

1 General Project Information

1.1 Introduction

The Florida Department of Transportation (FDOT) District 1 has prepared an Interchange Operational Analysis Report (IOAR) for the proposed signalization of the southern intersection at the I-275 and US 41 interchange located in Manatee County, Florida. A Methodology Statement was prepared in July 2021, prior to the commencement of this study. The Methodology Statement (revised in December 2021) is included in **Appendix A**. **Figure 1** shows the project location.

1.2 Purpose and Need

I-275, a major facility that runs predominantly north/south, is part of the Federal Highway System (National Highway System) and Interstate System. Within the State of Florida, I-275 is an integral part of the Florida's Strategic Intermodal System (SIS), providing for high-speed and high-volume traffic movements within the state. I-275 is a major route for freight and through traffic, while also providing connectivity among Hillsborough, Pinellas, and Manatee counties. As such, this interstate plays a critical role in both the regional and state-wide economy and in emergency evacuation plans. US 41 is a major north-south United States highway that traverses from Miami, Florida to the Upper Peninsula of Michigan. US 41 is the designated SIS highway connector, providing a direct connection between Port Manatee, I-275 and I-75. A substantial amount of truck traffic from Port Manatee utilizes this interchange to access I-75 and subsequently the rest of the state.

A Traffic Signal Warrant Analysis for the I-275 southbound ramp termini intersection with US 41 was completed in March 2020 using traffic counts collected on February 11, 2020, before traffic patterns were altered by the COVID 19 pandemic. The Signal Warrant Analysis concluded that the intersection meets warrants 1A and 2 based on traffic volumes. The study also documented that a major source of the eastbound vehicle delay is the high percentage of southbound left turning trucks, which require more storage space within the median opening and larger gaps in conflicting northbound traffic. Due to the delay time and number of queued southbound trucks, some eastbound left turning vehicles were observed to "give up" and turn right (southbound) from the left turn lane. Based on the results and recommendations from the study, the intersection has been added to the list of approved traffic signal locations by the District.

A traffic signal is being proposed at the intersection of the I-275 southbound ramp termini intersection with US 41 to ensure an orderly flow of traffic, provide an opportunity for vehicles to cross the intersection, and prevent excessive delay. The traffic signal will improve safety by reducing the number of conflicts between vehicles entering the intersection from different directions. The traffic signal will also provide efficient interstate access/egress for freight traffic destined to Port Manatee. Other improvements include replacing the span

wire mounted traffic signals at the northbound ramp termini intersection with mast arm mounted traffic signals, and installation of special emphasis crosswalks and pedestrian features at both ramp terminal intersections.

1.3 Analysis Years

Traffic operations were analyzed for the following years:

- Existing Year: 2021
- Opening Year: 2024
- Design Year: 2034

1.4 Area of Influence

The FDOT defines Area of Influence (AOI) in the FDOT Interchange Access Request User's Guide as the area that is anticipated to experience significant changes in traffic operating characteristics as the result of the access proposal. The AOI shall reflect current and anticipated operational and safety concerns associated with the access request. The area of influence is shown in **Figure 2**. The following describes the AOI along I-275 and the cross streets:

Along cross streets: The study intersections within the AOI are as follows:

- US 41 at I-275 SB ramp terminal intersection
- US 41 at I-275 NB ramp terminal intersection
- US 41 at 73rd Street/69th Street E

Along I-275: The study ramps and freeway segments within the AOI are as follows:

- I-275 SB on-ramp from US 41
- I-275 NB off-ramp to US 41
- I-275 NB on-ramp from US 41
- I-275 SB off-ramp to US 41
- I-275 freeway merge/diverge areas from/to the I-75 ramps
- I-275 freeway segment east of US 41
- I-275 freeway segment west of US 41

1.5 Level of Service (LOS) Targets

LOS Target Policy by means of Topic No. (000-525-006) indicates that the automobile mode level of service targets for the State Highway System during peak travel hours are "D" in urbanized areas and "C" outside urbanized areas. The Level of Service performance targets for each roadway classification, including freeway mainline, ramps, ramp terminal intersections and the crossroad beyond the interchange ramp terminal intersections are identified below.