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The purpose of this Interchange Access Request (IAR) is to evaluate current traffic operations, identify operational deficiencies, and recommend operational improvements for the I-4 at Thonotosassa Road (SR 566) interchange.

The need for this project is to improve safety and alleviate existing traffic congestion and excessive vehicle queues at the I-4 at Thonotosassa Road (SR 566) westbound off-ramp terminal intersection and the influence area.

The proposed improvements include:

- Installing a traffic signal at the I-4 westbound ramps terminal intersection
- Convert the existing northbound right turn lane at the I-4 eastbound ramp terminal intersection to a second northbound through lane
- Adding a right turn lane from northbound Thonotosassa Road (SR 566) to I-4 eastbound on-ramp
- Widen Thonotosassa Road (SR 566) from two lanes to four lanes between I-4 eastbound and I-4 westbound ramp terminal intersections
- Signal timing coordination (cycle length and offsets) between traffic signals

The proposed improvements at the I-4/Thonotosassa Road ramp terminal intersections will improve the operations of the intersections when compared to the No-Build conditions. The proposed improvements will also improve safety by reducing the I-4 westbound off-ramp queues and the impact to the I-4 mainline that are expected to occur in the No-Build conditions. Also, the proposed improvements are expected to reduce the total crashes at the I-4 westbound ramp terminal intersection by 39%. The cost estimate for the proposed improvements is \$3,683,210 including design and construction as shown in the FDOT Five-Year Work Program (FY 2022 to FY 2026).

The improvements identified in this IAR meet the Federal Highway Administration (FHWA) two policy points:

- **Policy Point 1:** *An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major*

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intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

- The purpose of this IOAR is to improve safety and alleviate the excessive queue at the I-4 at Thonotosassa Road (SR 566) westbound off-ramp terminal intersection. The proposed improvements will improve the operations of the I-4 westbound off-ramp as summarized below when compared to No-Build conditions:
- Opening Year (2025): The LOS of the WB off-ramp left turn movement will improve from LOS F to LOS D in the AM peak hour and from LOS F to LOS C in the PM peak hour. The vehicle queue for the I-4 WB left turn movement will be reduced 84% and 85% during the AM and PM peak hour, respectively. All movement at the ramp terminal intersections will operate at LOS D or better and none of the movement queues exceed available storage.
- Design Year (2045): The LOS of the WB off-ramp left turn movement will improve from LOS F to LOS E during both AM and PM peak hours. Under No-build conditions, the vehicle queue for the I-4 WB off-ramp left turn is expected to exceed the available storage and impact the I-4 mainline operations during the AM peak hour. Under Build conditions, the vehicle queue for the westbound left turn movement will be reduced 80% and 78% during the AM and PM peak hour, respectively, and no impact to the I-4 mainline is expected.
 - The northbound left turn movement at the westbound ramp terminal intersection will operate at LOS F during both AM and PM peak hours and the queue will exceed the available storage during both peak hours.
 - At the eastbound ramp terminal intersection, the eastbound right turn movement will operate at LOS F during both peak hours, but the queues are not expected to impact the mainline I-4 operations. The northbound through will also operate at LOS F during both peak hours but the queue will not exceed the available storage. The southbound left turn movement queue will exceed available storage during both peak hours.
- The design year for an IOAR is 10 years after opening year. The year of failure of the for the improvements is Year 2039. By Year 2039, the I-4 westbound ramp terminal

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intersection will operate at LOS E during the AM peak hour with the northbound left queue operating at LOS F and the northbound left turn queue exceeding the storage length. The westbound left turn will operate at LOS E but the queue of 440 feet is not expected to impact mainline I-4 operations which is the main purpose of the improvements.

- Between Year 2035 and 2040 an evaluation of the study area is recommended to evaluate if additional improvements are needed along Thonotosassa Road in the interchange study area
 - The operational and safety analysis demonstrate that the proposed improvements improve the safety and operation of the interchange by significantly reducing the queues for the I-4 westbound off-ramp when compared to No-Build conditions.
 - The total number of crashes at the ramp terminal intersections is expected to be reduced by 39%.
 - A conceptual signing plan has been prepared for the IAR.
- **Policy Point 2:** The proposed access connects to a public road only and will provide for all traffic movements. Less than “full interchanges” may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.
 - The proposed improvements will not alter the existing configuration of the I-4 and Thonotosassa Road interchange. The existing I-4 interchange at Thonotosassa Road provides access to public roads only. The proposed improvements at the interchange will maintain full access to Thonotosassa Road and accommodate all movements.