

## INTRODUCTION

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### 1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) conducted an I-4 Interchange Needs Evaluation Study to evaluate current traffic operations and identify operational deficiencies at the interchanges along I-4 from east of I-75 to the western connection of SR 570 (Polk Parkway). The study's primary goal was to identify problems at the interchanges off-ramps that cause safety and operational issues on the I-4 mainline. Proposed recommendations focused on small-scale, cost-feasible projects that can be funded through current FDOT programs. The I-4 Interchange Needs Evaluation Study was conducted concurrently with the I-4 Project Development and Environment (PD&E) Study. This Interchange Operational Analysis Report (IOAR) focus on the I-4 at Thonotosassa Road (SR 566) interchange. The I-4 Interchange Needs Evaluation Study is included in **Appendix A**.

I-4 is designated a SIS highway corridor as part of Florida's Strategic Intermodal System (SIS). *"The SIS represents a statewide network of high-priority transportation facilities, including Florida's largest and most significant airports, spaceports, deep-water seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways, highways, military access facilities, intermodal logistic centers, and fixed guideway transit corridors. These facilities represent the state's primary means for moving people and freight between Florida's diverse regions, as well as between Florida and other states and countries".*<sup>1</sup>

I-4 at Thonotosassa Road (SR 566) is a tight-diamond interchange configuration located approximately 1.5 miles east of the I-4 at Branch Forbes Road Interchange and 1.2 miles west of I-4 at Alexander Street Interchange. The interchange has an approximate 45-degree skew angle relative to the I-4 mainline creating the tight-diamond layout. Thonotosassa Road (SR 566) connects to US 92 south of the interchange and provides a direct connection to Plant City. **Figure 1-1** shows the location map of the interchange.

### 1.1 Purpose and Need

The purpose of this IOAR is to document the Safety, Operational and Engineering (SO&E) acceptability of transportation improvements proposed for the I-4 and Thonotosassa Road (SR 566) interchange. The need for this project is to improve safety and alleviate excessive vehicle queues at the I-4 at Thonotosassa Road (SR 566) westbound off-ramp and improve the operation of the ramp terminal intersections.

<sup>1</sup> *Strategic Intermodal System Handbook, Section 1: Strategic System Background, 2020*

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The need for this project is based on observed operational deficiencies during field observations conducted during the Interchanges Evaluation. Long queues at the westbound off-ramp were observed because the vehicles must wait on gaps along Thonotosassa Road to make the left turn. Also, left turn queues from northbound left turn movements along Thonotosassa Road (SR 566) were observed blocking the I-4 eastbound ramp terminal intersection. Based on the projected queues from the I-4 westbound off-ramp and future traffic volumes, a need to install traffic signal at the I-4 westbound off-ramp terminal intersection and extend the storage length of the northbound left turn lane at the I-4 westbound ramp terminal intersection were identified to minimize impacts to I-4 mainline operations and safety.