US Highway 19 Transportation Alternatives Study

Prepared for:

Florida Department of Transportation

Systems Planning Office

June 2013

Technical Memorandum I: Corridor Conditions and Needs

Prepared for:

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Chapter 1 - Introduction

1.1 Study Background & Purpose

The Florida Planning Development Lab (FPDL) 2013 Summer Studio Team at Florida State University completed a transportation alternatives study for US Highway 19 in partnership with the Florida Department of Transportation (FDOT) Systems Planning Office. This study focused on mobility and traffic related alternative strategies for US Highway 19, and is similar to previous major transportation studies completed for portions of I-95 in 2010, I-75 in 2012, and US Highway 27 in 2012.

The purpose of the alternatives study was to evaluate the US Highway 19 corridor and to help determine future alternative strategies based on five separate measures: demography, environment, mobility and traffic, emergency response, and economic development. Additionally, the study identified an effective range of strategies to mitigate congested traffic conditions, enhance security response measures, foster economic development, and preserve the environmentally sensitive lands within the region. The area examined along the US Highway 19 corridor will be referred to as the "Study Area" throughout the document.

The US Highway 19 Transportation Alternatives Study will consist of two main documents. This document, Technical Memorandum I, will identify the Study Area's existing conditions and needs while Technical Memorandum II will offer the study's development of alternative options and policy implications.

1.2 Study Area

The Study Area under evaluation consisted of three counties located on the west coast of Florida: Citrus County, Hernando County, and Levy County. Citrus County encompasses approximately 95 percent of the Study Area, and therefore, was the major focus point for this study. Hernando County and Levy County will be examined at a broader scale in applicable chapters.

US Highway 19 is a controlled access roadway that travels north-south for 264 miles along the State of Florida's west coast. **Figure 1.1** displays the US Highway 19 corridor within the State of Florida and includes a zoomed image of the actual Study Area.

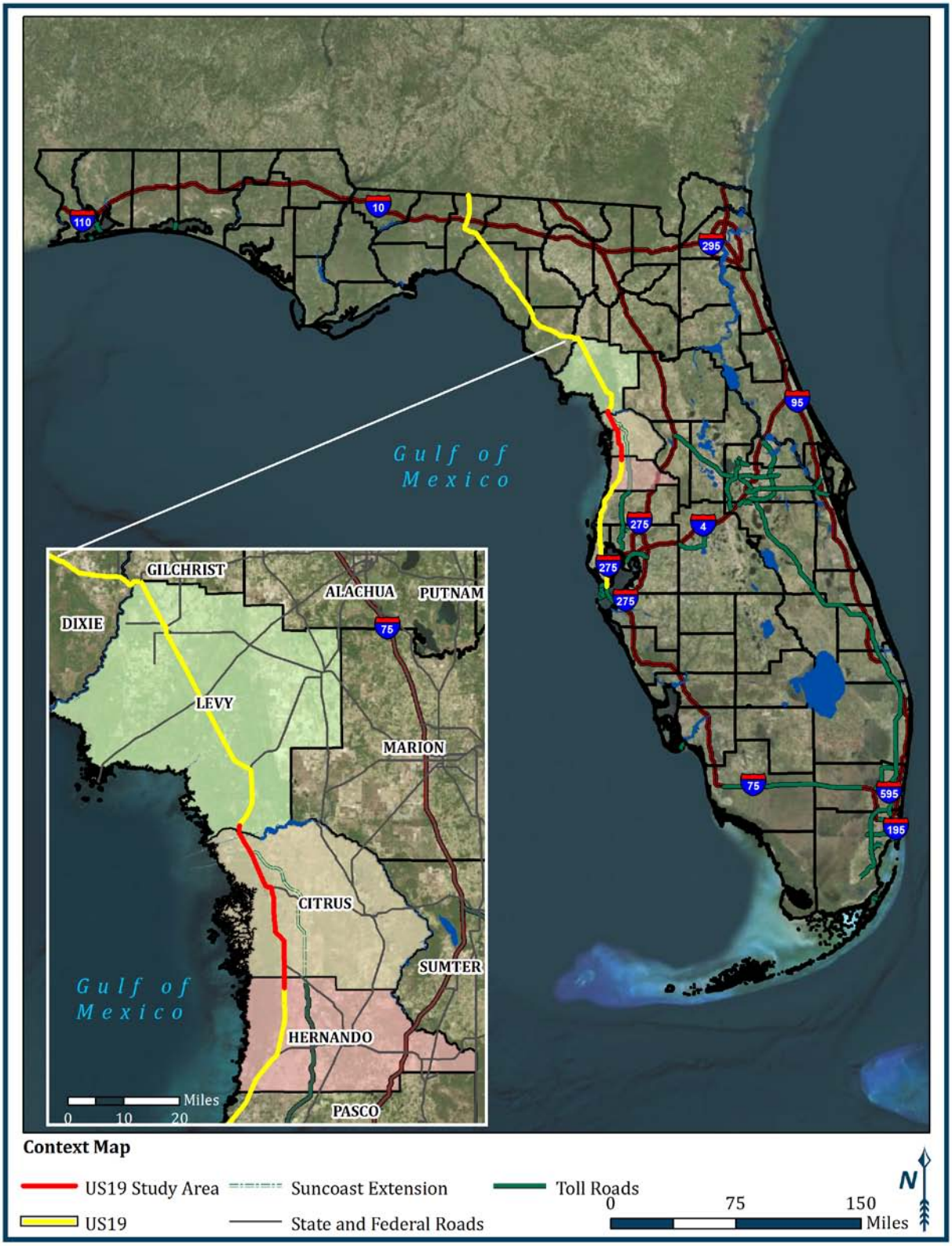
The Study Area begins at the intersection of US Highway 19 and County Road 40 in Levy County, FL and ends just south of the intersection between US Highway 19 and Seville Parkway in Hernando County, FL, spanning a total of 26.98 miles. The Study Area has been divided into six segments based on transportation characteristics and land use development patterns. **Figure 1.2** illustrates a base map for the corridor Study Area and the location of the six segments. Additionally, **Table 1.1** details the different segments and provides descriptions regarding intersection information and transportation characteristics for each segment.

Table 1.1 Summary Descriptions of Segment Transportation Characteristics

Segment	Intersection From	Intersection To	Number of Lanes	Speed Limits	Length (miles)
1	County Road 40	NW 19th Street	4	50/65	8.972
2	NW 19th Street	W Venable Street	4 and 6	30/45	4.223
3	W Venable Street	W Jump Street	4	50/65	3.387
4	W Jump Street	W Bradshaw Street	4	30/45	1.731
5	W Bradshaw Street	W Miss Maggie Drive/US 98	4	50/65	5.216
6	W Miss Maggie Drive/US 98	Seville Parkway	4	50/65	3.470
					Total Length = 26.999

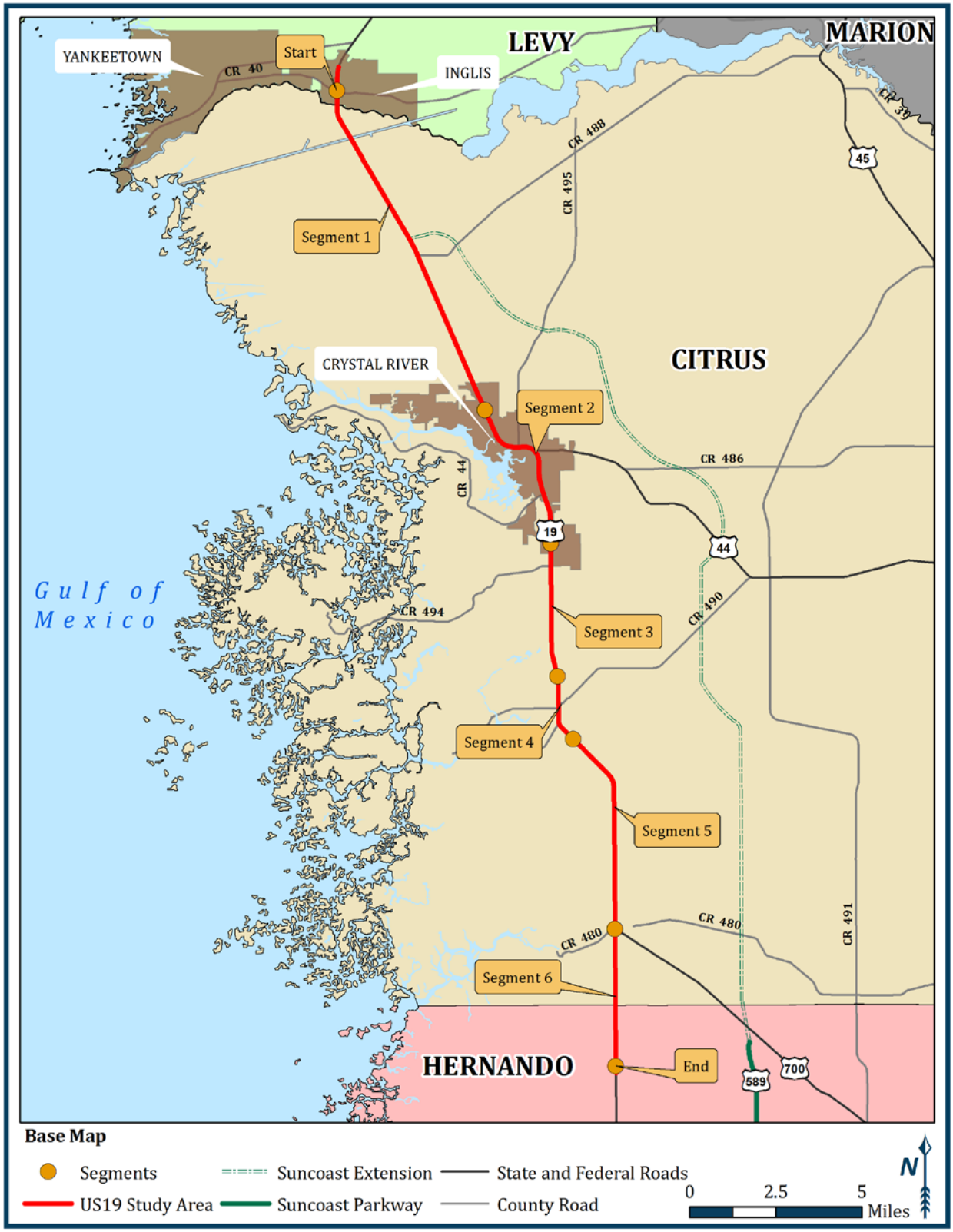
Source: Google Earth and Site Observations

Figure 1.1 Project Location Map for the State of Florida



Source: Florida Department of Transportation, Florida Geographic Data Library, and Bing 2013

Figure 1.2 Base map of the corridor Study Area showing location of segments



Source: Florida Department of Transportation and Florida Geographic Data Library, 2013

Transportation characteristics used for the purposes of dividing the Study Area into segments include: speed limits, number of lanes, and type of median. Land use characteristics used to create the segments include: development patterns and type of development. Using these different characteristics, the segments can be broken down into two different categories: rural, and urban. A typical rural segment consists of higher speeds with sparse development along the corridor while a typical urban section has slower speeds with higher density development. Additionally, urban segments feature a curb and gutter along the roadway, whereas rural segments demonstrate predominantly grass medians with no curb and gutter. Pictures of segments and specific characteristics observed within each segment are described below.

Segment 1 begins at the intersection of County Road 40 and US Highway 19 in Levy County and extends south into Citrus County to the intersection of US Highway 19 and NW 19th Street. Segment 1 is a high speed, 50 to 65 mph, four-lane divided highway that extends for 8.97 miles. In terms of land use and development patterns, this segment can be categorized as a typical rural segment and is classified as a Rural Principal Arterial Other in the Roadway Characteristics Inventory (RCI). It illustrates sporadic development, including the Duke Energy Complex, Seven Rivers Regional Medical Center, hotels, mobile/single family homes, and service stations.

Pictures for Segment 1

Source: Site Visit Observations and Google Earth, 2013

Segment 2 marks the beginning of the Crystal River city limits, beginning with the Crystal River Mall and continuing south towards the end of the city limits and the Crystal River Airport. Segment 2 has significantly different land use and transportation characteristics when compared to the first segment. The segment is 4.22 miles long consisting of mostly six lanes with two-way left turn lane medians and slower speed limits of 30 to 45 mph. It transitions from a Rural Principle Arterial Other to an Urban Other Principle Arterial roadway classification. The development along this segment can be categorized as a typical urban segment. It consists of large commercial shopping centers, fast food restaurants, car dealerships, financial institutions, and local restaurants and businesses.

Pictures for Segment 2

Source: Site Visit Observations and Google Earth, 2013

Segment 3 reverts back to a high speed four-lane divided highway that connects the City of Crystal River to unincorporated Homosassa Springs. Segment 3 is 3.38 miles long and includes some commercial development. The type of development observed along this segment is similar to Segment 1 and has land uses similar to a developing rural segment with small commercial centers, service stations, hotels, and mobile/single family dwellings. Segment 3 is classified as an Urban Other Principle Arterial roadway.

Pictures for Segment 3

Source: Site Visit Observations and Google Earth, 2013

Segment 4 encompasses the unincorporated area of Homosassa Springs. Segment 4 is 1.73 miles long and contains large grocery stores and other commercial development. The segment remains a four-lane roadway with two-way left turn lanes as the median type. This segment is similar to Segment 2, with slower speeds, between 35 to 45 mph and falls under the same grouping as a typical urban section, also being classified as an Urban Other Principle Arterial roadway.

Pictures for Segment 4

Source: Site Visit Observations and Google Earth, 2013

Segment 5 extends for 5.21 miles from the end of Homosassa Springs to the intersection of US Highway 19 and US Highway 98. US Highway 98 provides a connection to the existing Suncoast Parkway. In regards to the transportation characteristics, this segment is similar to Segments 1 and 3; however, this segment is different from the other segments because of different types of land uses along the corridor. Specifically, the segment includes retired and assisted living communities as well as social institutional land uses. Due to the differences in intensity, type of land use pattern and higher speeds this segment is categorized as rurally developed, and is classified as an Urban Other Principle Arterial roadway.

Pictures for Segment 5

Source: Site Visit Observations and Google Earth, 2013

Segment 6 runs from the intersection of US Highway 98 to just south of the intersection of US 19 Highway and Seville Parkway. Segment 6 extends for 3.47 miles and is four-lane divided roadway with speed limits of 60 to 65 mph. It ends at the three-way intersection of Seville Parkway, which is the entrance to The Dunes Golf Club development. The Dunes Golf Club is a planned community of approximately 400 to 500 homes and features an 18-hole golf course. This segment experiences less development than the previous segment, being rurally developed, and is classified as a Rural Principal Arterial Other roadway.

Pictures for Segment 6

Source: Site Visit Observations and Google Earth, 2013

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Chapter 2 - Study Area Profile

Florida's array of beaches, sunny weather, and natural landscapes make the state an ideal home for almost 19 million residents and a tourist destination for millions of people each year. Florida, in addition to the rest of the southeastern region of the United States, has found itself for the past several decades in a fortunate position. As the nation begins to shift much of the population from old economic centers in the northeast and midwest, newer markets in the south have begun to develop. Though the economic recession in the late 2000's did have some negative effect on the growth of the region, Florida has continued to see positive growth as the state's overall population has increased.

Located along Florida's Gulf Coast, the US Highway 19 Study Area is home to an assortment of state parks, golf courses, and natural landscapes. Though the corridor is characterized by mostly rural counties, the highway eventually dead-ends in the more urbanized Tampa Bay region. The Study Area in which this project focuses covers portions of Levy, Citrus, and Hernando Counties. The land patterns along the corridor consist of low density development with some nodes of middle to higher density residential and commercial development within Crystal River and Homosassa Springs. This "small town" development not only affects the density in which the population lives but also plays a role in the type of housing and economic development that can occur within the Study Area.

The following chapter provides information on the current existing conditions of each of the three counties within the Study Area based primarily on US Census Bureau data. The chapter will focus on the population demographics, housing characteristics, economic features, and land use. These characteristics will help inform and identify Study Area needs to be used in the development of Technical Memorandum II.

2.1 Existing Demographic Characteristics

According to the US Census Bureau, from 2000 to 2010, Florida's population grew by approximately 18%, which was one of the state's slowest growth periods over the last five decades. The 2010 United States Census Bureau estimates Florida's population to be over 18.8 million people; approximately 9.5 million (51%) females and 9 million (49%) males. Florida remains the fourth most populous state in the country, behind California, Texas, and New York, while only ranking twenty-fifth in terms of total land area (South Florida Business Journal, 2012).

2.1.1 Population Growth

Of the 18.8 million residents in Florida, only about 1.2% of the state population lives within Citrus, Hernando, and Levy Counties. **Table 2.1** displays the 2000-2010 U.S. Census population counts by county in the Study Area. Although the Study Area is not one of the more populated regions within the state, it is clear that the populations of Levy and Citrus County are increasing at a steady pace with Hernando County growing the fastest overall.

Table 2.1 Population and Growth Rate for Citrus, Hernando, Levy County and State of Florida, 2000-2010

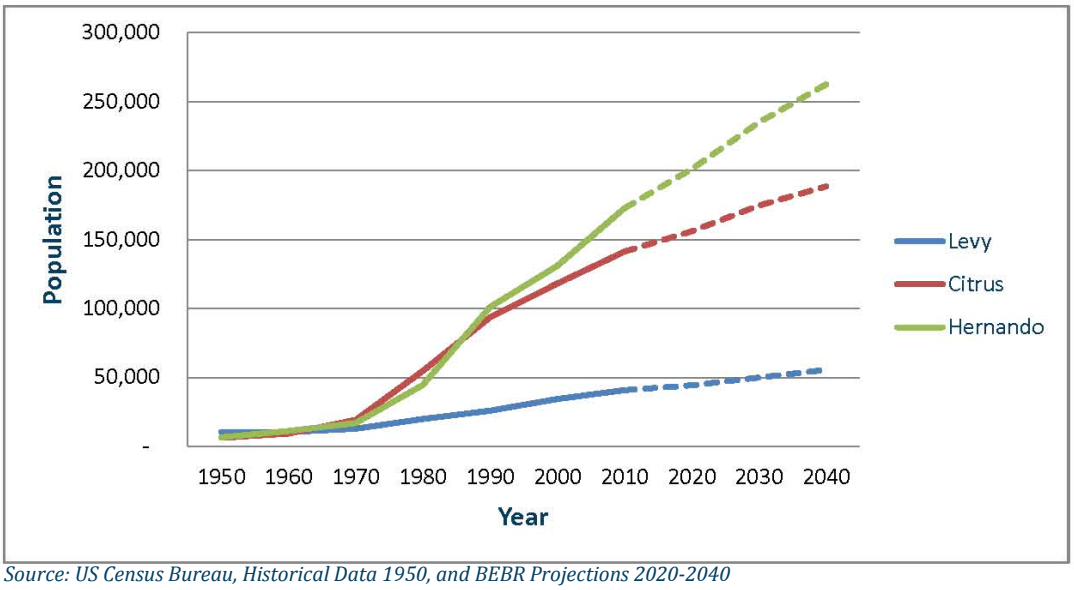
	Citrus County	Hernando County	Levy County	Florida
Total Population 2000	118,085	130,802	34,450	15,982,378
Total Population 2010	141,236	172,778	40,801	18,801,310
Growth Rate 2000-2010	19.60%	32.10%	18.40%	17.60%

Source: US Census Bureau, 2010

In order to develop a more in-depth understanding of future populations within the Study Area, information was gathered from the Bureau of Economic and Business Research (BEBR). BEBR produces population and business projections for each of Florida's sixty-seven counties in order to inform public policy and better business decision making.

Future population growth trends of the Study Area mirror the growth rate seen in Florida over the past decade. **Figure 2.1** illustrates the BEBR population growth projections of Citrus County, Hernando County, and Levy County over the next two decades. The slowest population growth for the Study Area is projected for Levy County. This projected slower growth rate is likely due to the fact that the area is rural with little business and residential growth. Hernando County is projected to see the highest growth over the next 20 years. Much of this growth will likely be concentrated toward the southern end of the county, primarily due to Hernando County quickly becoming a bedroom community for the greater Tampa Bay area. The projections for Citrus County follow closely behind Hernando County, showing a high level of predicted growth over the next 20 years.

Figure 2.1 Historic and Future Growth (BEBR Projections) by County, 1950-2040



Source: US Census Bureau, Historical Data 1950, and BEBR Projections 2020-2040

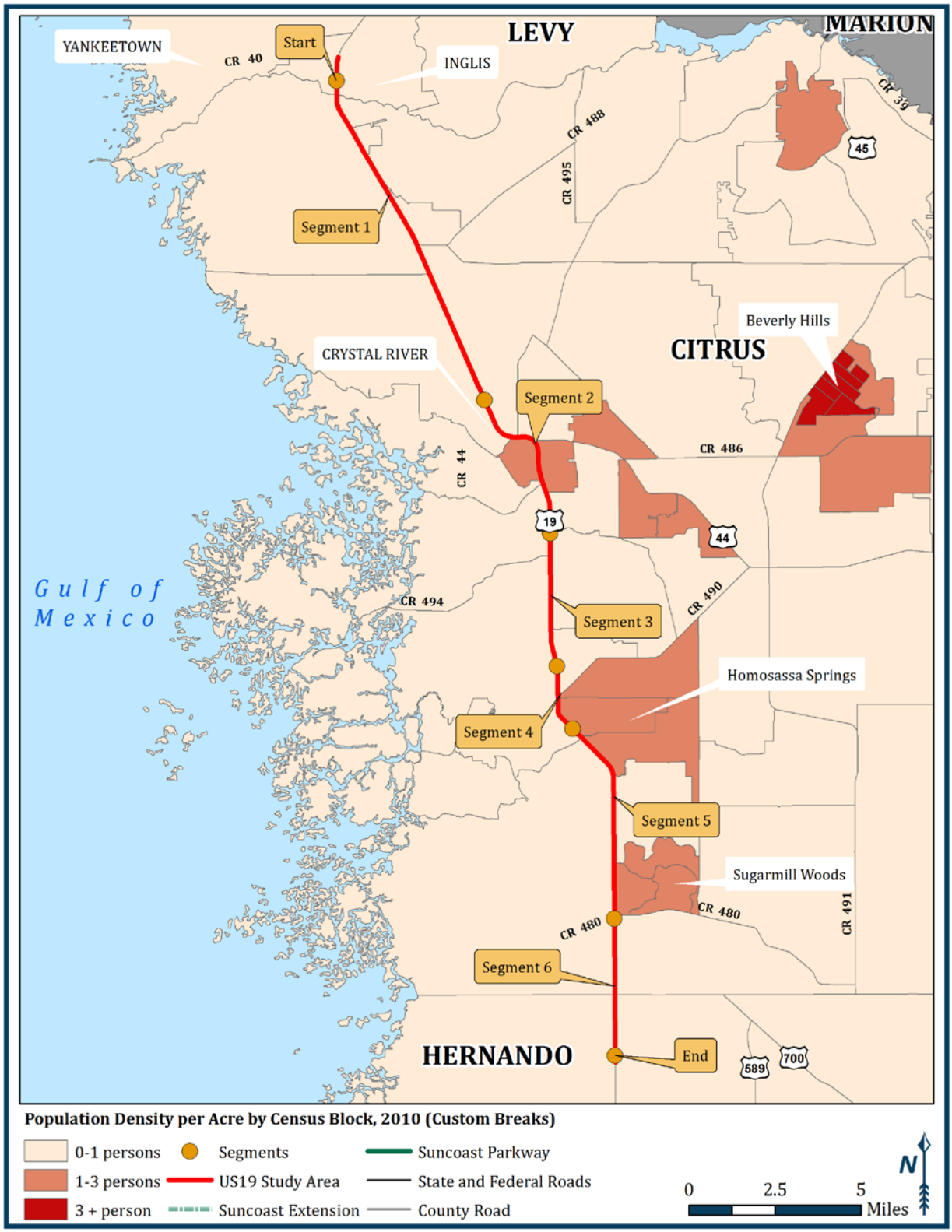
2.1.2 Population Density

Population densities play a vital role in the impact on an area's transportation network. Clustered and urbanized development impacts roadways by increasing traffic congestion. Conversely, denser developments are able to support alternative transportation options that are more cost feasible and practical given the proximity and concentrations of people. In contrast, rural areas find alternative transportation options less practicable due to the lower population densities to support these initiatives. Although these options are not feasible, traveling along rural roads is likely to be less congested and result in shorter trip times (Arizona Department of Transportation, 2012). When considering the Study Area, it is important to realize that this state roadway must accommodate both low densities in rural areas and higher density in urbanizing areas.

Figure 2.2 shows the population density through people per acre by census block. Although development along the Study Area is low in density, it is apparent from the map that much of the development within Citrus County has occurred along US Highway 19. This can be seen in the development of Crystal River to the north, followed by Homosassa Springs and Sugarmill Woods to the south. These residential and commercial clusters along the eastern side of the Study Area have seen denser development due to the fact that this portion of the county is constrained by fewer environmental considerations (Citrus County, 2006).

Though these densities currently should not be of concern for the Study Area, future population projections indicate that the next several decades will bring increasing populations into the Study Area and will therefore ultimately increase usage of US Highway 19. Another important point is that there is very little density on the western side of US Highway 19. This is due to the large number of environmentally sensitive lands and state owned conservation areas. These lands will be discussed more in depth in the environmental chapter of the report.

Figure 2.2 Population Densities per Acre by Census Block, 2010



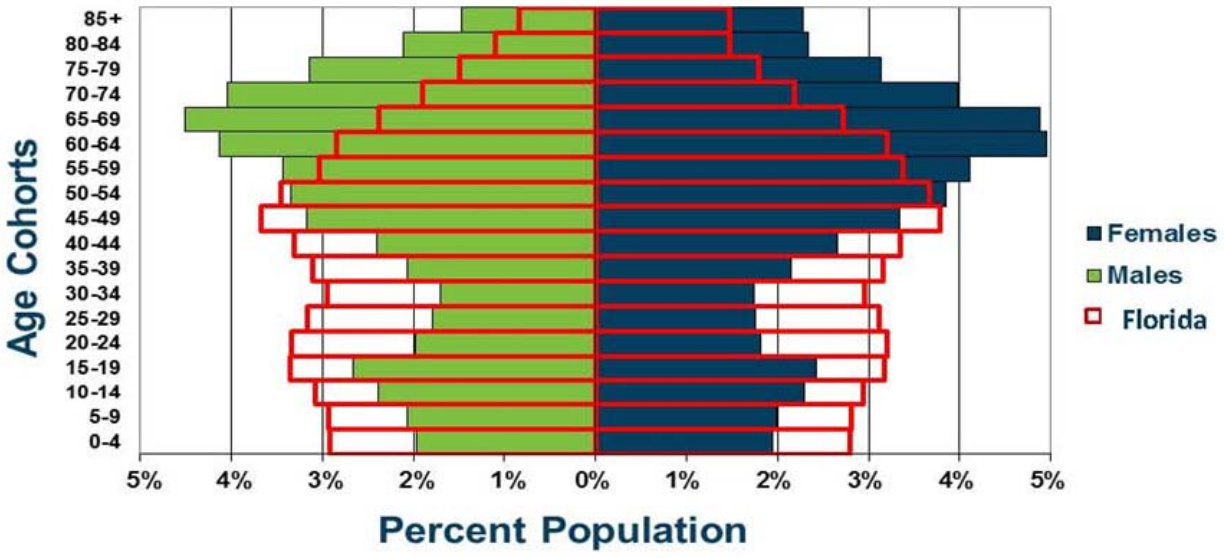
Source: US Census Bureau, 2010 and Florida Geographic Data Library, 2013

2.1.3 Population Age

The age of a region's population plays a major role in how the transportation networks are used or should be designed. Based on this analysis of the Study Area's population age range, specific recommendations are necessary to provide the most effective and efficient transportation system for the residents.

Figure 2.3 displays the 2010 population pyramid of Citrus County compared to the State of Florida. Citrus County is displayed in the green and blue colors while the State of Florida is displayed with a red outline. The population pyramid provides a graphical illustration of Citrus County's age distribution and sex. Important takeaways from the pyramid are the fact that the majority of the residents living within the county are either middle aged or senior citizens. This is due to the large number of retirement and assisted living communities within the county. Because Citrus County's population includes a large number of older citizens, considerations for how to accommodate these special populations in the future should be a major concern when creating alternative strategies.

Figure 2.3 Citrus County Population Pyramid Compared to the State of Florida, 2010



Source: US Census Bureau, 2010

The Citrus County population pyramid reflects an important trend for the Study Area. Although Citrus County presents a population heavily influenced by the elderly, Levy County and Hernando County are beginning to follow the same pattern, but in a less drastic fashion. Because the Study Area is comprised of a large senior citizen population, specific strategies should be made regarding speed limits on the corridor, visibility of roadway signs, access management, and facilities along the road. Not only should considerations be made about the Study Area, but also about the type and mix of land uses in general. Availability of care facilities, number of hospitals, and senior living communities are all potential focuses that should be considered when making current and future decisions for an aging population.

2.1.4 Population Race and Ethnicity

The existing population within the Study Area is not racially diverse. **Table 2.2** shows that Citrus, Hernando, and Levy Counties are all predominantly White with very small percentages of Black, American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, other, or multiple races. Racial and ethnicity composition trends for the three counties in the Study Area do not reflect the State of Florida. The State of Florida has higher population of minorities and is significantly more culturally diverse than the Study Area.

Table 2.2 Race and Ethnicity of Citrus, Hernando, and Levy County and the State of Florida, 2010

Race	Citrus County	Hernando County	Levy County	Florida
White	89.60%	82.10%	80.80%	57.90%
Black	2.70%	4.70%	9.20%	15.20%
Asian	1.40%	1.10%	0.60%	2.40%
Other	1.70%	1.80%	1.90%	2.10%
Ethnicity	**Citrus County**	**Hernando County**	**Levy County**	**Florida**
Hispanic	4.70%	10.30%	7.50%	22.50%
Total Population	141,236	172,778	40,801	18,801,310

Source: US Census Bureau, 2010

2.2 Socioeconomic Characteristics

In the following section, socioeconomic characteristics such as income, education, and housing, will be analyzed to offer further insight on how improvements or changes may impact the Study Area. To help gain a better understanding of the Study Area, it is important to establish a basic knowledge of socioeconomic characteristics. The following section provides a brief analysis of specific income, education, and housing characteristics for Citrus County, Hernando County, and Levy County.

2.2.1 Educational Attainment

Educational attainment of a population can have a direct impact on economic growth and development. For example, highly educated populations can often attract new businesses to a region and encourage local business start-ups. As more businesses move into an area, the accessibility to business opportunities can encourage larger populations to migrate into a region as job opportunities become more abundant. Ultimately, higher education can lead to more business, which can lead to larger populations, and more usage of local roadways (Gottlieb & Fogarty, 2003).

Table 2.3 displays the educational attainment of each county's population over the age of twenty five. Based on the analysis below, Citrus, Hernando, and Levy County all have similar educational characteristics. Each of the counties has a higher percentage of high school graduates when compared to the State of Florida, but begin to mirror the state's education rates when looking at college graduates and populations with some college education. Overall, each of the three counties within the Study Area have average educational attainment, while Levy County does struggle with attracting and retaining college graduates.

Table 2.3 Educational Attainment of Citrus, Hernando, and Levy County and the State of Florida Populations 25 years and older, 2010

Education Age 25+	Citrus County	Hernando County	Levy County	Florida
High School Graduate	38.80%	37.60%	39.40%	30.10%
Some College, No Degree	22.20%	24.00%	22.10%	20.90%
College Graduate	24.20%	24.30%	19.20%	24.60%

Source: US Census Bureau, 2010

2.2.2 Income and Poverty

The median income and the level of poverty within a population are generally two of the most important socioeconomic indicators as to how stable an economy has been in the past. **Table 2.4** displays the Study Area's economic characteristics from 2010 US Census data. Compared to the State of Florida, each of the three counties within the Study Area has relatively lower median household incomes. Hernando County currently has the highest median household income with $42,700 while Citrus County and Levy County follow closely behind with $38,189 and $35,920 respectively. The region's per capita income shows a similar trend as the median household income by remaining fairly close to the State of Florida's average.

Table 2.4 summarizes the percentage of families and individuals in each county that fall below the US Health and Human Services defined poverty level of $24,000 for a family of four. Citrus and Hernando County both remain fairly equal to that of the State of Florida, while Levy County exceeds the state in both family and individual poverty.

Table 2.4 Income and Poverty Characteristics of Citrus, Hernando, and Levy County and the State of Florida, 2010

	Citrus County	Hernando County	Levy County	Florida
Median Household Income	$38,189	$42,700	$35,920	$47,827
Per Capita Income	$22,939	$22,540	$19,244	$26,733
Families Below Poverty Level	10.50%	9.20%	17.00%	10.60%
Individuals Below Poverty Level	15.80%	12.80%	22.60%	14.70%

Source: US Census Bureau, 2010

2.2.3 Housing

This section outlines several basic characteristics of households within the Study Area and compares these characteristics to the State of Florida. Trends in housing within an area often times point to specific needs that should be catered to when considering future and current options, such as whether or not a population has access to more suburban development, urban/mixed use development, or rural development. Although these conditions can be hindered by environmental needs, fiscal capabilities, or land rights within a county, it is important to analyze what is currently constructed to address how the future may look for a region.

Table 2.5 illustrates each of the Study Area's counties basic housing unit structures and displays what percentage of the total units fall within each category. At least 94 percent of the current housing structures in the Study Area are categorized as single family or mobile homes. This information differentiates from the State of Florida substantially because almost 30 percent of the state's housing units are classified as multiple family housing units. Citrus and Hernando County both have very high percentages of single family units with 69 percent and 78 percent respectively. Levy County has almost half of their built structures classified as mobile homes while Citrus County and Hernando County consist of 25 percent and 17 percent respectively.

Table 2.5 Housing Types within Citrus, Hernando, and Levy County and the State of Florida, 2010

	Citrus County	Percent of Total	Hernando County	Percent of Total	Levy County	Percent of Total	Florida	Percent of Total
Single Family	53,389	68.81%	65,935	78.43%	9,549	47.88%	5,404,108	60.42%
Multiple Family	4,360	5.62%	3,497	4.16%	1,055	5.29%	2,678,484	29.95%
Mobile Homes	19,691	25.38%	14,468	17.21%	9,236	46.31%	850,108	9.50%
Boat, RV, Van. Etc	147	0.19%	171	0.20%	105	0.53%	11,932	0.13%
Total Units	77,587	100%	84,071	100%	19,945	100%	8,944,635	100%

Source: US Census Bureau, 2010

Table 2.6 provides information on the number of homes, either owned or currently occupied by renters, for each of the counties within the Study Area. Often times, home ownership provides a strong socioeconomic indicator as to how well a local economy is doing. This is because home ownership creates jobs: remodeling, landscaping, lawn maintenance, and all the other industries that are connected with owning a home. It is found that each owner generates as much as $60,000 worth of economic activity every year in local communities. Not only do homeowners stimulate local economies in terms of industries connected to owning a home, but they also help to circulate their incomes with local businesses including restaurants, retail stores, recreational activities, etc. (Williams, 2011). The table below shows that all three counties have large percentages of owned occupied housing when compared to the State of Florida. The rental rates are particularly impressive considering each of the three counties have at least ten percent less renter occupied homes than the state average. It should be noted that although the rates are low, this is likely due to the limited numbers of multiple family units that are commonly used as rental properties.

Table 2.6 Housing Ownership Information for Citrus, Hernando, and Levy County and the State of Florida, 2010

	Citrus County	Percent of Total	Hernando County	Percent of Total	Levy County	Percent of Total	Florida	Percent of Total
Owned with a mortgage or loan	27,967	44.20%	34,836	48.60%	7,242	44.20%	3,348,864	45.10%
Owned free and clear	24,133	38.10%	22,938	32.00%	5,913	36.10%	1,650,115	22.20%
Renter occupied	11,204	17.70%	13,971	19.50%	3,249	19.80%	2,421,823	32.60%
Total Units/ Percentage	63,304	100%	71,745	100%	16,404	100%	7,420,802	100%

Source: US Census Bureau, 2010

Overall, housing characteristics within the Study Area are substantially better than the State of Florida as a whole. Citrus, Hernando, and Levy County each have a large number of single family or mobile home units that are generally owned whether it is with a mortgage, loan, or free and clear. There is a small amount of renter occupied units meaning the majority of the populations within the Study Area are permanent and likely will remain in the counties into the future. The only potential negative aspect of the Study Area concerning housing is the large number of mobile homes which greatly exceeds that of Florida's 9.5 percent. Although these percentages are high within Citrus, Hernando, and Levy County, there are very few mobile home parks along the roadway.

2.3 Future Population Considerations

This section analyzes the future demographic characteristics for the three counties encompassing the Study Area. Specifically, the following subsections exhibit the projected population growth for the counties from 2015 to 2035. Furthermore, this section analyzes the projected growth rates experienced by these counties and focuses on the implications of the further growing elderly population throughout the counties and the State of Florida.

2.3.1 Projected Population Numbers

The future demographic outlook for Citrus, Hernando, and Levy Counties mirrors the growth rates projected for the State of Florida. Specifically, projected population growth rates from 2010 to 2030 closely mirror the projected growth rate for Florida. **Table 2.7** displays the low, medium and high series population projections developed by the Bureau of Business and Economic Research (BEBR) from 2015 to 2035 for Citrus County.

Table 2.7 BEBR Medium Series Projections for Citrus County, 2015-2035

CITRUS	2010 Census	2015	2020	2025	2030	2035
Actual	141,236					
Low		136,900	142,200	146,100	148,400	149,400
Medium		145,700	156,300	166,000	174,600	182,200
High		154,400	170,300	185,900	200,800	215,000

Source: Business and Economic Research (BEBR), 2012

The table above shows that Citrus County at a medium-series projection is expected to grow by about 33,300 people by the year 2030. These figures are significant to the US Highway 19 study because the current Study Area extends throughout the entirety of Citrus County.

Table 2.8 displays the low, medium and high series population projections developed by BEBR from 2015 to 2035 for Hernando County. As mentioned earlier, Hernando County is currently the most populated of the three counties. The table below demonstrates that Hernando County at a medium-series projection is expected to grow by approximately 62,000 people by the year 2030. Even at a low-series projection Hernando County is projected to have higher population than any of the three counties. This signifies the importance of considering the growth in Hernando County as it may have an impact on the transitioning urban areas of Citrus County.

Table 2.8 BEBR Medium Series Projections for Hernando County, 2015-2035

HERNANDO	2010 Census	2015	2020	2025	2030	2035
Actual	172,778					
Low		171,400	180,900	187,900	192,500	194,700
Medium		182,400	201,000	218,500	234,800	249,600
High		193,300	221,100	249,100	277,000	304,500

Source: Business and Economic Research (BEBR), 2012

Table 2.9 displays the low, medium and high series population projections developed by BEBR from 2015 to 2035 for Levy County. The table below shows that Levy County at a medium-series projection is expected to only grow by about 9,000 people by the year 2030. This projection is consistent with the recent population growth experienced in the county. Levy County is the most rural of the three counties and by far the least populated, which is demonstrated by the 2010 population numbers, and the projected population growth.

Table 2.9 BEBR Medium Series Projections for Levy County, 2015-2035

LEVY	2010 Census	2015	2020	2025	2030	2035
Actual	40,801					
Low		39,200	40,400	41,500	42,400	43,200
Medium		41,700	44,400	47,100	49,900	52,700
High		44,200	48,400	52,800	57,400	62,200

Source: Business and Economic Research (BEBR), 2012

2.3.2 Growth Rates, 2010-2030

Using the BEBR population projections as a tool, projected growth rates from 2010 to 2030 were calculated for the three counties. **Table 2.10** shows the projected growth rates for the three counties from 2010 to 2030 along with the growth rate for the State of Florida.

Table 2.10 Projected Population Growth Rates for Citrus, Hernando, Levy Counties, and State of Florida from 2010-2030

	Citrus County	Hernando County	Levy County	Florida
Total Population 2010	141,236	172,778	40,801	18,801,310
BEBR 2030 Medium Series	174,600	234,800	49,900	23,601,100
Growth Rate 2010-2030	23.60%	35.90%	22.30%	25.50%

Source: Business and Economic Research (BEBR), 2012

Citrus and Levy counties are projected to reflect the growth rate experienced by the state. However, Hernando County is projected to exhibit a significantly higher growth rate. Hernando County's proximity to the Tampa Bay region justifies the Bureau of Economic and Business Research projected growth rate in that much of the southern portion of the county will be utilized as a bedroom community.

2.3.3 Elderly Population

The existing demographics conditions previously mentioned the current increases of elderly population in the area. Specifically, **Figure 2.3** showed the 2010 population pyramid for Citrus County. The already senior heavy population is expected to continue to grow. This emphasizes the importance of considering the age demographic characteristics in economic, housing, and transportation needs of Citrus County.

Table 2.11 shows that by 2030 nearly half of Citrus County's population is projected to be age sixty five and older. Similarly, almost forty percent of Hernando County and thirty four percent of Levy County's population will be within this age cohort. As mentioned earlier, this is important to consider when addressing strategies in the next stages of this study because of the potential infrastructure and transportation needs for growing elderly population. Specifically, focusing on the

growing elderly population in Citrus County and the importance of accessibility to health care facilities and housing facilities catered to the senior population. This potential increase in senior populations can also affect the type of economic development present within the Study Area.

Table 2.11 Projected Population (Age 65 and older) for Citrus, Hernando, and Levy Counties, 2030

	Citrus County	Hernando County	Levy County
2010 Census	23,439	23,949	3,972
Percent of Population 2010	31.50%	13.89%	9.74%
2030 BEBR Medium Series	84,535	91,766	16,883
Percent of Population 2030	48.42%	39.08%	33.83%

Source: Business and Economic Research (BEBR), 2012

2.4 Economic Development and Employment

As noted in **Chapter 2.1**, the Study Area has experienced rapid population and economic growth since the late 1960s. The economic base for the Study Area counties has expanded from traditional industries such as agriculture, forestry and fishing and become more service oriented. During the mid-20th century, the Study Area began to experience growth patterns similar to that of the state average, with the service and tourism industries emerging to serve the growth in population. As the Study Area became a place for elderly residents to retire, there were two large projects that significantly helped the county grow. The first came when the Florida Power Corporation (now Duke Energy) opened their Crystal River Energy Complex in the mid-1960s. The second event was when construction began on the Cross Florida Barge Canal in 1964, which was intended to serve as a shipping channel connecting the Gulf of Mexico to the St. Johns River. The barge canal was intended to boost the economy of the area as well. However, the canal project was stopped in 1971 due to environmental concerns. These new employment opportunities together with a growing retirement community changed the basic fundamentals of the economy within the Study Area.

The Study Area continues to have economic development similar to the state as a whole, with the emergence of large residential and service needs. The real estate and health care services have had the largest employment growth over the last decade, reflecting the Study Area's growing retirement aged population and the needs that come with that, such as health care services. Much of the continued growth can be attributed to the easy access provided by US Highway 19, which enables visitors and residents easy access to higher populated areas across the state and country.

2.4.1 Businesses and Industry

The Study Area exhibits a variety of different businesses and industries. There are forty-six miles of the Withlacoochee State Trail, 50,000 acres of State Forest, seven rivers, and a lake system that runs along the eastern side of Citrus County. Homosassa Springs Wildlife State Park brings in 275,000 visitors annually and offers tourists the opportunity to swim with manatees (Visit Citrus 2013). Inverness and Crystal River are working towards creating a revitalized, walkable downtown area that maintains their small town charm and preserves their historic past.

The major employment sectors within Citrus County are health care, retail trade and various service industries. As shown in **Table 2.12** the industry sectors with the highest employment figures are those that support the large number of retirees, seasonal residents and tourists. The Study Area employment sectors are similar to those in the state as a whole, with decreasing amounts of industrial and agriculture activities and a growth in service related industries.

Table 2.12 Top Employment Sectors, Citrus County 2010

Industry	County Employment
Health Care & Social Assistance	7,296
Retail Trade	5,167
Local Government	4,285
Accommodation & Food Services	2,567
Other services (excluding Public Administration)	1,930
Utilities	1,200
Construction	1,328

Source: The Florida Department of Economic Opportunity & Enterprise Florida, 2012

In order to foster economic growth within Citrus County, one major consideration that could be implemented is a focus towards the promotion and expansion of Recreational Vehicle (RV) parks. Citrus County currently has twenty-five RV parks within a five-mile radius of the Study Area, which can be a major economic driver for the county. Another consideration for business and industry is the health care and social assistance industries based within the Study Area. Citrus County is currently home to twenty retirement and assisted living communities; five of which are along the corridor Study Area.

As the aging populations increase, a heavier focus on assisted living will become important to the region. Lastly, Citrus County offers many services for local businesses and project development through the County's Economic Development Council (EDC), Small Business Community Reinvestment Program (SCORE), and the Citrus County Board of County Commissioners, which include the Micro Loan program, Utility Expansion, Economic Incentive, Job Growth Incentives, Medical Recruitment Incentives, Local Small Business Incentives, and the Tax Abatement Incentive program. For new business ventures, expansion, or relocation to Citrus County, companies can utilize many of these incentives, especially businesses that fall within one of their five target industries: medical, high technology, financial, marine and aviation, and light manufacturing.

Employment sectors that have had the largest growth in the decade between 2001 and 2010 are primarily service based industries. As shown in **Table 2.13** the largest employment changes occurred in education, real estate and "other" services.

Table 2.13 Employment Industries with Largest Growth 2001-2010

Industry	2001 County Employment	2010 County Employment	Percent Change
Educational Services	85	143	68.24%
Real Estate & Rental & Leasing	410	685	67.07%
Other Services (excluding Public Administration)	1,268	1,930	52.21%
Professional, Scientific & Technical Services	581	830	42.86%
Accommodation & Food Services	2,291	2,567	12.05%

Source: The Florida Department of Economic Opportunity & Enterprise Florida, 2012

Table 2.14 depicts the top employers for Citrus County. Progress Energy, Seven Rivers Community Hospital and the Citrus County Sheriff's Department are located along Study Area. Progress Energy will be shutting down the nuclear portion of the plant over the next four years and 600 jobs are projected to be lost while only 400 will be retained.

Table 2.14 Citrus County Top Employers, 2012

Employers	Type	Number of Employees
Citrus County School Board	Education	2,475
Citrus Memorial Health System	Health Care	1,400
Progress Energy	Utility	1,000
Seven Rivers Community Hospital	Health Care	525
Citrus County Sheriff's Department	Law Enforcement	375

Source: The Florida Department of Economic Opportunity and Enterprise Florida, 2012.

2.4.2 Areas of Economic Concern

Many of the rural areas in Florida have experienced economic hardships due to a variety of factors, such as a limited amount of young workers, lack of higher-educated workforce, and the economic downturn. The State of Florida's rural areas, such as those along the Study Area, play an essential role in the growth of Florida's economy, and their economic health is important to consider.

2.4.2.1 Rural Areas of Critical Economic Concern (RACEC)

As a result of the potential economic hardships that rural areas face, the state has designated twenty-nine of its thirty-two rural counties, along with five communities as Rural Areas of Critical Economic Concern (RACEC). Levy County has been classified by the state as a RACEC and is within the Study Area. As defined in Florida Statutes (Florida Statutes § 288.0656(2)(d), 2012), a Rural Area of Critical Economic Concern,

> *"means a rural community, or a region composed of rural communities, designated by the Governor, that has been adversely affected by an extraordinary economic event, severe or chronic distress, or a natural disaster or that presents a unique economic development opportunity of regional impact."*

In order to promote economic development, these areas have been established as priorities of the Rural Economic Development Initiative (REDI), which are overseen by REDI agencies. These areas are given greater flexibility in existing regulatory programs, such as: Qualified Target Industry Tax Refund Program, Quick Response Training Program, and the Quick Response Training Program for participants in the welfare transition program. The Governor can waive criteria for transportation projects under Section 288.063 of Florida Statutes, Brownfield redevelopment bonus refund, and Rural Job Tax Credit program. RACEC areas can also designate catalyst projects and sites that allow businesses locating or expanding in a RACEC area to serve as an economic generator of regional significance for the growth of the target industry. These projects are intended to provide strong capital investment, resulting in the development of high-wage and high-skill jobs.

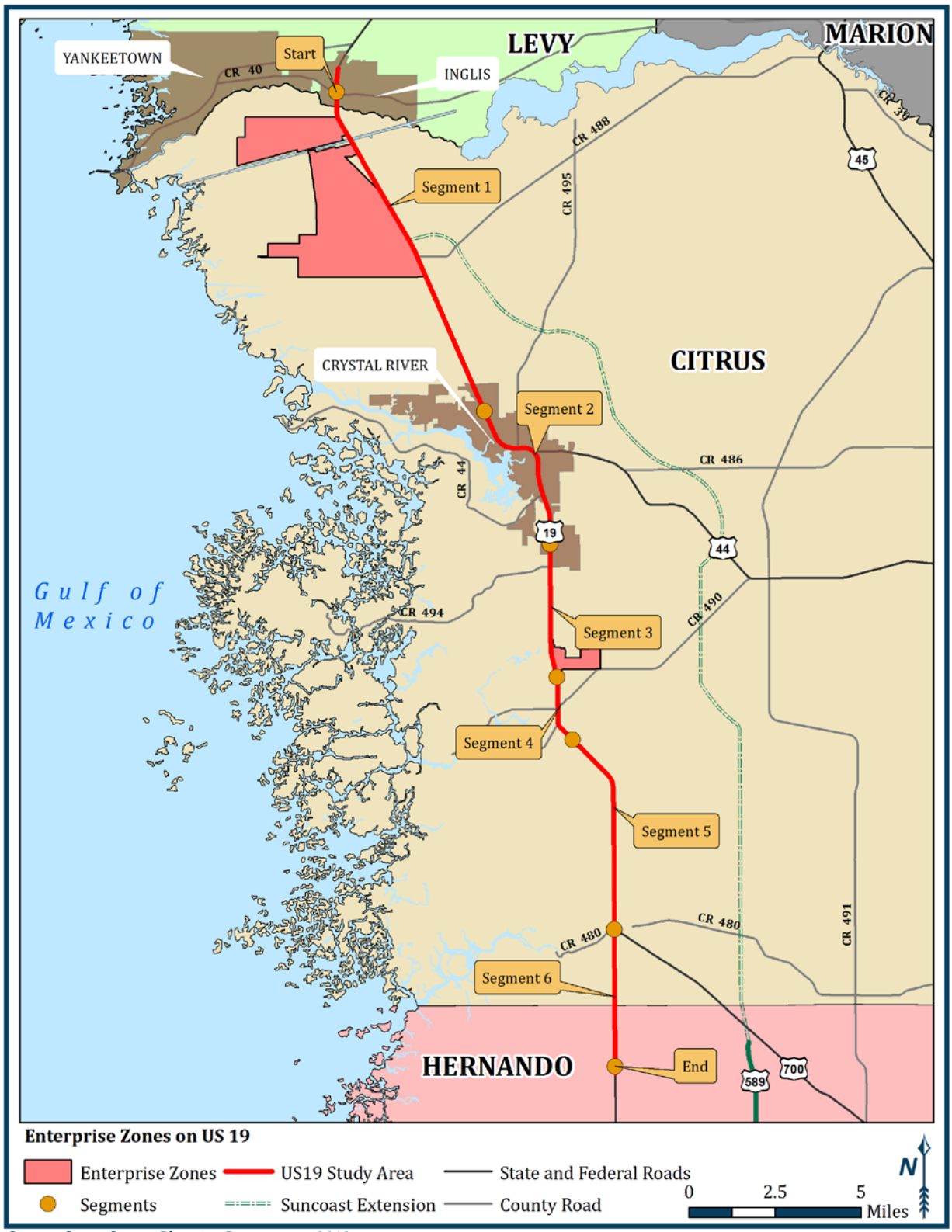
The North Florida Economic Development Partnership and Enterprise Florida have targeted four industries within the Northwest Rural Area of Critical Economic Concern. The target industries are: Logistics & Distribution, Building Component Design and Manufacturing, Aviation Service and Products, and Biofuels and Renewable Energy. This program has the ability to help Levy County with continued economic growth and to remain economically competitive.

2.4.2.2 Enterprise Zones

The Florida Enterprise Program provides economic incentives to businesses in the designated "Enterprise Zones" in order to spur economic growth and investment. These incentives include job tax credits, tax refunds on building materials and equipment, and tax exemptions on electrical energy. The program is managed by the Department of Economic Opportunity (DEO) while the individual Enterprise Zones are governed by local Enterprise Zone Development Agencies. There are a total of sixty-three designated Enterprise Zones throughout Florida, two of which are located within the Study Area.

These two areas, shown in **Figure 2.4**, were approved in 2012 by the Department of Economic Opportunity. The larger of the two zones is located in the northern portion of Citrus County, near the Cross Florida Barge Canal and the planned Port Citrus project. The second Enterprise Zone is located just north of Homosassa Springs in the central portion of the Study Area.

Figure 2.4 Enterprise Zones, Citrus County 2013



Source: Citrus County Planning Department, 2013

Although the Enterprise Zones have the basic goals of providing economic revitalization and spurring development, the types of incentives available vary depending on the needs of the area. The program offers greater resources, and is a powerful tool for local governments to control and direct development into areas that are desirable.

The goals of the Citrus County Enterprise Zone Plan are to 1) increase higher skill, higher paying jobs, 2) provide additional job opportunities and career advancement, 3) encourage business retention, expansion, and location into the Enterprise Zones, and 4) expand basic infrastructure throughout the Enterprise Zones (Citrus County Department of Planning and Development, 2012).

2.5 Tourism

Tourism plays an important role in the economic conditions of the Study Area. Much of the economic growth that the Study Area has experienced in prior decades was the result of a growing tourism industry, which, according to the Citrus County Tourist Development Council is expected to continue growing. The region as a whole is referred to as the "Nature Coast" which highlights the area's natural features with both outdoor activities and scenic sights. Visitors from around the country travel to the area to experience the "Old Florida" heritage and environmental features and activities within the numerous parks and wildlife preserves. Tourism opportunities in the region will continue due to the presence of numerous parks and conservation lands. In Citrus County there is an active tourism campaign underway to bring in more visitors a year. According to Department of Environmental Protection (DEP) data, the parks and trails experience the highest amounts of visitors in the spring and summer months.

The areas adjacent to US Highway 19 are home to numerous springs, rivers and other natural environmental features that provide the perfect place to become immersed in nature. There are numerous activities to enjoy, ranging from visits to historical locations and conservation lands to fishing and trail riding. The various tourism and service related activities along the Study Area make up some of the largest employment sectors. US Highway 19 serves as the main transportation route for reaching these destinations, as nearly all of them are located directly off the roadway.

2.5.1 Ecotourism

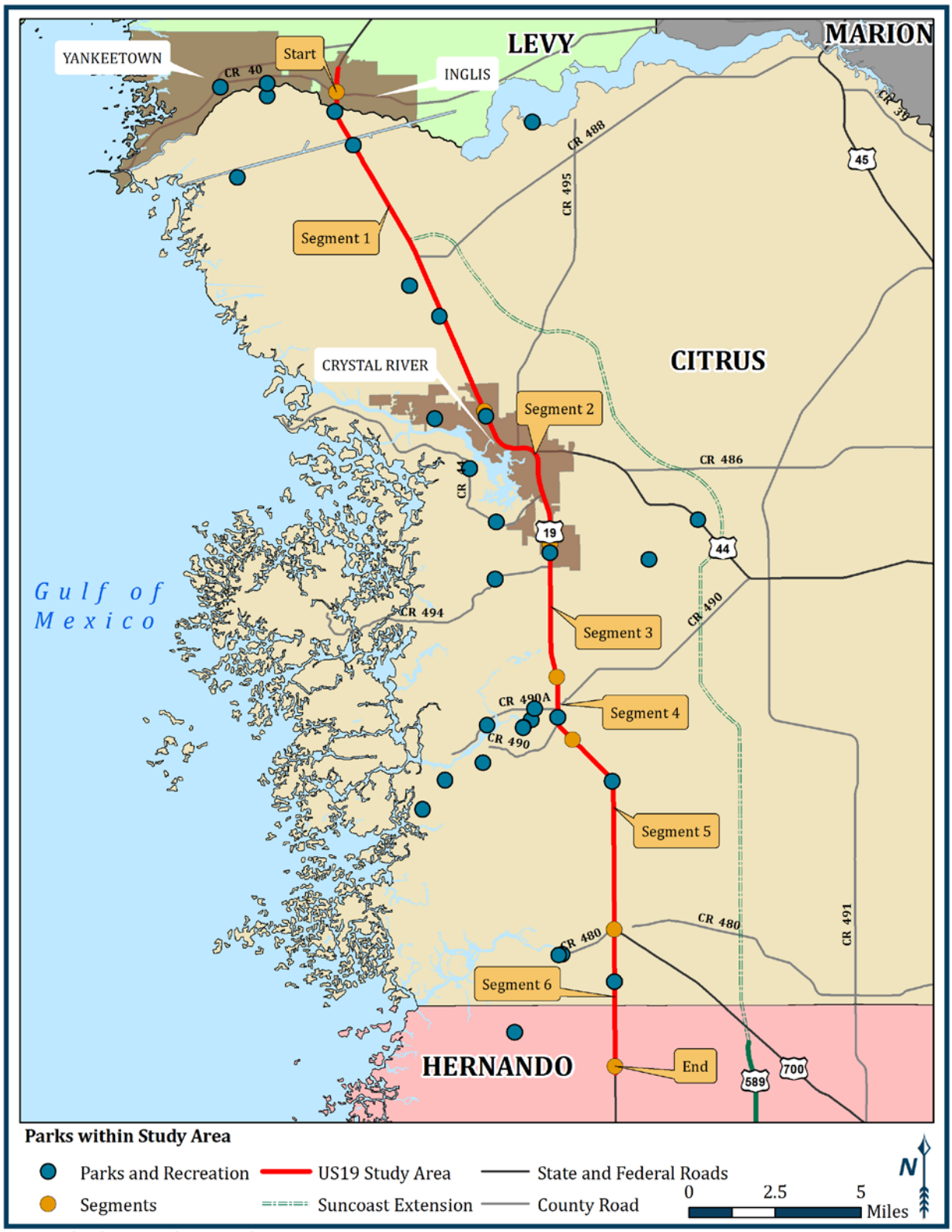
Citrus County is home to numerous ecotourism opportunities. These activities include hiking and water paddling trails and bird watching. As seen in **Figure 2.5**, US Highway 19 provides convenient access to a number of state and federal parks along the Study Area. There are fifteen conservation areas within five miles of the Study Area and five Florida State Parks. The locations of these parks vary along the Study Area, with the majority being located on the west side of US Highway 19 along the Gulf Coast.

2.5.1.1 Trails

Figure 2.6 displays the numerous bike trails and multi-use trails within a five mile radius of the Study Area, all with various access points. An important destination along the Study Area is the Marjorie Harris Carr Cross Florida Greenway (see **Figure 4.5** on Page 119), which begins in northern Citrus County. The greenway is 110 miles long and cuts across the state from the Gulf of Mexico to the St. Johns River near the Atlantic coast. The trail follows roughly the same path that had been designated for the former Cross Florida Barge Canal. The entire trail allows bikers, hikers and other nature enthusiasts a trail to cross the State. The future extension of the Suncoast Parkway into Citrus County will provide the Study Area with an additional twenty-seven miles of multi-use paved trails, which will run parallel to the new roadway. Currently the Suncoast Parkway and its adjacent Suncoast Trail end near the southern portion of the Study Area in northern Hernando County. The current Suncoast Trail includes 41 miles of paved surface running from northern Hillsborough County and ending with Suncoast Parkway in northern Hernando County. The Suncoast extension will provide the region with additional trails, providing direct access to the Tampa Bay Region as well as connecting the trails with the current Cross Florida Greenway.

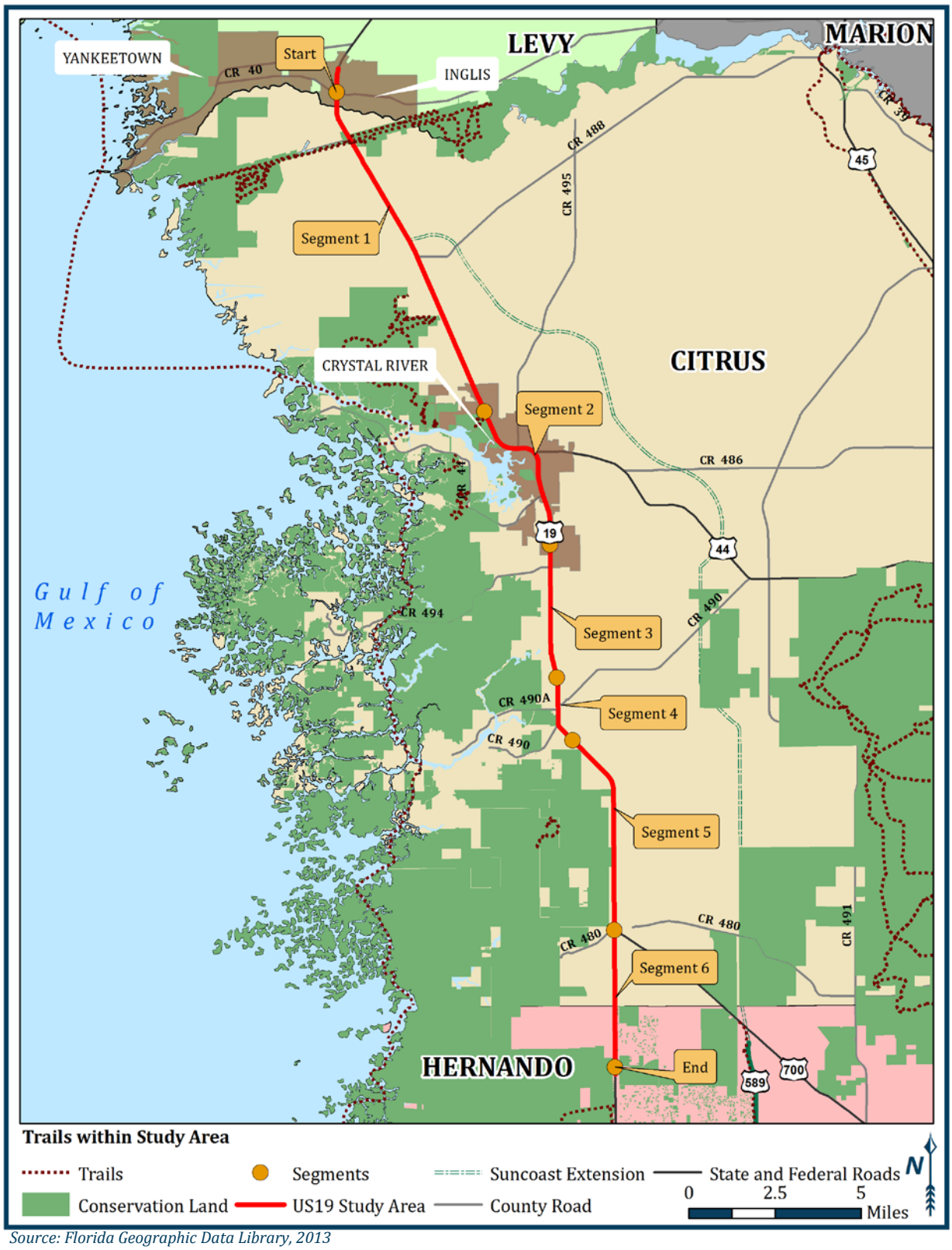
Currently, the Study Area is home to two separate canoe and kayak trails that run between Citrus and Hernando Counties, these trails offer easy accessibility from US Highway 19. These water based trails offer visitors and tourists great opportunities for experiencing the region's natural scenery up close. The Withlacoochee River South State Canoe trail is 27 miles and runs between Hernando and Citrus Counties. The second of the canoe trails is the Nature Coast Canoe / Kayak Trail, which is 16 miles long and runs in the marshes between Crystal River and Homosassa.

Figure 2.5 Locations of Parks within the US Highway 19 Corridor Study Area



Source: Florida Geographic Data Library, 2009

Figure 2.6 Trails within the US Highway 19 Corridor Study Area



Source: Florida Geographic Data Library, 2013

2.5.1.2 Florida State Parks

The Florida Department of Environmental Protection's Florida Park Service operates 171 state parks and trails throughout the State of Florida. These parks have significant economic impacts on local economies throughout the state. The Study Area is home to five of these parks (seen in **Table 2.15**), which brought in over 560,162 visitors in 2012. The Florida Park Service estimates that for every 1,000 park visitors, the impact on the local community is $47,000. This estimated total of direct economic impact would put the financial benefit of having these parks along the corridor Study Area at approximately $26,327,614 (Florida State Parks 2013). According to the Park Service, the number of overall visitors to these parks has been increasing in recent years.

The Ellie Schiller Homosassa Springs Wildlife State Park (see **Figure 4.5** on Page 119) is the most visited of all the Study Area parks. Located directly off US Highway 19, the park is commonly referred to as one of the best places in the state to view indigenous wildlife up-close. One of the most popular sites to see is the endangered West Indian Manatees, many of which still live in their natural environment.

Table 2.15 Florida State Parks within the US Highway 19 Corridor Study Area

Florida State Parks	Visitors
Crystal River Archeological State Park	16,644
Crystal River Preserve State Park	193,828
Ellie Schiller Homosassa Wildlife State Park	291,521
Fort Cooper State Park	28,049
Yulee Sugar Mill Ruins Historic State Park	30,120

Source: Florida State Parks Website, 2013

2.5.1.3 Other Parks and Wildlife Refuges

The county is home to numerous other nature preserves, parks and wildlife refuges. These natural attractions include hiking trails, bicycling opportunities with paved and unpaved trails, bird watching trails connected to the Great Florida Birding Trail as well as opportunities for boating and fishing. Along with the five Florida State Parks, these other parks contribute to the corridor's nickname of the "Nature Coast" by providing residents and visitors with the ability to take advantage of the benefits found in the natural environment. These locations can be seen in **Figure 4.5** (on Page 119)**:**

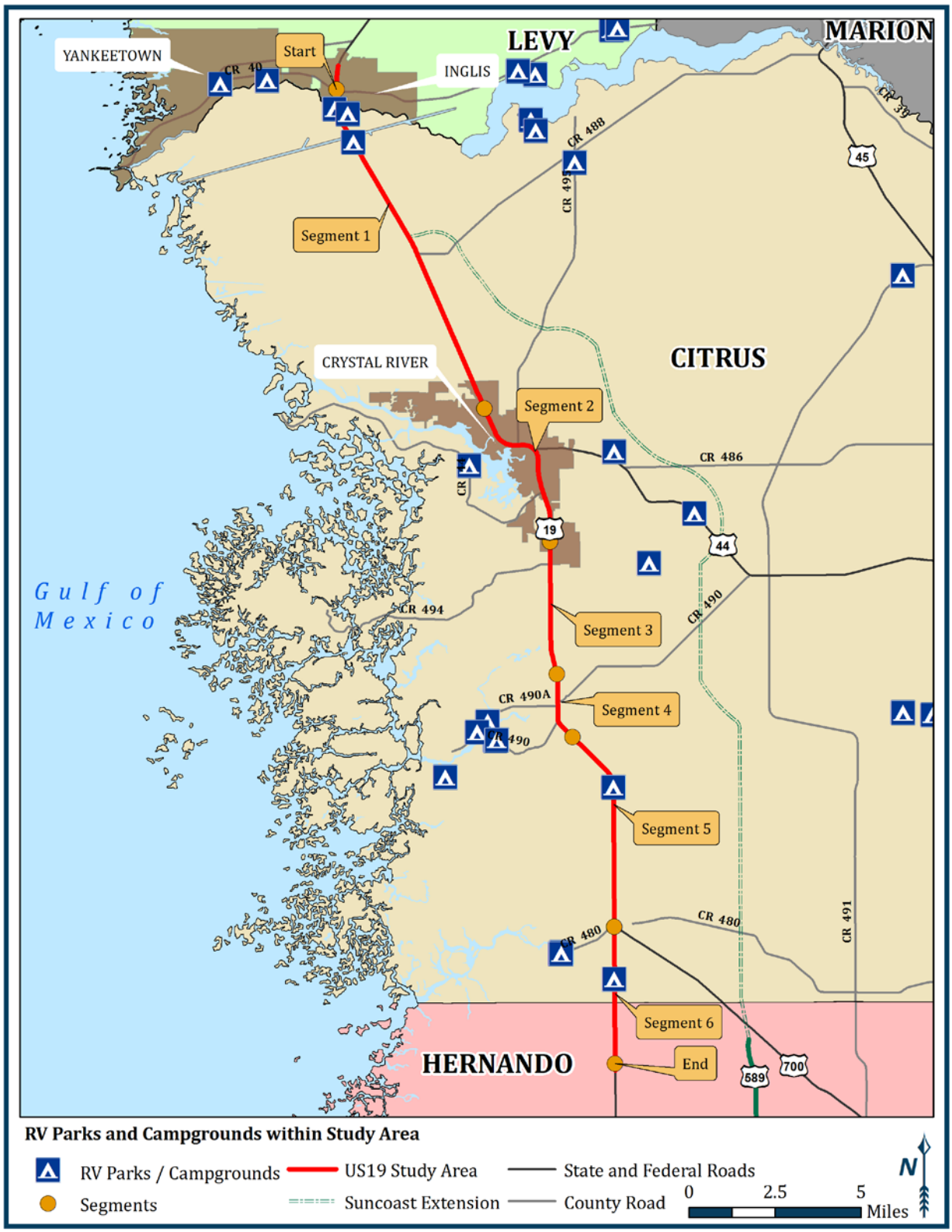
- Upper Coastal Mitigation Bank
- Yankee Town Conservation Area
- Chassahowitzka River and Coastal Swamps
- Withlacoochee State Forest
- Crystal River National Wildlife Refuge
- St. Martins Marsh Aquatic Preserve
- Three Sisters Springs

2.5.1.4 Campgrounds / Recreational Vehicle Parks

Campgrounds and Recreational Vehicle (RV) parks is one of the largest visitor related facilities within the Study Area. Campgrounds provide visitors along the Study Area the opportunity to experience the natural amenities of the region. Most of the camping facilities provide visitors the opportunities for tent camping as well as trailer and RV camping. Along the Study Area there are nearly as many campgrounds as there are hotels and motels. **Figure 2.7** illustrates the numerous sites set within a five mile radius of the Study Area. As can be clearly seen, camping along the corridor has a large and significant presence. The majority of RV Parks and campgrounds are located adjacent to and near the various state parks and most use US Highway 19 as the main access to the campgrounds.

- Citrus County- There are 30 campgrounds located in Citrus County and 25 of these are located within five miles of corridor Study Area.
- Hernando County- There are 20 campgrounds located within Hernando County.
- Levy County- There are 19 campgrounds located in Levy County.

Figure 2.7 RV Parks/Campgrounds Located within Five Miles of the Study Area



Source: Florida Geographic Data Library, 2013

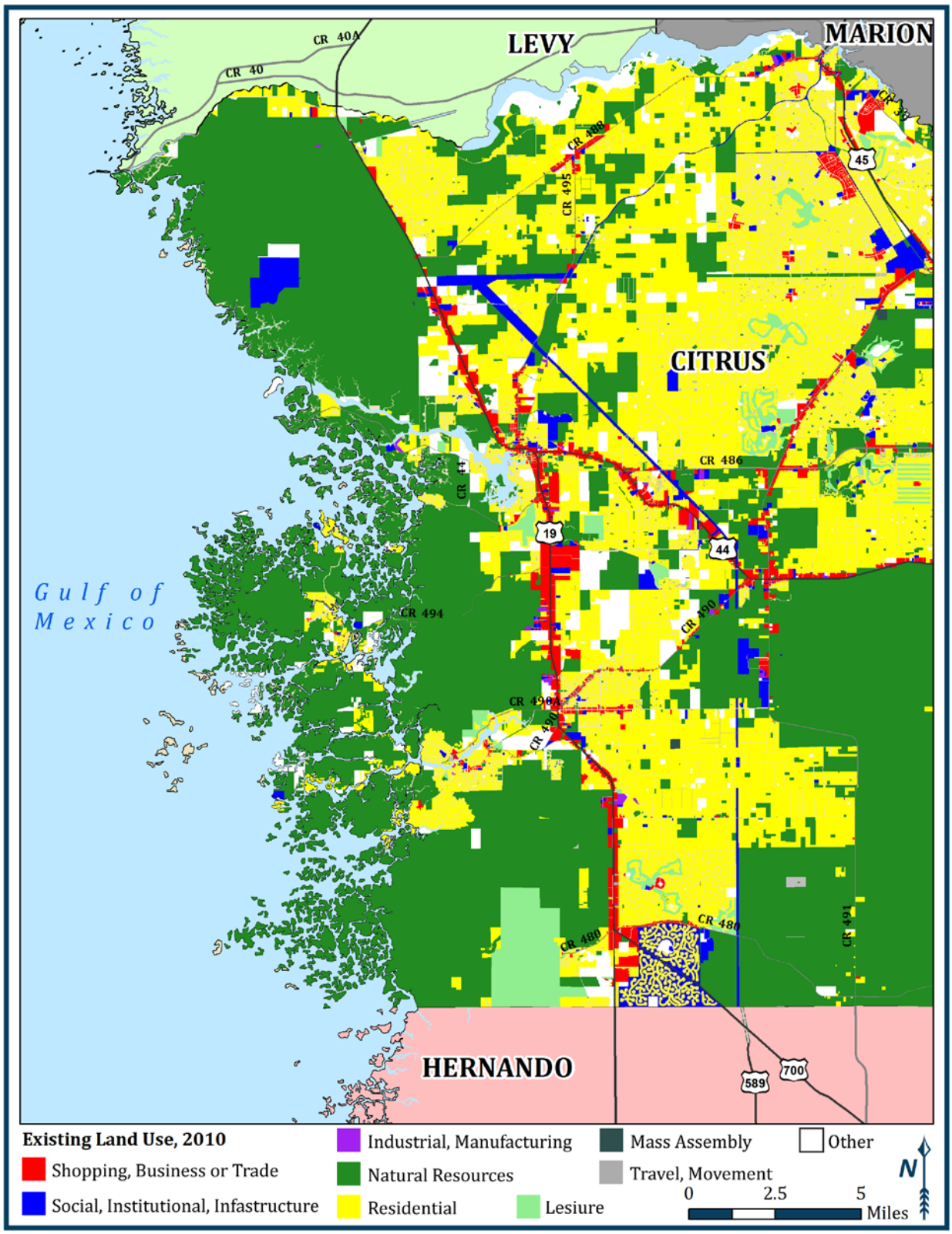
2.5.2 Seasonal Populations

Another significant economic driver of both Florida's economy, as well as the Study Area is seasonal residents. Citrus County estimates that there are around 16,000 seasonal residents who do not claim full time permanent residency (Citrus County 2012). The estimated figure does not include other residents who claim their primary homestead in Florida for tax purposes yet still spend a significant amount of time elsewhere. These residents come to the region each winter in search of warm weather and an escape from their primary homes elsewhere. The influx of additional residents begins during October and lasts until March (University of South Florida, 2013). Seasonal residents benefit from the comfortable local weather, the area's natural beauty and a lower than average cost of living. The arrival of these seasonal residents benefits the region and the Study Area, as their arrival boosts the service and property rental industries. The influx of seasonal residents and retirees is becoming even more significant for the area, and their population growth is projected to continue over the next thirty years. Currently thirty-one percent of the population of Citrus County is sixty-five years of age or older. According to the 2011 American Community Survey, out of the 17,672 vacant properties in Citrus County, nearly 9,518 are in the category of Seasonal, Recreational or Occasional Use. These high numbers show that seasonal vacancies make up nearly fifty-four percent of all vacant properties, with most of vacant properties used by seasonal residents and tourists.

2.6 General and Future Land Use along the US Highway 19 Corridor

The predominant land use adjacent to the Study Area near Crystal River and Homosassa Springs is commercial development. On the east side of US Highway 19, many of the land uses behind the commercial areas are currently being used for residential and open space land uses. Much of the land west of US Highway 19 is predominantly conservation, with limitations on development due to environmentally sensitive lands and the presence of a 100 year floodplain. **Figure 2.8**, the Existing Land Use Map indicates the commercial land uses (red), surrounding residential (yellow), and environmental/conservation land (green). As seen in the map, commercial uses abut much of US Highway 19, while residential uses tend to be east of the roadway and environmental/conservation land predominantly to the west.

Figure 2.8 Generalized Existing Land Use

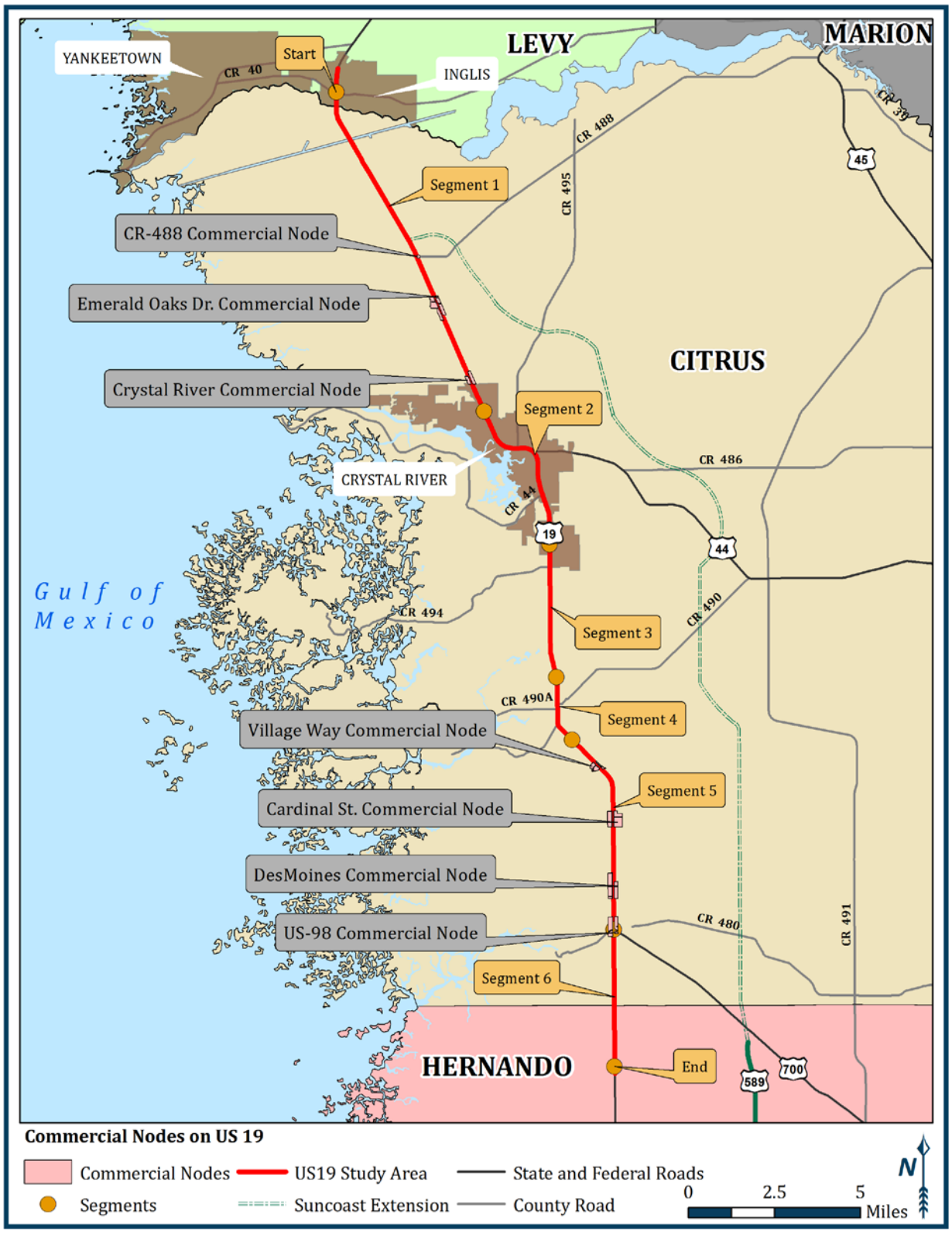


Source: Withlacoochee Regional Planning Council, 2010

Much of the commercial land use within Citrus County is generally described as "strip" development, where commercial uses are distributed along arterials and collector roadways (Citrus County Comprehensive Plan, 2006). US Highway 19 is one of the major roadways within the county that sees these linear concentrations of commercial land use. The main reason for this strip development trend is due to earlier zoning policies that pursed development along major roadways. Commercial strip developments create frequent crossing and turning movements generating more traffic conflict points, causing congestion and a reduced level of safety for through traffic. The 2006 Citrus County Comprehensive Plan uses US Highway 19 as an example of this issue: "Intended as a major arterial for through traffic, most lots have access directly onto the highway. As traffic volumes increase, turning movements will become more hazardous and will further reduce the Level of Service on this major roadway"(Citrus County 2006).

Citrus County expects development to continue to grow along major roadways due to high traffic volumes and desired visibility for businesses (Citrus County 2006). Current planning practices within the county advocate for minimized strip developed through the implementation of seven designated commercial nodes along the Study Area, as seen in **Figure 2.9**. These nodes are "more aesthetically appealing and create a more efficient use of facilities and services" (Citrus 2006). In order for a building permit to be issued within the nodes, the permit must be verified that the development will conform to the adopted access management plan (outlined in the Access Management section of this document). The reasons for creating the nodes, as described in the Comprehensive Plan include: avoidance of environmentally sensitive lands, having access to central or regional utility services and increasing proximity between land uses.

Figure 2.9 Commercial Nodes, Citrus County 2012



Source: Citrus County Planning Department, 2013

The Citrus County Future Land Use Map (FLUM) further highlights the push towards preserving environmentally sensitive lands and creating more compact land uses. The Future Land Use map is categorized by general activities, as can be seen in **Figure 2.10**. This map indicates that most development will be focused on the east side of US Highway 19, with primarily residential and commercial activities.

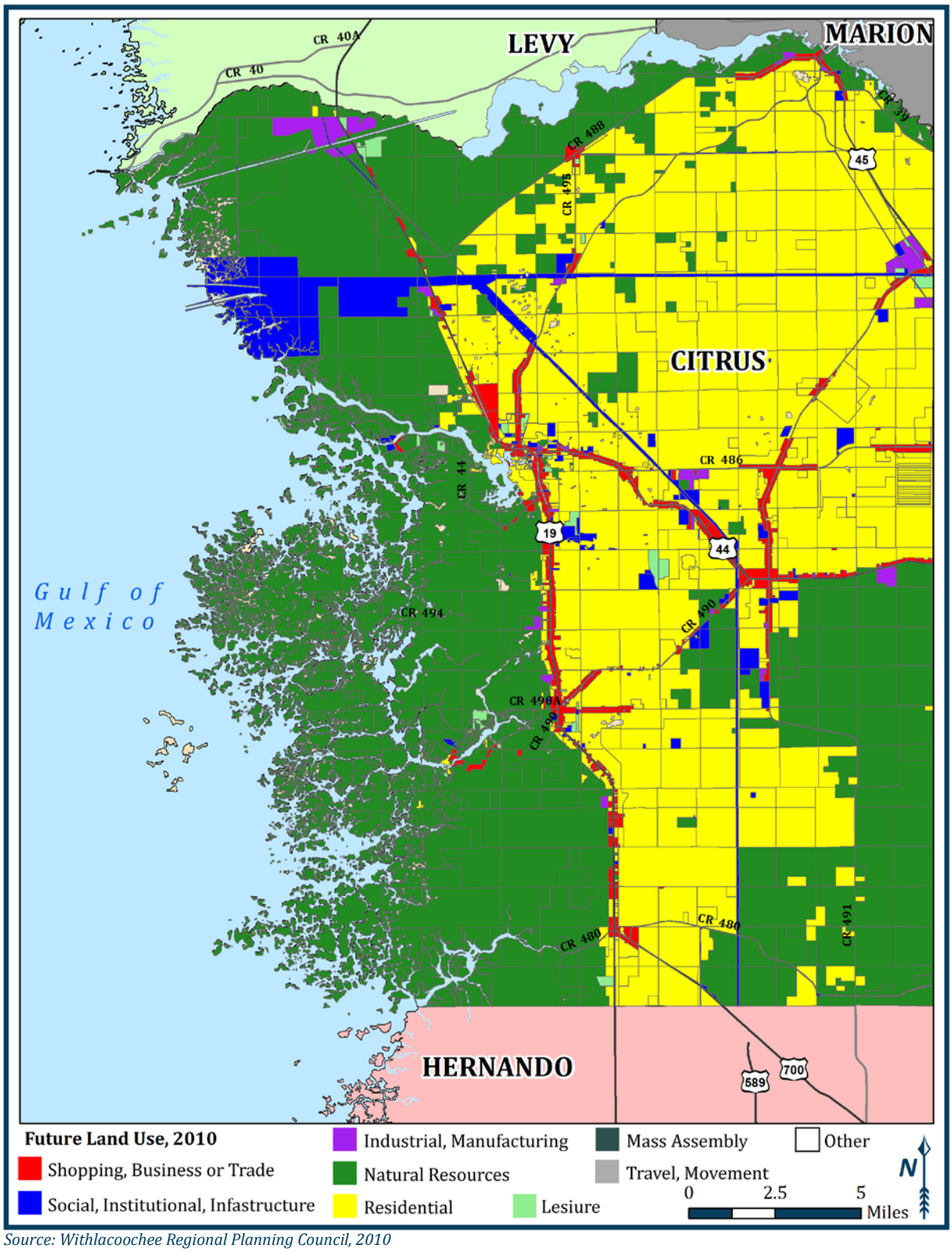
According to the Citrus County Comprehensive Plan, the county is broken into three categories: the Coastal Area which is located to the west of the Study Area, the Central Ridge in the central area, and Lake and Rivers on the east side of the county. The "Coastal Area" and "Lakes and Rivers" planning areas are not conducive to future development given the low lying area with numerous environmentally sensitive features, as is shown by the large amount of land generalized as natural resources. The Central Ridge is the most populous region, and is where future growth in Citrus County will take place due to higher elevations, making it less susceptible to flooding.

2.6.1 Developments of Regional Impacts (DRIs)

Developments of Regional Impacts (DRIs) are developments that are presumed to have a substantial effect upon the health, safety and welfare of citizens in more than one county due to the development's character, magnitude, or location (Florida Statues § 380.06, 2012). These include sites such as large-scale planned developments, airports, industrial parks, mining operations, and large entertainment facilities.

In order to understand potential land use features and community cohesions along the Study Area, existing planned improvements should be taken into consideration. For the purpose of this document, Developments of Regional Impacts (DRIs) were reviewed and identified.

Figure 2.10 Generalized Future Land Use



Source: Withlacoochee Regional Planning Council, 2010

The most recent available DRI information was obtained from the Florida Department of Economic Opportunity (DEO) for January 2013. The approved DRIs within five miles of the Study Area were identified for inclusion in the inventory of existing conditions based upon size and proximity. **Table 2.17** shows the DRIs planned near the Study Area by project name, county, development type, and size of units.

Table 2.17 Approved DRIs in the US 19 Study Area as of 2013

Project Name	County	Development Type	Unit Size
Beverly Hills	Citrus County	Residential	1,400 DU
Clearview Estates	Citrus County	Residential	4,402 DU
Beverly Hills, Phase II	Citrus County	Residential	4,565 SF
			3,140 MF
Village of Citrus Hills	Citrus County	Residential	3,907 DU
			2,490 MF
Meadowcrest	Citrus County	Residential and Industrial	700 SF
			101 AC
Rock Crusher Road	Citrus County	Residential	1,825 SF
Betz Farm	Citrus County	Residential	1,000 SF
			500 MF
Cross Florida Barge Canal	Citrus County	Port	
Forest Park Unit 3	Levy County	Residential	923 DU
Spring Run Village	Levy County	Residential and Recreation	500 DU
			162 AC

Notes:

Dwelling Units	DU
Single Family	SF
Multi Family	MF
Acres	AC

Source: Florida DEO (2012) *Status of Developments of Regional Impact as of January 2013*

2.7 Emergency Management Considerations

US Highway 19 is a significant state road emergency management consideration. The Study Area has certain aspects and facilities along it that provide unique challenges as well as opportunities. In regards to emergency management planning, the Study Area faces different security responses challenges that other corridors do not. The security of this vital route is importance since any natural or human made disaster could have an impact to the efficient and effective movement of people in the event of an emergency. This section of the document will describe current emergency management aspects for the Study Area, as well as provide an assessment of local issues and conditions, with specific emphasis on Citrus County.

The information provided in this assessment of the Study Area is based on a review of the County Comprehensive Emergency Management Plans (CEMP) for each of the three counties. A critical factor facing the region is providing adequate access points to other emergency network routes. Although the Study Area does provide access to I-75, the Florida Turnpike, and the Suncoast Parkway, the three counties along the Study Area rely heavily upon a network of supporting state and county roads to reach emergency shelters and other areas. Citrus, Hernando, and Levy County are also home to large numbers of mobile homes and recreational vehicle parks, which are particularly vulnerable to damage during disasters. In addition to these factors, a number of environmental and facility hazards have also been identified that may impact emergency and security response. The following sections will further detail the relationships between the state, regional, and county emergency plans and how these plans relate to the Study Area.

2.7.1 County Comprehensive Emergency Management

Under Chapter 9G-6 of the *Florida Administrative Code*, each county in the state is required to create and establish county specific CEMPs. The county specific plans are required by the state to be consistent and adopted in coordination with the Florida CEMP. These county specific plans enable local jurisdictions to have a predetermined operational framework, which ensures preparedness in the event of any emergency situation. The county CEMPs for the Study Area each focus on similar situations given their close proximity and similar environmental features. The emergency management plans highlight evacuation routes, procedures and other county specific considerations.

2.7.1.1 Critical Facilities along the US 19 Corridor

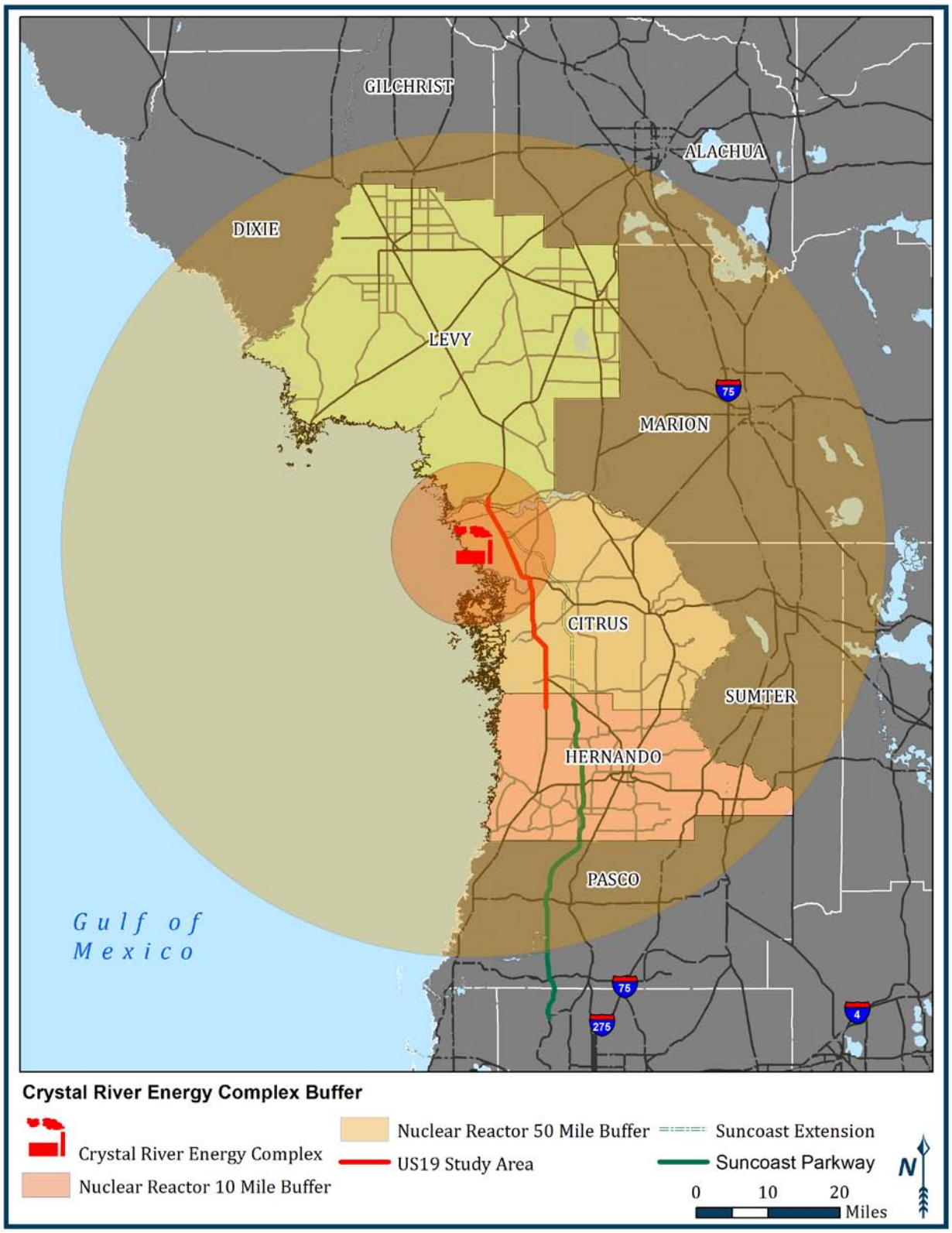
The following facilities should be taken into consideration during an emergency situation affecting the Study Area. An important note is that there are no evacuation shelters located along the Study Area. The majority of the Study Area is located within the FEMA 100 year flood zone, with risks of storm surge disruptions and potential flooding. This coastal location leads the Study Area to be extremely susceptible to flooding in the event of hurricanes and tropical storms.

Crystal River Energy Complex

The Crystal River Energy Complex is situated off US Highway 19 in Citrus County, just south of the Levy County border. The energy complex currently consists of four coal powered electrical generators as well as one nuclear reactor. The nuclear reactor has not been in operation since 2009 when structural damage was discovered. The projected cost of repairs has forced Duke Energy, the current operator of the plant, to take the nuclear reactor off line. In February 2013, Duke Energy announced the nuclear reactor will be permanently shut down.

The closing of the nuclear reactor could have a significant effect on many aspects of the Study Area and the region as a whole. From an emergency management standpoint the reactor's closing will decrease the potential risks for contamination or safety issues. While the reactor is decommissioned, the plant is required by the United States Nuclear Regulatory Commission (NRC) to ensure full preparedness for all potential emergencies. This requirement has led to the implementation of two emergency planning zones surrounding the plant, as shown in **Figure 2.11** the first is a plan for the plume exposure extending ten miles around the plant itself.

Figure 2.11 Crystal River Emergency Planning Zones for the Nuclear Reactor



Source: US Nuclear Regulatory Commission, 2013

According to the NRC, the zones' "primary concern is the exposure of the public to and the inhalation of, airborne radioactive contamination." The second required emergency planning zone is larger and covers a radius of 50 miles around the nuclear plant; this concern regards the "ingestion of food and liquid that is contaminated by radioactivity" (NRC 2013). These zones are important to understand, because the Study Area lies within these emergency planning zones. Both Levy and Citrus County have established a set of plans for the evacuation of residents and visitors in the event of any catastrophe such as a terrorist attack or problems with the nuclear reactor. As of 2010, approximately 20,695 people lived within the ten mile radius of the plant, and over 1,046,741 people live within a fifty mile radius of the plant. Emergency sirens are located throughout a ten mile area surrounding the nuclear power plant to alert residents of an emergency.

In order to comply with federal regulations, a CEMP has been created for the Crystal River Energy Complex. The plan consists of coordination between federal, state and county agencies, such as law enforcement and other emergency services. Evacuation routes have been established and information is provided to residents who live within the different emergency zones.

Crystal River Army National Guard

Located directly off US Highway 19 in Crystal River, this facility is one of the state's 54 National Guard organizations. National Guard units, such as the one in Crystal River report directly to the Governor when they are not under federal direction. Under state law the guard units are responsible for the protection of life, property, and preservation of peace, order and public safety. The guard participates in important emergency relief support roles in the event of emergencies and disasters such as flooding, forest fires, search and rescue. The National Guard is responsible for assisting the entire state, however having a guard unit located in Crystal River is important for the Study Area by providing increased local assistance in the event of a disaster.

Seven Rivers Regional Medical Center

Another important facility along the Study Area is the Seven Rivers Regional Medical Center, located just north of Crystal River and situated directly off of US Highway 19. The medical facility serves the entire region, including Levy, Citrus and parts of Marion Counties with 128 beds. The medical center offers a wide array of medical services including inpatient, outpatient and emergency room services. Access to this facility is crucial to the well being of residents throughout the Study Area. The Seven Rivers Regional Medical Center has agreements in place with the operators of the nuclear power plant in order to provide assistance and monitoring in the event of an emergency.

Mobile Homes / Manufactured Homes

Mobile Homes make up a significant portion of the housing stock in all three counties along the Study Area. According to American Community Survey data, in Citrus County there are 19,691 mobile homes, making up 25.38 percent of residences. In Hernando County there are 14,468 mobile homes making up 17.21 percent of the residences and in Levy County there were 9,236, making up 46.31 percent of all residences. This large presence of mobile homes is an important consideration for the Study Area; these homes are much more susceptible to wind and storm damage than a site built home and require evacuation in the event of most natural disasters. The potential increased number of evacuees will cause greater stress on roadways, and in the Study Area many of these mobile home parks are residences for the large elderly populations, which requires other important considerations.

2.7.2 Other Future Considerations

The Study Area is under the jurisdiction of multiple state, county and city law enforcement agencies. The Florida Highway Patrol patrols the entire corridor, and the Levy County, Citrus County and Hernando County Sheriff's Departments serve different areas. US Highway 19 is a significant transportation route for local and state law enforcement and other emergency service vehicles. The route provides direct north / south access for the Study Area counties and provides paved access to medical facilities. The Study Area also serves an important role as a significant north / south emergency management evacuation route for the State of

Florida. The Division of Emergency Management's State Emergency Response Team has identified the highway as an evacuation route that would serve not just the counties along the Study Area, but also the entire state. The Study Area serves an important function in recovery operations after any type of disaster.

The Study Area is home to high numbers of elderly residents. This results in special considerations in the event of any emergency, these residents could require special assistance and needs in the event of an evacuation. Significant seasonal and tourist populations at different times of the years create the need for emergency management strategies that take these variations into consideration especially during the winter months when large numbers of residents arrive from other areas. The presence of a nuclear reactor along the Study Area presents potentially hazardous and dangerous man made emergencies. Although the nuclear reactor is in the process of being permanently shut down, emergency planning and preparation must be taken into consideration. The Study Area also faces potential hazards due to the close proximity to forests, which presents a risk of forest fires, and hazards from indigenous animals crossing the roadway.

2.8 Summary of Findings

Over the next several decades the population within the Study Area will continue to grow leading to an increased use of the Study Area for local traffic as well as greater congestion levels. The counties along the Study Area are increasingly becoming a destination for retirees, single families, and seasonal residents. In addition, the share of the population that is elderly (65 and older) will increase, reaching a projected 40 percent in 2030. This changing population is creating new opportunities for commercial activity, service industries, and emerging employment fields within the Study Area, which will also contribute to increased usage of the US Highway 19.

To date, most development has occurred east of the Study Area, in the "Central Ridge" planning area of Citrus County. This growth is in part due to the presence of environmentally sensitive lands to the west of the roadway. The commercial development along the Study Area takes the form of strip development accessible only by automobile, which decreases the efficiency and safety of the Study Area. The large number of access points creates a challenging driving environment, and inhibits the flow of traffic even during off-peak hours. Citrus

County is working to address these inefficiencies with the development of Commercial Nodes.

Major employment sectors along the Study Area are changing and beginning to reflect conditions similar to the rest of Florida. Industries within the region are becoming less agriculturally driven and are now shifting to healthcare and service oriented fields. The Study Area has a growing tourism industry, and is taking advantage of its location along the "Nature Coast" by offering unique opportunities for visitors to experience the outdoors. Citrus County is also looking to increase its economic competitiveness with the creation of two Enterprise Zones, which are adjacent to the Study Area, and the planned development of Port Citrus in the northern portion of the Study Area.

Moving forward, US Highway 19 will continue to serve as the primary north-south transportation route for local traffic within the Study Area, even after the planned expansion of the Suncoast Parkway. Although the Suncoast Parkway will likely push much of the regional freight and traffic away from US Highway 19, the corridor will remain an important emergency evacuation route for the region. As detailed in this report, the combination of continued population growth, economic growth from the development of Port Citrus, increasing tourism, and a mix of land uses point to needs that must be addressed to successfully serve a mix of local and regional users in the decades to come.

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Chapter 3 - Transportation System Characteristics

The mobility and traffic elements of the Study Area are generally referred to as transportation characteristics. The identification of transportation system characteristics provides essential information about existing traffic needs and demands. As seen in the Introduction of this document, the Study Area contains a variety of traffic and mobility elements. The Study Area includes both transitioning and urbanizing areas, such as the City of Crystal River and the unincorporated area of Homosassa Springs. However, the majority of the other areas along the northern and southern portion of the Study Area are largely rural with sporadic commercial development.

These characteristics play a vital role in the varied transportation conditions observed along the Study Area including: speed limits, number of lanes, traffic signals, and placement of intersections, and existence of sidewalks and bike lanes. The current conditions of these characteristics help to identify the variety of needs for the Study Area. The current conditions and traffic operations along the roadway are important and considerations should be made to enhance transportation safety and efficiency along the Study Area.

Additionally, US Highway 19 is designated as a Strategic Intermodal System (SIS) facility by Florida Department of Transportation (FDOT) and provides connection to a variety of other SIS facilities along the western coast of the State of Florida. The subsections within this chapter provide further detail on the various mobility and traffic related conditions.

3.1 Strategic Intermodal System (SIS) Facilities

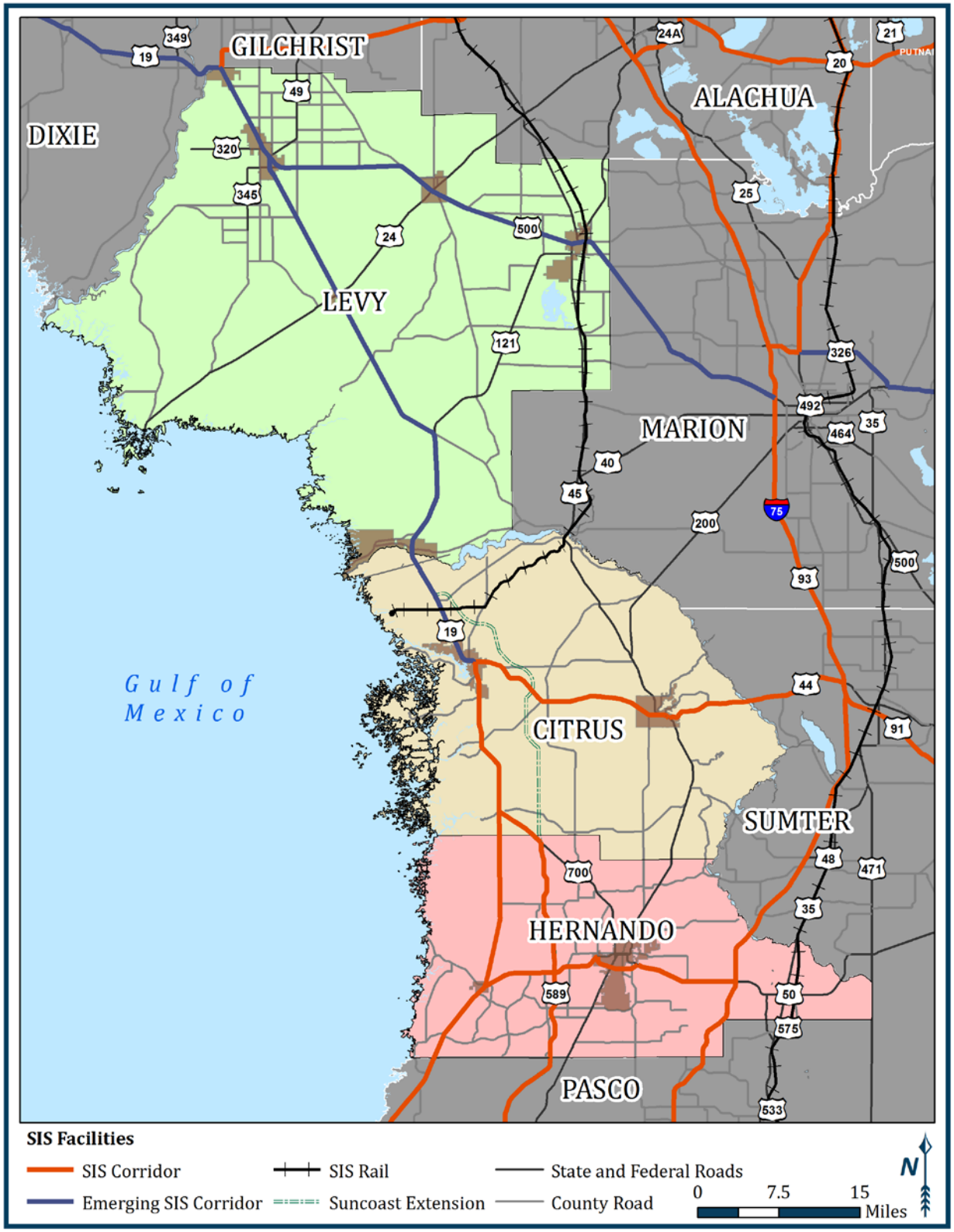
The Strategic Intermodal System is a statewide network of priority transportation facilities that cover the overwhelming majority of commercial movement within the state, encompassing commercial airports, seaports, freight rail terminals, rail corridors, waterways, and highways. Facilities included in the SIS network are eligible for state transportation funding, regardless of mode or ownership, with state funding covering varying shares of the project costs (Florida Strategic Intermodal System Plan, 2010). The purpose of the SIS is to enhance Florida's economic competitiveness and quality of life by ensuring efficient and effective transportation of both people and freight on Florida's regional, state, national and global scale.

US Highway 19 is classified as a Strategic Intermodal System from Tampa Bay heading north until it intersects SR-44 in Crystal River. This classification designates roads with "statewide or interregional significance that meet high levels of people and goods movement, generally supporting the major flows of interregional, interstate, and international trips" (Florida Department of Transportation, 2010). The remaining segments heading northbound are classified as emerging SIS corridors.

Figure 3.1 illustrates US Highway 19 and the surrounding SIS facilities within the region. SR-44 provides an east/west connection between US Highway 19 and Interstate 75. US Highway 19 also connects with US Highway 98 in southern Citrus County, near the Suncoast Parkway, providing passenger and freight movement connectivity into the Tampa Bay area.

An emerging SIS facility within the Study Area is the Florida Northern Railroad, which runs south through Marion County, heads westward once entering Citrus County near the northern border, and eventually ends near the Crystal River Energy Complex. The major activity of this facility in the Citrus County area is for transporting coal for use in the power plant.

Figure 3.1 Strategic Intermodal System (SIS) Facilities within the Region



Source: Florida Transportation Information, 2011 and Florida Department of Transportation, 2013

3.2 Transportation Network Characteristics

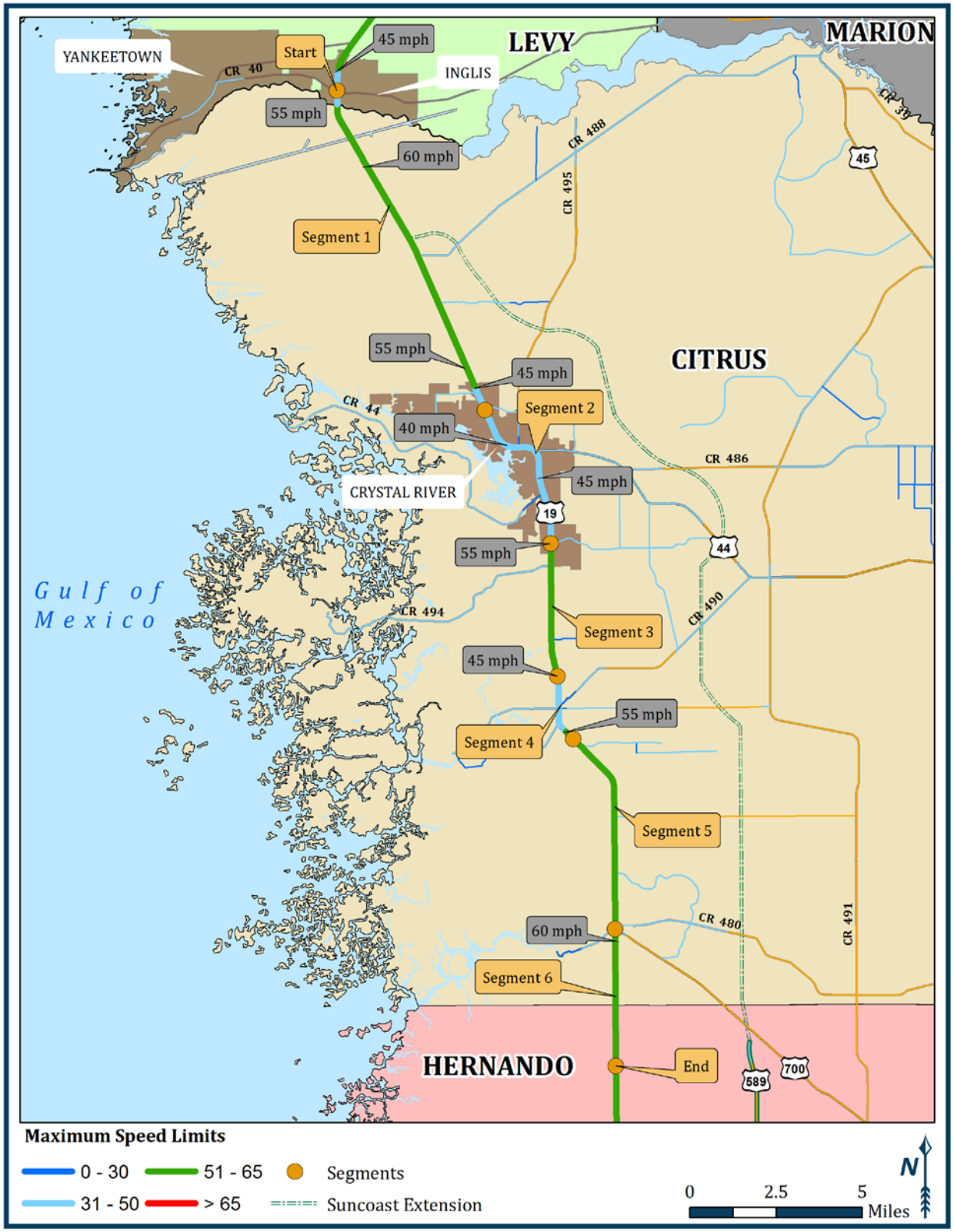
The transportation network addresses different existing transportation characteristics along the Study Area. The following section provides an overview into the existing speed limits, number of lanes, traffic signals, and major intersections along the Study Area. These four measures are included as subsections in this section and help to provide a better understanding of the transportation network characteristics along the Study Area.

3.2.1 Existing Speed Limits

The existing posted speed limits along the Study Area range from 40 mph to 60 mph. **Figure 3.2** illustrates the posted speed limits using color coded line segments and it also shows locations for speed limit changes along the Study Area.

Speed limits are posted in two different ranges within the Study Area as: 31-50 mph and 51-65 mph. As shown in **Figure 3.2**, the corridor begins with a speed limit of 45 mph in southern Levy County. In the northern portion of Citrus County, the posted speed increases to a maximum of 60 mph, this is maintained until reaching the city limits of Crystal River. Speed limits within Crystal River decrease to 40 mph and 45 mph. As you leave Crystal River going south towards Homosassa Springs, the speed limits increases once again and reaches 55 mph. Within the Homosassa Springs area, speed limits reduce again to 45 mph; leaving Homosassa Springs for the remainder of the Study Area the speed limits increase to 60 mph.

Figure 3.2 Existing Speed Limits in the US Highway 19 Corridor



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

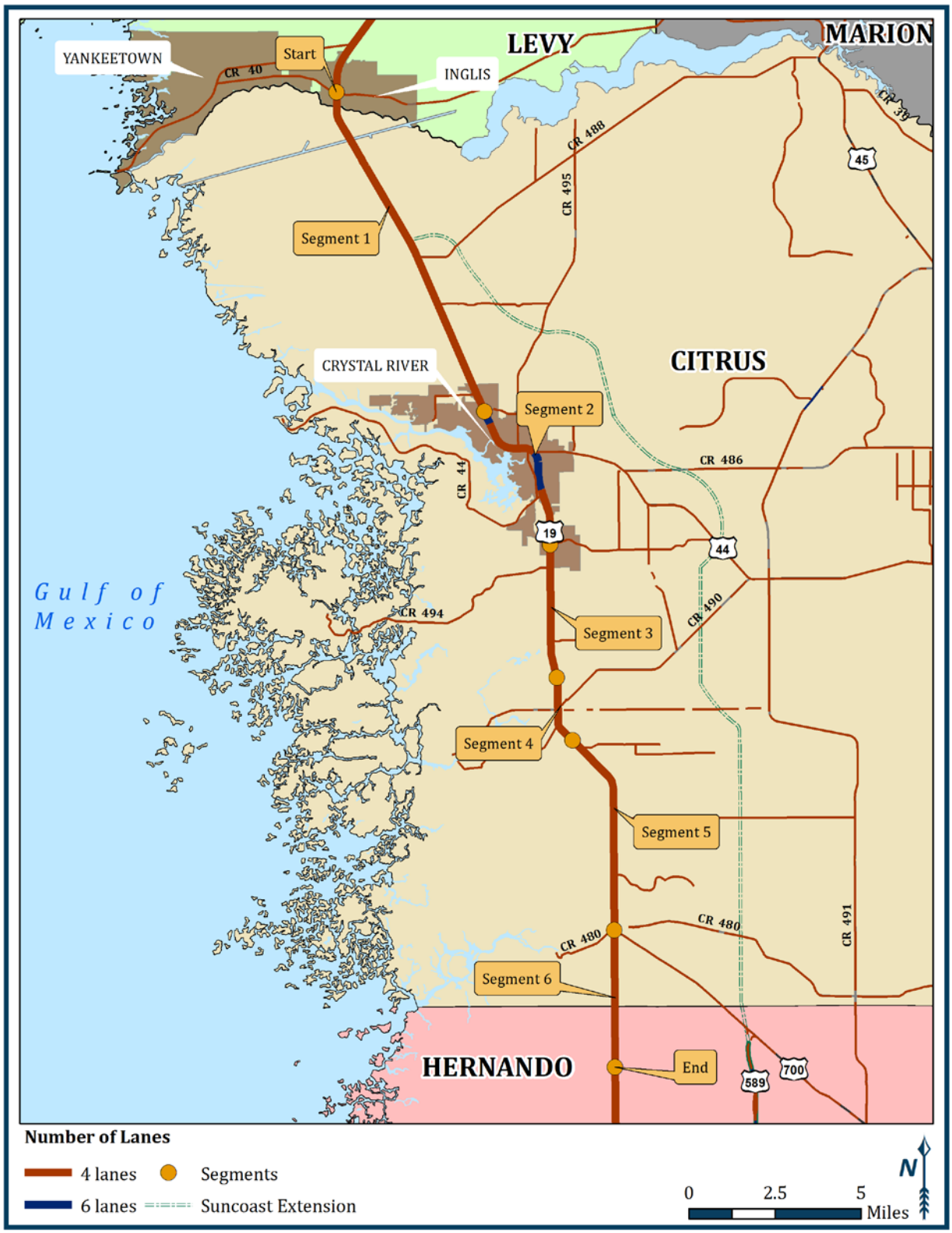
3.2.2 Existing Number of Lanes

The existing number of through lanes along the Study Area is illustrated in **Figure 3.3**. The different lane sections of the Study Area are shown using different colored line segments for each lane category. The majority of the Study Area consists of a four lane divided highway. Travelling southbound in Citrus County, the number of lanes fluctuates between four and six lanes between NE 5th Street and SE 8th Avenue. This section is within Crystal River, which is the most urbanized area along the Study Area. The remainder of the Study Area maintains a four-lane configuration until the end, at Seville Parkway in northern Hernando County.

3.2.3 Existing Median Type

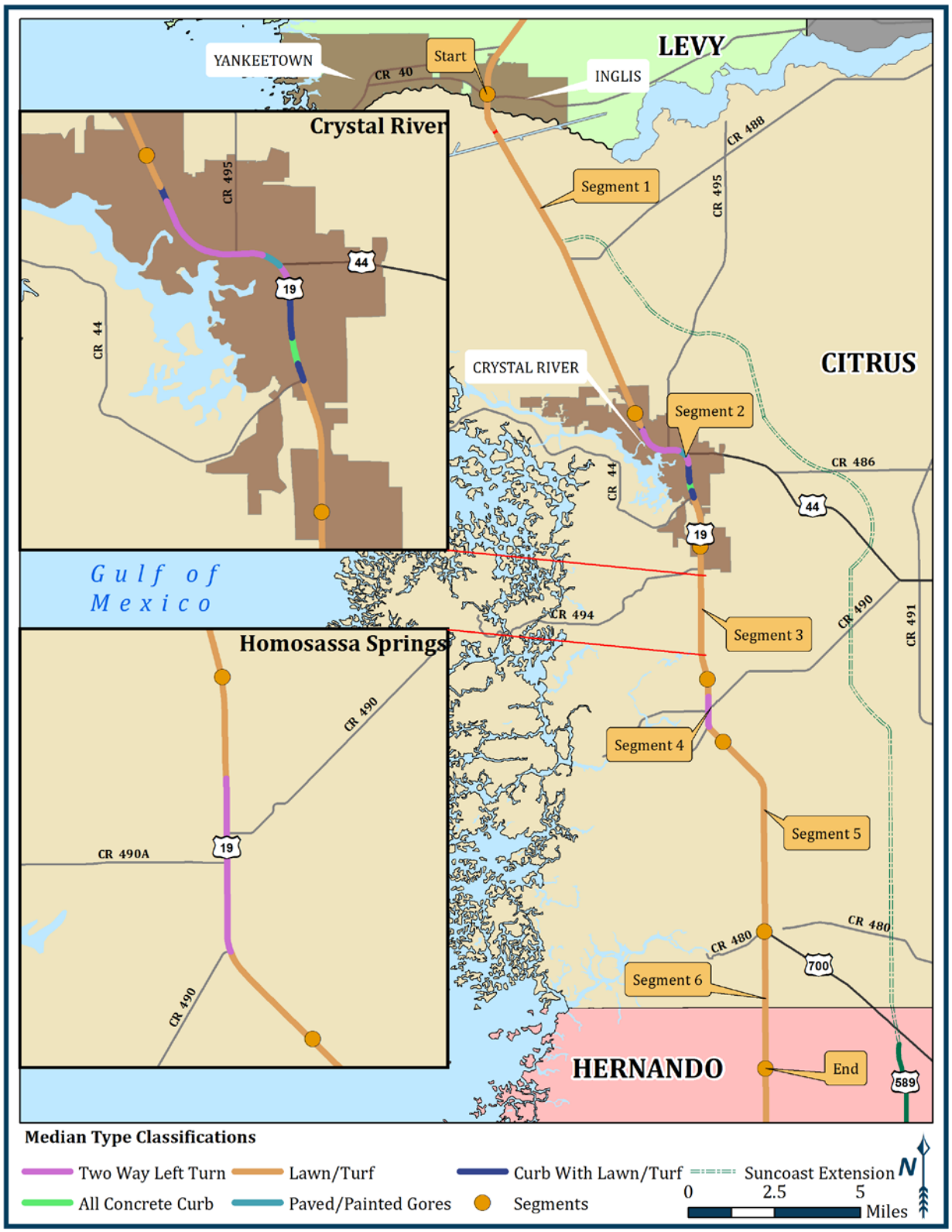
The Study Area exhibits multiple median types throughout its entirety. **Figure 3.4** displays the different median types observed throughout the Study Area. The figure provides detailed images of the Crystal River and Homosassa Springs areas. Additionally, **Figure 3.4** shows that the predominant median type throughout the Study Area is classified as being divided by a grassy median. The zoomed in sections of Crystal River and Homosassa Springs show that in the urban areas of the corridor two-way left turn lanes are the most predominant median type. This provides increased access to local businesses and commercial nodes along the Study Area. The figure also shows that Crystal River has some concrete curb and curb with lawn turf median types.

Figure 3.3 Existing Number of Lanes in the US Highway 19 Corridor



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

Figure 3.4 Existing Median Types for the US Highway 19 Corridor



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

3.2.4 Traffic Signals and Major Intersections

The existing locations of traffic signals along the Study Area are displayed in **Figure 3.5**. The figure shows that the largest concentration of traffic signals is within the two urban areas of Crystal River and Homosassa Springs, and the majority of the flashing signals are in the rural areas. **Table 3.1** summarizes the major intersections along the Study Area using the segments outlined in the introduction. The table identifies the connecting roads that the major intersections provide access to along the Study Area. These intersections are located in Crystal River and Homosassa Springs, connecting State Road 44 and County Road 490 towards east. Additionally, moving further south in Citrus County US Highway 19 provides a connection to US Highway 98, which connects the corridor to Suncoast Parkway.

Table 3.1 Existing Intersections with Traffic Signals along the US Highway 19 Corridor

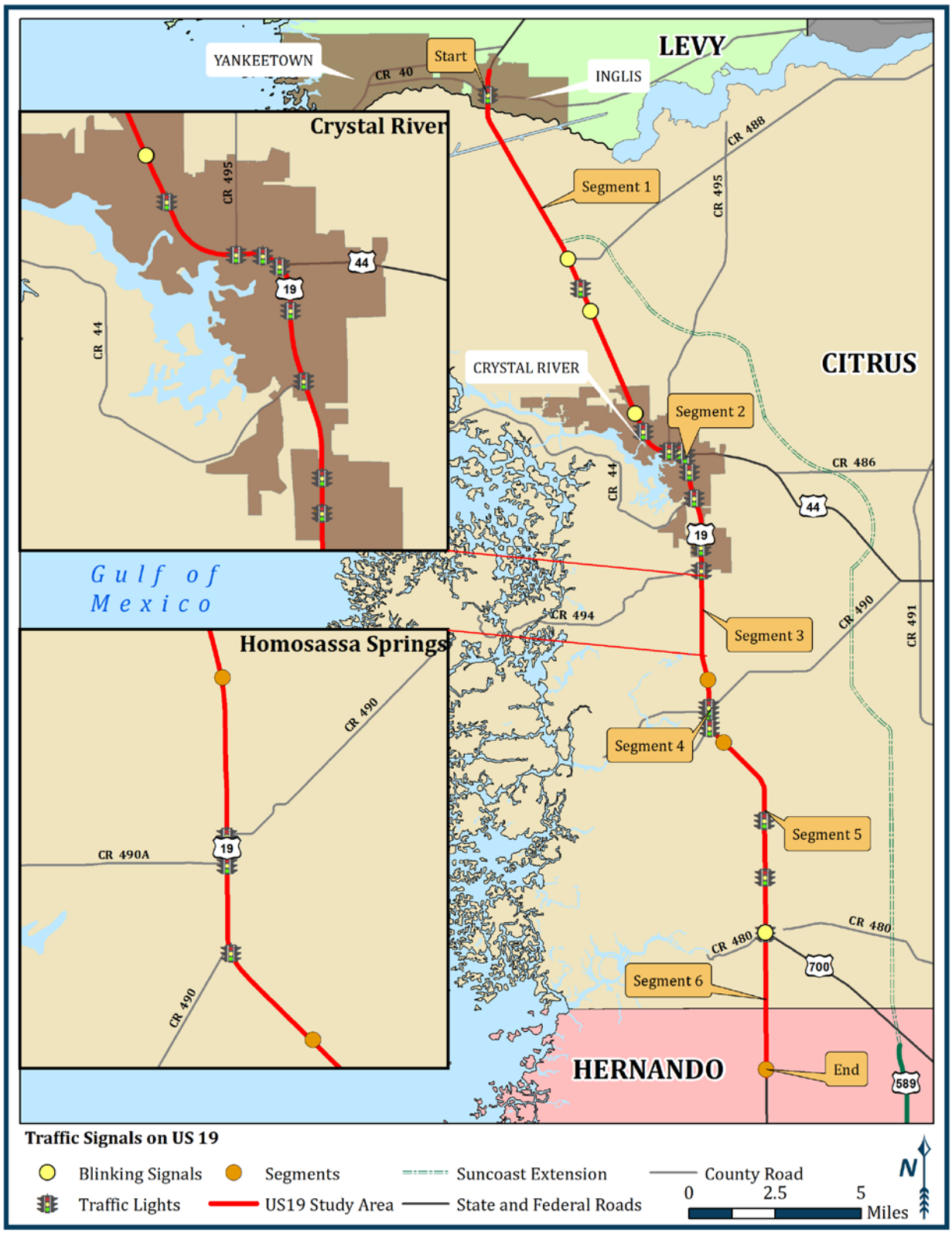
Segment	Number of Signals	Connecting Roads
1	1	CR 40
1	0	CR 488
2	3	SR 44, CR 495
2	1	CR 44
3	2	CR 494
4	2	CR 490
5 and 6	1	CR 480, SR 700

Source: Florida Department of Transportation, Transportation Statistics Office, 2013

3.2.5 Bridges

The Study Area along US Highway 19 has two bridges. The first is a four-lane bridge, which goes over the Cross Florida Barge Canal and was recently reconstructed. The second bridge in the Study Area is not as large, and bisects the Withlacoochee River serving as the border between Levy County and Citrus County. The two bridges within the Study Area are well maintained. The security and the safety of these bridges are vital to the Study Area and any damage or inaccessibility can cause economic harm to the region.

Figure 3.5 Existing Traffic Signals in the US Highway 19 Corridor



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

3.3 Bicycle/Pedestrian-Oriented Characteristics

This section focuses particularly on the transitioning and urbanizing areas along the Study Area. It addresses the existing bicycle and pedestrian-oriented characteristics present throughout the city limits of Crystal River and unincorporated areas of Homosassa Springs. Having a strong understanding of the current pedestrian-oriented environment along the Study Area will help to assess the future needs for sidewalks and bicycle lanes in these two areas.

3.3.1 Accessibility to Sidewalks

The availability of sidewalks was analyzed using segments along the Study Area. **Table 3.2** shows the length, range and directions of the existing sidewalks present in each segment. The first sidewalk along the study area can be found at the end of the first segment ranging from W Ashburn Lane to NW 19th Street.

As the Study Area reaches Crystal River, the second segment provides the largest connection of sidewalks. It extends from the Crystal River Mall to just north of the Crystal River Airport where Segment 2 ends. This segment of the corridor not only provides the most connected sidewalk network but it includes sidewalks in both northbound and southbound directions. The last segment of sidewalk starts at W. Homosassa Trail continuing for half a mile until W. Yulee Drive. The total length of the sidewalks is approximately five miles within the major urban areas. The City of Crystal River has better integration of sidewalks than the other segments of the Study Area.

Table 3.2 Sidewalk Analysis by Transportation-Land Use Segments

Segment	Length (miles)	From	To	Direction
1	0.73	W Ashburn Lane	NW 19th Street	Northbound
2	2.96	NW 19th Street	SE 8th Avenue	Both
2	0.58	SE 8th Avenue	Godfray Street	Northbound
3	0.51	W Homosassa Trail	W Yulee Drive	Both
4, 5, and 6	No Sidewalks			

Source: Google Earth and Site Observations

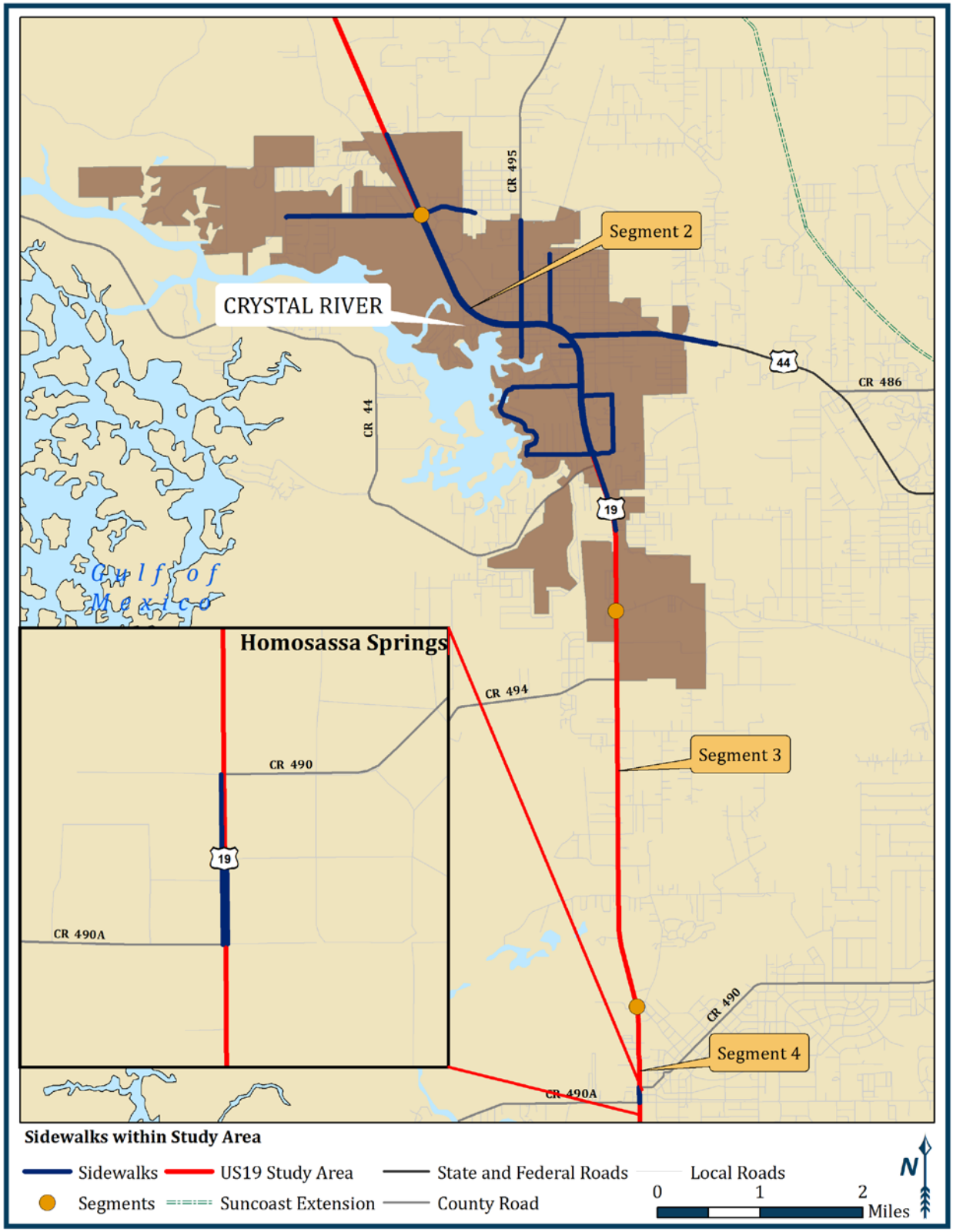
Figure 3.6 illustrates the sidewalk network present within the city limits of Crystal River. It does not cover local roads directly connected to the Study Area. However, it does show that the central area of Crystal River has well integrated sidewalks along the Study Area and the intersecting roads. The figure also effectively identifies areas of deficiency within Crystal River and Homosassa Springs area.

3.3.2 Accessibility to Bicycle Lanes

Bicycle lanes are only present within the city limits of Crystal River. The urbanizing area of Crystal River and more specifically Citrus Avenue show the most pedestrian friendly environment along the Study Area. The accessibility to sidewalks and bicycle lanes is well connected throughout most of the city limits. Bicycle lanes do not exist in any other segments of the Study Area and therefore should place an increased emphasis on pedestrian friendly environment in the future.

Furthermore, other portions of Citrus County benefit from the Rails to Trails program which is a part of the Florida Department of Environment Protection's Division of Recreation and Parks initiative to convert former railroad lines into usable trails. These trails are more prevalent in the City of Inverness, but could be extended into other areas of Citrus County. The Study Area can build upon the idea to connect trails from different areas and provide additional bike lanes throughout growing urbanizing areas in order to create interconnected trails along the Study Area.

Figure 3.6 Sidewalk Network within Crystal River and Homosassa Springs



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

3.4 Access Management

Access management is the planning and managing of the location, design, and operation of driveways, median openings, interchanges, and street connections (FDOT Access Management Brochure). This planning ensures that roads properly balance access (connecting of roads to specific properties) and mobility (movement of people and goals efficiently). The Access Management standards developed by FDOT are based upon research and experience in order to provide the optimal balance for each specific type of roadway. Without proper access management strategies in place, safety and road capacities could decline.

Chapter 14-97 of the *Florida Administrative Code* (FAC) sets forth the classification system and standards to be implemented in Access Management, which are intended to "protect the public health, safety and welfare, provide for the mobility of people and goods, and preserve the functional integrity of the State Highway System (Fla. Stat. § 14-97.001., 2009).

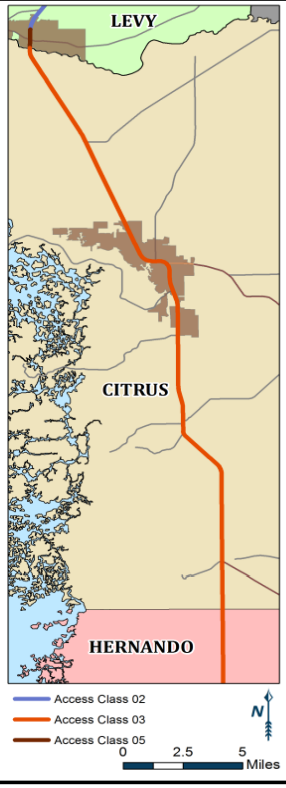
The State Highway System Access Control Classification System and Access Management Standards classify facilities into 7 tiers; with management standards accompanying each tier. Access Class 1 consists of limited access facilities that do not provide direct property connections, and provide high speed/high volume traffic movements to serve greater distance travel needs, such as interstate, interregional, intercity, and some intra-city travel (Fla. Stat. § 14-97.003-2a.,2009).

Classes 2 through 7 consist of controlled access facilities arranged based on development, going from most restrictive (Access Class 2) to least restrictive (Access Class 7). Generally, roadways serving areas without extensive development are classified in the upper portion (Access Class 2, 3, and 4). Areas with existing moderate to extensive development have roadways generally classified in the lower portion (Access Class 5, 6, and 7). The access management standards for each class are further determined by the posted speed limit.

The majority of the Study Area, encompassing the entirety of Citrus County and Hernando Counties is within Access Class 3, as seen in **Figure 3.7**. Access Class 3 is defined as a controlled access facility where direct access to abutting land is controlled to maximize the operation of the through traffic movement, and adjacent land is generally not extensively developed nor has the probability of experiencing significant land use changes. These roadways are distinguished by existing or planned restrictive medians.

A small portion of the Study Area in southern Levy County, under a mile in length, is categorized within Access Class 5. These roadways are controlled access facilities where adjacent land has been extensively developed and where the probability of major land use change is not high. They are characterized by existing or planned restrictive medians. This encompasses the upper northern portion of the Study Area upon entering Levy County through the town of Inglis. Once outside the Study Area in the north, the roadway changes into Access Class 2.

Figure 3.7 Access Classification Definitions for the US Highway 19 Access Classes

Class	Access Classification Definitions	Corridor Map by Class
2	Highly controlled access facilities distinguished by the ability to serve high speed and high volume traffic over long distances in a safe and efficient manner. This access class is further distinguished by a highly controlled limited number of connections, median openings, and infrequent traffic signals. Segments of the SHS having this classification usually have access restrictions supported by local ordinances and agreements with the Department, and are generally supported by existing or planned service roads.	
3	Direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and/or the probability of significant land use change exists. These roadways are distinguished by existing or planned restrictive medians	
5	Adjacent land has been extensively developed and where the probability of major land use change is not high. These roadways are distinguished by existing or planned restrictive medians	

Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

3.4.1 Local Jurisdiction Access Management

Chapter 7 of the *Citrus County Land Development Code* provides the standards for the implementation of access management at the local level. The standards mirror FDOT standards, except for using a 50 mph separation instead of 45 mph for criteria (see **Table 3.3**).

Table 3.3 Citrus County Access Classification and Spacing Requirements

Access Class	Median	Median Opening Spacing Standard (Feet)		Signal Spacing Standard (feet)	Connection Spacing Standard (feet)	
		Full	Directional		Posted Speed Greater than 45 MPH	Posted Speed of 45 MPH or Less
2	Restrictive	2,640	1,320	2,640	1,320	660
3	Restrictive	2,640	1,320	2,640	660	440
4	Non-Restrictive			2,640	660	440
5	Restrictive	2,640 Posted Speed Greater than 45 MPH	660	2,640 Posted Speed Greater than 45 MPH	440	245
		1,320 Posted Speed of 45 MPH or Less		1,320 Posted Speed of 45 MPH or Less		
6	Non-Restrictive			1,320	440	245
7	Both Median Types	660	330	1,320	125	125

Source: Florida Administrative Code AC 14-97.003, Table 2

All standards implemented in Chapter 7 are applicable throughout the entire length of the Study Area. These standards are in line with the purpose of the Access Class 3 classification of maximizing the operation of through traffic movement. A few relevant examples of standards are:

- Frontage or Reverse Frontage Roads: Parcels that are adjacent to or in close proximity to frontage or reverse frontage roads as depicted in the Access Plan shall provide a connection to this roadway. As a condition of development approval, a development plan must provide for the construction of the section of frontage road or reverse frontage road that provides access to US Highway 19 as identified in the Access Plan (Citrus County Land Development Code 7150-B-3).

- Commercial Nodes: The Access Plan has been developed to be consistent with and compatible to the provisions of the Citrus County Comprehensive Plan for Community, General, and Regional Commercial nodes. Full median openings depicted on the Access Plan within these nodes have been located to meet, to the greatest extent feasible and practicable consistent with sound and generally accepted engineering practices and principles (Citrus County Land Development Code 7150-B-9).

3.5 Existing Traffic Characteristics

The Existing Traffic Characteristics section provides analysis regarding traffic volumes along the Study Area. Specifically, traffic volume data demonstrated includes Average Annual Daily Traffic (AADT) and Truck Volume AADT. This section provides the traffic volume data that will be used to analyze the Existing Traffic Operations in *Section 3.6*. Together these two sections help examine current congestion levels along the Study Area and determine Level of Service (LOS) for segments of the Study Area.

3.5.1 Average Annual Daily Traffic (AADT)

The existing traffic volumes for eleven sections along the Study Area were gathered from the Florida Department of Transportation TranStat Office. The sections cover the entirety of the Study Area. **Table 3.4** summarizes the sections and provides general description for the each section.

Table 3.4 Summary of Sections and Description of Transportation Characteristics

Section	Study Area Segment	Intersection From	Intersection To	Description	Area Type	Number of Lanes
1	1	County Road 40	Citrus County Line	Inglis to end of Levy County	Rural	4
2	1	Citrus County Line	County Road 488	Levy County to West Dunnellon Road	Rural	4
3	1 and 2	County Road 488	County Road 495	West Dunnellon Road to Citrus Ave	Rural	4
4	2	County Road 495	State Road 44	Entering the Crystal River City area	Urban	4
5	2	State Road 44	SE 8th Avenue	Crystal River City area to Crystal River Airport	Urban	6
6	3	SE 8th Avenue	W Longfellow Street	Crystal River Airport to Homosassa Springs	Rural	4
7	3 and 4	W Longfellow Street	W Grover Cleveland 8	Entering Homosassa Springs	Urban	4
8	4	W Grover Cleveland 8	W McKinley Street	Unincorporated area of Homosassa Springs	Urban	4
9	4 and 5	W McKinley Street	US 98	Homosassa Springs to US 98 Highway	Rural	4
10	6	US 98	Hernando County Line	US 98 to end of Citrus County	Rural	4
11	6	Hernando County Line	County Road 476	Hernando County to past the end of Study Area	Rural	4

Source: FDOT TranStat Office, Google Earth and Site Observations, 2013

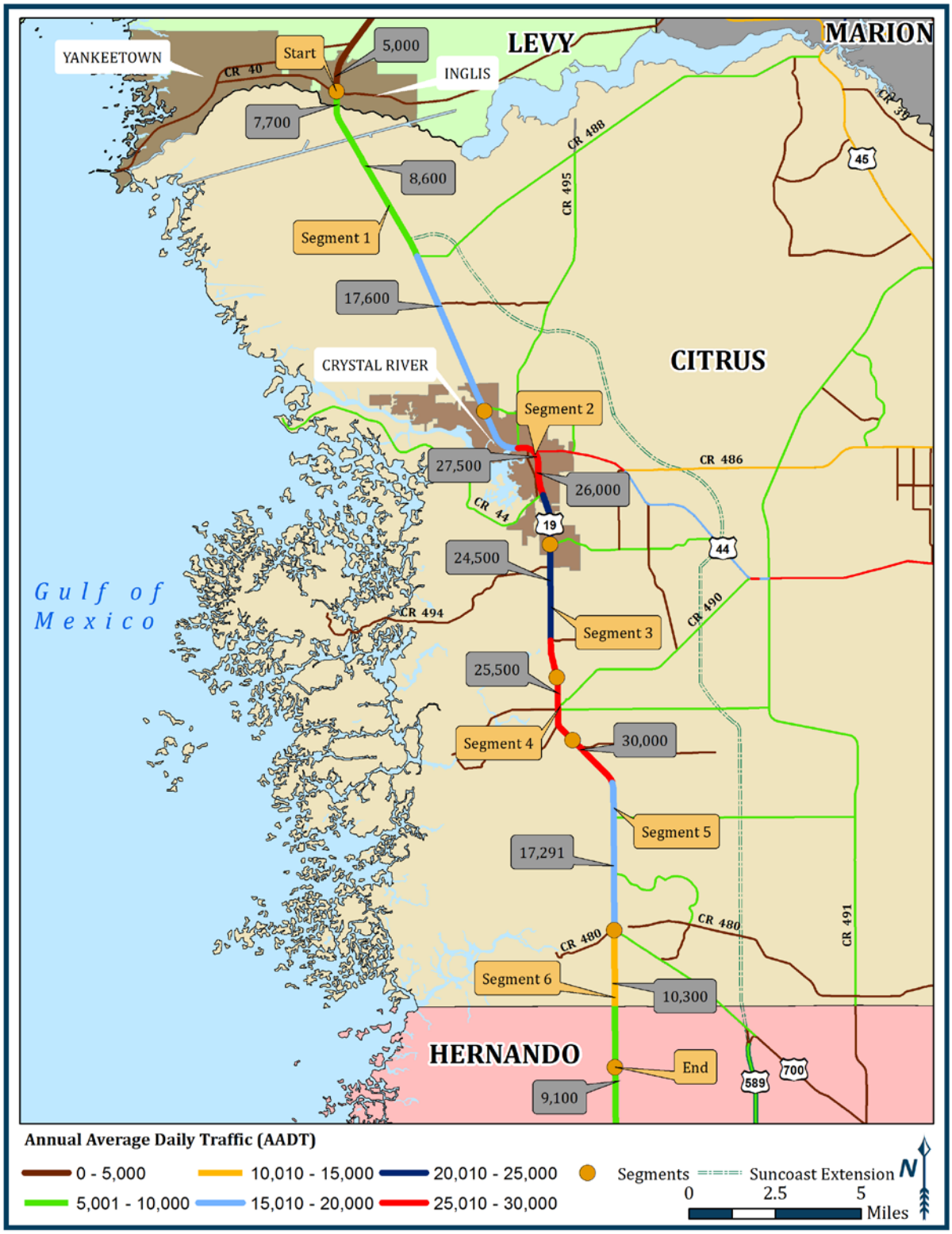
The table shows that the majority of the Study Area segments are predominately rural and exceptions to that trend are within the urban areas of Crystal River and the unincorporated area of Homosassa Springs. Specifically, within the Crystal River city limits at the intersection of US Highway 19 and State Road 44 the roadway expands to six lanes. State Road 44 is a major carrier of east-west traffic for Citrus County that ultimately connects US Highway 19 to the City of Inverness, Interstate 75 and the Florida Turnpike.

Figure 3.8 displays the existing AADT volumes for the eleven FDOT sites selected along the Study Area. The existing AADT in the selected sites ranges from about 5,000 vehicles per day in the rural northern and southern sections to a high of 30,000 vehicles per day in the unincorporated area of Homosassa Springs. Traffic volumes are highest within the City of Crystal River where the road expands to six lanes and leading south through the unincorporated area of Homosassa Springs.

The AADT volumes show that sections four through eight are the most utilized sections with an average of 26,875 vehicles per day. These sections may have higher traffic volumes as through traffic begins to mix in with the local traffic from Crystal River and Homosassa Springs. The lowest AADT for the Study Area is observed in the rural areas, specifically, sections one and two, exhibit volumes at an average of 6,800 vehicles per day.

High traffic volumes within Crystal River and Homosassa Springs indicate that there is a large amount of local traffic. AADT volumes are much lower on the northern and southern portions of the Study Area and are concentrated within the transitioning and urbanizing areas of Crystal River and Homosassa Springs.

Figure 3.8 Average Annual Daily Traffic for the US Highway 19 Corridor through Citrus County



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

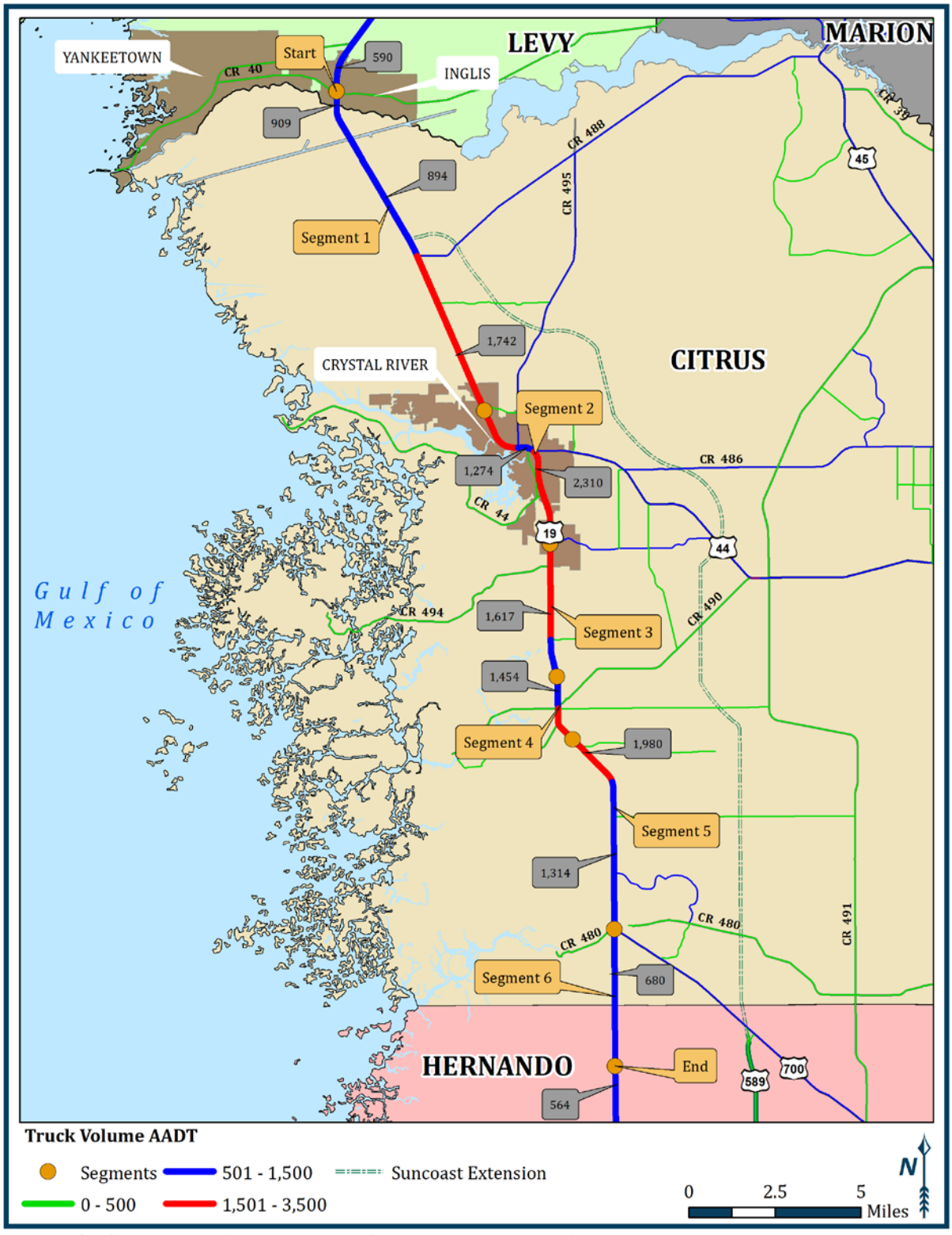
3.5.2 Truck Volume AADT

The existing truck traffic volumes for the same eleven sections presented in **Table 3.4 (**on Page 70**)** were gathered from the Florida Department of Transportation TranStat Office and cover the entirety of the Study Area. **Figure 3.9** displays the existing truck AADT volumes for the eleven sites selected along US Highway 19. The existing truck AADT along the Study Area ranges from about 500 trucks per day in the rural northern and southern sections to a high of about 2,300 trucks per day in the Crystal River area.

Truck traffic volumes show that sections three through eight are highly utilized sections with an average of 1,820 trucks per day. The existing truck volumes map also shows truck traffic on the state and county roads within Citrus County. The high truck traffic area in the city limits of Crystal River is in the vicinity of the intersection of State Road 44, which carries truck traffic westward in the county toward the City of Inverness. Similar to the existing AADT volumes, the truck traffic volumes are lower in the rural areas. More specifically, sections ten and eleven exhibit an average of 622 trucks per day.

The truck traffic volumes also indicate a similar trend to that of the overall vehicle volumes along the Study Area. It shows a large presence of local traffic within Crystal River and Homosassa Springs with truck AADT volumes much lower in the northern and southern portions of the Study Area. This indicates that the corridor is predominantly used by local traffic.

Figure 3.9 Average Annual Daily Traffic Truck Volume for the US Highway 19 Corridor through Citrus County



Source: Florida Department of Transportation, and Transportation Statistics Office, 2013

3.5.3 Regional Trip Patterns

Regional trip patterns along the Study Area are largely similar for the three counties. A vast percentage of the trips within these counties are local trips meaning they are representative of trips that start and end within the same county. Regional trips are trips that are between the county of origin and any surrounding county. **Table 3.5** shows the breakdown of regional trips for Citrus County, Hernando County, and Levy County based on employment numbers. **Figure 3.10** illustrates the information presented in **Table 3.5** to better understand the regional trip patterns between the three counties.

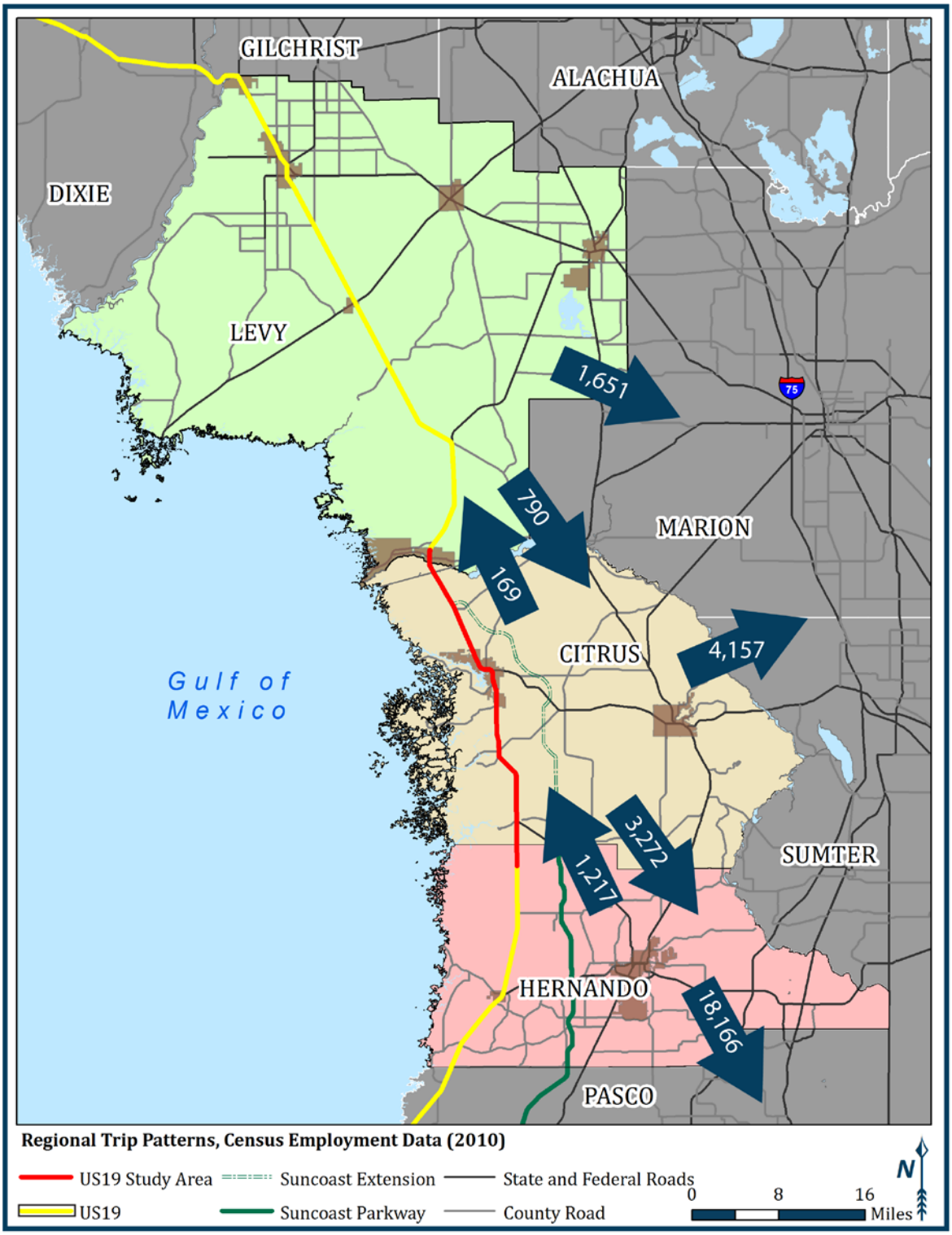
Table 3.5 Summary of Regional Trip Pattern for Citrus, Hernando, and Levy County Based on Employment Numbers

	Origin		
Destination	Citrus	Hernando	Levy
Citrus	N/A	1,217	712
Hernando	1,614	N/A	18
Hillsborough	895	6,839	12
Levy	169	N/A	N/A
Marion	4,157	N/A	1,651
Pasco	432	8,289	24
Pinellas	331	3,038	24
Total Regional	7,598	19,383	2,441
Total Workforce	53,142	67,586	17,034
Percentage	14.30%	28.68%	14.33%

Source: US Census Bureau, 2010

Nearly 14 percent of Citrus County residents work outside of the county in areas to the south. The majority of employment related trips from Citrus County go to either Marion County or Hernando County. Marion County borders Citrus County to the northeast; the City of Dunnellon is located right along the border of Marion County and is accessible to Citrus County via State Road 45. Furthermore, the City of Ocala also located in Marion County is accessible to Citrus County by State Road 200. Hillsborough, Pinellas and Pasco also capture some employment related regional trips.

Figure 3.10 Regional Trip Patterns for Citrus, Hernando, and Levy County Based on Employment Numbers



Source: US Census Bureau, 2010 and Florida Geographic Data Library, 2013

Hernando County has the highest percentage, almost 29 percent, of regional commute trips according to employment numbers. Hernando County's proximity to the Tampa Bay Region provides it with a well-connected transportation system that supports commuters from Hernando County to neighboring counties. Specifically, Pasco County, Pinellas County, and Hillsborough County are the main destinations for commuters from Hernando County. Levy County is similar to Citrus County in that 14 percent of employment is located outside of the county. Marion County and Citrus County are the two neighboring counties that attract the highest employment numbers from Levy County.

Additionally, as will be presented in the planned improvements in **Section 3.7**, the Suncoast Parkway expansion will play an important role in regional connectivity for the three counties. The Suncoast Parkway expansion is proposed to run parallel to US Highway 19 and extend from Hernando County into northern Citrus County. The expansion also proposes multiple interchanges along the planned corridor to provide easier access to state roads in Citrus County. The Suncoast Parkway expansion would help connect the central and eastern areas of Hernando County to Citrus County and increase the regional trip patterns between the two counties.

3.6 Existing Traffic Operations

Level of Service (LOS) and volume-to-capacity (v/c) ratio are two measures that help analyze the travel demand and service for the Study Area's transportation network. They help explain the existing traffic operation along the Study Area and identify segments that exhibit congestion.

3.6.1 Level of Service (LOS)

LOS for a particular roadway defines the ability of maximum number of vehicles that can pass through a point or intersection on a roadway in a certain amount of time while maintaining operational conditions. There are varieties of different factors that affect LOS along a particular roadway: vehicle density, average travel speed, v/c ratio, and average stop delay. There are six levels of service defined by the Florida Department of Transportation (FDOT) 2009

Quality/Level of Service Handbook. LOS A represents the best operating conditions of roadway and LOS F represents the worst. **Table 3.6** gives a general description of the six LOS levels used to analyze traffic operations of a transportation system.

Table 3.6 Summary Description for the Six Levels of Service Used in Transportation Planning

LOS Level	Description
A	Primarily free-flow operations Minimal stopped delays at intersections Traffic flows at higher speeds with high mobility between lanes
B	Reasonably free-flow operations Reasonable stopped delays at intersections Maintained speeds with slight mobility restrictions
C	At or stable free-flow operations Increasing level of stopped delays Speeds slightly below posted limit and mobility between lanes is restricted
D	Increase number of vehicles substantially increases delay Lower speeds as traffic volumes increase and mobility is further restricted
E	Significant approach delays Low Speeds
F	High levels of delay at critical intersections Extremely low speeds

Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009

Based on the criteria outlined above, LOS was determined along 28 segments of the Study Area. Specifically, the LOS was determined for sections in Citrus County as it makes up the majority of the Study Area. Data gathered from the FDOT and the Citrus County Comprehensive Plan was used to provide the LOS levels for the identified segments along the Study Area. **Table 3.7**

defines the LOS Standards for the Strategic Intermodal System (SIS) Roadways as adopted by FDOT.

Table 3.7 LOS Standards for Strategic Intermodal System (SIS) Roadways

	Strategic Intermodal System (SIS) Facilities	
	Limited Access Highway (Freeway)	Controlled Access Highway
Rural Areas	B	B
Transitioning Urbanized Areas, Urban Areas, or Communities	C	C
Urbanized Areas Under 500,000	C (D)	C
Urbanized Areas Over 500,000	D (E)	D

Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009

US Highway 19 is a Strategic Intermodal System Facility identified by the FDOT as a Controlled Access Highway. For the sections of the corridor that are transitioning and urbanized areas or urbanized areas fewer than 500,000 populations, the standard LOS should be LOS C. The sections in the Study Area that fall within rural areas according to **Table 3.7** should have a standard of LOS B. Lastly, the urbanized areas over a 500,000 person population does not apply to the Study Area as there are no urbanized areas within the corridor with such high population counts. **Table 3.8** details the LOS levels for the sections along the Study Area in Citrus County.

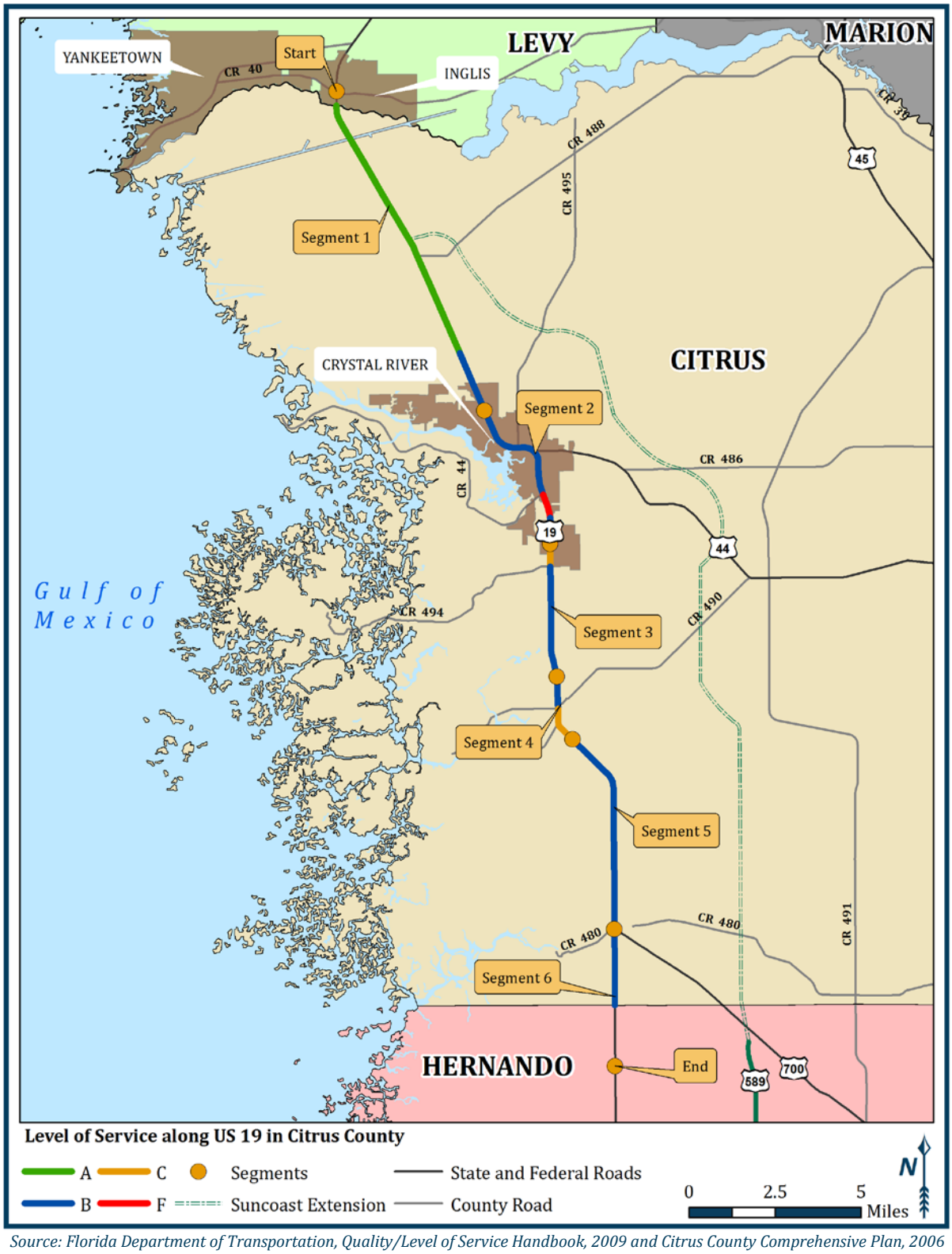
Actual LOS levels were determined based on the existing Peak Hour Peak Directional (PHPD) traffic volumes compared to the PHPD standards from the Generalized Tables from the 2009 FDOT Quality/Level of Service Handbook. **Figure 3.11** displays the actual LOS for the segments described in **Table 3.8**. The table and figure show that the majority of the Study Area in Citrus County is at an LOS that is better than or at least meets the standards adopted by the FDOT. Only one section along the corridor has a LOS that does not meet the FDOT adopted standards. The section begins with Pure Lane and extends to County Road 44; this section is located in the southern portion of the city limits of Crystal River and is just north of the Crystal River Airport. The deficiency is created because the Study Area reverts back to four lanes at the intersection of County Road 44.

Table 3.8 Level of Service levels for intersections along US Highway 19 Corridor in Citrus County, 2011

Segment	Intersection From	Intersection To	Number Thru Lanes	PHPD Volume	PHPD Standard	Adopted LOS	Actual LOS
1	Levy County Line	Basswood Ave, N	4	633	1540	B	A
1	Basswood Ave, N	CR 488, W	4	641	1540	B	A
1	CR 488, W	Powerline St, W	4	584	1540	B	A
1	Powerline St, W	Emerald Oaks Dr, W	4	802	1540	B	A
1	Emerald Oaks Dr, W	Watergate Ln, W	4	793	1540	B	A
1	Watergate Ln, W	Ashburn Ln , W	4	795	1730	C	B
1	Ashburn Ln , W	State Park St, W	4	939	1860	D	B
1	State Park St, W	19th St/Turkey Oak Dr, N	4	936	1860	D	B
1 and 2	19th St/Turkey Oak Dr, N	CR 495, N	4	835	1860	D	B
2	CR 495, N	SR 44	4	1,586	1860	D	B
2	SR 44	CR 44, W	6	1,897	2720	C	B
2	CR 44, W	Pure Ln	4	2,365	1810	C	F
2	Pure Ln	Venable St, W	4	1,724	1810	C	B
2 and 3	Venable St, W	CR 494, W	4	1,895	1810	C	C
3	CR 494, W	Highland St, W	4	1,629	1810	C	B
3	Highland St, W	Longfellow St, W	4	1,621	1810	C	B
3	Longfellow St, W	Stonebrooke Dr	4	1,621	1810	C	B
3 and 4	Stonebrooke Dr	CR 490	4	1,645	1810	C	B
4	CR 490	CR 490A/G. Clevel'd Blvd	4	1,777	1810	C	B
4	CR 490A/ G. Clevel'd Blvd, W	CR 490/Yulee Dr	4	2,119	1810	C	C
4	CR 490/Yulee Dr	Bradshaw St, W	4	1,963	1810	C	C
4 and 5	Bradshaw St, W	Green Acres St, W	4	1,750	1810	C	B
5	Green Acres St, W	Sunny Days S/C	4	1,484	1810	C	B
5	Sunny Days S/C	Cardinal St, W	4	1,484	1810	C	B
5	Cardinal St, W	Burnt Ridge Rd, W	4	1,471	1810	C	B
5	Burnt Ridge Rd, W	Cypress Blvd, W	4	1,648	1810	C	B
5 and 6	Cypress Blvd, W	US 98/ Ms Maggie Dr, W	4	1,036	1810	C	B
6	US 98/ Ms Maggie Dr, W	Merrivale Ln, W	4	707	1730	C	B
6	Merrivale Ln, W	Hernando Co. Line	4	628	1730	C	B

Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009 and Citrus County Comprehensive Plan, 2006

Figure 3.11 Actual Level of Service (LOS) for sections along US Highway 19 Corridor in Citrus County, 2011



Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009 and Citrus County Comprehensive Plan, 2006

3.6.2 Volume-to-Capacity (v/c) Ratio

The volume-to-capacity (v/c) ratio was also examined as a performance measure for the current traffic operations along the Study Area. The same numbers of sections were looked at for the v/c ratio as the LOS analysis. V/c ratio is the most important measure in determining congestion levels along a roadway. A v/c ratio that is less than 1.0 indicates that there is less volume along the roadway compared to the capacity that it can handle. Whereas, a v/c ratio that is greater than 1.0 means that traffic volumes are greater than the capacity that the roadway can handle. The greater the ratio past 1.0 the more congested a roadway gets. **Table 3.9** shows the 2011 v/c ratios as well as the 2025 projected v/c ratios. The v/c ratios were obtained from the Citrus County Comprehensive Plan and do not include the expansion of the Suncoast Parkway. The projected v/c ratios may decrease once construction of the extension is completed.

Table 3.9 demonstrates that the majority of the v/c ratios for 2011 are less than 1.0. It identifies the following four segments in 2011 that had a v/c ratio that was greater than 1.0: County Road 44 to Pure Lane segment (1.31), W Venable Street to County Road 494 segment (1.05), County Road 490A/G Cleveland to County Road 490 segment (1.17), and County Road 490 to W Bradshaw Street segment (1.08).

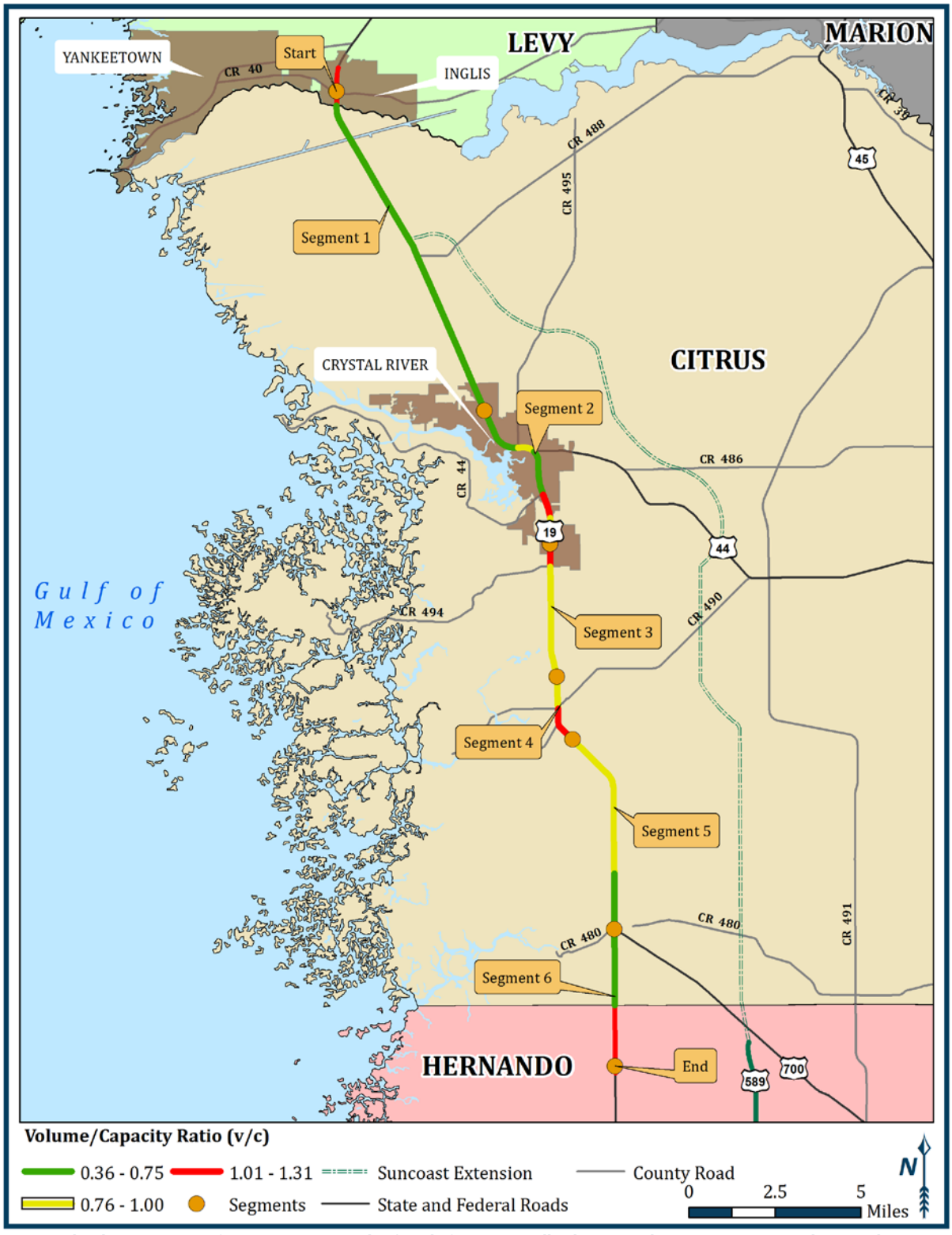
Figure 3.12 illustrates the v/c ratio for the segments along US Highway 19 and characterizes sections by three colors. Red indicates v/c ratio greater than one and sections that are currently experiencing congestion. Yellow shows sections that are between 0.75 and 1.0 v/c ratio. It indicates the sections that are not yet at capacity but are moving towards meeting capacity or becoming congested. Green characterizes a v/c ratio of less than 0.75 and sections that have less volume than the capacity of the road.

Table 3.9 Details the volume-to-capacity ratios for sections along US Highway 19

Segment	Intersection From	Intersection To	PHPD Volume, 2011	PHPD Standard	V/C, 2011	PHPD Volume, 2025	V/C, 2025
1	Levy County Line	Basswood Ave, N	633	1540	0.41	868	0.56
1	Basswood Ave, N	CR 488, W	641	1540	0.42	852	0.55
1	CR 488, W	Powerline St, W	584	1540	0.38	812	0.53
1	Powerline St, W	Emerald Oaks Dr, W	802	1540	0.52	1,083	0.7
1	Emerald Oaks Dr, W	Watergate Ln, W	793	1540	0.51	1,059	0.69
1	Watergate Ln, W	Ashburn Ln , W	795	1730	0.46	1,073	0.62
1	Ashburn Ln , W	State Park St, W	939	1860	0.5	1,267	0.68
1	State Park St, W	19th St/Turkey Oak Dr, N	936	1860	0.5	1,257	0.68
1 and 2	19th St/Turkey Oak Dr, N	CR 495, N	835	1860	0.45	1,015	0.55
2	CR 495, N	SR 44	1,586	1860	0.85	1,929	1.04
2	SR 44	CR 44, W	1,897	2720	0.7	2,307	0.85
2	CR 44, W	Pure Ln	2,365	1810	1.31	2,876	1.59
2	Pure Ln	Venable St, W	1,724	1810	0.95	2,096	1.16
2 and 3	Venable St, W	CR 494, W	1,895	1810	1.05	2,304	1.27
3	CR 494, W	Highland St, W	1,629	1810	0.9	1,981	1.09
3	Highland St, W	Longfellow St, W	1,621	1810	0.9	1,971	1.09
3	Longfellow St, W	Stonebrooke Dr	1,576	1810	0.87	1,916	1.06
3 and 4	Stonebrooke Dr	CR 490	1,645	1810	0.91	2,000	1.1
4	CR 490	CR 490A/G. Clevel'd Blvd	1,777	1810	0.98	2,161	1.19
4	CR 490A/ G. Clevel'd Blvd, W	CR 490/Yulee Dr	2,119	1810	1.17	2,577	1.42
4	CR 490/Yulee Dr	Bradshaw St, W	1,963	1810	1.08	2,387	1.32
4 and 5	Bradshaw St, W	Green Acres St, W	1,750	1810	0.97	2,128	1.18
5	Green Acres St, W	Sunny Days S/C	1,484	1810	0.82	1,805	1
5	Sunny Days S/C	Cardinal St, W	1,484	1810	0.82	1,805	1
5	Cardinal St, W	Burnt Ridge Rd, W	1,471	1810	0.81	1,789	0.99
5	Burnt Ridge Rd, W	Cypress Blvd, W	1,648	1810	0.91	2,004	1.11
5 and 6	Cypress Blvd, W	US 98/ Ms Maggie Dr, W	1,036	1810	0.57	1,260	0.7
6	US 98/ Ms Maggie Dr, W	Merrivale Ln, W	707	1730	0.41	860	0.5
6	Merrivale Ln, W	Hernando Co. Line	628	1730	0.36	764	0.44

Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009 and Citrus County Comprehensive Plan, 2006

Figure 3.12 Volume-to-Capacity ratios for sections along US Highway 19 Corridor in Citrus County, 2011



Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009 and Citrus County Comprehensive Plan, 2006

3.6.3 Traffic Safety

Five year crash rate statistics were gathered from the FDOT Efficient Transportation Decision Making (ETDM) process based on 2011 data. This data was used to determine the areas with the highest number of crashes (measured in crashes per million vehicle miles traveled [crashes/MVMT]). A more in depth analysis of the crash data should be completed to understand the relationship between the accidents, , features, and characteristics of the roadway.

As shown in **Figure 3.13**, the areas of the roadway with the highest number of crashes as well as the highest crash ratios are within Homosassa Springs in Segment 4. This area has numerous access points and higher speeds, which can increase the possibility of traffic accidents. Segment 3 also experiences high crash ratios, as this segment displays increased speeds with sporadic access points.

Segment 2 within the Crystal River area experiences lower crash ratios than Segments 3 and 4. However, the number of accidents reported is still higher than the remaining segments due to the large number of conflict points. This area should focus particularly on the possibility of pedestrian and bicycle crashes involving vehicles. City of Crystal River officials have raised concerns of pedestrians crossing in unsafe and undesignated locations along the roadway.

Figure 3.13 Five Year Crash Data from 2007 to 2011

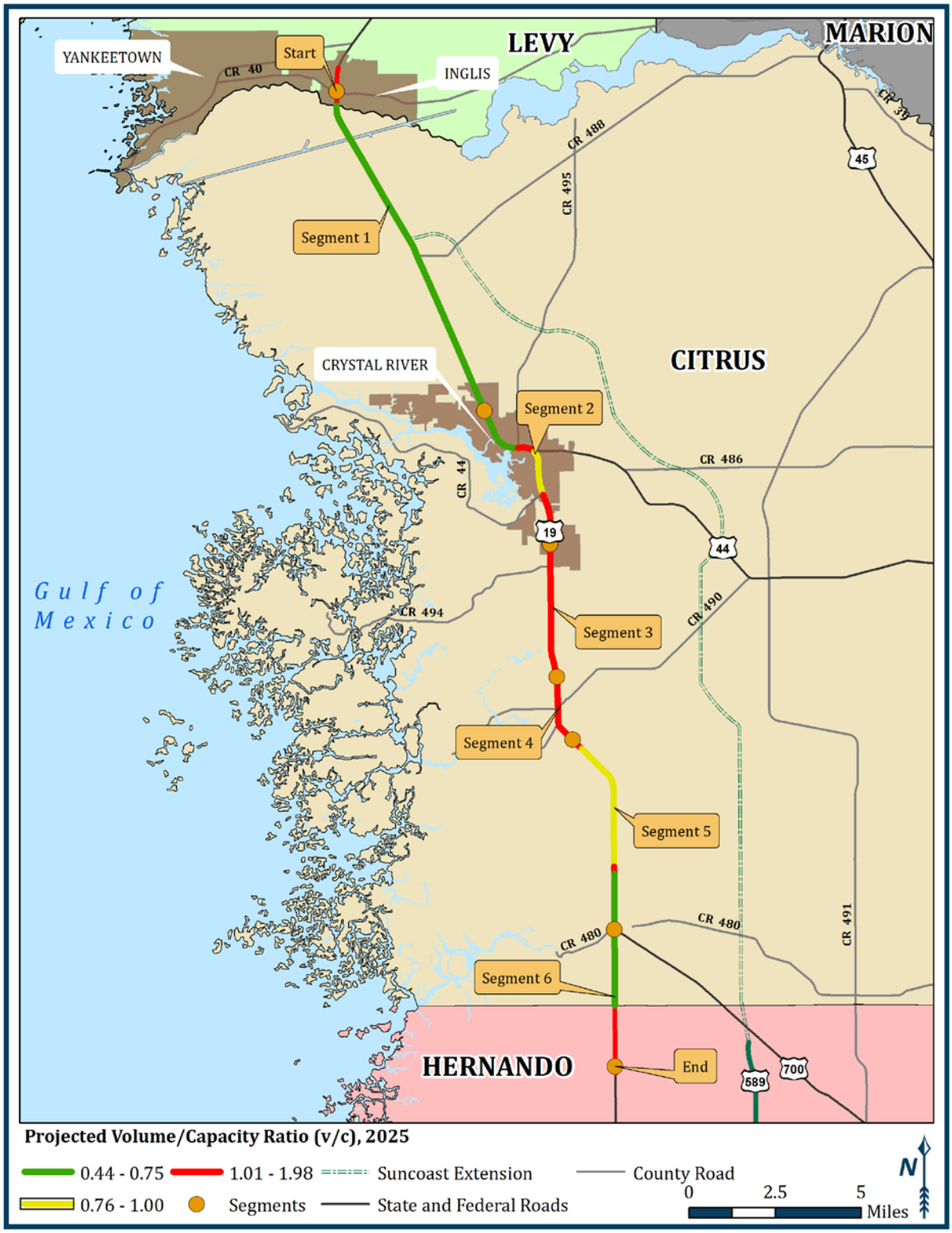
Source: Florida Department of Transportation Statistics Office and Safety Office, 2011

3.6.4 Future Traffic Operations

Table 3.9 (on Page 83**)** also showed the v/c ratios for projected 2025 based on the FDOT modeling data. It shows that by 2025, fifteen sections along the corridor are projected to have a v/c ratio of either 1.0 or greater than 1.0. This means that the majority of the Study Area within Crystal River and Homosassa Springs are projected to be at capacity and to exceed capacity by 2025. Going forward, this information will need to be included in the considerations for traffic operations and any planned improvements along the study corridor.

Figure 3.14 illustrates the projected v/c ratio for the sections along the Study Area and characterizes sections by three colors. The color characterizations are the same as **Figure 3.12** and comparing these two figures indicates that the majority of the existing yellow sections of the Study Area are projected to meet and exceed capacity by the year 2025. The areas with the most red are located within Crystal River and Homosassa Springs and spread between the two places. The growth within these two areas is projected to cause future congestion along the Study Area. Furthermore, as mentioned earlier, the majority of the traffic volumes within the Study Area are generated by local traffic within these two segments.

Figure 3.14 Projected Volume-to-Capacity ratios for sections along US Highway 19 Corridor in Citrus County, 2025



Source: Florida Department of Transportation, Quality/Level of Service Handbook, 2009 and Citrus County Comprehensive Plan, 2006

3.7 Planned Improvements

Moving forward, there are projects within the FDOT Five Year Plan that have been identified along the US Highway 19 Corridor to accommodate the transitioning and growing urban areas of Crystal River and Homosassa Springs. The following describes future improvements for the region and specific improvements within the Study Area. These anticipated projects are intended to increase the efficiency of the US Highway 19 corridor along with the greater Florida transportation network.

There are four basic project phases involved in a Work Program:

- Project Development and Environment (PD&E) –Study that satisfies the National Environmental Policy Act (NEPA) process resulting in a location design concept for an engineering and environmentally feasible alternative to meet the need determined the planning process.
- Preliminary Engineering (PE) – Program to further develop and analyze location and design engineering phases of highway and bridge construction projects.
- Right of Way (ROW) - The phase of acquiring land to support the construction projects.
- Construction (CON) - Phase consists of the physical work performed to build or assemble the infrastructure.

The largest improvements for the Study Area involve road widening from four lanes to six lanes going from Crystal River south to Homosassa Springs. As shown in **Tables 3.8** (on page 80) and **Table 3.9** (on page 83), the areas south of the County Road 44 intersection in Crystal River are projected to become more congested over-time. Therefore, the planned improvements and future improvements have been focused around these sections. Furthermore, **Table 3.9** (on page 83) indicates that the Homosassa Springs area is projected to experience growth that may not be supported by the current transportation infrastructure. The volume-to-capacity ratios for these sections are either at or over levels of congestion.

Numerous improvement projects are anticipated for US Highway 19 within the Study Area. **Table 3.10** provides a basic outline of the anticipated projects, the phase of the process, anticipated completion date, and plan providing information on the implementation.

Another planned transportation project is the Suncoast Parkway extension, which will expand the existing Suncoast Parkway north into Citrus County. The Suncoast Parkway is a current highway that is part of the Florida Turnpike System and runs between Tampa and northern Hernando County. The Florida Department of Transportation and the Florida Turnpike Enterprise currently have plans for a new extension running approximately twenty-seven miles long. The extension will have the Suncoast Parkway continuing north through Citrus County, running nearly parallel to the corridor Study Area before ending on US Highway 19 just north of Crystal River.

Table 3.10 Planned Improvements for the US Highway 19 Corridor Study Area

County	Project Location	Project Description	Phase	Anticipated Completion*	Source
Citrus	From W. Jump Court to W. Fort Island Trail	Add 2 lanes to build 6 lanes	PD&E, PE	2013	SIS First 5 YR Plan
			ROW	2015	
			CON	2018	
Citrus	From W. Green Acres St to W. Jump Court	Add 2 lanes to build 6 lanes	PE, ROW	2013	SIS First 5 YR Plan
			CON	2014	
Citrus	From SR 50 to US 98	Add 2 lanes to build 6 lanes	PD&E	2020-2025	2035 Cost Feasible Plan
Citrus	*Suncoast Parkway*	New Road Construction	PD&E, PE	2013	Five Year Work Program

*Anticipated completion dates may change due to change in priority or revenue stream

Source: SIS First 5 Year Plan, 2035 Cost Feasible Plan, and Five year Work Program

Figure 3.15 illustrates these major planned improvements found in the table above along the Study Area. The figure emphasizes that the majority of the segments between Homosassa Springs and Crystal River are set to receive lane expansions.

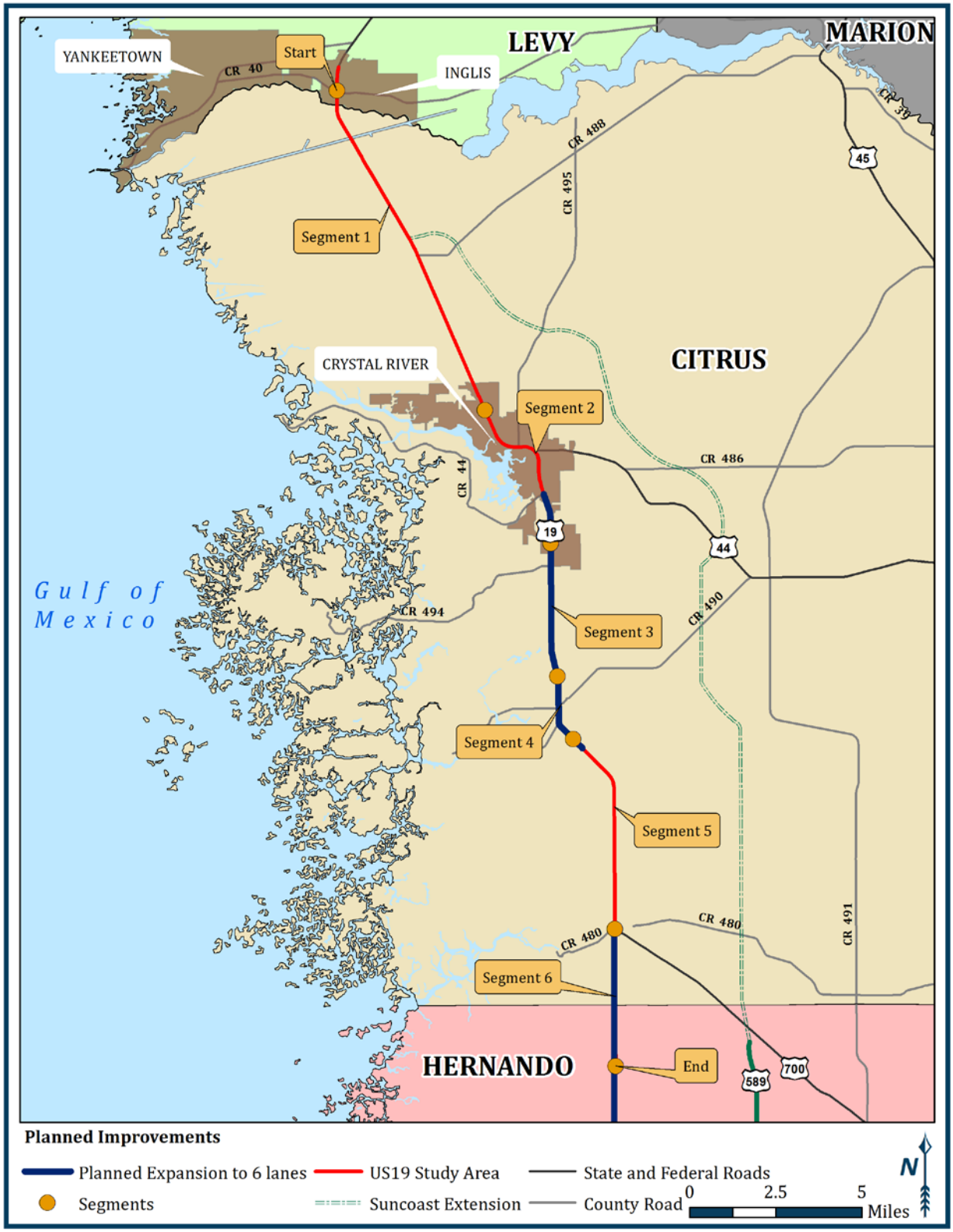
The current Suncoast Parkway is an important part of the Florida Interstate Highway System (FIHS), which provides high volume and high speed transportation mobility from northern Hernando County to the Tampa Bay area. The highway begins at the Veterans Expressway in Tampa, Florida and continues north as a limited access toll road until the terminus at US Highway 98 just south of the Citrus County Border. The existing Suncoast Parkway was completed in 2001 and allowed for much quicker and convenient access from the region to the Tampa Bay area and any extension north will provide further increased access.

The Suncoast Parkway extension project is currently suspended, with nearly 60 percent of the planning work completed. The project still requires an economic feasibility analysis with traffic and revenue projections. According to the Florida Turnpike Enterprise, the project is not cancelled but rather paused due to lack of funding. Currently, the project is not budgeted in the FDOT Five Year Plan but $5 million was recently allocated to the project for right-of-way land purchases. In January 2013, the Florida Department of Environmental Protection determined that the Suncoast Parkway extension is environmentally feasible, which helps put the continuation of this project in the right direction.

3.7.1 Florida's Future Corridors Initiative: Tampa Bay to Northeast Florida

The FDOT's Future Corridors Initiative is a statewide effort that brings together state, regional, local governments and other stakeholders to plan for the future transportation network critical to Florida's economic competitiveness and quality of life. Currently under consideration are five main regional Study Areas: Tampa Bay to Northeast Florida, Tampa Bay to Central Florida, Southeast Florida through the Heartland to Central Florida, Southwest Florida through the Heartland to Central Florida, Northwest Florida.

Figure 3.15 Planned Improvements for the US Highway 19 Corridor Study Area



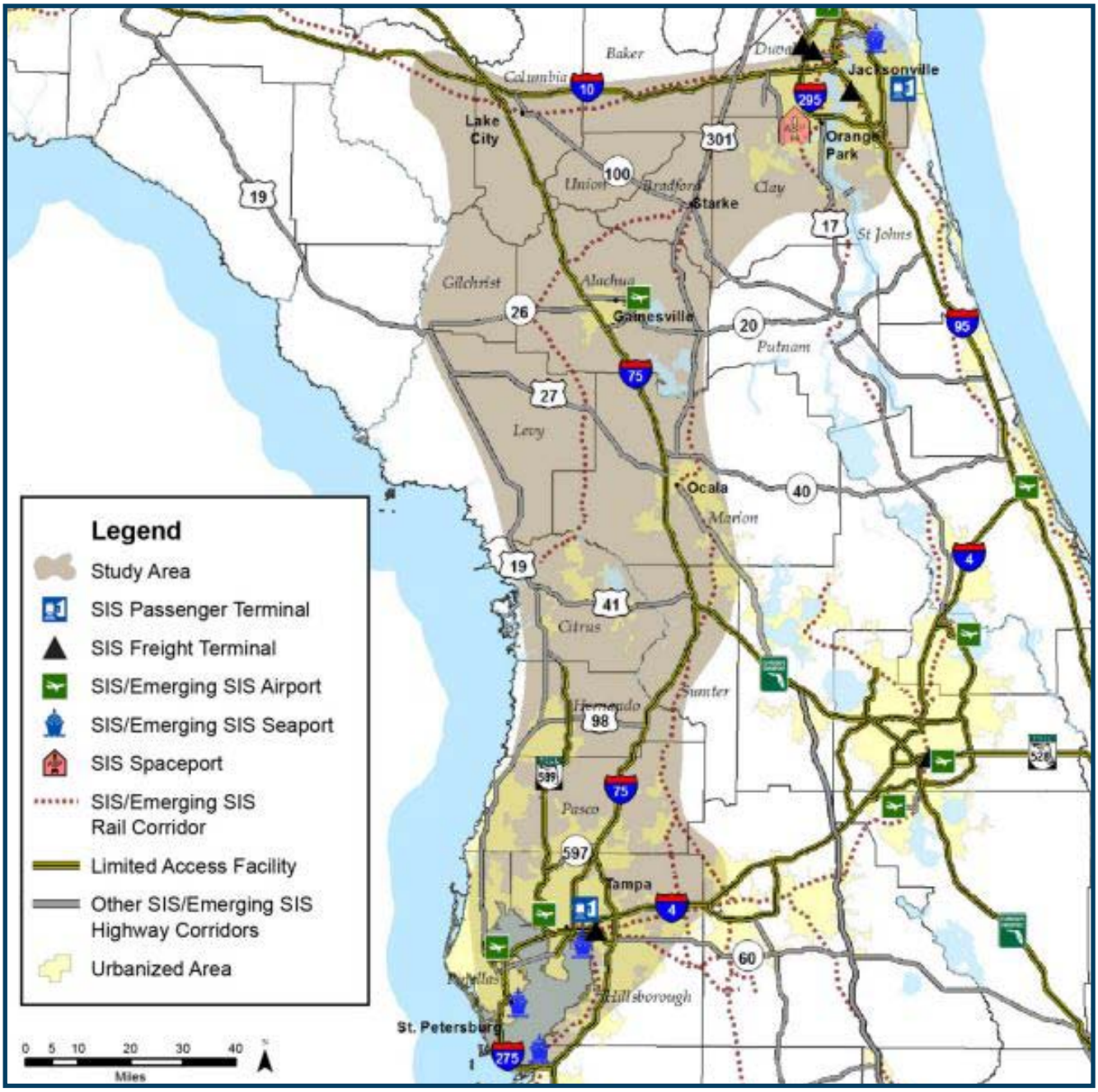
Source: SIS First 5 Year Plan, 2035 Cost Feasible Plan, and Five Year Work Program, 2013

The main initiative affecting the Study Area is the Tampa Bay to Northeast Florida Future Corridor (see **Figure 3.16**). This initiative would help connect these two regions as well as the less urbanized North Central Florida region. Travel in these regions primarily occurs via Interstates 75 and 10, Interstate 75 and US 301, or Interstates 4 and 95 (Tampa Bay-Northeast Florida Study Area Concept Report, 2013).

The concept report provides a brief introduction to potential opportunities and improvements for the regional area. A few opportunities mentioned that directly relate to the US Highway 19 include:

- Improvements to Freight Rail Connectivity and Access to support future economic development and to reduce impacts on communities.
- Relief of traffic on Interstate 75 through the extension of the Suncoast Parkway, and possible extension beyond Citrus County connecting to I-75 near Ocala, Gainesville, or Lake City to provide a more direct limited access route between Tampa Bay and northern areas of I-75.
- Closing Regional Connectivity Gaps to link priority develop sites such as Port Citrus to Tampa Bay.

Figure 3.16 Tampa Bay-Northeast Florida Future Corridor Initiative Map



Source: Tampa-Bay Northeast Florida Study Area Concept Report, April 2013

3.8 Multi-Modal Transportation Characteristics

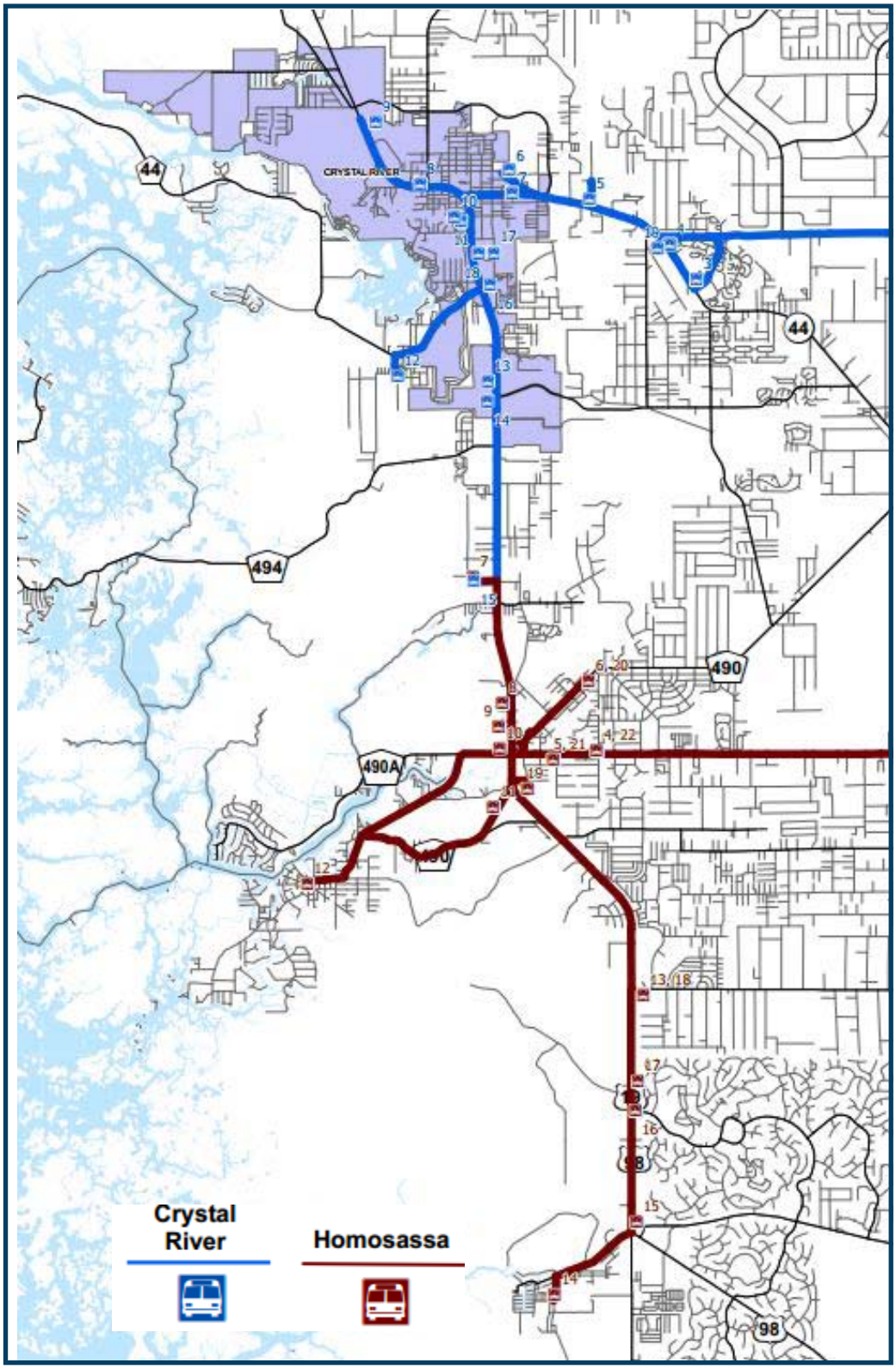
The following section examines the public transit system, seaports, airports and freight movement along the Study Area. Citrus County presently has a deviated-fixed route transit system that provides service for the Study Area. There is a general aviation airport along the Study Area (Crystal River Airport) and a planned seaport that would use the Cross Florida Barge Canal (Port Citrus). This subsection examines the current freight movement along the Study Area and any current or emerging freight activity centers within the region.

3.8.1 Public Transit

Citrus County currently has two public transportation options. The first is the Orange Line Bus system, a deviated fixed route bus that operates within the county on the weekdays from 6:00am to 7:00pm. The vehicles used by this system are small 14 to 16 passenger buses that run on one of four loops and have minimum two hour headway. **Figure 3.17** displays the routes currently being used by the Orange Line Bus System. The Citrus County Transit Office has emphasized the willingness to deviate from the fixed route within three-quarters of a mile to pick the passenger up at their home if the rider calls at least one hour in advance. To date, over 50 percent of the passengers are utilizing this deviation service. This ability to accommodate individuals that might not have been able to use the system otherwise has provided a tremendous amount of positive feedback on the program with an approval rating of nearly 90 percent.

A second public transportation service provided by the Citrus County Public Transit Office is a Paratransit Bus Service. This system is a flexible form of passenger transportation that does not follow a fixed route or schedule. This service is offered on the weekdays from 7:30am to 4:00pm operating currently with 15 minibuses. The purpose of this system is largely to accommodate the elderly populations by offering trips to shopping centers, medical appointments, or daily needs. The program is also willing to transport these populations as far north as Gainesville and as far south as the Tampa Bay area for medical needs if the passenger has insurance or Medicaid.

Figure 3.17 Citrus County Transit Route Map, 2013



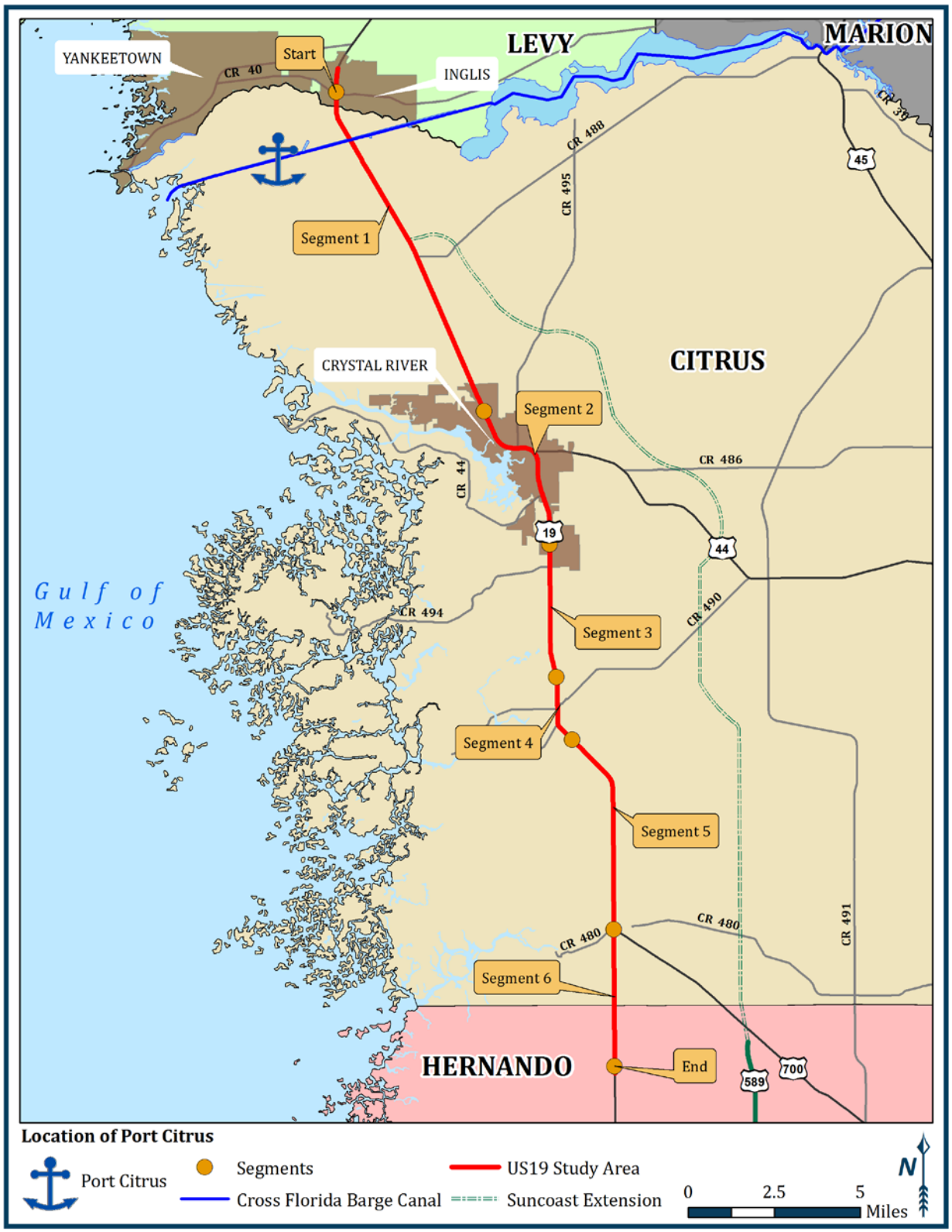
Source: Citrus County Geographic Resources and Community Planning Division, 2013

3.8.2 Seaports

In June 2011, the Governor of Florida signed into law HB 283, which officially designated the new maritime trade facility of Port Citrus and established it as a member of the Florida Seaport Transportation and Economic Development Council. The new designation will allow Port Citrus to be included among the states fourteen other public seaports. Port Citrus is to be located along the existing Cross Florida Barge Canal in Citrus County. Port Citrus is designated 547 acres of industrial, conservation and mining lands (seen in **Figure 3.18**). The project will be located off US Highway 19, near the soon to be constructed Suncoast Parkway extension ending on US Highway 19 just north of County Road 488. Port Citrus is still currently in the development and feasibility study phase with consultants and Citrus County officials.

According to the Citrus County Comprehensive Plan, Port Citrus may be an economic driver for the area. The Port has the ability to create sustainable jobs and provide a needed diversification to the local economy. Port Citrus has the potential to spur economic development, not just within Citrus County but also in the entire US Highway 19 corridor region. According to the Citrus County Comprehensive Plan, Port Citrus is slated to serve primarily barge cargo traffic, which will promote the export shipping of commodities such as limestone, timber, regional distributions and alternative fuels, produced at the Crystal River Power Complex. Port Citrus could also serve non cargo markets with functions such as barge restoration, repair faculties or even commercial fishing fleets that might use the newly constructed harbors. The shipments into the Port would increase the volume of traffic and freight movement along the Study Area and the Suncoast Parkway. Along with the increasing demand on the road network, a greater need to expand freight movement through rail and other multimodal networks will become important.

Figure 3.18 Locations of Port Citrus and the Cross Florida Barge Canal



Source: Citrus County Comprehensive Plan, 2006

A 2010 Florida Trade and Logistics Study determined that the establishment of Port Citrus would have enormous benefits and opportunities. The opportunities include the potential to support 32,000 jobs a year in the trade and logistics industries, could generate $3.3 billion dollars in sales, and bring in nearly $193 million dollars in state and local tax revenues. Port Citrus underwent a Feasibility Analysis, undertaken by the consulting firm TransSystems. The analysis examined the best locations of port facilities and its relation to the transportation facilities within the area, specifically with location on the Cross Florida Barge Canal, road network, and rail movement, as well as determined the potential future tonnage being imported and exported from the port. The Citrus Port Authority stated a goal of getting the Port construction underway in time for the completion of the Panama Canal expansion.

3.8.3 Airports

Located along US Highway 19 on the southern end of Crystal River is the Crystal River Airport. This public airport is designed for general aviation and private use; there is no commercial air service. The total number of flight operations using the airport facility a year is approximately 28,000. The airport facility provides primarily civilian needs, but according to Citrus County, it does have the ability to support numerous emergency management and public service functions.

According to the Florida Aviation System Plan 2025, the Crystal River Airport is projected to continue serving as a general aviation airport in the future. Specifically, the airport will continue to serve flight training, recreational, and business functions. The Florida Aviation System Plan also identifies the restrictions on expansion of the Crystal River Airport due to wetlands and lack of real estate (Airport System Plan, 2011). However, the plan identifies particular improvements that must be made in order to incorporate additional general aviation needs and projected tourism functions for the airport. The improvements include: runway extension, training building, T-Hangars, corporate hangars, and security enhancements. Most of these enhancements are included in the Capital Improvement Plan for the Crystal River Airport and are funded by the state program.

3.8.4 Freight

The Florida Department of Transportation (FDOT) emphasized the importance of freight mobility as an economic driver for the State of Florida. The office of Freight Logistics and Passenger Operations (FLP) was created by the FDOT to better connect, develop and implement freight planning initiatives. In July 2012, the FDOT District Seven office developed the Tampa Bay Regional Strategic Freight Plan. The plan was developed to understand the regional goods movement and provide an investment strategy for enhanced freight mobility and improving economic prosperity in the Tampa Bay region.

According to the Tampa Bay Regional Strategic Freight Plan, there are only two emerging freight activity centers located in Citrus County. One of these is located close to the City of Inverness Airport, which is approximately twenty miles east of US Highway 19 and is connected to the corridor via State Road 44. The second emerging freight activity center, Duke Energy Complex is located approximately four miles west of the Study Area. This area has potential to become a freight activity hub in the future with the planned development of Port Citrus.

Additionally, the Tampa Bay Regional Strategic Freight Plan highlights numerous existing multi-modal freight activity centers in the Tampa Bay region, which influence freight movement within the Study Area. These freight activity centers include the Tampa Bay International Airport, St. Petersburg-Clearwater International Airport, Port Tampa, Port Manatee, CSX distribution centers, and many other industrial centers in the Tampa Bay region. Also, the plan identifies multiple emerging freight activity centers including: Hernando County Airport, Zephyrhills Municipal Airport, Lakeland Linder Regional Airport, and Sarasota-Bradenton International Airport.

The state has placed an important priority on upgrading and expanding the rail network moving into the future. Although trucks capture significant amount of freight mobility, the increase of congestion on the road network and energy costs of highway movement will make the expansion of rail a necessity (2009 Florida Rail System Plan, 2009). This initiative could improve the Florida Northern Railroad, which is an emerging SIS facility (See **Figure 3.1** on page 55). The enhancement of the rail network throughout the region, as well as the

development of Port Citrus will be essential in efficient movement of freight from the Study Area to the rest of the state.

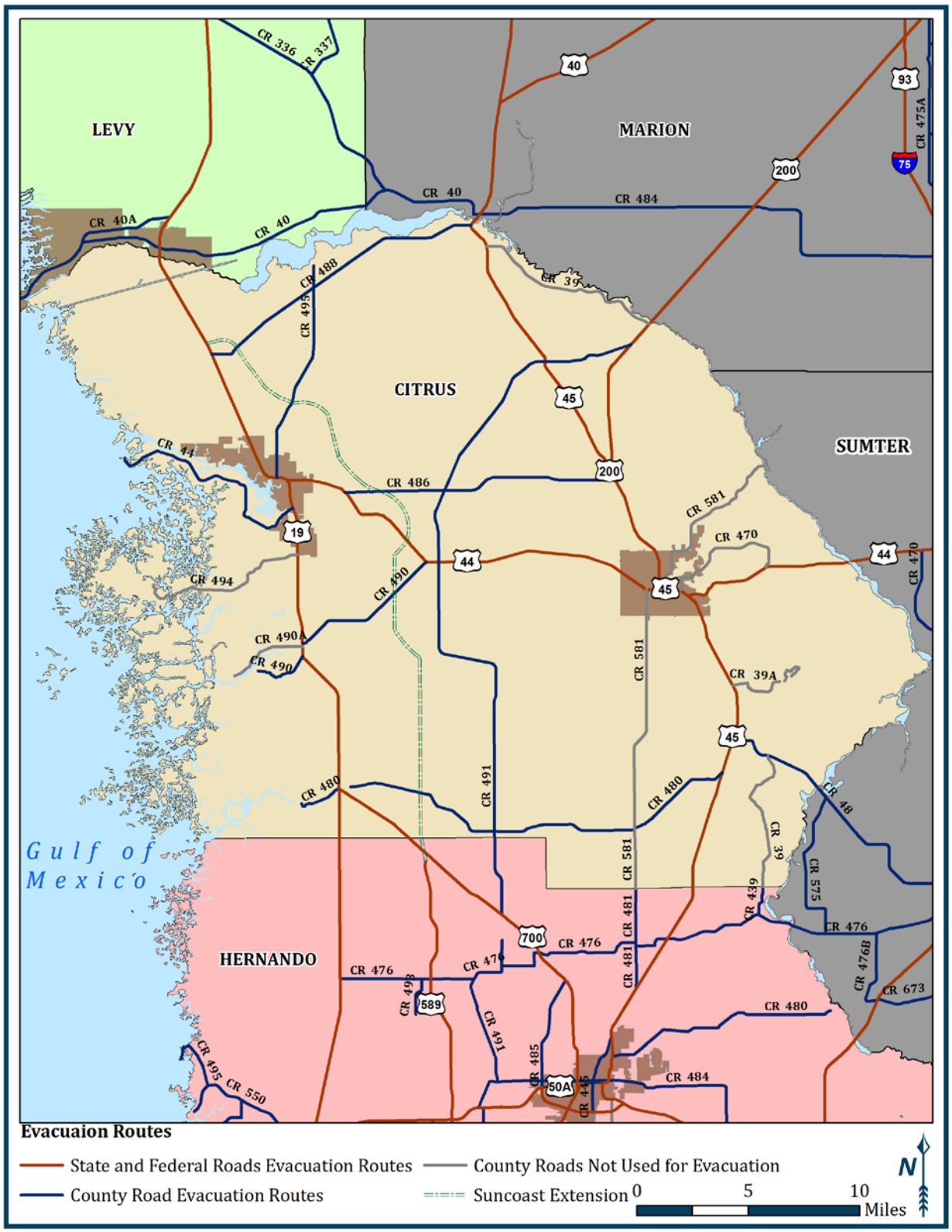
3.9 Evacuation Routes and Emergency Management

US Highway 19 is an important north-south evacuation route for Levy County, Citrus County, and Hernando County. According to Florida's Statewide Regional Evacuation Study Program (SRESP), the Study Area is connected with seven additional evacuation routes. These connections provide opportunities for traffic to take additional routes to alleviate congestion or to avoid potential road outages associated with an evacuation scenario. When looking at the number of connections by counties associated with the Study Area; Levy County has one route, Citrus County has six, and Hernando County has zero.

In the event of an evacuation scenario, the majority of the evacuees will be heading north from the Tampa Bay area and are expected to find shelter inland in the Withlacoochee Regional Planning area. Interstate 75 would likely be one of the top evacuation choices for leaving the Tampa Bay region, although some of the traffic will find its way northbound on US Highway 19. Once evacuees are within the Study Area, they will have a total of seven opportunities to take additional evacuation routes farther inland. According to the SRESP data, it is assumed that US Highway 19 within Citrus County will receive approximately 300-400 southbound evacuees and between 11,700-19,400 evacuees heading northbound. This information is based upon a variety of different variables; one of the main influences being the overall population in the neighboring counties with Hernando County having a far larger population than the more rural Levy County.

In the typical storm evacuation for the Study Area, the two most viable directions will be north and east. Most tropical storms/hurricanes that strike the Study Area come from the southwest or southeast, meaning that most people will try to evacuate away from the coast and toward the more northern and central parts of the state. **Figure 3.19** displays the existing and recognized evacuation routes for Citrus County. Essentially, all county roads, state roads, and highways within the Citrus County serve as possible evacuation options. With the completion of the Suncoast Parkway extension, there will be another alternative evacuation route. This future route should alleviate existing pressures on current evacuation routes.

Figure 3.19 Citrus County Evacuation Routes



Source: Florida Geographic Data Library, 2013

3.10 Summary of Findings

The US Highway 19 Study Area is a major transportation route for local and regional transportation in west central Florida. The Study Area's system characteristics highlight the different conditions present along the corridor. The northern and southern portions of the Study Area offer higher speeds, and provide high levels of service for users. In contrast, portions of the corridor in Crystal River and Homosassa Springs have lower speeds, a complex mix of land uses, and sections that are currently congested or will be congested by the year 2025.

To alleviate congestion and maintain an adequate Level of Service (LOS), planned improvements within the Florida Department of Transportation five-year plan will widen portions of the roadway from four lanes to six lanes. The expansion of the Suncoast Parkway would also help to alleviate congestion by providing an alternative north-south route for regional traffic. Current Access Management practices along most of the Study Area are dedicated to increasing mobility.

Pedestrian conditions along the Study Area vary depending on the segment and area type. Crystal River currently is well-served by sidewalks and portions of the corridor have in place bicycle lanes. The Homosassa Springs area has very limited sidewalk connectivity and no bicycle lanes along the corridor. While bike and pedestrian connectivity along the corridor is poor, the abundance of trails within the region also provides an opportunity to connect local sidewalks and trails with state run facilities.

An assessment of freight data indicates that the Study Area is primarily used for local freight traffic. The proposed development of Port Citrus would further enhance the trade and logistics industry for Citrus County and would lead to increased freight movement within the corridor. The majority of the regional freight traffic that will be generated from Port Citrus could be directed toward the expansion of the Suncoast Parkway. The Study Area is also home to a regional airport, the Crystal River Airport, which is a general aviation facility used for flight training, recreational and business uses. There are no plans to expand to any commercial or cargo uses at this time.

In regards to emergency management, the majority of the County and State roads are designated as evacuation routes. The US Highway 19 corridor is a major north-south evacuation route for the Tampa Bay region. Additionally, the expansion

of the Suncoast Parkway would provide another major north-south alternative, alleviating the demand of US Highway 19 during severe storms and critical evacuation periods.

Looking ahead, the Study Area will continue to serve local traffic within Citrus County, while also providing a regional connectivity to the Tampa Bay area. The planned Suncoast Parkway expansion will provide an alternative for regional through traffic and provide an opportunity to enhance the traffic safety and freight efficiency within the Study Area. With the expansion of the Suncoast Parkway, local trips within the Study Area will account for an even greater share of total traffic. Given this, the evidence indicates that the Study Area might best be reoriented to serving local needs rather than regional needs, with an emphasis upon design, safety, and placemaking.

Chapter 4 - Environmental Considerations

The US Highway 19 Study Area runs through a large section of Florida's "Nature Coast"; an area of the state dedicated to showcasing the natural features of Florida. The main purpose of this chapter is to identify and evaluate the environmental conditions in and around the Study Area. The Florida Department of Transportation is mandated to consider and protect the natural resources of Florida and as such must understand the present conditions before implementing projects.

The following chapter will provide information on environmental features, managed and protected resources and safety considerations in order to provide an environmental context. The information presented is designed to give an overview of the existing environmental conditions and will provide a basis for which future alternatives and strategies can reference. It is important to note that this is an overview of existing environmental conditions and additional research at a later date may be required for site specific improvements or strategies within the Study Area.

4.1 Environmental Features

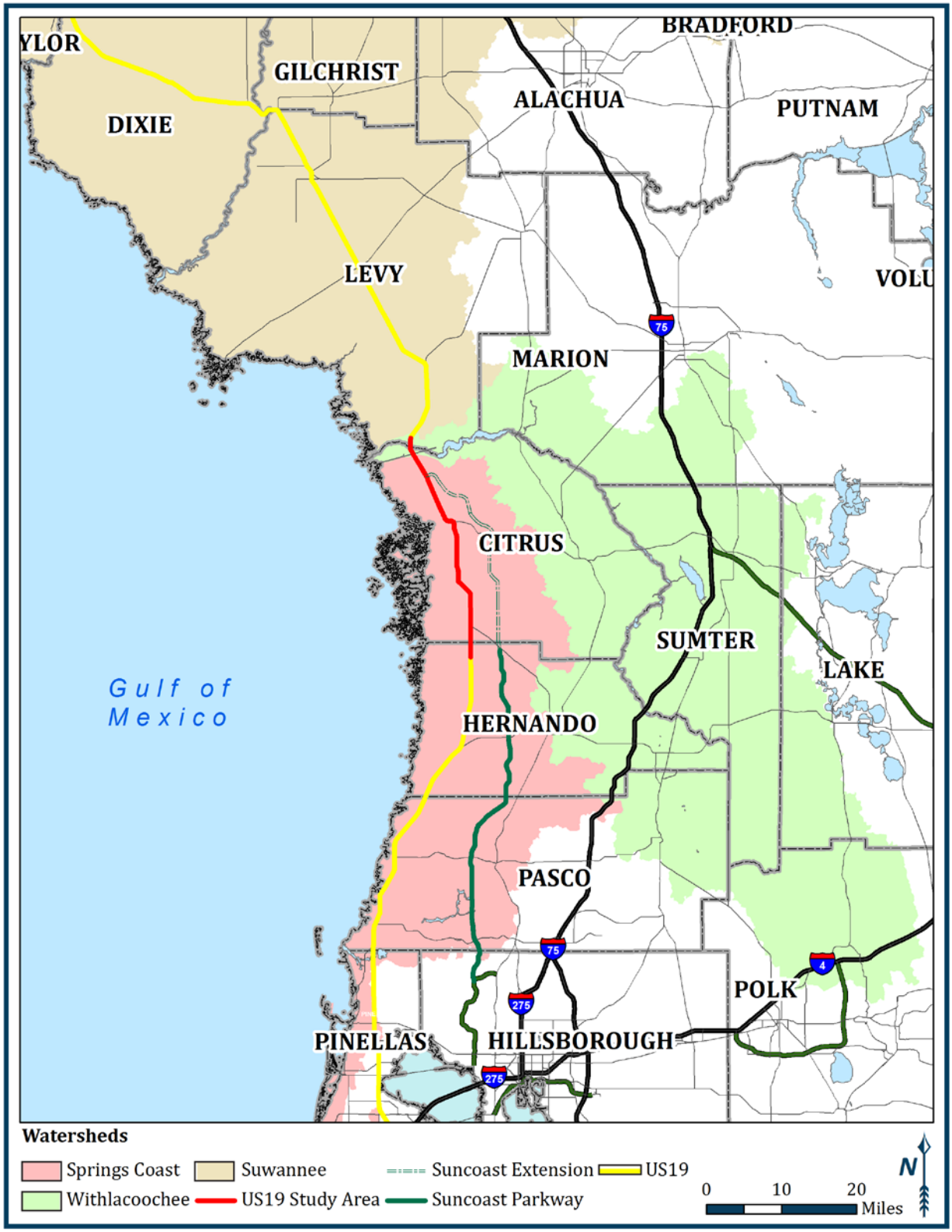
The following sections provide an understanding of the environmental features pertinent in the Study Area. The natural environment plays a fundamental role in the history and growth of Florida. The successes of Citrus, Levy, and Hernando Counties rely on the health of these environmental features, and an understanding of their influence is important to maintaining the integrity and advancement of the "Nature Coast."

4.1.1 Watersheds

Figure 4.1 displays the watersheds within the Study Area. The Spring Coast watershed is the main watershed in the area, with the Suwannee River watershed encompassing some portions of Levy County. The Springs Coast watershed covers approximately 1,052 square miles, and includes an estuarine ecosystem that extends almost the entire shoreline, covering roughly 15% of the watershed area. All water within a watershed converges towards the same location.

The coastline is home to many complex ecosystems, with numerous tidal creeks, salt marshes, isolated islands, mangroves, sandy beaches, seagrass beds, and oyster reefs. The low elevation of the area makes it highly influenced by tidal fluctuations and prone to flooding, even during moderate storms. As is the case in many portions of Florida, the region's karst topography has a significant impact on the groundwater recharge of the aquifer, which impacts the various springs located in the watershed. The porous landscape and generally unconfined nature of the Florida aquifer combine to provide a connection between surface and groundwater resources (Springs Coast Watershed Management Plan, 2001). With this comes a greater susceptibility to the deterioration of groundwater quality and quantity if not properly managed. The Southwest Florida Water Management District (SWFWMD) states that "continued population growth in the watershed, fueled by the development of the Suncoast Parkway, will continue to create issues between land use and water resource planning" (Springs Coast Watershed Management Plan, 2001).

Figure 4.1 Watershed Boundaries



Source: Florida Geographic Data Library, 1999

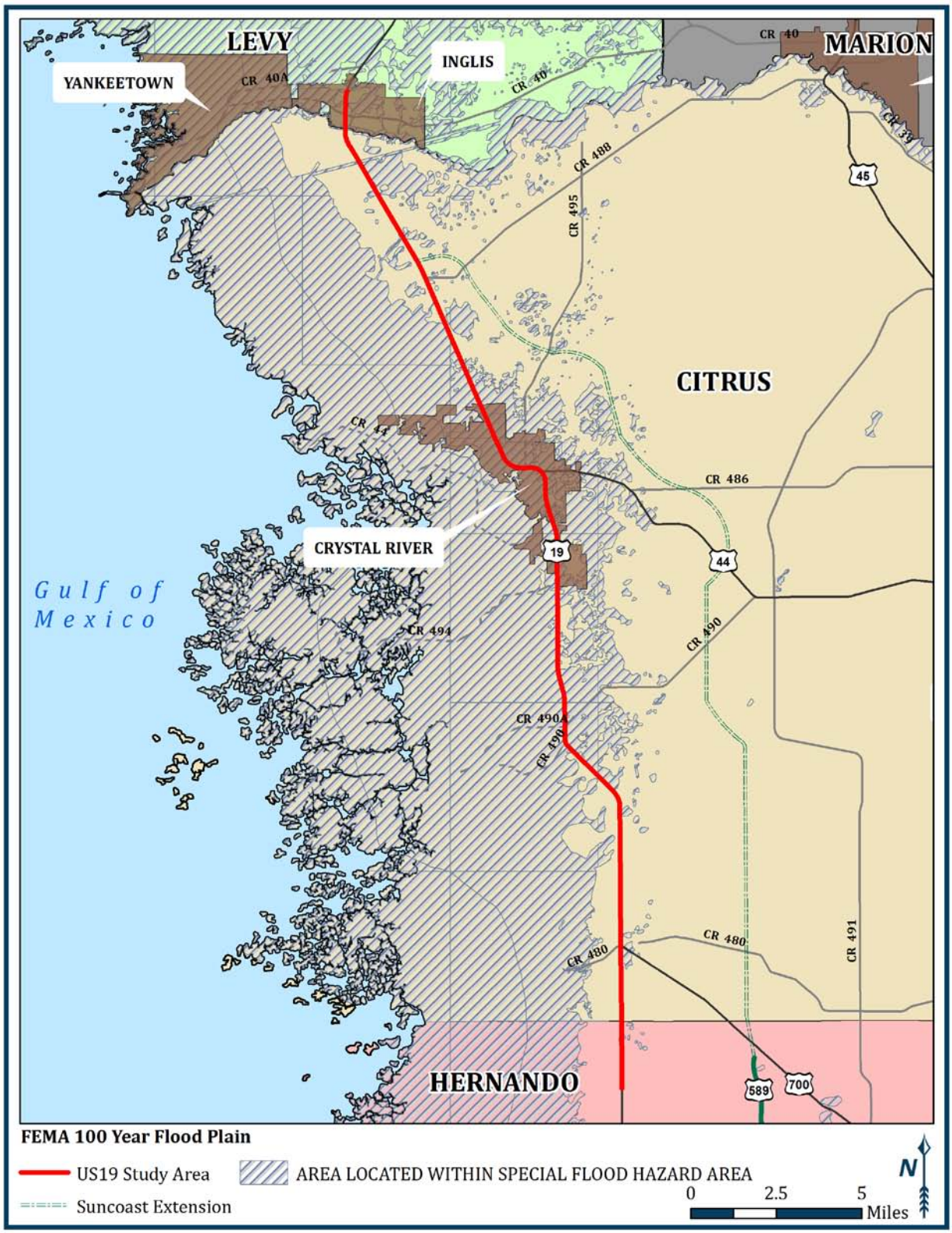
4.1.2 Wetlands and Floodplains

Figure 4.2 shows the floodplain areas in proximity to the Study Area. When observing the 100 year floodplain, the central portion of the Study Area is susceptible to flooding whereas the northern and southern portions are slightly less at risk. **Figure 4.3** displays the Study Area's wetlands. The primary clusters of wetlands are concentrated in Citrus County on the western side of the Study Area with smaller patches on the eastern side. The presence of wetlands on the western side of the corridor is due to the close proximity to the Gulf of Mexico. Many of the wetlands are publicly managed and owned conservation lands.

Wetlands receive protection from *Section 404* of the *Clean Water Act*, *USDOT Order 5660.1A* and *Executive Order 11990*. The *Clean Water Act Section 404* requires a permit for activities that would either dredge or fill any of the nation's waters, which includes wetlands. Section 404 requires the replacement or mitigation of wetland loss to ensure that there will be "no net loss." Federal and state agencies have the authority to enforce the above regulations; wetlands across the state and country have been protected or relocated through the mitigation banking process.

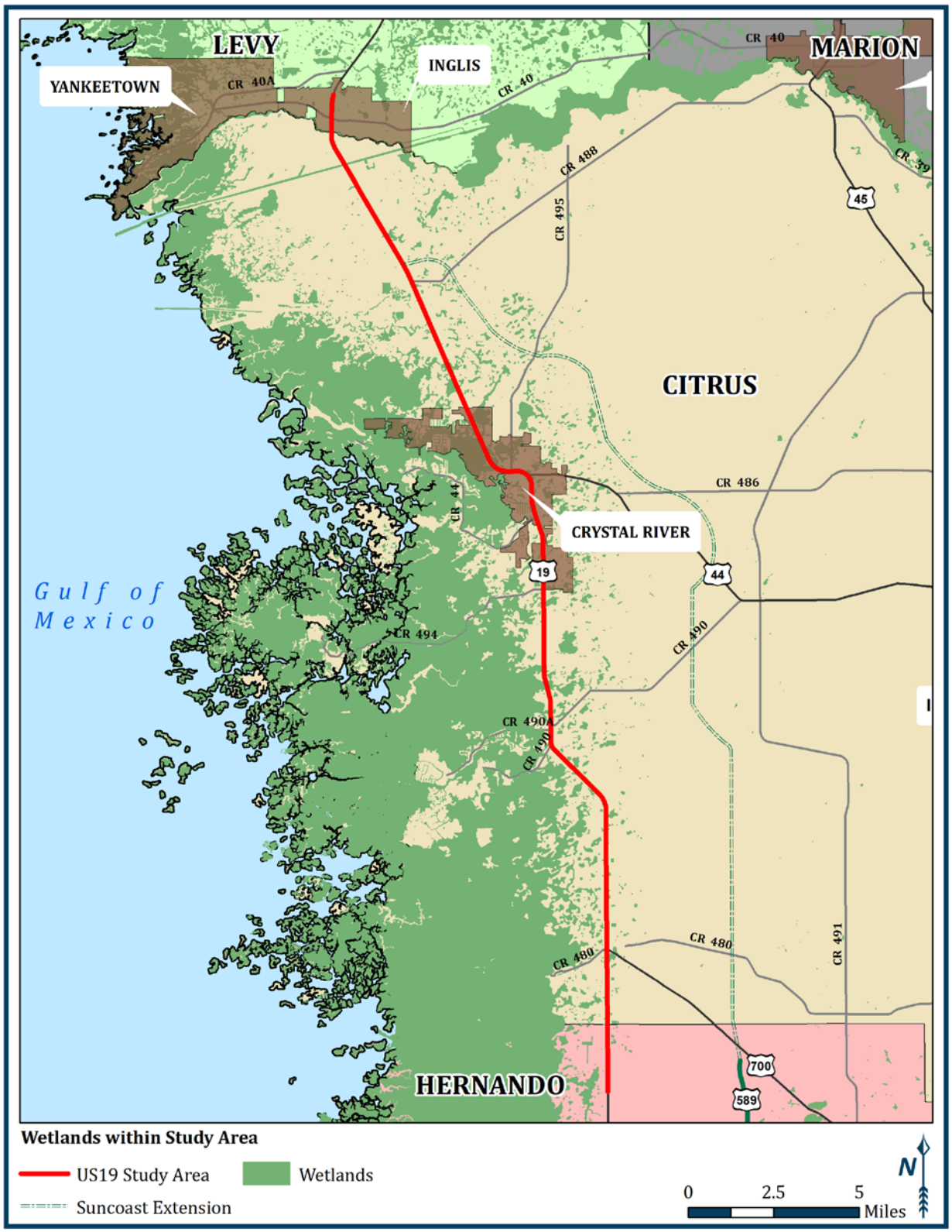
The protection of these wetlands and conservation areas will be beneficial in the future when considering sea level rise. Limited development on the western side of US Highway 19 will help to mitigate some of the potential damage and property loss to the Study Area. The Intergovernmental Panel on Climate Change (IPCC) has identified several low, medium and high models of sea level rise; however, the degree and actual height that will be experienced within the next century remains uncertain. If in fact a substantial amount of sea level rise becomes a reality, flood plains and hazard zones will require revisions. Future considerations for the roadway will need to address sea level rise concerns and should plan accordingly to ensure that any roadway improvements will still be viable.

Figure 4.2 FEMA 100 Year Floodplain area along the US Highway 19 Corridor



Source: Florida Geographic Data Library, 1999

Figure 4.3 Wetlands along the US Highway 19 Corridor



Source: Florida Geographic Data Library, 1996

4.2 Managed and Protected Areas

The following subsections describe areas and features along the Study Area that are either federal, state, local, or privately owned and/or managed. These areas and features are environmentally significant and are being conserved for the current and future generations.

4.2.1 Water Management Districts

The Study Area is located in the Southwest Florida Water Management District (SWFMD) while the northern portions of Levy County (outside of the Study Area) are located in the Suwannee River Water Management District (SRWMD). The water management districts serve the primary purpose of helping to develop water management plans, performing technical studies of water resources, acquiring land for management purposes, administering flood protection programs, and regulating and managing consumption of aquifer, well, and surface waters.

4.2.2 Surface Waters

As previously noted, Florida's waters are influenced by the low lying elevation and karst topography of the landscape. The Florida Department of Environmental Protection (FDEP) classifies designated uses of surface waters using six categories. These classifications, along with their criteria, are defined in the *Florida Administrative Code* (*F.A.C. 62-302.400 and 62-302.500*) and are intended to protect present and future beneficial uses of the waters, concerning aquatic life and/or human health.

- **Class I**- Potable Water Supplies: 14 general areas throughout the state including: impoundments, and associated tributaries, certain lakes, rivers, or portions of rivers, used as a source or potable water.
- **Class II**- Shellfish Propagation or Harvesting: Generally coastal waters where shellfish harvesting occurs.
- **Class III**- Fish Consumption, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife: The surface

waters of the state are Class III unless described in Rule 62-302.400, Florida Administrative Code.

- **Class III- Limited**- Fish Consumption; Recreation or Limited Recreation; and/or Propagation and Maintenance of a Limited Population of Fish and Wildlife: This classification is restricted to waters with human-induced physical or habitat conditions that, because of those conditions, have limited aquatic life support and habitat that prevent attainment of Class III uses.
- **Class IV**- Agricultural Water Supplies: Generally located in agriculture areas around Lake Okeechobee.
- **Class V**- Navigation, Utility, and Industrial Use: Currently, there are not any designated Class V bodies of water in Florida. The Fenholloway River in Putnam County was reclassified as Class III in 1998.

There are multiple surface waters in the Study Area which are designated Class II water bodies. These water bodies are the large estuaries encompassing: Withlacoochee Bay, Crystal Bay, Homosassa Bay, and Chassahowitzka Bay. The aquatic nurseries for fish and shellfish located in these estuaries require a consistent balance of fresh water coming from the aquifer fed springs combined with the salt water from the Gulf of Mexico in order to have a productive ecosystem. The potential risk of overconsumption or polluted waters could have a detrimental impact on the tourism, recreation, and jobs these waters provide.

4.2.3 Outstanding Florida Waters

In addition to a surface water classification, a water body may be designated as an Outstanding Florida Water (OFW), which is a water body designated worthy of special protection because of its natural attributes. This description is intended to protect and maintain the existing water quality. Most OFWs are managed by the state or federal government as defined in the legal boundaries of parks, wildlife refuges, preserves, marine sanctuaries, aquatic preserves.

Projects proposed within an OFW must not lower existing ambient water quality. FDEP cannot issue permits for direct discharges to OFWs that would lower existing water quality. This usually deters new wastewater from directly entering the water body and requires increased treatment of stormwater

discharge. FDEP cannot issue permits for indirect discharges that would significantly degrade a nearby water body designated an OFW. **Table 4.1** displays the Outstanding Florida Waters located within a half mile of the Study Area:

Table 4.1 Outstanding Florida Waters (1,500 ft. buffer From Study Area)

County	Name	Type
Citrus	St. Martins Marsh	Aquatic Preserve
Citrus	Homosassa River System	Special Waters
Citrus	Crystal River	Special Waters
Levy and Citrus	Withlacoochee Riverine System	Special Waters
Citrus	Homosassa Reserve/Walker Tract	State Reserve
Citrus	Homosassa Springs State Wildlife Park	State Park

Source: FDEP, Outstanding Florida Waters, February 2012

4.2.4 FEMA Flood Hazard Zones

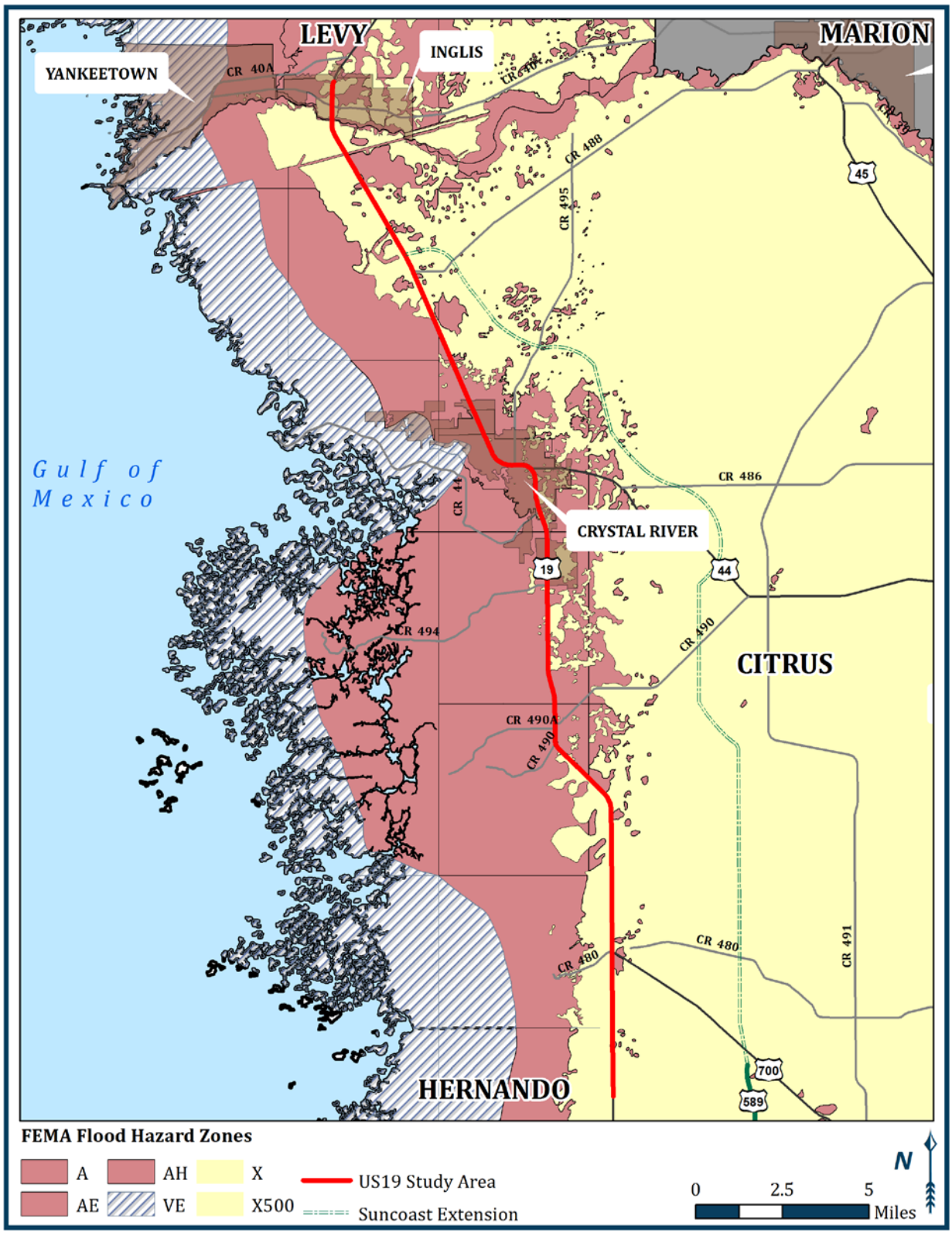
Figure 4.4 presents the Federal Emergency Management Agency (FEMA) Flood Hazard Zones along the Study Area. High risk zones have been highlighted in red and moderate risk zones are yellow. High risk zones have a 1% annual chance of a flood event (100 year), the moderate flood hazard zone is within the 100 and 500 year flood plains. Minimal flood areas are within the 500 year floodplain meaning there is only a 1% chance the plain will flood within the next 500 years. Within the Study Area there are no portions of minimal flood hazard. US Highway 19 has a close proximity to the Gulf of Mexico and the regions low elevation has placed the vast majority of the Study Area at risk. Any proposed improvements or strategies for the Study Area should consider the 100-year floodplain and make efforts to mitigate the risks of these hazardous areas whenever possible. **Table 4.2** listed below shows the different FEMA flood hazard zones found within the Study Area.

Table 4.2 FEMA Flood Zone Descriptions

Zone	Description
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
VE	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
X	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
X550	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.

Source: FEMA Map Service Center

Figure 4.4 FEMA Flood Hazard Zones



Source: Florida Geographic Data Library, 1999

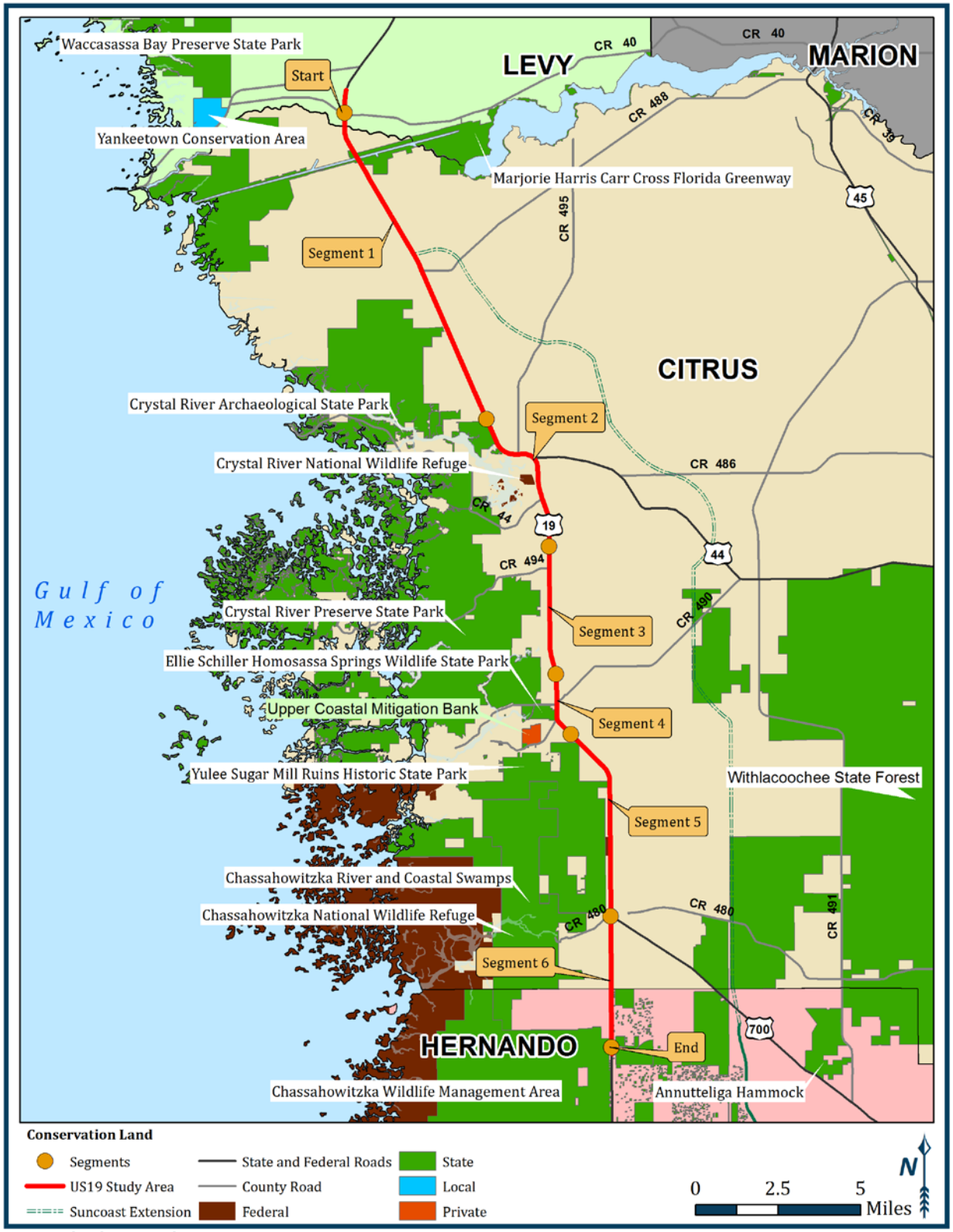
4.2.5 Mitigation Banks

Mitigation banks are permitted by Water Management Districts or the Florida Department of Environmental Protection as stated in *Chapter 62-342 of the Florida Administrative Code*. There has been one mitigation bank identified within five miles of the corridor. Mitigation banks are set up by public and private entities to help mitigate unavoidable wetland impacts within predetermined locations. If a development would destroy or modify an existing wetland, the developer must either purchase mitigation credits or replace the wetland resource at another location. One mitigation credit represents the ecological value that one acre of high quality wetland would provide. The number of credits associated with each project is based on the permitting agency and the overall area that the development is going to impact. The Upper Coastal Mitigation Bank is the only bank within the Study Area. **Figure 4.5** shows the location of the Upper Coastal mitigation bank (shown in red) in relation to the Study Area. The mitigation bank is located just south of Homosassa Springs and west of US Highway 19.

4.2.6 Conservation and Recreational Lands

The Florida Department of Environmental Protection has identified public and private lands as having natural resource values worthy of conservation. **Figure 4.5** shows the 14 conservation sites that have been identified within five miles of the corridor. Ten of these sites are State managed, three are under Federal management, and one is privately managed. **Table 4.3** displays specific information for each of the identified conservation lands and which counties they are within. Between these agencies thousands of natural acres have been preserved.

Figure 4.5 Conservation Sites Along the Study Area



Source: Florida National Areas Inventory, 2013

Table 4.3 Managed Federal, State, and Local lands within 5 miles of US Highway 19 Corridor

Name	Land Type	Manager	Acres	County
Annutteliga Hammock	State	Southwest Florida Water Management District	2,317	Hernando
Chassahowitzka National Wildlife Refuge	Federal	US Dept. of the Interior, Fish and Wildlife Service	30,843	Citrus & Hernando
Chassahowitzka River & Coastal Swamps	State	Southwest Florida Water management District	5,679	Citrus & Hernando
Chassahowitzka Wildlife Management Area	State	FL Fish & Wildlife Conservation Commission	27,264	Hernando
Crystal River Archeological State Park	State	FL Dept. of Environmental Protection, Div. of Recreation & Parks	62	Citrus
Crystal River National Wildlife Preserve	Federal	US Dept. of the Interior, Fish & Wildlife Service	137	Citrus
Crystal River Preserve State park	State	FL Dept. of Environmental Protection, Div. of Recreation & Parks	25,381	Citrus
Ellie Schiller Homosassa Springs Wildlife State Park	State	FL Dept. of Environmental Protection, Div. of Recreation & Parks	200	Citrus
Marjorie Harris Carr Cross Florida Greenway	State	FL Dept. of Environmental Protection, Div. of Recreation & Parks	71,189	Citrus, Levy, Marion, and Putnam
Upper Coastal Mitigation Bank	Private	EarthBalance	149	Citrus
Waccasassa Bay Preserve State Park	State	FL Dept. of Environmental Protection, Div. of Recreation and Parks	34,166	Levy
Withlacoochee State Forest	State	FL Dept. of Agriculture & Consumer Services, Florida Forest Service	159,625	Hernando, Citrus, Pasco, & Sumter
Yankee Town Conservation Area	Local	Town of Yankeetown	413	Levy
Yulee Sugar Mill Ruins Historic State Park	State	FL Dept. of Environmental Protection, Div. of Recreation & Parks	5	Citrus

Source: Florida Natural Areas Inventory, 2013

4.2.7 Threatened and Endangered Species

The threatened and endangered species list gathered for this report comes from the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix. This data documents occurrences of rare species and natural communities on a one square mile scale. The Biodiversity Matrix classifies species and communities occurrence by the following categories (Florida Natural Areas Inventory, 2013):

Documented - There is a documented occurrence in the FNAI database of the species of community with this Matrix Unit.

Documented-Historic - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

Likely - The species or community is known to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. Documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. There is documented occurrence in the vicinity and there is suitable habitat for the species or community within this Matrix Unit.

Potential - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and land cover (Species listed as "potential" are not included in this document, since the probability of occurrence within a particular Matrix Unit is very small).

This FNAI data is not always based on comprehensive or site-specific field surveys. This information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be replaced for site specific surveys (FNAI, 2013). The FNAI data is being used to provide an overview of species occurrences within the Study Area. A more in depth site specific survey is needed for projects in the next steps of the planning and development stages.

Table 4.4 provides the descriptions of the Federal and State designations for species. Depending on their status, these designated species are monitored and managed in order to ensure their long-term wellbeing and survival. **Table 4.5** identifies and lists 17 threatened and endangered species along the Study Area.

Table 4.4 Federal and State Species Designation

Federal and State Species Designations
C= Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service.
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service.
FT(S/A) = Federal Threatened due to similarity of appearance.
LE = Endangered: species in danger of extinction throughout all or a significant portion of its range.
LT = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
N = Not currently listed, nor currently being considered for listing.

Source: Florida Natural Areas Inventory, 2013

Table 4.5 Threatened and Endangered Species along the US Highway 19 corridor

FNAI Diversity Matrix Species within approximately 1 sq. mile			
Common Name	**Federal**	**State**	**Occurrence**
American Alligator	SAT	FT(S/A)	Documented
Bald Eagle	N	N	Documented
Chapman's Skeleton grass	N	N	Documented
Crystal Siltsnail	N	N	Likely
Eastern Diamondback Rattlesnake	N	N	Documented
Eastern Indigo Snake	LT	FT	Likely
Florida Black Bear	N	ST	Likely
Florida Mouse	N	SSC	Documented
Florida Pine Snake	N	SSC	Likely
Florida Sandhill Crane	N	ST	Likely
Florida Scrub-Jay	LT	FT	Likely
Giant Orchid	N	LT	Documented
Gopher Frog	N	SSC	Documented
Gopher Tortoise	C	ST	Documented
Manatee	LE	FE	Likely
Osprey	N	SSC	Documented
Pine Pinweed	N	LE	Documented
Red-cockaded Woodpecker	LE	FE	Documented-Historic
Sherman's Fox Squirrel	N	SSC	Documented
Short-tailed Hawk	N	N	Likely
Southeastern American Kestrel	N	ST	Documented
Southern Hognose Snake	N	N	Likely
Scrub Stylisma	N	LE	Documented
Suwannee Cooter	N	SSC	Documented
Taper-Tailed Darner	N	N	Likely
Withlacoochee Tiny Sand-loving Scarab	N	N	Documented

Source: Florida Natural Areas Inventory, 2013

4.2.8 Parks and Recreation Sites

Thirty-three public and private parks have been identified within five miles the Study Area. These locations include the previously mentioned conservation areas but also consist of a wide range of destinations such as golf courses, RV parks, local parks, state parks, marinas, campgrounds and resorts.

Figure 2.5 (on Page 33**)** displays these parks as point locations to show the approximate entrances of each. US Highway 19 serves as the main route to reach many of these destinations.

4.2.9 Florida Forever Land Acquisition Program

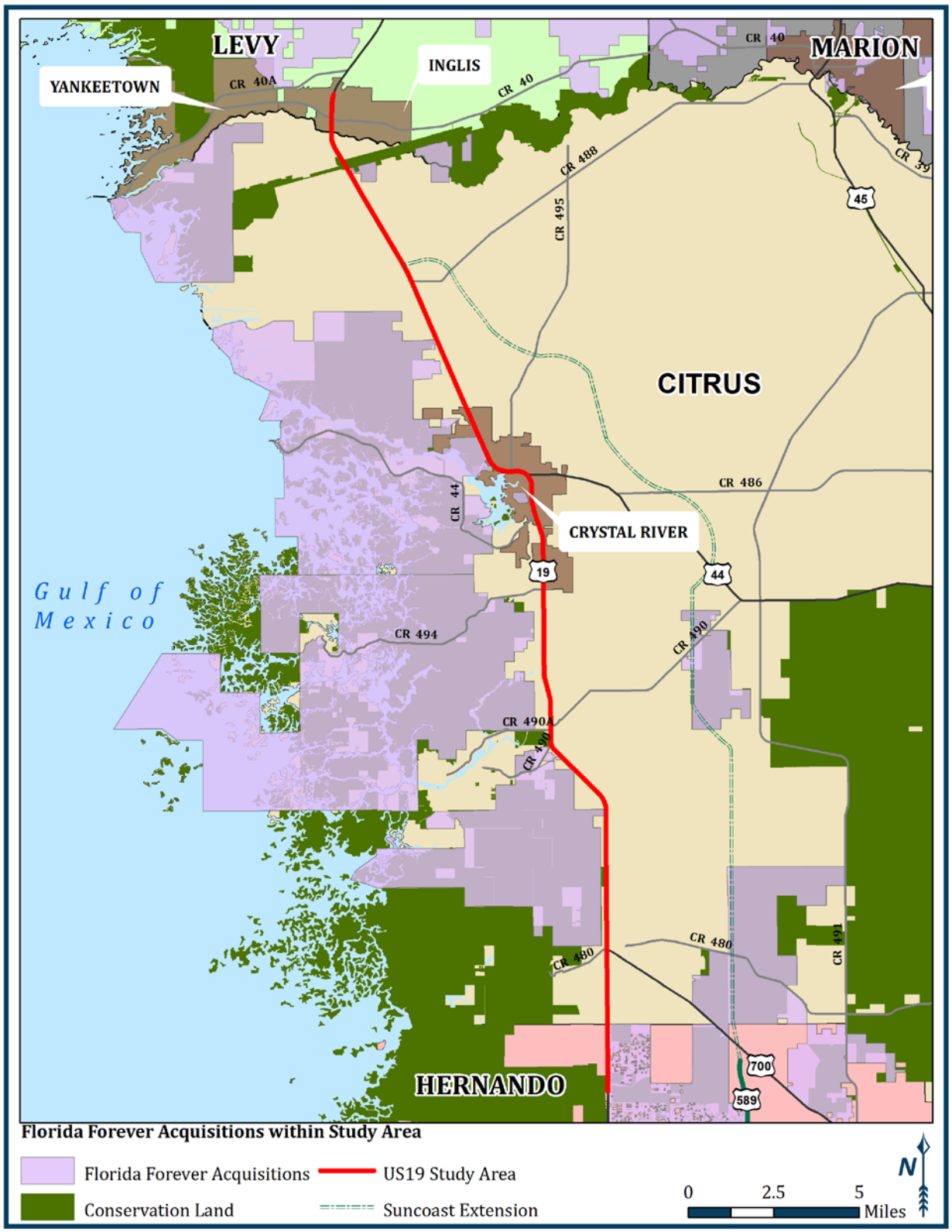
The Florida Forever Program is a land acquisition program run by the Florida Department of Environmental Protection (FDEP) through the Acquisition and Restoration Council (ARC), which evaluates, ranks, and prioritizes future acquisitions. The purpose of the Florida Forever Program is to buy, conserve, and manage natural areas with significant ecological, historical, and archaeological value. The program has purchased more than 683,000 acres since its inception in 2001. **Figure 4.6** shows that the majority of the managed conservation areas within five miles of the Study Area have been purchased under the Florida Forever Program. **Table 4.6** shows the various Florida Forever land acquisitions that have been within the Study Area. These areas are important for increasing the character of the "Nature Coast". Most proposed acquisition sites have been purchased through the program, with only a few essential parcels remaining. These parcels aim to create a more contiguous area in order to increase the effectiveness of the conservation efforts.

Table 4.6 Florida Forever Land Acquisitions in the Study Area

Project Name	County	Acres
Anutteliga Hammock	Citrus & Hernando	24,771
Etoniah/Cross Florida Greenway	Citrus, Hernando, & Levy	2,278
Crystal River Florida Springs Greenway	Citrus	25,270
Homosassa Reserve/Walker Property	Citrus	9,901
St. Martin's River Florida Springs Coastal Greenway	Citrus	26,099
Gulf Hammock	Levy	25,655
South Goethe	Levy	11,705

Source: Florida Natural Areas Inventory, 2013

Figure 4.6 Florida Forever Program Acquisitions



Source: Florida National Areas Inventory, 2013

4.2.10 Historical and Culturally Significant Sites

Within the Study Area there are several historical and culturally significant sites. For the purpose of the existing conditions and needs study, only sites located within 1,500 feet of the Study Area were recorded. According to a search using the Florida Master Site File, there are twenty three archeological sites, nine managed areas, two cemeteries, one national register and 106 standing structures found within the Study Area. The National Register of Historical Places is a listing of historical places important enough for preservation under the National Historic Preservation Act of 1966. The sites listed below in **Table 4.7** show many of the important structures and locations within the Study Area. These locations are significant to the region's history and should be taken into consideration when developing planned improvements or alterations.

Table 4.7 Historical and Cultural Sites within Five Miles of the Study Area

Site Name	Site Type	Site Name	Site Type
Archaeological Structures			
Homosassa Area Park I	Land-terrestrial	Paleo I	Land-terrestrial
Crystal River Water Tower	Building remains	Priest	Homestead
Crystal River Highlands Mound	Prehistoric mound(s)	Suncoast Baptist Site	Campsite (prehistoric)
Vance	Prehistoric midden(s)	Red Navel	Land-terrestrial
Hotel Homosassa Springs	Structure	Kingston	Specialized site for procurement of raw materials
Intersection	Campsite (prehistoric)	Vance Burial Mound	Prehistoric burial mound(s)
Graveyard	Campsite (prehistoric)	Natural Well	Land-terrestrial
East Graveyard	Campsite (prehistoric)	Dixon	Homestead
One Pole	Artifact scatter-low density (< 2 per sq. meter)	Priest's Flake	Campsite (prehistoric)
Culvert	Lithic scatter/quarry (prehistoric: no ceramics)	19 Resorts Midden	Campsite (prehistoric)
County Line	Lithic scatter/quarry (prehistoric: no ceramics)	Seville Burrow	Historic refuse / Dump
Citrus Springs	Habitation (prehistoric)		
Cemeteries		***National Registry***	
Crystal River Cemetery	Cemetery	Crystal River Old City Hall	Structure
Stage Stand Cemetery	Cemetery		

Source: Florida Master Site File, 2013

4.3 Environmental Safety Considerations

The following subsections describe facilities and sites that are identified as potential contaminated sites or chemical release facilities. The subsections also identify hazardous waste cleanup sites along the Study Area that may require environmental remediation.

4.3.1 Contaminated Sites and Major Chemical Release Facilities

The potential for contaminated sites and pollution is an important factor to consider in any analysis of improvements within the Study Area. The Project Development and Environment (PD&E) Manual provides procedures for full environmental analysis of contaminated sites during a PD&E Study. Full analysis of contamination issues is done through the Contamination Screening Evaluation Report (CSER) for projects. Each CSER utilizes FDOT's hazardous materials rating system to rate the potential risk of contamination at each property identified. This rating system includes four possible values: No, Low, Medium and High. The definitions of each value are summarized as follows:

NO: A review of available information, there is nothing to indicate that contamination is a problem at the designated facility. It is possible that contaminants could have been handled on the property, however all available information indicates that problems are not expected.

LOW: The former or current operation has a hazardous waste generator identification number, or deals with hazardous materials; however, based on all available information, there is no reason to believe there would be any involvement with contamination.

MEDIUM: After a review of all available information, indications are found (reports, Notice of Violations, consent orders, etc.) that identify known soil and/or water contamination and that the problem does not need remediation, is being remediated or that continued monitoring is required.

HIGH: After a review of all available information, there is a potential for contamination problems. Further assessment will be required after alignment selection to determine the actual presence and /or levels of contamination and the need for remedial action.

The Toxic Release Inventory Program (TRI) provides the US Environmental Protection Agency's (EPA) analysis and interpretation of the most recent TRI data. It includes information about toxic chemical releases to the environment from facilities that report to the TRI program. The goal of the Toxics Release Inventory program is to provide communities with information about toxic chemical releases and waste management activities and to support informed decision making at all levels by industry, government, non-governmental organizations, and the public. Given the lack of previous studies to provide sufficient details on segments of the corridor with regard to contaminated sites, this review provides details on potential contamination concerns, the identification of state funded hazardous waste cleanup sites, as well as the identification of major chemical release facilities in the Study Area.

4.3.2 Major Chemical Release Facilities

Major chemical release facilities were found using the Toxic Release Inventory Program. There are three chemical release facilities within five miles of the Study Area. As shown in **Table 4.8**, all three sites are located within Citrus County. The former Pro Line Boats manufacturer is located in Homosassa Springs. The other two sites are located in Crystal River: the Crystal River Energy Complex and the Augusta Fiberglass Coatings Company.

As it shows in **Table 4.8**, the Crystal River Energy Complex is the largest source of pollution in the Study Area, with a volume of more than six million pounds of pollutants a year. The Crystal River Energy Complex consists of five power-generating plants on a 4,700 acre site in the northwest of Citrus County. Four of the five plants are fossil fuel power, while one is a nuclear power plant.

Table 4.8 Major Chemical Release Facility within 5 miles (2010 updates)

Name	Pro Line Boats	Florida Power Corp Crystal River Energy Complex	Augusta Fiberglass Coatings
Operation	Boats	Power Plant	Fiberglass
Volume	8495 Pounds of Styrene	6,096,805 Pounds of Chemicals	11034 Pounds of Styrene
Impacted Space	Air	Air, Land and Water	Air
Address	1520 Suncoast Blvd	15760 W Power Line St	12892 HCR Limestone Trail
City	Homosassa Springs	Crystal River	Crystal River
County	Citrus County	Citrus County	Citrus County

Source: Environmental Hazards, Home facts

4.3.4 State Funded Hazardous Waste Cleanup Sites

State funded hazardous waste cleanup sites are designated by FDEP District Offices for remediation as part of the State-Funded cleanup program. The program is designed to address sites where there are no viable responsible parties, the site poses an imminent hazard, or the site does not qualify for Superfund, and or is a low priority for EPA. Within five miles of the Study Area, two state funded hazardous waste cleanup sites have been identified, as shown in **Table 4.9**. Both sites are located in Citrus County; one in Crystal River and the other in Homosassa Springs. Although both sites did not qualify for the National Priority List (NPL) based on existing information, their potential environmental impacts on the surrounding area should be considered.

Table 4.9 State Funded Cleanup Sites within 5 miles

Name	Operation	Address	City	County	Status
Metal Industries Inc.	Metal	1000 Crystal Street	Crystal River	Citrus County	Not on NPL
Material Exchange Corp Landfill	Other	5355 Grover Cleveland Blvd	Homosassa Springs	Citrus County	Not on NPL

Source: *Source: Environmental Hazards, Homefacts*

4.4 The Environmental Planning Process

The general transportation strategies described in Technical Memorandum I are the preliminary stages for developing projects or policy decisions. If specific transportation alternative strategies move forward from the conceptual phase and into the planning and implementation phases, a more in depth analysis will be completed through the federal and state environmental processes.

4.4.1 National Environmental Protection Act (NEPA) Process

The National Environmental Protection Act (NEPA) was established to enhance environmental considerations within the United States without hindering future development. Under NEPA regulations, the Federal government takes a leading role in environmental protection while collaborating with local, state and private stakeholders.

Transportation projects have been some of the most profound ways that this country has changed the natural landscape. As such, an Environmental Analysis (EA) is often conducted to ensure that negative environmental externalities are kept to a minimum. There are two outcomes of the EA process, first being a Funding of No Significant Impact (FONSI) and the second being that further analysis is needed in the form of an Environmental Impact Statement (EIS). Typically the EA or EIS required by NEPA is conducted separately from the transportation planning processes, such as the Long Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs). There is an opportunity for these studies to work together to save both time and money. The transportation planning process has the potential to alleviate some of the NEPA work by allowing the EIS agency to review and use any applicable data, which would help prevent duplication of work.

The transportation planning regulations (23 CFR 450.212 and 450.318) are purposefully designed to denote the need to ensure that collaborative planning efforts occur within the state, Metropolitan Planning Organizations and public transportation operators to the practical extent. The purpose of these regulations is that the end product will produce five items that the corridor or subarea studies can use to offer the best transportation opportunities. These goals consist of:

1. Goals and Objective Statements.
2. General travel corridor and/or general modes definition.
3. Preliminary screening of alternatives and elimination of unreasonable alternatives.
4. Basic description of the environmental setting.
5. Preliminary identification of environmental Impacts and environmental mitigation.

These five goals, when documented and analyzed will provide a solid framework for future environmental considerations and will likely decrease the time needed to conduct an environmental impact statement. Cooperation at these levels will allow for a better flow of information between the conducting agencies and will likely lead to enhanced environmental protection moving into the future.

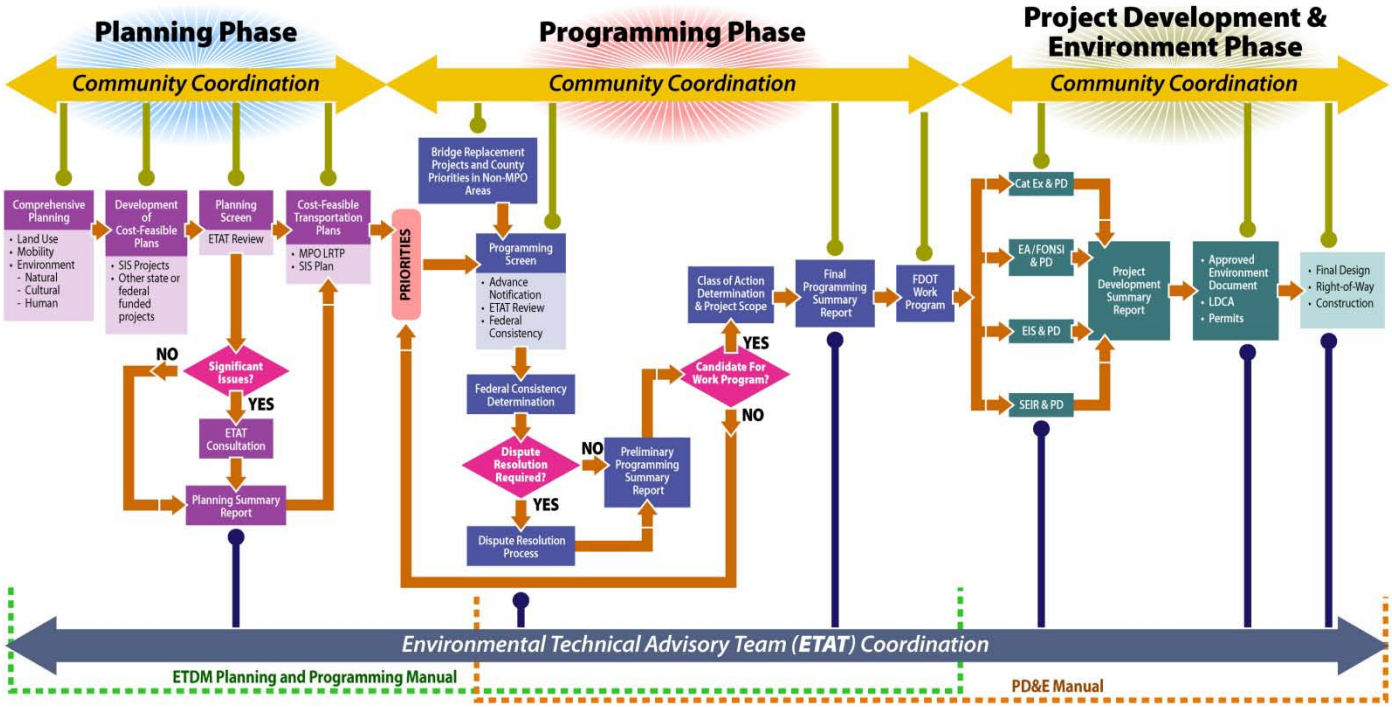
4.4.2 Statewide Environmental Planning Process

Environmental considerations at the state level are directed by Florida's Future Corridors Program, and are vetted through Florida's Efficient Transportation Decision Marking (ETDM) Process. The ETDM process is Florida's procedure for reviewing potential environmental effects in qualifying transportation projects by involving multiple stakeholders in both the planning and developing stages. Intergovernmental interaction is facilitated through the Environmental Technical Advisory Team (ETAT) located in a particular project's FDOT District. The coordination assists the FDOT in planning and developing while considering environmental issues related to the project, including:

- Community (Aesthetics, Economic, Land Use, Mobility, Relocation, Social, etc.)
- Natural (Historic, Cultural and Archaeological Sites, Recreation Areas, Federal Projects, etc.)
- Physical (Air Quality, Contaminated Sites, Farmlands, Floodplains, Navigation, etc.)
- Special Designations

The ETDM process involves two project screenings: Planning and Programming, which are shown in **Figure 4.8**. Planning screening involves review of public and ETAT comments to help FDOT and MPO/TPOs adopt and prioritize projects for their Long Range Transportation Plans (LRTP). In the Programming Screen of the process, projects go through review to be considered for funding in the FDOT Five-Year Work Program or MPO Transportation Improvement Plan (TIP).

Figure 4.7 Florida's ETDM Process



Source: FDOT Environmental Management Office, 2013

4.5 Summary of Findings

The Study Area runs through an area known as the "Nature Coast", with much of the corridor in close vicinity to environmentally sensitive lands leads to many planning challenges. Much of this land has been acquired and is being managed to protect and conserve the value and health of these areas.

Low lying, flood-prone areas also limit the amount of development on the west side of the Study Area. Furthermore, the rise in future sea levels will likely impact the floodplain and water levels within the Study Area. Considerations for development should also take into account the karst topography of the area, which can lead to negative impacts on water quality and the hydrological ecosystem, which is one of the primary resources along the "Nature Coast" and throughout Florida as a whole.

While the environmental conditions constrain development, the rich natural ecosystem also offers economic development opportunities through fishing and ecotourism, with thousands of acres of public and private conservation areas and wetlands. Local stakeholders look to balance the human use and environmental preservation of the parks and recreation sites identified within the Study Area. Proper environmental management practices will be important for protecting the integrity of the natural ecosystem from increased recreational use and population growth.

The natural environment plays an integral role in the success of the region, and future considerations of the Study Area must adequately plan and manage for the health and wellbeing of these unique environmental characteristics. Any future (re)development within the Study Area and/or investments should consider these significant environmental features.

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Chapter 5 - Conclusion

The US Highway 19 Study Area is 26.8 miles in length and is located in three counties: Levy, Citrus and Hernando. The Study Area includes two urban areas, Crystal River and Homosassa Springs. Although the corridor consists of three counties, only Citrus County is located entirely within the Study Area, and as such is the primary focus of the project. The Study Area serves as one of the major thoroughfares in all three counties within the Study Area, serving an important north-south function for local businesses and residential needs. The corridor also serves a vital regional transportation role as an alternative to Interstate 75, which runs parallel to US Highway 19.

Technical Memorandum I provided a summary of current conditions and highlighted needs within the Study Area. The Study Area was analyzed along the following measures: demographics, socioeconomics, land use, traffic and mobility analysis, emergency management, and environmental considerations. The subsections below provide a summary of the current conditions and needs that will determine the course of action moving forward into Technical Memorandum II.

5.1 Conditions and Needs

The population within the Study Area is growing in size, with Citrus County alone expected to add another 47,000 residents by 2040. In addition, the Study Area is becoming increasingly older, and by 2030 nearly half of the population in Citrus County will be over the age of 65. These demographic trends bring with them both opportunities and challenges for the corridor. The growing population will bring greater mobility demands to the Study Area, while the rise in the elderly population will require transportation services and improvements to accommodate these older residents.

The increasing population within the region will also bring changes to land uses and reshape development patterns along the corridor. Contributing to these changes is the presence of low-lying environmentally sensitive lands to the west of US Highway 19, which play a strong role in the development patterns of the Study Area. Amplifying the impacts of these environmentally sensitive lands will be the future impacts of sea

level rise, which will impact the location of future development and limit the potential for infrastructure investments due to changing water table levels and the likelihood of newly flood prone areas.

Complicating things further is the need to cultivate these environmental resources and preserve the cultural heritage of the area. The region is referred to as the "Nature Coast", which highlights the abundance of state parks, campgrounds, and other recreational and tourism opportunities. The rich aquatic ecosystem of the area also provides recreational fishing and aquaculture opportunities. These conditions necessitate the need to support the "Nature Coast" and Ecotourism marketing strategies of the region.

There is also a need to diversify and build the local economy by supporting local planned improvements and industry expansions, such as the establishment of Port Citrus in the northern portion of the Study Area. Supporting the planned development of Port Citrus will help further enhance the trade and logistics industry in Citrus County, and within the state. It will also require the need to balance local freight movement along the US Highway 19 corridor with regional connectivity to the Tampa Bay region, although much of this demand will be addressed through the future Suncoast Parkway expansion.

The transportation conditions of the area include transitions from high-speed, uncongested areas with limited development to urbanizing areas with lower speeds and greater traffic volumes. Much of the development within the area has generally taken the form of strip development in a linear fashion along the urban portions of the corridor, leading to issues with access and traffic mixing along the corridor. As traffic volumes and development will almost certainly increase in the coming decades, there is a need to enhance transportation safety and efficiency along the corridor.

Taken as a whole, these conditions highlight the need to consider the improvement of multimodal transportation facilities and opportunities along the corridor. Greater traffic volumes also demand the need to consider local land use and transportation plans in order to promote an efficient and effective transportation network, one which meets the needs requirements of the community and affected

stakeholders. Finally, growing traffic volumes will also require balancing the needs of local and regional connectivity and emergency management considerations.

5.2 Next Steps

The information provided in Technical Memorandum I on the current conditions and needs will be used to develop a series of alternative strategies, which will be presented in Technical Memorandum II: Development of Alternative Options and Policy Implications. Technical Memorandum II will present specific strategies from four categories: Corridor Safety and Efficiency, Community Development, Freight Mobility and Long Range Strategies. These strategies will focus on the linkage to existing needs and demonstrate their potential implementation within the different segments of the Study Area. The purpose of Technical Memorandum II is to provide ideas for a smarter and more sustainable future for the Study Area.

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