

## 1.0 Introduction

Interstate 75 is part of the Strategic Intermodal System (SIS), a system of major roadways that are intended to provide high-speed travel connections between major population centers throughout the state. The proposed interchange on I-75 at CR 514 in Sumter County, Florida will provide much needed access connection to I-75 to support regional growth in travel demand and the need created by the planned Florida Crossroads Industrial Activity Center (FCIAC) and other developments that support economic development of the region. This Interchange Justification Report (IJR) documents the potential benefits and impacts of the proposed new interchange under the Build and No Build Alternatives. Currently, CR 514 exists as an overpass at I-75 with no access to the interstate system. FDOT's adopted five-year work program for year 2017 – 2021 have allocated funds to conduct a PD&E study (Item # 435476-1) for the proposed interchange in year 2017.

This IJR is developed in accordance with the Florida Department of Transportation (FDOT) Policy No. 000-525-015 Approval of New or Modified Access to Limited Access Highways on the SHS; New or Modified Interchanges, FDOT Procedure No. 525-030-160-K; and the FDOT Project Traffic Forecasting Procedure (Procedure No. 525-030-120). The project location and the Area of Influence (AOI) are depicted in **Figure 1-1**.

### 1.1 Purpose and Need for the project

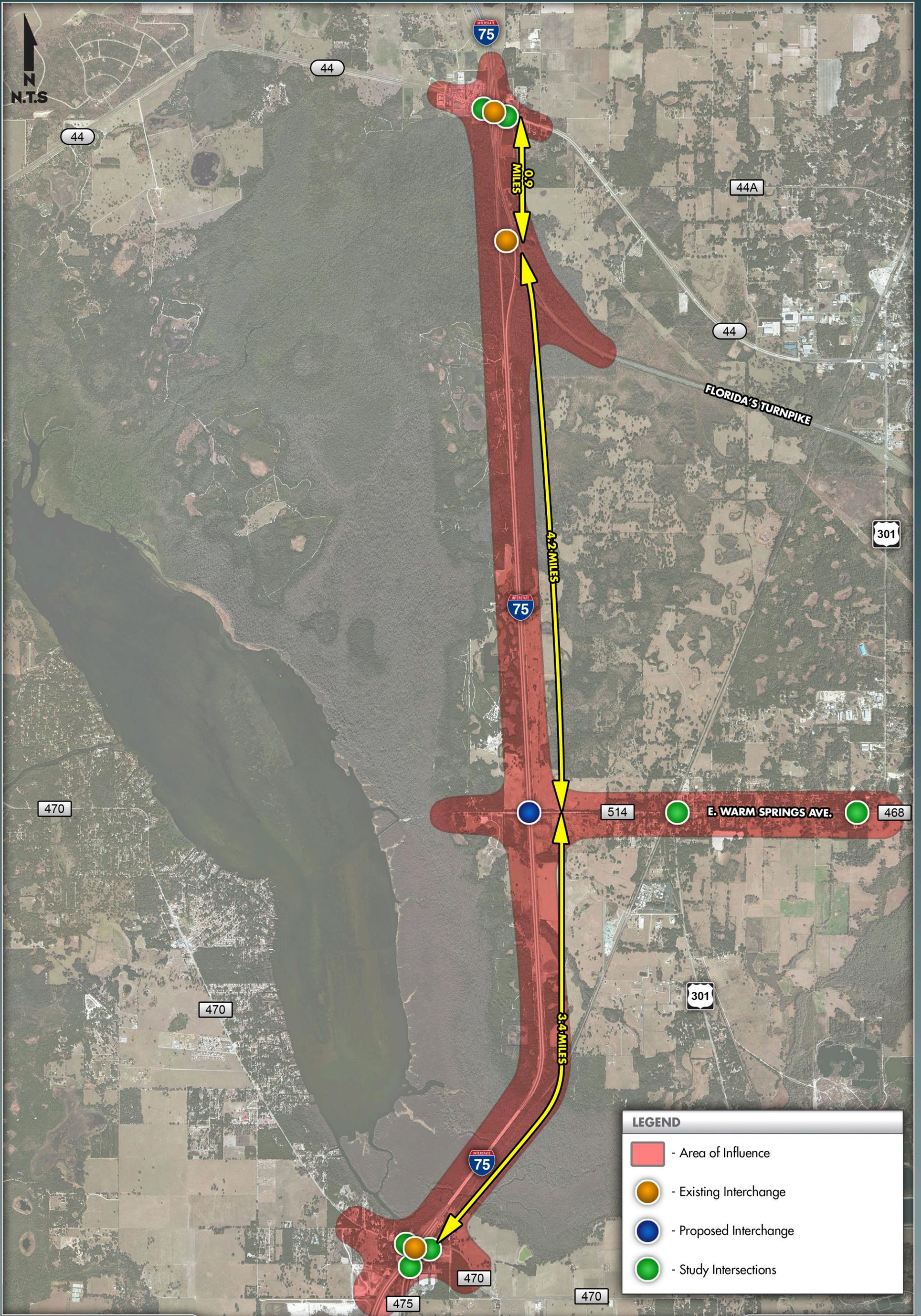
The purpose of the proposed interchange at Interstate 75 (I-75) and Sumter County 514 (CR 514) is to provide additional interstate access that is supportive of regional growth in travel demand and the need for new access created by the planned Florida Crossroads Industrial Activity Center (FCIAC) requiring significant infrastructure to support freight mobility, and related regional employment opportunities.

The need for a new interchange at I-75 and CR 514 is driven by two primary factors; significant anticipated growth in travel demand by 2045, and specific constraints within the surrounding transportation network that require an additional access to the interstate. These two factors are reinforced through a better understanding of regional planning initiatives to foster economic development, job growth, and supporting increases in population within the region. As these planning initiatives come to fruition, the associated increase in travel demands, particularly freight

traffic with up to 66,000 trucks per day will exacerbate the safety and operational concerns presented by the physical constraints of the surrounding transportation network. The attached regional overview map (**Figure 1-2**) and supporting discussion below provides additional detail relative to these factors, and how they have been considered in context of the purpose and need for the subject interchange at I-75 and CR 514.

- *Economic development (employment opportunities, growth in population)* – The proposed interchange is located at the crossroads of I-75, Florida’s Turnpike, and an active freight rail line operated by CSX Transportation. Sumter County and its partners within the region have aligned strategic planning initiatives as part of their Comprehensive Economic Development Strategy (CEDS) as adopted in the Sumter County Comprehensive Plan. The intent of the FCIAC is to serve as a significant intermodal freight logistics center and distribution hub on a site that is uniquely-positioned to support industrial businesses involved in national and/or regional product distribution. Since its establishment, several large land holdings with large-scale industrial entitlements have surfaced that account for the majority of FCIAC area (over 3,200 acres) surrounding the proposed interchange site. These include the 240-acre CSX Property (Lee Capital, LP); 180-acre Wade Industrial development (Sumter, LLC); and Monarch Ranch (2,800 acres).

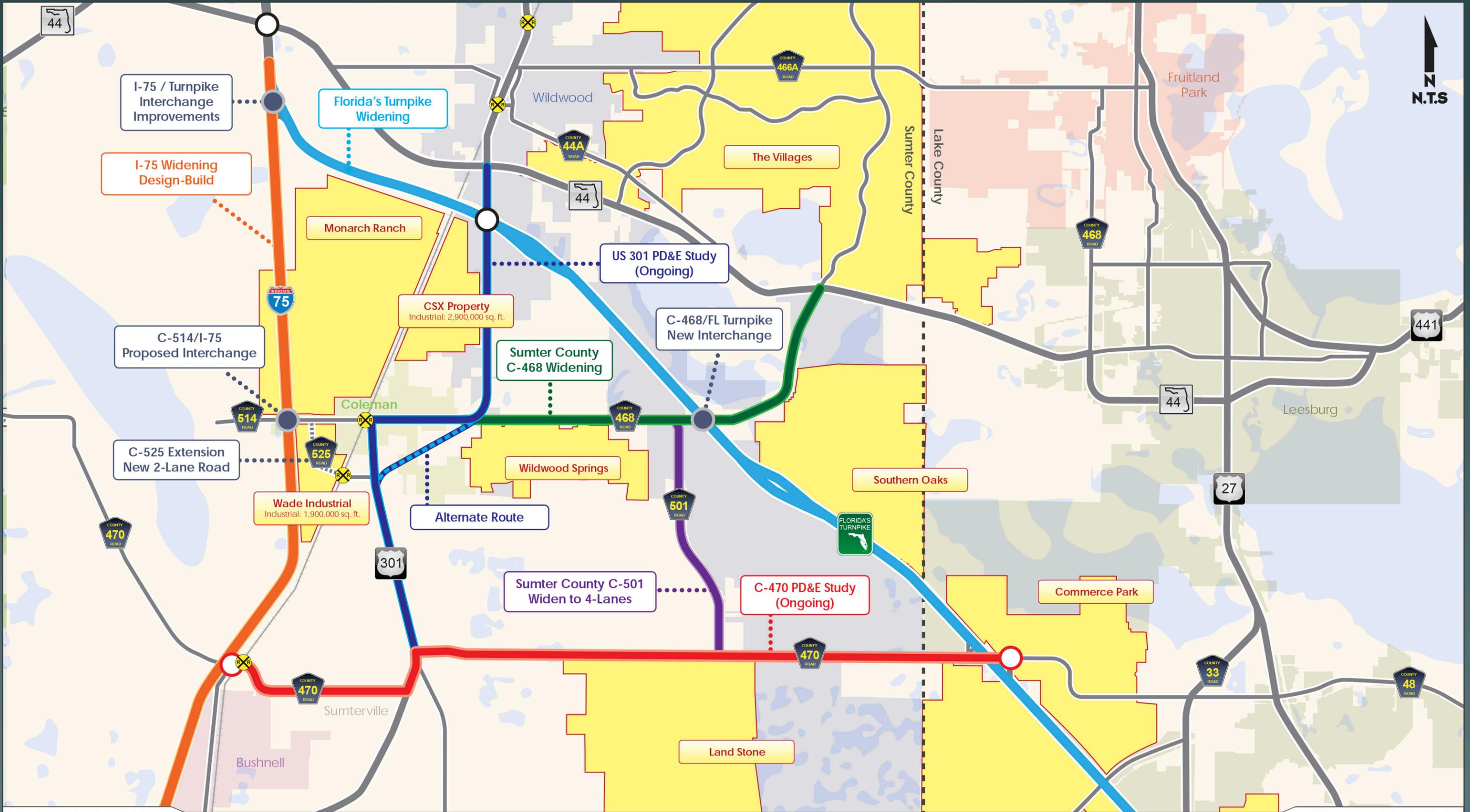
The focus on industrial development within the FCIAC creates unique infrastructure needs considering the significant volumes of heavy trucks required to service these uses. The three properties mentioned above (CSX Property, Wade Industrial, and Monarch Ranch) account for more than 22 million square feet of entitled industrial land-uses with potential to generate more than 33,000 jobs over the next 20 years. Growth in residential development is also anticipated, particularly east of the proposed interchange along CR 468 and further south along CR 470. These include Wildwood Springs (part of The Villages), Southern Oaks and Landstone, accounting for approximately 6,500 residential units and 3 million square feet of programmed office and commercial uses. Planning future infrastructure to support these uses includes a future interchange between CR 468 and Florida’s Turnpike, which is also anticipated to serve a portion of traffic regional trips generated by more than 100,000 residents of The Villages located to the north and east.



DATE CREATED: 9/16/2016

PROJECT NUMBER: 12-095.20

- *Travel Demand Forecasts & Trucks:* The study area and surrounding vicinity is within a dynamically changing region of Sumter County that is in the early stages of a strong growth trend that will generate a substantial volume of additional traffic, particularly freight traffic within the immediate study area by the year 2045. Focusing on just the immediate land uses in the vicinity of the proposed interchange, the daily traffic volumes loading onto CR 514 from Monarch Ranch and the Wade Industrial site alone are projected at nearly 30,000 vehicles per day (vpd) by 2025. This increases to 77,000 vpd by future year 2045, with more than 66,000 or 85% of these being heavy trucks. Without the proposed interchange to provide direct access to I-75, 100% of the traffic generated by the intense industrial uses will be relegated to the existing CR 514 and the surrounding street network which can create significant capacity deficiencies.

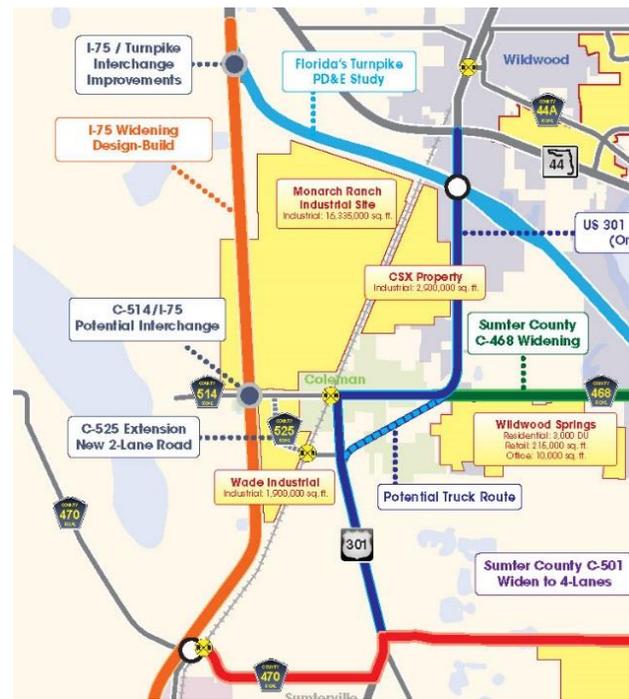


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*Physical Constraints to the Transportation Network:* The existing CR 514 and its interface with the existing transportation network at US 301 involves numerous engineering and environmental challenges, and physical constraints that border the study area on three sides. Along the north side, Florida's Turnpike and a major high-voltage transmission line constrain access connections to and from the north. I-75 borders the study area along the west side, leaving CR 514 as the only connection to and from the west. A major freight rail line operated by CSX Transportation borders the study area along the east side and south side given the orientation of the tracks relative to I-75.

These physical constraints require all traffic generated by Monarch Ranch and the Wade Industrial Site (nearly 3,000 acres) to cross the CSX railroad along either of two existing crossings; at CR 514 or at CR 525(east). The existing CR 514 does not support widening to serve the increased volumes of truck traffic for two reasons. The existing pavement section of just 18 feet and right of way of 50 feet would require significant impacts to a low-income, underserved community west of US 301.



Furthermore, the crossing at CR 514 is situated just 250 feet west of the US 301 intersection in the community of Coleman, making grade separation of CR 514 over the existing crossing infeasible. This leaves CR 525(east) as the only existing crossing of the CSX that is available to service future travel demand for the planned industrial activity center. Sumter County has advanced an extension of CR 525(east) up to CR 514 that completes the necessary linkage to US 301 to better-facilitate this important connection to the local transportation network. With this new connection, access to Florida's Turnpike is accomplished through the existing interchange with US 301 until the future interchange at CR 468 is complete, which will reduce the overall trip length by 4.3 miles for trips to and from the southern portion of Turnpike system.

- *Other Network Considerations & Access Need:* While the CR 525(east) connection to US 301 satisfies a portion of the total projected demands to include the major truck movements to and from Florida's Turnpike, the existing infrastructure cannot support the additional future travel demand, particularly for north/south travel along I-75. The heavy volumes of trucks that would be required to cross the CSX tracks to access US 301 and others parts of the adjacent transportation network are anticipated to negatively impact the adjacent system.

Considering trip length alone, without the proposed interchange, access from the FCIAC to and from I-75 south is a 6.8-mile trip from the proposed site to the existing I-75 interchange with CR 470. Access to I-75 north is a 9.9-mile trip from the site to the merge from Florida's Turnpike onto northbound I-75, via the US 301 / Turnpike interchange. These movements place heavy demands on the CSX crossing, as well as the existing infrastructure that is already anticipated to be affected by ancillary regional growth and associated travel demands separate from the area of focus for the FCIAC. In short, the existing transportation network does not adequately address connectivity and capacity needs, even in the context of planned and programmed improvements independent of the proposed interchange.

A new interchange at I-75 and CR 514 provides direct access to I-75 to support the high volumes of heavy trucks and other traffic generated by planned future development. This eliminates the negative influences from trips to and from I-75 by providing a direct connection as opposed to requiring these trips to traveling east via the CR 525(east) extension to access US 301. This will significantly reduce the volume of truck traffic through the CSX rail crossing, and relieve pressure on both the local network and adjacent I-75 interchanges.

- *Safety:* A reduction in heavy truck movements within the local network translates into improved safety characteristics, and increased efficiencies that are not realized without the interchange. The ongoing widening of I-75 through the existing CR 514 bridge piers requires safety countermeasures in the form of concrete walls and guardrail protection. The proposed interchange would require replacement of this bridge, presenting an opportunity to enhance safety. A more-generous span arrangement could be established to eliminate the need for the guardrail and crash walls.

The positioning of the CSX “S-Line” and associated physical constraints present significant concerns from a safety perspective. The mainline train speeds along the S-Line through Sumter County average 79 mph, and the frequency of trains average between 25 and 30+ trains per day. These conditions, combined with 77,000 vehicles per day through the existing crossing is a concern, particularly with more than 65,000 of these anticipated to be slower-moving heavy trucks. The proposed interchange provides a “relief valve” for this significant constraint, providing trucks with a safer, unimpeded access to I-75. This approach will drastically reduce the conflict with the railroad crossing(s) altogether, thereby improving safety by significantly reducing volumes across the tracks and eliminating the conflict between trains and heavy trucks.

- *Coordinated Planning Initiatives & Project Planning Consistency:* In association with the Lake~Sumter Metropolitan Planning Organization (LSMPO), FDOT, and other partner agencies, Sumter County has led a coordinated regional effort to identify and advance a series of planning initiatives. Specific to transportation, the land uses that drive future travel demand and freight mobility needs require a range of infrastructure improvements as represented by this and other projects depicted in **Figure 1-2** and summarized below:
  - I-75 Widening – FDOT is currently constructing a Design/Build project to widen the I-75 mainline from four to six lanes. Within the study area, this includes upgrades to the interchange at CR 470 that will replace the existing bridges and provide capacity enhancements. The bridge over I-75 at CR 514 will remain as is. Construction of these improvements are anticipated to complete in the Fall of 2017.
  - Florida’s Turnpike @ I-75 Systems Interchange – Florida’s Turnpike Enterprise (FTE) is developing a Design/Build to construct safety upgrades and operational improvements at this interchange. Although construction could begin within the next year or so, the planned upgrades will not add either of the missing movements; NB I-75 to EB (SB) Turnpike, or WB (NB) Turnpike to SB I-75. Discussions with FTE staff indicated that providing these connections was considered as part of the Interchange Operational Analysis Report (IOAR) approved by FHWA in 2007. However, both were found to be unfeasible due to higher costs and environmental impacts as compared to relatively low projected volumes at that time. It is noted that this analysis was conducted prior to the establishment of the FCIAC and associated planning and development initiatives.

- Mainline Turnpike – FTE also has future plans to widen the mainline Turnpike to an ultimate eight lanes throughout the limits between SR 50 in Clermont and the interchange with I-75. The timing of these improvements is uncertain.
- CR 525(E) Extension – Sumter County will construct an eastward extension of this existing County Road that will provide a connection to CR 514 from the south. This new alignment utilizes the existing crossing of the CSX tracks and provides access to US 301 along an improved segment of the existing alignment.
- US 301 PD&E Study – FDOT is evaluating widening US 301 from CR 470 to SR 44 from two to four lanes. This includes a potential truck route to be developed on a new alignment south and east of the community of Coleman. This project provides a key piece of needed infrastructure to enhance capacity and network connectivity within this important north/south corridor.
- CR 468 Widening – Sumter County is currently constructing the widening from two to four lanes within the segment between the US 301 curve and SR 44. This project supports growth in travel demand from nearby land uses and provides enhanced east/west mobility.
- CR 468 at Florida’s Turnpike Interchange – The proposed interchange at CR 468 and Florida’s Turnpike is approved and reflected in the Cost Feasible Plan. The right-of-way has been secured and the anticipated opening year is 2025.
- CR 501– In late 2015, Sumter County completed a Preliminary Engineering Study to widen this north/south roadway from two to four lanes. This will enhance the existing linkage between the CR 470 and CR 468 corridors to support increased mobility needs within the local network.
- CR 470 PD&E Study – FDOT is evaluating the widening of C-470 between I-75 and Florida’s Turnpike from two to four lanes. This includes alternatives that will consider a possible realignment to address the offset intersections with US 301 in Sumterville, Fl.

The proposed CR 514 Interchange with I-75 is identified in the Needs Plan within the LSMPO’s adopted 2035 Long-Range Transportation Plan, and is considered Cost Feasible as part of the ongoing 2040 LRTP update. Support for the project can also be found in Sumter County’s Comprehensive Plan and the Unified Sumter County/Center Hill/Webster Comprehensive Plan.

The interchange was also analyzed by FDOT in the I-75 System Access Modification Report (SAMR) in 2013, which concluded that an interchange at CR 514 would provide significant benefit to the operations of I-75 by providing relief to adjacent interchanges.