alternative route for local trips, while reducing congestion on University Drive and Pine Island Road.

Figure 2-7: Plantation Midtown Spine Road Concept

Source: February 2017 City of Plantation City Council Presentation

The roadways which are recommended to serve as new parallel relievers are listed below.

New Parallel Roadway Relievers

- Midtown Bridge, a planned bridge, located north of SR 84, west of University Drive and east of Pine Island Road, connecting across the New River Canal to westbound SR 84.
- Spine road (or main street) concept, a local road with sidewalk and bicycle lanes, envisioned to connect from Peters Road to Broward Boulevard, located between University Drive and Pine Island Road

The level of difficulty of implementation for this recommendation is high, given that this recommendation will require support from the local elected officials, and cooperation of private landowners or developers. It also requires funding, and time to plan, design, and construct new parallel relievers. The level of benefit is medium only because the volume of traffic that these routes may be able to reduce from the north-south arterials could be at least 10% and possibly more if implemented in connection with a spine road through Midtown Plantation. However, these new relievers could provide numerous other benefits to the community, not just addressing connectivity, congestion, and safety along the north-south study roads.

2.4 Enforcement

2.4.1 Law Enforcement to Address Speeding and Aggressive and Reckless Driving

The primary goal of this recommendation is to improve safety throughout the study limits. This LPA recommendation requires partnering with local law enforcement agencies to address drivers who are speeding or driving aggressively or recklessly, and as a result putting themselves and others at risk. This method is meant to penalize drivers for unsafe driving to improve safety issues identified throughout the study limits. Based on the crash data obtained from Florida's Crash Analysis Reporting (CARS) for 2013-2017, Signal Four Analytics for 2014-2018, and feedback received from an online public survey conducted in the summer 2020, there is a high level of vehicular crashes occurring along many of the corridors within the study limits. The recommended areas of applicability for this LPA include University Drive, SR 7, SW 136th Avenue, Pine Island Road, Davie Road, and SR 84. Increasing law enforcement presence along these corridors will help reduce reckless driving and address speeding in the area.

This will require time to be dedicated by each municipality's police departments and/or Broward County Sheriff's Department to send officers to the field to pull over drivers who do not obey the law and write tickets, and/or to place speed monitoring devices in locations to combat speeding and reckless driving. The level of difficulty of implementation for this recommendation is low since it could be done with existing resources. The benefit potential is medium, as it can decrease poor driving behavior for the time when officers are present but may not have a lasting impact if not conducted regularly.

2.5 Evaluation

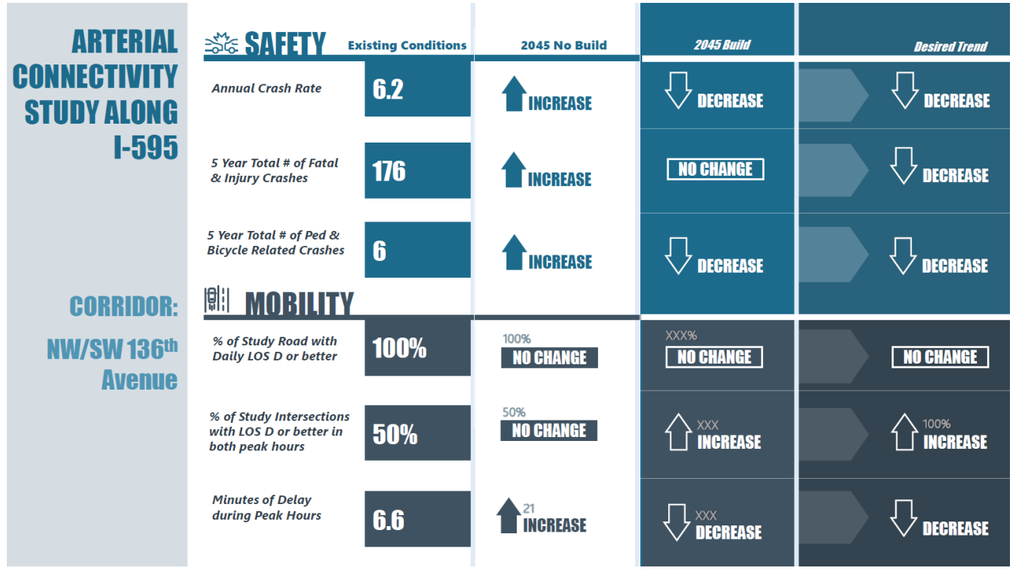
2.5.1 Track Study Performance Measures

This recommendation is to track the ongoing progress of addressing the congestion, safety, and connectivity issues identified in the Arterial Connectivity Study along I-595 Corridor. From the study, multiple roadways, pedestrian, bicyclist, and transit infrastructure improvements are proposed, along with TSM&O, and other LPA recommendations. The purpose of this recommendation is to evaluate the progress and effectiveness of these recommendations once the study is completed and as the recommendations are implemented to capture how well the recommendations are helping to reach the desired outcome. As part of the study, performance measures such as travel time, delay, level of service, volume-to-capacity, and frequency of crashes were reported for the existing conditions, estimated 2045 No Build condition, and Build Condition with infrastructure improvements in place. The recommended action of this LPA is to regularly assess the existing conditions to show how conditions are worsening or improving before and after recommended improvements are put into place. This is intended to demonstrate and measure the actual progress that is made over time with addressing the issues within the study area.

To accomplish this recommendation requires one of the stakeholder agencies (FDOT, the Broward MPO, or the recommended Working Group) to regularly measure and report performance of the study corridors. It is recommended to regularly track and report at a minimum: level of service, volume-to-capacity, and 5-year average crash frequency for each of the 8 north-south corridors, and SR 84. Figure 2-8 shows an example performance dashboard which could be developed and used to track the performance of each roadway.

This recommendation applies to all study corridors with the study limits. It is intended to help continue to address congestion, safety, and connectivity issues over the long term. The level of difficulty of implementation for this recommendation is low since it could be accomplished through standard annual reporting done by FDOT, the Broward MPO, or the municipalities. It is expected to have a medium benefit potential, as it is critical that improvements and progress are tracked so that leaders are regularly made aware of what is being accomplished to meet the goal, and what remains to be accomplished. It is important to continue implementing recommended improvements to encourage further economic development opportunities and to provide safe and efficient transportation facilities for the people who live and work in this area.

Figure 2-8: Example Performance Measure Dashboard



3. SUMMARY OF RECOMMENDATIONS

This Local Planning Action Technical Report 2 documents the nine Tier Two recommended Local Planning Actions (LPA) to improve conditions of the north-south study arterials. This group of LPAs contains recommendations outside of infrastructure construction improvements which can be implemented to help supplement these recommended improvements. These recommended LPAs if implemented would help address deficiencies identified from the existing and future (2045) conditions analysis.

The LPAs developed and documented herein are recommended as Mitigation Measures to further address deficiencies along these study corridors. Deficiencies identified from the existing and future (2045) conditions analysis include roadway and intersection capacity needs, safety deficiencies, and gaps in multimodal connectivity. Traffic analysis indicates the following roadways will have year 2045 traffic volumes that exceed the daily generalized roadway capacity.

- Nob Hill Road north of SR 84
- Pine Island Road north of SR 84
- University Drive north and south of SR 84
- Davie Road south of SR 84
- SR 7 north and south of SR 84

A list of Tier One LPA recommendations was developed. From that list, a list of the top ranked Tier Two LPA recommendations was developed. LPAs that are expected to have significant benefit and that would be relatively simple to implement were included as part of the Tier Two LPAs presented in this report. The information presented herein defines each of the nine Tier Two LPA recommendations, describes how each can be implemented, and identifies the potential level of difficulty, potential level of benefit, and recommended stakeholder agency involvement associated with implementing each recommendation. The recommended Tier Two LPAs are listed below.

Table 3-1: Tier Two Recommended Local Planning Actions

No.	Recommendations
1	Develop Access Management Plans
2	Implement Transportation Systems Management and Operations (TSM&O) Strategies
3	Transportation Demand Management (TDM) Information and Ordinances
4	Safety Education Campaign
5	Coordinate with Broward County Transit and Encourage Transit-Oriented Development (TOD)
6	Transportation Management Association (TMA) or Working Group
7	Parallel Roadway Relievers
8	Law Enforcement to Address Speeding and Aggressive and Reckless Driving
9	Track Study Performance Measures

APPENDICES

APPENDIX A – Complete List of Local Planning Actions Considered

Arterial Connectivity Study along I-595 Corridor

LPA Category	LPA Purpose	LPA Ref. No.	Specific Strategy/Policy Recommendation	Target Deficiency Area	Responsible Party	Difficulty of Implementation	Potential Benefit
Engineering	Reduce traffic queues	1	Developing an access management plan for FDOT-owned corridors	- Congestion - Safety	- FDOT	Medium	Medium
	Minimize the number of failing intersections	2	Conducting a signal optimization and/or Arterial Traffic Management System (ATMS) study to determine if changes in signal timing or regular optimization schedule are needed	- Congestion	- FDOT - County - Municipalities	Medium	Low
	Enhance the efficiency of the current transportation network	3	Supporting the deployment of infrastructure, software, and operations and maintenance funding to implement ITS, TSM&O, and SMART City strategies	- Congestion	- FDOT - County - Municipalities	Medium	Medium
Education	Promote Transportation Demand Management (TDM) strategies	4	Providing TDM (carpool, vanpool, and transit) information to local communities	- Congestion - Connectivity	- Municipalities - SF Commuter Services	Low	Medium
		5	Appointing a TDM Coordinator for large developments or employment centers			Medium	Medium
	Conduct community visioning exercises	6	Conducting public workshops to inform local communities of options and gather feedback on preferences and ideas related to new development and alternative transportation	- Congestion - Connectivity	- FDOT - MPO - Municipalities	Medium	Low
	Increase public awareness of major roadway construction projects	7	Working with employers and utilizing online outreach to circulate notices and updates	- Congestion	- FDOT - County - Municipalities	Low	Medium
	Increase public awareness of nearby school zones and high pedestrian areas	8	Providing and promoting temporary educational signage or informational materials to make drivers aware of school zones, high pedestrian/bicycling areas, and appropriate safe driving behavior	- Safety	- FDOT - MPO - County - Municipalities	Low	High
		9	Teaching programs for students to learn safe practicies for bicycling and walking near roadways			Medium	Medium
		10	Conducting an outreach campaign using local media to reinforce the importance of careful driving when children are present			Low	Medium
	Conduct regular analysis of sub areas for information about traffic conditions and travel patterns.	11	Conducting regular master planning for activity centers and adjacent congested areas to determine location-specific solutions	- Congestion - Connectivity	- MPO - Municipalities	Medium	Medium
		12	Providing planning grants to encourage study efforts or pilot programs for Smart Growth developments	- Connectivity	- MPO - Municipalities	High	Medium
	Provide travelers with Intelligent Transportation System (ITS) information.	13	Installing real-time traveler information signage in congested areas or areas with frequent special events.	- Congestion	- FDOT - County - Municipalities	Medium	Low

Low - easy to implement; low benefit potential
Medium - moderately difficult to implement; moderate benefit potential
High- difficult to implement; high benefit potential

LPA Category	LPA Purpose	LPA Ref. No.	Specific Strategy/Policy Recommendation	Target Deficiency Area	Responsible Party	Difficulty of Implementation	Potential Benefit
Encouragement	Provide concentrated density and mixed-use development in appropriate locations	14	Amending the County Land Use Plan to permit additional residential density in areas designated as Commerce and Activity Center	- Congestion - Connectivity	- County - Municipalities	High	Medium
		15	Expanding the Activity Center Future Land Use designation to also include other high-activity commercial areas	- Congestion - Connectivity	- County - Municipalities	Medium	Medium
		16	Amending land development codes and site plan review processes to better utilize Smart Growth principles and form-based code	- Connectivity	- Municipalities	High	High
		17	Providing tax credits or streamlined review processes to developers for concentrated, mixed-use development in strategic areas	- Connectivity	- Municipalities	High	High
		18	Prioritizing new development and redevelopment to existing/planned downtowns	- Connectivity	- County - Municipalities	Medium	High
		19	Coordinating with the Broward County Transit Systems Plan to determine locations for promoting Transit-Oriented Development (TOD) with high-density housing around major transit stop/hub locations	- Connectivity	- County - Municipalities	Low	High
		20	Adopting a Trip-Reduction Ordinance for new or existing development	- Congestion	- Municipalities	High	High
	Create additional multimodal mobility options	21	Creating a regional Transportation Management Association (TMA) that can span mulitiple municipalities	- Congestion - Connectivity	- MPO - County - Municipalities	High	High
		22	Incentivizing or requiring safe and accessible multimodal and non-motorized facilities consistent with Complete Streets guidelines	- Connectivity	- Municipalities	Low	Medium
		23	Incentivizing or requiring better connectivity, site circulation, and pedestrian facilities that integrate with nearby transit stops and non-motorized facilities	- Connectivity	- Municipalities	Medium	Medium
		24	Creating a transportation map overlay in target areas for multimodal-ready development patterns and facilities	- Connectivity	- County - Municipalities	Low	Medium
		25	Utilizing existing or new park-and-ride lots to incentivize commuters to access congested areas using circulator services or non-motorized facilities that avoid roadway congestion	- Congestion - Connectivity	- FDOT - County - Municipalities	Low	Medium

Low - easy to implement; low benefit potential
Medium - moderately difficult to implement; moderate benefit potential
High- difficult to implement; high benefit potential

LPA Category	LPA Purpose	LPA Ref. No.	Specific Strategy/Policy Recommendation	Target Deficiency Area	Responsible Party	Difficulty of Implementation	Potential Benefit
Encouragement		26	Creating or modifying TDM ordinances to promote different ways of commuting or reducing trips.	- Congestion	- Municipalities	High	Medium
		27	Seeking new funding sources for multimodal mobility options	- Connectivity	- County - Municipalities	High	High
		28	Creating a requirement for transit circulators for large developments or groups of developments	- Congestion - Connectivity	- Municipalities	High	Medium
		29	Creating Public-Private Partnerships with ridesharing companies	- Congestion - Connectivity	- County - Municipalities - SF Commuter Services	Medium	Medium
		30	Establishing Transit Encouragement Programs with incentives to use transit services for commuting	- Congestion - Connectivity	- County - Municipalities - SF Commuter Services	Low	Medium
		31	Implementing demand-responsive paratransit services within proximity to major activity centers	- Congestion - Connectivity	- County - Municipalities	Medium	Medium
	Reduce unneeded and unused parking space	32	Establishing a parking management program to monitor opportunities for shared parking	- Congestion - Connectivity	- Municipalities	Medium	Medium
		33	Establishing a parking cash-out program for employees to provide a stipend to incentive them to switch to other modes	- Congestion - Connectivity	- Municipalities	Medium	Low
		34	Evaluating scenarios for changes to parking pricing	- Congestion - Connectivity	- Municipalities	Low	Low
	Incentivize businesses and employees to implement demand-reduction strategies	35	Implementing strategies such as telecommuting, staggered or alternative work days/times, flextime-friendly schedules, and off-peak driving rewards, transit vouchers, parking cash out programs, and carpool/vanpool programs with free gas, closer parking rewards, and online people-matching services	- Congestion - Connectivity	- Municipalities - Employers - SF Commuter Services	Low	Medium
	Improve local street and non-motorized facility continuity and connectivity	36	Identifying opportunities for additional connectivity within existing roadway and non-motorized network	- Congestion - Connectivity	- County - Municipalities	High	Medium
		37	Supporting City of Plantation efforts to plan and develop: A new “Midtown Bridge” from SW 17th St/SW 80th Ter/SW 78th Ave to SR 84 across the New River Canal, and A “North-South Spine Road” in the Plantation Midtown area between Pine Island Rd and University Dr	- Congestion - Connectivity	- Municipalities	High	Medium

Low - easy to implement; low benefit potential
Medium - moderately difficult to implement; moderate benefit potential
High- difficult to implement; high benefit potential

LPA Category	LPA Purpose	LPA Ref. No.	Specific Strategy/Policy Recommendation	Target Deficiency Area	Responsible Party	Difficulty of Implementation	Potential Benefit
Enforcement	Implement regulations to reduce additional vehicles on the roadway during peak hours	38	Establishing requirements for off-peak freight deliveries to congested areas	- Congestion	- Municipalities	High	Medium
	Reduce vehicle speeding and bicycle/pedestrian crashes	39	Coordinating with local law enforcement to increase citations for dangerous traffic violations such as speeding and blocking intersections	- Safety	- FDOT - County - Municipalities	Low	Medium
		40	Installing temporary speed detection devices	- Safety	- FDOT - County - Municipalities	Low	Low
	Reduce construction- and roadway incident-related congestion	41	Enforcing stricter Maintenance of Traffic (MOT) and construction phasing standards	- Congestion	- FDOT - County - Municipalities	Medium	Medium
		42	Implementing programs for free accident clearance on local and county roadways	- Congestion	- County - Municipalities	High	High
	Reduce traffic congestion associated with special events	43	Enforcing stricter events management programs in key areas for coordinated scheduling and improved traffic plans	- Congestion	- County - Municipalities	Medium	Medium
Evaluation	Evaluate roadway network performance based on accessibility and mobility for all users	44	Prioritizing a multimodal level of service or the performance of bike/ped facilities and transit services when making decisions	- Congestion - Connectivity	- FDOT - County - Municipalities	Low	Medium
	Evaluate proposed development for increased density, mixed-use, and Smart Growth principles	45	Setting targets for the percentage of approvals in key areas that reduce sprawl and facilitate multimodal mobility options	- Congestion - Connectivity	- Municipalities	Low	Low
	Evaluate the progress and effectiveness of LPA recommendations	46	Developing and evaluating performance measures for LPAs or other metrics from the larger ACS Study recommendations once the study is completed	- Congestion - Connectivity - Safety	- FDOT - MPO	Low	Low
	Evaluate and reduce vehicles trips over time	47	Setting goals for trip reduction either citywide or in key congested areas	- Congestion	- Municipalities	Low	Low
	Participate in multi-jurisdictional efforts to monitor transportation and development conditions that affect more than one municipality	48	Establishing a Corridor Committee Task Force or Interlocal Agreement for municipalities that share a congested corridor with a high amount of trips between the two	- Congestion - Connectivity	- FDOT - MPO - County - Municipalities	High	Medium

Low - easy to implement; low benefit potential
Medium - moderately difficult to implement; moderate benefit potential
High- difficult to implement; high benefit potential