



Florida Department of Transportation

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March 31, 2009

Ms. Linda Anderson
Federal Highway Administration
545 John Knox Road
Tallahassee, FL 32303

RE: SR 29 PD&E Study
From Oil Well Road to SR 82
Collier County, FL
Financial Project ID: 417540-1-22-01

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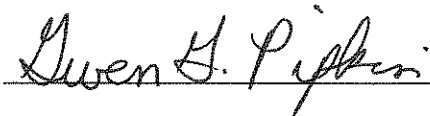
Revised Corridor Evaluation Technical Memorandum

Dear Ms. Anderson:

Please find attached the Revised Corridor Evaluation Report for the above referenced project. The District has reviewed your comments and has revised the Corridor Report accordingly.

The District is asking the Federal Highway Administration (FHWA) to review and concur with the findings and recommendations by signature on this letter. Please return one signed copy of the letter for our files.

If you have any questions, please do not hesitate to contact me directly at 863-519-2375, or email me at gwen.pipkin@dot.state.fl.us.



Gwen G. Pipkin, Project Manager
Florida Department of Transportation
District One



Linda Anderson, Environmental Specialist
Federal Highway Administration
Florida Region

3-31-09

Date

4-6-09

Date

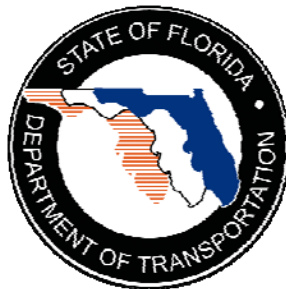
SR 29 Collier County PD&E Study

From Oil Well Road to SR 82

CORRIDOR EVALUATION REPORT

Financial ID No. 417540-1-22-01

Collier County, Florida



March 2009

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Project Overview	1
2.0 Introduction	1
3.0 Public Involvement	9
4.0 Purpose and Need	10
5.0 Socio-Economic Factors	12
6.0 Environmental Factors	19
7.0 Recommendation	25

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1 GIS Layers Researched - SR 29 from Oil Well Road to SR 82	3
2 Corridor Public Workshop Public Comments - Corridor Preference.....	9
3 Analysis of Purpose and Need Satisfaction	12
4 Summary of Potential Socio-Economic Impacts	19
5 Summary of Potential Environmental Impacts	20
6 Summary of Potential Environmental Impacts as a Percentage of Corridor Area.....	20
7 Summary of Potential Issues and Impacts	25

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1 Location Map.....	2
2 Base Map	6
3 Windows of Opportunity	7
4 Corridors	8
5 Population Density	13
6 Percent of Population below the Poverty Level	14
7 Median Age	15
8 Percentage of Hispanic Population.....	16
9 Percentage of Non-White Population.....	17
10 Percentage of Population with English as a Second Language	18
11 Socio-Cultural Features	22
12 Natural Features	23
13 Panther Habitat	24

1.0 PROJECT OVERVIEW

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study following Federal Highway Administration (FHWA) National Environmental Policy Act (NEPA) guidance to evaluate improvements to State Road (SR) 29 from Oil Well Road to SR 82 in Collier County. SR 29, within the study limits of the project, is a major north-south corridor, which runs along the east side of Collier County, Florida. The project limits begin at Oil Well Road and end at SR 82 in Collier County, Florida for a length of approximately 15.6 miles.

SR 29 is classified as a rural principal arterial from Oil Well Road to south of Farm Workers Way and from north of Westclox Street/SR 29A to SR 82. Classification for SR 29 is designated as a rural principal urban from south of Farm Workers Way to north of Westclox Street/SR 29A. Within the project limits, SR 29 functions as an undivided two-lane roadway with posted speed limits of 45-55 miles per hour (mph) for the majority of the corridor. However, from south of Airport Road (CR 846) to west of 9th Street, SR 29 is a four-lane divided arterial with a posted speed of 35 mph.

The purpose of the PD&E Study is to establish the conceptual location and design concepts for a proposed expansion of SR 29. The Study will evaluate and document engineering and environmental issues associated with the proposed improvements.

The need for the expansion of SR 29 in the study area has been established based on:

- Enhancing economic competitiveness,
- Improving emergency evacuation capabilities,
- Improving regional mobility and connectivity,
- Accommodating future population and growth,
- Correcting current design deficiencies, and
- Reducing truck traffic in the downtown Immokalee area.

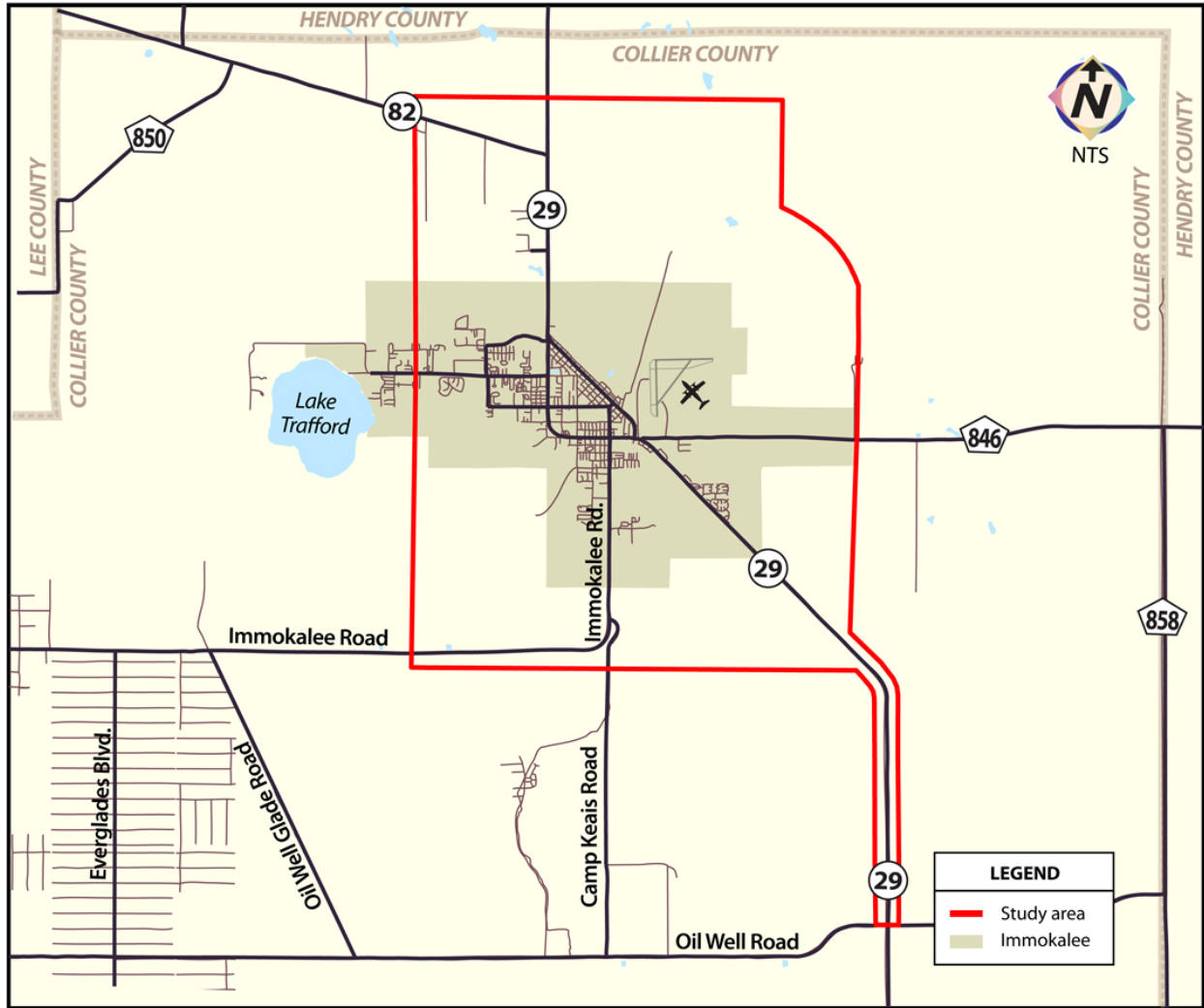
The SR 29 project is included in the Collier County Metropolitan Planning Organization's 2030 Long Range Transportation Plan and is consistent with the Growth Management Plan.

2.0 INTRODUCTION

The FDOT, District One, is performing a PD&E Study on a segment of SR 29 that extends from Oil Well Road to SR 82 in Collier County, Florida (see **Figure 1** – Location Map). The purpose of this study is to develop a preferred alternative that is consistent with the needs identified as:

- Enhancing economic competitiveness,
- Improving emergency evacuation capabilities,
- Improving regional mobility and connectivity,
- Accommodating future population and growth,
- Correcting current design deficiencies, and
- Reducing truck traffic in the downtown Immokalee area.

**FIGURE 1
LOCATION MAP**



Proposed roadway improvements consist of increasing the capacity of SR 29 between Oil Well Road and SR 82. The project involves evaluating the widening of the existing 2-lane undivided segment of SR 29 to four lanes, as well as the study of corridors that bypass the unincorporated community of Immokalee, which is located within the study area.

In order to develop project study corridors, the Department has chosen to utilize a Geographic Information System (GIS) - Land Suitability Mapping (LSM) process to assess the project study area. This process utilizes existing GIS databases to assess potential impacts to natural, physical, and socio-cultural features located within the study area. This process allows the Department to assess the potential level of sensitivity in obtaining approvals and/or mitigating for these impacts. The GIS databases used in the assessment of the SR 29 project study area and their relative “level of sensitivity” values are shown in **Table 1**. Rankings within this system range from 1 to 3 with 1 representing the lowest level of sensitivity and 3 representing the highest level of sensitivity.

**TABLE 1
GIS LAYERS RESEARCHED
SR 29 FROM OIL WELL ROAD TO SR 82**

GIS Layer	Weight	Presence (Y/N)	Source	Date
Social Layers				
Schools (250' buffer)	1	Y	FGDL	2007
GC Churches	1	Y	FGDL	2005
State Wide Hospital Points	1	N	FGDL	1994
GC Fire Stations	1	Y	FGDL	2005
FL Fire Stations	1	Y	FGDL	1999
GC Law Enforcement	1	Y	FGDL	2005
County School	1	Y	Collier County	2006
County EMS	1	Y	Collier County	2007
School Parcels	1	Y	Collier County	2007
Medium Density Residential (120-129)	1	Y	SFWMD LU	2005
GC Cemeteries (100' buffer)	2	N	FGLD	2005
Cemetery Parcels	2	Y	Collier County	2007
High Density Residential (130-139)	2	Y	SFWMD LU	2005
PUD / DRI	2	Y	Collier County	2007
Airports	3	Y	Collier County	2007
Future Airport Expansion	3	Y	Collier County	2008
Airport Parcels	3	Y	Collier County	2007
Cultural Layers				
State Parks	3	N	FGDL	2007
Federal Parks	3	Y	FGDL	2006
Local Parks	3	Y	Collier County	2006
Greenways	3	N	FGDL	2007
Existing Trails (100' buffer)	3	N	FGDL	2007
Managed Lands (not in parks)	3	Y	FNAI	2007
Archaeological Sites (Janus data)	3	Y	Janus	2008
State Historic Features	3	N	FGDL	1998
SHPO Cemeteries	3	N	FGDL	2007
SHPO Bridges	3	Y	FGDL	2007

**TABLE 1 (CONTINUED)
GIS LAYERS RESEARCHED
SR 29 FROM OIL WELL ROAD TO SR 82**

GIS Layer	Weight	Presence (Y/N)	Source	Date
SHPO Structures	3	Y	FGDL	2007
Indian Reservations	3	N	FGDL	no date
Indian Owned Parcels	3	Y	Collier County	2007
Military Lands	3	N	FGDL	1997
Natural Environment Layers				
Wetlands LU (640-659)	1	Y	SFWMD LU	2005
Floodways (FEMA flood zone)	1	N	FGDL	1996
Outstanding Florida Waters	1	N	FGDL	2007
Water Features LU (500-599)	1	Y	SFWMD LU	2005
Eagle Nests (660' buffer)	2	Y	FWC	2006
Forested Wetlands LU (600-639)	2	Y	SFWMD LU	2005
Scrub Jay Observations	2	Y	FWC	1993
Caracara Observations	2	N	FWC	2005
Snail Kite Observations	2	N	FWC	2004
Red-cockaded Woodpecker Observations	2	N	FWC	2005
Rookeries (250' buffer)	3	Y	FWC	1999
Class 1 Waters (FDEP – 500' buffer)	3	N	FGDL	2005
Panther Habitat	3	Y	FWC	2007
Woodstork Rookeries	3	N	FWC	2005
Aquatic Preserves	3	N	FGDL	1993
FDEP Mitigation Banks	3	N	FGDL	2006
Physical Environment Layers				
EPA Air Pollutants – factories, etc.	1	Y	FGDL	2006
EPA RCRA Pollutants – hazardous	1	Y	FGDL	2006
Hazardous Material Sites	1	Y	FGDL	1997
Petroleum Contaminated Facilities	1	Y	FGDL	2007
Tanks	1	Y	FGDL	2007
Solid Waste (250' buffer)	1	Y	FGDL	2005
EPA Toxic Release Inventory	1	N	FGDL	2006
Brownfields (EPA) (FDEP)	2	Y	FGDL	2007
Sinkholes (250' buffer)	2	Y	FGDL	2006
Superfund Sites (500' buffer)	3	N	FGDL	2007
Nuclear Sites	3	N	FGDL	1999
Water Treatment Plants	3	Y	FGDL	2006
Sewer Treatment Plants	3	Y	FGDL	1997
Power Plants	3	N	FDEP	2006
Parcels – Sewer Treatment	3	Y	Collier County	2007

Our goal is always to first avoid and, if avoidance is not possible, then to minimize impacts to resources before considering mitigation. However, impacts to some resources are more easily mitigated than others, and this is the basis for the ranking system. Resources that are most difficult to mitigate are ranked as a 3; those that are easiest to mitigate, and/or have an established mitigative process, are ranked as a 1. Any resources that are in between are ranked as a 2. The various steps of the LSM process are discussed in more detail below.

Corridors

Corridors were developed by first identifying and mapping sensitive natural, physical, and socio-cultural features located within the project study area. As the process continued, these maps were refined to identify sensitive areas which should be avoided and areas in which impacts should be reduced to the greatest extent possible. Each of these maps is discussed in more detail below.

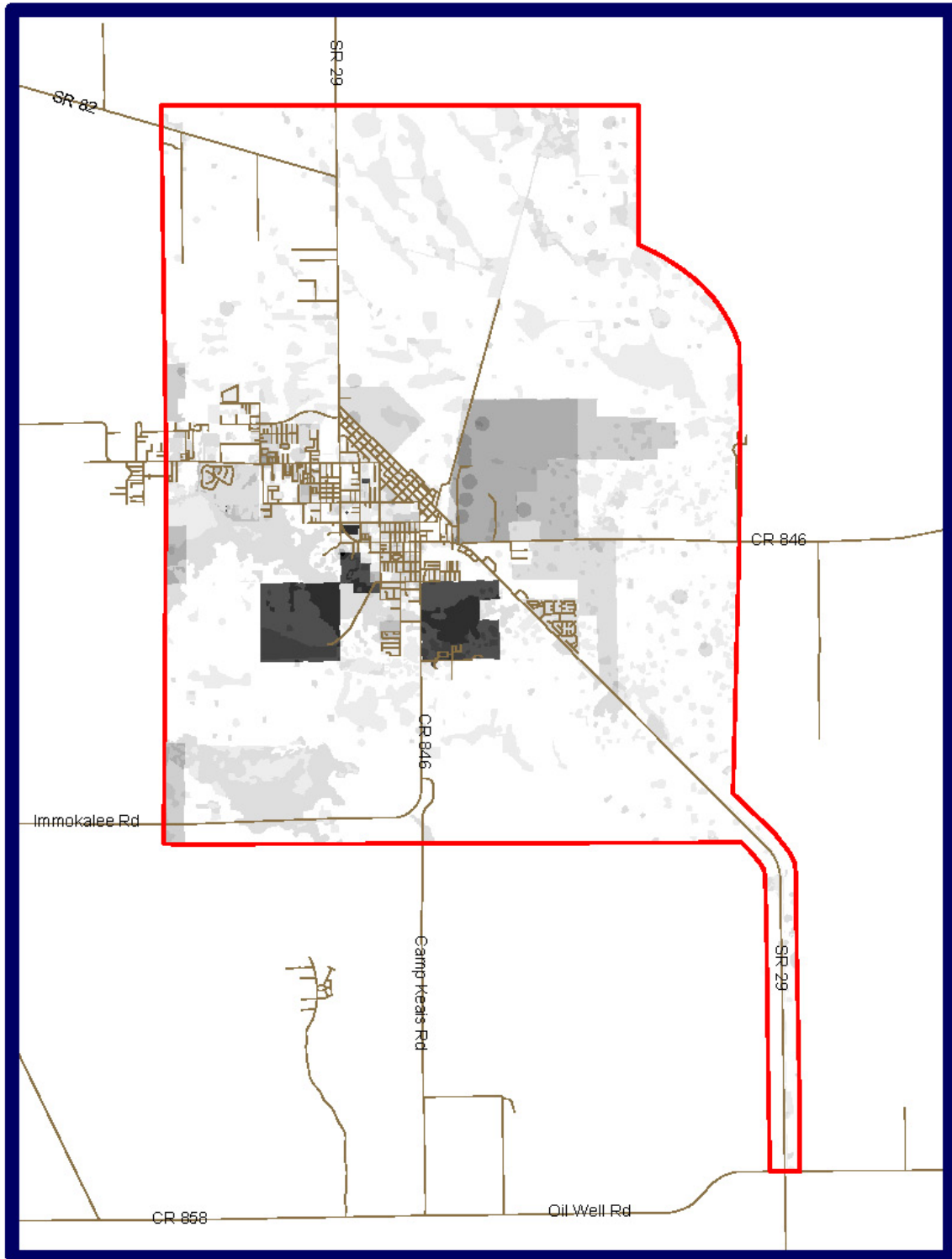
Base Map

Utilizing the LSM process, GIS databases were overlaid on the study area and each segment of the study area given a composite sensitivity level ranking. This ranking is based on the cumulative values of all the databases used in the assessment and can be shown graphically utilizing varying shades of gray (see **Figure 2** – Base Map); the darker the shade of gray, the greater the sensitivity level within an area. Areas shown in black represent those areas that are considered to be the most sensitive.

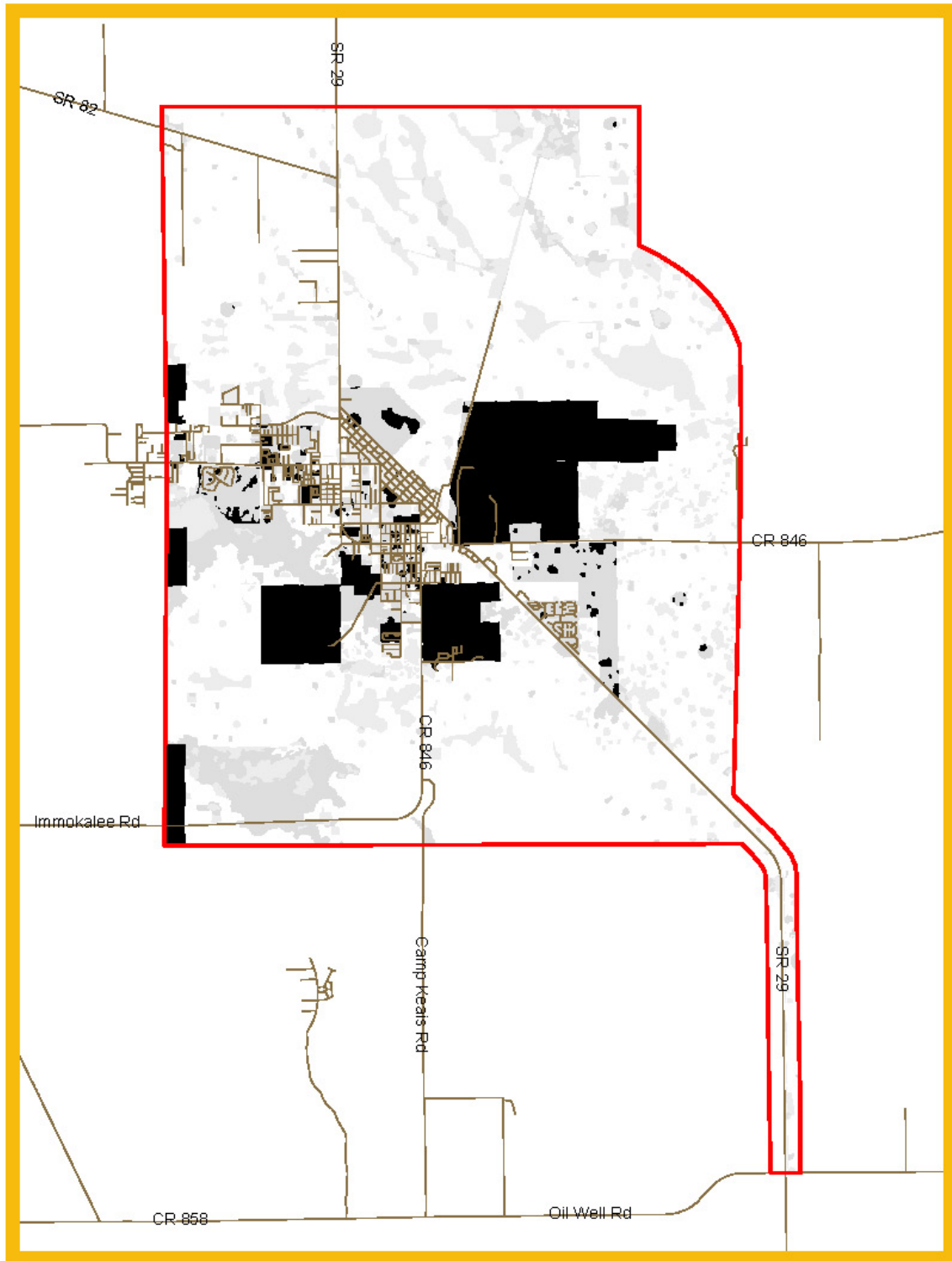
Windows of Opportunity

Segments of the study area, which contain multiple black areas close together, are connected and the areas between these aggregated areas are shaded in black (see **Figure 3** – Windows of Opportunity). While the lighter colored areas between the areas of highest sensitivity do not represent unacceptable impact areas, these areas are not wide enough to use in the development of project corridors. The remaining gray and white areas are then considered “Windows of Opportunity” for the development of project corridors.

**FIGURE 2
BASE MAP**



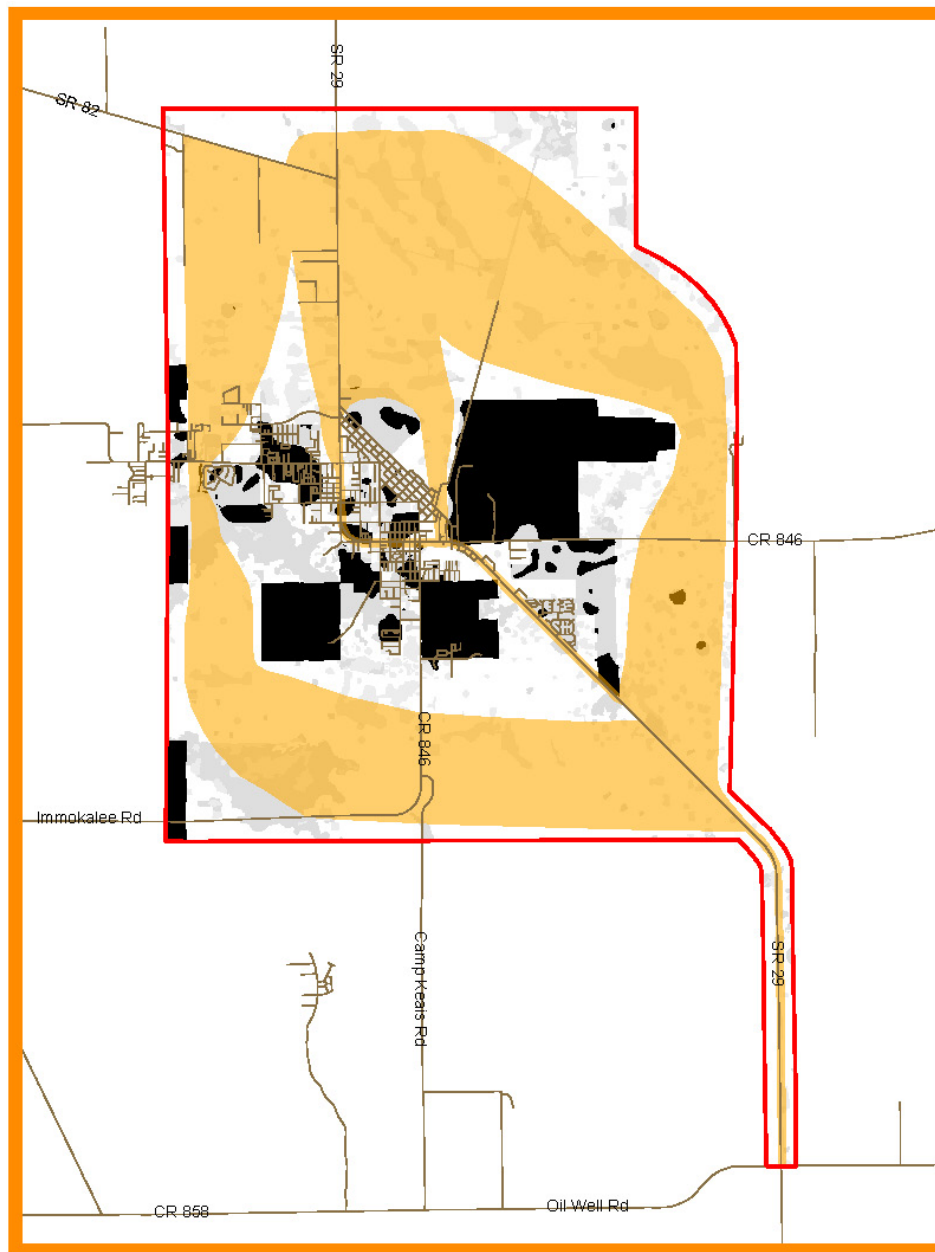
**FIGURE 3
WINDOWS OF OPPORTUNITY**



Project Corridors

Using the Windows of Opportunity, project corridors were then developed. For the SR 29 Immokalee project, four project corridors have been developed. These include a West corridor; the Existing SR 29 Corridor; a Central corridor; and an East corridor (see **Figure 4 – Corridors**). It should be noted that these corridors vary in width in an attempt to avoid and minimize impacts to natural, physical, and socio-cultural features found within the study area. In addition, approximately 4.85 miles of the southern portion of each of these corridors are common to all and consist of the existing SR 29 roadway corridor.

**FIGURE 4
CORRIDORS**



3.0 PUBLIC INVOLVEMENT

The success of any transportation improvement is dependent upon a comprehensive public involvement program. Local governments and agencies were notified in July 2007 of the initiation of the SR 29 Collier PD&E Study. Based on the demographics of the study area, a commitment was made during the ETDM Phase to conduct bilingual public involvement. In response to this commitment, meeting handouts, newsletters, and information on the project website (www.sr29collier.com) are available in both English and Spanish versions.

Because the environmental documentation for this project is an Environmental Impact Statement (EIS), scoping meetings are a part of the public involvement process. The draft Purpose and Need Statement was presented to agencies and the public at Purpose and Need Scoping meetings on October 18, 2007. Comments received at the scoping meetings were considered and incorporated, when appropriate, into the final Purpose and Need Statement.

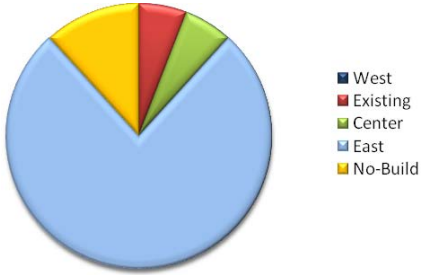
As a part of the planning process and to encourage community participation, a Stakeholder Advisory Committee (SAC) was formed that consists of local government representatives, interested citizens, business owners, non-governmental organizations and property owners within the vicinity of the SR 29 project limits. The committee has met twice, November 1, 2007 and July 24, 2008.

The four project corridors, described previously, were presented at a SR 29 Collier Corridor Public Workshop on August 7, 2008. Fifty-seven (57) people attended the workshop. Comments and suggestions were solicited from the public, non-governmental organizations, and government agencies in attendance at the workshop and via the project website. These comments and suggestions will aid in the selection of project corridor(s) that will be carried forward for further study.

Seventeen comments were received at the workshop. An additional 7 comments were received via email, the project website, or by U.S. Mail as a result of the corridor workshop. Of these 24 comments, 17 stated a preference for a specific corridor(s). **Table 2** shows those preferences:

**Table 2
Corridor Public Workshop Public Comments – Corridor Preference**

Corridor	Number of Comments in Favor
West	0
Existing	1
Center	1
East	13
No-Build	2
TOTAL	17



The pie chart visualizes the data from Table 2. The largest slice is light blue, representing the 'East' corridor with 13 comments. A smaller light blue slice represents 'No-Build' with 2 comments. A red slice represents 'Existing' with 1 comment, and a green slice represents 'Center' with 1 comment. The 'West' corridor has no slice, indicating 0 comments. A legend to the right of the chart identifies the colors: West (dark blue), Existing (red), Center (green), East (light blue), and No-Build (yellow).

4.0 PURPOSE AND NEED

The purpose of this study is to identify an environmentally-sensitive preferred alternative for a transportation system improvement designed to solve the needs identified below. The preferred alternative must be consistent with meeting these identified needs:

- **Enhancing Economic Competitiveness**

On January 26, 2001, the City of Immokalee was designated by Executive Order 04-250 as a Rural Area of Critical Economic Concern.

- a. This project will enhance the economic viability of this area by providing the infrastructure needed to bring additional businesses and employers into the area.
- b. This project will improve the circulation of goods, as SR 29 serves as a key intrastate freight corridor providing access to local agricultural and ranching operations, as well as to freight activity centers located in Central Florida and the populated coastal areas.

- **Improving Emergency Evacuation Capabilities**

SR 29 is designated as a hurricane evacuation route by the Florida Division of Emergency Management. This facility is critical in evacuating residents of the eastern portion of Collier County.

- a. This improvement will connect to other major arterials designated on the state evacuation route network, including SR 82 and north to US 27.
- b. This improvement will increase the capacity of traffic that can be evacuated during an emergency event.
- c. This improvement will enhance emergency response times.

- **Improving Mobility and Connectivity within the Regional Transportation Network**

SR 29 between Oil Well Road and SR 82 has been identified as an Emerging Strategic Intermodal System (SIS) Corridor. The SIS is a statewide network of high-priority transportation facilities, including the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways and highways. These facilities are the workhorses of Florida's transportation system, carrying more than 99 percent of all commercial air passengers, virtually all waterborne freight tonnage, almost all rail freight, and more than 68 percent of all truck traffic and 54 percent of total traffic on the State Highway System.

- a. This project will improve connections to other major east-west (SR 82) and north-south (SR 29 north of SR 82 to US 27) transportation corridors, as well as residential and employment centers throughout Collier County.
- b. This project will improve the circulation of freight and goods, providing access to local agricultural and ranching operations, as well as to freight activity centers located in central Florida and the populated coastal areas.

- **Accommodating Future Population and Growth**

The population along this roadway is expected to experience an annual growth rate of 5.8 percent from 2005 to 2030. Employment is expected to grow at a rate of 3 percent, adding 35,400 jobs between 2005 and 2015.

- a. This improvement will increase the 2030 Level of Service on this roadway from “E/F” to “B/C.”
- b. This improvement will increase the capacity to handle the projected large percentage of truck traffic (16 percent).

- **Correcting Current Design Standard Deficiencies**

The roadway’s design is deficient given the current use of the roadway. The deficiencies include excessive access points, substandard curves limiting sight distance and design speeds, and locations with substandard shoulders and turn lanes.

- a. This improvement will update the roadway to current design standards, increasing overall safety.
- b. This improvement will increase sight distances along the roadway.
- c. This improvement will provide sidewalks and bicycle lanes where none currently exist.

- **Reducing Truck Traffic in the Downtown Immokalee area**

Truck traffic in the downtown Immokalee currently represents 11.0% of the total volume of daily traffic and is projected to increase to 16.0% by the design year 2025.

- a. This improvement will provide potential options for truck traffic
- b. This improvement will improve the livability of the downtown Immokalee area.
- c. This improvement will enhance the economic viability of the downtown Immokalee area.

The Purpose and Need statement is the foundation of the project itself and any corridor or subsequent reasonable alternative should reflect the elements outlined in that statement. **Table 3** provides an analysis of each of the corridors and their individual satisfaction of the elements of the Purpose and Need statement. This analysis demonstrates that all corridors satisfy the Primary Element and Secondary Elements of the Purpose and Need statement.

**TABLE 3
ANALYSIS OF PURPOSE AND NEED SATISFACTION**

Corridors	Primary Element	Secondary Elements				
	Enhancing Economic Competitiveness	Improving Emergency Evacuation Capabilities	Improving Regional Mobility and Connectivity	Accommodating Future Population and Growth	Correcting Current Design Standard Deficiencies	Reducing Truck Traffic in downtown Immokalee
West	Yes	Yes	Yes	Yes	Yes	Yes
Existing	Yes	Yes	Yes	Yes	Yes	No
Central	Yes	Yes	Yes	Yes	Yes	Yes
East	Yes	Yes	Yes	Yes	Yes	Yes

5.0 SOCIO-ECONOMIC FACTORS

Information from the 2000 Census for socio-economic factors was used to evaluate the following:

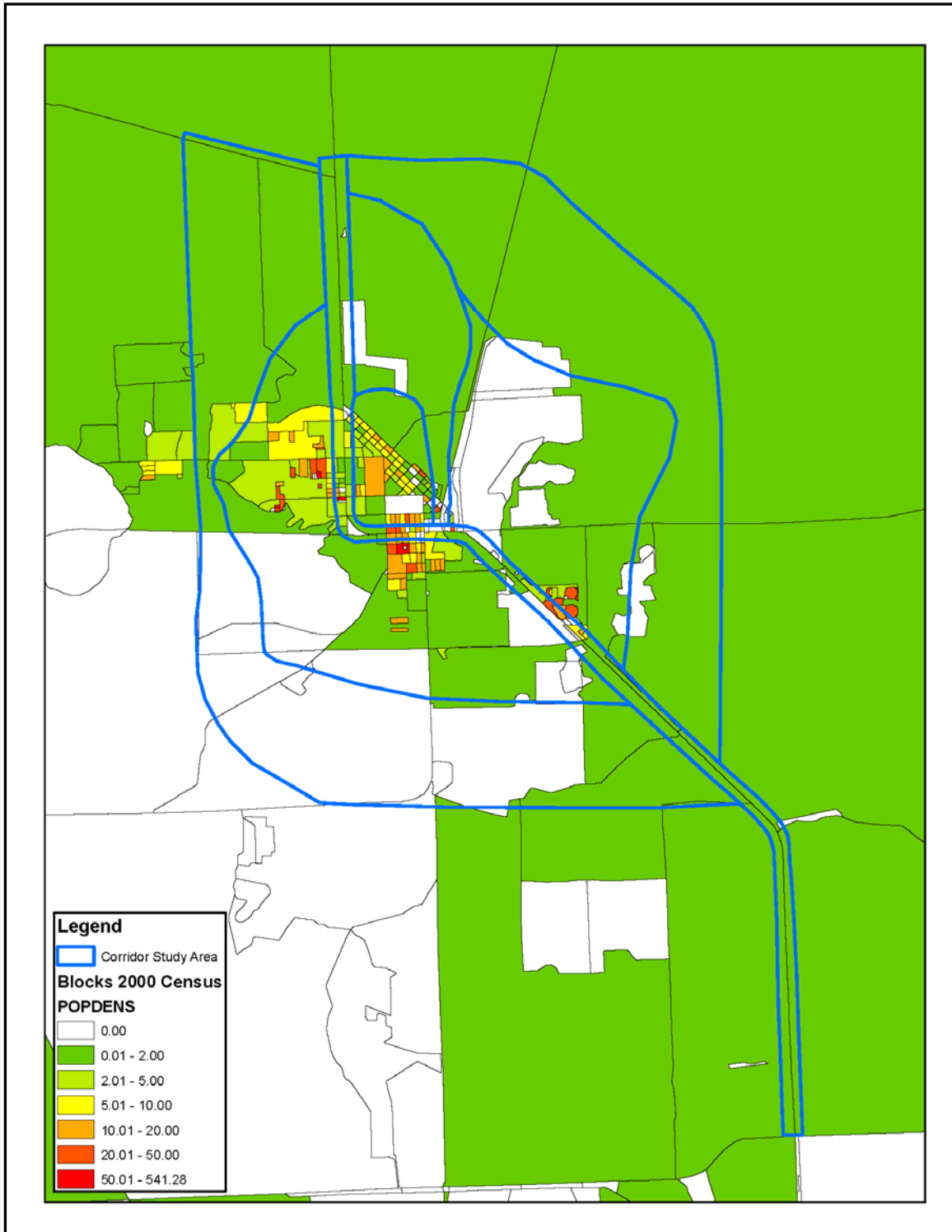
- Population Density – by census block (**Figure 5**),
- Percentage of Population below the Poverty Level – by census block group (**Figure 6**),
- Median Age – by census block (**Figure 7**),
- Percentage of Hispanic Population – by census block (**Figure 8**),
- Percentage of Non-White Population – by census block (**Figure 9**), and
- Percentage of Population with English as a Second Language – by census block group (**Figure 10**).

Population Density

Population Density was calculated using population data from the 2000 Census, census block level divided by the actual, physical size (in acres) of the census block. Densities ranged from vacant and non-residential land to 541 persons per acre. **Figure 5** depicts the West, Existing, Central, and East Corridors overlaid on this information.

The West and East Corridors are more sparsely populated areas containing few densely populated blocks. The Existing Corridor contains many of the most densely populated blocks in the project study area, especially in the downtown Immokalee area. The Central Corridor also contains several densely populated blocks.

**FIGURE 5
POPULATION DENSITY**

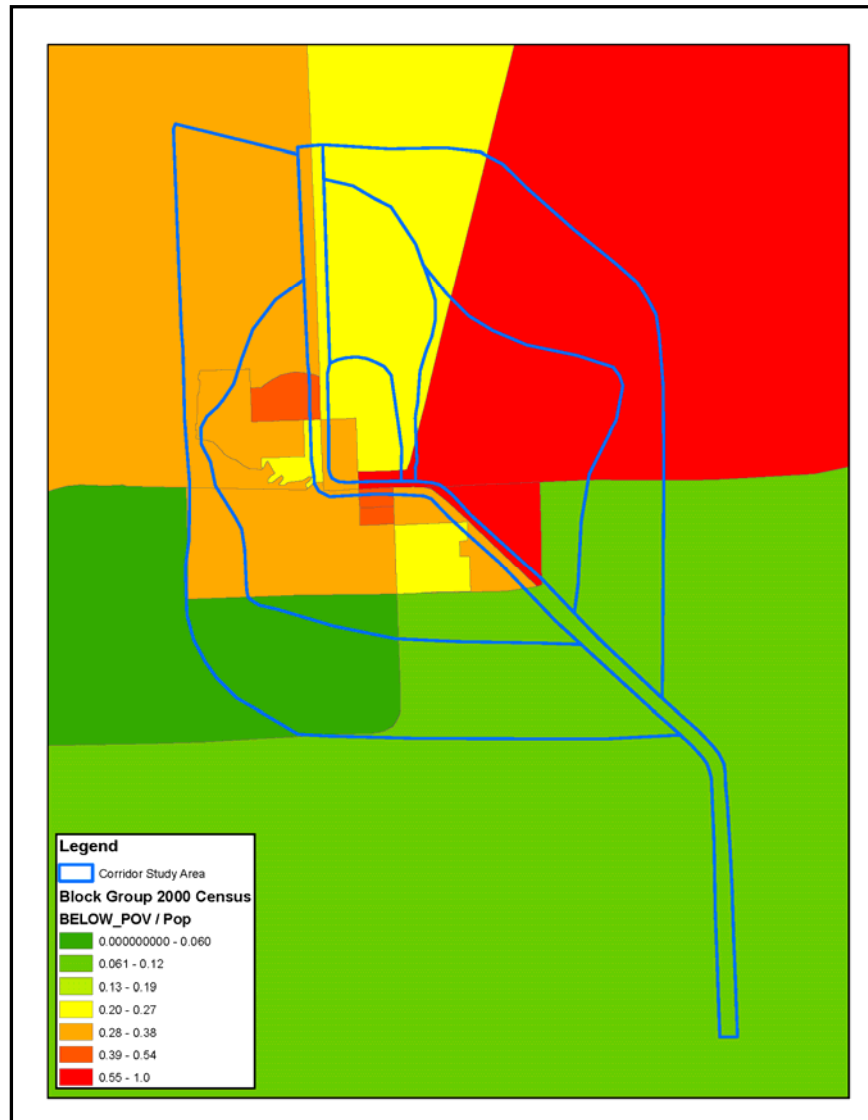


Percentage of Population below the Poverty Level

Percentage of Population below the Poverty Level was calculated using population and income data from the 2000 Census, census block group level and represents the percentage within that specific block group under the poverty level. Percentages range from 0 percent to greater than 55 percent. **Figure 6** depicts the West, Existing, Central, and East Corridors overlaid on this information.

The West Corridor contains the three block groups with concentrations of population below the poverty level ranging from 28 to 38 percent. The Existing Corridor represents a cross-section on economies in Immokalee, ranging from 13-19 percent south of the downtown area to greater than 55 percent in the immediate downtown area. The Central Corridor traverses a portion of a greater than 55 percent block, with the remainder crossing a 20 to 27 percent block. The East Corridor contains three-block group ranging from 13 to 19 percent, 20 to 27 percent and greater than 55 percent below the poverty level.

**FIGURE 6
PERCENT OF POPULATION BELOW THE POVERTY LEVEL**

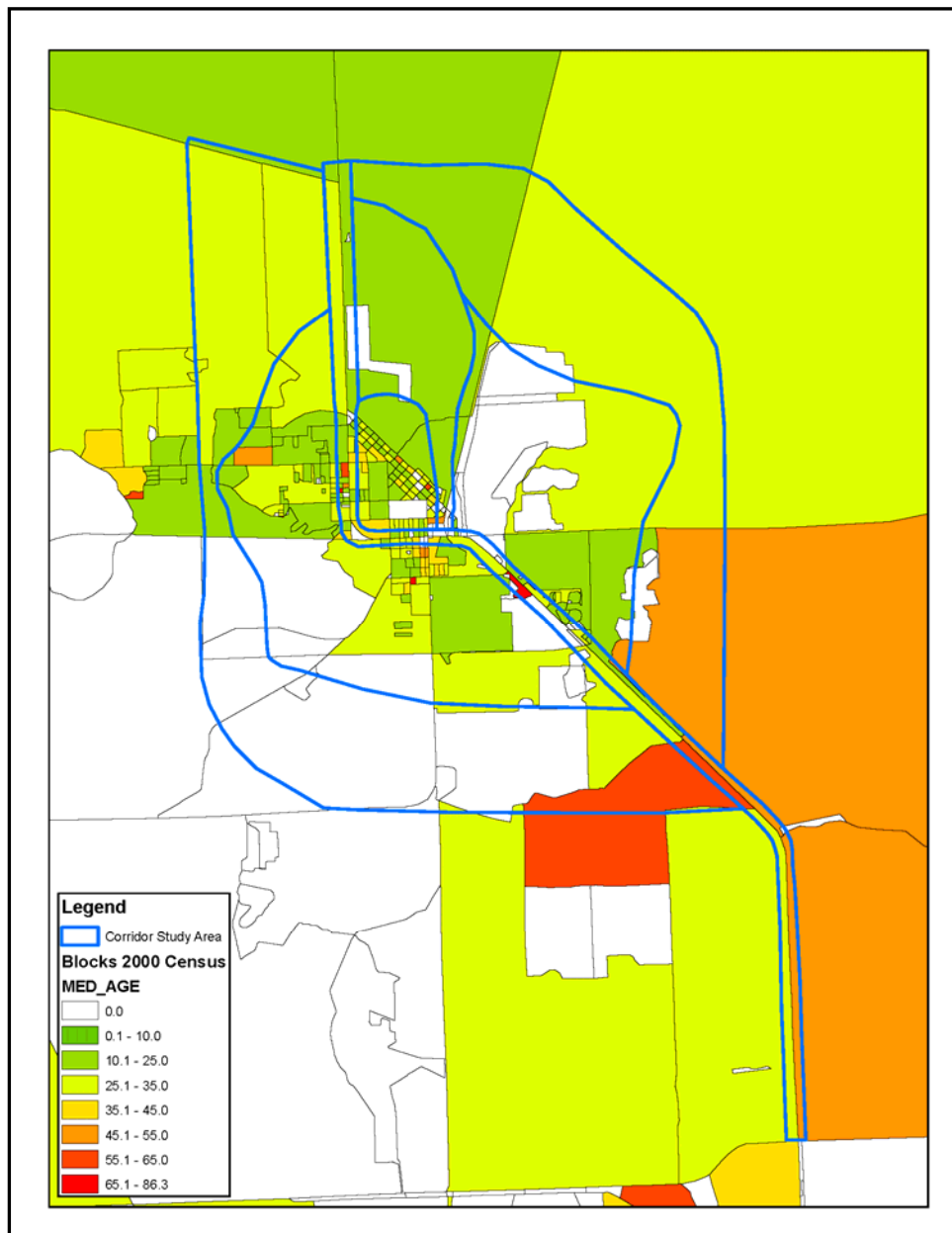


Median Age

Median Age was calculated using population data from the 2000 Census, census block level. Most of the project study area's median age ranges from 10 to 86 years of age. **Figure 7** depicts the West, Existing, Central, and East Corridors overlaid on this information.

The West Corridor contains blocks of persons older than 65 years old. The Existing and East Corridors traverse the largest concentration of persons older than 45 years old. The Central Corridor represents the youngest median age in the project study area with most blocks under 35 years old.

**FIGURE 7
MEDIAN AGE**

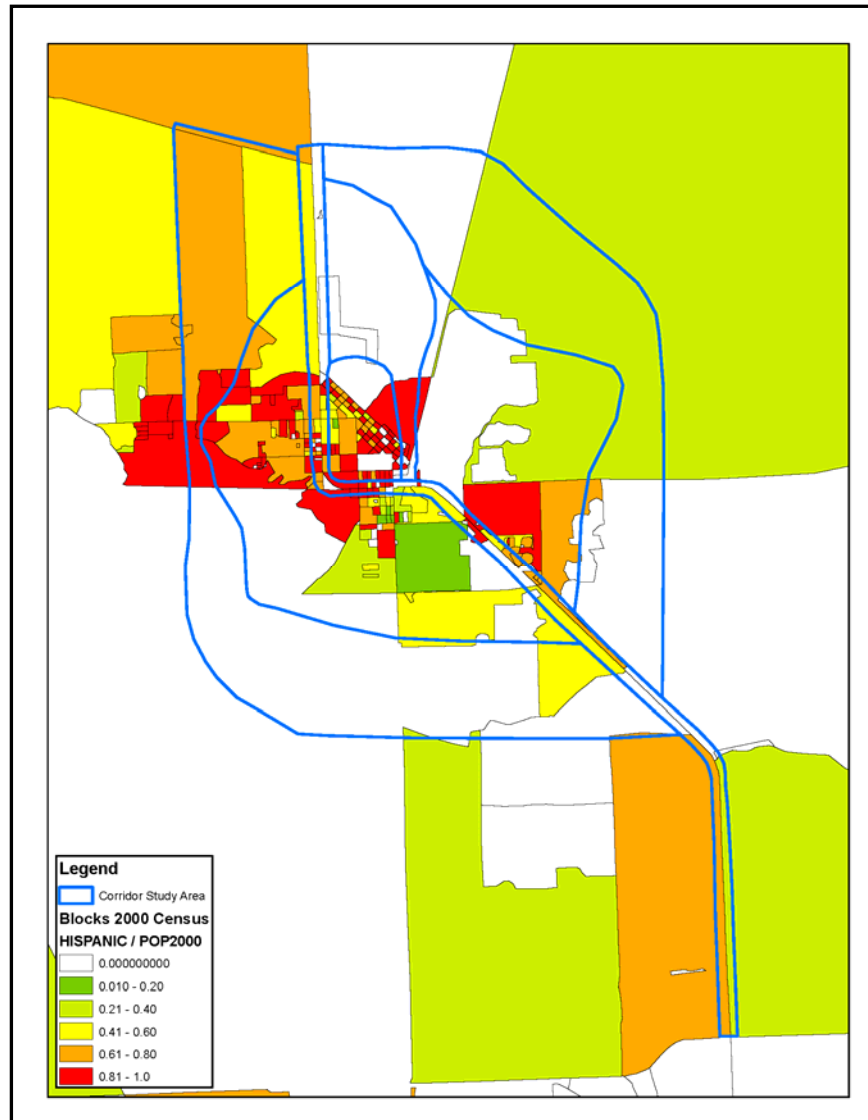


Percentage of Hispanic Population

Percentage of Hispanic Population was calculated using population and ethnic background data from the 2000 Census, census block level and represents the percentage within that specific block group identifying themselves as Hispanic. Percentages range from 0 percent to greater than 80 percent. **Figure 8** depicts the West, Existing, Central, and East Corridors overlaid on this information.

Due to the rural and agricultural nature of eastern Collier County and the adjoining central counties, much of the project area population is of Hispanic background. The West Corridor contains the blocks with the highest percentages 60 percent to greater than 80 percent. The Existing Corridor also ranges from 40 to greater than 80 percent. The Central Corridor traverses a block of greater than 80 percent Hispanic, but is also a block of fewer than 2 persons per acre in density. The East Corridor contains one large block within the 20 to 40 percent range.

FIGURE 8
PERCENTAGE OF HISPANIC POPULATION

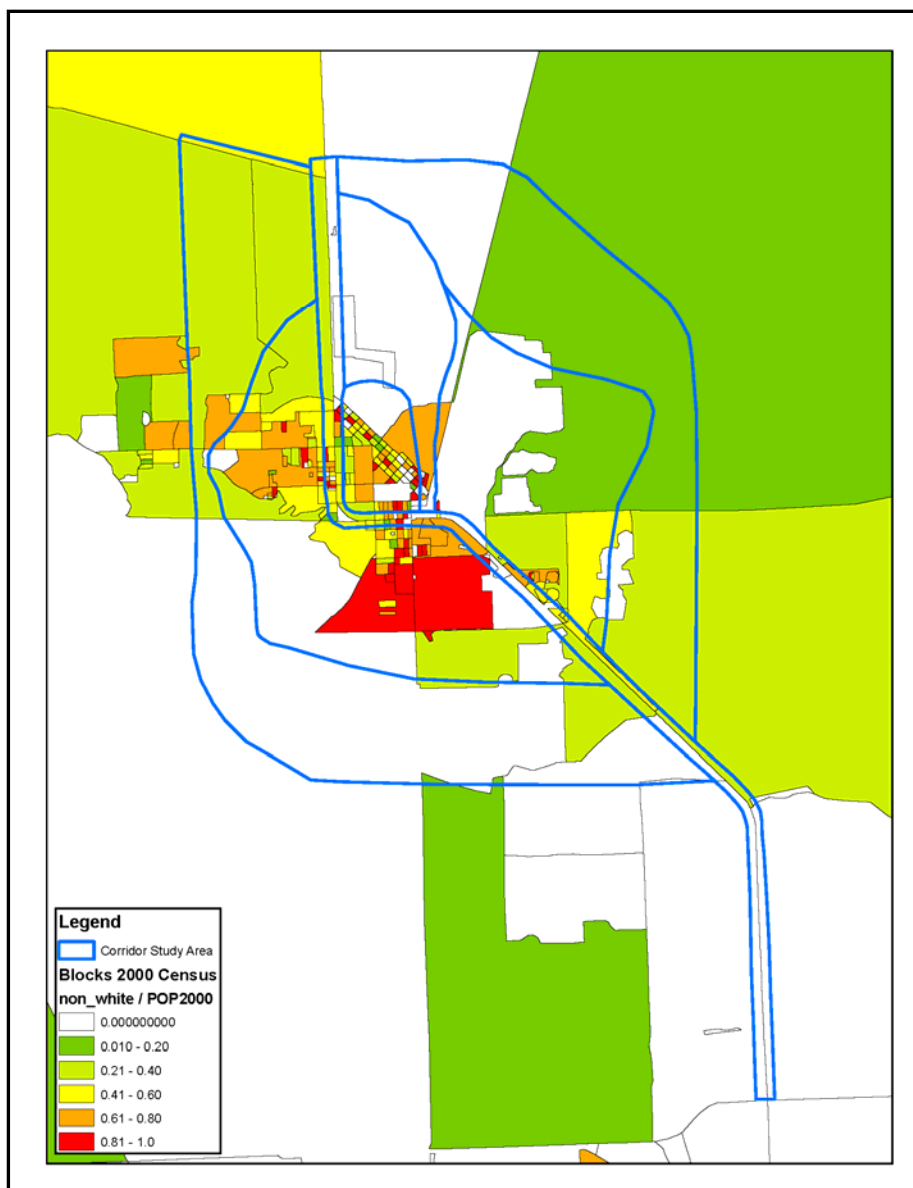


Percentage of Non-White Population

Percentage of Non-White Population was calculated using population and racial background data from the 2000 Census, census block level and represents the percentage within that specific block group identifying themselves as non-white. Percentages range from 0 percent to greater than 80 percent. **Figure 9** depicts the West, Existing, Central, and East Corridors overlaid on this information.

The West and Existing Corridors contain blocks that contain 20 to greater than 80 percent non-white for the entire project study area. The Central Corridor has one block of 60 to 80 percent non-whites. The East Corridor has several blocks representing less than 40 percent non-white

**FIGURE 9
PERCENTAGE OF NON-WHITE POPULATION**



Percentage of Population with English as a Second Language

Percentage of Population with English as a Second Language was calculated using population and background data from the 2000 Census, census block group level and represents the percentage within that specific block group identifying themselves speaking a primary language in the home other than English. Percentages range from 25 to greater than 75 percent. **Figure 10** depicts the West, Existing, Central, and East Corridors overlaid on this information.

The West Corridor contains three block groups that represent the 25 to greater than 75 percent range. The Existing Corridor several blocks representing the same range. The Central Corridor contains one block representing greater than 75 percent. The East Corridor contains two block groups ranging between 25 to 50 percent and greater than 75 percent range.

FIGURE 10
PERCENTAGE OF POPULATION WITH ENGLISH AS A SECOND LANGUAGE

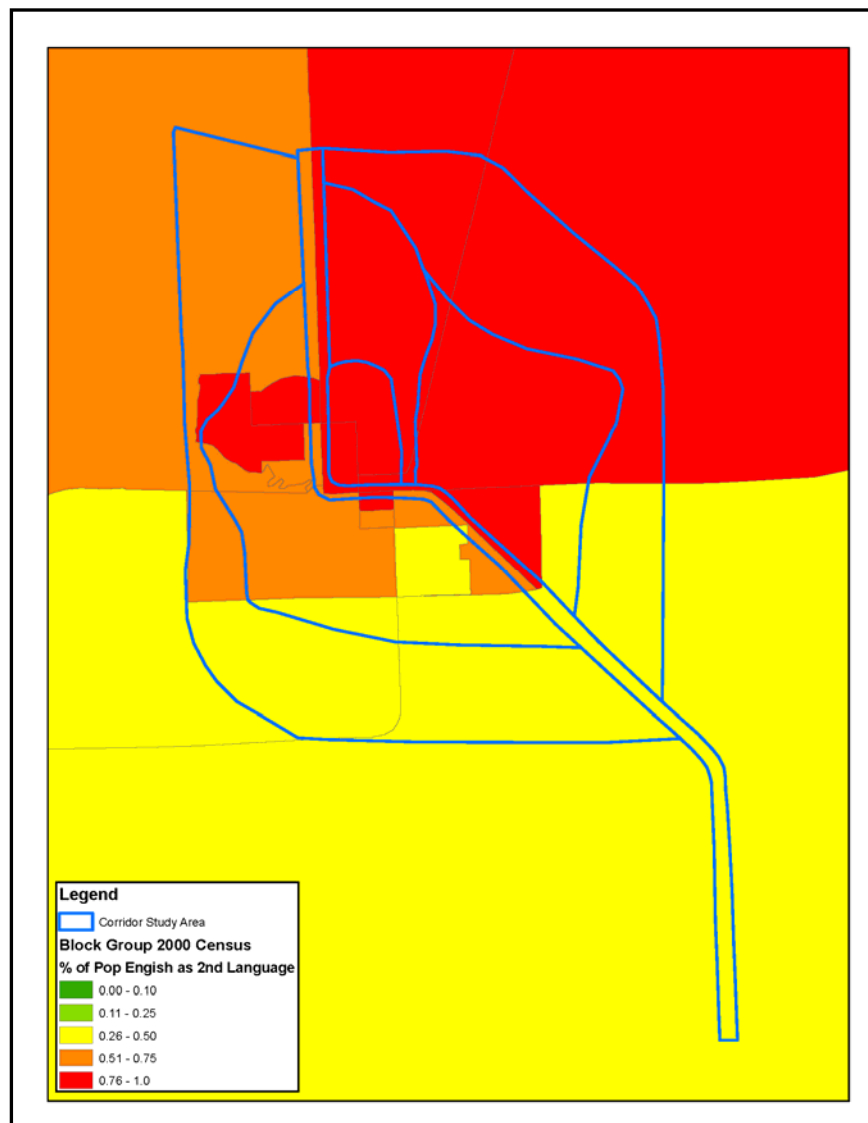


Table 4 summarizes each corridor's potential impact on the factors discussed above based on High, Medium, and Low compared to each other.

**TABLE 4
SUMMARY OF POTENTIAL SOCIO-ECONOMIC IMPACTS**

Corridor	Population Density	Percent Population Below Poverty	Median Age	Percent Population Hispanic	Percent Population Non-White	Percent Population with English as Second Language	Overall Ranking
West	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH
Existing	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Central	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM
East	LOW	HIGH	MEDIUM	LOW	LOW	HIGH	MEDIUM

6.0 ENVIRONMENTAL FACTORS

In evaluating the four corridors, other environmental factors were utilized:

- Parcels Intersected
- Buildings
- Schools
- Churches
- Police/Fire Stations
- Airport Parcels
- Acreage of Medium Density Residential
- Acreage of High Density Residential
- Parks
- Listed Historic Structures
- Wetlands
- Forested Wetlands
- Water Features
- Floodway
- Threatened and Endangered Species
- Panther Habitat
- Contaminated Sites

Table 5 summarizes the results of this analysis.

Due to the differences in the total size of each of the four corridors, it is difficult to compare the potential gross impact of any single corridor with another. However, if each corridor is evaluated based on its impact to environmental factors relative to that corridor's size, those percentages then represent a more reasonable comparison.

For example, the West Corridor is 10,056.26 acres in size and has 34.52 acres of Medium Density Residential or the West Corridor is 0.34 percent Medium Density Residential. By using these percentages, it is now easier to compare corridors, see **Table 6**.

**TABLE 5
SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS**

Environmental Factors	WEST	EXISTING	CENTRAL	EAST
Total Corridor Acreage (ac)	10,056.26	2,610.99	2,384.59	7,552.34
Human Environment				
Total Parcels	743	579	91	44
Buildings (sq ft)	1,602,451	7,212,886	1,784,419	84,278
Schools	2.00	2.00	0	0
Churches	0	7.00	0	0
Fire/Police Stations	0	1.00	0	0
Airport Parcels (ac)	0	9.28	0	0
Medium Density Residential (ac)	34.52	37.11	0	0
High Density Residential (ac)	24.91	108.41	0	0
Parks (ac)	0	2.01	0	0
Listed Historic Structures	0	4.00	0	0
Tribal Property (ac)	0	8.01	0	0
Natural Environment				
Wetlands (ac)	855.55	141.61	327.44	1,456.19
Forested Wetlands (ac)	626.84	131.52	25.48	196.84
Water Features (ac)	47.41	53.83	9.64	63.06
Threatened and Endangered Species	1.00	1.00	1.00	2.00
Primary Panther Habitat (ac)	1,500.0	1,182.0	0	4,239.0
Secondary Panther Habitat (ac)	8,178.0	712.6	2,203.0	3,313.0
Potential Contaminated Sites	10	40	5	2
Overall Ranking	High	Low	Medium	High

**TABLE 6
SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS
AS A PERCENTAGE OF CORRIDOR AREA**

Environmental Factors	WEST	EXISTING	CENTRAL	EAST
Total Corridor Acreage (ac)	10,056.26	2,610.99	2,384.59	7,552.34
Human Environment				
Total Parcels	743	579	91	44
Buildings (sq ft)	0.37%	6.34%	1.72%	0.03%
Airport Parcels (ac)	0.00%	0.36%	0.00%	0.00%
Medium Density Residential (ac)	0.34%	1.42%	0.00%	0.00%
High Density Residential (ac)	0.25%	4.15%	0.00%	0.00%
Parks (ac)	0.00%	0.08%	0.00%	0.00%
Tribal Property (ac)	0.00%	0.31%	0.00%	0.00%
Natural Environment				
Wetlands (ac)	8.51%	5.42%	13.73%	19.28%
Forested Wetlands (ac)	6.23%	5.04%	1.07%	2.61%
Water Features (ac)	8.51%	5.42%	13.73%	19.28%
Primary Panther Habitat (ac)	14.9%	45.3%	0.0%	56.1%
Secondary Panther Habitat (ac)	81.3%	27.3%	92.4%	43.9%
Overall Ranking	High	Low	Medium	High

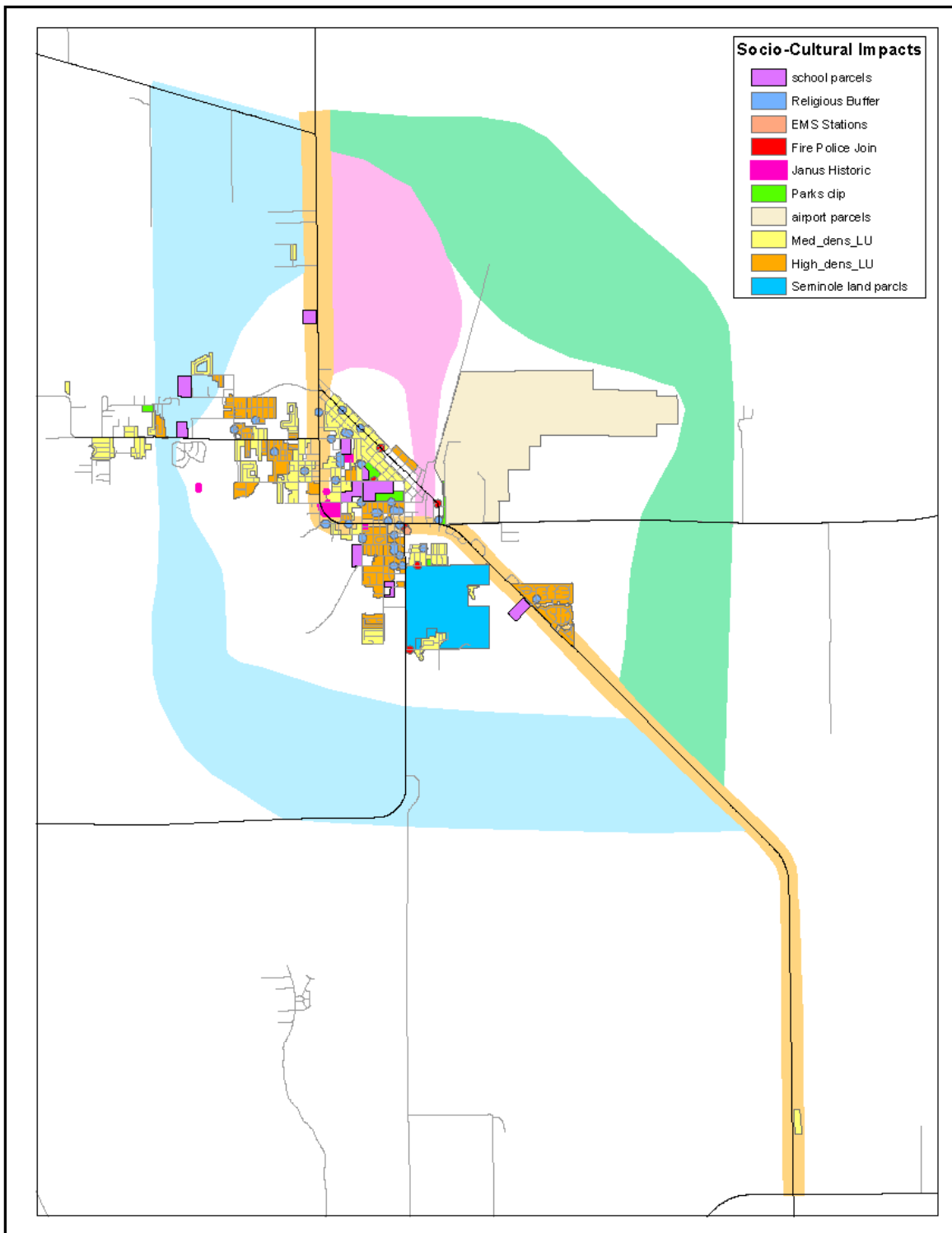
Information from various state and federal databases (e.g., FGDL, USFWS, etc.) for socio-cultural, natural and protected species factors was used to evaluate the following potential impacts:

- Socio-cultural impacts – schools, churches, fire/police stations, airports, medium/high density residential, parks, listed historic structures and tribal properties (**Figure 11**),
- Natural features – wetlands, forested wetlands, water features, threatened and endangered species, and potential contaminated sites (**Figure 12**), and
- Panther Habitat – primary and secondary zones (**Figure 13**).

Socio-cultural Features

Potential impacts to socio-cultural features are greatest in the West and Existing Corridors due to their proximity to the established areas of Immokalee, with the Existing Corridor have the greatest potential impact of the two. The Central and East Corridors have no impacts to socio-cultural features at this level of analysis due to their location east of the established areas of Immokalee. The Existing Corridor is the only corridor with historic structures or tribal properties present. **Figure 11** depicts the West, Existing, Central and East Corridors overlaid on this information.

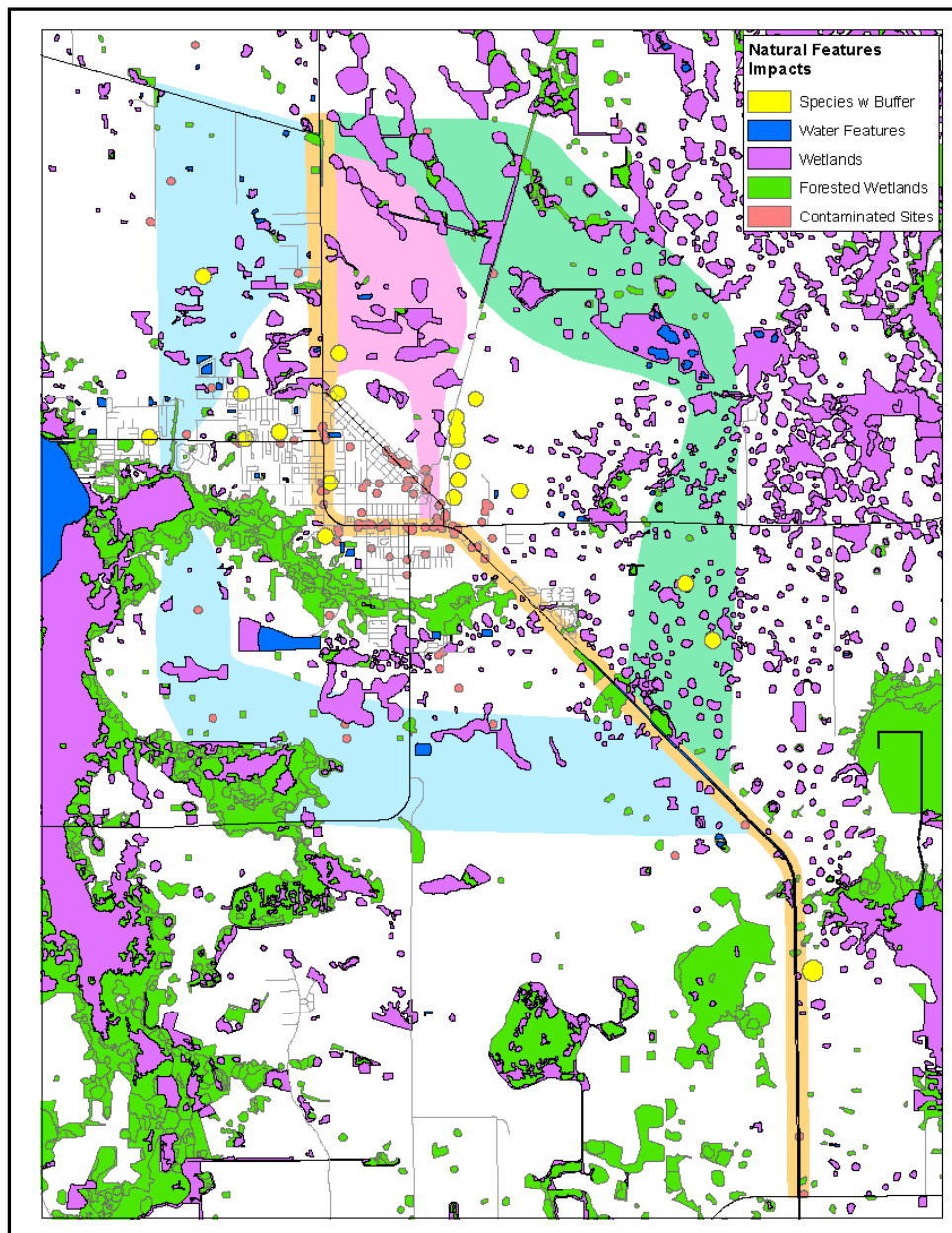
FIGURE 11
SOCIO-CULTURAL FEATURES



Natural Features

Extensive wetland systems are present in both the West and East Corridors, representing 8.51% and 19.28%, respectively, of each corridor. These systems are more contiguous in the West Corridor and more isolated in the East. The Existing Corridor has 5.42% of its total area and the Central Corridor has 13.73% of its total area identified as wetlands. The West, Existing and Central Corridors have one protected species and the East Corridor has two. The West and Central Corridors contain the largest number of potentially contaminated sites, again, due to their proximity to the established areas of Immokalee. **Figure 12** depicts the West, Existing, Central and East Corridors overlaid on this information.

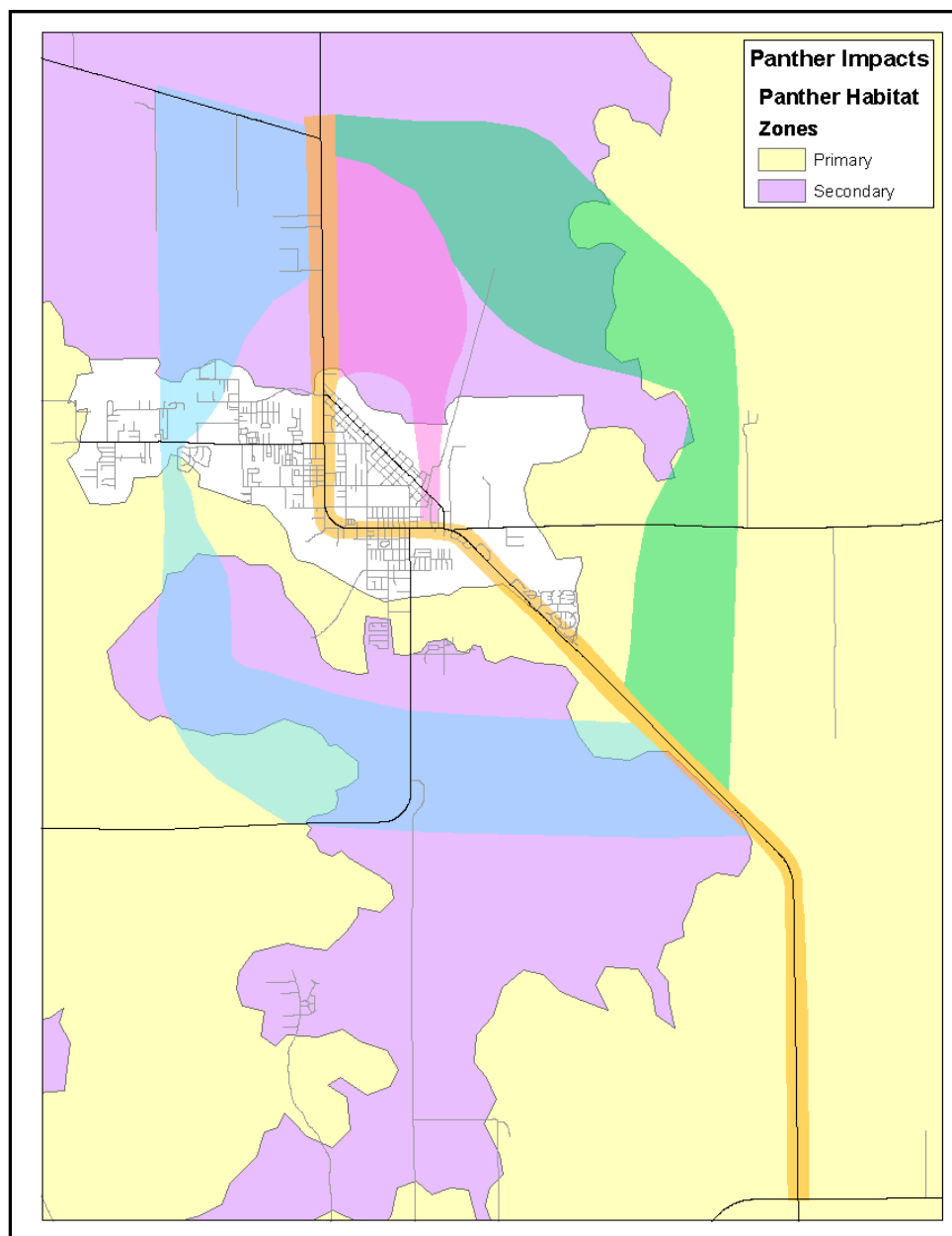
**FIGURE 12
NATURAL FEATURES**



Panther Habitat

Primary and secondary habitats for the Florida Panther have been designated throughout southwest Florida and Collier County. Each of the corridors considered affect secondary Panther Habitats, with only the Central Corridor avoiding primary Panther Habitat. The West Corridor traverses an area of primary habitat between the urbanized area of Immokalee and a larger area of secondary habitat to the south. The Existing Corridor crosses or abuts both primary and secondary habitat for most of its length. The East Corridor extends through a large portion of primary habitat and has secondary habitat areas at its northern and southern termini. **Figure 13** depicts the West, Existing, Central and East Corridors overlaid on this information.

**FIGURE 13
PANTHER HABITAT**



7.0 RECOMMENDATION

The analysis of each of these corridors has revealed several problematic areas and issues that will require further evaluation at a greater level of detail. Each of the corridors evaluated have high levels of potential impacts in various issues but as compared to one another, no one corridor or set of corridors can be determined to be so impactful that it is eliminated.

In the West Corridor, the highest density of Hispanic population exists near the middle of the corridor at its most narrow point. In approximately that same location the West Corridor crosses a band of primary Panther habitat that acts as a pathway from the west side of SR 29 to the east side.

The Existing Corridor has the lowest overall environmental impact but has high impacts to Hispanic, low income and non-white populations as well as high impacts to socio-cultural features such as churches, tribal properties, parks and the airport.

Ninety-two percent of the Central Corridor contains secondary Panther habitat, yet is by far the smallest and shortest of the four corridors considered. However, due to its location, the Central Corridor has little to no effect on socio-cultural features.

Finally, the East Corridor represents the greatest potential impact to primary Panther habitat of the four corridors and is the longest of the four corridors. Additionally, the East Corridor potentially has the largest impact to wetlands, water features and listed species, yet has little to no impacts to socio-cultural features and lower potential impacts to socio-economic issues.

After this evaluation it has been determined that a greater level of analysis is needed before a corridor and/or alignment can be eliminated and it is therefore recommended that all Corridors be advanced for further evaluation and analysis. **Table 7** summarizes the results of this analysis.

**TABLE 7
SUMMARY OF POTENTIAL ISSUES AND IMPACTS**

Corridor	Public Support	Purpose and Need Satisfaction	Socio-Economic Factors	Environmental Factors	Recommendation of Advancement into the PD&E Study
West	0	YES	HIGH	HIGH	YES
Existing	1	YES	MEDIUM	LOW	YES
Central	1	YES	MEDIUM	MEDIUM	YES
East	13	YES	MEDIUM	HIGH	YES