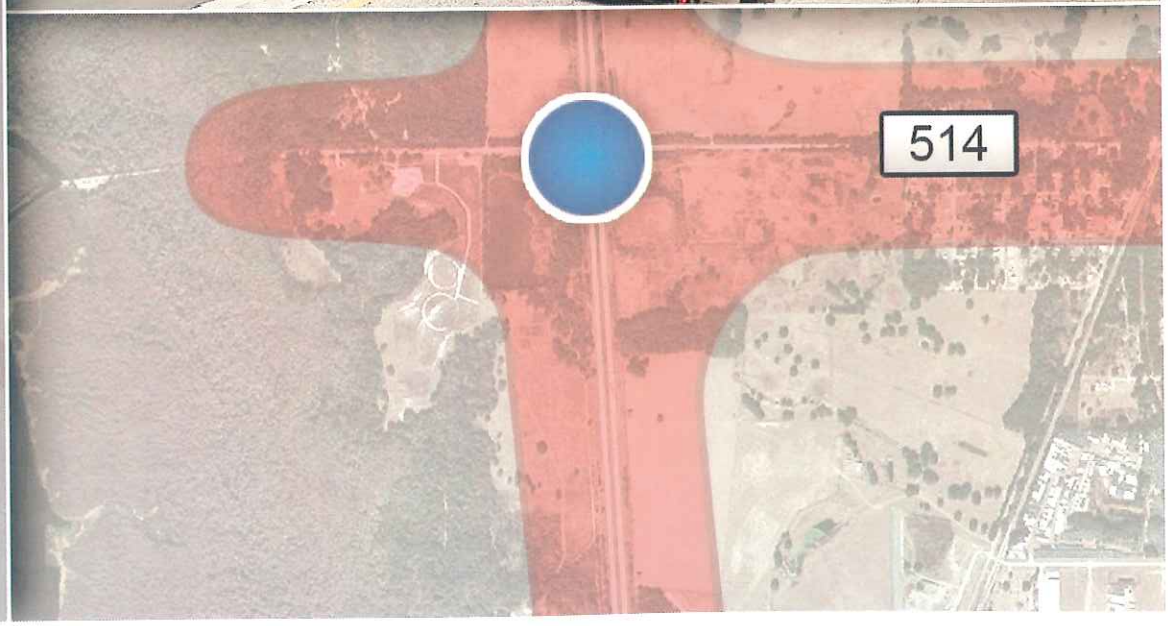
DRAFT

FEBRUARY 2014

METHODOLOGY LETTER OF UNDERSTANDING (MLOU)

Interstate-75 and CR 514 Interchange Justification Report

Sumter County, Florida



FDOT

SIGNATURE BLOCK

Full compliance with all MLOU requirements does not obligate the Acceptance Authorities to accept/approve the interchange access request.

Bradley Arnold — Date: 2/27/14
Requestor - Sumter County Administrator

John Zielinski — Date
FDOT District Five – Interchange Administrator

Martha Hodgson — Date
FDOT Central Systems Planning Office

Nicholas Finch — Date
FHWA – Associate Divisional Administrator

Florida Department of Transportation Interchange Access Request

Methodology Letter of Understanding (MLOU)

Type of request: ☒ **IJR** ☐ **IMR** ☐ **IOAR**

Coordination of assumptions, procedures, data, networks, and outputs for project traffic review during the access request process will be maintained throughout the evaluation process.

Full compliance with all MLOU requirements does not obligate the Acceptance Authorities to accept the IAR.

1.0 Project Description

Provide background or supporting information that explains the basis for the request.

This document serves as the Methodology Letter of Understanding (MLOU) between Sumter County (requestor), Florida Department of Transportation (FDOT) District Five Interchange Review Coordinator (IRC), FDOT Central Systems Planning Office (SPO), and the Federal Highway Administration (FHWA) regarding preparation of the Interchange Justification Report (IJR), for the proposal of a new interchange at Interstate-75 (I-75) and CR 514 in Sumter County. The methodology described in the following sections is in accordance with the FDOT Policy No. 000-525-015-f Approval of New or Modified Access to Limited Access Facilities; The Interchange Handbook, FDOT Procedure No. 525-030-160-i; and the FDOT Project Traffic Forecasting Handbook (Procedure No. 525-030-120).

Sumter County, fastest growing county in the State of Florida from July, 2010 to July, 2012 per US Census Bureau and second fastest growing county between 2000 and 2009 (Per BEBR and US Census Bureau) is conveniently located at the crossroads of Interstate-75 (SR 93), Florida's Turnpike (SR 91), CSX freight-rail s-line and US Hwy 301. The Villages within Sumter County is a major planned residential community that is continuously expanding its boundaries. Taking advantage of this strategic location in the heart of the State of Florida, the area in the vicinity of the proposed interchange is identified for development as a regional activity center. This location is a potential Intermodal Logistics Center (ILC) to promote freight.

I-75 is the economic backbone of Central Florida facilitating the movement of traffic between three mega-regions nationally and six Florida Economic Regions. The traffic volume on I-75 is comprised of 20% trucks in the study area. USDOT included a number of provisions in the MAP-21 initiation to improve the performance of the national freight network and support investment in freight-related surface transportation projects. This proposed interchange will serve the growing community in the area and will be a prototype for USDOT's MAP-21, Sumter County and FDOT's initiation towards freight related developments.

A. *Purpose and Need Statement*
Provide the Purpose, the Need, and the Goals and Objectives.

The purpose of the proposed interchange on I-75 at CR 514 in Sumter County, Florida is to provide additional access to the main north/south interstate highway that connects southwest Florida to

northwest Florida and destinations beyond in a location that has experienced significant traffic volume increases over the past decade. The growth in traffic is due to the high population growth Sumter County has experienced over the last decade; the growing seasonal population increase generated by the influx of part time residents who travel to and from to this area of Florida every year to enjoy the moderate winter climate; and rising demand for goods needed to support the population increase, which is delivered mainly by trucks utilizing I-75 as the primary route to Sumter County and other Florida market destinations.

The proposed interchange at CR 514 is needed to accommodate future forecasted traffic volumes in Sumter County and on I-75. This future demand is predicated on the explosive growth that has occurred in Sumter County in recent years, a trend expected to continue. This is evidenced by Sumter County's position at or near the top of the list of most state and many national growth categories, and new home sales and construction is one of them. Sumter County averaged up to 300 sales per month in 2010 accounting for 8% of the entire State of Florida's home building permits in 2009. Population grew 78.7% from 2000 to 2009, making it Florida's second fastest growing county in terms of percentage increase and one of the top ten fastest growing counties in the nation during the last decade (Source: BEBR and the US Census Bureau). This growth is due in large part to The Villages, a 55 and over residential community located in the northeast section of the county. The population of The Villages is rapidly approaching 100,000 and residential units are being constructed at a rate that fluctuates between 300 and 500 units a month per Sumter County building permit trend data.

Growth of this magnitude has had a significant impact on the regional roadway network. I-75 is programmed for widening, but is only one piece of improvements needed to address congestion and safety issues brought about by this much growth. The proposed interchange, when considered in the context of the operation of the regional roadway and highway system, which includes I-75, Florida's Turnpike, US 301, SR 44, SR 48, CR 470, CR 468 and the new interchange on the Florida's Turnpike at CR 468, will provide needed congestion relief, operational improvements and contribute to improved safety throughout the system.

Integral to this system is the regional connection that extends from the northeast corner of Sumter County in The Villages along Morse Boulevard, south, where Morse Boulevard connects to SR 44. The road continues on the south side of SR 44 where it becomes CR 468. Just beyond SR 44, CR 468 intersects Florida's Turnpike, the location of a new interchange slated to begin construction next year. Beyond the Florida's Turnpike, CR 468 changes its general north/south direction to east/west, continuing to the west until it intersects with and becomes US 301. US 301 carries the regional connection further west, changing names one final time to CR 514, finally reaching I-75 and the site of the proposed interchange. Noteworthy along this regional connection is Wildwood Springs, a planned 1,046 acre community of 3,000 residential units and a neighborhood retail center. Wildwood Springs is located on the south side of CR 468, east of its connection to US 301. The combination of traffic generated by the 100,000 residents of The Villages combined with the future traffic anticipated to be generated by Wildwood Springs and both developments with direct access to this regional connection from the northeast corner of Sumter County to I-75 with Florida's Turnpike access in the center, in itself, creates a need for a new interchange at CR 514.

An interchange at CR 514 will provide relief to the system-to-system interchange at I-75 and Florida's Turnpike and also the I-75 at SR 44 interchange, both located north of CR 514. It will also provide

drivers with a better option for southbound access from I-75 to Florida's Turnpike, currently possible only through the I-75 at SR 44 interchange.

The proposed interchange would also serve as a secondary access to commuters and freight movers by relieving congestion at the critical system-to-system interchange between I-75 and the Florida's Turnpike as well as the I-75 and SR 44 interchange. Both interchanges will experience lessened congestion due to the availability of another option for drivers to access I-75 southbound.

A frequently observed operational challenge that can be mitigated by the proposed interchange is driver confusion which occurs on the southbound approach to the I-75 exit to Florida's Turnpike. Drivers wishing to exit I-75 to take the Florida's Turnpike south often miss the turn due to the complexity of the interchange design. Plans are in place to improve the I-75 / Florida's Turnpike interchange. Under existing conditions, drivers who miss the turn must travel approximately eight miles south to the next exit at CR 470, exit, make a U-turn, and travel back to SR 44 which is located just north of the I-75 / Florida's Turnpike interchange. The proposed interchange will alleviate this situation by providing an exit from which access can be gained to the Florida's Turnpike without having to travel twenty minutes out of the way to get back on course.

A Project Development and Environmental (PD&E) study to widen US 301 from CR 470 (W) to SR 44 is programmed in FY 2013/14 to study and implement the much needed corridor improvements along US 301, connectivity to CR 514 and I-75, and The Villages community to the northeast. The proposed interchange along with the improvements expected to be identified in the US 301 PD&E will boost the anticipated benefits the proposed interchange will bring to the region's transportation system.

The need for this interchange has been consistently documented over the last five years. It is identified as a needed project in the Lake~Sumter Metropolitan Planning Organization's adopted long range transportation plan, TRANSPORTATION 2035. Support for the project can be found in Sumter County's comprehensive plan, Unified Sumter County/Center Hill/Webster Comprehensive Plan, adopted in 2012, in Chapter 2 and Chapter 8. The interchange was also analyzed as part of the I-75 System Access Management Report (SAMR) in 2013. The conclusion was that an interchange at CR 514 would provide significant benefit to the operation of I-75.

The proposed interchange is located in a highly strategic area of Sumter County and the state with exceptional access to major state transportation facilities (I-75, US 301, SR 44, Florida's Turnpike, and CSX freight-rail S-line). This combination of rail-freight and highway access is a major attraction for industrial activity. This area is identified as "Florida Crossroads Industrial Activity Center" (FCIAC), originally named as such in the Withlacoochee Regional Planning Council's 2009 update of its Comprehensive Economic Development Strategy (CEDS) for the Withlacoochee Region. The regional activity center is also identified in the County's adopted comprehensive plan.

The FCIAC represents a potential distribution hub unique in the state. The coalescence of transportation systems mentioned above makes this an ideal location for businesses considering regional or national product distribution. There are currently several large land holdings with large scale industrial entitlements. As analyzed in the CEDS, the Lee Capital, LP (240 acres); Sumter, LLC (180 acres); and Monarch Ranch (2,800 acres), representing just a portion of the FCIAC, collectively with

approximately 20 million square feet of industrial land use entitlements in place, have the potential to generate over 20,000 jobs over the next 20 years.

B. *Project Location*
Provide a description and map of the IAR study area.

The portion of Interstate-75 included in this project is in Section #18130000. The proposed interchange of CR 514 is located approximately at the milepost 17.52, 3.4 miles north of the existing interchange at CR 470, 4.2 miles south of the existing system to system interchange of Interstate-75 and Florida's Turnpike. Figure 1, and 2 depict the study area and project location of the proposed interchange.

Exhibit/Figure # 1 and 2

C. *Area of Influence*
Provide a description of the area of influence along the main line and cross street.

Along mainline: The anticipated Area of Influence of the proposed interchange, as defined in The Interchange Handbook, is a minimum of one interchange on both sides of the subject interchange and one-half mile on the cross streets on all three interchanges. Florida's Turnpike Enterprise is currently conducting an Alternative Analysis study proposing safety improvements for the systems interchange including the I-75 at SR 44 interchange as part of their study. The opening year for the Florida's Turnpike interchange improvements is Year 2017. The proposed improvements at the Florida's Turnpike interchange will be included in the alternatives of this project. For this project the following interchanges (ramps and weaving areas) will be included in the Area of Influence:

I-75 and CR 470
I-75 and CR 514 (Proposed Interchange)
I-75 and Florida's Turnpike
I-75 and SR 44

Along crossroads: Intersections will be evaluated on the crossroads within one-half mile on both sides of three interchanges, or to the nearest signalized intersection if no signalized intersection exists within one-half mile. The following intersections will be included:

CR 514 at US 301
CR 514 at proposed interchange Ramps
SR 44 at I-75 NB Off Ramps
SR 44 at I-75 SB Off Ramps
CR 475 at I-75 NB Off Ramps
CR 470 at I-75 SB Off Ramps
CR 470 at CR 475/I-75 NB on ramp intersection
US 301 at CR 468

Exhibit/Figure # 3

D. *Project Schedule*
Identify the schedule of production activities consistent with a proposed conceptual funding plan and opening year.

The anticipated opening year for the project is Year 2018. The IJR is expected to be approved by early 2014. Detailed funding plan will be established in the IJR. A PD&E study to widen US 301 from CR 470 (W) to SR 44 is programmed in FY 2013/14. The environmental impacts of the proposed interchange will be studied as part of the US 301 PD&E.

2.0 Analysis Years

A. Traffic Forecasting

- Base year 2005
- Horizon year 2035

B. Traffic Operational Analysis

- Existing year 2012
- Opening year 2018
- Interim year(s) 2028
- Design year 2038

3.0 Alternatives to be Considered

Alternatives		Year of Analysis			
		Existing	*Opening*	*Interim*	*Design*
No Build		☒	☒	☒	☒
Build	Preferred Alternative	☐	☒	☒	☒
	Other Alternatives	☐	☒	☒	☒

A. Requester has developed specific alternative(s) at this point and the alternative(s) are described below.

At least two design concepts will be studied for the proposed interchange at CR 514. These concepts will be developed and evaluated in the interchange justification study to assess their viability and determine any fatal flaws for further development

Exhibit/Figure #

B. Build alternatives that were eliminated from consideration or evaluated under prior studies and discarded will be documented as to why they were not carried forward.

4.0 Data Collection

The type of data that may be used should be identified.

A. Transportation System Data

FDOT Straight-line diagrams and Roadway Characteristic Inventory (RCI), and field observations.

B. *Existing and Historical Traffic Data*

Existing traffic counts, Annual Average Daily Traffic (AADT), and classification counts will be obtained for all roadway systems within the Area of Influence from FDOT Traffic Information DVD. Other sources of data include 24-hour traffic counts, 72-hour classification counts, turning movement counts, and traffic counts from local agencies. Additional field data will be collected as needed for the study. Traffic counts will be verified for consistency with nearby interchange studies currently underway.

C. *Land Use Data*

Existing and future land use data will be collected by close coordination with local agencies while utilizing comprehensive plans and future land use maps.

D. *Environmental Data*

The Efficient Transportation Decision Making (ETDM) Planning Screen will be utilized in the review of wetlands and habitats within the study area. It will also be used to assess the potential for the occurrence of protected plant and animal species within the project vicinity. The following environmental data analysis will be presented in the IJR.

- Air Quality
- Contamination
- Farmlands and wetlands
- Floodplains
- Threatened and endangered species
- Public lands
- Conservation lands
- Noise sensitive sites
- Historical/Archeological sites
- Construction Impacts

E. *Planned and Programmed Projects*

- I-75 widening to 6-lanes will be included in the No Build Alternative.
- I-75/Florida's Turnpike interchange improvements will be included in the study (Based on the FHWA approval of the I-75/Florida's Turnpike study)
- CR 468 widening and Florida's Turnpike Interchange at CR 468 will also be included in the No Build Alternative.

5.0 Travel Demand Forecasting

A. *Selected Travel Demand Model(s)*

FDOT adopted Central Florida Regional Planning Model (CFRPM) will be utilized for travel demand forecasting. The sub-area model validation will be performed for year 2010.

B. *Project Traffic Forecast Development Methodology*

Describe the methodology and assumptions in developing the future year traffic volumes (AADT and DDHV)

The approach for modification to the FDOT CFRPM model for the study is outlined herein. Land use data throughout the study area will be reviewed and ZDATA will be modified as appropriate.

The zone structure in the vicinity of the proposed interchange will be reviewed to provide further refinement of the study area. Traffic Analysis Zones (TAZs) will be split as required to allow for proper loading onto local roadways. Additional planned developments will be included in the TAZs in the vicinity of the proposed interchange as appropriate. The roadway network will be reviewed for the model year and improvements identified will be incorporated in the model.

C. *Validation Methodology*

Describe the methodology using current FDOT procedures in data collection procedure

This study will utilize the FDOT Design Traffic Handbook, 2012 procedures for future traffic projections, FHWA procedures and standards.

Identify how modifications to the travel demand forecasting model will be made, including modifications to the facility type and area type for links, modifications to socio-economic data and all input and output modeling files for review.

Project validation will be performed using the count data to validate the reasonableness of the CFRPM traffic demand forecast. The projected volumes will be compared to 2010 traffic counts to check reasonableness of the 2010 model volumes. As appropriate, modifications will be made to the network parameters (area type, facility type, speed, capacity, centroid connectors, etc.) to achieve acceptable validation. The sub-area validation adjustments that were applied to the year 2010 model will be carried over to the year 2035 model. Adjustments made to model network, zonal structure changes, and model parameters will be documented in the IJR.

D. *Adjustment Procedures*

Identify the process used to adjust modeled future year traffic to the defined analysis years. Discuss how trends/growth-rates will be factored into this.

Future Year AADTs

The development of future year AADTs will be based on the conversion of the model derived volumes by applying the Model Output Conversion Factor (MOCF) consistent with the Project Traffic Forecasting Handbook, 2012. The growth rates for Future Year AADTs will be developed based on comparison of historic trends, forecasted Year 2035 model output volumes and population studies (BEBR) in the project area to ensure reasonableness. Recommended growth rates will be used to obtain the design year 2038 traffic projections.

Design Hour Volumes

The development of future year estimates of intersection turning movements will be consistent with the procedures outlined in the Project Traffic Forecasting Handbook, 2012. The existing

turning movement volumes at the study intersections will be utilized to develop the percent turns. TURNS5 spreadsheet with the projected AADTs, K and D factors will be utilized to derive the a.m. and p.m. peak hour turning movement volumes. The turning movement volume estimates will be checked for reasonableness and manually adjusted where necessary.

The IJR will document the forecasting of future travel demand for each of the alternatives and model validation procedure within the Area of Influence. The report will also document the development of the AADTs and turning movement volume estimates and any adjustments performed.

E. *Traffic Factors*

- Utilizing recommended ranges identified in the Project Traffic Forecasting Handbook and Procedure (525-030-120).
- Utilizing other factors, identified below

Roadway	K	D	T	T_f	PHF	MOCF
I-75	10.5%	56.8%	20.3%	10%	0.95	0.93
SR 44	9.0%	56.3%	15.6%	7.8%	0.95	0.93
Florida's Turnpike	10.5%	54.4%	14.8%	7.4%	0.95	0.96
CR 470	9.5%	56.3%	19.5%	10.0%	0.95	0.93
I-75 Ramps at SR 44	9.0%	NA	19.5%	10.0%	0.95	0.93
I-75 Ramps at Florida's Turnpike	10.5%	NA	14.8%	7.4%	0.95	0.96
I-75 Ramps at CR 470	9.5%	NA	19.5%	10.0%	0.95	0.93

Source: FTI 2012

6.0 Traffic Operational Analysis

The area type, traffic conditions, and analysis tools to be used are summarized in this section.

A. *Existing Area Type/Traffic Conditions*

Area Type	Conditions (Existing and Future)	
	Under-saturated	*Saturated*
Rural	☒	☒
Urban Areas/Transitioning Urbanized Areas	☐	☐
Urbanized Areas/Central Business District (CBD)	☐	☐

B. *Traffic Analysis Software Used*

Software		System Component					
		Freeways				Cross Road	
Name	Version	Basic Segment	Weaving	Ramp Merge	Ramp Diverge	Arterials	Intersections
LOSPLAN		☐	☐	☐	☐	☐	☐
HCS/HCM	2010	☒	☒	☒	☒	☐	☐
Synchro	8.0	☐	☐	☐	☐	☒	☒
SimTraffic	8.0	☐	☐	☐	☐	☒	☒
Corsim		☐	☐	☐	☐	☐	☐
Vissim		☐	☐	☐	☐	☐	☐
Other		☐	☐	☐	☐	☐	☐

C. *Calibration*

- Calibration methodology and parameters utilized will be documented. Any deviations will be justified.

D. *Selection of Measures of Effectiveness (MOE)*

- *The Level of Service criteria for each roadway classification, including mainline, ramps, ramp terminal intersections and the cross road beyond the interchange ramp terminal intersections are identified below.*

Adopted Level of Service Criteria

	Mainline	Ramps/Intersections
I-75	C	C
Florida's Turnpike	C	C
SR 44	C	C
CR 514	D	D
CR 470	D	D

- *In addition to the Level of Service criteria, state other operational criteria to be utilized for the evaluation of alternatives.*

Delays, V/C ratio, speed, and density will be documented in the report as applicable.

7.0 Safety Analysis

A. *Detailed crash data within the study area will be analyzed and documented.*

Years: 2009-2012
Source: FDOT CARS Database, Florida Signal Four Analytics, Florida's Turnpike, and local agencies

B. *Additional safety analysis tools or procedure may be used to analyze the safety performance as outlined below.*

HSM procedures will be utilized as needed for the study.

8.0 Consistency with Other Plans/Projects

A. *The request will be reviewed for consistency with facility Master Plans, Actions Plans, SIS Plan, MPO Long Range Transportation Plans, Local Government Comprehensive Plans or development applications, etc.*

CR 514 interchange is identified as a needed project in the Lake~Sumter Metropolitan Planning Organization's adopted long range transportation plan, TRANSPORTATION 2035. Support for the project is well documented in Sumter County's comprehensive plan, Unified Sumter County/Center Hill/Webster Comprehensive Plan, adopted in 2012, in Chapter 2 and Chapter 8.

B. *Where the request is inconsistent with any plan, steps to bring the plan into consistency will be developed.*

The request is consistent with Lake~Sumter Metropolitan Planning Organization's long range transportation plan.

C. *The operational relationship of this request to the other interchanges will be reviewed and documented. The following other IARs are located within the area of influence.*

1. Florida's Turnpike interchange with CR 468
2. Operational Improvements at I-75 and Florida's Turnpike interchange

9.0 Environmental Considerations

A. *Status of Environmental Approval and permitting process.*

Environmental approval and permitting process will be studied as part of phase II of the US 301 PD&E study after approval of the IJR. The limits of phase II will be from west of I-75 to US 301 approximately 1.1 miles to the east of the proposed interchange.

B. *Identify the environmental considerations that could influence the outcome of the alternative development and selection process.*

No significant impacts are expected as a result of the proposed interchange to the natural, physical, socio-cultural, or economic aspects of the environment. Further investigation based on ETDM screening will be documented in the IJR.

10.0 Coordination

Yes	No	N/A	
☒	☐	☐	An appropriate effort of coordination will be made with appropriate proposed developments in the area.
☒	☐	☐	Request will identify and include (if applicable) a commitment to complete the other non-interchange/non-intersection improvements that are necessary for the interchange/intersection to function as proposed.
☒	☐	☐	Request will document whether the project requires financial or infrastructure commitments from other agencies, organizations, or private entities.
☒	☐	☐	Request will document any pre-condition contingencies required in regards to the timing of other improvements and their inclusion in a TIP/STIP/LRTP prior to the Interstate access acceptance (final approval of NEPA document).
☒	☐	☐	Request will document the funding and phasing.

11.0 Anticipated Design Exceptions and Variations

☒ Design exceptions/variations are not anticipated, but if an exception/variation should arise it will be processed per FHWA and FDOT standards.

☐ The following exceptions/variations to FDOT, AASHTO or FHWA rules, policies, standards, criteria or procedures have been identified:

No design exceptions are expected during the IJR process for the proposed interchange. Furthermore, the appropriate design standards as identified in FDOT's *Roadway Plans Preparation Manual* will be met throughout the conceptual design phase of the Interchange Proposal Process. Roadway cross-sections evaluated in the Interchange Proposal will show proper lane balance with the mainline segment upstream and downstream from the interchanges. Acceleration and deceleration lanes, drop lanes, ramp junctions and weaving freeway sections will meet all applicable federal and state standards based on the *Geometric Design of Highways and Streets* by the American Association of State Highway and Transportation Officials (AASHTO).

12.0 Conceptual Signing Plan

A conceptual signing and marking plan shall be prepared and included.

13.0 Access Management Plan

An access management plan may be developed within the area of influence to complement the improvements to the interchange.

14.0 FHWA Policy Points

The FHWA 8 Policy Points will be addressed within the request.

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FIGURE 1
Study Area

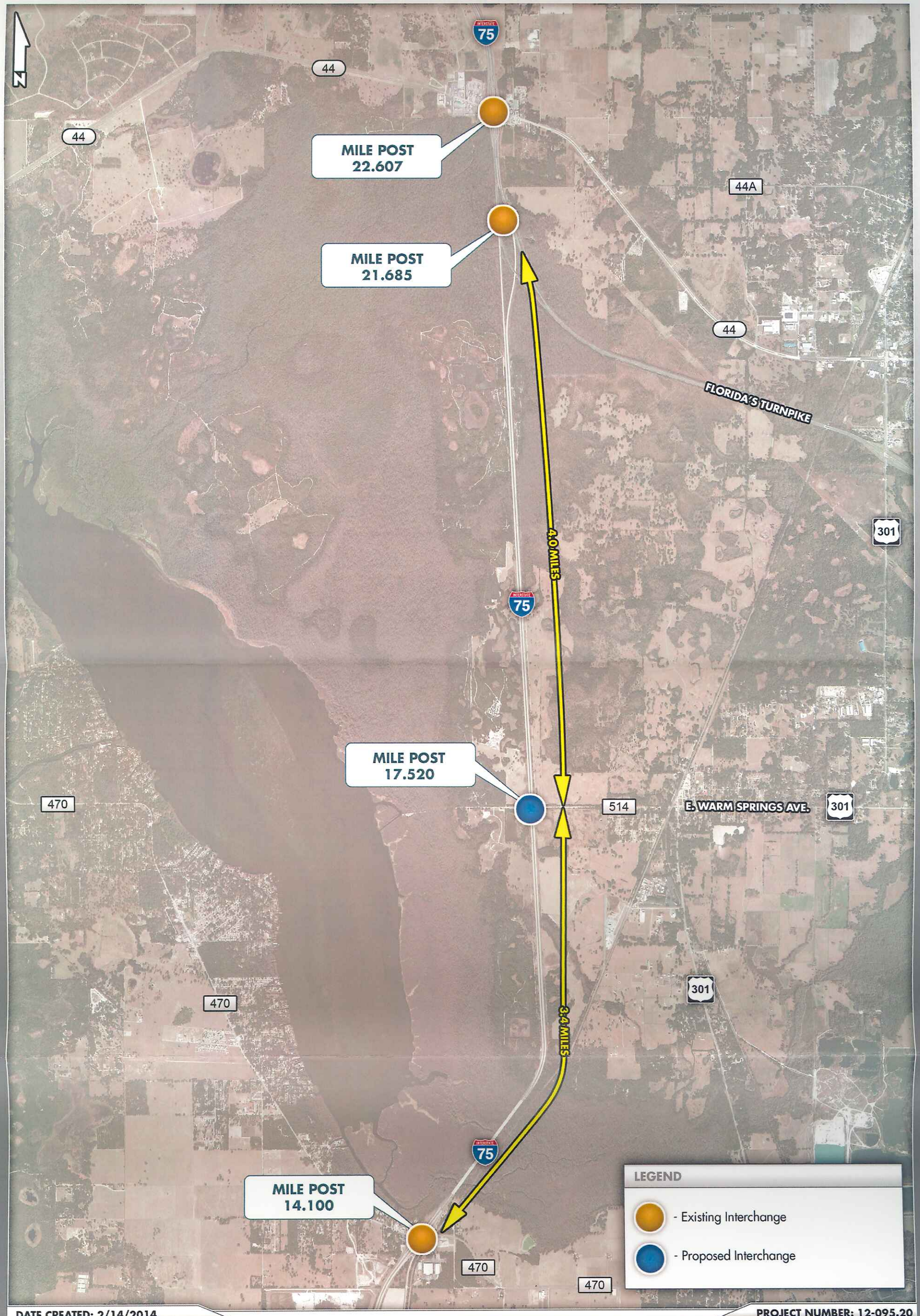

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FIGURE 2
Project Location

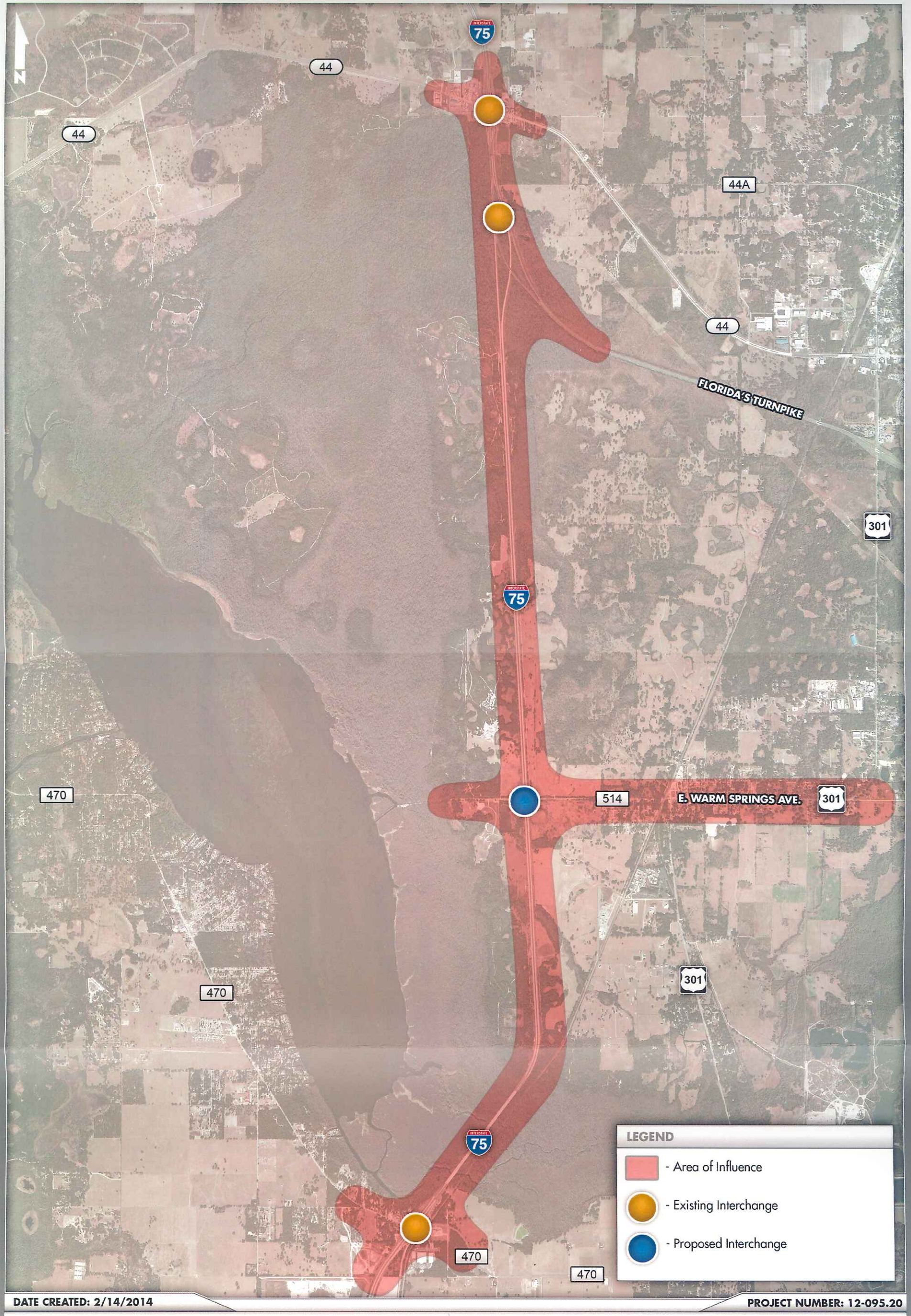

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FIGURE 3
Area of Influence