

Executive Summary

Introduction

This SIMR for the I-4 interchanges between County Road (CR) 532 and State Road (SR) 429 in Osceola County covers the documentation requirements agreed upon in the approved Methodology Letter of Understanding (MLOU). This report provides existing conditions data, future traffic forecasts, and the operational analysis for the existing (2018), opening year (2022), mid-design year (2032) and design year (2042) conditions.

The study segment was previously evaluated as part of the I-4 Beyond the Ultimate (BtU) South Section Systems Access Modification Report (SAMR) that received a determination of Safety, Operational and Engineering (SO&E) Acceptability on May 9, 2017 from the Federal Highway Administration (FHWA). The SAMR identified a series of improvement recommendations for the interchanges and I-4 mainline, however, these improvements are not scheduled until the mid-2040s and interim improvements identified as part of this SIMR are advanced by Florida Department of Transportation (FDOT) and Osceola County in response to concerns brought forth by area residents and businesses through local agencies. The project location map is shown in **Figure A**.

Purpose and Need

Rapid growth in residential, commercial/retail, and industrial development within ChampionsGate and Poinciana over the last several years has resulted in a significant increase in travel demand and traffic impacts (daily recurring congestion) on I-4 within the vicinity of the CR 532 and SR 429 interchanges. The existing congestion along I-4 that spans across multiple interchanges is tied to unique traffic patterns within the study area with overlapping traditional morning and evening work-based trips and tourist trips generated by the nearby Disney attractions and new development within the study area.

Under the existing conditions, traffic routinely backs up along eastbound I-4 from CR 532 eastbound on ramp merge to US 27 in the morning peak period and backs up along westbound I-4 from the CR 532 westbound off ramp diverge to US 192 in the afternoon peak period. The interchange at I-4 and SR 429 also regularly experiences backups on the ramps to and from I-4 (west of SR 429). Operational deficiencies that occur within the I-4 and CR 532 interchange area combined with a short weaving distance between the I-4 at CR 532 and I-4 at SR 429 interchanges create major bottlenecks near the study area that cause recurring daily congestion on the I-4 mainline. The lack of adequate capacity to accommodate the existing traffic demand is most prevalent with the westbound off ramp and the eastbound on ramp at the I-4 and CR 532 interchange.

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Figure A

Project Location Map
I-4/CR 532/SR 429 Systems Interchange
Modification Report (SIMR)

The capacity-constrained conditions that currently exist create congested conditions and adverse impacts to the I-4 mainline, SR 429 mainline and ramps, and CR 532 cross-street operations. These conditions are anticipated to worsen in the future as more development occurs within the study area. Given the extent of congestion along I-4, major capacity improvements such as I-4 widening to 10 lanes (as proposed in the I-4 BtU project) and CR 532 widening to six lanes are needed to appropriately alleviate the severe existing and anticipated future congestion issues. However, there is an urgent need to alleviate the adverse traffic conditions that currently impact the operations as well as safety of all road users within the study area.

As such, the primary purpose of this SIMR is to identify interim solution to improve traffic operations, reduce congestion, and enhance safety at the study interchanges, until the approved concept for the I-4 BtU along with widening of CR 532 can be funded and implemented. Identified Interim Improvements

Figure B illustrates the proposed interim improvements (and the corresponding financial project numbers) based on information provided by FDOT. The DDI improvement at the I-4 and CR 532 interchange is being coordinated through a Joint Participation Agreement (JPA) with Osceola County and with local developers to facilitate congestion relief in the near term. Additionally, the Department is seeking to advance funding for the interchange improvements through the SIS Quick Fix program and work with MetroPlan Orlando to leverage Surface Transportation Program (SU) funds for urban areas of population over 200,000. The auxiliary lanes project along I-4 between CR 532 and SR 429, and SR 429 improvements will be completed jointly by Florida's Turnpike Enterprise (FTE) and FDOT.

Per the approved MLOU, this SIMR evaluated a No Build alternative and a Build alternative as noted below:

- **No Build Alternative:** This alternative maintains the existing configuration along I-4 and CR 532 and SR 429.
- **Build Alternative:** The build condition includes the following interim improvements:
 - Diverging Diamond Interchange (DDI) at the I-4 and CR 532 interchange (FPID #444187-1).
 - Widening the existing westbound off ramp and eastbound on ramp at I-4 and CR 532 to two lanes (FPID #444329-1). Please note that widening the existing eastbound on ramp from CR 532 to I-4 to two lanes was not identified in the MLOU, as amended in September 2019. The decision to widen the I-4 eastbound on-ramp from CR 532 was made during the operational analysis effort, and additional information in this regard is provided in Section 4.1.1 of this SIMR.
 - Adding an auxiliary lane in each direction along I-4 between the CR 532 and SR 429 ramps (FPID #444329-1).
 - Widening the existing ramps to two lanes, from eastbound I-4 to northbound SR 429 and southbound SR 429 to westbound I-4 (FPID #444329-1).

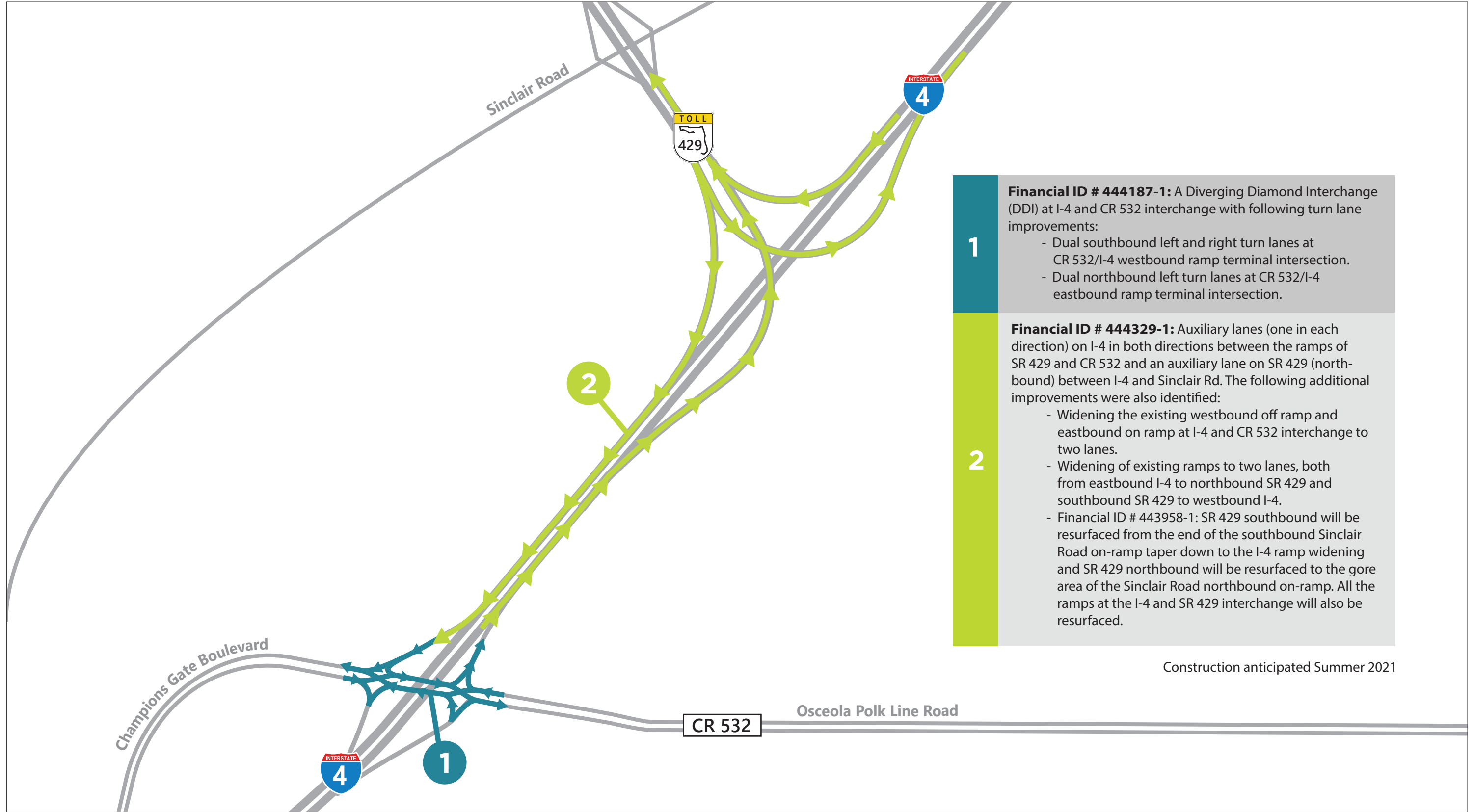
- Widening SR 429 in the northbound direction to add an auxiliary lane to the outside, to the Sinclair Road interchange (FPID #444329-1).

A signal at CR 532 and Kemp Road intersection is considered in both the No Build and Build alternatives, which will be in place by opening year 2022 based on discussion with Osceola County. In addition, based on coordination between FDOT and Osceola County, the northbound left turn and through movements at the intersection of CR 532 and S Goodman Road are restricted to improve safety and operations under the Build alternative.

The proposed interim improvements will achieve this study objective as illustrated below:

- Improve operational and safety deficiencies with innovative interim improvements and without the need to widen CR 532, SR 429 and I-4
- Mitigate traffic bottleneck at the interchange of I-4 and CR 532
- Extend operational life of the study area “with limited Strategic Intermodal System (SIS) Quick Fix Funds”
- The auxiliary lanes along I-4 between CR 532 and SR 429 ramps will provide added capacity between the interchanges and increase the available distance for entering traffic (from the proposed two-lane ramps – eastbound on ramp from CR 532 to I-4 eastbound and southbound SR 429 on ramp to I-4 westbound) to merge with the I-4 mainline,
- The interchange at I-4 and CR 532 modification will alleviate the existing recurring traffic congestion along CR 532 and queueing on the westbound off ramp, and improve the safety characteristics for all road users, and
- The widening of existing ramps from I-4 eastbound to northbound SR 429 and widening of SR 429 northbound to add an auxiliary lane up to the Sinclair Road interchange will help flush traffic away from the I-4 mainline at a faster rate.

In conclusion, short term improvements that can be constructed quickly without significant project costs and without need for acquiring right-of-way are identified as part of this SIMR. There are no funds available to build other improvements currently.



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| 1 | <p>Financial ID # 444187-1: A Diverging Diamond Interchange (DDI) at I-4 and CR 532 interchange with following turn lane improvements:</p> <ul style="list-style-type: none"> - Dual southbound left and right turn lanes at CR 532/I-4 westbound ramp terminal intersection. - Dual northbound left turn lanes at CR 532/I-4 eastbound ramp terminal intersection. |
| 2 | <p>Financial ID # 444329-1: Auxiliary lanes (one in each direction) on I-4 in both directions between the ramps of SR 429 and CR 532 and an auxiliary lane on SR 429 (northbound) between I-4 and Sinclair Rd. The following additional improvements were also identified:</p> <ul style="list-style-type: none"> - Widening the existing westbound off ramp and eastbound on ramp at I-4 and CR 532 interchange to two lanes. - Widening of existing ramps to two lanes, both from eastbound I-4 to northbound SR 429 and southbound SR 429 to westbound I-4. - Financial ID # 443958-1: SR 429 southbound will be resurfaced from the end of the southbound Sinclair Road on-ramp taper down to the I-4 ramp widening and SR 429 northbound will be resurfaced to the gore area of the Sinclair Road northbound on-ramp. All the ramps at the I-4 and SR 429 interchange will also be resurfaced. |

Construction anticipated Summer 2021



N.T.S.



Figure B

Proposed Interim Improvements & Financial Project IDs
 I-4/CR 532/SR 429 Systems Interchange
 Modification Report (SIMR)