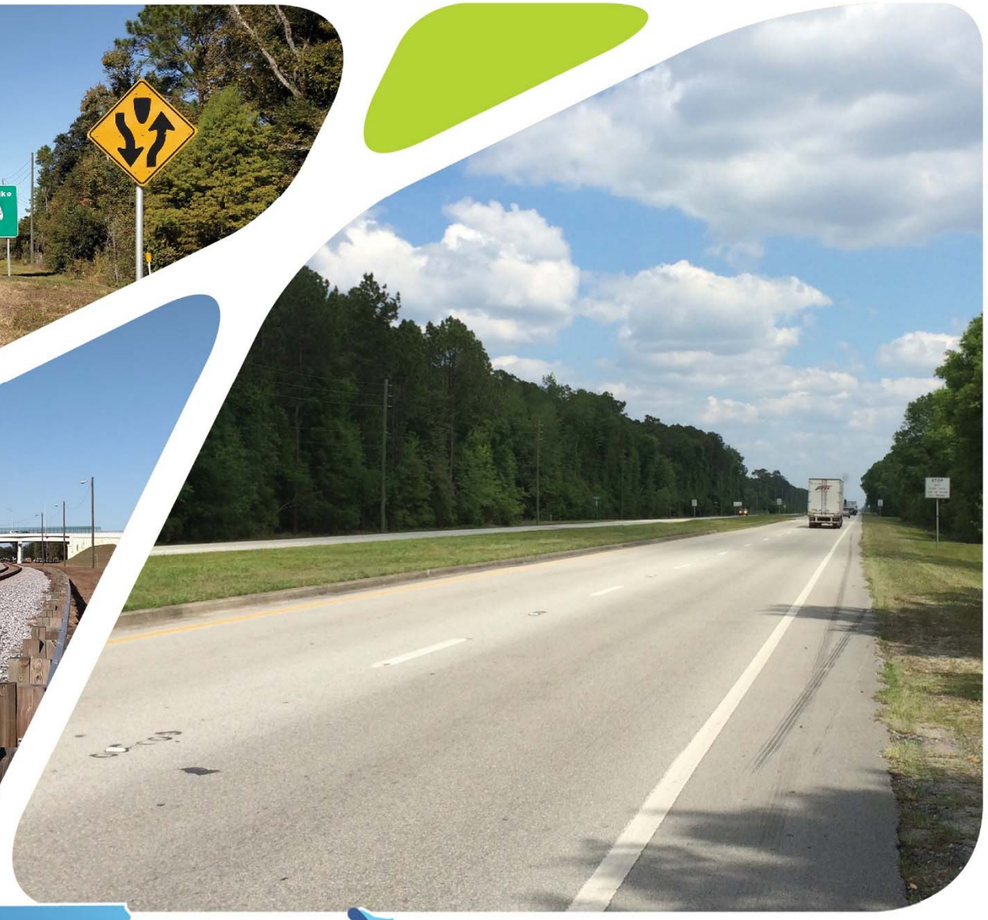

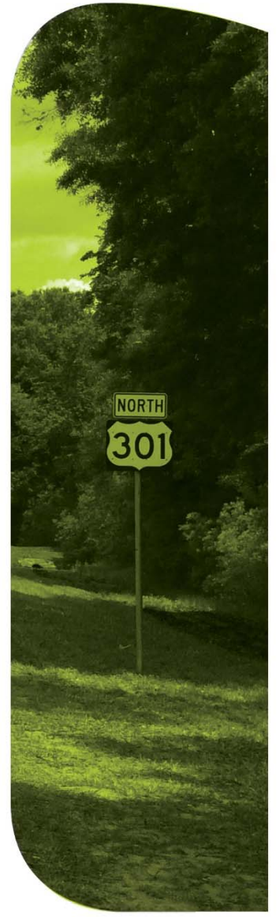

Balancing Corridor Needs and Opportunities

US 301 TRANSPORTATION ALTERNATIVES STUDY

September 2015

Centennial FDOT 1915 ★ 2015

ACKNOWLEDGEMENTS

The Florida Department of Transportation's Systems Planning Office, along with Kimley-Horn, has prepared this Transportation Alternatives Study for the US 301 Corridor and would like to thank the following for their support and assistance in the study's development.

This document is a result of collaborative efforts between multiple municipalities and agencies, including the following:

- Florida Department of Transportation – Central Office
  - Systems Planning Office
  - Office of Policy Planning
  - Office of Freight Logistics and Passenger Operations
  - Environmental Management Office
  - Transportation Statistics
  - Traffic Engineering and Operations Office
- Florida Department of Transportation
  - District 2 and District 5
- Florida Trucking Association
- Florida Division of Emergency Management
- Florida Department of Economic Opportunity
- Regional Planning Councils
  - East Central Florida
  - North Central Florida
  - Northeast Florida
- Metropolitan Planning Organizations
  - Lake-Sumter MPO
  - Ocala/Marion County TPO
  - North Florida TPO

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Section 1: Introduction

1.1 Study Background and Purpose

In the State of Florida, US 301 is a vital north-south corridor for the transportation of people and goods which are an essential part of the state's economy. It is important that US 301 be able to accommodate the future and existing needs of growing traffic demand. In an effort to assess the current and future conditions of US 301, the Florida Department of Transportation (FDOT) Systems Planning Office, in coordination with local governments, regional transportation planning agencies, FDOT Districts and other state agencies, has developed the US 301 Transportation Alternatives Study, from CR 470 West in Sumter County to the Florida/Georgia State line. Since the US 301 study corridor traverses through multiple agency jurisdictions and is a strategically important corridor, FDOT Central Office has produced this study to identify alternatives for individual sections and to improve the corridor as a whole.

This corridor transportation alternatives study is the beginning of a larger process carried out by FDOT. The FDOT major project development process outlines the steps needed to identify projects and alternatives in the planning phase, develop detailed design plans, secure right-of-way (ROW), and proceed to construction. This study provides preliminary information on the needs of the existing facility and a series of alternative strategies for improving US 301. The relationship of this study to other project phases can be seen in Figure 1.1.1.

This high-level type of planning study is the first step in a larger process being carried out by FDOT and will provide valuable input to FDOT's Future Corridors Initiative. The Future Corridors Initiative is a statewide effort led by FDOT to plan for the future of major transportation corridors critical to the state's economic competitiveness and quality of life over the next 50 years. This initiative builds upon the 2060 Florida Transportation Plan, which calls for planning a transportation system that maintains the economic competitiveness by meeting current and future transportation needs for moving people and freight. The guiding principles of this corridor study are the following:

- Coordinate and consult with stakeholder agencies along the US 301 corridor
- Coordinate long-range transportation and development plans and visions to identify and meet a growing demand for moving people and freight
- Identify economically efficient investment alternatives that maximize the benefits to the public
- Identify long-range alternatives that support statewide and regional goals for economic development, quality of life, and environmental stewardship
- Provide near-term solutions for sections of US 301 that are already congested
- Improve connectivity among Florida's regions and between Florida and other states and nations, and among Florida's regions to better support economic development opportunities consistent with regional visions and the Florida Department of Economic Opportunity's (DEO's) Strategic Plan for Economic Development.

The corridor transportation alternatives study is divided into three phases, which are illustrated on the study flow chart of activities in Figure 1.1.2. The phases include:

- Discovery phase
- Plan framework and assessment
- Alternatives development.

Study Phase 1: Discovery Phase

This phase includes identifying the goals of the study and data collection efforts.

Study Phase 2: Plan Framework and Assessment

After the available data collection is completed, an analysis and a preliminary needs assessment for the corridor is conducted to consider safety and mobility, planning and operations, ITS and freight improvement opportunities. The existing characteristics and conditions along the US 301 corridor include five main elements: demographics, mobility/traffic, physical environment, emergency evacuation/ response, and economic development benefits. This document identifies the needs and opportunities in each of the five elements.

Study Phase 3: Alternatives Development

In addition to cross-jurisdictional and interdisciplinary coordination efforts and an assessment of environmental and community resources in the development of the corridor needs, site-specific field visits and additional FDOT District and regional coordination efforts have occurred as part of the US 301 Transportation Alternatives Study. These efforts provided the framework for a context-sensitive approach to best meet statewide objectives as well as identify and develop strategies to address local and regional needs along the corridor. This approach provides an interdisciplinary and holistic approach to developing multimodal transportation solutions, and will guide future phases of evaluation where additional stakeholder and public involvement will be essential to developing a joint vision for this strategic corridor.

Figure 1.1.1: Transportation Alternatives Study Process

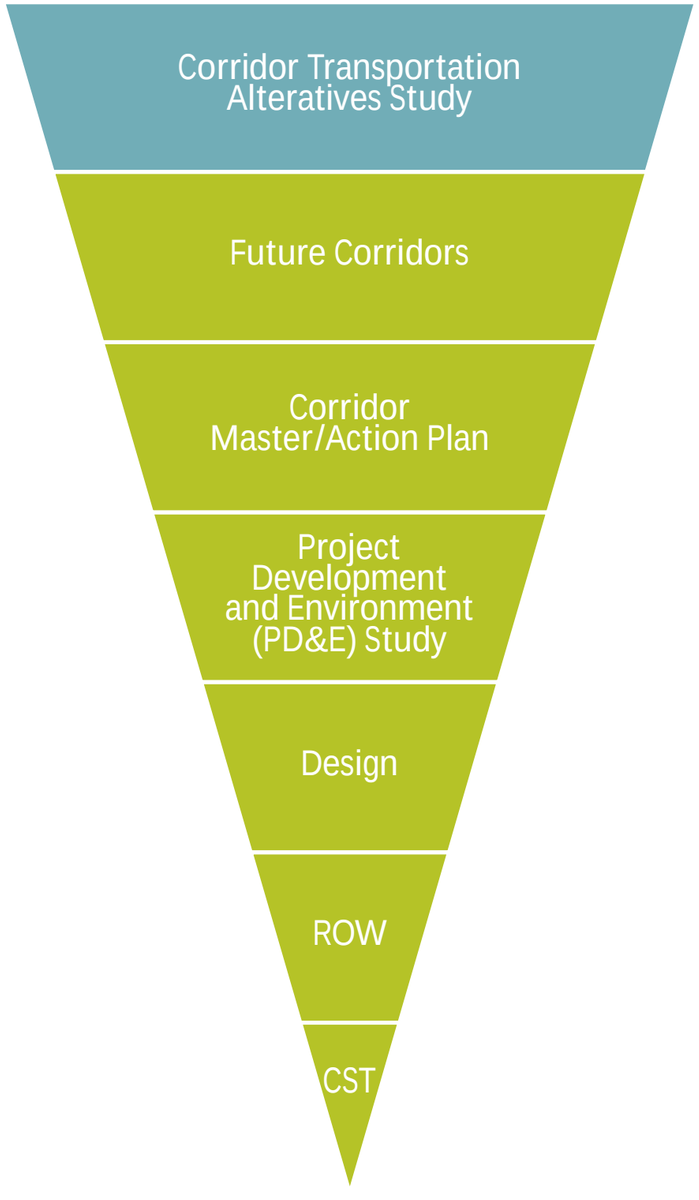
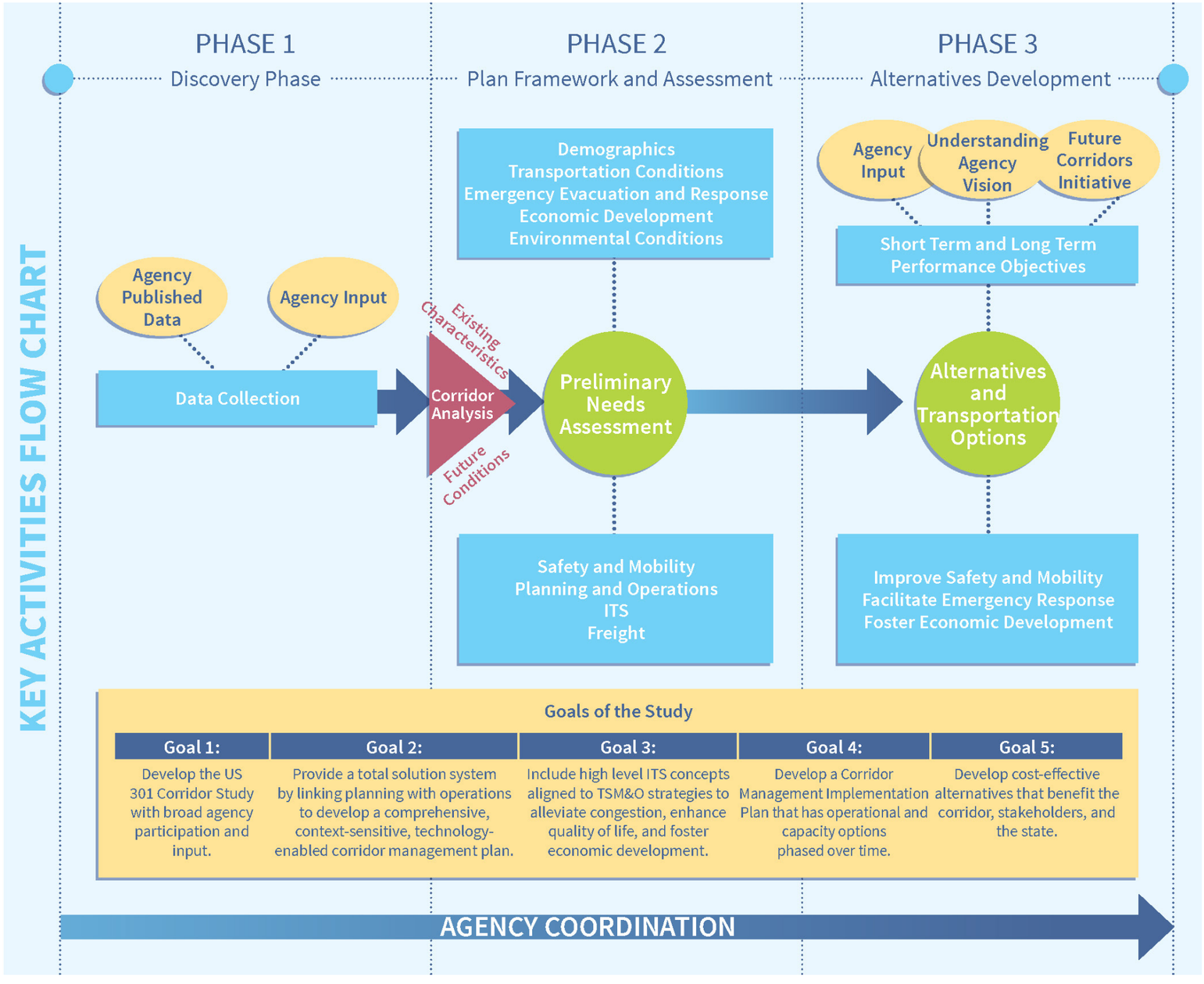


Figure 1.1.2: US 301 Study Activities



1.2 Study Corridor

US 301 is a significant north-south roadway that provides mobility throughout Florida and the east coast of the United States. See Figure 1.2.1. The overall US 301 corridor in Florida is a freight corridor that spans from the Gulf of Mexico shipping ports in Tampa, south of the study corridor, through central Florida, and into northeast Florida. This US 301 alternatives study traverses seven counties in central and northeastern Florida, illustrated in Figure 1.2.2. These counties include Sumter, Marion, Alachua, Bradford, Clay, Duval, and Nassau. The 155-mile study corridor begins south of Florida's Turnpike at County Road (CR) 470 West in Sumter County and ends at the Florida/Georgia State Line in Nassau County.

The US 301 study corridor has been separated into six segments in order to better understand and analyze specific needs along the length of this discussed corridor. Within each segment are consistent roadway and/or area type characteristics. Location (FDOT District, County, City/town), roadway area type, annual average daily traffic (AADT), number of lanes, and speed limit were all considered when determining the limits of each segment. The segmentation map is shown in Figure 1.2.3. A description of each segment is described in Table 1.2.1.

Figure 1.2.1: US 301 Corridor

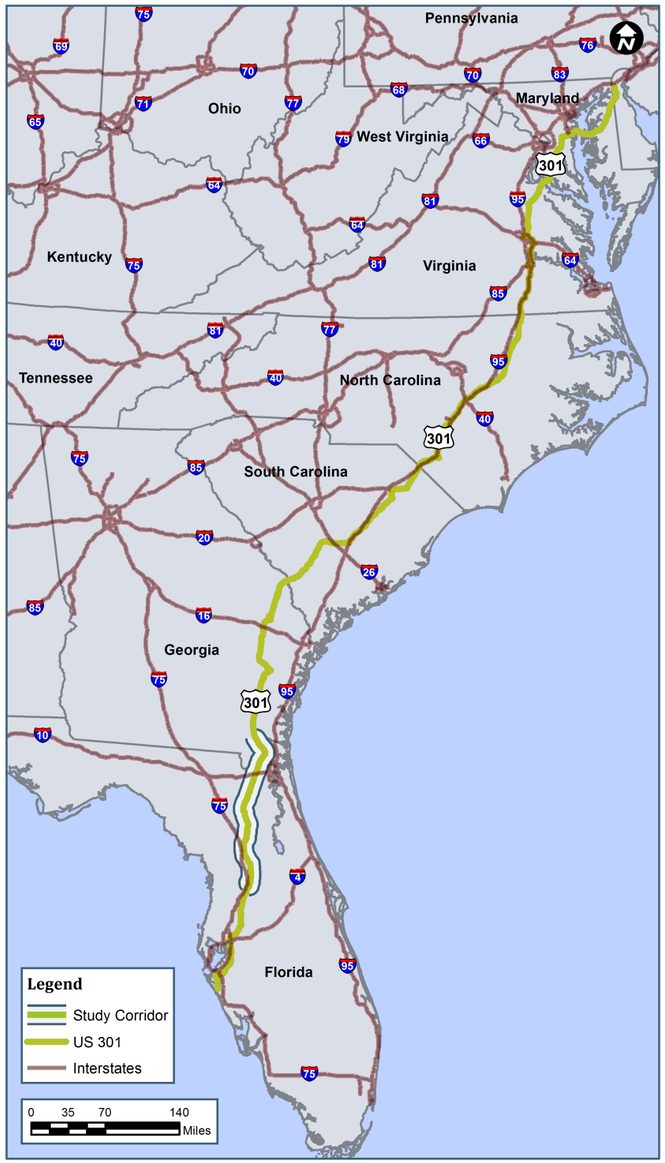


Figure 1.2.2: Study Corridor

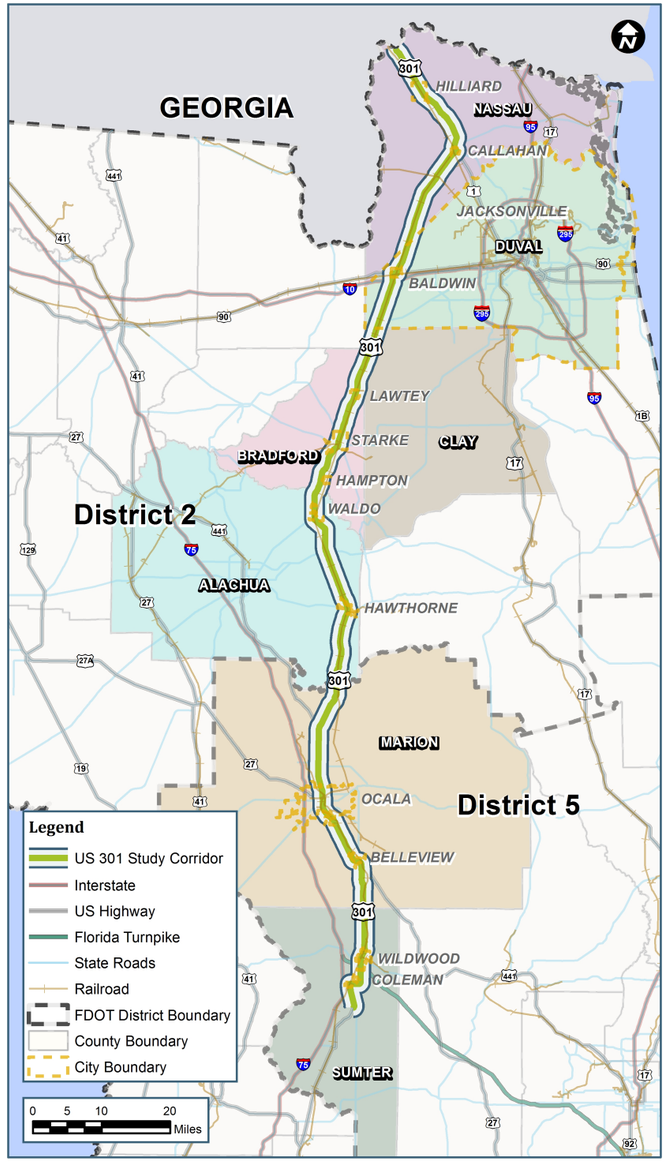


Figure 1.2.3: Segment Map

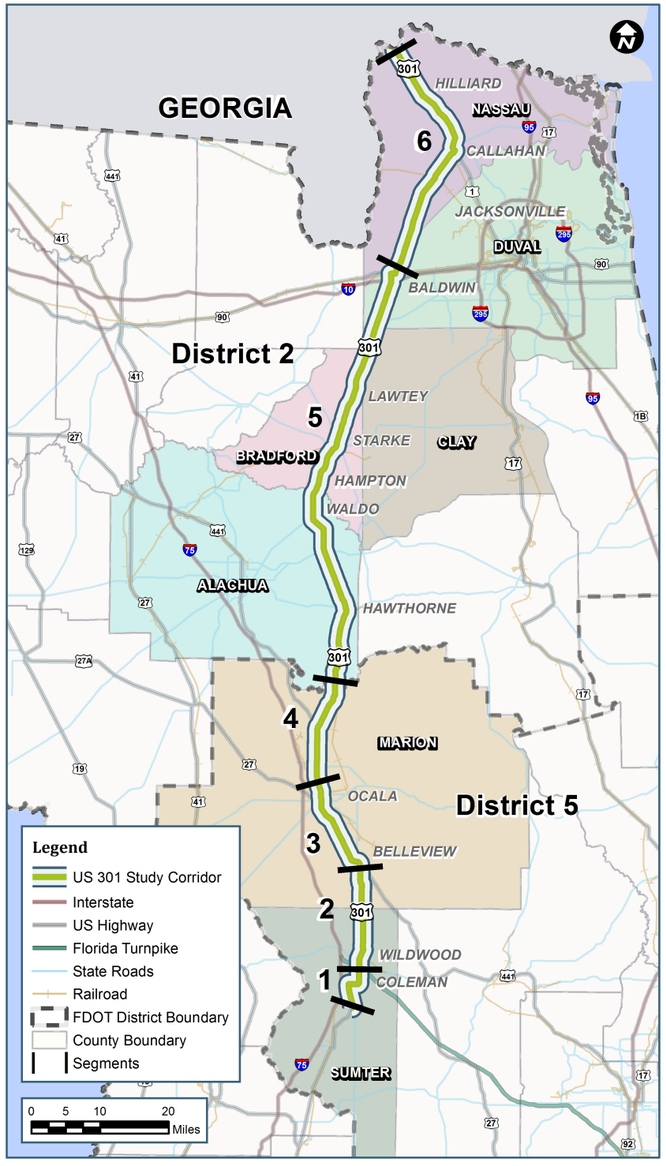


Table 1.2.1: US 301 Segment Descriptions

	From	To	Distance (miles)	Traversed Jurisdictions	Number of Through Lanes	Speed Limit (mph)	Area Type
Segment 1	CR 470 W (Sumter County)	Florida's Turnpike	7.6	Coleman, Sumter County	2	35 to 55	Rural Undeveloped, Rural, Urban
Segment 2	Florida's Turnpike	Southern Belleview City Limit	14.9	Wildwood, Sumter County; Marion County	2 to 4	35 to 55	Transitioning, Urban
Segment 3	Southern Belleview City Limit	Northern Ocala City Limit	13.9	Belleview, Marion County; Ocala Marion County	4 to 6	35 to 55	Urban
Segment 4	Northern Ocala City Limit	Marion/Alachua County Line	15.5	Marion County	4	45 to 65	Transitioning, Urban
Segment 5	Marion/ Alachua County Line	US 90 (Duval County)	64.9	Hawthorne, Alachua County; Waldo, Alachua County; Hampton, Bradford County; Starke, Bradford County; Lawtey, Bradford County; Clay County; Baldwin, Duval County	4	30 to 65	Rural Undeveloped, Rural, Transitioning, Urban
Segment 6	US 90 (Duval County)	Florida/Georgia State Line	37.2	Baldwin, Duval County; Callahan, Nassau County; Hilliard, Nassau County	2 to 4	30 to 65	Transitioning, Urban

Section 2: Goals, Data Collection and Outreach

2.1 Goals

The determination of effective guiding principles and goals at the outset of this long range corridor planning study helps shape the overall direction of the plan. This process gives technical staff and stakeholders an opportunity to align their visions for the plan so that appropriate alternatives can be identified and prioritized to move that vision forward. This effort considered previously established goals for previous corridor alternatives studies (US 19, US 27, I-95, and I-75) completed by FDOT as well as the vision held by current FDOT leadership on the direction for the alternatives for this US 301 study. The goals for this study are:

- Goal 1: Develop the US 301 Corridor Study with broad agency participation and input
- Goal 2: Provide a total solution system by linking planning and operations to develop a comprehensive, context-sensitive, technology-enabled corridor management plan
- Goal 3: Include high level ITS deployment concepts aligned to Transportation System Management and Operations (TSM&O) strategies for the US 301 corridor to alleviate congestion, enhance quality of life, and foster economic development
- Goal 4: Develop a Corridor Management Implementation Plan that discusses how the corridor operational and capacity options can be phased over time
- Goal 5: Develop cost-effective alternatives that benefit the corridor, stakeholders, and the state.

2.2 Data Collection

As part of the data collection efforts, collection and review of previously completed and currently ongoing studies were analyzed as well as input provided by stakeholders at regional and state levels. In addition, review of long-range transportation planning documents created by MPOs along the corridor were studied in order to understand their vision of the US 301 corridor and potential future improvements. Table 2.1.1 identifies transportation studies completed on a regional or statewide level.

2.3 Stakeholder Outreach

Stakeholder outreach occurred at both a state and regional level for input; and is helpful in developing alternatives that will benefit the entire corridor. Data and input already completed as part of the Department's Future Corridors Initiative was reviewed. In addition, the participating stakeholders assisted in data collection efforts by providing existing plans and studies and also input to assist the study team in understanding the needs of the corridor to enhance mobility and safety along the corridor. Stakeholder outreach included coordination with the following agencies and organizations:

- Florida Department of Transportation (FDOT) – Central Office
  - Office of Systems Planning
  - Office of Policy Planning
  - Office of Freight Logistics and Passenger Operations
  - Environmental Management Office
  - Transportation Statistics
  - Traffic Engineering and Operations Office
- FDOT
  - District 2 and District 5
- Florida Trucking Association
- Florida Division of Emergency Management (DEM)
- Florida Department of Economic Opportunity (DEO)
- Regional Planning Councils (RPC)
  - Withlacoochee RPC
  - Northeast Florida RPC
- Metropolitan Planning Organizations (MPO)
  - Lake-Sumter MPO
  - Ocala/Marion County TPO
  - North Florida TPO

In additional to communication with agencies, information for the corridor was collected from the following sources;

- US Census Bureau
- University of Florida's Bureau of Economic and Business Research (BEBR)
- Florida Geographical Data Library (FGDL)
- Florida Traffic Information (FTI)/Florida Traffic Online (FTO)
- FDOT Roadway Characteristics Inventory (RCI) Database
- FDOT Crash Analysis Reporting System (CARS)
- FDOT Work Program
- Federal Emergency Management Agency (FEMA)
- US Fish and Wildlife Service (USFWS)
- Florida Natural Areas Inventory (FNAI)
- Florida Fish and Wildlife Conservation Commission (FWC)
- Florida Department of Environmental Protection (FDEP)
- State Historic Preservation Officer (SHPO)
- United States Department of Agriculture (USDA)
- Florida Emergency Management Agency (FEMA)
- University of Florida GeoPlan Center
- Florida Department of Revenue
- St. Johns Water Management District
- Southwest Florida Water Management District
- Suwannee River Water Management District

Table 2.1.1: Transportation Studies - US 301 Corridor

Transportation Studies		
FDOT Office of Freight, Logistics and Passenger Operations	Year in Review: FY 2012–2013 *2013*	*The Office of Freight, Logistics and Passenger Operations (FLP) was created to act as a tool to better connect, develop, and implement a freight planning process that maximizes the use of existing facilities and integrates and coordinates the various modes of transportation to ensure that Florida's logistics infrastructure remains cutting edge. The report summarized previous and future FLP projects. No specific recommendations are provided for the US 301 Corridor.*
FDOT Office of Policy Planning	Florida's Future Corridors—Tampa Bay to Northeast Florida Study Area and Concept Report *Current/Ongoing*	*This study assesses the need for better connectivity between Tampa Bay and Jacksonville, two large regions that are not well connected. The full study explores alternatives to enhance the connectivity between Gainesville/Ocala and the Jacksonville area. Portions of US 301 may be included for this corridor.*
FDOT Office of Policy Planning	Florida Transportation Trends and Conditions: Transportation System-Air Facilities - Passengers and Freight *February 2013*	*In recent years, the demand for priority shipping has increased significantly. Public airports have been expanding to meet increased demand. Even with security concerns and higher fuel costs, air travel continues to remain a viable option for moving people and freight. With this, air travel depends on an integrated transportation network to transport passengers and freight to and from the airport. As air travel continues to grow, an equivalent transportation network is vital.*
FDOT Office of Policy Planning	Florida Transportation Trends and Conditions—Transportation System-Seaports—Freight and Cruise Activity *Current/Ongoing*	*Florida's rail network is a critical element in the transportation of goods throughout Florida. To ensure that future freight movement needs will be met, FDOT has evaluated the future needs and summarized the results in this report. With the growing economy, increased transportation demand for persons and freight also will increase. These needs will rely partially on the current and potential future infrastructure of the railroad to satisfy the growing economy and population of Florida.*
FDOT Office of Policy Planning	Florida Transportation Trends and Conditions: Transportation System—Transit and Transportation Disadvantaged *August 2013*	*This study analyzed the services available and the needs of Florida with regards to transit and transportation disadvantaged (TD) programs; including fixed route services (bus and rail) and also disabled and transportation disadvantaged services. According to the report, Nassau County, Clay County, and Bradford County do not have any fixed route or vanpool vehicles in operation; Sumter County has rural fixed routes, Marion County has waived urban fixed routes, and Alachua County has 50-200 vehicles. The number of available trips decreased throughout Florida as the economy fell. As the elderly population continues to grow, transit and TD programs will need to increase to satisfy this need.*
FDOT Office of Policy Planning	Florida Transportation Trends and Conditions: Transportation System-Rail Facilities—Freight and Passengers *January 2011*	*Florida's rail network is a critical element in the transportation of goods throughout Florida. To ensure that future freight movement needs will be met, FDOT has evaluated the future needs and summarized the results in this report. With the growing economy, increased transportation demand for persons and freight will also increase. These needs will rely partially on the current and potential future infrastructure of the railroad to satisfy the growing economy and population of Florida.*
FDOT Office of Policy Planning	2060 Florida Transportation Plan *2010*	*The Florida Transportation Plan (FTP) defines transportation goals, objectives, and strategies to make our economy more competitive, enhance quality of life, and ensure our environment provides quality places to live for future generations. The FTP is a plan for all of Florida, including local, regional, and state partners. The plan has set a goal of developing multimodal options for moving people and freight within the state as part of an integrated transportation system.*
FDOT Systems Planning Office	I-75 Sketch Interstate Plan Technical Memorandum *November 2010*	*FDOT Central Office has prepared a Sketch Interstate Plan for the I-75 corridor from the Florida/Georgia State line south through Sumter County. The major purpose of this report is to improve the mobility of users of I-75 by examining the existing interstate system and reveal general problem areas and trends that will be examined in more detail in a later phase. It was stated that US 301 is a primary route for transporting goods northbound and southbound outside of I-75 and I-95 in north and central Florida. US 301 averaged 50 miles less of travel than I-75 when traveling from Jacksonville to Gainesville, Ocala, or Wildwood. In addition, truck spillover onto US 301 may occur as I-75 becomes more congested.*
FDOT Systems Planning Office	Freight & Logistics Overview *January 2013/August 2014*	*These reports provide a freight and logistic overview on a FDOT District and county level. The reports have been created as a "quick fact" report that summarizes specific characteristics for each District or county; including top imports, top exports, top trading partners, etc. The reports also include a summary map that highlights the freight infrastructure and major developments within the study area.*

Table 2.1.1: Transportation Studies - US 301 Corridor (continued)

FDOT Office of Policy Planning	Florida Transportation Trends and Conditions: Travel Demand- Trade and Freight Transportation Demand *July 2012*	*This report analyzed the historical growth rates to predict future freight travel demand throughout Florida. Though no specific recommendations are provided in the report for the US 301 Corridor, the results of this report can benefit the US 301 Transportation Alternatives Study. It was concluded that economic competitiveness and safe and efficient travel are the primary goals as freight movement increases throughout the state.*
Lake-Sumter MPO	Lake-Sumter MPO Transportation 2035 LRTP *December 2010*	*Identifies needs for US 301 capacity improvements from two to four lanes from Florida's Turnpike to CR 470 West.*
North Florida TPO	North Florida TPO 2035 LRTP Technical Report #8 Envision 2035 Cost Feasible Plan *March 2013*	*Identifies the following needs on US 301:* ➔ *I-10 at US 301 interchange modification (Duval)* ➔ *US 301/SR 200 Baldwin Bypass (Duval)* ➔ *US 301/SR 200 MLK Parkway (US 1) railroad crossing overpass* ➔ *US 301/SR 200 widening to four lanes from north of Baldwin to south of Callahan*
North Florida TPO	North Florida Freight, Logistics and Intermodal Framework Plan *December 2012*	*This plan is a multi-phased, comprehensive, integrated, and intermodal approach to identifying and meeting future freight and logistics needs of the Northeast Florida Region. A future key project in Clay County is the US 301 Corridor Industrial Park, which, by 2025, will contain a maximum of 10,000,000 square feet of industrial warehousing space t. The North Florida TPO has placed a high priority on freight related roadway projects on the US 301 Corridor. In addition, multiple roadway projects have been determined including a roadway widening project north of Baldwin (FY 2013-2020), Baldwin Bypass (FY 2020-2030), grade-separated railroad crossing in Baldwin (FY 2020-2030), and roadway projects south of Baldwin (FY 2030-2040).*
Ocala/Marion County TPO	U.S 441/SR 500 (Pine Avenue) Corridor Study *March 2013*	*The report summarizes the recommended improvements and includes a Corridor Management Plan to include strategies for implementation and funding of the recommended improvements for the US 301/US 441/SR 500 (Pine Avenue) corridor. The study corridor is located in Ocala between the intersection of CR 475 and NW 2nd Street. The recommended improvements include a variety of roadway and multimodal enhancements designed to create a more walkable urban environment for pedestrians, automobiles, and transit.*
Ocala/Marion County TPO	Ocala/Marion County TPO 2035 LRTP *November 2010*	*Identifies the following needs on US 301:* ➔ *To expand US 301 to six lanes from US 27 to CR 329* ➔ *To have potential dedicated bus lanes or commuter rail services from Sumter County to downtown Ocala* ➔ *To expand US 301 to four lanes from Sumter County to SE 144th Place Road.*

Section 3: Existing Corridor Characteristics and Conditions

3.1 Existing Demographic Elements

Cities in Study Area

- Coleman
- Wildwood
- Belleview
- Ocala
- Hawthorne
- Waldo
- Hampton
- Starke
- Lawtey
- Baldwin
- Jacksonville
- Callahan
- Hilliard

A mix of rural and urban communities comprise the study area's seven counties. The southern limit of the project is in Sumter County and the cities of Coleman and Wildwood; this area has significant growth potential due to its location near major transportation hubs at the Florida Turnpike, I-75, US 301, and SR 44. The US 301 study corridor provides access to The Villages, one of the fastest growing retirement communities in the United States, which now is home to more than 100,000 residents. Traveling north, US 301 continues to serve urbanized areas within Marion County, including Belleview and Ocala. The US 301 corridor traverses mostly rural communities throughout Alachua, Bradford, and Clay Counties, which include the cities of Hawthorne, Waldo, Hampton, Starke, and Lawtey. Entering Duval County, significant truck volumes are present on US 301 through rural Jacksonville and Baldwin as freight is being transferred to and from the Atlantic Coast seaport at the Port of Jacksonville and the Port of Fernandina. As US 301 traverses towards the northern limit of study area, the Florida/Georgia State line, high truck volumes are prevalent on the roadway through the rural communities of Callahan and Hilliard.

Population Growth

The US Census shows that Florida has experienced significant growth during the last 20 years. In 2000, the population of Florida was measured at 16 million; that population increased to nearly 19 million by 2010. According to the 2013 US Census, the estimated population for Florida is over 19.5 million people—a four percent increase since 2010. Table 3.1.1 shows the 2010 population for the seven counties located within the US 301 study limits as well as historic population growth. Population growth is significant to this study, as there is traditionally a high correlation between population growth and traffic growth.

Nearly 10 percent of the Florida population lives within the seven counties in the study area; this population is increasing steadily, as seen in Figure 3.1.1. Sumter County, Marion County, Clay County, and Nassau County experienced an annual population growth rate higher than the state average from 2000 to 2010. The growth of The Villages has contributed to the population growth within Sumter County and Marion County. As a result of Jacksonville's growing economy, its two neighboring counties (Clay County and Nassau County) have experienced population growth higher than the statewide average from 2000 to 2010 due to increased residential development.

Due to the national economic recession in 2007, business and population growth rates decreased across the study area. In some areas, the economy has not bounced back to prerecession growth. This economic slowdown is especially true in rural communities, such as in Bradford County.

Table 3.1.1 Study Area Population Growth

County	1990	2000	2010	2013	Annual Population Growth Rate		
					1990-2000	2000-2010	2010-2013
FLORIDA	**12,937,926**	**15,982,378**	**18,801,310**	**19,552,860**	**2.35%**	**1.76%**	**1.33%**
Sumter	31,577	53,345	93,420	107,056	6.89%	7.51%	4.87%
Marion	194,833	258,916	331,298	337,362	3.29%	2.80%	0.61%
Alachua	181,596	217,955	247,336	253,451	2.00%	1.35%	0.82%
Bradford	22,515	26,088	28,520	26,850	1.59%	0.93%	-1.95%
Clay	105,986	140,814	190,865	196,399	3.29%	3.55%	0.97%
Duval	672,971	778,879	864,263	885,855	1.57%	1.10%	0.83%
Nassau	43,941	57,663	73,314	75,710	3.12%	2.71%	1.09%
Total Population of Study Counties	1,253,419	1,533,660	1,829,016	1,882,683			
Percent of FL Population within Study Counties	9.69%	9.60%	9.73%	9.63%			

Data Obtained from the US Census Bureau

Existing Regional Developments

The following section describes current major developments located near the study area, seen in Figure 3.1.2. In some areas these developments may result in population growth at a higher rate than historical trends within the surrounding area.

The Villages

The Villages is a large, master-planned, age-restricted retirement community that has expanded into three counties in central Florida: Sumter County, Marion County, and Lake County. The Villages is the largest active adult community in Florida with more than 23,000 acres and more than 100,000 existing residents. US 301 to the west and US 27/US 441 to the east transport the majority of the traffic traveling in and out of The Villages.

Camp Blanding

Located east of Starke (Bradford County) is Camp Blanding Joint Training Center (CBJTC). This military installation is on approximately 72,000 acres and is the primary training site for many of Florida's active duty and National Guard units as well as counterdrug units and law enforcement agencies in Florida. Camp Blanding is open 313 days each year; this is much higher than the average of 173 days per year and 242 days per year for typical reserve component training sites and typical active component training sites, respectively.

Cecil Commerce Center

Cecil Commerce Center is a 17,000-acre intermodal freight facility located within 10 miles of US 301 in Duval County. In addition to an airport, Cecil Commerce Center has more than 300 acres of existing and planned mixed-use development and nearly 550 acres of existing and planned industrial development. Located within 40 miles of Cecil are:

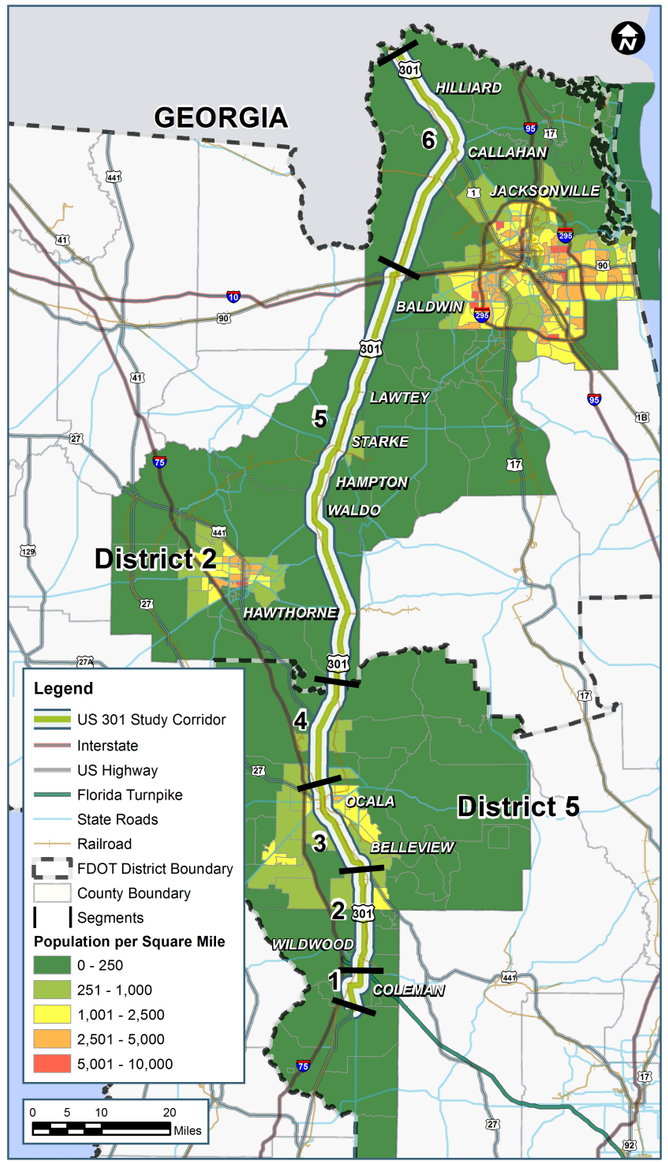
- Three railroad companies (CSX, Norfolk Southern, Florida East Coast Railway)
- Two seaports (Port of Jacksonville, Port of Fernandina)
- Six airports (Cecil Airport, Jacksonville International Airport, Herlong Recreational Airport, Northeast Florida Regional Airport, Jacksonville Executive at Craig Airport, Fernandina Beach Municipal Airport).

Because of the proximity to US 301, Cecil Commerce Center is and will be impacted by the development of this economic center.

Keystone Terminal Jacksonville

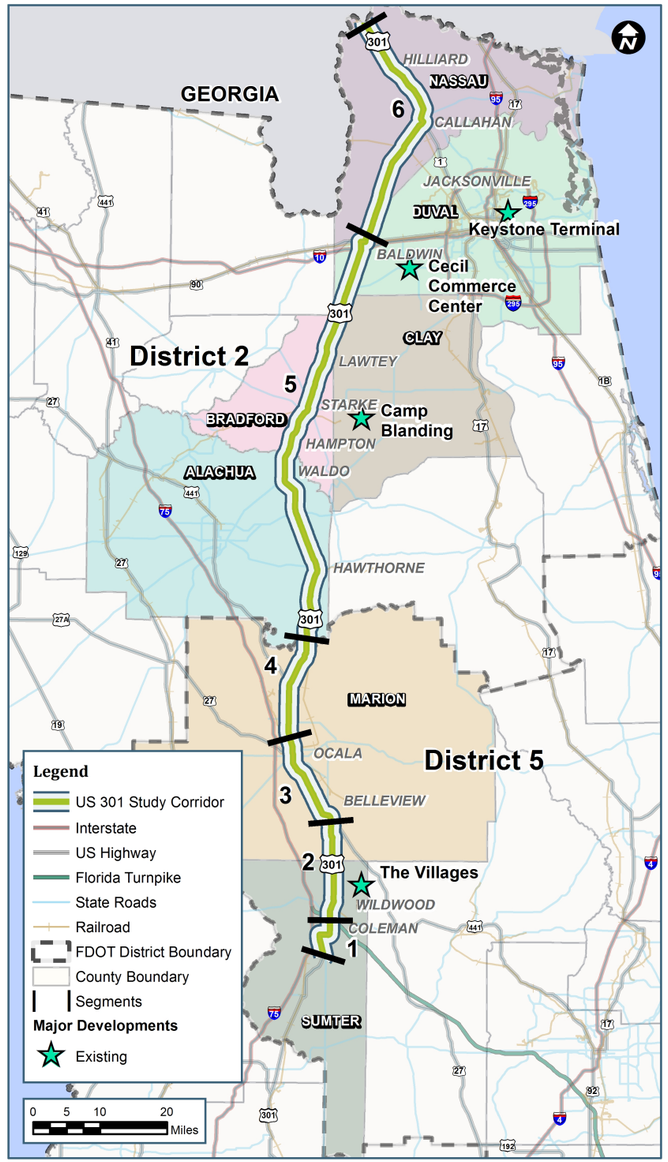
Operating since 2011 by Keystone Industries, LLC, Keystone Terminal is classified as an intermodal logistic center (ILC) due to the large amounts of freight transferring by ship, train, and truck throughout the facility. The Keystone Terminal in Jacksonville is a 110-acre facility that handles imported coal, petroleum coke, and other bulk materials and distributes these materials via truck, rail, or barge. The terminal is located on the St. Johns River and within approximately 20 miles east of US 301.

Figure 3.1.1: Population Density



Information Obtained from 2010 US Census Bureau

Figure 3.1.2: Existing Regional Developments



Information Obtained from Local Planning Agencies

Mobility Characteristics of Population

According to the 2010 US Census, roughly 80 percent of the population in the US 301 study area commutes to and from work by driving single-occupant personal vehicles; this data is presented in Table 3.1.2. With the exception of Alachua County, minimal pedestrian and public transportation is present. There is considerable—greater than 10 percent—carpooling occurring within the study area. Opportunities to support alternative modes of transportation should be considered in identifying corridor alternatives and to alleviate future roadway congestion.

Transportation Disadvantaged

When analyzing population characteristics throughout the corridor, it is also important to understand the needs of the transportation disadvantaged. The transportation disadvantaged are those who are unable to drive due to age, income, or health reasons. Urbanized areas—due to urban sprawl—and rural areas are becoming more vehicle dependent as walkability decreases. According to a study published by Oxford University in 2004, the following mobility-related exclusions were observed:

In order to provide a safe corridor to promote economic and social growth, alternatives must be considered in identifying the needs of the transportation disadvantaged.

- Work: Two thirds of job seekers say that lack of transportation is a barrier to getting a job
- Learning: Nearly half of 16- to 18-year-old students find their transportation costs hard to meet
- Health: During a 12-month period, 1.4 million people missed, turned down, or chose not to seek medical assistance because of transportation problems
- Food shopping: 16 percent of people without a car find access to supermarkets is difficult
- Social activities: 18 percent of people without car access find seeing friends and family difficult because of transportation problems, compared with 8 percent of people with cars

The impact of traffic; children from households in the lowest socioeconomic group are five times more likely to die in road accidents than those from the highest.

Elderly Population

The year-round warm climate and the abundance of attractive retirement communities allow Florida to be one of the most popular states in which to retire. According to the American Association of Retired Persons (AARP), during the next 18 years, more than 8,000 “Baby Boomers” in the United States will be turning 65 years old every day—almost three million people a year. Florida is expected to welcome a significant number of these retirees as new permanent or seasonal residents. In addition, each year, 600,000 people stop driving upon reaching the age of 70. Good alternative transportation options will be necessary in US 301 counties to provide for an aging population.

According to Table 3.1.3, the majority of the counties along the US 301 corridor currently have an elderly population below the state average (18.7 percent). Due to multiple retirement communities located in the following counties, Sumter County (51.6 percent), Marion County (27.4 percent), and Nassau County (19.0 percent) have elderly populations above the state average. Sumter County has the largest elderly population along the corridor, with half of the population over the age of 65. One of the largest active living community in the nation, The Villages, is located in part of Sumter County, Lake County, and Marion County. Since its inception in the 1970s, The Villages has grown to be home to more than 100,000 residents who benefit from planned internal amenities, local road systems, and alternative modes of transportation, such as golf carts.

The rural areas of the corridor are expected to have relatively high percentages of elderly population by year 2040. Unlike The Villages where all the amenities are centrally located, rural areas are not always so fortunate. It is important to provide adequate alternative transportation options to benefit the elderly population in these rural areas.

Two-lane roadway south of Belleview toward The Villages

Table 3.1.3: Elderly (65+) Population by County

County	2013 Pop.	2013 Elderly Pop.	% of 2013 Pop.	2015 Pop.	2020 Pop.	2025 Pop.	2030 Pop.	2035 Pop.
FLORIDA	**19,552,860**	**3,656,400**	**18.7%**					
Sumter	107,056	55,200	51.6%	54,970	74,196	80,663	93,394	95,455
Marion	337,362	92,400	27.4%	93,062	111,353	125,116	146,892	153,146
Alachua	253,451	30,400	12.0%	32,514	41,530	48,958	55,845	57,587
Bradford	26,850	4,600	17.0%	4,648	5,422	6,110	6,833	6,850
Clay	196,399	26,900	13.7%	27,406	34,722	41,995	50,619	55,208
Duval	885,855	109,800	12.4%	115,541	139,828	166,140	190,591	201,011
Nassau	75,710	14,400	19.0%	14,549	19,006	22,921	27,622	29,543

Table 3.1.2: Mobility to Work by County

County	Drove Alone	Carpooled	Public Transportation	Bicycle or Walked	Taxicab, Motorcycle, or Other Method	Worked at Home
FLORIDA	**79.6%**	**10.4%**	**1.9%**	**2.2%**	**1.5%**	**4.4%**
Sumter	73.9%	13.6%	0.2%	1.8%	4.4%	6.2%
Marion	80.6%	13.6%	0.2%	1.8%	2.0%	4.9%
Alachua	75.0%	11.9%	3.1%	5.8%	1.2%	3.1%
Bradford	85.5%	9.1%	0.0%	3.4%	0.2%	1.9%
Clay	78.6%	11.8%	0.2%	2.2%	0.9%	6.3%
Duval	82.1%	10.6%	1.4%	1.9%	1.1%	3.0%
Nassau	78.9%	12.1%	0.2%	2.2%	1.1%	5.5%

Data Obtained from the US Census Bureau: American Community Survey 2006 – 2010 Five-Year Estimates

Poverty Population

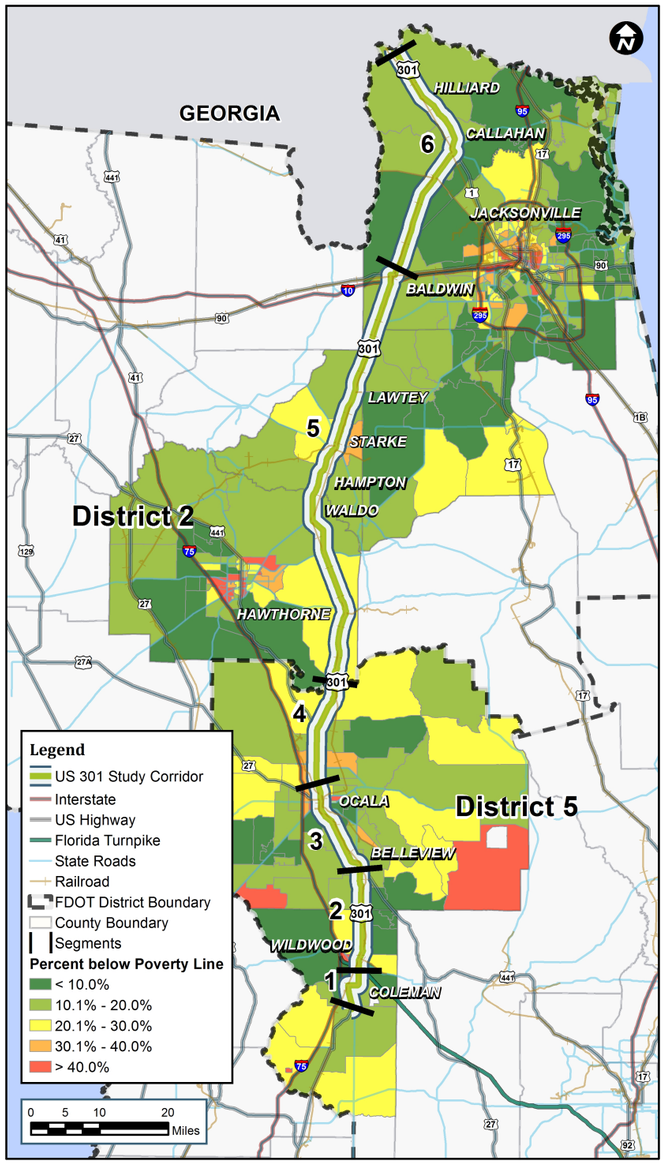
Since poverty effects travel demand and areas along the corridor may have a higher travel dependency, transportation alternatives which support communities with low-income must be considered. Figure 3.1.4 depicts the percent of the population below poverty per US Census tract. Up to 20 percent of all people in the study area live below the poverty line; in Starke and parts of Marion County, the percentage could be as high as 40 percent.

Tourism and Seasonal Population Impacts

Florida's beaches and warm climate year round encourages people to travel to Florida throughout the entire year. US 301 has significant visitor travel demand since the north/south corridor is a link to many points of interest throughout the state.

Three telemetered traffic monitoring sites located along the study corridor, which measured traffic volumes every hour of the day all year long in 2013, were analyzed to determine seasonal traffic volumes. In Florida, there is typically a travel peak at the first of the year as people travel from the north in order to take advantage of the warmer climate in Florida—these travelers are commonly known as "snow birds." In addition, a small peak in Nassau County is observed from July to September.

Figure 3.1.4: Poverty Density



Information Obtained from 2010 US Census: American FactFinder

3.2 Existing Transportation Conditions

Understanding the existing transportation conditions of the corridor is critical in determining the future needs of the corridor. Though most of the corridor is located in rural areas, each of the six study corridor segments has specific transportation characteristics and needs. The diversity of the corridor is defined by the areas which surround it—from the rural two-lane section in Segment 1, south of the Turnpike; to areas influenced by The Villages along Segment 2 experiencing significant seasonal travel patterns as well as the growing area and economic potential of Wildwood; to the increased economic growth areas within Segment 3 and 4 in Belleview and Ocala; to the rural areas and major freight movements through Segment 5 and Segment 6.

Transportation Network System Characteristics

This transportation network characteristic section analyzes the physical roadway characteristics as well as the existing traffic conditions for the corridor. Throughout the majority of the study area, US 301 is a controlled access facility with a grass median dividing the northbound and southbound traffic. Further review of the physical roadway characteristics and the traffic analysis is discussed in the sections below.

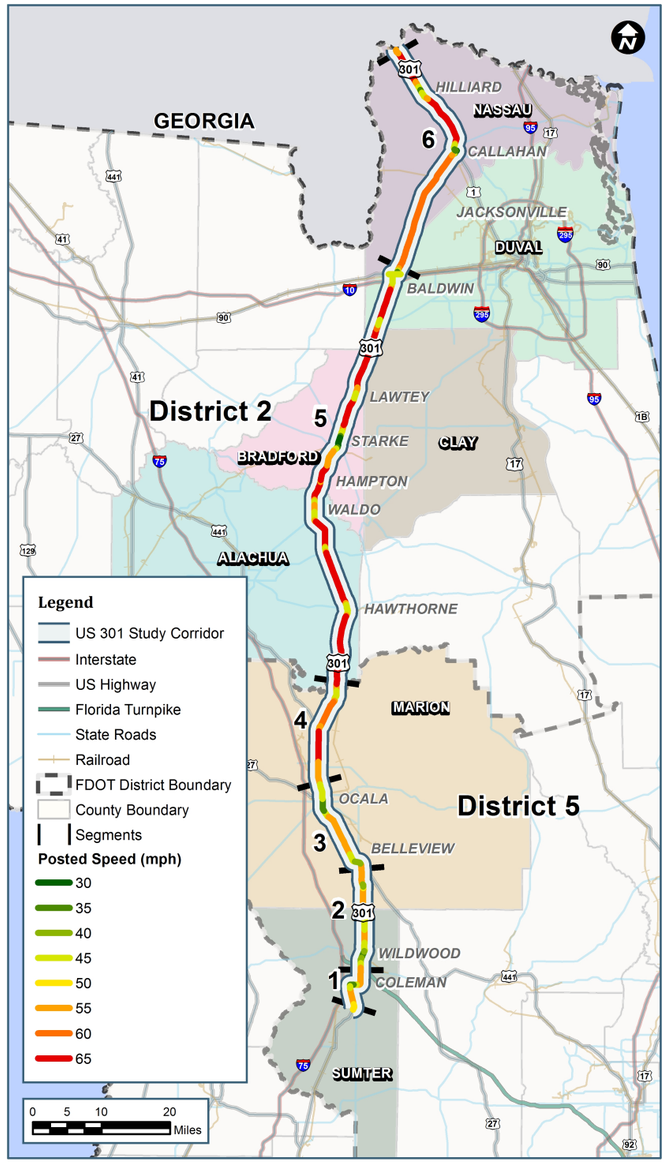
Existing Speed Limits

Figure 3.2.1 shows the existing speed limit ranges along the US 301 corridor. Typical throughout the study corridor, the speed limit is greater in rural areas and decrease as US 301 approaches city limits. Through Segments 1, 2, and 3, the speed limit ranges from a maximum of 60 miles per hour (mph) to 35 mph. The speed limit throughout Segments 4, 5, and 6 range from a maximum of 65 mph to 30 mph within city limits.

Existing Number of Through Lanes

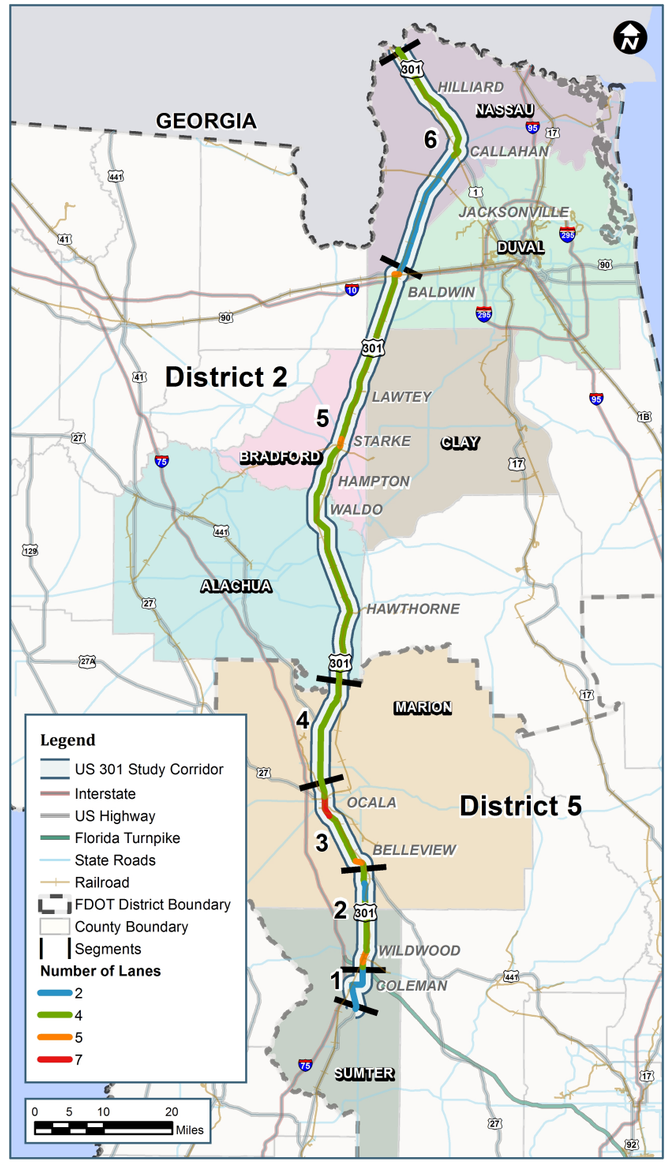
The existing number of through lanes along US 301 is represented in Figure 3.2.2**.** Roughly 75 percent of the study corridor is a four lane facility. There are three sections of US 301 which are only two lanes: Segment 1, south of Belleview within Segment 2, and a section north of Baldwin and south of Callahan within Segment 6; which is currently being widened to four lanes. In addition, five sections of US 301 also have a two-way center left-turn lane: Downtown Wildwood (Segment 2), Belleview (Segment 3), Ocala (Segment 3), Starke (Segment 5), and Baldwin (Segment 5).

Figure 3.2.1: Posted Speed Limit



Information Obtained from FDOT RCI Database

Figure 3.2.2: Existing Number of Through Lanes



Information Obtained from FDOT 2014 RCI Database

Access Management Classifications

FDOT uses access management to control the spacing and design of medians and median openings, driveway connections, intersections, and interchanges along state roadway facilities. The emphasis on a well-managed roadway increases the roadway capacity, decreases travel speed, and potentially reduces crashes. Administrative Rule Section 14-97 establishes the seven classifications for state highways and the criteria and procedures for assigning these classifications to specific roads. Access Class 1 consists of the strongest access control, allowing limited access to the roadway by including exit/entrance ramps. The interstates and Florida's Turnpike are examples of Class 1 roadways. Access Class 2 through Access Class 7 allow for various levels of access along the roadway. Table 3.2.1 provides standards for the type of median, median spacing, signal spacing, and connection spacing for Access Class 2 through Access Class 7 roadways.

Figure 3.2.3 displays the access management classifications for the US 301 corridor. The majority of the existing study corridor is classified as Access Class 3; however, the access classes are less restrictive within city limits. It has been observed, in accordance with the Access Management Statewide Guidance, that there is generally a full median opening roughly every 0.5 miles outside city limits along the corridor. Access issues were identified south of the US 301/I-10 interchange near two large gas stations/travel centers. Due to the heavy travel generated by these businesses, access to and from US 301 is sometimes blocked and delays and significant conflicts are created. There are multiple locations throughout the corridor where two-way left-turn lanes provide access to development. Two-way left-turn lanes has numerous conflict points. These conflict points can be reduced by the implementation of medians and median openings as well as better access management.

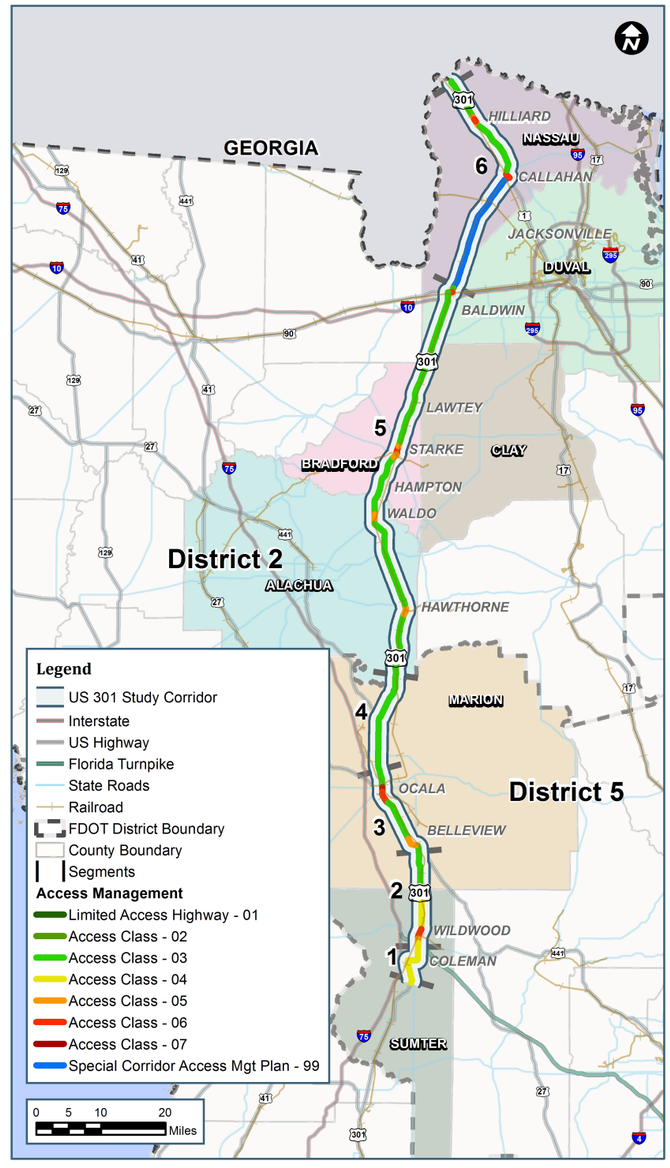
Segment 6, from north of Baldwin to south of Callahan, has been designated Access Class 99—"Special Corridor", which is an uncommon class in Florida and does not follow specific guidelines. This section of US 301 had limited access ROW purchased by FDOT, which allows for increased speeds and fewer driveway connection points. However, to maintain access to US 301 for the existing and future developments located on this segment of roadway, FDOT has identified median openings for existing and future access connections. These median openings and connection spacings do not follow the standards set by FDOT, which is why this roadway segment is classified as a "Special Corridor."

Table 3.2.1: Access Management Classification

Class	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
		≤ 45mph Posted	> 45mph Posted	Directional	Full	
Generally Developing or Undeveloped						
2	Restrictive w/Service Roads	600	1,320	1,320	2,640	2,640
3	Restrictive	440	660	1,320	2,640	2,640
4	Non-Restrictive	440	660			2,640
Generally Developed						
5	Restrictive	245	440	660	2,640/ 1,320*	2,640/ 1,320*
6	Non-Restrictive	245	440			1,320
7	Both Median Types	125		330	660	1,320

**Posted Speed >45 mph/≤45 mph*
Rule 14-97.003, State Highway System Access Management Classification System and Standards

Figure 3.2.3: Access Management Classification



Information Obtained from FDOT RCI Database

Crash/Safety Analysis

Crash report data were obtained from FDOT's Crash Analysis Reporting System (CARS) for US 301 within the project limits. From south to north, the following section numbers and milepost (MP) limits were researched:

- Sumter County: Section 18010000 from MP 14.117 to 30.255
- Marion County: Section 36050000 from MP 0.000 to 6.866
- Marion County: Section 36220000 from MP 8.571 to 8.760
- Marion County: Section 36010000 from MP 14.711 to 24.959
- Marion County: Section 36030000 from MP 0.000 to 2.606
- Marion County: Section 36001000 from MP 0.000 to 8.652
- Marion County: Section 36002000 from MP 0.000 to 4.727
- Marion County: Section 36040000 from MP 14.143 to 16.652
- Alachua County: Section 26060000 from MP 0.000 to 29.546
- Bradford County: Section 28010000 from MP 0.000 to 20.227
- Clay County: Section 71030000 from MP 0.000 to 5.540
- Duval County: Section 72140000 from MP 0.000 to 13.587
- Nassau County: Section 74040000 from MP 0.000 to 15.637
- Nassau County: Section 74040001 from MP 0.000 to 0.538
- Nassau County: Section 74030000 from MP 4.611 to 22.502

The most recent five years of available crash data were analyzed to identify specific crash patterns and locations that may indicate a safety problem within the corridor. A total of 3,919 crashes, including 1,874 injury crashes and 61 fatal crashes, were reported over the five-year period from January 1, 2009, to December 31, 2013. The number of crashes per year decreased in 2011 and 2012, but has remained relatively consistent overall. Table 3.2.2 summarizes the total number of crashes that occurred on US 301 along the 154 miles within the study area.

Several parameters were used to analyze the crash data to determine trends in the circumstances involved in the crashes. Approximately 78 percent of all the crashes within the study limits occurred on a weekday, with the highest frequency occurring on Friday (19 percent). Peaks in crash frequency also occurred between 2:00 PM and 3:00 PM as well as between 4:00 PM and 5:00 PM. The leading contributing causes of crashes within the study limits were documented as careless driving (33 percent), failure to yield the ROW (18 percent), and no improper driving/no driver error (18 percent). A crash type analysis also was conducted for the corridor. The predominant crash types were rear-end crashes (33 percent) and angle crashes (23 percent). Table 3.2.3 summarizes the number of crashes that occurred by harmful event.

Table 3.2.2: Summary of Crashes by Year

Year	Total Number of Crashes	Number of Injury Crashes	Number of Fatal Crashes	Number of Dark Crashes	Number of Wet Crashes	Number of Truck Crashes
2009	822	410	16	199	141	174
2010	857	413	12	176	104	161
2011	746	371	10	184	106	82
2012	686	312	13	140	106	92
2013	808	368	10	196	145	106
Total	3,919	1,874	61	895	602	615
Average per Year	783.8	374.8	12.2	179.0	120.4	123.0
Percent		**47.8%**	**1.6%**	**22.8%**	**15.4%**	**15.7%**

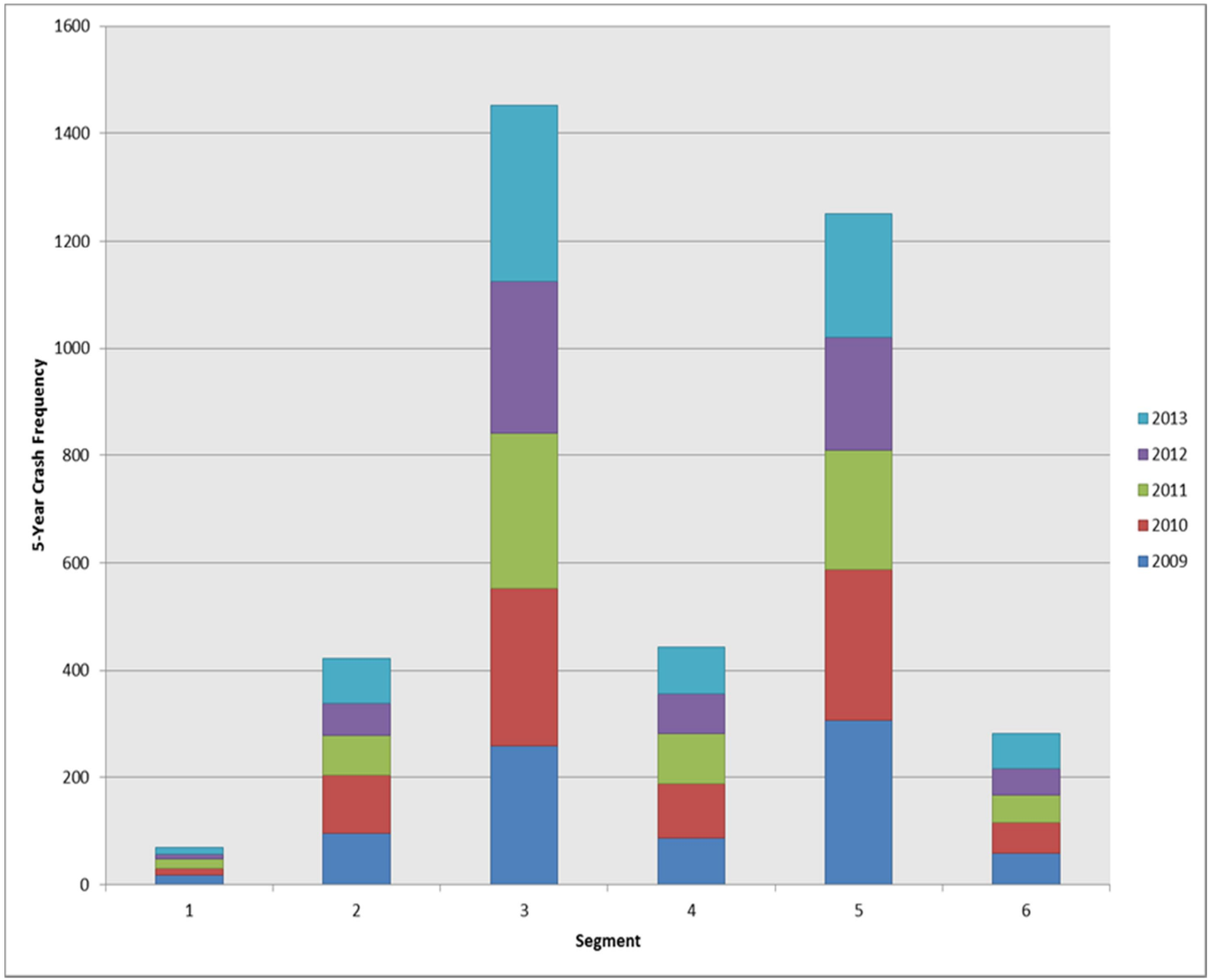
Table 3.2.3: Summary of Crashes by Harmful Event

Type	2009	2010	2011	2012	2013	Total	Percent
Rear-End	254	295	258	226	273	1,306	33.3%
Angle	156	174	186	196	201	913	23.3%
Left-Turn	59	54	20	10	11	154	3.9%
Sideswipe	81	68	0	0	0	149	3.8%
Overturned	19	24	22	10	22	97	2.5%
Head-On	14	19	17	18	16	84	2.1%
Ran Into Ditch/Culvert	22	17	8	7	9	63	1.6%
Other Fixed Object	4	6	18	12	21	61	1.6%
Animal	12	12	7	12	10	53	1.4%
Pedestrian	5	10	15	13	10	53	1.4%
Hit Tree/Shrubbery	18	11	6	3	7	45	1.1%
Right-Turn	15	9	4	8	6	42	1.1%
Hit Utility/Light Pole	13	8	5	4	8	38	1.0%
Hit Sign/Sign Post	10	10	5	4	6	35	0.9%
Bicycle	6	4	12	10	2	34	0.9%
All Others	134	135	163	153	206	791	20.2%
Total	**822**	**856**	**746**	**686**	**808**	**3,918**	**100.0%**

The angle and left-turn crashes were further investigated; a prevalence of these crash types can indicate a need for improved access management or more restrictive signal phasing. An angle crash occurs when two vehicles traveling in perpendicular directions collide and may result from failure to yield the ROW at an unsignalized intersection or disregarding a traffic signal at a signalized intersection. A left-turn crash occurs when two vehicles are traveling parallel to each other in opposing directions and one vehicle turns left in front of another oncoming through vehicle. These may also result from failure to yield the ROW at an unsignalized intersection or on a permissive left-turn signal at a signalized intersection. The threshold dictated in the Traffic Engineering Manual is six or more correctable left-turn crashes per year to justify protected-only left-turn signal phasing and a similar rule of thumb is typically used to justify modification to an unsignalized intersection experiencing angle crashes. The angle and left-turn crashes were evaluated by section number and milepost to identify any locations experiencing greater than six combined angle or left-turn crashes per year over the analysis period. Only one location came close to meeting the established criteria: Marion County at SR 464 (Section 36010000 MP 24.430) experienced an average of 5.8 angle/left-turn crashes per year. The next highest frequency of angle/left-turn crashes was only 4.4 crashes per year.

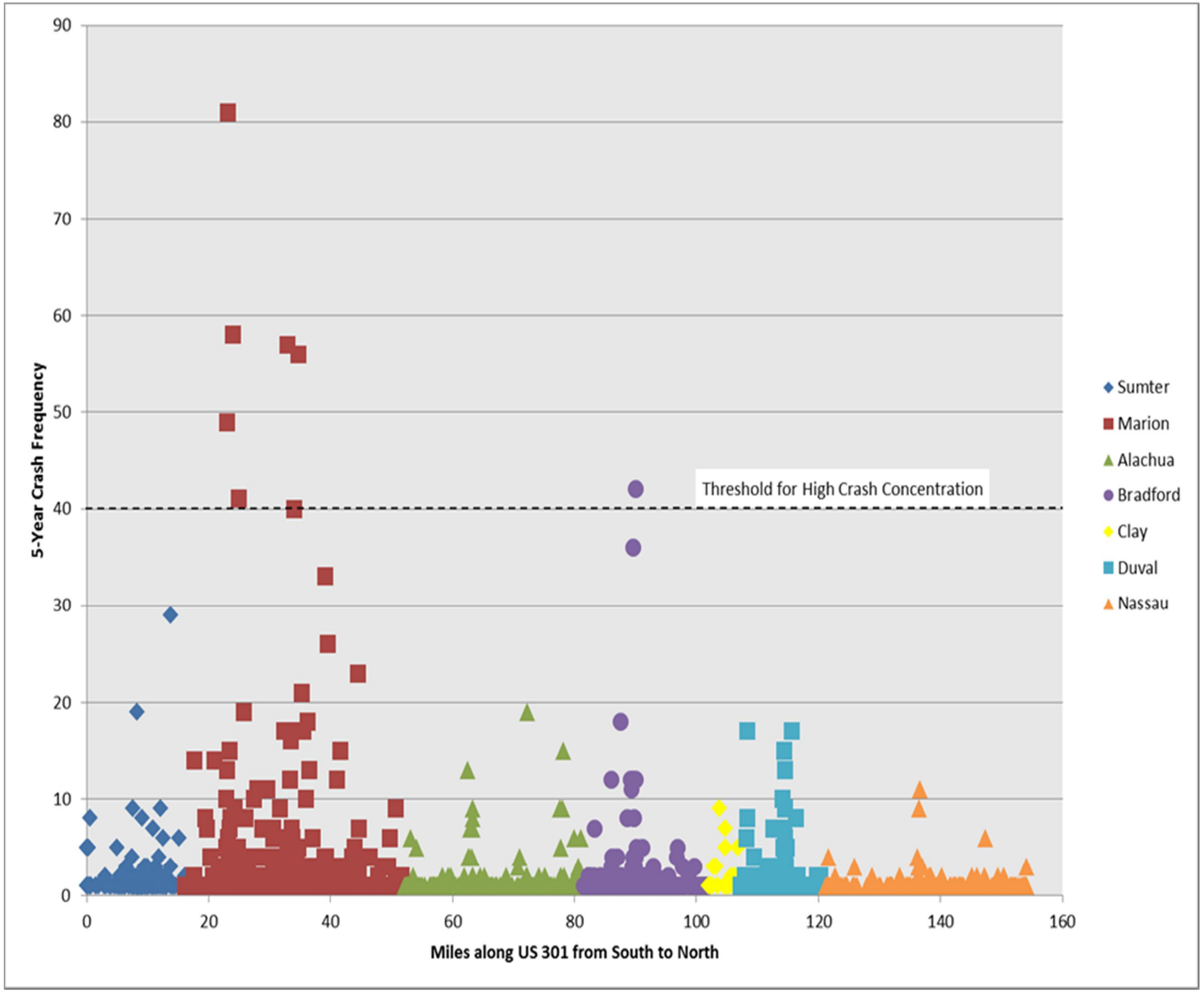
The crash data was segregated and analyzed within each of the six segments for divergence from the overall corridor crash characteristics. Segment 3 and Segment 5 experienced the highest crash frequencies throughout the corridor. Segments 1, 2, and 4 had nearly equal numbers of rear-end and angle crashes, while Segments 3, 5, and 6 had much higher numbers of rear-end crashes than angle crashes. Segment 6 had the highest proportion of crashes occurring under dark conditions (33 percent) and Segment 3 had the lowest (19 percent). All segments had similar proportions of wet condition crashes (from 12 to 18 percent). The highest proportion of crashes involving trucks occurred in Segments 5 and 6 (26 percent), while Segment 3 experienced the lowest (6 percent). Figure 3.2.4 illustrates the number of crashes broken out for each of the six segments within the study area.

Figure 3.2.4: Summary of Crashes by Segment



The crash data also were analyzed to determine the locations where the highest total number of crashes occurred during the five-year period. The criterion used to define a high crash concentration was a location experiencing 40 crashes over the analysis period**.** Figure 3.2.5 illustrates the number of crashes by mile post (MP) for the corridor.

Figure 3.2.5: Summary of Crashes by County



Eight specific crash concentrations, shown in Figure 3.2.5, were identified within the study limits meeting the criteria of 40 crashes: SR 35/Babb Road (62 crashes), SR 500/Abshier Boulevard (87 crashes), SE 110th Street (58 crashes), SE 102nd Place (41 crashes), SR 464 (57 crashes), SR 40 (40 crashes), and US 27/US 441/SR 500 (56 crashes) in Marion County as well as SR 16 in Bradford County (42 crashes). These locations were reviewed in further detail to determine any correctable crash trends:

➔ SR 35/Babb Road in Marion County

- Number of crashes decreasing over the five year study period
- Type of crash: primarily rear-end crashes (47 percent) followed by angle crashes (27 percent)
- Causation of crash: primarily no improper driving at fault (50 percent)
- Low percentage of dark and wet condition crashes (< 15 percent)
- Greater concentration of northbound crashes than any other direction
- Moderate proportion of injury crashes (27 percent)
- No fatal crashes

➔ SR 500/Abshier Boulevard in Marion County

- Number of crashes consistent over the five year study period
- Type of crash: rear-end crashes (54 percent) are the most prominent crash type
- Causation of crash: no improper driving at fault (67 percent)
- Low percentage of dark and wet condition crashes (< 15 percent)
- Peaks in crash frequency from 12:00 PM to 1:00 PM and 2:00 PM to 3:00 PM
- Low proportion of injury crashes (< 25 percent)
- No fatal crashes

➔ SE 110th Street in Marion County

- Number of crashes dropped in 2013
- Type of crash: primarily rear-end crashes (47 percent) followed by angle crashes (17 percent)
- Causation of crash: No improper driving at fault (74 percent)
- Low percentage of dark and wet condition crashes (< 15 percent)
- Low proportion of injury crashes (< 25 percent)
- No fatal crashes

➔ SE 102nd Place in Marion County

- Number of crashes spiked in 2012
- Type of crash: primarily rear-end crashes (49 percent) followed by angle crashes (17 percent)
- Causation of crash: no improper driving at fault (83 percent)
- Low percentage of dark condition crashes (< 15 percent) and moderate percentage of wet condition crashes (17 percent)
- Greater concentration of southbound crashes than any other direction
- Moderate proportion of injury crashes (27 percent)
- No fatal crashes

➔ SR 464 in Marion County

- Number of crashes consistent over the five year study period
- Type of crash: primarily angle crashes (40 percent) followed by rear-end crashes (21 percent)
- Causation of crash: primarily failure to yield the ROW at fault (40 percent) followed by careless driving (19 percent)
- High percentage of dark condition crashes (33 percent) and low percentage of wet condition crashes (< 15 percent)
- High proportion of injury crashes (58 percent)
- No fatal crashes

➔ SR 40 in Marion County

- Number of crashes increasing with a sharp spike in 2013
- Type of crash: rear-end crashes (35 percent) and angle crashes (33 percent)
- Causation of crash: careless driving and disregarding the traffic signal at fault (30 percent each)
- Very high percentage of dark condition crashes (43 percent) and low percentage of wet condition crashes (< 15 percent)
- High proportion of injury crashes (63 percent)
- No fatal crashes

➔ US 27/US 441/SR 500 in Marion County

- Number of crashes spiked in 2010 and 2013
- Type of crash: primarily rear-end crashes (48 percent) followed by angle crashes (27 percent)
- Causation of crash: various contributing causes including careless driving (23 percent), failure to yield the ROW (18 percent), no improper driving at fault (18 percent), and disregarding the traffic signal (16 percent)
- High percentage of dark condition crashes (32 percent) and low percentage of wet condition crashes (< 15 percent)
- High proportion of injury crashes (45 percent)
- No fatal crashes

➔ SR 16 in Bradford County

- Number of crashes decreasing over the five year study period
- Type of crash: primarily rear-end crashes (48 percent) followed by angle crashes (21 percent)
- Causation of crash: even split of careless driving and disregarding the traffic signal at fault (21 percent each)
- Moderate percentage of dark and wet condition crashes (24 percent each)
- Moderate proportion of injury crashes (31 percent)
- No fatal crashes

The analysis revealed that each of the intersections has experienced abnormally high crash rates compared to similar locations statewide in at least one year between 2009 and 2012. Two locations, SR 500/Abshier Boulevard and SE 110th Street in Marion County, have experienced statistically significant crash frequencies in every year of the analysis period.

An additional step in evaluating the crash data involved detailed analysis of the 61 crashes resulting in a fatality. The crash characteristics for the fatal crashes included the following trends:

- 22 unknown crash types, nine hit fixed object crashes, nine angle crashes, eight pedestrian crashes, seven rear-end crashes, four head-on crashes, one bicycle crash, one separation of units
- 21 attributed to unknown causes, 14 careless driving, seven failure to yield the ROW, seven with no improper driving at fault, two exceeding the speed limit, two under the influence of alcohol, two disregarding a stop sign, two driving the wrong way, one disregarding the traffic signal, one improper turn, one driving left of center, and one failure to maintain equipment
- 59 percent occurred under dark conditions, 11 percent under wet conditions, and 31 percent involving a truck (seven crashes attributed fault to the driver of the truck)
- A higher proportion of crashes occurred on Friday and Saturday than from Sunday to Thursday
- Five crashes occurred in Sumter County, 21 crashes occurred in Marion County, four crashes occurred in Alachua County, nine crashes occurred in Bradford County, two crashes occurred in Clay County, four crashes occurred in Duval County, and 16 crashes occurred in Nassau County
- The only location to experience more than one fatal crash at the same MP over the analysis period was the intersection of SR 228 in Duval County, which experienced two fatal crashes in 2012 and no other fatal crashes within the five-year period.

A subset of the data was further broken down to evaluate the crash characteristics of the 615 crashes involving trucks. The following trends were observed:

- The percentage of sideswipe and left-turn crashes was higher for the crashes involving trucks than for the overall corridor-wide crash statistics
- The percentage of dark condition crashes was nearly equal to the overall corridor-wide crash statistics but the percentage of wet condition crashes was slightly higher
- The peak time of week for crashes involving trucks was Monday through Thursday and the peak time of day was 11:00 AM to 2:00 PM
- The locations experiencing the highest frequency of crashes involving trucks all experienced nine truck crashes during the five-year period and included: Marion County at NW 77th Street (Section 36001000 MP 3.517), Bradford County at SR 100 (Section 28010000 MP 8.068), and Bradford County at SR 16 (Section 28010000 MP 8.598). Overall, Segment 5 experienced the greatest number of crashes involving trucks (333 crashes or 54 percent).

In summary, the crash evaluation revealed that the section of US 301 through Marion County experiences the highest frequency of crashes along the entire study corridor. Seven intersections were identified within Marion County as experiencing high crash concentrations of more than eight crashes per year. The overall percentages of dark crashes, wet crashes, and truck crashes for the study corridor fall below the typical threshold of 25 percent used to identify a significant trend in these particular crash characteristics; however, the intersections of SR 464, SR 40, and US 27/US 441/SR 500 within Marion County experience a greater proportion of dark condition crashes than the overall corridor, between 32 and 43 percent by intersection. Most of the corridor displays rear-end crashes as the predominant crash type, but the intersections of SR 35/Babb Road, SR 464, and US 27/US 441/SR 500 within Marion County experience more angle and left-turn crashes than rear-end crashes. Angle crashes result in more severe injuries and can possibly be correctable by access management modifications, signal retiming, or left-turn signal phasing changes; rear-end crashes are typically less severe and commonly attributable to congestion and queueing based on capacity. The intersections of SR 500/Abshier Boulevard and SE 110th Place within Marion County show statistically significant crash frequencies when compared to similar roadways throughout the state. The rest of the corridor, aside from the anomalies in Marion County, show fairly expected and normal crash frequencies and characteristics.

Corridor Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) improve transportation safety and mobility and enhance productivity through the integration of advanced communication technologies into the transportation infrastructure and in vehicles. ITS encompass a broad range of wireless and wire line communications-based information and electronic technologies. ITS improvement goals are to meet the capacity demands of a roadway without the need to add more lanes.

There is minimal ITS infrastructure throughout the US 301 corridor. The current priority for FDOT with regards to ITS projects is to provide ITS infrastructure to the interstates prior to undertaking large ITS projects on non-interstates. With this, ITS infrastructure within Segments 1, 2, 3, and 4 is discussed below:

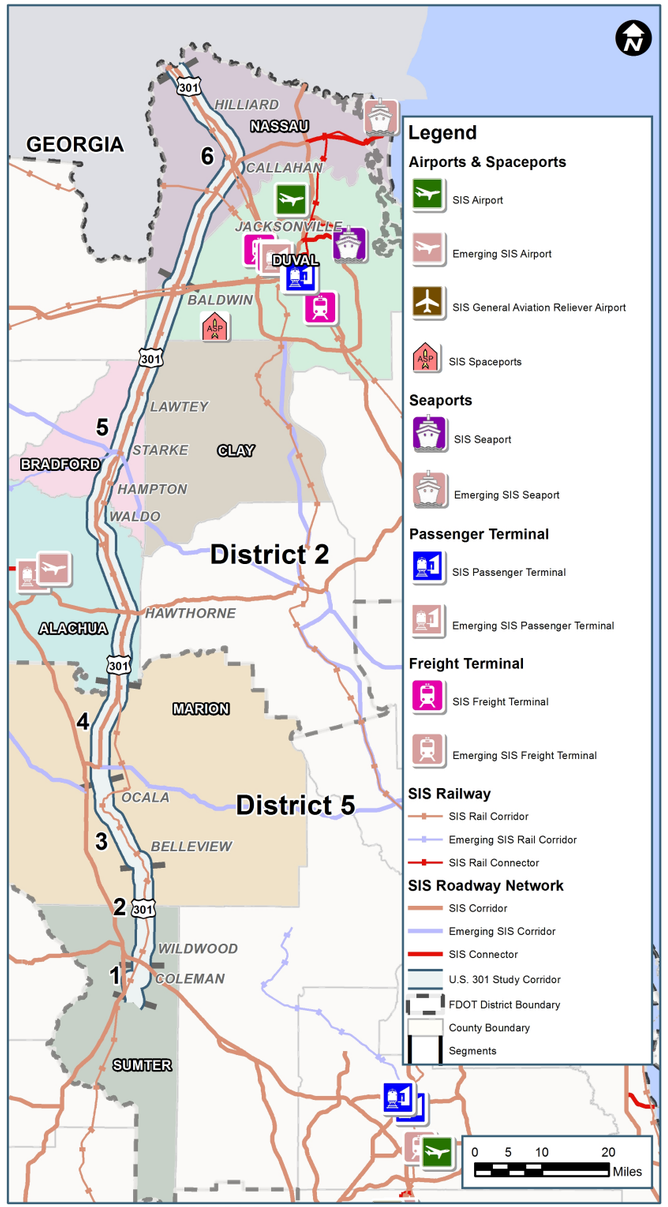
- Currently, Ocala has a Transportation Management Center (TMC) that operates within the City. Belleview and other cities/towns within Marion County are operated by another TMC. These two TMCs may be connected, via fiber optic cable, after the I-75 ITS improvements are complete
- Adaptive control projects are being planned for Ocala and Belleview which includes nine intersections between Babb Road and SE 92nd Street and 12 intersections between SE 31st Street and NW 35th Street, respectively. Adaptive control signals monitor the traffic volumes at an intersection and automatically adjust the green, yellow, and red time for the most efficient signal phases.

Existing Strategic Intermodal System Facilities

FDOT established Florida's Strategic Intermodal System (SIS) to efficiently serve the mobility needs of Florida's citizens, businesses, and visitors by providing smooth and efficient corridors to transport people and goods between modes and major facilities within an integrated transportation network. The northern portion of US 301 study corridor, from SR 326, north of Ocala, to the Florida/Georgia State line, is classified as a SIS facility. In addition, US 301 intersects many other SIS and emerging SIS corridors including: Florida's Turnpike, SR 326, SR 20, I-10, US 1, and SR 200 (Nassau County). Safety and access to and from these corridors should be a priority since FDOT has classified these roadways as critical infrastructure. Figure 3.2.6 illustrates the locations of the SIS and emerging SIS roadways related to US 301.

Freight movement is a significant component of the economy in each of the seven counties within the study corridor and to the economy of the state of Florida. In addition to the ports located throughout Florida, numerous multimodal facilities, distribution centers (DCs), and intermodal logistic centers (ILCs) assist in the movement of freight. Ship, air, rail, and truck facilities are responsible for moving more than 543 million tons of freight in, out, and through Florida each year and will continue to increase as the economy grows. There is one ILC and multiple SIS facilities located near US 301, as shown in Figure 3.2.6. The Keystone ILC Terminal in Jacksonville is located within 20 miles of US 301. In addition, two deep-water seaport terminals are located within 25 miles of US 301; the Port of Jacksonville (SIS) in Duval County and the Port of Fernandina (Emerging SIS) in Nassau County. There are also four public airports in the study area; Gainesville Regional Airport (Emerging SIS) in Alachua County, Herlong Recreational Airport (Non-SIS) in Duval County, Craig Municipal Airport (Non-SIS) in Duval County, and Jacksonville International Airport (SIS) in Duval County.

Figure 3.2.6: Existing SIS Facilities



Information Obtained from FDOT RCI Database

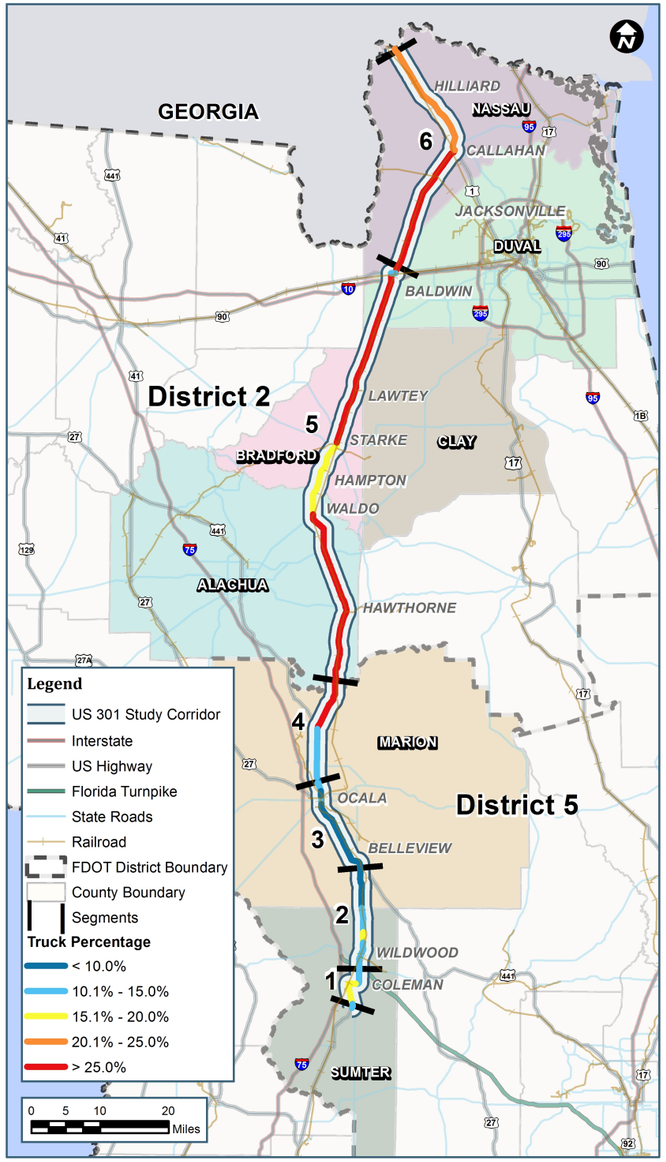
Freight Characteristics

US 301 is located near multiple shipping ports, rail yards, and distribution centers, which influence increased truck use along the corridor. Figure 3.2.7 illustrates the truck percentages for the US 301 corridor. The US 301 corridor in FDOT District 2, Segments 5 and 6, has a truck percentage above 14 percent. With less freight and industrial facilities and US 301 paralleling I-75 in FDOT District 5, Segments 1, 2, 3, and 4, have a lower average truck percentage compared to District 2. At the northern end of Marion County, where US 301 and I-75 begin to diverge away from each other, the truck percentage begins to increase as trucks utilize US 301 as a direct route to travel from central Florida to northeast Florida. This northern part of Marion County has the greatest truck percentage of the US 301 corridor which is 30 percent of the total traffic in some locations.

Figure 3.2.8 shows the multiple distribution centers (DCs) located near and along the study corridor. The majority of the DCs along the corridor have fewer than 500 employees and distribute all types of goods including auto supplies, boxed food and other food products, floral, gasoline, and medicine. A large portion of the freight traffic along the corridor is due to these DCs.

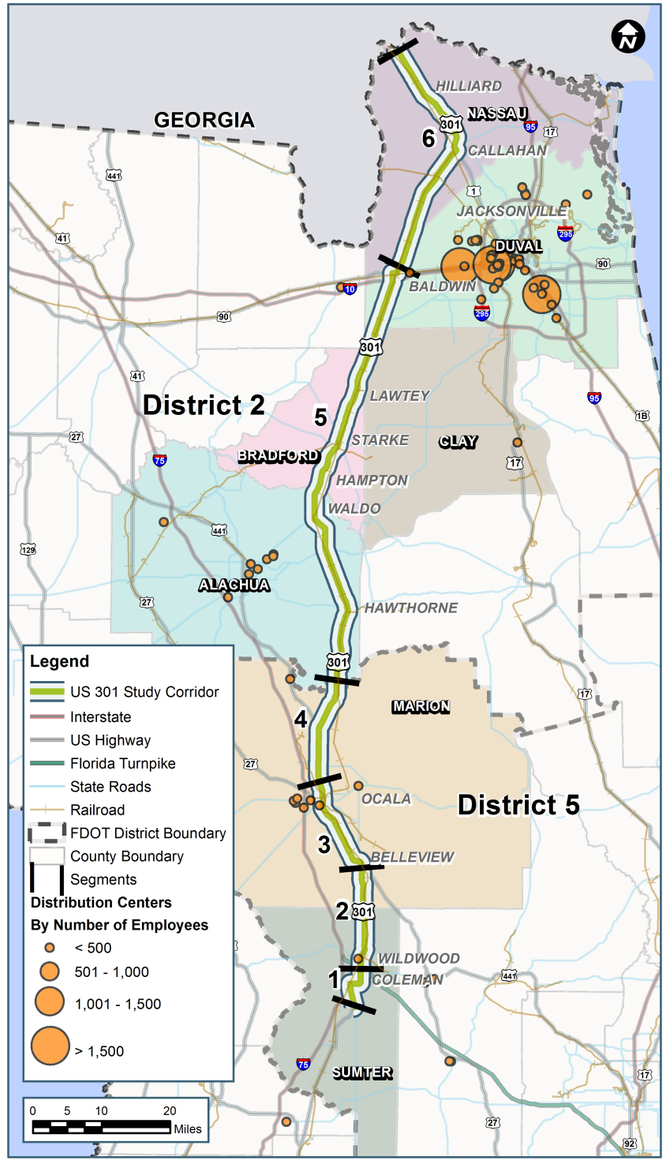
Considering that this corridor carries significant amounts of freight, there are no current designated truck and public parking and rest facilities along the corridor (Figure 3.2.9). Currently, one weigh station is located at the northern limit of Segment 6. The FDOT Work Program does not plan for additional public rest facilities within the study area. As part of the outreach to understand current issues related to truck/freight movement, a discussion with the Florida Trucking Association was initiated. The association director reached out to 21 major trucking companies who use the corridor in order to identify transportation needs. No current issues were identified.

Figure 3.2.7: Existing Truck Percentage



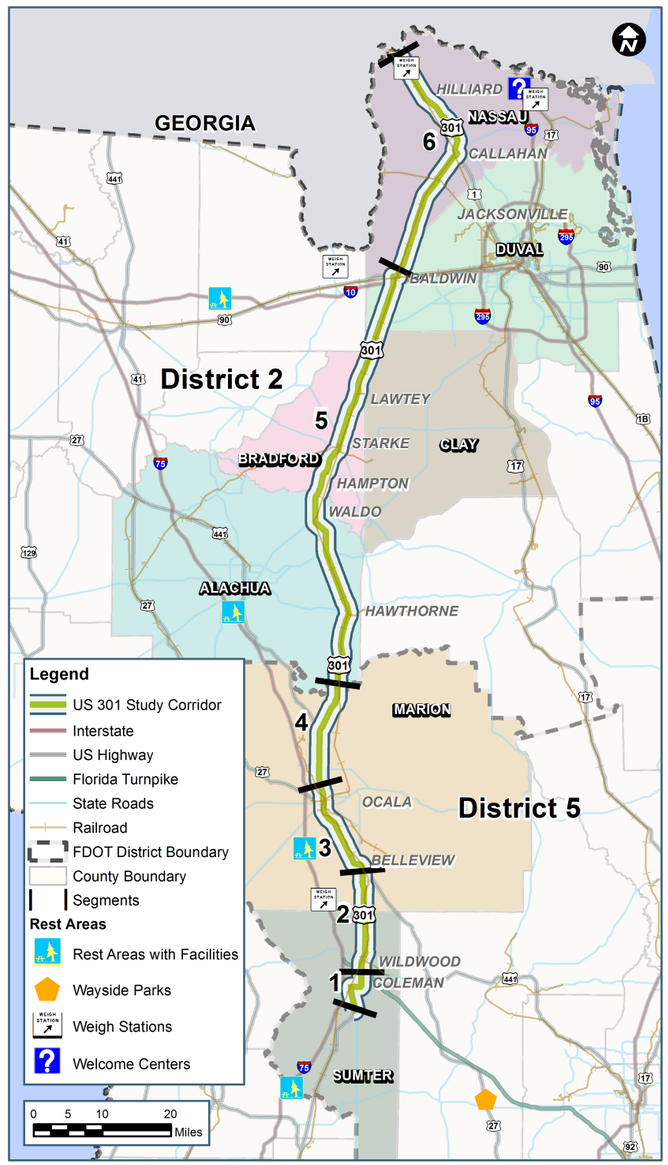
Information Obtained from FDOT TranStat Office - Traffic Data

Figure 3.2.8: Distribution Centers within 25 miles of US 301



Information Obtained from FDOT Transportation Statistics Office

Figure 3.2.9: Public Rest/Stop Areas within 25 miles of US 301

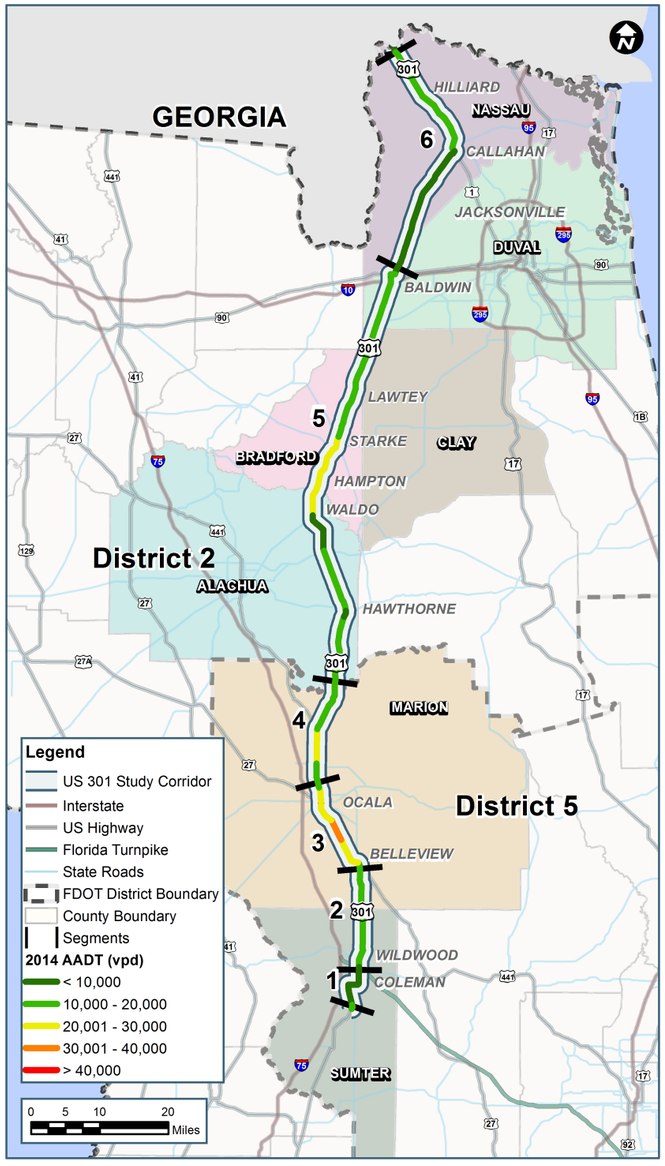


Information Obtained from FDOT RCI Database

Existing Traffic Analysis

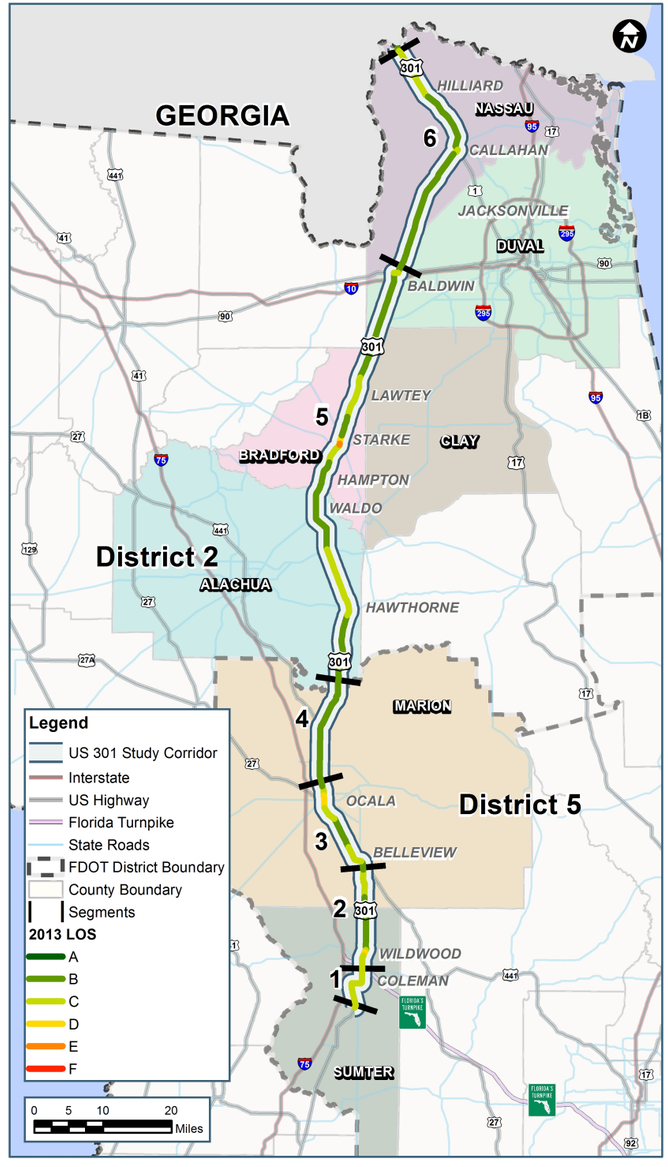
The existing traffic volumes along the study corridor are represented in Figure 3.2.10. This high-level planning corridor study analyzes a link level of service (LOS) for segments in the corridor. The existing LOS for the corridor is analyzed by comparing the current traffic volume, collected from the 2013 FDOT Florida Traffic Information (FTI) DVD, to the maximum service volume at the adopted standard LOS. The maximum service volumes are from the 2013 FDOT Generalized Service Volume Tables. The LOS is identified by a six letter grading scale from LOS A (free flow traffic) to LOS F (high travel delays), illustrated in Figure 3.2.11. In accordance with House Bill (HB) 7207, FDOT set the standard LOS for highways inside urbanized areas to LOS D and to LOS C outside urbanized areas. In addition, local comprehensive plans approved after HB 7207 (June 2011) were reviewed to determine the LOS standard for the corridor. The typical current LOS standard is LOS D for the corridor with stricter capacity standards and LOS C in more rural sections along US 301. Twenty-three count stations were selected along US 301 to represent the corridor; summarized in Table 3.2.5.

Figure 3.2.10: Existing Traffic Volumes



Information Obtained from FDOT TranStat Office - Traffic Data, 2014

Figure 3.2.11: Existing Level of Service



Information Obtained from FDOT TranStat Office - Traffic Data, 2014

Table 3.2.5: Existing Traffic Volumes and LOS

County	City/Town	From	To	Area Type	Roadway Class	Speed Limit (mph)	Number of Lanes	LOS Standard[1]	Maximum Capacity (vpd)	Count Station	2013 AADT (vpd)	2013 LOS	Over Capacity
Segment 1													
Sumter	-	CR 470 West	CR 470 East	Rural	Highway	50	2	C	16,400	180083	10,500	C	No
Sumter	-	CR 525 East	CR 523	Rural Undeveloped	Highway	55	2	C	8,400	180041	6,000	C	No
Sumter	Wildwood	CR 523	Florida's Turnpike	Urban	Class I	55	2	D	17,700	180077	9,300	C	No
Segment 2													
Sumter	Wildwood	Chairs Street	Grant Street	Urban	Class II	35	4	D	32,400	180026	18,300	D	No
Sumter	-	CR 462	CR 472	Transitioning	Highway	55	4	D	62,900	180206	19,600	B	No
Marion	-	Sumter/Marion County Line	CR 42	Urban	Highway	55	4	D	65,600	361009	18,200	B	No
Marion	-	CR 42	SE 125th Street	Urban	Highway	55	2	D	24,200	361007	14,100	C	No
Segment 3													
Marion	Belleview	SE 66th Avenue	SE 92nd Place Road	Urban	Class I	45	4	D	39.800	360136	27,500	C	No
Marion	South of Ocala	SE 80th Street	SE 40th Loop (North)	Urban	Highway	55	4	D	65,600	360040	30,500	B	No
Marion	Ocala	SR 200	SR 40	Urban	Class II	35	6	D	50,000	360132	34,000	D	No
Marion	Ocala	US 27/SR 492	CR 200A	Urban	Class I	45	4	D	39,800	365044	27,500	C	No
Segment 4													
Marion	-	Gainesville Road/Old Anthony Road	NW 47th Street	Urban	Highway	55	4	D	65,600	360481	17,500	B	No
Marion	-	NW 77th Street	NW 90th Street	Rural Undeveloped	Highway	55	4	C	40,300	360118	24,432	B	No
Marion	-	CR 329	Highway 316	Rural Undeveloped	Highway	60	4	C	40,300	360007	12,000	B	No
Segment 5													
Alachua	Hawthorne	69th Avenue	SR 20	Rural	Arterial	45	4	C	29,300	265101	11,100	C	No
Bradford	-	CR 225	Alachua/Bradford County Line	Rural Undeveloped	Highway	65	4	C	40,300	280018	21,345	B	No
Bradford	Starke	Edwards Road	S Thompson Street	Transitioning	Class II	30	4	D	28,800	285017	30,000	E	**Yes**
Bradford	Lawtey	CR 233	NW 251st Street	Rural	Arterial	55	4	C	29,300	280150	16,700	C	No
Duval	Baldwin	Clark Street	US 90	Urban	Class II	35	4	D	32,400	725082	8,700	C	No
Segment 6													
Nassau	-	Duval/Nassau County Line	Motes Road	Transitioning	Highway	60	2	D	24,400	743160	3,400	B	No
Nassau	Callahan	US 1/SR 200	Kings Road	Urban	Class II	35	4	D	32,400	740122	14,800	D	No
Nassau	Hilliard	Henry Smith Road	CR 108	Transitioning	Class I	45	4	D	35,500	740019	12,200	C	No
Nassau	-	Church Drive	Florida/Georgia State Line	Transitioning	Highway	55	4	D	62,900	740047	8,604	B	No

[1]HB 7207 FDOT LOS Standard

A summary of the traffic volumes by segment is provided below.

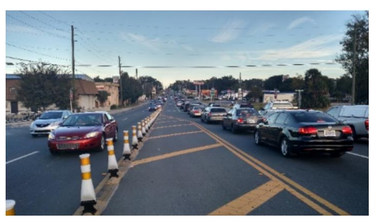
Segment 1

Segment 1 is 7.6 miles and the shortest study segment of the corridor. Consisting of a typical section of two through lanes and traveling through Coleman, the AADT range from 6,000 vehicles per day (vpd) (from SR 471 to CR 468) to 10,500 vpd (from CR 470 West to SR 471). Currently, the entirety of Segment 1 is operating at LOS C or better.

Segment 2

Segment 2, north of Florida's Turnpike to south of Belleview, has higher daily traffic volumes than Segment 1 with a AADT ranging from 12,900 vpd (northern limit of Segment 2) to 19,900 vpd (through Wildwood). The southern portions of Segment 2—the urbanized portions through Wildwood—currently are operating at LOS C, with the exception of one section of US 301 through downtown Wildwood, which is operating near the designated maximum capacity. This section is a four-lane roadway with a railroad to the west of US 301 and majority development to the east. In addition, two at-grade CSX railroad crossings are located near this segment. According to CSX, roughly 36 trains per day cross US 301 in Wildwood. The size and speed of these trains can significantly increase travel delay along US 301. North of Wildwood, LOS B is observed north of Wildwood.

Segment 3



Segment 3, paralleling relatively close to I-75, traverses though Belleview and Ocala and has the highest traffic volumes for the corridor. The AADT range from 20,500 vpd (near the US 301 and US 441/US 27 merge) to 34,000 vpd (in the northern part of Segment 3). All of Segment 3 is operating at an acceptable LOS. The northern portion of Segment 3 has a LOS near the designated maximum capacity, LOS D. I-75 parallels US 301 south of the US 301/US 441 intersection—the majority of the through traffic within Marion County travels north/south along I-75 and connects to US 301 at SR 326 if traveling towards Jacksonville. As a result, the entire portion of US 301 in Segment 3 north of the US 301/SR 326 intersection is at LOS D, near the maximum LOS standard volume.

Segment 4

Segment 4 is located in the less urbanized portion of Marion County, north of Ocala to the Marion/Alachua County line. The AADTs for Segment 4 range from 11,100 vpd (north of the US 301 and US 441/US 27 intersection) to an AADT of 24,400 vpd (north of SR 326). Segment 4 currently is operating at a LOS B, above the LOS standard.

Segment 5

Traversing through four counties (Alachua, Bradford, Clay, and Duval), Segment 5 is the longest segment. The majority of Segment 5 is a rural four-lane divided highway and connects to I-10 at the northern end. The highest AADT for Segment 5 is 30,000 vpd (through Starke). This portion of Segment 5 experiences substantial through truck volumes. In addition, one at-grade CSX railroad crossing is located in Starke. On average, three trains cross US 301 at this location per day. FDOT has acknowledged Starke as an area of concern related to mobility and has plans to construct a new facility around the west of Starke, which should alleviate a large portion of the through traffic. US 301 through Lawtey (Bradford County) currently is operating at the standard LOS C. A mainline for CSX is located east of US 301 and development is located to the west. Capacity improvement projects may be limited through Lawtey. The final areas of concern in Segment 5 related to congestion are located in Baldwin (Duval County). US 301 in Baldwin has significant heavy vehicle activity due to its proximity to I-10 and two large gas stations/travel centers located in the area. In addition, two CSX at-grade railroad crossing are located in Baldwin. On average, 33 trains cross US 301 to enter and exit an internal rail yard located southeast of the I-10/US 301 interchange.

Segment 6

Segment 6 is the northern-most segment for this study. Compared to the other segments, Segment 6 has lower traffic; however, Segment 6 has high heavy vehicles percentages. The AADTs for Segment 6 range from 3,400 vpd (near the Duval/Nassau County line) to 14,800 vpd in Callahan near the US 1 and SR 200 intersection. Higher traffic volumes are maintained north of Callahan due to vehicles traveling to and from downtown Jacksonville via US 1. Segment 6 is operating at LOS C.

Summary of Existing Volumes

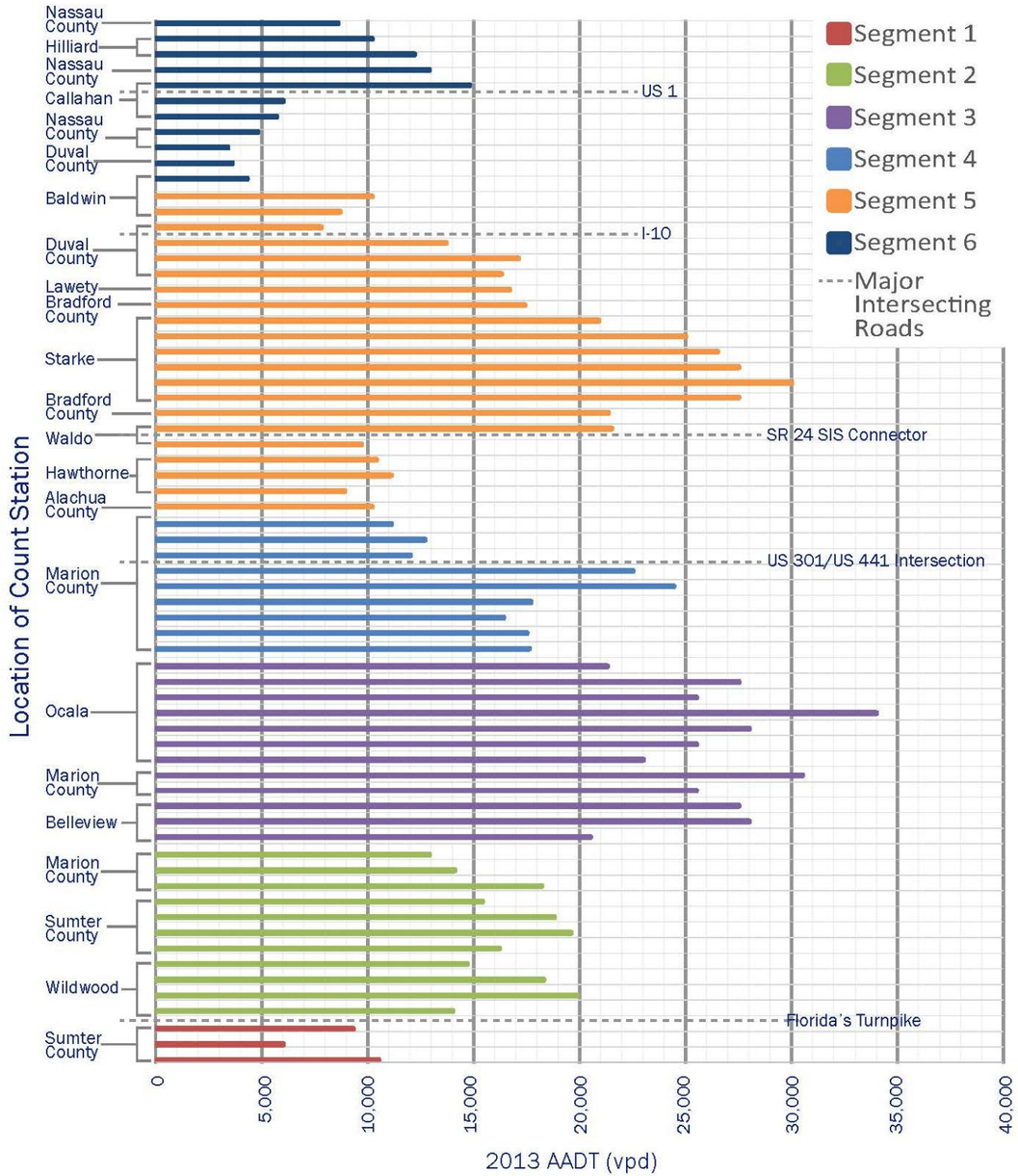
The 2013 existing traffic volumes for the US 301 corridor range from a high of 34,000 vpd in Ocala within Segment 3, to a low of 3,400 vpd in Segment 6 within Nassau County. The southern and northern extents of the corridor, which include the Cities of Coleman, Baldwin, Callahan, and Hilliard, have the lowest traffic volumes within the study limits. Areas of US 301 which are located near other major roadways—I-75, Florida's Turnpike, US 441/US 27—have much higher traffic volumes; this includes the Cities of Wildwood, Belleview, Ocala, and Starke. The entire corridor is at an acceptable LOS with the exception of Starke (Segment 5), which is currently at LOS E.

Travel Patterns/Densities

The physical variation of the corridor and variations of the traffic stream along the corridor will directly shape the list of potential mobility strategies recommended for improving mobility today and long into the future. Figure 3.2.12 illustrates the typical travel patterns along the US 301 corridor. Several conclusions can be reached from these data and patterns:

- From the low volumes at the southern and northern limits (Segment 1 and 6), it can be concluded that there are very few through vehicles on this corridor. I-75, which is parallel to and located relatively close to the southern segments of US 301, has higher speeds and limited access, which makes it more attractive for longer distance travelers and movers of freight
- As shown by the spikes in the traffic volumes, a significant portion of US 301 serves local traffic generated by the more urban areas and employment centers of Wildwood, The Villages, Belleview, Ocala, Starke, and Callahan. These trips can also be as a result of local freight travel to DCs within these urban areas
- There is a noticeable drop in traffic in northern Marion County and southern Alachua County (Segments 4 and 5). Traffic is dispersed and drivers have different options at the US 301/US 441 intersection. The majority of this traffic traveling north continues traveling north via US 441 towards Gainesville, although some traffic continues to travel north via US 301 towards Jacksonville
- An increase in traffic is observed on US 301 in Alachua County and to the north where it can be concluded that passengers and freight using I-75 from the south are connecting to US 301 in Waldo via SR 24 (in Segment 5) and traveling northeast towards Jacksonville. Multiple large DCs are located northeast of Gainesville and use US 301 as well
- The increased level of traffic is maintained on US 301 in Segment 5 due to the distribution and economic centers and limited travel options until US 301 intersects with I-10 south of Baldwin, in Duval County
- There is a small spike in traffic north of Callahan in Segment 6. It can be assumed that this is due to freight movement to/from Jacksonville using US 301 as an alternative route instead of I-10 or I-95.

Figure 3.2.12: US 301 Travel Patterns



3.3 Emergency Evacuation and Response

This section of the report analyzes the role that US 301 has in emergency preparedness and response for the surrounding counties and regions. The majority of the US 301 corridor is located in rural and low density areas. Having a well-designed and coordinated emergency plan is especially important in these areas where the number of responders is lower and is spread further from one another. Local and regional agencies have outlined emergency preparedness documents evaluating the current roadway network within their jurisdiction to determine improvement needs pertinent for a safe and effective emergency evacuation roadway network; the following section analyzes these reports.

Statewide Regional Evacuation Study Program

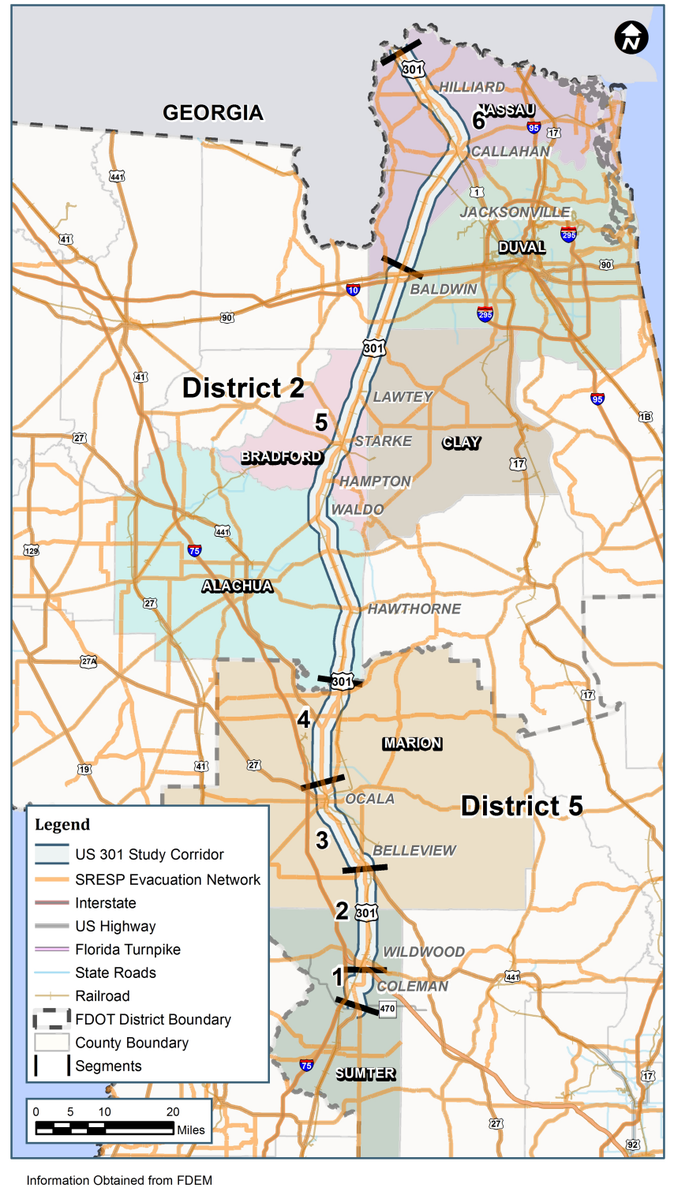
According to FEMA, the Florida hurricane season lasts from June to November, with the peak season from mid-August to late October. With the support of FEMA and under the direction of the Florida DEM, the Statewide Regional Evacuation Study Program (SRESP) was created to identify and implement strategies for the facilitation of evacuations within Florida. The program has allowed regions to coordinate resources and tie together all regional evacuation studies into one coordinated statewide plan. SRESP evaluates coastal surge data in addition to flood hazard risk data in order to provide a transportation evacuation network that can safely and efficiently support large evacuation efforts resulting from natural disasters throughout Florida. Within the SRESP, each Regional Planning Council (RPC) updated its regional evacuation study to prepare for the potential evacuation due to a significant natural disaster by analyzing five scenarios from Level A, least severe, to Level E, most severe. The SRESP evaluates the five scenarios at year 2015 and also 2020.

Figure 3.3.1 illustrates the significant evacuation network created at the conclusion of the SRESP; US 301 has been classified as a critical corridor by the Northeast Florida RPC. Since the US 301 study corridor is located in central Florida and northeast Florida, the main function of the corridor is to complement I-75 and other northbound/southbound roadways in providing an efficient evacuation route for the southern and central Florida regions. Currently, the US 301 study corridor has 30 designated SRESP access points that connect US 301 to the evacuation network within Florida, with more connections within urban areas. I-75 travels parallel to US 301 near Segments 1, 2, 3, and 4. During an evacuation, the majority of the vehicles will travel along I-75 and use US 301 as a secondary roadway via the multiple designated access points. US 301 is one of the few north-south roadways near US in District 5. During an evacuation, US 301 is a primary route for vehicles throughout northeast Florida. Specific alternatives must be considered along US 301 which will adequately support the transport of vehicles during a major emergency evacuation.

Local Mitigation Strategies

A Local Mitigation Strategy (LMS) is a plan, at a county level, to prepare for a natural, technological, or human-caused hazard. Some counties within the study area have implemented a LMS to identify areas of concern and also to be better prepared in case of an emergency. Though US 301 is not specifically identified in any LMS, other important information such as types of hazards, likelihood of occurrence, and severity of hazard is detailed for the areas surrounding US 301. Hurricanes and tropical storms, severe storms/tornados, floods, wildfires, drought/heat wave, winter storms/freezes, lightning strikes, and major structure fires are hazards identified by the LMS to have at least a medium probability and severity of occurring in the study area.

Figure 3.3.1: Designated Evacuation Network



Information Obtained from FDEM

3.4 Economic Development

Given the location of US 301 to many distribution centers, intermodal facilities, and shipping ports, this corridor contributes to the economic development of the seven counties within the study area and Florida. Major businesses including major retailers utilize the location of US 301 as a means to transport their goods throughout the state and country.

Economic development incentive programs and tax breaks have created growth opportunities by attracting and keeping business within Florida. These economic growth initiatives have been instated in order to create and maintain a better economy and tax base which promotes businesses to expand within the State of Florida. Multiple economic strategies have been established along the study corridor. The Governor can designate up to three counties per year for special funding and incentives to stimulate the economy; Bradford County has been designated a Rural Area of Opportunity (RA0) community. Sumter County and Ocala have also been designated enterprise zones as part of a program providing tax breaks to businesses within the area.

The following section describes the economic development programs along US 301 that could have transportation impacts on the corridor.

Economic Strategies

US 301 connects the economies of rural and urban communities along the corridor by transporting commuters and freight throughout central and northeast Florida. Initiatives and incentives have been created to promote job and economic growth within certain communities along US 301.

Rural Areas of Opportunity

Under the Rural Economic Development Initiative (REDI), the State of Florida has designated communities within the state as RAO. RAO communities are given this designation once a county meets the population standard and the requirements of economic distress (Section 288.0656(2)(e), F.S.). Designated RAO communities are provided with financial assistance in the form of special community grants, waived or reduced match requirements, training and other technical assistance, and tax incentives or loan programs. These incentives promote companies and businesses to expand within the RAO communities. There is potential for significant acceleration of population and employment growth if economic development initiatives are successful, with the higher rates of growth most likely in rural counties that border established urban areas and those that serve as regional employment centers.

Along the US 301 corridor, Bradford County is designated as RAO and Nassau County is designated as a rural county; see Figure 3.4.1. In addition, Coleman, Sumter County; Hawthorne, Alachua County; and Waldo, Alachua County, recently were designated rural communities and were eligible for REDI assistance.

Enterprise Zones

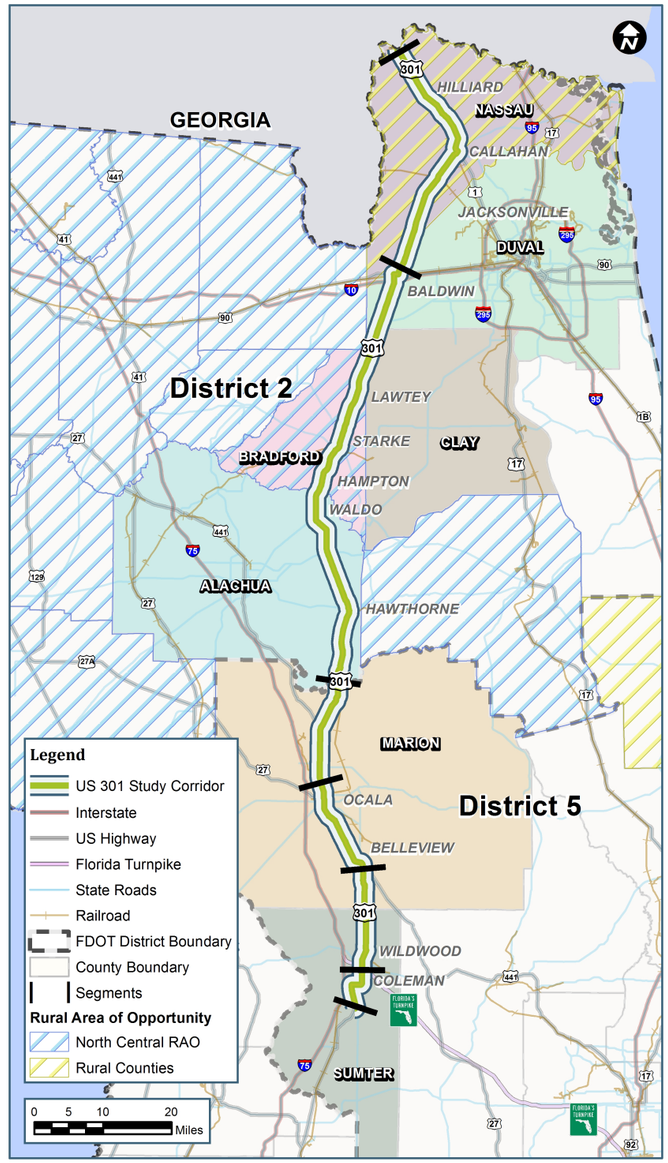
To continue to promote economic development and improve the job market, the Florida Department of Economic Opportunity (FDEO) has created the Florida Enterprise Zone Program. In collaboration with the Florida Department of Revenue (FDOR), this program provides tax incentives for businesses located in an Enterprise Zone. There are two Enterprise Zones along the US 301 corridor to provide tax incentives within the area, shown in Table 3.4.1. As the economy continues to grow, these enterprise zones along US 301 may grow at a faster rate compared to other areas along US 301.

Table 3.4.1: Florida Enterprise Zones along US 301 - 2013

Enterprise Zone	Agency	Businesses Assisted	New Businesses	New Jobs
Sumter County	Sumter County	32	35	128
Ocala	City of Ocala Revitalization Strategies	4	0	11

Source: Bureau of Economic Development, Florida Enterprise Zone Program Annual Report, March 1, 2013

Figure 3.4.1: Rural Areas of Opportunity



Information Obtained from FDEO

3.5 Environmental Conditions

The environmental analysis is a screening level analysis to determine possible constraints along the study corridor or environmental features that would need to be considered further during any project enhancements made to the US 301 corridor.

Methodology

This analysis was based on a review of readily available documentation obtained from public Geographic Information System (GIS) databases. Field reconnaissance to ground truth the data is beyond the scope of this analysis. The following databases were reviewed through desktop analysis for the fatal flaw environmental analysis of US 301:

- Florida Land Use Cover Forms Classification System (FLUCFCS)
- U.S. Fish and Wildlife Service, National Wetlands Inventory (NWI)
- Endangered and threatened species Florida Natural Areas Inventory (FNAI), U.S Fish and Wildlife Service (USFWS), and Florida Fish and Wildlife Conservation Commission (FWC)
- Publically Managed Lands from FNAI Florida Managed Areas
- Federal Emergency Management Agency (FEMA)
- Potential Contamination Sites through FDEP GIS datasets
- State Historic Preservation Officer (SHPO) Florida Master Site File Data
- United States Department of Agriculture Soil Data (2014)
- Community features including:
  - Schools (public and private)—University of Florida GeoPlan Center (2012)
  - Community Centers—Florida Department of Revenue (2010)
  - Religious centers—University of Florida GeoPlan Center (2009)
  - Parks—Florida Department of Environmental Protection (2011)
  - Cultural and civic centers—University of Florida GeoPlan Center (2006).

A 400 foot buffer (200 feet on each side of the study corridor) was used around the US 301 corridor to help identify those features that could be most vulnerable to enhancements made to US 301. The results below include the features that are within the 400-foot buffer of the corridor.

Land Cover

FLUCFCS data was obtained from the water management districts which are a part of the study area (St. Johns River Water Management District, Southwest Florida Water Management District, and Suwannee River Water Management District) on February 17, 2015. Predominately, the corridor is surrounded by mixed hardwood coniferous, coniferous plantations, commercial and services, and residential.

Wetlands

National Wetlands Inventory data from USFWS October 2014 was used to identify wetlands near the study area. Desktop analysis found that more than 250 wetlands are located within the 400-foot buffer of the study corridor as seen in Figures 3.5.1 to 3.5.3. These wetlands are classified as freshwater ponds, freshwater emergent wetland, freshwater forested/shrub wetland, or one riverine. Major water bodies found near the project are Orange Lake, Lochloosa Lake, Lake Altho, and Hampton Lake. The St. Johns River is located east of the study corridor. While wetlands are not necessarily a fatal flaw, state and federal law requires avoidance and minimization of wetlands to the extent practical. For any wetland impacts that cannot be avoided, mitigation would be required.

Species

Florida Natural Areas Inventory (FNAI) data received April of 2014 resulted in 9 listed elemental occurrences within the 400-foot buffer of the US 301 corridor (see Figures 3.5.4 to 3.5.6). The following table lists the elemental occurrences and their state listing designation:

Species	State Status
Ciliate-leaf Tickseed	LE
Purple Honeycomb-head	LE
Hartwrightia	LT
Yellow Sunnybell	LE
Giant Orchid	LT
Ashe's Savory	LT
Southeastern American Kestrel	ST

N = Not listed **LE** = Endangered **LT** = Threatened
ST = State population listed threatened by FWC

Section 7 of the Endangered Species Act requires federal agencies to ensure that activities do not have a detrimental effect on the continued existence of listed species or their habitats. For some species, USFWS has designated consultation areas (CAs) or critical habitat for particular federally listed species. Based on a review of the USFWS GIS data, portions of the project occur within several USFWS-designated CAs for the red-cockaded woodpecker (RCW), Everglade's snail kite, sand skink/blue-tailed mole skink, and Lake Wales ridge plants. The majority of the corridor lies within the RCW CA throughout a majority of US 301 corridor, excluding the southernmost section of the study area. The southernmost section is located within a Snail Kite CA, but the project area is not in USFWS designated critical habitat. The area of US 301 near Ocala and Belleview is located in a Skink CA. A small section of the corridor lies within the eastern boarder of the Lake Wales Ridge Plants CA. The Florida Fish and Wildlife Conservation Commission Eagle Nest Locator was accessed on February 17, 2015 (https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx). There were several nests located close to the study corridor. Surveys will have to be conducted to determine if these species are located within the study area when specific enhancements are determined. Avoidance and minimization of listed species and their habitat is required by federal and state regulations. For unavoidable impacts, relocation (for some species) and/or mitigation would be required. The potential presence of listed species is not considered a fatal flaw but further assessment and/or permitting may be required depending

upon the extent of improvements and results of species-specific survey.

Publically Managed Lands

Florida Managed Lands data from FNAI December 2014 displayed in Figures 3.5.7 to 3.5.9 shows an abundant amount of managed lands surrounding the US 301 corridor. The following managed lands intersect the 400-foot buffer around the corridor:

- Miller Farm
- Jacksonville-Baldwin Rail Trail
- Georgia Pacific-Lochloosa Conservation Easement
- Palatka-to-Lake Butler State Trail
- Cary State Forest
- Lochloosa Wildlife Conservation Area
- Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area.

These managed lands should be avoided to the extent practical during any enhancements to the study corridor. For projects that require federal funding and approval from the Federal Highway Administration (FHWA), resources protected under Section 4(f) of the Department of Transportation Act must be considered. The managed lands within the study area would likely be considered Section 4(f) resources. A Section 4(f) Determination of Applicability would be prepared during PD&E and submitted to FHWA. This Act requires avoidance of the resources unless there is no prudent or feasible alternative to impacting the resource. Each resource is evaluated separately and it is presumed that there is an avoidance alternative to impacting Section 4(f) resources. If there is no prudent or feasible alternative, the minimization of impacts to each resource is required. This could include reduced typical sections, bridging or other means to reduce the impact to the resources. If FHWA determines that there is no avoidance alternative and sufficient minimization has occurred, then mitigation may be required.

Flood Zones

FEMA Flood hazard areas downloaded from https://hazards.fema.gov/femaportal/wps/portal/NFHLWMS (on February 17, 2015) for each county surrounding the study area are shown in Figures 3.5.10 to 3.5.12. Most of the flood zones surrounding the corridor are classified as Zone A, which means those areas are subject to inundation by the 1% annual chance flood event. The second most common type of flood zone is Zone X, which are areas with minimal flood hazard. Depending on the extent of improvements, floodplain compensation may be required and flood conveyance of streams and creeks should be maintained. With proper avoidance, minimization and mitigation, the presence of floodplains and potential impacts are not considered a fatal flaw.

Contamination

Contamination data received from the Florida Department of Environmental Protection (FDEP) Geodatabase is shown in Figures 3.5.13 to 3.5.15. A number of potential and/or known contamination sites are located within the 400-foot buffer of the US 301 corridor. Many of the contamination sites are located in the cities along the corridor: Callahan, Baldwin, Starke, Waldo, Hawthorne, and Ocala. A brownfield site is located in Ocala along the southern limits of this study. A majority of the sites are petroleum tank contamination sites from gas stations, laundry mats, and other retail and fuel user stores. Several solid waste sites are located along the corridor including the Ocala transfer station, B.R.S recycling facility, Latex Construction Site, and Baldwin Yard.

A contamination screening evaluation should be conducted to determine the effects to potential contamination sites. FDEP contamination locator map and oculus should be utilized to determine the status of potential contamination sites.

Historic and Archaeological Resources

SHPO Florida Master Site File Data was reviewed along the US 301 corridor. Occurrences within 400 feet of the corridor are shown in Figures 3.5.16 to 3.5.18s. The data from October 2014 showed 16 SHPO bridges within the buffer of the corridor. Fifteen of the 16 bridges have not yet been evaluated by SHPO; one was found to be ineligible for National Register of Historic Places (NHRP). One SHPO resource group located within the 400-foot buffer is Dixie Highway (northern section of US 301), a site that consists of a historic, transportation-related, cultural resource. The evaluation of this resource states that “additional documentation, archaeological investigation, preservation, signage, or a corridor management plan may be warranted.” SHPO structures located within the 400-foot buffer resulted in 220 structures total. Of the 220 structures, 11 structures are eligible for NRHP by SHPO; the remaining structures are ineligible for NRHP (142), not evaluated by SHPO (65), or potentially eligible for NRHP (two). Site-specific cultural resource assessments would be needed to determine if resources listed or eligible for listing on the NRHP occur and if proposed improvements would impact these resources. Sites listed or eligible for listing on the NRHP should be avoid to the extent practical. These resources would be considered Section 4(f) resources as well. Though not a fatal flaw, the presence of historic or archaeological resources could affect design alternatives. Site-specific assessments should be conducted.

Soils

United State Department of Agriculture 2014 soils data was used to determine soils surround the study area. The majority of land surrounding US 301 is considered to be not prime farmland, as seen in Figures 3.5.19 to 3.5.21. The soils classified as prime farmland or farmland of local importance are located along US 301 near the City of Ocala and the City of Belleview.

Community Features

Community feature datasets were downloaded from the Florida Geographic Data Library. Located within the 400-foot buffer of US 301 are several community features as seen in Figures 3.5.22 to 3.5.24. Santa Fe College Andrews Center is the only school located near the corridor. There are two speedways that are considered civic centers along the corridor as well as one cultural center. Two community centers are located within the 400-foot buffer. Along US 301, adjacent to the City of Wildwood, there are six religious centers; there is one other religious center located along the corridor west of Baldwin.

Environmental Review Conclusion

The fatal flaw analysis for US 301 identified several possible constraints and challenges located along the study corridor. Further analysis and evaluation regarding impacts to the natural environment as well as community and cultural/historical features is recommended as decisions are made regarding specific enhancements to US 301.

Figure 3.5.1 Wetlands (1 of 3)

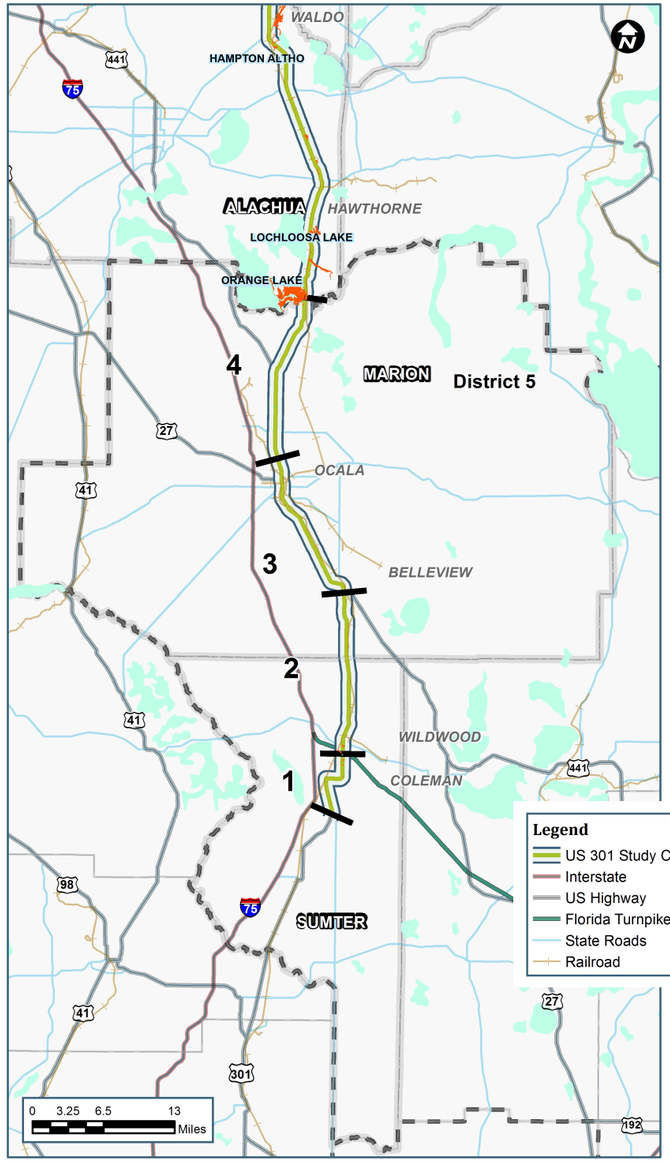


Figure 3.5.2 Wetlands (2 of 3)

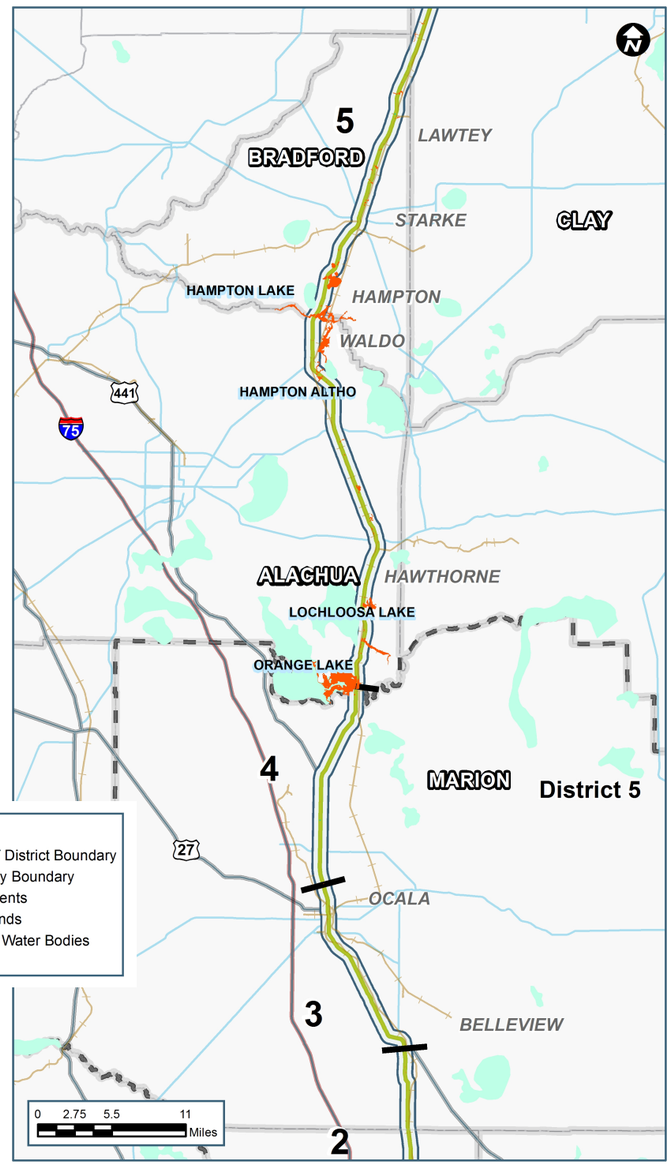


Figure 3.5.3 Wetlands (3 of 3)

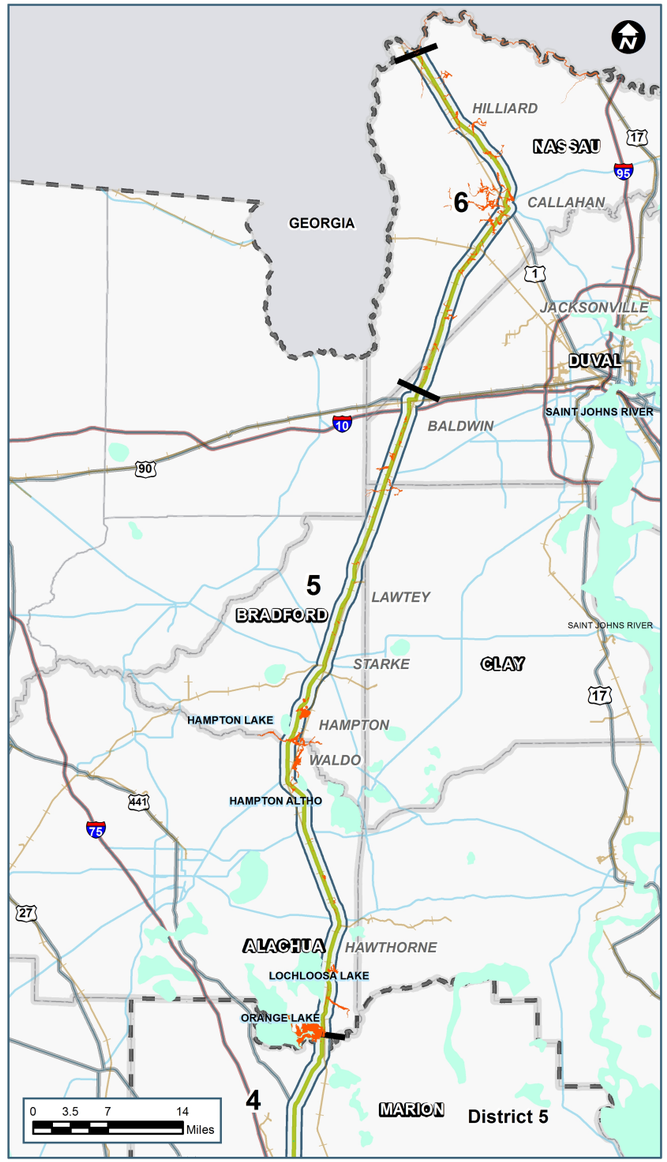


Figure 3.5.4: Species (1 of 3)

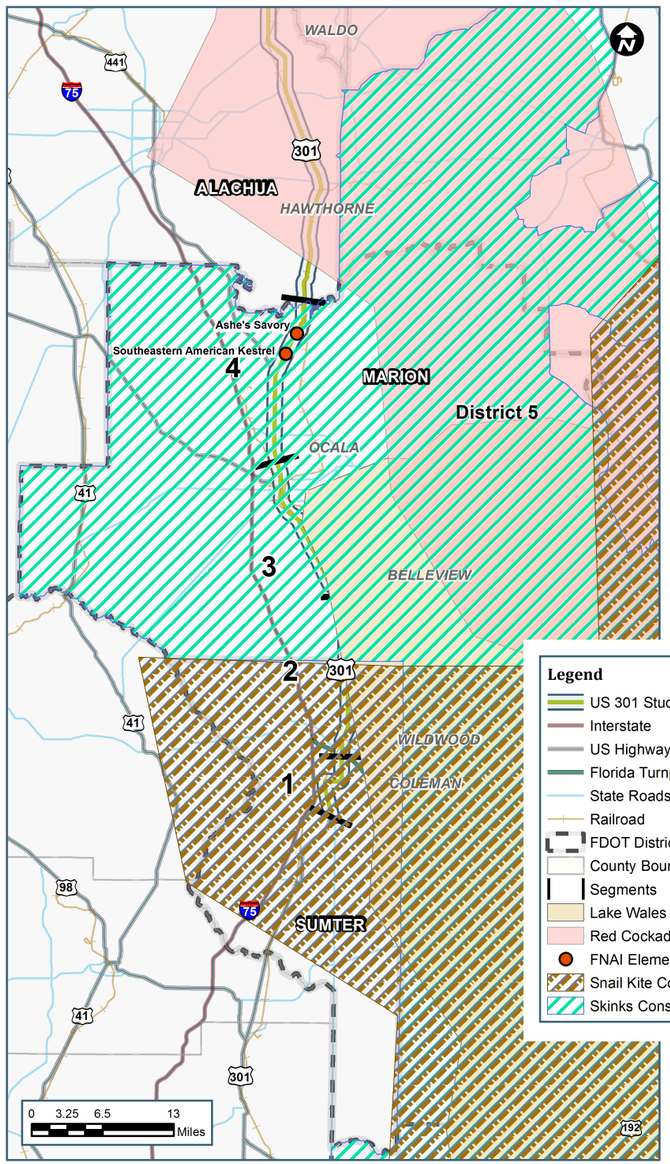


Figure 3.5.5: Species (2 of 3)

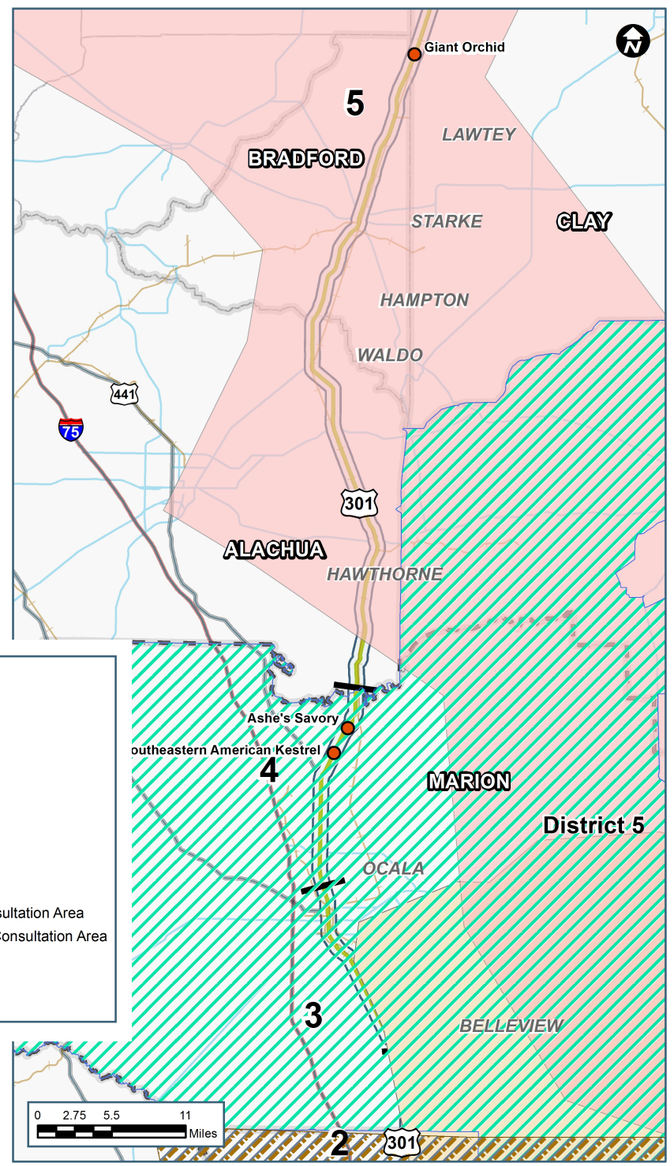


Figure 3.5.6: Species (3 of 3)

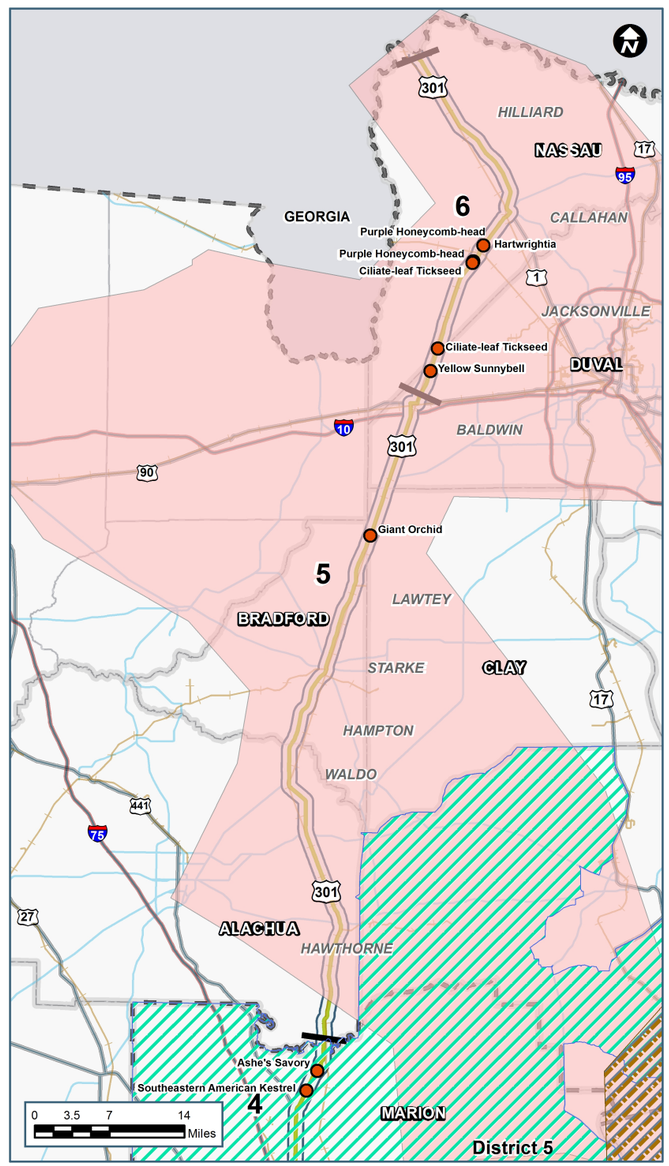


Figure 3.5.7: Managed Areas (1 of 3)

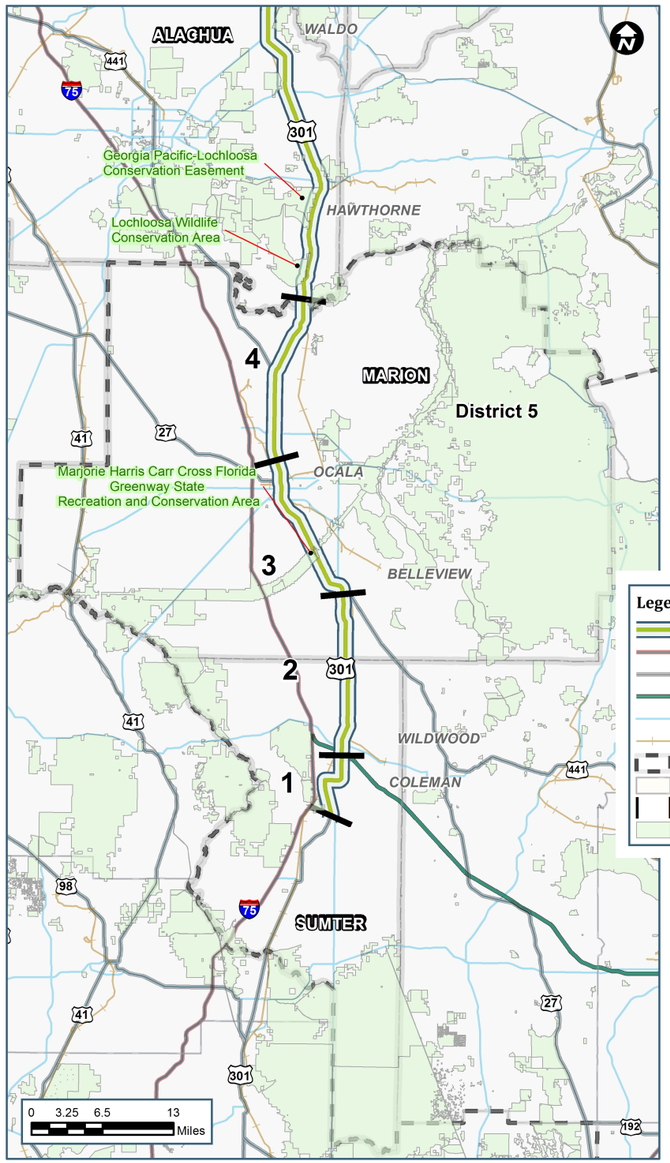


Figure 3.5.8: Managed Ar eas (2 of 3)

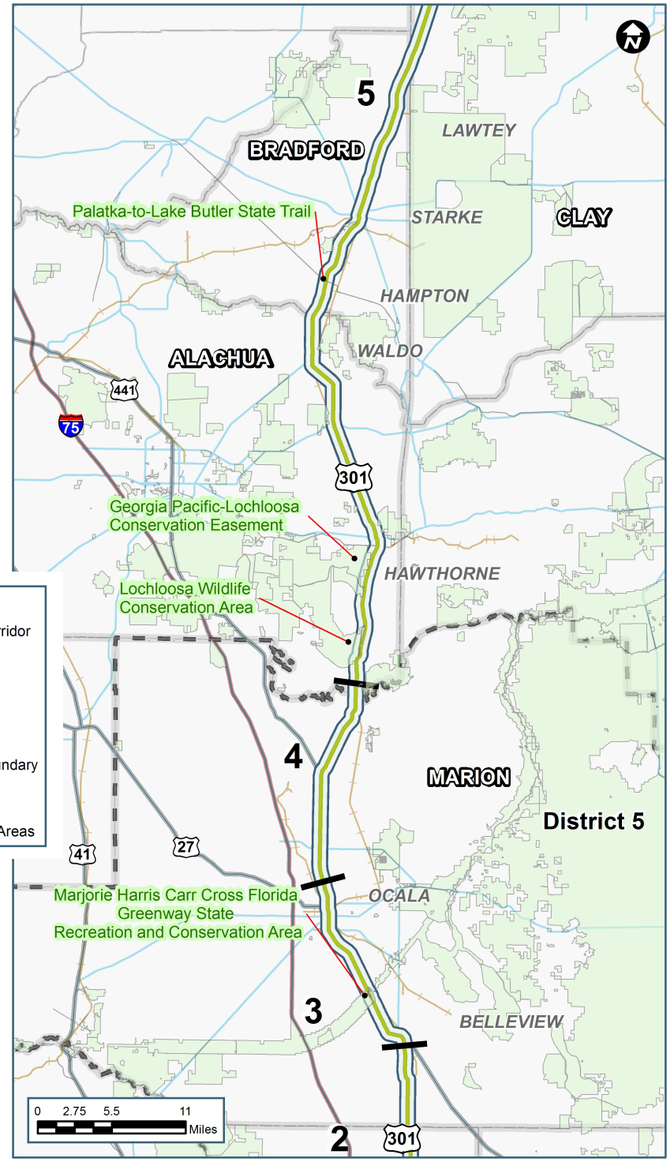


Figure 3.5.9: Managed Areas (3 of 3)

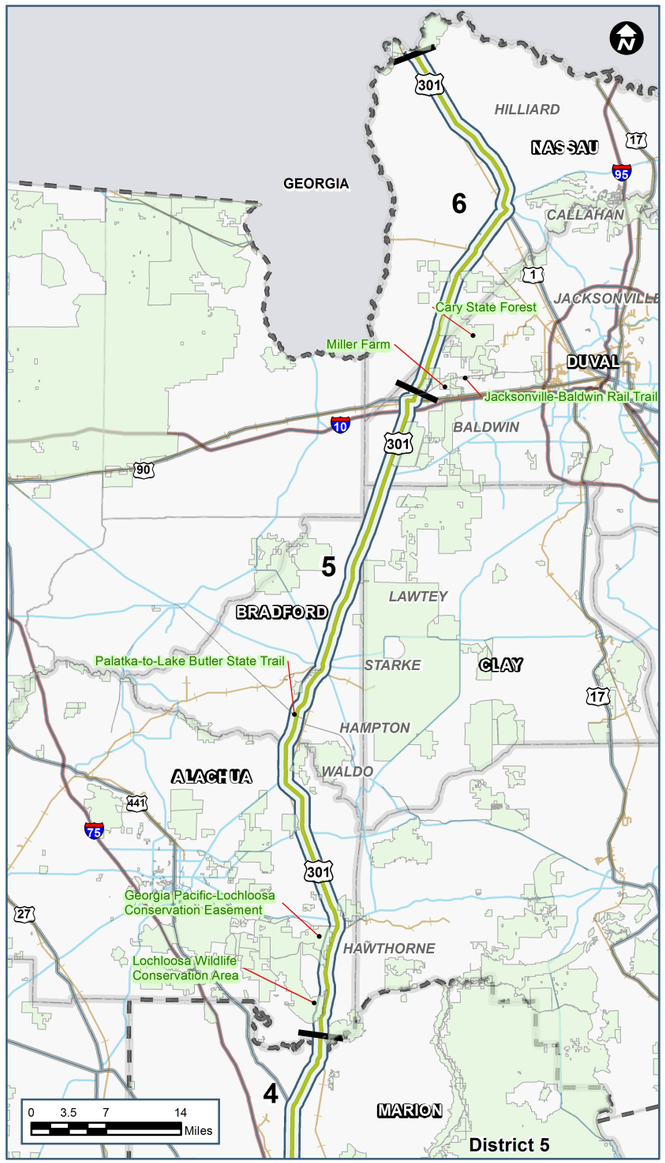


Figure 3.5.10: Flood Zones (1 of 3)

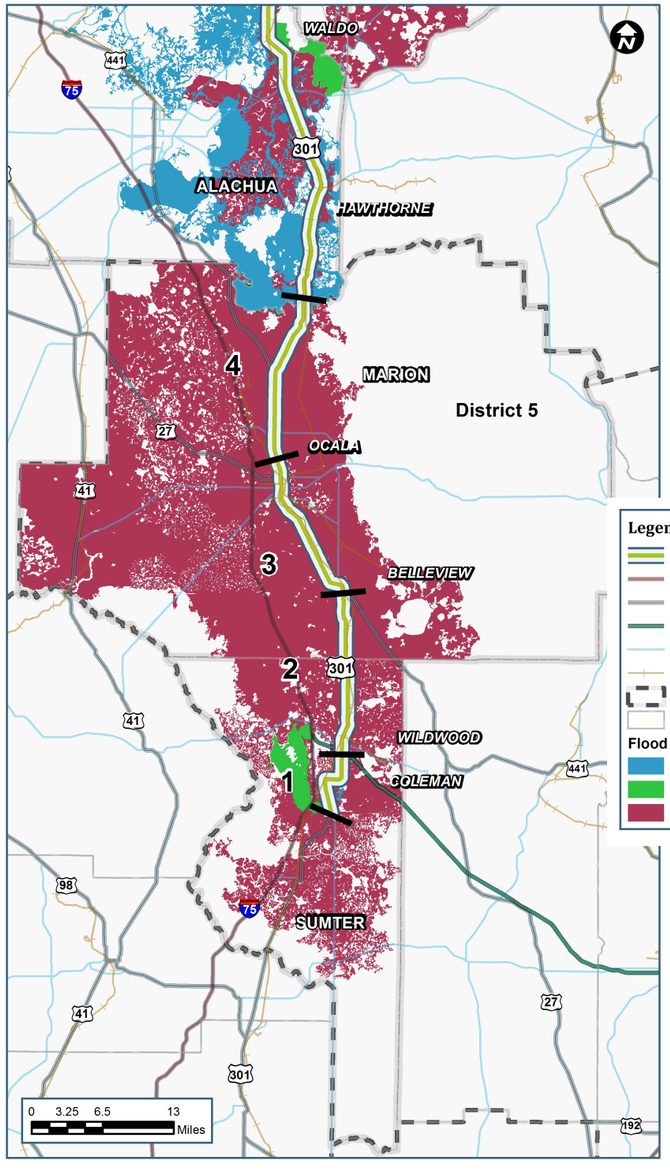


Figure 3.5.11: Flood Zones (2 of 3)

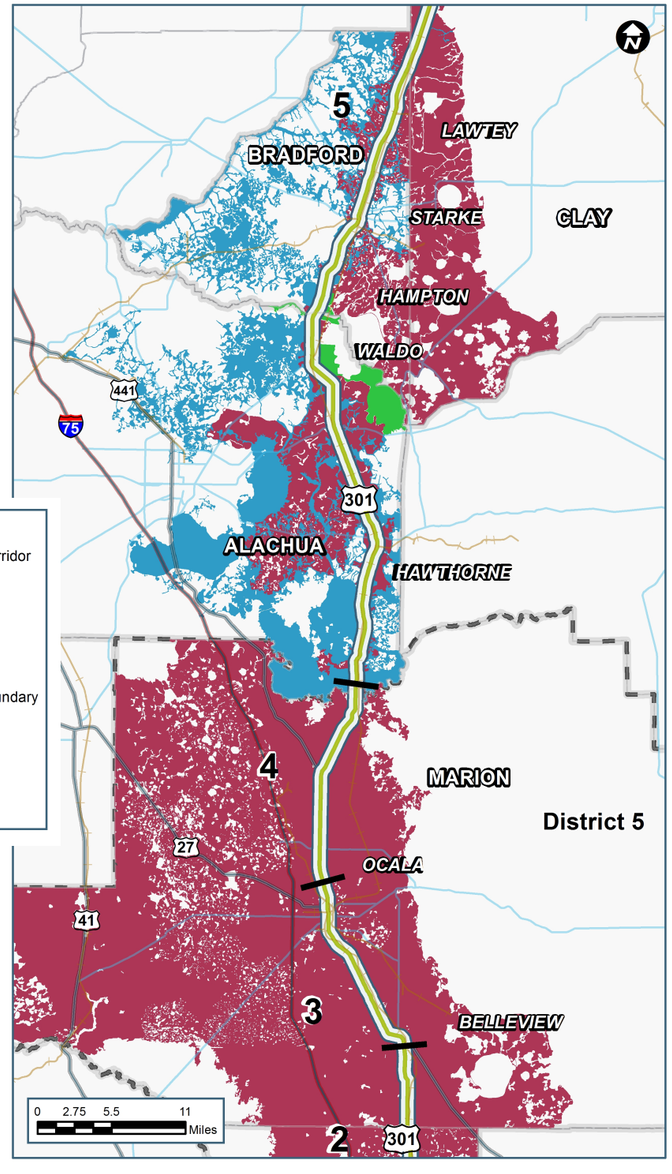


Figure 3.5.12: Flood Zones (3 of 3)

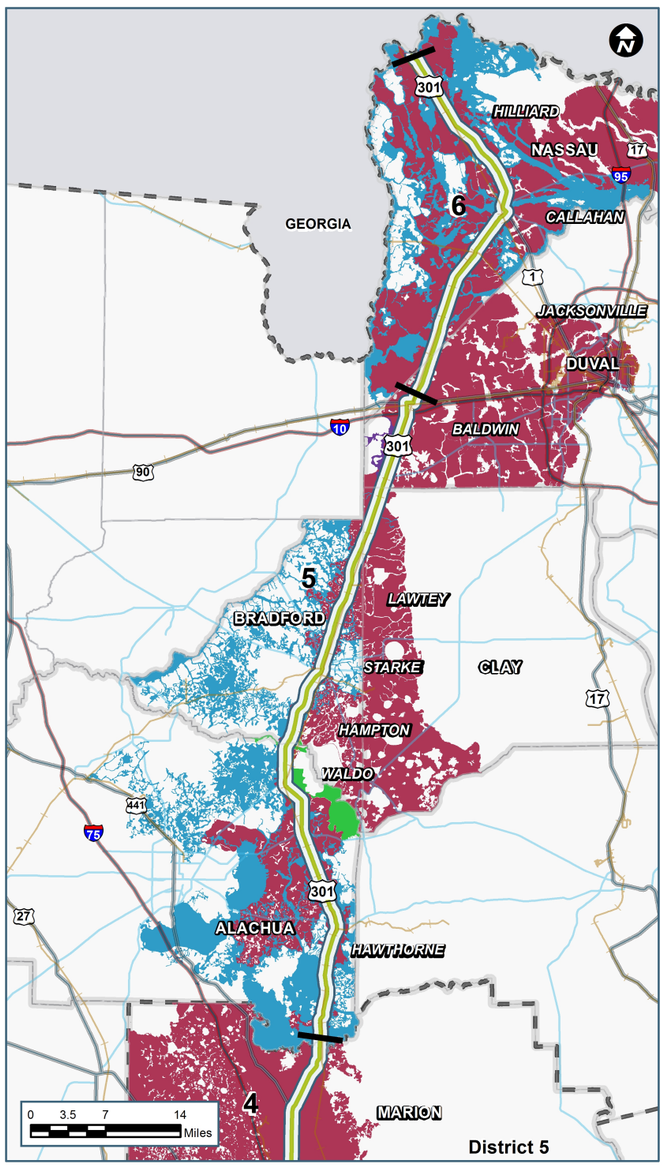


Figure 3.5.13: Contamination (1 of 3)

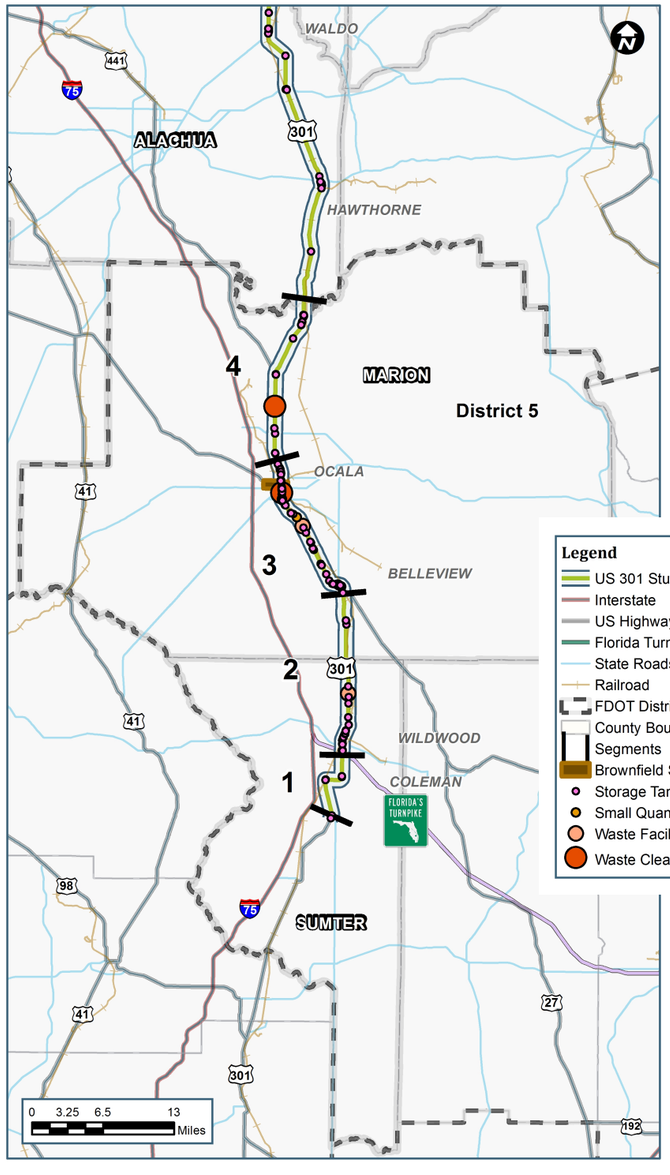


Figure 3.5.14: Contamination (2 of 3)

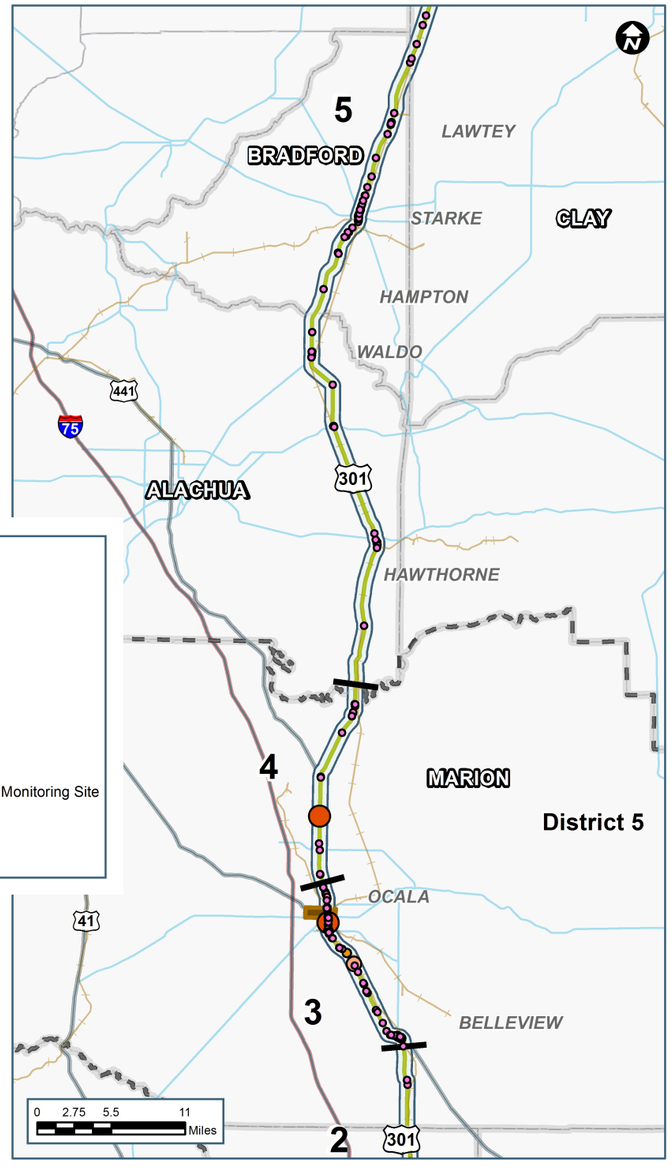


Figure 3.5.15: Contamination (3 of 3)

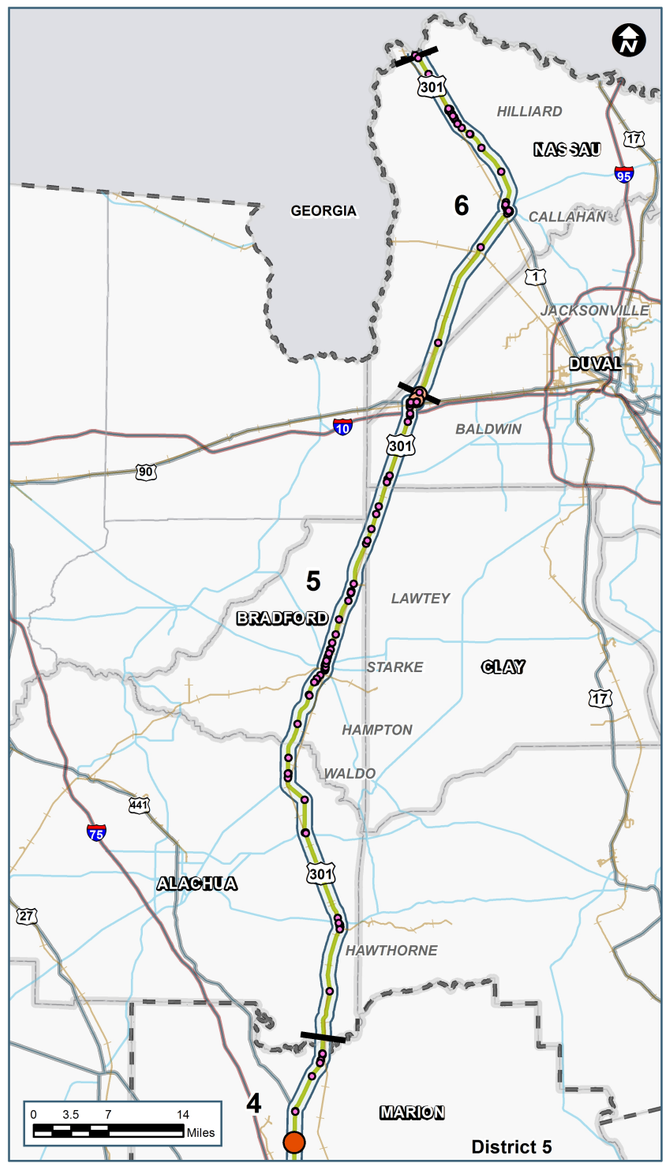


Figure 3.5.16: Historic/Archaeological Resources (1 of 3)

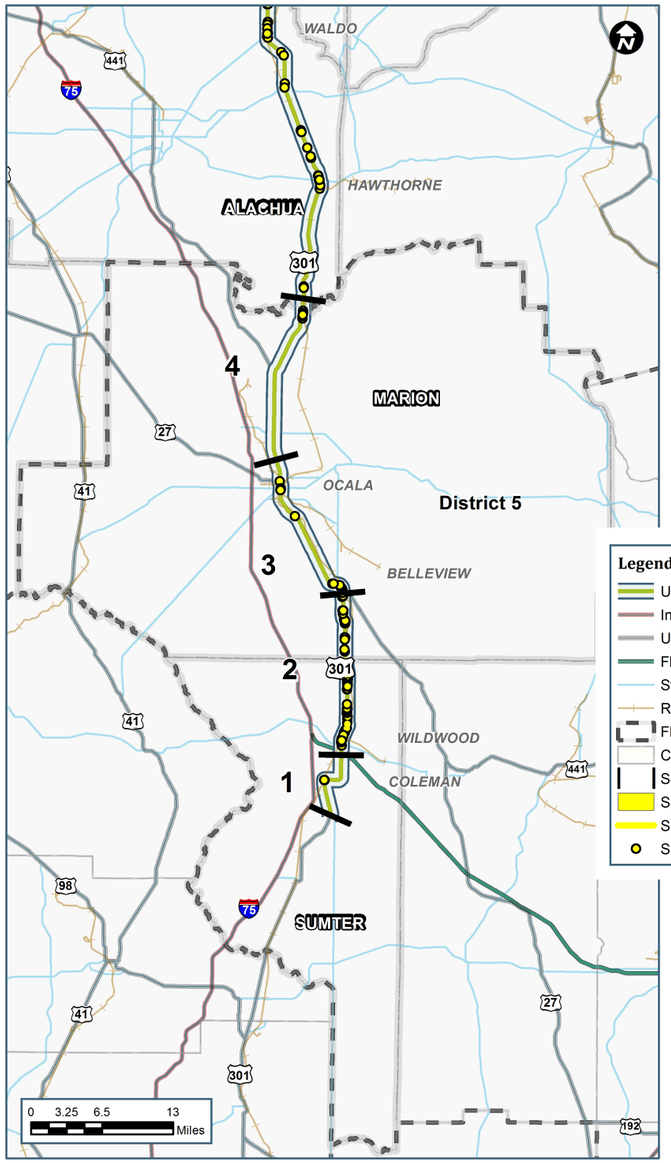


Figure 3.5.17: Historical/Archaeological Resources (2 of 3)

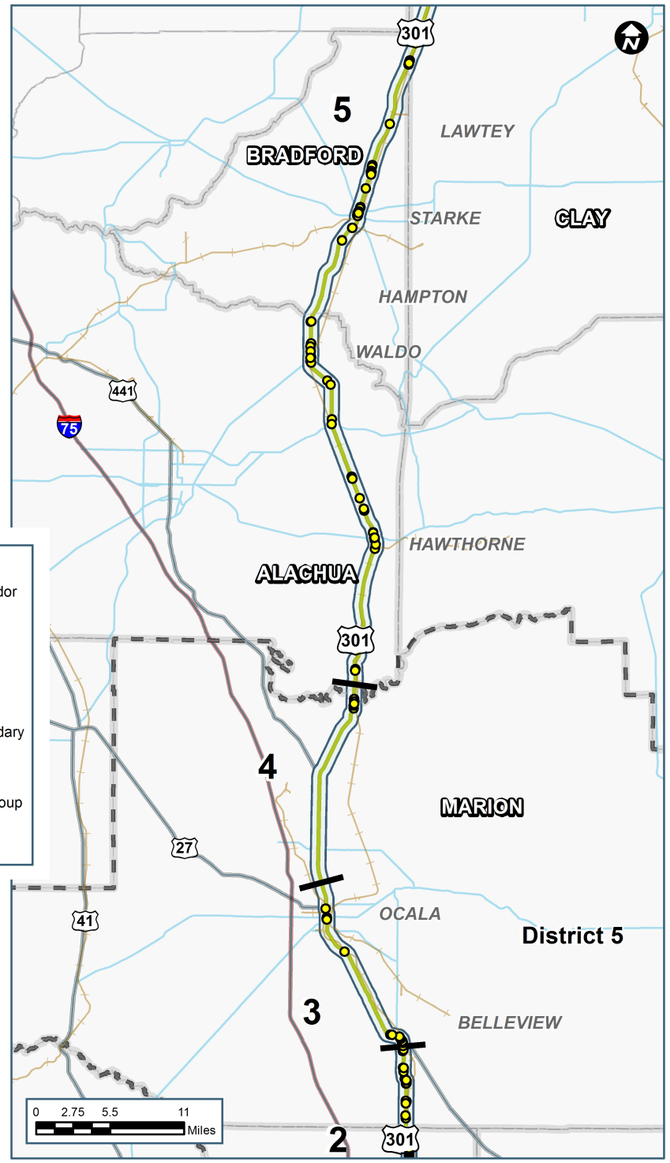


Figure 3.5.18: Historical/Archaeological Resources (3 of 3)

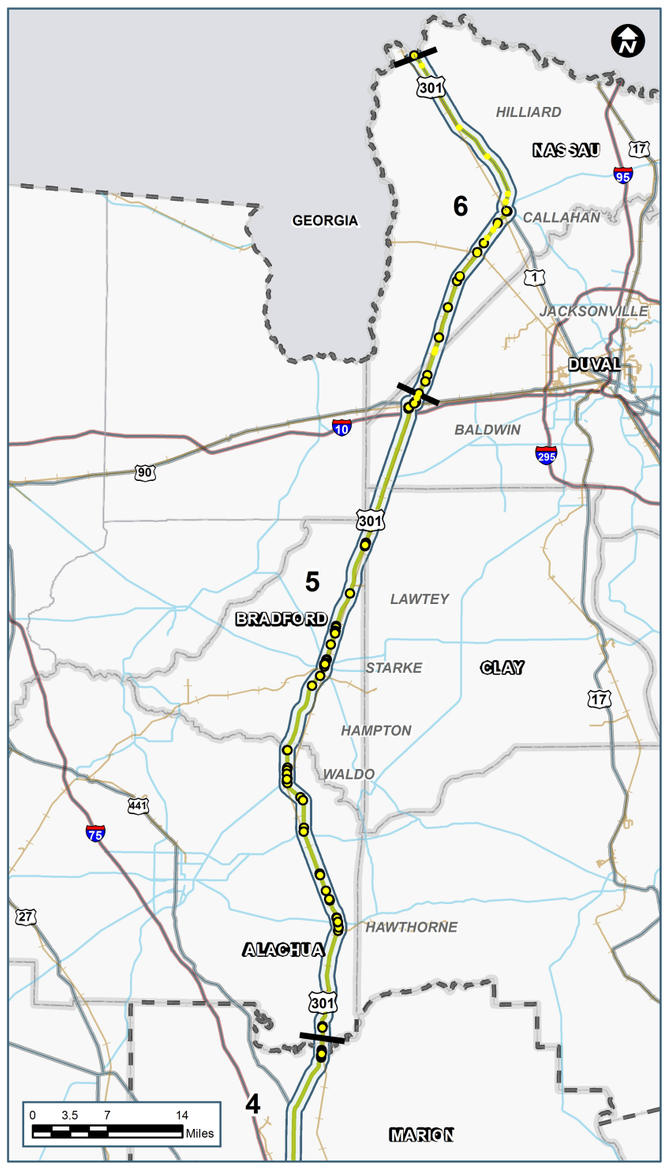


Figure 3.5.19: Soils (1 of 3)

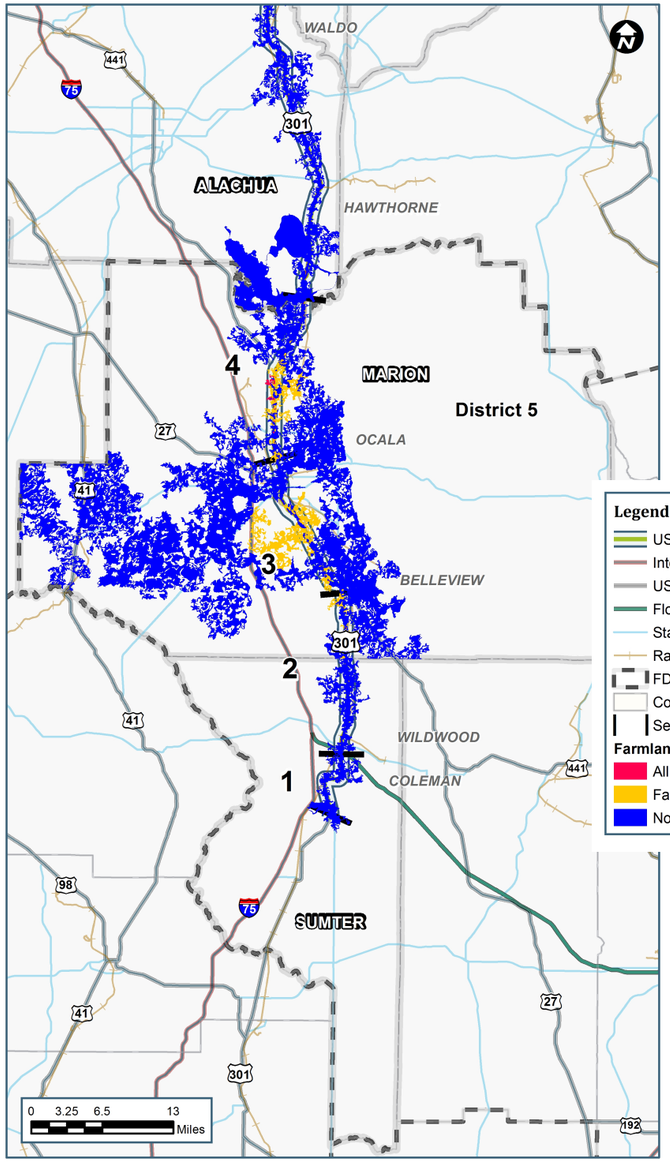


Figure 3.5.20: Soils (2 of 3)

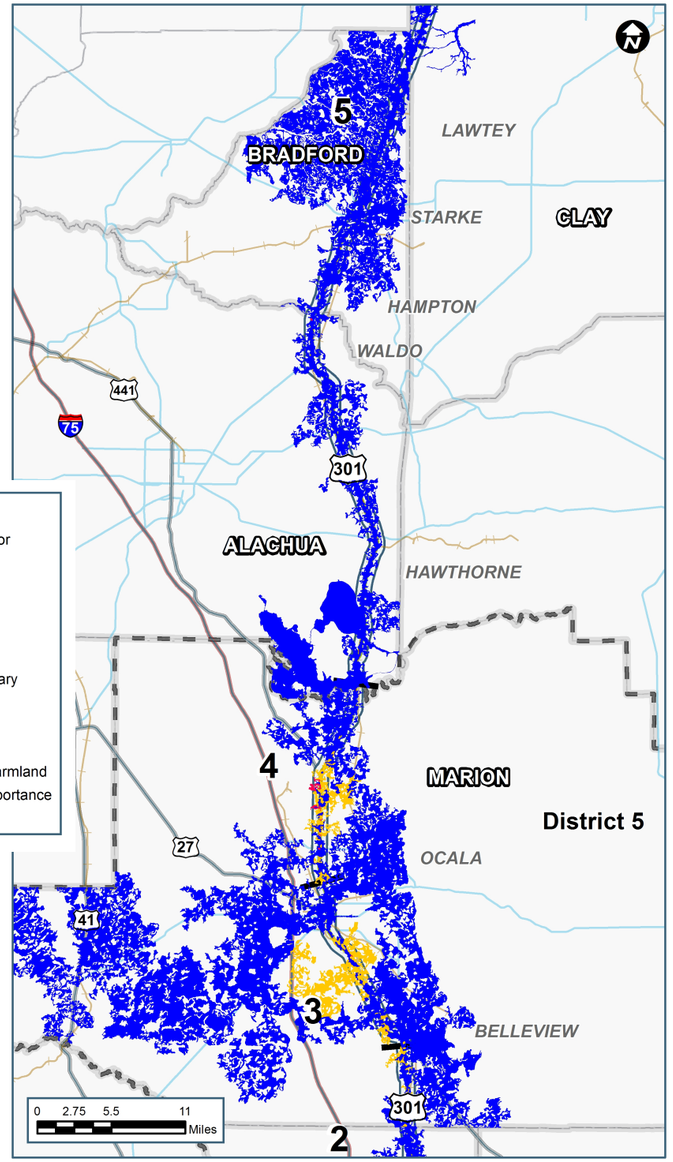


Figure 3.5.21: Soils (3 of 3)

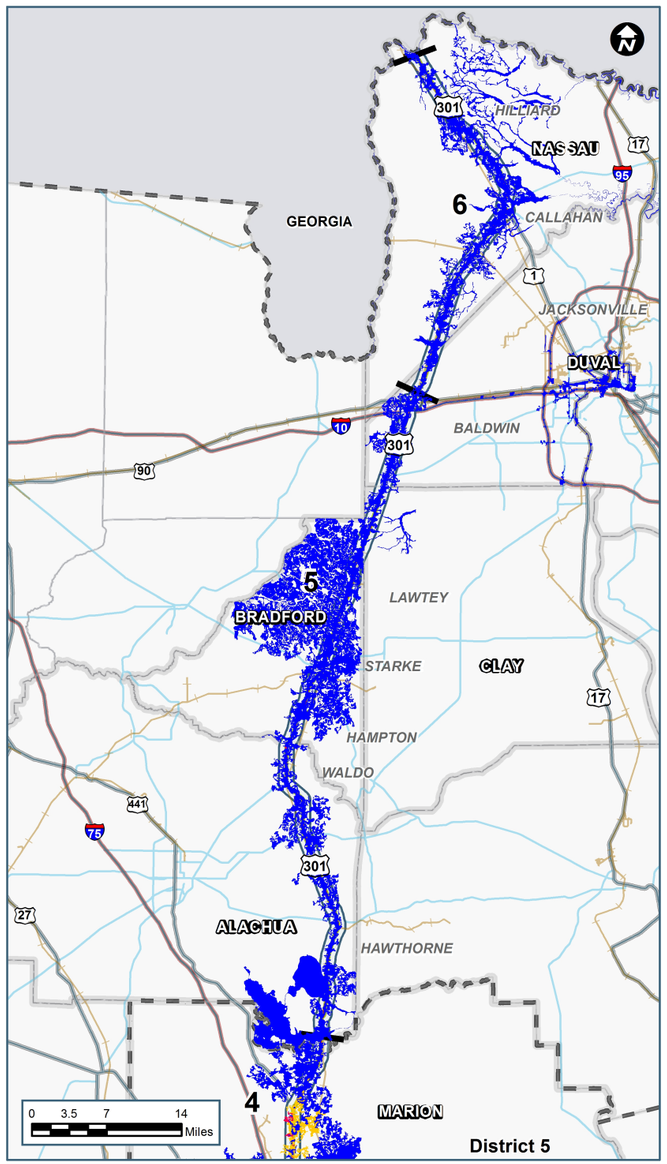


Figure 3.5.22: Community Features (1 of 3)

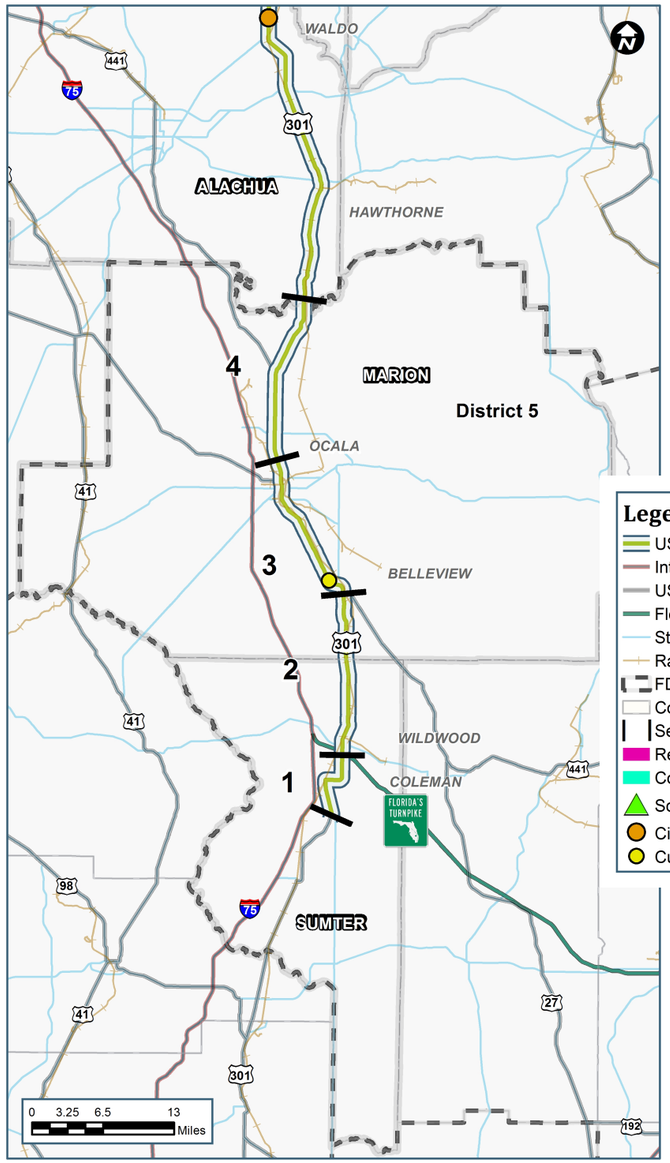


Figure 3.5.23: Community Features (2 of 3)

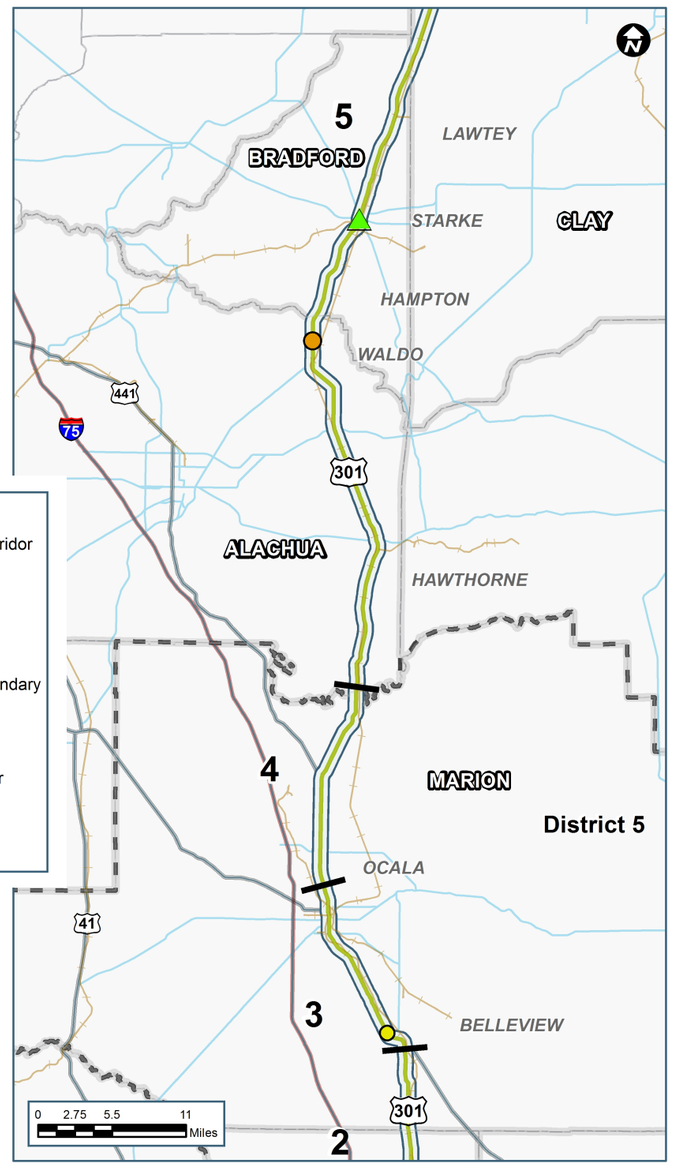
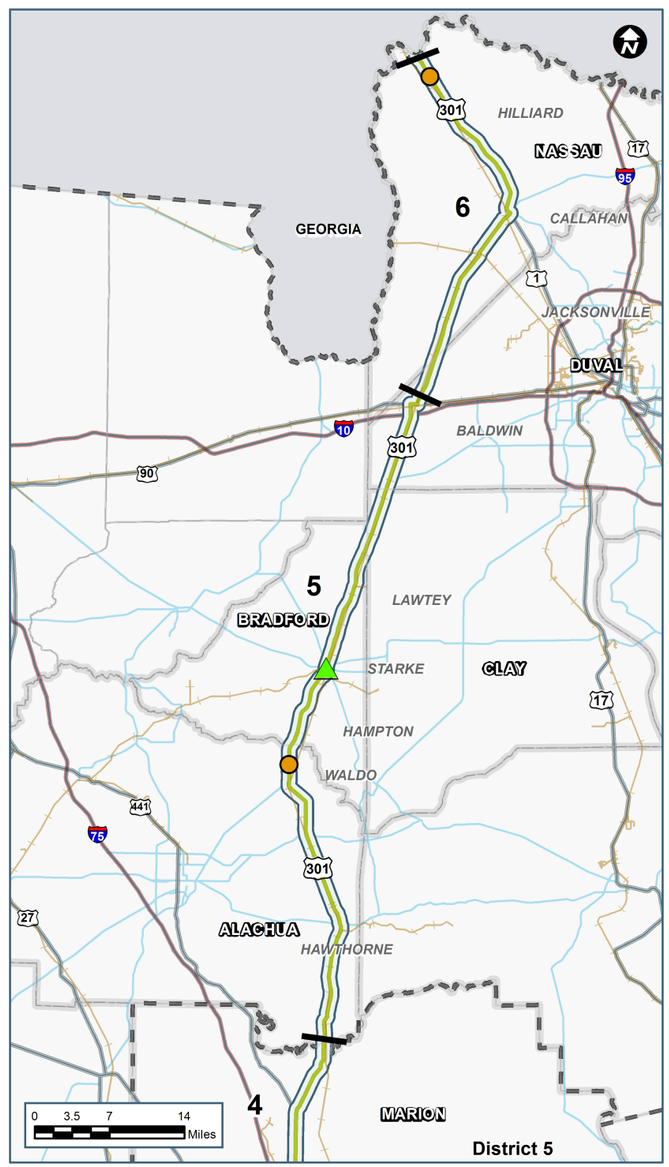


Figure 3.5.24: Community Features (3 of 3)



Section 4: Future Conditions

4.1 Future Demographic Elements

Future Demographic Estimates

In addition to the US Census Bureau, University of Florida's Bureau for Economic and Business Research (BEBR) produces low, medium, and high population projections. As is standard, the medium future population projections are used for planning purposes. The low and high estimates normally are stated for informational purposes. Year 2040 is the analysis year for this study. For 2040, the population of Florida is projected to be between 23 million (low projection) and 29 million (high projection) or an increase of 30 percent from the 2013 Florida population of over 19.5 million. Illustrated in Table 4.1.1, Sumter County is expected to nearly double in population by 2040 from year 2013; 91 percent (medium projection). Marion County (47 percent, increase from 2013 to 2040), Clay County (54 percent), and Nassau County (47 percent, using median level projections) are also expected to experience substantial population increases by year 2040. The seven counties within the US 301 corridor could add more than 750 thousand new residents (additional 38 percent) within 30 years. This potential influx of residents could result in significant traffic from years 2013 to 2040 along the US 301 corridor.

Planned Regional Developments

Section 3.1 identified four existing major developments within the study area including The Villages, Camp Blanding, Cecil Commerce Center and the Keystone Terminal Jacksonville ILC. Five other significant planned developments, shown in Figure 4.1.2, are either planned or under construction that will impact the US 301 corridor. These are described in more detail below.

Table 4.1.1: BEBR Population Projections from 2013 – 2040

	2013 Population	BEBR Projections			
		Low	Medium	High	
FLORIDA	19,552,860	22,921,300	25,583,200	28,899,800	**2040 Projected Population**
		17.23%	30.84%	47.80%	**2040 Growth**
Sumter	107,056	130,900	204,500	278,200	**2040 Projected Population**
		22.27%	91.02%	159.86%	**2040 Growth**
Marion	337,362	368,100	497,500	626,800	**2040 Projected Population**
		9.11%	47.47%	85.79%	**2040 Growth**
Alachua	253,451	241,300	305,400	369,500	**2040 Projected Population**
		-4.79%	20.50%	45.79%	**2040 Growth**
Bradford	26,850	24,300	30,800	37,200	**2040 Projected Population**
		-9.50%	14.71%	38.55%	**2040 Growth**
Clay	196,399	223,600	302,200	380,800	**2040 Projected Population**
		13.85%	53.87%	93.89%	**2040 Growth**
Duval	885,855	840,300	1,063,700	1,287,000	**2040 Projected Population**
		-5.14%	20.08%	45.28%	**2040 Growth**
Nassau	75,710	82,300	111,300	140,200	**2040 Projected Population**
		8.70%	47.01%	85.18%	**2040 Growth**

Data Obtained from BEBR 2040 Population Projections

Florida Crossroads Industrial Area

The Florida Crossroads Industrial Area is a large industrial development proposed at the interchange of I-75 and Florida's Turnpike. With more than 4,000 acres, this development will have direct access to two major roadway systems in addition to a CSX mainline. It is expected that US 301 will experience increased freight volumes due to a potential overpass which will connect US 301 to the industrial park.

Ocala 489 Commerce Park

Another planned development that will have significant impact on the US 301 corridor is the Ocala 489 Commerce Park (Ocala 489). Ocala 489 is a planned 489-acre multi-tenant industrial park that is anticipated to provide a mix of warehousing, distribution, manufacturing, and a small amount of commercial retail uses. Included in the development is a 150 acre FedEx distribution center. The property is generally located on the west side of NW 27th Avenue north of US 27 in Ocala. Ocala 487 is projected to generate more than 23,000 daily trips (80 percent cars and 20 percent trucks). As a result, it is anticipated that 6 percent of the expected car volume and 25 percent of the expected truck volume generated from Ocala 489 will impact the US 301 corridor daily.

Envision Alachua Sector Plan

Led by Plum Creek, Envision Alachua Sector Plan (EASP) is a community planning process which examines future economic, environmental, and community opportunities on lands owned by Plum Creek within Alachua County. The 60,000-acre development is expected to include about 2,300 acres of designated agriculture, 340 acres of designated rural, and 11,400 acres of designated Employment Oriented Mixed Use. It is anticipated for US 301 from NE 136th Avenue to 2000 feet south of 146th Street to be at an unacceptable LOS. As a result, this portion of US 301 may need additional capacity by 2035 in order to satisfy the traffic demand.

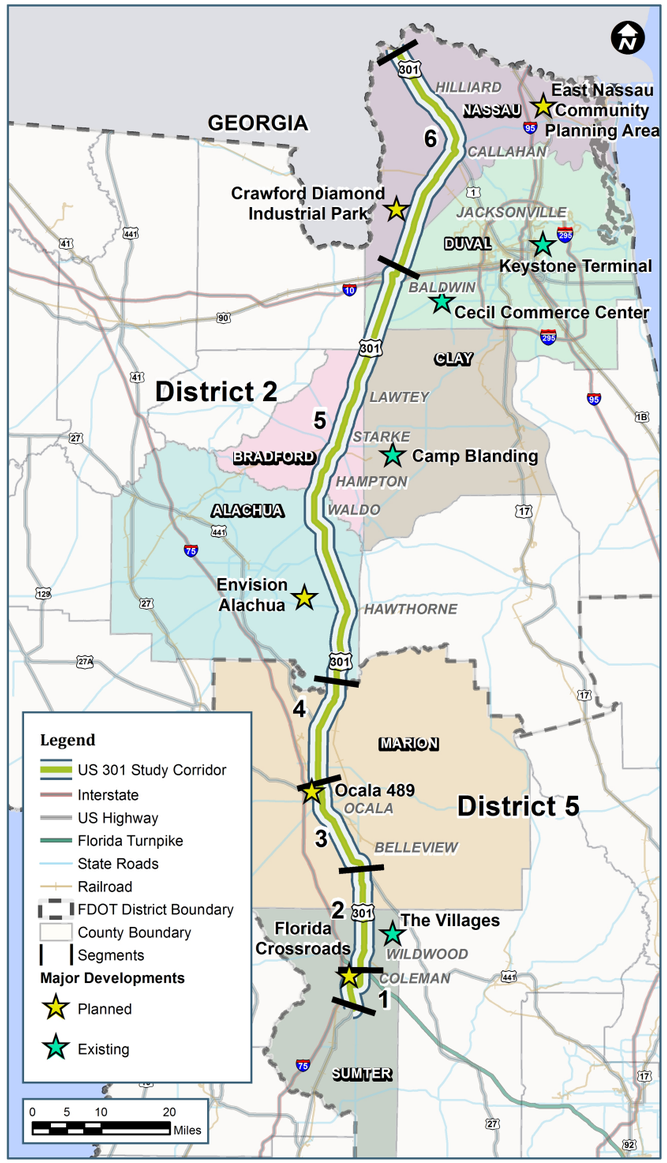
Crawford Diamond Industrial Park

The Crawford Diamond Industrial Park will be located adjacent to the intersection of two Class I railroad lines: CSX Railroad and Norfolk Southern Railroad. This 1,800-acre industrial development will be located in Callahan, Florida. Freight traffic will rely on US 301 as the primary roadway to connect the industrial park to I-10, the shipping ports to the east, central Florida, and the rest of the United States.

East Nassau Community Planning Area

Located in Nassau County, the East Nassau Community Planning Area (ENCPA) is a joint long-term planning effort between Nassau County and the Rayonier Company. The large, 24,000-acre, state approved Sector Plan is intended to "Promote and encourage long-term planning for conservation, development, and agriculture." Adjacent to SR 200/A1A to the north and I-95 to the west, the ENCPA may have potential transportation impacts to US 301.

Figure 4.1.1: Existing and Planned Major Developments



Information Obtained from Local Planning Agencies

4.2 Future Transportation Conditions

Growth Analysis

Future traffic volumes along US 301 were projected by comparing multiple data sources to determine a reasonable growth rate to year 2040. Sources included in developing future year traffic for the US 301 corridor are the Florida Statewide Model (FLSWM), the Northeast Regional Planning Model (NERPM), and the Central Florida Regional Planning Model (CFRPM). This included a review of the socio-economic data, highway network, and daily traffic projections from the model. In addition to using the regional travel demand model, having a keen understanding of the travel patterns and historical information and traffic volume trends in the area is important in developing future year traffic projections.

A historical growth trend analysis was performed based on several data sources, as shown in Table 4.2.1. Traffic volumes were obtained from FDOT's Florida Traffic Online data for the past 10 years (2004—2013) to understand the historic annual growth for each segment. Additionally, because traffic growth is usually closely related to population growth in areas, population growth projections can typically be indicators of future traffic growth. Historical data and future low, medium, and high population projections for each county within the study area were obtained from BEBR and analyzed.

The FLSWM, NERPM, and CFRPM model output volumes also were used for estimating traffic growth. The annual growth percentages were calculated by inputting the model output volumes into FDOT's Traffic Trends spreadsheet calculator.

As a result of this analysis, three annual growth rates were determined for the corridor for Segment 1, Segments 2 through 5, and Segment 6. The model projections for Segment 1 predicted an annual growth of more than six percent during 2005 to 2035. This high growth rate may largely be due to The Villages being located near US 301—in reality, most of that growth already has occurred. Since The Villages is near final build out, an average growth rate combines the medium BEBR projection and the model projections provided a more reasonable future growth rate. This growth rate of 4.3 percent for Segment 1 takes into consideration the potential future development of the Florida Crossroads Industrial Area located near US 301, I-75, and Florida's Turnpike and other growth potentials.

A combined annual growth rate for Segments 2 through 5 was determined after review of the projected growth from BEBR and the statewide model as well as review of future developments along the corridor. The annual growth rate for Segments 2 through 5 was calculated by taking the average of each segment's model projection. The result provided an annual growth rate of 2.4 percent for Segments 2 through 5.

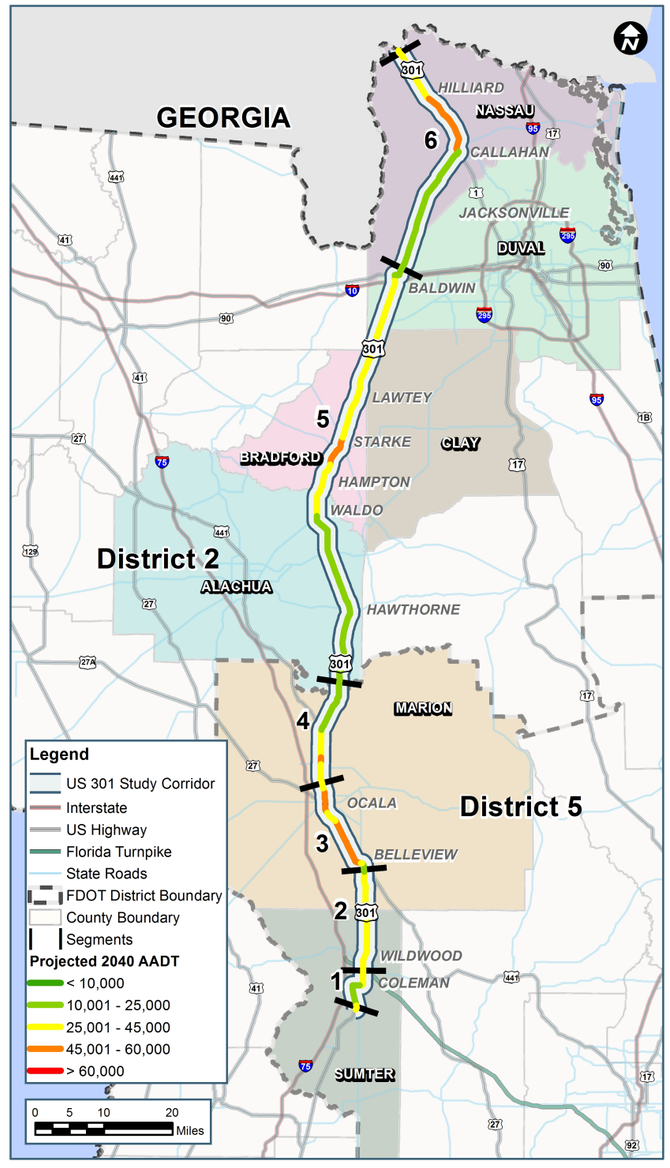
Based on the location and characteristics of Segment 6, it was determined that this segment should have a more specific growth rate. Segment 6 is surrounded by a few small cities and high truck traffic. Since Segment 6 is located relatively close to the Port of Fernandina, the Port of Jacksonville, and the future Crawford Diamond Industrial Park, the statewide model projection of 4.9 percent was used as the annual growth rate for the segment.

Figure 4.2.1 depicts the projected 2040 traffic volumes along the corridor.

Table 4.2.1: Annual Growth Rate

Segment	Medium BEBR Projection	(2004-2013) Historical AADT	MPO / Statewide Model Projections	Assumed Growth
1	2.43%	-0.76%	6.10%	4.30%
2	1.45%	1.58%	2.60%	2.40%
3	0.69%	-2.70%	1.73%	2.40%
4	0.51%	-2.42%	2.30%	2.40%
5	1.61%	-2.08%	3.08%	2.40%
6	0.68%	-2.75%	4.93%	1.90%

Figure 4.2.1: Projected Traffic Volumes, 2040



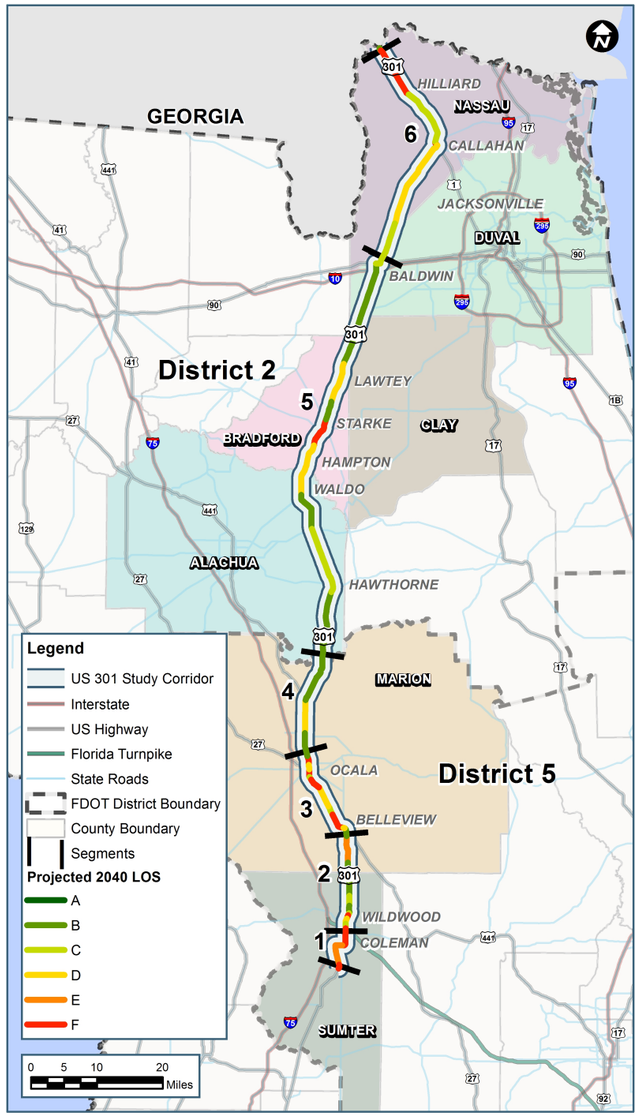
Information Obtained from FDOT TranStat Office - Traffic Data

Traffic Analysis – Year 2040

The annual growth rates were used to determine the future year traffic volumes throughout the corridor. The future year LOS for the corridor is analyzed by comparing the projected traffic volume to the maximum service volume at the adopted standard LOS. The maximum service volumes are from the 2013 FDOT Generalized Service Volume Tables. Twenty-three different count stations were selected along US 301 to represent the corridor. Table 4.2.2 summarizes the future year analysis. Figure 4.2.2 shows the year 2040 projected level of service for the study corridor. A segment by segment summary follows.

- Segment 1: Segment 1, a two-lane facility, is expected to have an unacceptable LOS by year 2040. Growth will include the 4,000-acre Florida Crossroads Industrial Park that is planned to be developed between US 301 and I-75, which will significantly increase the transportation demand on US 301; discussed in Section 3.1. A Project Development and Environment (PD&E) Study is currently being conducted for Segment 1.
- Segment 2: The majority of Segment 2 is a four-lane urban roadway with a small two-lane section south of Belleview. With the development of The Villages at near build out, traffic growth is expected to level off in the Sumter County portion of Segment 2. With that, downtown Wildwood is expected to experience a LOS below the acceptable standard. As mentioned earlier, capacity improvements will be limited through Wildwood since a CSX rail yard is located west of US 301 and development is located to the east. The two-lane section, from CR 42 to CR 575 south of Belleview, is currently below LOS standard, LOS D.
- Segment 3: With expected growth, the majority of Segment 3 will have an unacceptable LOS F by year 2040; parts of this segment are expected to operate at LOS D or better through Ocala. Segment 3, through Belleview and Ocala, is the most populous segment within the study area. The existing traffic volume in the southern part of Belleview is projected to operate near the designated maximum capacity, LOS D. The increased traffic volume through Belleview is largely the result of the merge of US 27/US 441 with US 301 in the southern portion of Segment 3. It should also be noted that the two highest crash frequency intersections are located within 0.2 miles of one another, both in Belleview. High traffic volumes and dangerous intersections are a major concern and alternatives will be identified to relieve congestion and improve safety. Capacity improvements may not be possible due to the amount of development located at the edge of the roadway. In addition, almost the entirety of US 301 though Ocala will be near or below the LOS standard by year 2040. Currently Ocala is a six-lane facility with development located near the edge of the ROW.
- Segment 4: Segment 4 is divided between two area types: urban, from north of Ocala to the US 301/US 441 intersection, and rural undeveloped, from the US 301/US 441 intersection to the Marion/Alachua County line. I-75 parallels US 301 south of the US 301/US 441 intersection. As a result, the majority of the through traffic within Marion County travel north/south along I-75 and connect to US 301 at SR 326 if traveling towards Jacksonville. With this, the projected 2040 LOS for the southern half of Segment 4, paralleling I-75, LOS B is expected to be maintained by 2040; however, the LOS north of the SR 326 intersection is expected to be near capacity by year 2040.
- Segment 5: Segment 5 is the longest segment in the study and traverses throughout six cities; Hawthorne, Waldo, Hampton, Starke, Lawtey, and Baldwin. US 301 through Starke has an existing LOS below the standard of LOS C. The projected 2040 LOS through Starke will be LOS F. The FDOT Work Plan includes a new facility to be constructed around the west side of Starke to decrease the amount of vehicles traveling through the city and to increase safety within Starke. After construction of this facility, traffic congestion should be less severe. Through the City of Lawtey is projected to experience LOS D (below standard). In Baldwin the LOS is expected to be near or below standard. In addition, two CSX at-grade crossings increase delay through Baldwin.
- Segment 6: Traversing from north of Baldwin to the Florida/Georgia State line, Segment 6 is the northernmost segment within the study area. Two large potential developments are planned near Segment 6: Crawford Diamond Industrial Park and the East Nassau Community Planning Area. These two developments will significantly increase the amount of traffic along US 301 and are included in the growth projections. North of Baldwin, the current two-lane facility is being widened to four lanes, which will increase capacity and provide an acceptable LOS for the facility outside of Baldwin. It is projected that US 301 through Callahan and Hilliard will be at an unacceptable LOS by year 2040. Due to the location of developments, capacity improvements may not be feasible through Callahan.

Figure 4.2.2: Projected Level of Service, 2040



Information Obtained from FDOT TranStat Office - Traffic Data

Table 4.2.2: Year 2040 Analysis

County	City/Town	From	To	Area Type	Roadway Class	Speed Limit (mph)	Number of Lanes	LOS Standard[1]	Maximum Capacity (vpd)	Count Station	2040 AADT (vpd)	2040 LOS	Over Capacity
Segment 1													
Sumter	-	CR 470 West	CR 470 East	Rural	Highway	50	2	C	16,400	180083	32,400	F	**Yes**
Sumter	-	CR 525 East	CR 523	Rural Undeveloped	Highway	55	2	C	8,400	180041	18,500	E	**Yes**
Sumter	Wildwood	CR 523	Florida's Turnpike	Urban	Class I	55	2	D	17,700	180077	28,700	F	**Yes**
Segment 2													
Sumter	Wildwood	Chairs Street	Grant Street	Urban	Class II	35	4	D	32,400	180026	35,000	F	**Yes**
Sumter	-	CR 462	CR 472	Transitioning	Highway	55	4	D	62,900	180206	37,500	C	No
Marion	-	Sumter/Marion County Line	CR 42	Urban	Highway	55	4	D	65,600	361009	34,800	B	No
Marion	-	CR 42	SE 125th Street	Urban	Highway	55	2	D	24,200	361007	26,900	E	**Yes**
Segment 3													
Marion	Belleview	SE 66th Avenue	SE 92nd Place Road	Urban	Class I	45	4	D	39,800	360136	52,600	F	**Yes**
Marion	South of Ocala	SE 80th Street	SE 40th Loop (North)	Urban	Highway	55	4	D	65,600	360040	58,300	D	No
Marion	Ocala	SR 200	SR 40	Urban	Class II	35	6	D	50,000	360132	65,000	F	**Yes**
Marion	Ocala	US 27/SR 492	CR 200A	Urban	Class I	45	4	D	39,800	365044	52,600	F	**Yes**
Segment 4													
Marion	-	Gainesville Road/Old Anthony Road	NW 47th Street	Urban	Highway	55	4	D	65,600	360481	33,400	B	No
Marion	-	NW 77th Street	NW 90th Street	Rural Undeveloped	Highway	55	4	C	40,300	360118	46,700	D	**Yes**
Marion	-	CR 329	Highway 316	Rural Undeveloped	Highway	60	4	C	40,300	360007	22,900	B	No
Segment 5													
Alachua	Hawthorne	69th Avenue	SR 20	Rural	Class I	45	4	C	29,300	265101	21,200	C	No
Bradford	-	CR 225	Alachua/Bradford County Line	Rural Undeveloped	Highway	65	4	C	40,300	280018	40,800	D	**Yes**
Bradford	Starke	Edwards Road	S Thompson Street	Transitioning	Class II	30	4	D	28,800	285017	57,300	F	**Yes**
Bradford	Lawtey	CR 233	NW 251st Street	Rural	Class I	55	4	C	29,300	280150	31,900	D	**Yes**
Duval	Baldwin	Clark Street	US 90	Urban	Class II	35	4	D	32,400	725082	16,600	D	No
Segment 6													
Nassau	-	Duval/Nassau County Line	Motes Road	Transitioning	Highway	60	2	D	24,400	743160	12,500	C	No
Nassau	Callahan	US 1/SR 200	Kings Road	Urban	Class II	35	4	D	32,400	740122	54,300	F	**Yes**
Nassau	Hilliard	Henry Smith Road	CR 108	Transitioning	Class I	45	4	D	35,500	740019	44,700	F	**Yes**
Nassau	-	Church Drive	Florida/Georgia State Line	Transitioning	Highway	55	4	D	62,900	740047	31,500	B	No

[1]HB 7207 FDOT LOS Standard

Planned Roadway Projects

There are several roadway network improvements that are planned and programmed between the years 2014 and 2023 and are shown in Table 4.2.3. These roadway improvements were identified from many sources including County and MPO Transportation Improvement Plans (TIP), the FDOT Work Program, the FDOT SIS First Five Year Plan, and the FDOT SIS Second Five Year Plan. Below is a highlight of some of the projects from Table 4.2.3. Resurfacing projects were not included.

PD&E Study in Sumter County

A PD&E Study will review the southern limit of US 301 near in the City of Coleman in Sumter County. Currently, this section of US 301 is a two-lane roadway with multiple curves.

Starke Bypass

The new facility around the City of Starke has been funded for construction for fiscal year 2016. This facility will relieve congestion on the US 301 corridor within Starke and will provide an alternate route for trucks carrying freight from central Florida to I-10. In addition, the future four-lane facility will increase the capacity within the area for future traffic growth. Safety though Starke will increase after the construction of the bypass since fewer vehicles will be traveling through the city. The 7.3-mile-long new facility will be constructed on the west side of Starke between CR 227 and CR 233/Morgan Road.

Baldwin Bypass

Similar to the Starke Bypass, FDOT has proposed a new facility around the Town of Baldwin. High volumes of commercial vehicles and freight trucks travel through Baldwin since both, I-10 and US 90, travel through the town. In addition, two at-grade railroad crossings also intersect US 301 in Baldwin. The new facility will be constructed on the west side of US 301 between I-10 and Hap Road in Duval County. The new facility will grade separate the railroad crossings.

I-10/US 301 Interchange Reconstruction

FDOT and the FHWA have approved the Interchange Modification Report (IMR) for the I-10 and US 301 interchange in Duval County. A new ramp will be constructed to improve access from northbound US 301 to eastbound I-10. Preliminary engineering was expected to begin in 2014 to reconstruct this interchange to increase capacity, enhance traffic operations, and improve safety just south of the City of Baldwin.

Virtual Weigh Station in Nassau County

Also known as a virtual weigh-in-motion (VWIM) station, these stations wirelessly monitor weight compliance, screening, and enforcement in a nonintrusive and efficient manner. A VWIM has been proposed in Nassau County in order to minimize freight delays as commercial vehicles enter and exit Florida. The specific location on US 301 has yet to be determined.

Table 4.2.3: FDOT Current and Future US 301 Roadway Improvement Projects

FDOT ID	County	Facility	From	To	Description	Project Type	Fiscal Year
430133-1	Sumter	US 301/SR 35	CR 48/North Main Street	SR 44	PD&E/EMO Study	PD&E Study	2015
411257-3	Sumter	US 301/SR 35	North of CR 232	North of NE 110 Rd	Add Lanes & Rehabilitate Pavement	Preliminary Engineering	2015
						Construction	2015
430132-1	Sumter	US 301/SR 35	CR 470	SR 44	PD&E/EMO Study	PD&E Study	2015
						Preliminary Engineering	2018
430188-1	Sumter	US 301	at SR 44		Add Turn Lanes	ROW	2014
						Preliminary Engineering	2015
						Construction	2019
432241-1	Alachua	US 301/SR 200	End of Existing Sidewalk	NE 177th Place	Sidewalk Construction	Design Build	2014
						Preliminary Engineering	2015
						Miscellaneous	2016
208001-1	Bradford	US 301/SR 200	South of City Limits	North of City Limits	PD&E Study	Preliminary Engineering	2014
						PD&E Study	2015
208001-4	Bradford	US 301/SR 200	CR 227	CR 233/Morgan Road	New Road Construction (Bypass)	Preliminary Engineering	2015
208001-5						Railroad & Utilities	2015
208001-6						ROW	2018
						Construction	2018
434335-1	Bradford	US 301/SR 200	at Bradford High School		Traffic Control Devices/System	Preliminary Engineering	2016
						ROW	2017
						Construction	2019
420531-4	Bradford	US 301/SR 200	at SE 144th Street		Street Operational Improvement	PD&E	2014
						Preliminary Engineering	2015
						ROW	2015
						Construction	2015
432245-1	Bradford	US 301/SR 200	SE 40th Ave	End of Existing Sidewalk	Sidewalk Construction	Design Build	2014
						Preliminary Engineering	2015
						Miscellaneous	2015

Table 4.2.3: FDOT Current and Future US 301 Roadway Improvement Projects (continued)

FDOT ID	County	Facility	From	To	Description	Project Type	Fiscal Year
434038-1	Bradford	US 301/SR 200	Alligator Creek Bridge No 280003		Bridge Replacement	PD&E Study	2015
209537-4	Duval	US 301/SR 200	I-10	Near Hap Road	New Road Construction (Bypass)	PD&E Study	2015
						Preliminary Engineering	2015
						ROW	2018
						Railroad & Utilities	2016
						Construction	2017
						Environmental	2015
213272-3	Duval	I-10	US 301	SR 23 (BFCR)	Add Lanes & Reconstruct	Preliminary Engineering	2015
						ROW	2018
428865-1	Duval	US 301/SR 200	I-10/SR 8 Interchange		Interchange Operational Improvements	PD&E	2015
						Preliminary Engineering	2015
						ROW	2018
						Railroad & Utilities	2016
						Construction	2018
						Environmental	2015
429551-1	Duval/Nassau	US 301/SR 200	South of Duval County Line	South of Callahan	Add Lanes & Reconstruct	Preliminary Engineering	2015
						Railroad & Utilities	2012
						Design Build	2015
						Miscellaneous	2015
435821-1	Nassau	US 301/SR 200	at Crawford Road		New Interchange	Preliminary Engineering	2015
434758-4	Nassau	US 301/SR 15			Virtual Weigh Station	Preliminary Engineering	2017
						Construction	2018

Section 5: Summary of Needs Analysis

The US 301 Transportation Alternatives Study stretches roughly 154 miles and traverses two FDOT Districts, two RPCs, three MPOs, seven counties, and 13 incorporated cities. Connecting shipping ports in Tampa to distribution centers in central Florida to additional shipping ports in Jacksonville and Nassau County, US 301 is a significant roadway used to transport people and good within Florida and throughout the United States. This study is in accordance with the "Florida's 21st Century Transportation Vision" and Florida's Future Corridors, which calls for planning a transportation system that maintains the economic competitiveness by meeting current and future transportation needs for moving people and freight. As a result, this Project Needs Technical Memorandum is a high-level concept report created to identify statewide connectivity and mobility needs along US 301.

5.1 Summary of Findings

According to the US Census Bureau and BEBR, the majority of the population along the corridor is expect to increase significantly by 2040. Multiple existing major developments are located near the corridor which contribute to the increased population; including: The Villages (Sumter/Marion County), Camp Blanding (Bradford County), and Cecil Commerce Center (Duval County). In addition, five major future developments are expected along the corridor; including: Florida Crossroads Industrial Area (Sumter County), Ocala 489 Commerce Park (Marion County), Envision Alachua Sector Plan (Alachua County), Crawford Diamond Industrial Park (Nassau County), and East Nassau Community Planning Area (Nassau County). These existing and future major developments are expected to contribute to a significant increase in population along the corridor; corresponding to increased traffic and congestion.

Access management is a general concern along the corridor; specifically within city limits. Ocala is classified Access Class 5 and Access Class 6 (non-restrictive). Seven out of the eight high intensity crash locations are located within these areas. According to FDOT's *Median Handbook*, carefully planned access management strategies decrease conflict points thus potentially reducing the number of crashes. In addition, poor access management has been identified within Segment 5 in Baldwin near two large gas stations/travel centers. Due to the heavy travel generated by these businesses, access to and from US 301 is sometimes blocked and delays and significant conflicts are created. Proper access management strategies implemented throughout the study area will benefit the entire corridor.

Intelligent Transportation Systems (ITS) infrastructure is minimal throughout the corridor. Besides Ocala and Belleview, no ITS infrastructure is present; in addition, there are no current planned improvements.

Segment specific summaries are identified below:

Segment 1

(From CR 470 W to Florida's Turnpike)

- Year 2040 predicted traffic volumes are expected to produce unacceptable LOS for the majority of Segment 1

Segment 2

(From Florida's Turnpike to Southern Belleview City Limit)

- Two at-grade CSX railroad lines cross US 301 through Wildwood, causing increased travel delay
- Portions of Wildwood and the two-lane section north of Wildwood are expected to meet or exceed the acceptable LOS standard by year 2040

Segment 3

(From Southern Belleview City Limit to Northern Ocala City Limit)

- Seven of the eight high intensity crash intersections are located within Segment 3
- The majority of Segment 3 will have an unacceptable LOS by year 2040

Segment 4

(From Northern Ocala City Limit to Marion/Alachua County Line)

- Part of Segment 4 will have an unacceptable LOS by year 2040
- Experiences significant truck traffic in the northern half of the segment

Segment 5

(From Marion/Alachua County Line to US 90)

- Due to the planned development, Envision Alachua, Alachua County is projected to have an unacceptable LOS by year 2040.
- Most cities along US 301 within Segment 5 will have an unacceptable LOS by year 2040. To relieve congestion through downtown Starke, FDOT plans to construct a new facility around the west of the city. No other improvements have been identified for Segment 5
- Experiences significant truck traffic throughout the entire segment

Segment 6

(From US 90 to Florida/Georgia State Line)

- Due to two future developments, Crawford Diamond Industrial Park and the East Nassau Community Planning Area, Callahan and Hilliard will have an unacceptable LOS by year 2040
- Experiences significant truck traffic north of Callahan to the Florida/Georgia State line

5.2 Next Study Phase

Stretching over 155 miles in length and traversing seven counties and two FDOT Districts, the landscape of the US 301 Corridor is as diverse as the state itself. Because of this, there is a need to integrate alternatives as part of more strategic and context-sensitive strategies to effectively balance the needs of the passengers and freight mobility with community and regional visions for economic growth. An effective, well-thought-out integration of strategies has the potential to make the US 301 Corridor a vibrant place to live, work, and travel. Based on the future year assessment of the corridor, alternatives will be developed to improve safety and mobility, facilitate emergency and security response, and foster economic development.

Section 6: Alternative Strategies

6.1 Alternative Strategies Introduction

In developing comprehensive context-sensitive solutions along the US 301 study corridor, a number of coordinated strategies have been identified that meet the statewide goals of alleviating congestion, facilitating emergency responsiveness, and fostering economic development. Alternatives described in the following subsections focus on four overarching strategy categories:

- Community Based
- Economic Development
- Technology
- Freight.

As presented in the Needs Analysis, the US 301 study corridor has been separated into six segments to better analyze specific needs of each segment. A specific icon has been created to represent each strategy category as well as a set of icons to denote the segment to which the strategy best applies. Throughout Section 6: Alternative Strategies, each alternative strategy will be summarized by category and segment icons. These icons are discussed below:

Community Based

Community Based strategies focus primarily on community needs and maximizing the existing investment in the transportation network. These strategies can be best utilized in areas along the corridor where community growth and development have led to more local and regional travel needs and where there are joint land use and transportation goals in place with a focus on enhancing economic vitality. These options generally provide lower-cost capacity adding improvements and provide short-term enhancements that are better suited to meet community needs in the corridor.

Economic Development

115 miles of the 155 mile US 301 study corridor are classified as a SIS corridor; which was established to preserve and enhance key corridors to help Florida become a worldwide economic leader as well as enhance the economic prosperity and competitiveness of the state. Alternative strategies in this category are ones that will move people and goods more efficiently to benefit the economy of the communities, region, and state. These strategies may be implemented along the SIS section of the corridor and include alternatives that address congestion throughout this section of the corridor and near DCs and ILCs.

Technology

The implementation of ITS and automated vehicle technologies can provide significant benefit. Moore's Law states that technology drastically increases in performance and decreases in cost at an exponential rate. This means that technology is becoming more beneficial while, in some cases, being able to be implemented more cost effectively and efficiently than some other infrastructure improvement alternatives. In addition, FDOT has become national leaders for increased research and development efforts of automated vehicle technology and infrastructure.

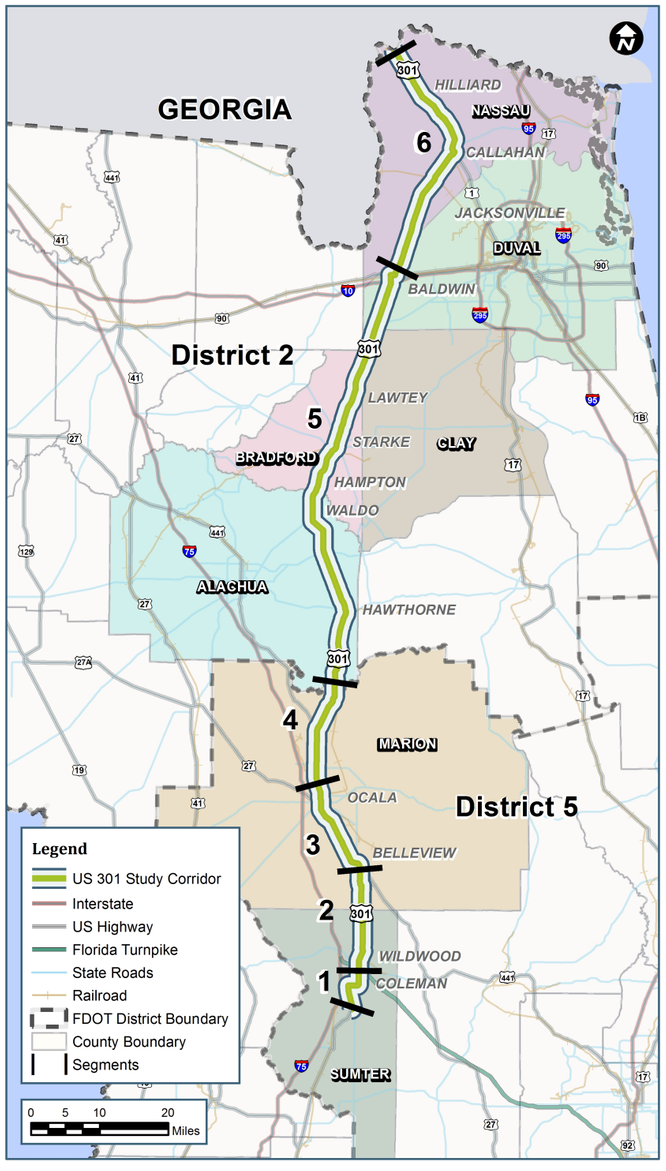
Freight

The freight-focused alternatives include strategies for improving freight logistics throughout the region. These techniques focus primarily on maximizing freight movement, meeting demands along the corridor, and providing enhanced options for freight distribution along the SIS.

Ultimately, the key to success for freight initiatives and opportunities in the corridor lie in the ability to integrate initiatives in a statewide, systematic manner. Coordinated planning and more refined analysis of commodity flows and statewide traffic models will be needed to create a cohesive concept for intermodal freight movements along the entirety of the US 301 corridor and throughout the state. Coordination between FDOT, local governments, private rail, and other entities will also be essential to the effective implementation of these strategies.

The segments within the study corridor are summarized on the following pages for ease of reference and shown in Figure 6.1.1.

Figure 6.1.1: US 301 Segment Map



Segment 1

1

From	CR 470 W (Sumter County)
To	Florida's Turnpike
Distance (miles)	7.6
Jurisdictions within Segment	Coleman, Sumter County
Number of Lanes	2
Speed Limit (mph)	35 to 55
Area Type	Rural Undeveloped, Rural, Urban

Segment 2

2

From	Florida's Turnpike
To	Southern Belleview City Limit
Distance (miles)	14.9
Jurisdictions within Segment	Wildwood, Sumter County; Marion County
Number of Lanes	2 to 5
Speed Limit (mph)	35 to 55
Area Type	Transitioning, Urban

Segment 3

3

From	Southern Belleview City Limit
To	Northern Ocala City Limit
Distance (miles)	13.9
Jurisdictions within Segment	Belleview, Marion County; Ocala
Number of Lanes	4 to 7
Speed Limit (mph)	35 to 55
Area Type	Urban

Segment 4

4

From	Northern Ocala City Limit
To	Marion/Alachua County Line
Distance (miles)	15.5
Jurisdictions within Segment	Marion County
Number of Lanes	4
Speed Limit (mph)	45 to 65
Area Type	Transitioning, Urban

Segment 5

5

From	Marion/Alachua County Line
To	US 90 (Duval County)
Distance (miles)	64.9
Jurisdictions within Segment	Hawthorne, Alachua County; Waldo; Hampton, Bradford County; Starke; Lawtey; Clay County; Jacksonville/Duval County; Baldwin
Number of Lanes	4 to 5
Speed Limit (mph)	30 to 65
Area Type	Rural Undeveloped, Rural, Transitioning, Urban

Segment 6

From	US 90 (Duval County)
To	Florida/Georgia State Line
Distance (miles)	37.2
Jurisdictions within Segment	Baldwin, Jacksonville/Duval County; Callahan, Nassau County; Hilliard
Number of Lanes	2 to 4
Speed Limit (mph)	30 to 65
Area Type	Transitioning, Urban

6.2 Access Management Strategy

FDOT uses access management to control the spacing and design of medians and median openings, driveway connections, intersections, and interchanges along state roadway facilities. The emphasis on a well-managed roadway increases the roadway capacity, enhance mobility, and has been found to improve safety. Administrative Rule Section 14-97 establishes the seven assigning these classifications to specific roads. Access Class 1 consists of the most stringent access control. Table 6.2 provides guidelines for the type of median, median spacing, signal spacing, and connection spacing for Access Class 2 through Access Class 7 roadways.

Without effective corridor access management practices, growth and development can often result in increased access points that hinder efficient mobility, accessibility, and safety for all users. Access management plans provide an opportunity for connecting land use and transportation in a way that improves overall efficiency by moving people and freight and improved safety in the corridor and has the potential for enhancing local and regional economic development. Access management must consider and incorporate all modes of transportation and users of the facilities, carefully considering network connectivity for the SIS, and local and regional land use visions and plans. Access management strategies should be designed to limit, consolidate, and control driveway connections as well as cross-street connections. Managing these connections may reduce congestion and improve safety along the corridor. The most effective access management plans combine land use and zoning options to help balance access and development needs with larger statewide mobility goals.

Table 6.2.1: Access Management Classifications

Class	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
		≤ 45mph Posted	> 45mph Posted	Directional	Full	
Generally Developing or Undeveloped						
2	Restrictive w/Service Roads	600	1,320	1,320	2,640	2,640
3	Restrictive	440	660	1,320	2,640	2,640
4	Non-Restrictive	440	660			2,640
Generally Developed						
5	Restrictive	245	440	660	2,640/ 1,320*	2,640/ 1,320*
6	Non-Restrictive	245	440			1,320
7	Both Median Types	125		330	660	

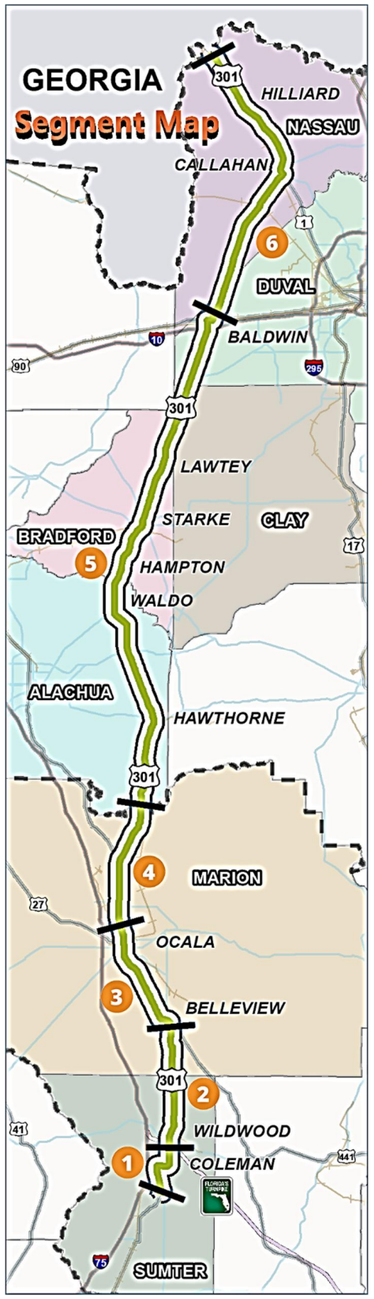
**Posted Speed >45 mph/≤45 mph*
Rule 14-97.003, State Highway System Access Management Classification System and Standards

Two-way left-turn lanes (TWLTLs) are present along US 301 on approximately five percent (5%) of the 155 mile study corridor. According to FDOT's Median Handbook, converting TWLTLs to paved or landscaped medians will safely and efficiently provide equal access to businesses along the corridor and more efficiently move traffic along the corridor. A restrictive median with well-designed median openings is one of the most important tools to creating a safe and efficient highway system. Crash data collected from 2009 to 2013 determined that eight intersections along the US 301 study corridor meet the criteria of at least 40 crashes in five consecutive years. All eight of these high crash locations occurred on roadways with TWLTLs. In addition, TWLTLs along the study corridor are only present in the most populated cities within the study area. To increase safety and manage congestion in urban areas, access to and from businesses can be controlled with paved or landscaped medians with a combination of partial and full median openings. The following locations within the study area could benefit by removing the TWLTL and constructing access control medians:

- Segment 2 – Wildwood, Sumter County, from SR 44 to Old Wire Road
- Segment 3 – Belleview, Marion County, from Babb Road to 55th Avenue Road
- Segment 3 – Ocala, Marion County, from CR 475 to 2nd Street
- Segment 5 – Starke, Bradford County, from Weldon Street to Georgia Street
- Segment 5 – Baldwin, Duval County, from Lima Street to Duval Street

In addition to the removal of the TWLTLs, US 301 south of I-10 in Baldwin experiences poor access management. Due to the location of two large truck refueling/travel centers, significant queuing on US 301 has developed as trucks and vehicles wait to enter these facilities. Improved access management strategies that include longer storage lanes for queuing vehicles in the shoulder as well as the median should be installed to safely store vehicles waiting to enter these developments.

Coordination between FDOT, regional, and state agencies will be necessary to successfully coordinate access management guidelines, plans, and policies. FDOT oversees access management along state facilities, such as US 301; however, local governments enforce access management and have the ability to create other access management standards. Memorandums of Understanding (MOUs) or other formal agreement guidelines may be required to establish ongoing coordination between regional access management guidelines, long range planning, and more site specific comprehensive access management plans along the corridor.



6

Baldwin, Duval County
Jacksonville
Callahan, Nassau County
Hilliard

5

Hawthorne, Alachua County
Waldo
Hampton, Bradford County
Starke
Lawtey
Clay County
Baldwin, Duval County
Jacksonville

4

Marion County

3

Belleview, Marion County
Ocala

2

Wildwood, Sumter County
Marion County

1

Coleman, Sumter County

Competing local visions for the future and statewide goals for facilitating through traffic movements along US 301 may require extensive public and stakeholder outreach to obtain the support needed. MPO and local government staff should have an understanding of how visions can be incorporated into meeting larger statewide SIS connections and mobility goals while state agencies will need to evaluate access management classifications and capacity improvement plans in light of freight and multimodal facilities, growth and development trends, and future land use plans. Existing access management plans and action plans would also need to be coordinated with this more comprehensive regional approach to access management along the corridor.

POTENTIAL BENEFITS

Access Management

- Supports a balance of mobility and accessibility
- Integrates land use and transportation goals and policies
- Lower-cost solution: relatively easy to implement improvements
- Delays the need for more expensive roadway widening projects
- Enhances safety for all users of the roadway
- Facilitates more efficient through movements of people and goods

POTENTIAL CHALLENGES

Access Management

- Formal agreements may be required for effective coordination
- Competing local visions for the future and statewide goals
- Competing local business access and through movement goals
- More extensive public stakeholder outreach needed for successful plans
- Need to coordinate existing access management plans and actions plans with more comprehensive, regional approaches

Access Management Issue –
Existing Two-Way Left-Turn Lane in Baldwin, FL

Access Management Issue - US 301 and I-10

Access Management Issue – US 301/US 27/US 441 in Ocala, FL

6.3 Transportation Systems Management & Operations Improvement Strategies

Transportation Systems Management and Operations (TSM&O) strategies are lower cost system management and operational approaches designed to improve safety, improve travel time reliability, and manage capacity. These include, but are not limited to the following improvements:

- Traffic Signal Optimization
- Intelligent Transportation Systems (ITS)
- Intersection Turn Lane Improvements
- Enhanced signage.

Traffic Signal Optimization

Traffic signal timing optimization and retiming is the most cost effective improvement solution to increase the efficiency of intersections. Inefficient and poorly managed traffic signals and signal systems can cause excessive delays, increases the risk of accidents for all users, and increases fuel consumption and vehicle emissions. Due to ever-changing travel demand patters, traffic signals should be retimed periodically. Traffic signal optimization along the corridor and for major connecting facilities ensures maximum green light times for the heaviest traffic flows and allows signal cycle time to adjust based on changing demands during peak times.

There are over 50 traffic signals along the 155 mile study corridor with the majority of the signals in the urbanized areas. The retiming of traffic signals has the most benefit along sections of US 301 with multiple traffic signals within a relatively short distance from each other; specifically for this study corridor, increase traffic signal density is located within city limits. The following areas along the US 301 study corridor are where signal retiming and coordination and can be beneficial in the reduction of travel delays and vehicle emissions:

- Segment 3 – Belleview, Marion Country, from Babb Road to 102nd Place
- Segment 3 – Ocala, Marion County, from 32nd Street to 2nd Street and from 10th Street to 35th Street
- Segment 5 – Starke, Bradford County, from Highway 100 to SR 16/Radford Road/Brownlee Street

POTENTIAL BENEFITS

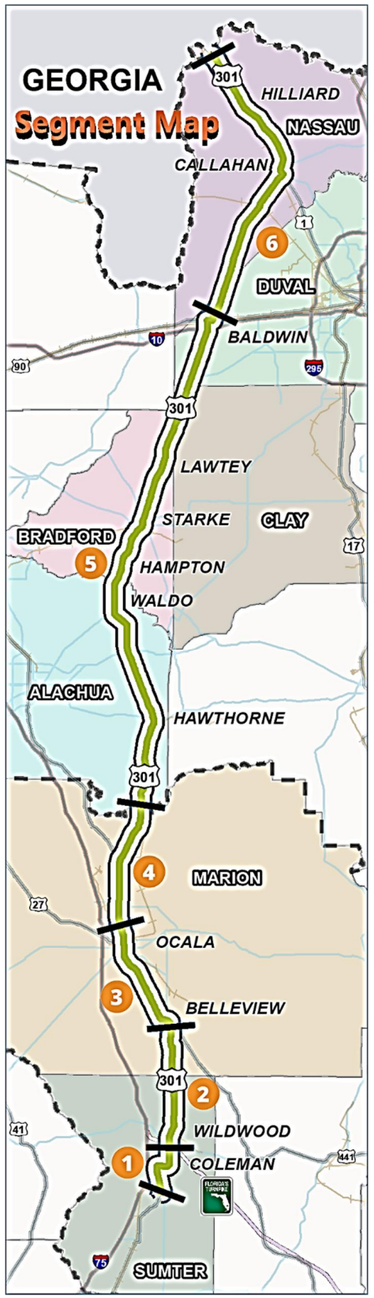
Traffic Signal Optimization

- ➔ Quick, low cost technique
- ➔ Reduces delays and travel times with responsive systems
- ➔ Coordinating traffic signals decreases fuel consumption and vehicle emissions

POTENTIAL CHALLENGES

Traffic Signal Optimization

- ➔ Short-term solution and in some cases will not solve more complex capacity or safety issues



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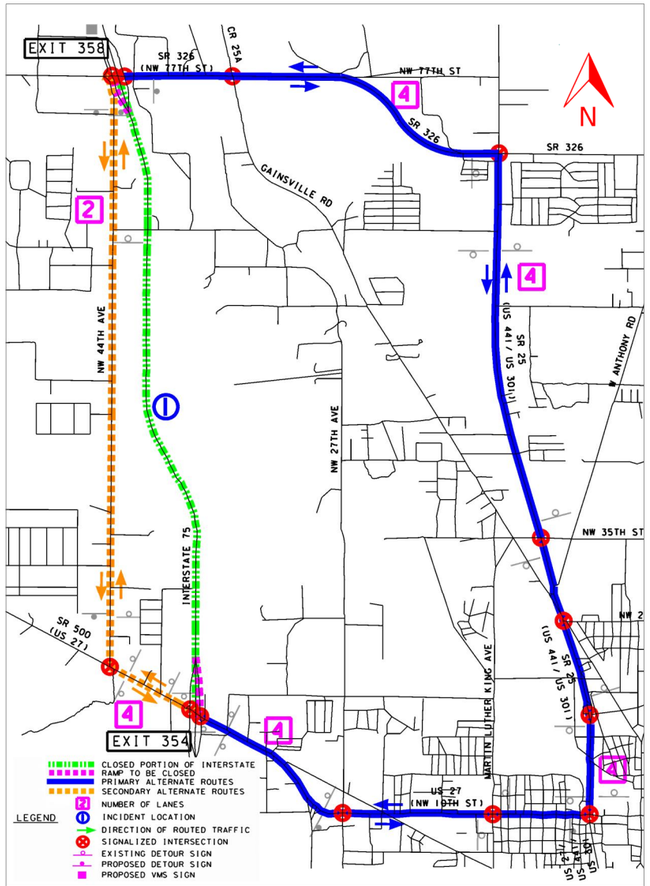
Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) can be utilized along the corridor to reduce congestion and improve safety. ITS strategies have been in use by FDOT for many years and have become an integral part of the transportation system. This technology can be designed to locate incidents, inform travelers, and correct the causes of congestion in real-time. TSM&O devices must be able to communicate with each other and be able to analyze the traffic conditions in real-time in order to maximize the effectiveness of the device. Currently, limited communication is available for the communication of these devices along the US 301 study corridor. FDOT has no current plans to install fiber or other communication devices. As a result, the following ITS strategies will be limited in effectiveness until proper communication is provided:

- Incident Management
- Dynamic Message Signs
- Fog Detection.

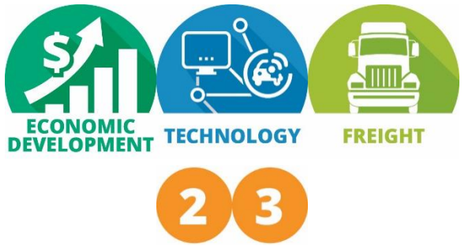
Incident Management

FDOT has implemented the Traffic Incident Management (TIM) Strategic Plan to provide efficient, coordinated, and consistent traffic incident management across the state to improve the safety and reliability of the transportation network. Traffic incidents account for approximately 60 percent of nonrecurring congestion and can be minimized with traffic incident management practices. Traffic incidents cause a significant impact on Florida's transportation system and lead to costly delays, air pollution, and wasted fuel. Having well-coordinated incident management plans and warning systems can be an effective tool for reducing urban congestion. In the event of an incident, DMS's can inform travelers of reduced travel speeds, delays, and propose detours to bypass the accident. Having multi-agency coordinated traffic incident management is important to clearing incidents faster, saving lives, time, money, and provide for a more efficient and time-consistent roadway system for moving people and goods.



Example of Incident Management - FDOT District 5 TIM Detour Map for I-75

Dynamic Message Signs



Dynamic Message Signs (DMS's) play an important role as a traffic control device to improve safety and operations of roadways for all users. These are programmable signs that display messages to provide information about current roadway conditions in order to improve operations, reduce accidents, and inform travelers of changes in travel speed, driving conditions, or to divert to a different route. There is currently no DMS infrastructure along the study corridor. Corridors that intersect busy urban areas as well as those that traverse through rural areas can benefit from DMS's. Through urbanized areas, like Wildwood, Belleview and Ocala (Segment 2 and 3), DMS's along the corridor can inform drivers of current travel times to areas of interest and also recommend quicker alternative routes.

Fog Detection

According to the American Automobile Association (AAA), 847 fatal crashes involving fog occurred in Florida from 1990 to 2012. An incident along I-75, that resulted in 11 fatalities in north-central Florida, with a contributing cause being thick smoke and fog in the area, has prompted FDOT to implement better fog detection and warning systems for roadways within Florida. A combination of visibility sensors, closed-circuit television (CCTV) cameras, thermal imaging cameras, vehicle detection systems, and DMS's are used to monitor visibility in order to warn travelers and recommend reduced travel speeds and other safety procedures in limited visibility situations. This fog detection strategy can most effectively be implemented along the rural US 301 roadways in Segments 5 and 6.

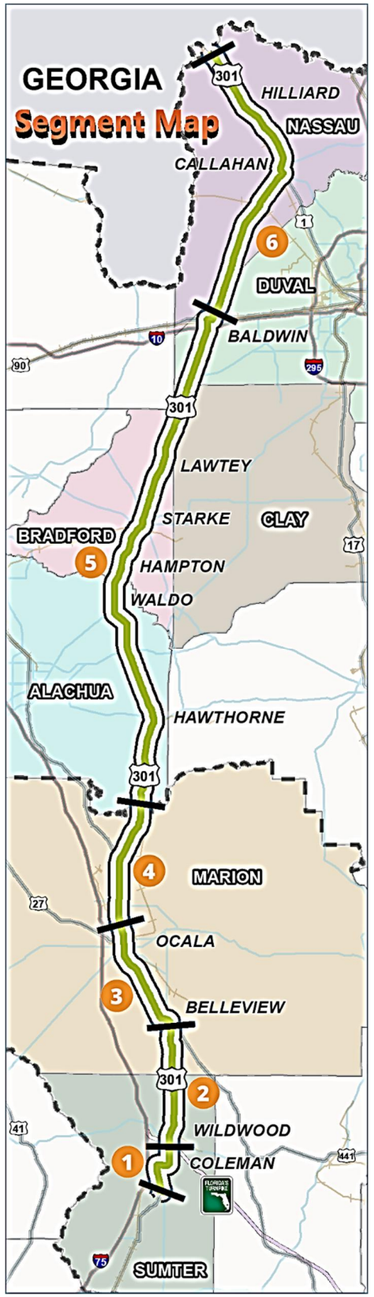
Foggy driving conditions along the US 301 Corridor.

POTENTIAL BENEFITS
Intelligent Transportation Systems

- Information and vehicle technologies are becoming more sophisticated and more available to the average consumer
- Encourages coordination of transportation improvements, so operators and planners are able to have a greater impact on the performance of the transportation system in the region
- Reduces delays and travel times with responsive systems
- Managing demand reduces congestion
- Provides real-time information allows travelers to alter decisions
- Managing traffic incidents improves traveler safety
- Improving incident clearance times reduces incident delay and restores lost capacity

POTENTIAL CHALLENGES
Intelligent Transportation Systems

- No current plans to enhance communications in this study corridor
- Limited fund availability in transportation budgets



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6.4 Other Capacity Adding Strategies

By year 2040 nearly half of the US 301 study corridor is expected to be below the adopted FDOT LOS standard. In addition to predicted increase in population by year 2040, many large multiuse and non-residential developments including freight DCs and ILCs are planned to be constructed along or in the vicinity of the corridor. These freight hubs will add thousands of new jobs to the area surrounding the corridor which will further add transportation demand to the corridor.

Add General Travel Lanes

Along corridors that are projected to experience significant growth, there becomes a time where TSM&O strategies cannot fully satisfy the entire demand on a corridor. For example, the most perfectly timed signalized intersection has a definite amount of traffic that it can manage efficiently. Adding capacity to a corridor typically is planned after all other potential solutions have been considered due to the high cost of capacity projects. There are multiple locations along the corridor where adding lane capacity is a future need to improve congestion.

The entire length of Segment 1 is currently a two-lane roadway which is expected to exceed capacity before 2040. In addition, the Florida Crossroads Industrial Area will be developed within Segment 1. Adding future through lanes to account for the projected traffic will reduce congestion and improve freight flow. Portions of Segment 2 and Segment 3 within Wildwood, Belleview, and Ocala are also expected to exceed the LOS standard by year 2040; as a result, adding through lanes may be needed. However, other strategies discussed earlier should be analyzed prior to considering additional lanes of capacity for Segment 3. Portions of Segments 4, 5, and 6 are also expected to be over capacity by 2040 as identified in the Project Needs Analysis.

POTENTIAL BENEFITS
Add General Traffic Lanes

- Reduces congestion
- Reduces travel times
- Improves emergency response
- Improves freight flow
- Decreases greenhouse gas emissions due to reduced congestion

POTENTIAL CHALLENGES
Add General Traffic Lanes

- Potential high cost, especially in congested urban areas where ROW will likely be required
- Relocation or division of communities by acquisition of additional ROW
- Adding lanes takes many years to implement.

Intersection Interchanges

Many of the roadway capacity needs are not on segments of the corridor, but instead at the intersections or “choke points.” These congested intersections impact the traffic flow all along the corridor; specifically in areas with large truck percentages as these trucks accelerate at a much slower rate compared to a typical car. Constructing grade-separated interchanges at intersection choke

points can be more cost effective and sometimes more beneficial than adding additional lanes for a segment. Since the predominate objective of the SIS facility is to move people and goods efficiently throughout Florida, many SIS, and Emerging SIS, and non-SIS roadways that intersection the US 301 study corridor should be analyzed to determine the benefit of grade-separated intersections.

As an example, South of Waldo, SR 26 connects US 301 to Gainesville, Melrose, and Keystone Heights in central Florida. SR 26 is constructed as an overpass over US 301, though the on/off ramps to SR 26 are controlled by a signalized intersection.

US 301 at US 27 in Segment 3, north of Ocala, may benefit from a future grade-separated interchange. US 27 connects US 301 and Ocala to I-75 less than 3+ miles to the west. This intersection experiences higher truck volumes since trucks are using US 27 to bypass Ocala as they travel to and from east Florida. However, surrounding this intersection is significant development; therefore a grade separation at this location would be costly.

Similar to US 27, SR 326 in Marion County is another high truck volume intersection that also connects US 301 to I-75. Less development surrounds this intersection which may better accommodate a grade–separated intersection. In addition, SR 326 is classified as a SIS corridor.

Along the corridor there are opportunities to implement this strategy, specifically in Segments 3, 4, and 5, where the corridor has consistently high truck volumes. In addition to increasing capacity where at times the real congestion and delay is occurring, grade-separated interchanges improve the safety of an intersection as many of the conflict points are removed.

POTENTIAL BENEFITS

Intersection Interchanges

- Reduces congestion
- Reduces number of conflict points and severity of crashes
- Reduces travel times
- Improves freight flow
- Decreases greenhouse gas emissions due to reduced congestion
- May be a more cost effective solution than adding General Through Lanes

POTENTIAL CHALLENGES

Intersection Interchanges

- Potential high cost, especially in congested urban areas where ROW will likely be required
- Increases travel speeds due to reduced stops which may result in more dangerous crashes

Construct New Facilities/Bypasses

COMMUNITY BASED | ECONOMIC DEVELOPMENT | FREIGHT

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There are areas along the corridor where the traffic demand surpasses the capacity such as in Stark (Segment 5), which is currently over capacity today and experiencing delay and congestion. This trend is predicted to continue and result in increased congestion by 2040. For Starke, TSM&O strategies are not expected to completely reduce existing and future congestion. In addition, expanding the roadway will be very costly and could result in negative impacts to the community. As a result, the best solution may be to construct a bypass around the city to reroute freight and through traffic from traveling through the city. In addition to the future bypass around Starke, Coleman (Segment 1), and Baldwin (Segment 5), due to the heavy vehicle volumes and multiple at-grade railroad crossings, may also benefit from future bypasses.

POTENTIAL BENEFITS

Construct New Facilities/Bypasses

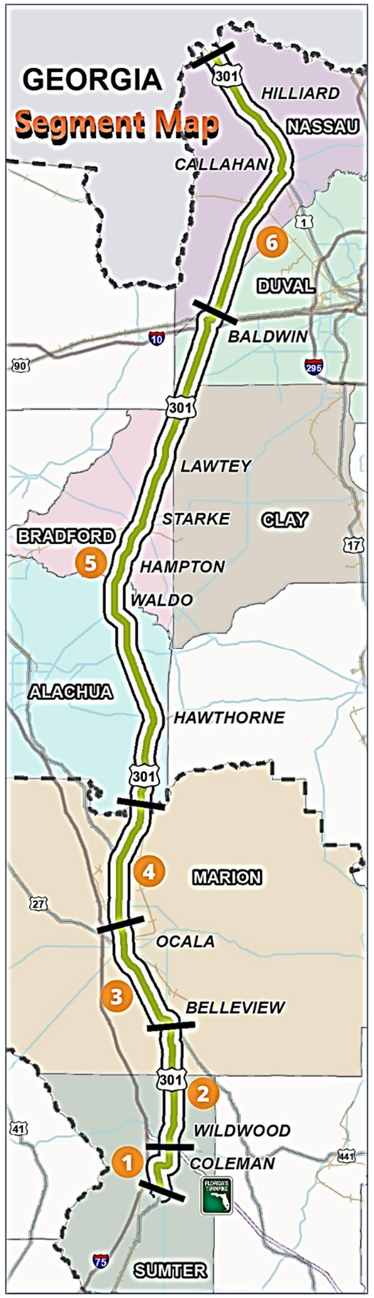
- Reduces congestion
- Reduces travel times
- Improves freight flow
- Decreases greenhouse gas emissions due to reduced congestion
- Allow communities to maintain their downtown feel.

POTENTIAL CHALLENGES

Construct New Facilities/Bypasses

- Potential high cost, especially in congested urban areas where ROW will likely be required
- Increases travel speeds due to reduced stops
- Impacts to downtown businesses

Proposed Starke Bypass



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Managed Lanes

Highway facilities with managed lanes include a lane, or lanes, within an existing highway facility where operational strategies are proactively implemented and managed in response to changing conditions with a combination of tools. These tools may include accessibility, vehicle eligibility, pricing, or a combination thereof. Types of managed lanes, which include high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, and truck only lanes, generally involve the development of dedicated lanes along the interstate highway reserved for a specific use. The goal of managed lanes is to aid in alleviating congestion, improve safety conditions, and enhance mobility in a more cost efficient manner.

Currently, managed lanes are not planned within the US 301 study corridor. FDOT has typically utilized these types of concepts along congested interstate and expressways; currently, volumes along US 301 do not support investment of these types of options. However, as FDOT attempts to address transportation needs and congestions in a proactive manner, a review of all available strategies and concepts is needed. Given the number of freight and population growth scenarios within various portions of the corridor, these strategies may be explored in tandem with other options to proactively address needs arising from increased development in the corridor. The context for these type of improvements will be key to identifying areas of the corridor where this option may be feasible and where it is neither feasible nor desirable for the surrounding community development. Given the existing development in a number of areas, these strategies may be deemed inappropriate to the context of the community. At the same time, developing managed or tolled lanes along parallel and new roadways may also be utilized to help reduce costs for these facilities and provide alternative transportation options.

POTENTIAL BENEFITS

Managed Lanes

- Provides opportunities to reduce congestion
- HOV/HOT lanes encourages carpooling and vanpooling. This in turn provides environmental benefits relating to reduced fuel consumption and fewer emissions.
- Maximizes use of existing highway capacity.
- Dynamic pricing strategies can be used to manage demand and generate revenue.

POTENTIAL CHALLENGES

Managed Lanes

- Managed lanes work best on limited access facilities or in areas where there is no direct access to properties adjacent to the roadway, as this would impede traffic flows.

Example of a Managed Lane.

6.5 Alternative Modes of Transportation Strategies

FDOT, as well as the majority of the state, regional, and local agencies throughout the country, has realized the shifting demand to alternative modes of transportation; specifically an increase demand in bicycle and pedestrian accessibility as well as greater rail and bus transportation options. Now, agencies are more focused on moving people and goods rather than a heavy focus on moving personal vehicles. Local comprehensive plans, regional Long Range Transportation Plans, and statewide support for multimodal investments have encouraged increased desire and implementation of enhanced multimodal infrastructure systems. Increases in transportation options within a city have decreased congestion as well as travel delays as fewer people are commuting via personal vehicle.

Interregional Transit and Commuter Services

A coordinated effort to provide transit and commuter service alternatives in communities can be beneficial to assist in efforts to relieve traffic congestion, improve air quality, and assure energy conservation. Such services include:

- Carpools/vanpools/park and rides
- Regular and express bus service
- Emergency ride home services
- Group taxi services
- Implementation of shuttle services
- Preferential parking for ride-sharers
- Telecommuting
- Bicycle/walking programs.

POTENTIAL BENEFITS

Interregional Transit and Commuter Services

- Improves community mobility and increasing access to employment locations
- Commuter's options and flexible schedules shown to reduce employee turnover
- Reduces overhead costs
- Tax savings benefits for the company and its employees
- Reduces need for parking
- Results in less fuel consumption helping with energy conservation efforts
- Reduces need for costly highway improvements
- Fewer vehicles on the road, resulting in faster response times for emergency vehicles

POTENTIAL CHALLENGES

Interregional Transit and Commuter Services

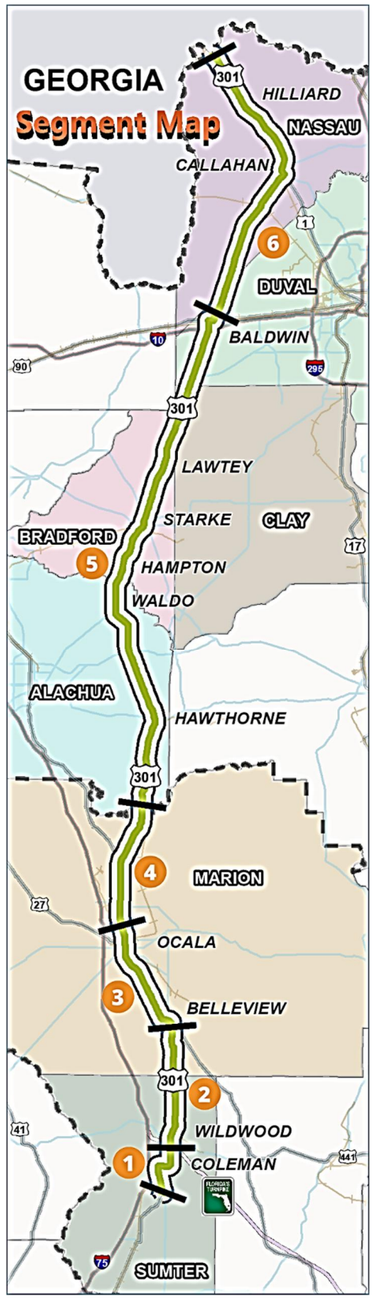
- Limited funds availability in transportation budgets
- Greater population and employment densities are generally needed to provide fixed-route services
- Initial infrastructure and other capital costs are typically not recovered by passenger fares

Bicycle/Pedestrian Accessibility

The implementation of a well-connected city relies heavily on the walkable and bikeable environment that encompasses it. A well designed walkable environment consists of a combination of bike lanes, sidewalks, multi-use trails, and complete streets. These facilities should be implemented in a way that complements and accommodates the existing or future public transportation needs of the city.

Bike Facilities – Bike Lanes/Multi-Use Trails

FDOT recently updated the roadway standards to incorporate bicycle facilities into new and existing roadways. Similar to sidewalks, the demand for bike lanes continue to increase as more facilities are improved and constructed. Currently, the US 301 study corridor has very few bike facilities. As resurfacing projects are needed along the US 301 corridor, opportunities to reduce lane widths and to add bike lanes in strategic areas is being encouraged. In addition, urban areas such as Belleview, currently have underutilized on-street parking along the study corridor. The removal of these parking spaces and the adding of a bike lane and bike buffer can be accomplished without sacrificing travel lane widths. Providing bike lanes in addition to



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sidewalks adds to the walkability of a city by making walking, bicycling, and taking public transportation more appealing.

Trails and greenways promote economic growth due to the positive impact they have on property value, recreation, and tourism/eco-tourism. Many initiatives have been instituted to connect greenways in order to extend the pedestrian trail network as well as to convert abandoned railroad tracks into bicycle/pedestrian trails. Currently, there are ten trails and greenways that intersect or parallel US 301 within the study corridor. The cost for creating and/or connecting trails and greenways is relatively inexpensive, compared to expanding roadways, and can benefit the communities that they connect. Utilizing the current trail/greenway infrastructure to continue to build a vast pedestrian and bicycle network benefits the economy and well-being of each person and community.

Sidewalks and Crosswalks

Well connected sidewalks are the most cost effective solution to encourage walkability. Sidewalks are relatively inexpensive, easy to construct, and often require no additional ROW. A sound sidewalk network consists of sidewalks that connect users to multiple destinations, meet ADA requirements, and provide safe means to cross roadways.

According to the National Association of City Transportation Officials (NACTO), frequent crosswalk locations must exist in order to promote walkability. Walkability is similar to traffic flow, better roadways, wider lanes, and higher speeds increase the demand of a roadway; similarly, connected sidewalks, frequent crosswalks, and safe facilities increase the demand of a sidewalk. As an example of what exists along the US 301 corridor, US 301 traverses four miles through the City of Ocala and only provides ten locations to safely and legally cross US 301. The installation of more frequent crosswalks in Ocala can promote more walkability. Similar to Ocala, every city within the study area can benefit from greater sidewalk connectivity and more frequent crosswalks.

Complete Streets

In September 2014, FDOT implemented a new policy created for the planning, design, construction, and operation of a context-sensitive system of complete streets. Complete Streets are streets designed for all users: pedestrians, bicyclists, motorists, and transit riders and has no specific template. FDOT has created minimum requirements when implementing Complete Streets, but the predominate design of a Complete Streets corridor depends on community input and who the community will utilize the corridor. The intent of a Complete Streets initiative is that no longer will only roadway projects get funded, but instead projects will be selected to improve the safety and experience of all modes of transportation that may be present along a particular section of roadway. In urban environments, this may be all modes of travel, and in more rural environments general travel lanes may meet the needs of all users in that section and constitute a complete street.

Proposed Complete Street Concept, Woodville Highway, Woodville, Florida

POTENTIAL BENEFITS

Bicycle/Pedestrian Accessibility

- Reduces need for costly highway improvements Reduces need for parking
- Less air pollution
- Promote healthy living
- Increases tourism and strengthens local economies
- Fewer vehicles on the road, resulting in less congestion and faster response times for emergency vehicles

POTENTIAL CHALLENGES

Bicycle/Pedestrian Accessibility

- Limited fund availability in transportation budgets

Inadequate Intersection Design, Starke, Florida

6.6 Freight Mobility Strategies

The 2060 Florida Transportation Plan (FTP) envisions the State as having a globally competitive economy serving as a hub for international and domestic trade. To meet this vision, the FTP sets a goal of developing multi-modal options for moving people and freight within the state as part of an integrated transportation system.

The key to success for freight initiatives and opportunities in the corridor will lie in the ability to integrate initiatives in a statewide, systematic manner. Coordination between FDOT and private rail and other entities will also be essential to the effective implementation of these strategies. The freight strategies in this section focus primarily on maximizing freight opportunities and demands along the corridor and providing enhanced options for distribution along the SIS portion of the corridor.

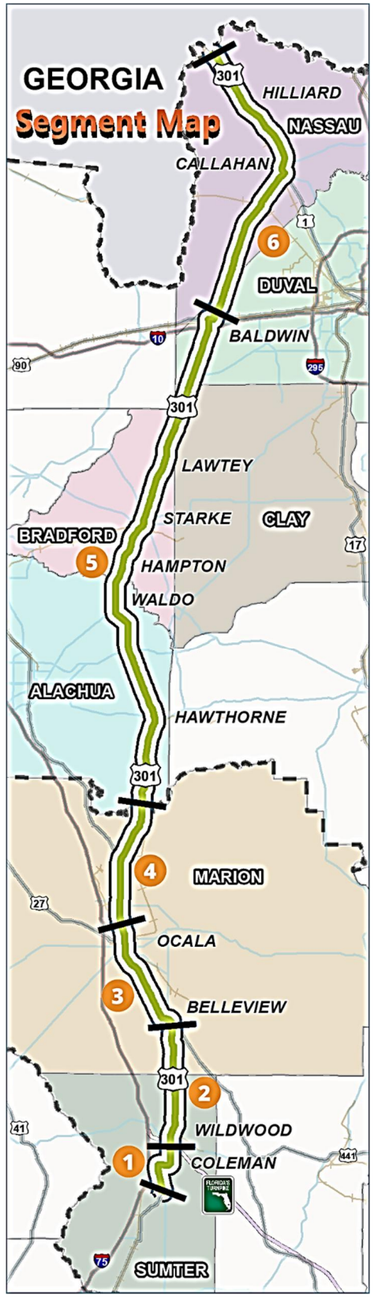
Truck Friendly Corridor

The increase in truck traffic across the study corridor is due to the growing economy and the location of logistic centers near the corridor. For Segments 1, 2, and 3, I-75 parallels US 301 and for the most North-South transportation of freight in this area of the State; however, US 301 is the predominant route to transport freight along the remainder of the study corridor. Truck traffic has a significant impact on the local roadways of communities across the region. Providing truck friendly corridors that promote and implement strategies to benefit freight movement and also the community are discussed below.

There is a significant lack of public rest/parking as well as truck refueling stations along the study corridor. Without designated parking/rest facilities, truck drivers resort to continuing to drive while drowsy or park their truck on the roadway shoulder to rest; increasing the risk of accidents. In addition, access to gas stations that are not designed to accommodate trucks can increase congestion as trucks enter and exit US 301 in order to refuel and rest. The construction of rest/parking stations near the corridor as well as gas stations to accommodate truck traffic should be considered along the corridor.

Alternative Truck Routes (ATR)

Truck traffic greatly impacts local road networks and communities within urbanized areas. The repetition of trucks braking and accelerating along local roads can cause significant damage to the road surface. Along with potential safety concerns, the local drivers' comfort is also decreased. Another effect of truck traffic is air and noise pollution created as trucks transport freight through urbanized areas. The designation of specific truck routes within high volume areas can help reduce congestion, increase safety, and improve the communities comfort within the city. An advantage of designating a specific truck route is that fewer intersections would need to be designed to accommodate large trucks. Intersection designs that provide larger turning radii, longer deceleration and acceleration lanes, extended queuing lanes, and concrete roadways may only be required along the designated truck friendly corridors. Designated truck corridors can be beneficial in the reduction of congestion, the increase in community quality of life, and the decrease in frequent roadway repairs. Urbanized areas along the US 301 corridor, such as Baldwin and Stark, can greatly benefit by implementing these corridors.



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Truck Only Lanes

The US 301 study corridor is utilized as a freight corridor, specifically along segments 4, 5, and 6 within FDOT District 2. As the economy continues to strengthen, the demand for freight movement throughout Florida will continue to grow. Designated truck only lanes intended to remove trucks from the passenger vehicle lanes may be implemented in high truck traffic locations to create safer and more efficient freight corridors throughout Florida. The Center for Urban Transportation Research (CUTR) analyzed the truck only lane needs throughout Florida and the possible qualifications to determine a need for these lanes. CUTR concluded that factors such as percent of trucks of total traffic, truck volume, truck crashes, and poor level of service are factors that contribute to benefit of truck only lanes. In Ocala, multiple distribution centers are located west of US 301 near SR 200 and SR 40. Designating truck only lanes to connect these distribution centers to US 301 could assist in efficiently transporting goods throughout Florida. Similarly to SR 200 and SR 40 in Ocala, SR 24 near Waldo is located near multiple distribution centers and could benefit with truck only lanes to connect to US 301. Truck only lanes should be paired in tandem with strategies discussed in the Alternative Truck Routes section. Intersection and roadway improvements should be upgraded at intersections along truck only lanes.

In conclusion, truck only lanes can possibly be implemented on corridors that connect US 301 to distribution centers, multimodal facilities, and intermodal logistic centers. In addition, areas along US 301 with significant truck traffic can also benefit by creating truck only lanes to safely separate trucks from other vehicles and to reduce the delay and congestion along the corridor.

Truck Platooning

FDOT and other stakeholders are holding discussions about the idea of Truck Platooning and conducting research to analyze the possibility and the benefit of using automated vehicle (AV) technology in freight operations. Truck platooning uses vehicle to vehicle (V2V) communications during the process of transporting freight to a final destination. The lead truck in a platoon is controlled by a driver while the one or two trucks following behind are controlled (steering, braking, and acceleration) by the platooning technology. Due to the highly repetitious freight routes throughout the study corridor, this connected vehicle (CV) technology can enhance safety and improve efficiencies of the movement of goods along the corridor.

Early policy discussion of truck platooning in Florida indicate that testing and early implementation may be limited to access facilities. However, truck platooning may be beneficial along the rural segments of US 301 at some point. Though truck platooning technology may be operational in all environments, platooning can be most beneficial along longer segments that have lower traffic volumes and fewer intersections/conflict points.

Truck Platooning, Source: BBC

POTENTIAL BENEFITS

Truck Friendly Corridor

- Reduces many passenger vehicle and heavy truck conflicts
- Contributes to the reduction of congestion and emissions
- Improves travel speed and safety in general purpose lanes
- Provides economic benefits in terms of more efficient movement of goods resulting in reduced freight costs

POTENTIAL CHALLENGES

Truck Friendly Corridor

- Costs to implement may be higher than adding general purpose lanes to a highway
- Potential for access and mobility issues for truck-only lanes
- May discourage growth of the rail system
- Availability of Right Of Way to implement

Additional Railroad Capacity

Based on the 2009 Florida Rail System Plan, the demand to move freight in, out, and throughout Florida is significantly increasing. There is no single mode of transportation that can respond to the increased freight demand; therefore, as a result, expansion of the state's highways, railroads, airports, and seaports become more critical and must in a coordinated and systematic manner address the collective needs. FDOT and the State of Florida has placed an emphasis on multimodal transportation methods so Florida can continue to compete on a global scale.

Public-Private Partnerships

All modes of transportation are being challenged to meet the demand of freight movement throughout Florida. Contrary to trucking, flying, and shipping freight, where logistic companies pay fees to use a public infrastructure to load and unload freight, railroad companies purchase, build, and maintain their own infrastructure. Due to fluctuating shifts in the economy that result in a decreased demand on the railroad network, railroad companies are hesitant to construct additional rail lines to meet current freight demands since the railroad companies are require to maintain all tracks regardless of the current demand. Fluctuates makes it unappealing for railroad companies to constantly invest in new infrastructure to meet current freight demands.

One way to encourage rail companies to expand their network is by agreeing to a public-private partnership. These partnerships are an arrangement by which private and government entities both contribute resources to a project to solve the problem and provide mutual benefit. In the case of the US 301 study corridor, heavy trucking freight movement occurs from north of Ocala to the Florida/Georgia state line. In addition, a CSX main line parallels US 301 along the entire study corridor. Since the recent economic downturn, CSX has been cautious with regards to expanding their facilities to accommodate more freight, which has resulted in increased truck traffic along the US 301 corridor. As the economy continues to strengthen, multimodal facilities and ILCs are being constructed and expanded along the corridor making it more important for CSX to invest in this area. The US 301 corridor is in need of ways to reduce freight congestion along the corridor. By arranging a public-private partnership with FDOT and CSX to share the cost of expanding the rail network as needed along the US 301 corridor, both partners may be able to mutually benefit.

POTENTIAL BENEFITS

Additional Railroad Capacity

- Reduces highway maintenance costs due to lower truck vehicle miles traveled
- Helps lower highway vehicle congestion and delays
- More cost-effective than trucking or aviation for transporting goods over long distances
- Generates less air pollution per ton-mile than trucking

POTENTIAL CHALLENGES

Additional Railroad Capacity

- Slower speeds and congestion at rail crossings
- Expansion efforts on the physical capacity of the railroads can be costly to implement/maintain

Section 7: Summary of Alternative Strategies

7.1 Alternatives Summary

This corridor transportation alternatives study is the beginning of a larger process carried out by FDOT in future project development to support key North-South transportation in Central and North Florida. This study provides preliminary information on the needs of the existing facilities and a series of alternative strategies for US 301 to improve safety and mobility, facilitate emergency response, and foster economic development.

This high-level type of planning study being carried out by FDOT will provide valuable input to FDOT's Future Corridors Initiative and other more detailed future study of US 301. This initiative builds upon the 2060 Florida Transportation Plan, which calls for planning a transportation system that maintains the economic competitiveness by meeting current and future transportation needs for moving people and freight.

The US 301 study corridor traverses seven counties in central and northeast Florida; these counties include: Sumter, Marion, Alachua, Bradford, Clay, Duval, and Nassau. The 155 mile study corridor begins south of Florida's Turnpike at CR 470 West, in Sumter County, and ends at the Florida/Georgia state line in Nassau County. In addition, the study corridor has been separated into six segments in order to better understand and analyze specific needs of the corridor.

In developing comprehensive context-sensitive solutions along the US 301 study corridor, a number of coordinating strategies have been identified and documented that meet the multi-faceted statewide goals of alleviating congestion, facilitating emergency response, and fostering economic development. The strategies were analyzed within four categories: Community Based, Economic Development, Technology, and Freight; and identified which of the study area segments may benefit most by the specific alternative. Below is a summary of the alternative strategies by category and segment:

Access Management Strategy

TSM&O Improvement Strategies

- Traffic Signal Optimization
- Intelligent Transportation Systems

Other Capacity Adding Strategies

- Add General Traffic Lanes
- Intersection Interchanges
- Construct New Facilities/Bypasses

Alternative Modes of Transportation Strategies

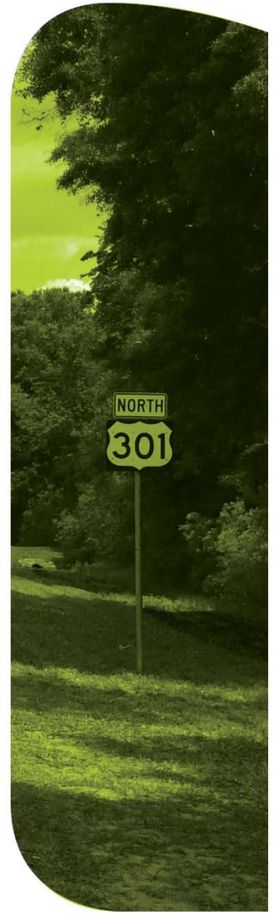
- Interregional Transit and Commuter Services
- Bicycle/Pedestrian Accessibility

Freight Mobility Strategies

- Truck Friendly Corridor
- Truck Platooning
- Additional Railroad Capacity


US 301
GA Pecans
GA Peaches
FRUIT & JUICE
GIFT FRUIT SHIPPING


Turnpike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