Gainesville Urbanized Area Transportation Study
(GUATS)

YEAR 2035
LIVABLE COMMUNITY REINVESTMENT PLAN
SOCIO-ECONOMIC REPORT

BASE YEAR 2007
FORECAST YEAR 2035

Prepared for the

Metropolitan Transportation Planning Organization (MTPO)
for the Gainesville Urbanized Area

by the
North Central Florida Regional Planning Council
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May 6, 2009

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EXECUTIVE SUMMARY

BACKGROUND

In December 2005, the Metropolitan Transportation Planning Organization (MTPO) for the Gainesville Urbanized Area adopted the Gainesville Urbanized Area Year 2025 Long-Range Transportation Plan Update. This plan identifies future transportation needs in the MTPO planning area. For this transportation plan, staff developed socio-economic data for the year 2000 and the year 2025. Every five years, the MPO is required to update its adopted transportation plan.

The purpose of this report is to document the development of the 2007 base year socio-economic data inventory and the future year (2035) forecasting effort. The data presented in this report will be used in the GUATS travel demand model. This model will be validated and used for the development of the 2035 Long Range Transportation Plan. The process of validation is to estimate model generated traffic volumes using existing (2007) socioeconomic data and to compare those results to known traffic counts. This provides an estimate of how well the model predicts existing traffic behavior. Mathematic adjustments are then made to the computer model to the point where it accurately replicates known traffic counts for the base year.

The data contained in this report was developed through a collaborative effort between the MTPO and local planners.

BASE YEAR DATA

The 2007 dataset was based on a variety of sources, including Census data, InfoUSA employment data, Alachua County tax parcel records, Alachua County certificates of occupancy, data used during the previous plan update, and other sources. The Socio-economic Data Working Group of the MTPO's Technical Advisory Committee approved the 2007 base year dataset on April 4, 2008. This data is shown aggregated to municipal city limits in Table 1 and Table 2.

FORECASTS

Future year forecasts, for the year 2035, will be used to predict future traffic volumes in Alachua County. This information will allow the MTPO to identify roadway and transit transportation modifications that are necessary over the next twenty five years. The SE Data Working Group of the MTPO's Technical Advisory Committee approved the 2035 forecasts on May 6, 2009.

For the residential forecasts, a county 2035 population total produced by the Bureau for Economic and Business Research (BEBR) was used. Sub-Area population forecasts were

produced based on a formula which gave equal weight to current distribution of population, change in population between 2000 and 2007, and pending dwelling units. These Sub-Area population forecasts were converted to dwelling units. Sub-Areas were developed based on defined extra-territorial reserves (ETRs), except in the case of Gainesville, where there is not a defined ETR. The area surrounding Gainesville was either allocated to Alachua County or, for the area defined as the Alachua County Urban Cluster, a separate Sub-Area. Figure 1 is a map of these Sub-Areas. Pending residential developments were subtracted from the Sub-Area dwelling unit totals. The remaining single family and multi-family dwelling units were allocated to TAZs based on a land use suitability model that analyzed environmental and economic factors to determine areas where single family and multi-family uses would be most likely to occur. The allocation was constrained to areas where future land use elements of local comprehensive plans allowed residential development. 2035 residential totals are shown in Table 3.

Future year employment forecasts were produced by determining a county control total based on short term projections by the Labor Market Statistics Center (LMS) and future population growth. A countywide employment control total of 187,057 was approved by the Socio-Economic Data Working Group on June 12, 2008. Sub-Area forecasts were produced by an unequal weighted allocation formula which gave 70% of the weight to existing employment distribution, 15% of the weight to pending nonresidential square footage, and 15% of the weight to population growth. Employment from pending developments (including schools, UF expansion, and other developments) was subtracted from the Sub-Area totals. The remaining employment was distributed based on a land use suitability model that analyzed environmental and economic factors to determine areas where commercial, service, and industrial employment would most likely occur. The allocation was constrained to areas where future land use elements of local comprehensive plans allowed appropriate nonresidential uses. 2035 employment totals are shown in Table 4.

Additional variables were also forecasted, including school enrollment and hotel variables. The methodology used for forecasts all variables is described in the report.

MANUAL ADJUSTMENTS

Following the forecasting effort it was determined that a few TAZs had incorrect baseyear information. In TAZs around the university 2007 employment figures were adjusted to match data provided by UF staff. This resulted in the employment in the City of Gainesville to be reduced by about six thousand employees. This also reduced the 2035 employment figures.

TABLE 1: 2007 BASE YEAR RESIDENTIAL DATA AGGREGATED TO CITY LIMITS

JURISDICTION[c]	DU_00	SFDU_00	MFDU_00	POP_00[1]	POP_00[2]	DU_07	SFDU_07	MFDU_07	POP_07	BEBR ESTIMATE[b]	Area (Acres)
ALACHUA	2,714	2,321	395	5,930	6,405	3718	3000	720	8739	7,854	22,218
ALACHUA CO	38,716	25,815	13,593		89,085	45371	30968	14396	103570	103,217	502,330
ARCHER	430	339	96		1,104	446	363	85	1131	1,229	3,164
GAINESVILLE	50,058	24,881	25,291	95,605	106,315	53911	26080	27834	114029	122,671	38,310
HAWTHORNE	416	360	52		942	437	383	55	994	1,401	3,104
HIGH SPRINGS	1,740	1,469	270	3,935	4,247	2149	1876	274	5250	4,739	12,840
LACROSSE	105	80	24		246	115	90	24	267	195	2,877
MICANOPY	213	203	8		428	217	209	8	440	637	688
NEWBERRY	1,633	1,273	369	3,330	4,073	1981	1625	356	4924	4,787	33,480
WALDO	296	174	123		658	311	189	123	695	831	1,465
UF Population*									10,420		
TOTAL	96,321	56,905	39,416	N/A	213,503	108,658	64,783	43,875	250,459	247,561	620,476

**UF Population not included in dwelling unit total due to special generator treatment in travel demand model*

POP_00[1]: 2000 Population using Census defined municipal boundaries

POP_00[2]: 2000 Population based on Census data allocated to current city limits using a weighted average distribution

[b]BEBR Estimate = Bureau of Economic and Business Research

[c] Data summed based on area of TAZ in jurisdictional limits as of August 2008

TABLE 2: 2007 BASE YEAR EMPLOYMENT DATA AGGREGATED TO CITY LIMITS

Municipality[c]	TTL_MH00	TTL_MH07	EMP_IND	EMP_SER	EMP_COM	EMP_TOT	SCH_ENR
ALACHUA	114	214	2,015	1,739	1,739	5,500	2,054
ALACHUA CO	1,685	2,126	4,318	19,608	8,208	32,128	14,226
ARCHER	-	-	177	120	107	403	8
GAINESVILLE	2,211	2,694	7,424	62,685	20,332	90,377	13,900
HAWTHORNE	-	-	49	255	50	356	386
HIGH SPRINGS	7	7	284	680	540	1,504	344
LACROSSE	-	-	6	30	7	45	1
MICANOPY	-	11	80	115	60	254	182
NEWBERRY	-	19	688	753	372	1,815	1,639
WALDO	-	17	13	21	14	49	16
TOTAL	4,017	5,088	15,054	86,006	31,429	132,431	32,756

Variable Key

DU_00 = Dwelling Units 2000
SFDU_00 = Single Family Units 2000
MFDU_00 = Multi-Family Units 2000
DU_07 = Dwelling Units 2007
SFDU_07 = Single Family Units 2007
MFDU_07 = Multi-Family Units 2007
POP_07 = Population 2007
TTL_MH00 = Hotel Units 2000
TTL_MH07 = Hotel Units 2007
EMP_IND = Industrial Employment 2007
EMP_SER = Service Employment 2007
EMP_COM = Commercial Employment 2007
EMP_TOT = Total Employment 2007
SCH_ENR = School Enrollment 2007

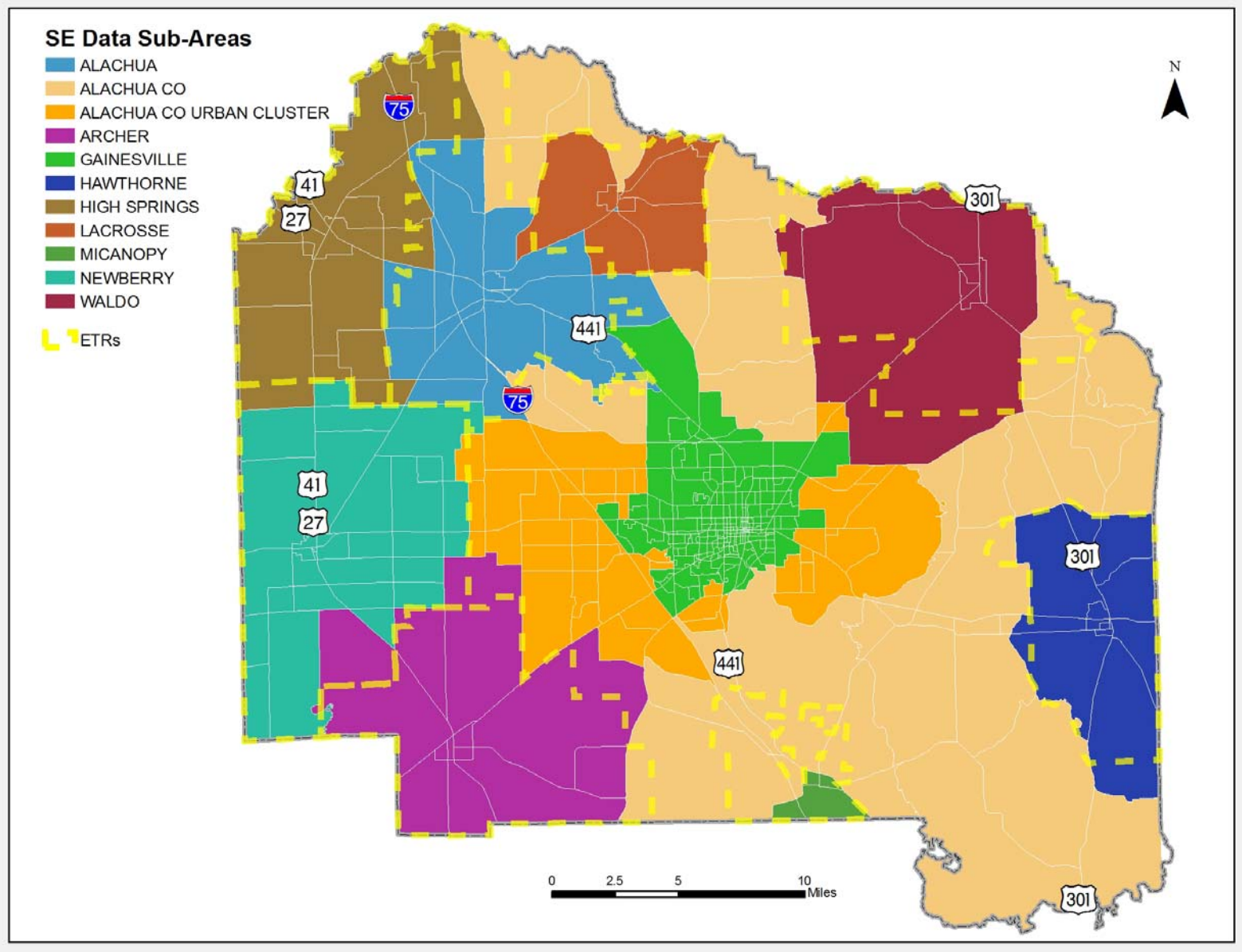
TABLE 3: 2007-2035 RESIDENTIAL DATA AGGREGATED TO SUB-AREAS

Sub-Area	DU_07	SFDU_07	MFDU_07	POP_07	DU_35	SFDU35	MFDU35	POP2035
ALACHUA	4,979	4,017	962	11,745	7,527	6,346	1,181	17,512
ALACHUA CO	5,231	4,252	979	11,565	6,137	5,158	979	13,369
ARCHER	4,046	3,482	564	10,197	6,363	5,491	872	15,818
GAINESVILLE	52,466	25,136	27,330	110,931	58,579	26,753	31,826	122,036
ALACHUA CO URBAN CLUSTER*	30,355	18,623	11,732	68,073	45,925	24,969	20,956	100,235
HAWTHORNE	1,456	1,189	267	3,303	1,742	1,435	307	3,898
HIGH SPRINGS	3,993	3,395	598	9,758	6,201	4,730	1,471	14,928
LACROSSE	671	559	112	1,559	784	659	125	1,810
MICANOPY	448	414	34	908	508	471	37	1,012
NEWBERRY	3,600	2,894	706	8,864	5,477	4,531	946	13,280
WALDO	1,413	822	591	3,136	1,632	977	655	3,572
UF (POP only)				10,420				11,530
TOTAL	108,658	64,783	43,875	250,459	140,875	81,520	59,355	319,000

TABLE 4: 2007-2035 HOTEL, SCHOOL, AND EMPLOYMENT AGGREGATED TO SUB-AREAS

Sub-Area	TTL_MH07	TTL_MH35	EMPTOT 07	IND35	SVC35	COM35	EMPTOT 35	SCH_ENR07	SCH_ENR35
ALACHUA	266	266	6,961	3143	3676	3307	10126	2,789	3,817
ALACHUA CO	173	173	2,520	332	2171	556	3059	61	61
ARCHER	-	0	847	345	901	282	1528	477	1,233
GAINESVILLE	2,595	3366	92,370	9884	84722	26475	121081	13,428	13,508
ALACHUA CO URBAN CLUSTER	1,941	2341	22,839	3416	22642	8503	34561	12,437	15,857
HAWTHORNE	12	12	921	241	566	402	1209	632	632
HIGH SPRINGS	50	50	2,472	654	2140	1316	4110	619	997
LACROSSE	-	0	94	31	88	14	133	-	-
MICANOPY	11	11	325	135	169	81	385	184	184
NEWBERRY	20	20	2,523	2323	1466	581	4370	1,918	2,584
WALDO	20	20	560	164	343	220	727	211	211
TOTAL	5,088	6,259	132,432	20,668	118,884	41,737	181,289	32,756	39,084

FIGURE 1: SUB-AREAS

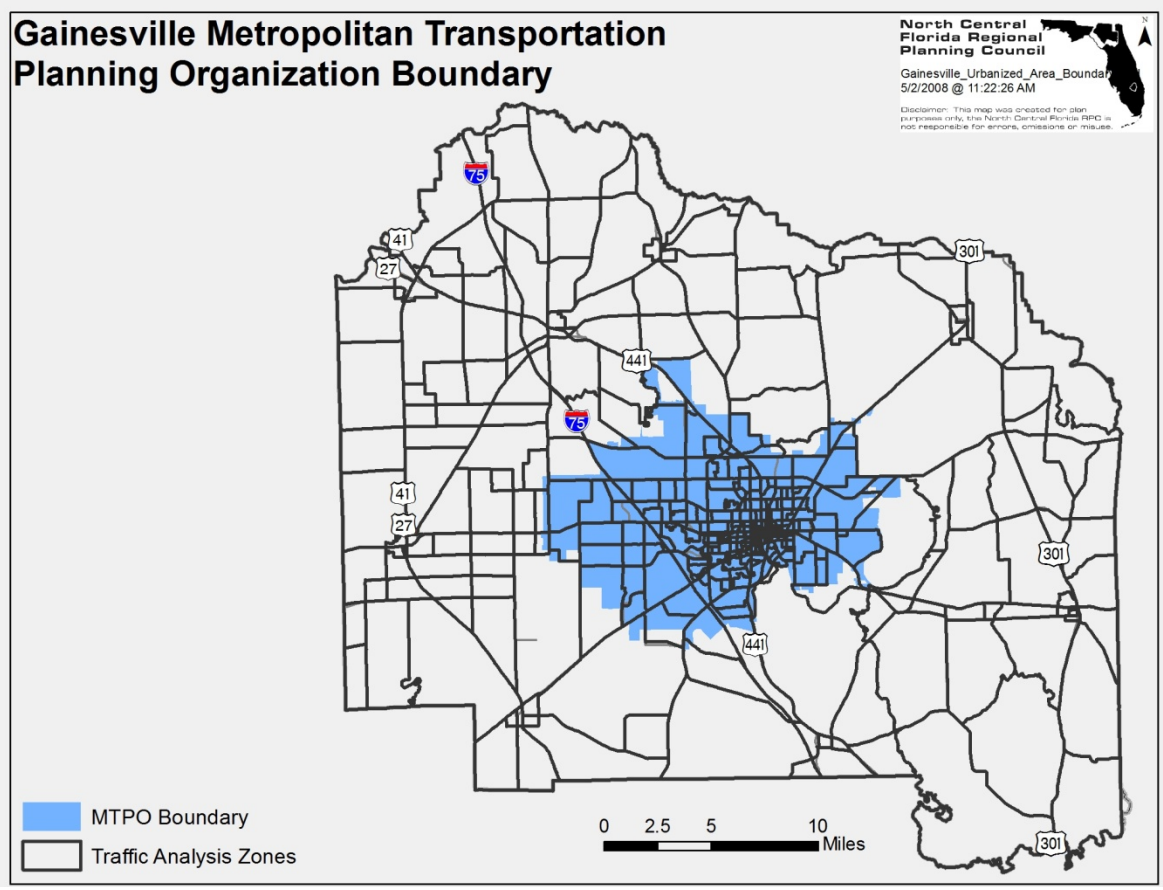


INTRODUCTION

In metropolitan areas with populations over 50,000 people, a Metropolitan Planning Organization (MPO) is required, by federal law, to coordinate long range transportation planning. As part of this planning, MPOs are required to maintain travel demand forecasting models in order to facilitate the analysis of current and future transportation demand. Travel demand models require demographic information as inputs. The inputs vary between models and include employment, households, school enrollment, motel units, and other demographic information. MPOs are required to have a base year inventory of socio-economic data, as well as forecasts that extend at least 25 years into the future.

The Metropolitan Transportation Planning Organization (MTPO) is responsible for coordinating transportation planning for the Census defined Gainesville Urbanized Area. However, the Gainesville Urbanized Area Transportation Systems (GUATS) travel demand model covers all of Alachua County. Accordingly, the data contained in this report includes all of Alachua County and the municipalities therein. The demographic data is aggregated to traffic analysis zones (TAZ) in order to be used in the model. Figure 2 shows the MTPO boundary and the traffic analysis zone structure.

FIGURE 2: GAINESVILLE MTPO BOUNDARY AND TRAFFIC ANALYSIS ZONES



FLORIDA STANDARD URBAN TRANSPORTATION MODEL STRUCTURE (FSUTMS)

Transportation modeling in the state of Florida uses a standard model structure known as the Florida Standard Urban Transportation Model Structure (FSUTMS) to perform existing and future year travel demand forecasting. The process of travel demand forecasting is an attempt to quantify the amount of travel on a given transportation system at some point in time. The following sections discuss the travel demand forecasting process and the associated socioeconomic data inputs.

Since 1978, the Florida Department of Transportation (FDOT) has developed a series of standardized modeling procedures for use in urbanized transportation studies within the state. These procedures were developed to standardize models across the state because:

1. Different data requirements in each of the urbanized areas made maintenance of multiple computer models cumbersome; and
2. Federal funding for expensive origin-destination surveys used to update original model results was in short supply.

TRAVEL DEMAND FORECASTING THE TRADITIONAL FOUR STEP PROCESS

A four step process has traditionally been used to forecast and quantify future travel demand within a given area. A simplified depiction of the traditional travel demand forecasting process is provided in Figure 3. A more complex diagram showing the steps of the travel demand forecasting process is included in Figure 4.

The four steps in the process are:

1. Trip Generation – forecasts the number of trips produced in the study area.
2. Trip Distribution – mathematical calculation of where trips will go.
3. Mode Split – prediction of how trips will be divided among the available modes of travel (i.e. auto, transit, bicycle and pedestrian).
4. Trip Assignment (highway and transit) – prediction of routes that trips will take based on facility congestion and projected travel times.

FIGURE 3: SIMPLIFIED TRAVEL DEMAND FORECASTING PROCESS

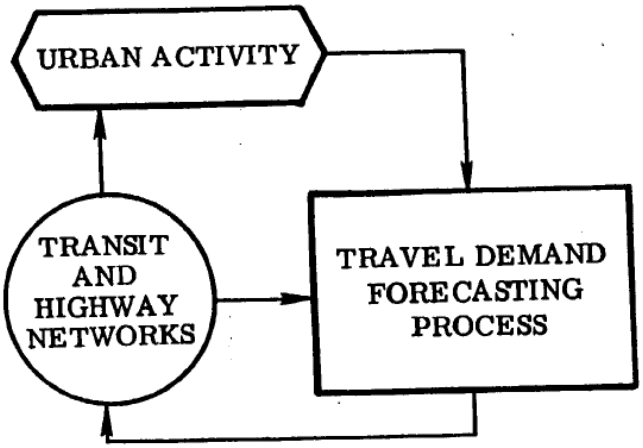
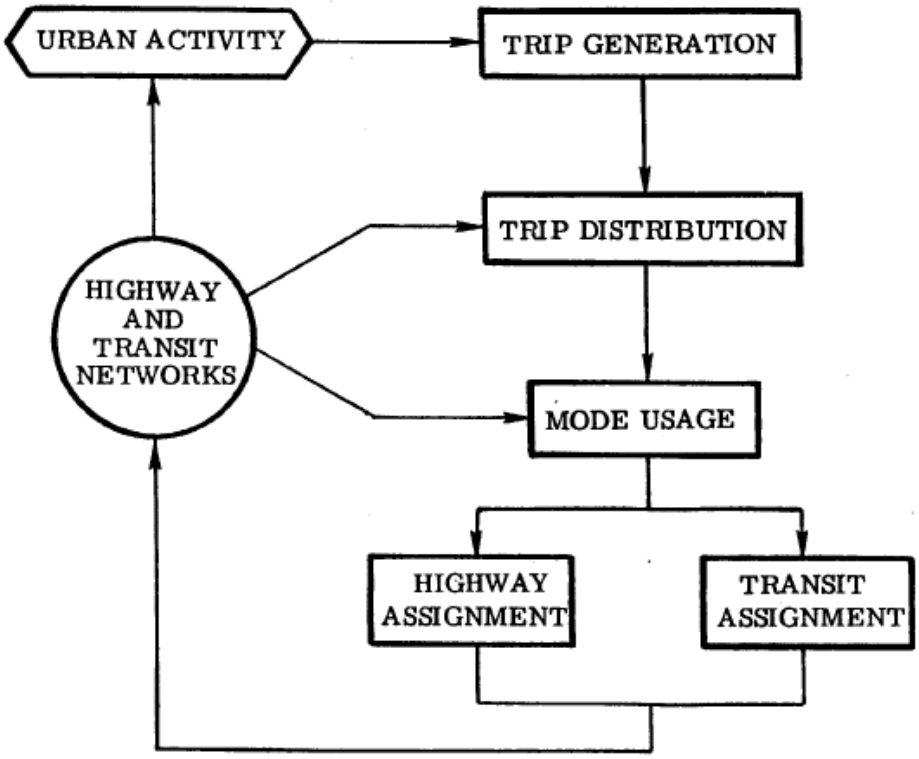


FIGURE 4: TRAVEL DEMAND FORECASTING STEPS



TRIP GENERATION – INPUT DATA

The first step in forecasting future travel demand using the traditional four-step process is trip generation. This process is a forecast of the number of trips that will be made in a given geographic area. The social and economic inputs necessary to estimate trip generation are associated with location and intensity of development.

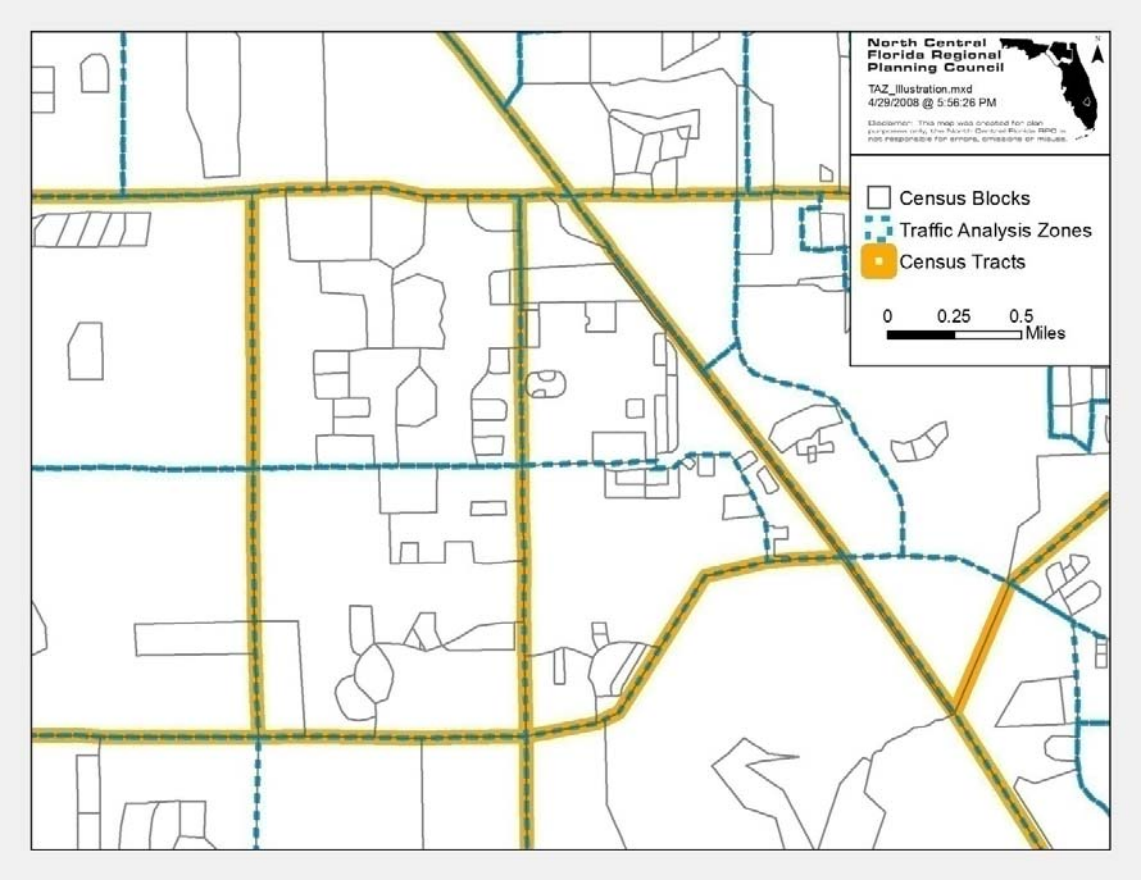
Examples of these inputs include:

1. Where people live
2. The number and type of households
3. The number of vehicles per household
4. The number of employees by industry (service, industrial, commercial)

TRAFFIC ANALYSIS ZONES (TAZs)

Trip generation information is developed for blocks of land called “traffic analysis zones” or TAZs. The boundaries of these zones are determined by identifying sections of the modeled area that house relatively homogeneous land use activities and are well defined, by both the total number of trips produced and by the existing roadway network. These zones are the basic geographic units that define the source of travel demand. The TAZs used during the last LRTP update were used during the development of the Socio-economic data. There were 453 TAZs. The zones varied in size with the smallest representing a single city block (1.2 acres) while the largest spanned several square miles (21,220 acres). The average TAZ size is 1,369 acres. After the SE Data was compiled the data was converted to a new zone structure. This process is described in Appendix H.

FIGURE 5: TRAFFIC ANALYSIS ZONE ILLUSTRATION



OVERVIEW OF BASE YEAR DATA COLLECTION AND FORECAST METHODOLOGY

BASE YEAR DATA COLLECTION

Base year (2007) data was compiled based on a number of sources including the data compiled during the previous LRTP update, Census 2000 data, Alachua County tax parcel records, Alachua County certificates of occupancy, InfoUSA employment data, and other sources. The main variables and their sources are listed in the table below. A detailed description of the methodology used to collect and aggregate base year socioeconomic data is included later in this report.

TABLE 5: BASE YEAR VARIABLES AND SOURCES

Variable	**Source**
Dwelling Units (Total/SF/MF)	2000 Base: Census 2000/00-07:Tax Parcel Records and Alachua County Certificates of Occupancy
% Dwelling Units Occupied	Vacancy Rate (Census 2000) x Dwelling Units
Population	Occupied DUs x Avg HH Size (Census 2000)
Hotel Units	Alachua Co. Visitors and Convention Bureau
Employment by Sector (Comm./Ind./Service)	InfoUSA + Staff Corrections
School Enrollment	Public: Alachua County School Board Private: privateschoolreview.com
Short term/Long term Parking Cost	Existing Model Values

FORECAST METHODOLOGY

In summary, for the residential forecasts, a county 2035 population total by the Bureau for Economic and Business Research (BEBR) was used. Sub-Area population forecasts were produced based on a formula which gave equal weight to current distribution of population, change in population between 2000 and 2007, and pending dwelling units. These were then converted to dwelling units. Sub-Areas were developed based on defined extra-territorial reserves (ETRs), except in the case of Gainesville, where there is not a defined ETR. The area surrounding Gainesville was either allocated to Alachua County or, for the area defined as the Alachua County Urban Cluster, defined as a separate Sub-Area. Pending residential developments were subtracted from the Sub-Area dwelling unit totals. The remaining single family and multi-family dwelling units were allocated to TAZs based on a land use suitability

model that analyzed environmental and economic factors to determine areas where single family and multi-family uses would be most likely to occur. The allocation was constrained to areas where future land use elements of local comprehensive plans allowed residential development.

Future year employment forecasts were produced by determining a county control total based on short term projections by the Labor Market Statistics Center (LMS) and future population growth. A countywide employment control total of 189,621 was approved by the Socio-Economic Data Working Group on June 12, 2008 (the actual employment total in 2035 was reduced when baseyear UF employment was reduced based on data provided by UF staff). Sub-Area forecasts were produced by an unequal weighted allocation formula which gave 70% of the weight to existing employment distribution, 15% of the weight to pending nonresidential square footage, and 15% of the weight to population growth. Employment from pending developments (including schools, UF expansion, and other developments) was subtracted from the Sub-Area totals. The remaining employment was distributed based on a land use suitability model that analyzed environmental and economic factors to determine areas where commercial, service, and industrial employment would most likely occur. The allocation was constrained to areas where future land use elements of local comprehensive plans allowed appropriate nonresidential uses.

I. POPULATION ESTIMATES AND FORECASTS

The following tables show population figures for Alachua County. Table 6 is a comparison between Census data and estimates, the Bureau of Economic and Business Research (BEBR) estimates and the base year dataset produced by MTPO staff with the help of local governments for use in the GUATS model. Table 7 shows population forecasts for Alachua County as prepared by BEBR and recorded in the Florida Statistical Abstracts from 1998, 2003, and 2007. Figure 6 depicts population estimates and forecasts produced by BEBR in 1998, 2003, and 2007. The population forecasts for Alachua County have been increasing incrementally during the last three releases of the Florida Statistical Abstract. In a bulletin released in March of 2008, BEBR revised the population forecast for Alachua County downward in order to account for recent decreases in development due to the economic downturn. This revised figure is shown in Figure 7.

TABLE 6: BASE YEAR POPULATION COMPARISON

Alachua County Population	2000	2006	2007
Census*	217,948	227,120	228,649
BEBR**	217,955	243,779	247,561
Draft Dataset***			250,459

*figures based on Census 2000 and 2006 estimate assuming linear growth to 2007
**Bureau of Economic and Business Research
***As of May 14, 2009 figure subject to change model development/validation

TABLE 7: ALACHUA COUNTY POPULATION ESTIMATES AND FORECASTS, 2000-2030

	1998 Florida Statistical Abstract	2003 Florida Statistical Abstract	2007 Florida Statistical Abstract
2000	219,800	217,955	
2005	236,900	238,800	247,561
2010	253,200	256,100	259,800
2015	268,100	273,000	277,300
2020	282,400	287,700	291,800
2025	No Forecast	301,700	304,700
2030	No Forecast	No Forecast	316,800

FIGURE 6: HISTORICAL BEBR POPULATION FORECASTS

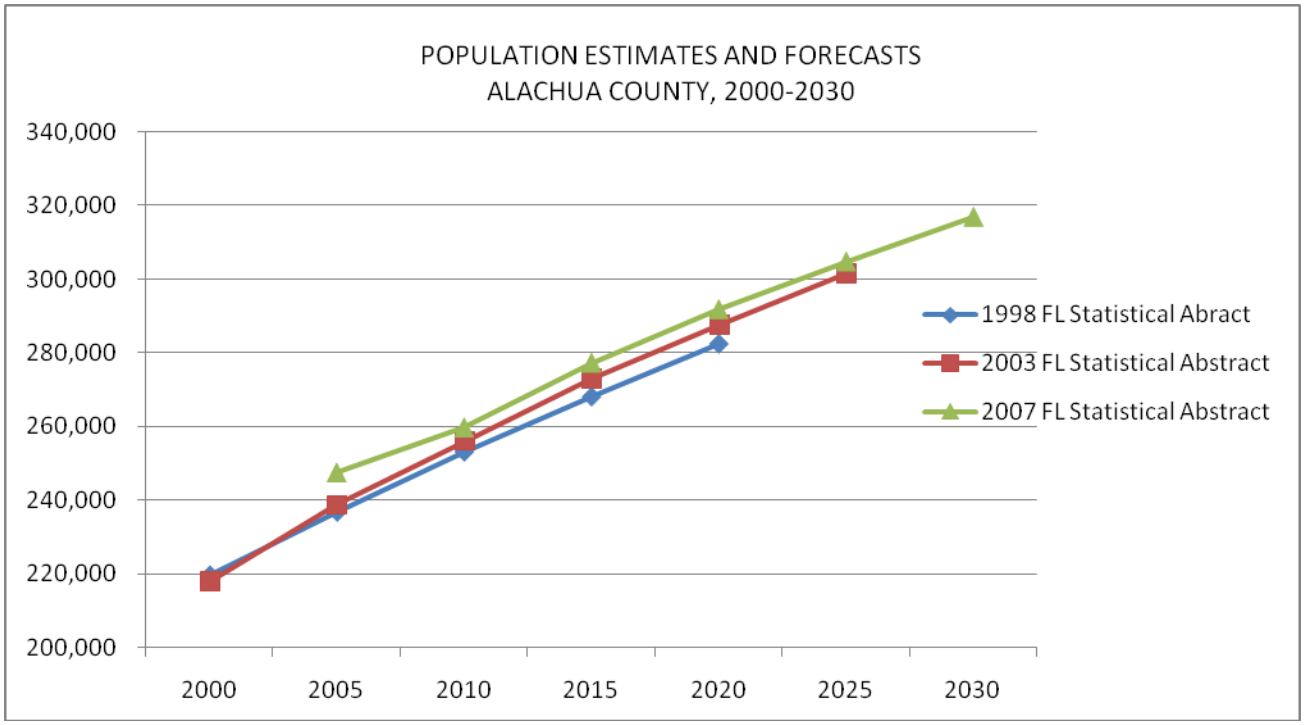
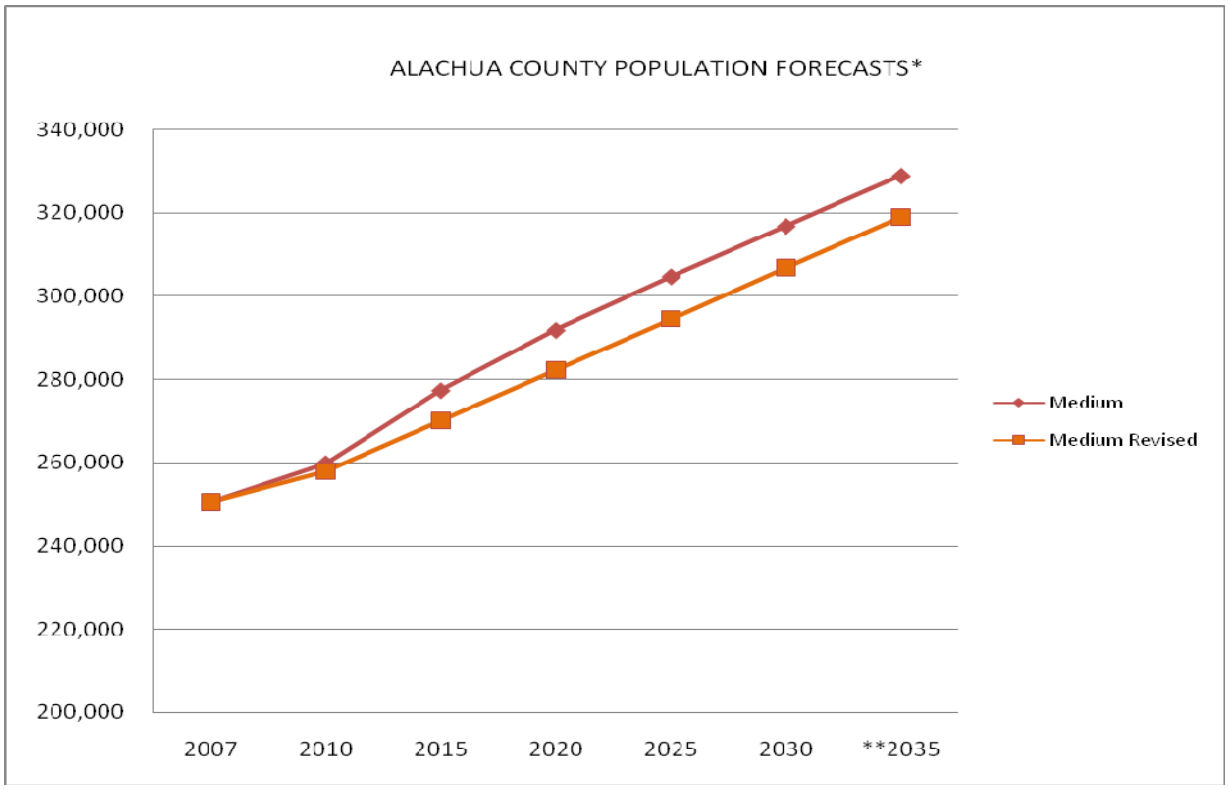


FIGURE 7: BEBR POPULATION FORECASTS ADJUSTED



II. SOCIOECONOMIC VARIABLES

These variables serve as indicators of the level and character of urban activity in TAZs. They are used as inputs to the GUATS travel demand forecasting model.

RESIDENTIAL VARIABLES

SINGLE FAMILY DWELLING UNITS

Variable #1 – Single-family dwelling units
Variable #2 – Percent single-family dwelling units not occupied by permanent residents
Variable #3 – Percent single-family dwelling units vacant
Variable #4 – Population in single-family dwelling units occupied by permanent residents
Variable #5 – Persons per single-family household

MULTI-FAMILY DWELLING UNITS

Variable #9 – Multi-family dwelling units
Variable #10 – Percent multi-family dwelling units not occupied by permanent residents
Variable #11 – Percent multi-family dwelling units vacant
Variable #12 – Population in multi-family dwelling units occupied by permanent residents
Variable # 13 – Persons per household

VEHICLE OWNERSHIP VARIABLES

SINGLE FAMILY

Variable #6 – Percent households occupied by permanent residents having no vehicle
Variable #7 – Percent households occupied by permanent residents having one vehicle
Variable #8 – Percent households occupied by permanent residents having two+ vehicles

MULTI-FAMILY

Variable #14 – Percent households occupied by permanent residents having no vehicle
Variable #15 – Percent households occupied by permanent residents having one vehicle
Variable #16 – Percent households occupied by permanent residents having two+ vehicles

HOTEL/MOTEL VARIABLES

Variable #17 – Hotel/Motel units
Variable #18 – Percent hotel/motel units occupied
Variable #19 – Persons in occupied hotel/motel units
Variable #20 – Persons per unit in occupied hotel/motel units

EMPLOYMENT VARIABLES

Variable #21 – Industrial employment by place of work
Variable #22 – Commercial employment by place of work
Variable #23 – Service employment by place of work
Variable #24 – Total employment by place of work

SCHOOL ENROLLMENT VARIABLES

Variable #25 – School Enrollment

PARKING COST VARIABLES

Variable #26 – Short-term parking cost
Variable #27 – Long-term parking cost

III. RESIDENTIAL VARIABLES

Residential variables are separated into single family and multi-family variables.

SINGLE FAMILY VARIABLES

Variable #1 – Single-family dwelling units
Variable #2 – Percent single-family dwelling units not occupied by permanent residents
Variable #3 – Percent single-family dwelling units vacant
Variable #4 – Population in single-family dwelling units occupied by permanent residents
Variable #5 – Persons per single-family household

Definition: Single family dwelling units are defined as year-round housing units whether occupied or vacant, excluding seasonal housing units and migratory labor housing units unless occupied, made up of living quarter for only one household detached from any other house, excluding mobile homes and trailers.

MULTI-FAMILY VARIABLES

Variable #9 – Multi-family dwelling units
Variable #10 – Percent multi-family dwelling units not occupied by permanent residents
Variable #11 – Percent multi-family dwelling units vacant
Variable #12 – Population in multi-family dwelling units occupied by permanent residents
Variable #13 – Persons per household

Definition: Multi-family dwelling units are defined as all year-round housing units whether occupied or vacant, including occupied seasonal housing units and occupied migratory labor housing units, made up of one-family houses attached to one or more houses and buildings constructed for occupancy by two or more families (i.e. duplexes, apartments, townhouses, condominiums, and boarding houses of less than ten unrelated occupants), and all occupied mobile homes or trailers.

BASE YEAR ESTIMATES METHODOLOGY

VARIABLE #1 – SINGLE FAMILY DWELLING UNITS
VARIABLE #9 – MULTI-FAMILY DWELLING UNITS

General Methodology

A year 2000 dwelling unit figure (SF & MF) was compiled using Census 2000 data, the 2000 dwelling unit (SF & MF) data in the socioeconomic dataset used for the MTPO Year 2025

Long Range Transportation Plan, Alachua County tax parcel data, and Alachua County certificates of occupancy data. Parcel data and certificates of occupancy data were queried to determine how many single family and multi-family dwelling units were built between 2000 and 2007. This information was aggregated to TAZs. The lookup table used to classify parcels into generalized land use codes is included in Appendix A.

The 2007 dwelling unit figures were distributed to the MTPO Socioeconomic Data Working Group and municipal planners for review. See Table 1 showing 2007 Dwelling Units by municipality.

VARIABLES #2-5 AND #10-13: VACANCY, OCCUPANCY AND HOUSEHOLD SIZE

Variable #2 – Percent single family dwelling units not occupied by permanent residents

Definition – The percentage of single family dwelling units that are vacant or are occupied by seasonal residents who regularly reside in a permanent residence elsewhere.

Methodology – Seasonal residents have a permanent residence in another area and locate in Florida for only certain seasons of the year. In Florida, many seasonal residents locate in the southern parts of the state for the winter months. Alachua County does not have a significant number of seasonal residents like some parts of the state. Therefore, the information which is used for Variable #3 (percent single family dwelling units vacant) is assumed to accurately represent the percent of single family dwelling units not occupied by permanent residents.

Variable #3 – Percent single family dwelling units vacant

Definition – The percentage of single family dwelling units described in Variable #1 that are vacant during the peak season of the year.

Methodology – Vacancy rates have been applied to TAZs Census Tract basis based on information contained in the 2000 Census.

Process Steps:

1. Developed a vacancy rate based on 2000 Census data by using the Census Transportation Planning Package (CTPP) to query the number of housing units (dwelling units) and households for each census tract in Alachua County.
2. A vacancy rate was determined by dividing the number of households by the number of dwelling units within each tract.
3. Multiplied the 2007 dwelling units per TAZ by the vacancy rate to get a 2007 household figure for each TAZ.

Variable #4 – Population in single family dwelling units occupied by permanent residents

Definition – All persons of all ages, including boarders in regular residence, living in single family dwelling units excluding all persons who regularly reside elsewhere.

Methodology – Determined the population of each TAZ based on the number of households and an average household size derived from 2000 Census data and applied on a census tract basis.

Process Steps for developing total population, single family population and multi-family population:

1. Developed an Average HH Size variable based on 2000 Census data by using the Census Transportation Planning Package (CTPP) to query the population and number of households for each census tract in Alachua County.
2. An Average HH Size figure was determined by dividing the population by the number of households in each census tract.
    a. Note: Tract # 02 (the University) had a Avg. HH Size of 32 which was changed to 3. This will have little effect on future population forecasts due to the fact that the University population will be calculated differently than other population forecasts.
    b. Note: 4 tracts had average household sizes that exceeded 3.9 people per household, these were considered outliers and the Average HH Size was changed to 3 persons per household.
3. Population per household figures for single family households were developed based on 2000 Census data by using the CTPP
4. Population per household figures for multi-family households were developed based on 2000 Census data by using the CTPP
5. Changed Avg HH Size for SF from 0 to 2 and from 1 to 2 For MF from 0 to 1.5
6. Recalculated SFPOP with ([SFDU00] * ([SF_VAC]/100) * [AVGHHSZ])+ ([NW_SF00_07]* [PPH_SF] * ([SF_VAC]/100))
7. Recalculated MFPOP with ([MFDU00] * ([MF_VAC]/100) * [AVGHHSZ])+ ([NW_MF00_07]* [PPH_MF] * ([MF_VAC]/100))
8. Recalculated POP 2007 with ([DU_00] * [VAC_RATE] * [AVGHHSZ])+ ([NwSFDUs_01_07] * [PPH_SF]* [VAC_RATE]) + ([NwMFDUs_01_07] * [PPH_MF]* [VAC_RATE])

Variable #5 – Persons per single family household

Definition – The number of persons per single family household

Methodology – An persons per single family household variable was calculated based on 2000 Census data by using the Census Transportation Planning Package (CTPP). See process steps for Variable #4.

Variable #10 – Percent multi-family dwelling units not occupied by permanent residents

Definition – The percentage of multi-family dwelling units that are vacant or are occupied by seasonal residents who regularly reside in a permanent residence elsewhere.

Methodology – Seasonal residents have a permanent residence in another area and locate in Florida for only certain seasons of the year. In Florida, many seasonal residents locate in the southern parts of the state for the winter months. Alachua County does not have a significant number of seasonal residents like some parts of the state. Therefore, the information which is used for Variable #11 (percent multi-family dwelling units vacant) is assumed to accurately represent the percent of single family dwelling units not occupied by permanent residents.

Variable #11 – Percent multi-family dwelling units vacant

Definition – The percentage of multi-family dwelling units described in Variable #9 that are vacant during the peak season of the year.

Methodology – Vacancy rates have been applied to TAZs Census Tract basis based on information contained in the 2000 Census. For a more detailed methodology see process steps for Variable #3.

Variable #12 – Population in multi-family dwelling units occupied by permanent residents

Definition – All persons of all ages, including boarders in regular residence, living in multi-family dwelling units excluding all persons who regularly reside elsewhere.

Methodology – See process steps for Variable #4.

Variable #13 – Persons per multi-family household

Definition – The number of persons per household

Methodology – The number of persons per household variable was calculated based on 2000 Census data by using the Census Transportation Planning Package (CTPP). See process steps for Variable #4.

FORECASTS METHODOLOGY

OVERVIEW

In this section, the methodology used to produce the residential forecasts for the Modeled Area (Alachua County) is described. A population control total for Alachua County was produced, sub-area allocation totals were produced, sub-area dwelling unit estimates were computed, and then pending development dwelling unit totals were produced based on consultation with local planners. Pending development totals were subtracted from the sub-area totals. Finally the remaining dwelling units were allocated based on a land use suitability model.

COUNTYWIDE POPULATION CONTROL TOTAL

A Countywide population control total was approved by the Socio-economic Data Working Group on June 12, 2008. The 2035 population control total of 319,000 was identical to the 2035 medium forecast released by the Bureau of Economic and Business Research (BEBR) in March of 2008 (BEBR 2008).

SUB-AREA POPULATION TOTALS

Sub-Areas were developed based on defined extra-territorial reserves (ETRs), except in the case of Gainesville, where there is not a defined ETR. The area surrounding Gainesville was either allocated to Alachua County or, for the area defined as the Gainesville Alachua County Urban Cluster, defined as a separate Sub-Area (see Figure 1).

Staff developed allocation scenarios based on different socio-economic variables that are indicative of future growth trends. These scenarios were based on; 1) percentage of current 2007 population in Alachua County; 2) recent growth (dwelling units built between 2000 and 2007; and 3) pending development. Pending developments, in terms of dwelling units, were quantified based on individual meetings with local governments and are representative of what planners were confident will be built in the next 3-5 years. A fourth, “Weighted” allocation scenario, was developed that gave equal weight to each of the aforementioned variables. The Working Group approved the Weighted Sub-Area allocation totals on October 29, 2008.

TABLE 8: POPULATION ALLOCATION TECHNIQUES

Sub-Area Name	07 POP	2035 Population			
		% 07 POP*	% of Δ 00-07**	% of Pending Dus***	Weighted %
ALACHUA	11,745	14,959	17,891	20,308	17,787
ALACHUA CO	11,565	14,730	12,561	12,613	13,332
ARCHER	10,197	12,988	15,695	10,512	13,125
GAINESVILLE	110,931	141,291	120,659	137,815	133,546
GAINESVILLE USA	68,073	88,540	102,796	85,648	91,747
HAWTHORNE	3,303	4,207	3,886	3,727	3,951
HIGH SPRINGS	9,758	12,429	14,803	15,441	14,280
LACROSSE	1,559	1,986	1,718	1,559	1,759
MICANOPY	908	1,157	1,016	908	1,029
NEWBERRY	8,864	11,290	12,853	15,903	13,395
WALDO	3,136	3,994	3,692	3,136	3,618
UNIVERSITY OF FLORIDA	10,420	11,430	11,430	11,430	11,430
Total	250,459	319,001	319,001	319,000	319,000

*Population Allocaton Based on Current Distribution of Population (2007)
**Population Allocation Based on Population Growth Between 2000 and 2007
***Population Allocation Based on Pending Residential Development
Sub-Area Population Totals Approved 10/29/2008, revised 11/12/2008

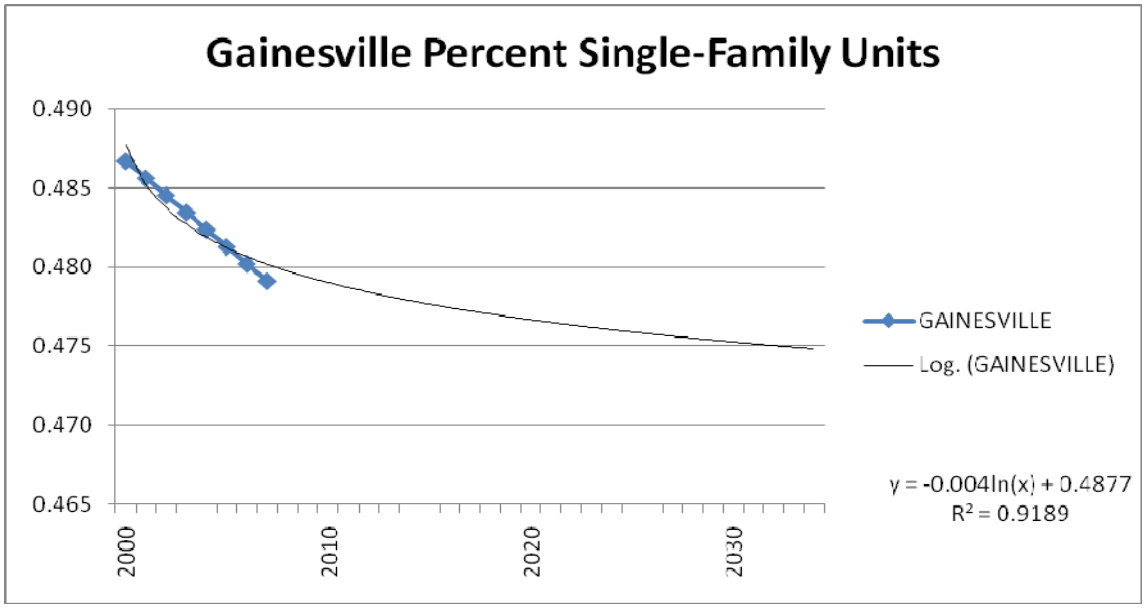
SUB-AREA DWELLING UNIT TOTALS

Once Sub-Area population forecasts were developed, dwelling unit forecasts were produced based on the assumption that changes in the population to dwelling unit ratio that have occurred in Sub-Areas between 2000 and 2007 would continue, albeit at a slower rate. The general trend was for the population to dwelling unit ratio to decline, for instance Alachua experienced a decline of 2.452 people per dwelling unit in 2000 to 2.359 people per dwelling unit in 2007. It was anticipated that this rate of decline would repeat between 2007 and 2035.

Single-family and multi-family dwelling unit Sub-Area totals were developed using the following methodology:

1. Percent single-family and multi-family in each Sub-Area was calculated for 2000 and 2007
2. A logarithmic trend line was applied to forecast the percent of each housing type out to 2035. This was done in order to account for recent trends and due to the fact that housing mix is anticipated to stabilize in the future. A linear trend line did not take into account the potential for future stabilization. See the figure below for a graph of the percentage of dwelling units forecasted to be single-family in the Gainesville Sub-Area.
3. Percentages of single-family and multi-family units in 2010, 2015, 2025, and 2035 for each Sub-Area were based on the equation of the trend line in that Sub-Area.

FIGURE 8: LOGARITHMIC TRENDLINE EXAMPLE



PENDING DEVELOPMENT TOTALS

A parcel based inventory of "to be built" or pending projects was created by meeting with local governments during the months of July and August of 2008. Projects that were scheduled to be complete within 3-5 years were documented in a parcel database. In addition other projects were identified as future projects that could be expected to be complete in 10 to 15 years. Single-family and multi-family units expected in pending developments were subtracted from the 2035 totals to get a "remainder for allocation." Prior to this step, adjustment factors had to be applied in some Sub-Areas. This was done to meet population allocation totals approved by the TAC SE Data Working Group.

<u>Adjustment Factors (Detailed Process Steps)</u>

In the City of Alachua an adjustment factor had to be applied in order to reduce the number of pending single-family units to match the adopted allocation total. The City projected there would be 5,904 new single-family dwelling units in 2035 based on pending developments. The allocation total for the City of Alachua Sub-Area approved by the TAC SE Data Working Group amounted to 2,191 new multi-family dwelling units.

For all parcels where:

> "ETR" = 'ALACHUA' and "RES_TYPE" ='SF' and "DU_2035" >1 and not "DEV_NAME" in ('Baywood and Lowes', 'Heather Glen PUD', 'El Dorado Subdivision')

An adjustment factor of 0.27725 was applied to the dwelling unit totals in 2010, 2015, 2025 and 2035.

> *To see these select which parcels were affected by this select where
> *"ETR" = 'ALACHUA' and "DU_2035" >1 and "RES_TYPE" = 'SF' and "ADJ_FAC" = .27725*

Also in the City of Alachua an adjustment factor had to be applied in order to reduce the number of pending multi-family units to match the adopted allocation total. The City projected there would be 949 new multi-family dwelling units in 2035 based on pending development. The allocation total for the City of Alachua Sub-Area approved by the TAC SE Data Working Group amounted to 679 new multi-family dwelling units. For all parcels with multi-family dwelling units in 2035 an adjustment factor of 0.8161 was applied to the dwelling unit totals in 2010, 2015, 2025, and 2035.

- High Springs multi-family units were adjusted by 0.8. Initially 550 dwelling units were expected in 2035. This was reduced to 413.
- A number of High Springs single-family projects were adjusted by 0.6989 which reduced the single family dwelling units expected from 1,824 to 1,473.
- Newberry multi-family units were adjusted by 0.6417. Initially 374 dwelling units were expected in 2035. This was reduced to 240
- A number of Newberry single-family projects were adjusted by .801 which reduced the single family dwelling units expected from 1,874 to 1,637.

ALLOCATION BASED ON SUITABILTY

A residential suitability model was developed in order to provide a basis for allocating the remainder of dwelling units to individual traffic zones. The objectives and sub-objectives were modeled after the urban suitability model outlined in *Smart Land Use Analysis*, written by Margaret Carr and and Paul Zwick (2007, p. 234-237). For this modeling exercise there was a distinction made between single family and multi-family residential land use due to the fact that the GUATS model requires housing forecasts to be categorized according to housing type. This allowed for the incorporation of several sub-objectives specific to multi-family land use, including proximity to bus routes, major roads and the University of Florida.

Suitability surfaces for each sub-objective were development and combined to create suitability surfaces for multi-family and single family land uses. Lands with future land use designations amenable to single family and multi-family land use were extracted from the suitability grids. Grids were then extracted based on sub-area boundaries then reclassified based on the values of suitable cells within each sub-area. The single family and multi-family dwelling units remaining for allocation were then allocated based on the location of high value cells.

For more information regarding the residential suitability model, see Appendix F.

MANUAL CORRECTIONS OF ALLOCATION FIGURES

At the request of Onelia Lazzari at the City of Gainesville, dwelling units figures allocated to individual TAZs based on suitability were adjusted based on local knowledge. The adjustments were made following a meeting in March of 2009. The following table shows the adjustments.

TABLE 9: MANUAL ADJUSTMENTS TO RESIDENTIAL ALLOCATION BASED ON SUITABILITY

	Initial Allocation		PD Units	Change in Dwelling Units		Updated 2035 DU Figures		
TAZ	SF	MF	PDMF	#	Type	SF	MF	PDMF
246	106			-56	SF	50		
197	56			56	SF	112		
194			3367	-200	MF			3167
197		1		200	MF		201	
133	62			-24	SF	38		
197	112			24	SF	138		
216	21			-21	SF	0		
200	0			21	SF	21		
196		29		moved 20 to MF	SF	9		
196		0		moved 20 to MF	MF		20	
188	53			-15	SF	38		
173	52			-15	SF	37		
215	4			30	SF	34		

POPULATION CALCULATIONS

Dwelling units from planned developments were added to dwelling units from the allocation based on suitability to get a total number of single family and multi-family dwelling units. Population was calculated based on the following formula:

> POP35 = ([TOT2035SF] * [VAC_RATE] * [AVGHHSZ]) + ([AVGHHSZ] * [TOT2035MF] * [VAC_RATE])

This resulted in 312,090 in population. In order to ensure compatibility with the BEBR 2035 population forecast of 319,000, and to take into account probable continuing trends in reductions in average household size, it was necessary to apply an adjustment factor to the population figure. The following modified equation was used to ensure compatibility with the BEBR forecast:

> POP35 = ((([TOT2035SF] * [VAC_RATE] * [AVGHHSZ]) + ([AVGHHSZ] * [TOT2035MF] * [VAC_RATE]))/312090)*307470

This population figure was added to the UF student population to get a total population figure for Alachua County of 319,000 in order to match the BEBR forecast. The following equation was utilized:

> POPwSTUD35 = [STUDPOP07] + [POP2035] + [NwSTPOP35]

IV. VEHICLE OWNERSHIP VARIABLES

SINGLE FAMILY

Variable #6 – Percent households occupied by permanent residents having no vehicle
Variable #7 – Percent households occupied by permanent residents having one vehicle
Variable #8 – Percent households occupied by permanent residents having two vehicles
Variable #8b – Percent households occupied by permanent residents having three + vehicles

MULTI-FAMILY

Variable #14 – Percent households occupied by permanent residents having no vehicle
Variable #15 – Percent households occupied by permanent residents having one vehicle
Variable #16 – Percent households occupied by permanent residents having two vehicles
Variable #16b – Percent households occupied by permanent residents having three+ vehicles

BASE YEAR ESTIMATES METHODOLOGY

The Census Transportation Planning Package (CTPP) was used to determine number of vehicles available by number of housing units in structure. This information was collected on a census tract level and distributed to TAZs based on the centroid of the TAZ. Percentages were adjusted to ensure a total of 1.0.

FORECASTS METHODOLOGY

It was assumed that vehicle ownership rates would not change from 2000 levels.

V. HOTEL/MOTEL UNIT VARIABLES

This section contains information on the four standard zonal variables that are used in the GUATS model to quantify hotel/motel units and occupancy rates. Hotel/motel information is considered an important part of the socioeconomic data due to the unique trip generation characteristics of hotel and motel units.

BASE YEAR ESTIMATES METHODOLOGY

Variable #17 – Hotel and motel units

Definition – Hotel and motel units whether occupied or vacant where each room/suite with sleeping accommodations is counted as one unit.

Methodology - Determined the number of hotel rooms located in each TAZ by querying the Alachua County Tax Parcel layer for hotels/motels that were built between 2000 and 2007, finding out how many rooms are in the new hotels and adding it to the inventory of hotel rooms in the 2000 dataset. A listing of hotel units by TAZ is included in Appendix C.

Process Steps:

1. Queried Alachua County Tax Parcels to determine hotels that were built between 2000 and 2007 using the expression: "YEAR_BLT" in (3006, 2007, 2006, 2005, 2004, 2003, 2001, 2002) AND "DESC_" = 'Hotels/Motels'
2. Three hotels were selected. These hotels were visited in the field and their opening date and number of rooms was verified. In addition, it was found that there was another new hotel in TAZ 214, the Hilton Garden Inn with 104 rooms. This hotel opened in May of 2007.
3. Cross checked hotel figures in TAZ layer with the hotel inventory maintained by Alachua County Visitors and Convention Bureau, contained on the website: http://www.visitgainesville.com/lodging/default.asp.

Variable #18 – Occupied hotel/motel units

Definition – The percentage of all hotel/motel units as described in Variable #17 which are occupied on a typical peak season day regardless if occupants are seasonal guests or permanent residents.

Methodology – A percent occupancy of hotel/motel units of 63% was used. This occupancy rate was used in the previous socioeconomic dataset.

Variable #19 – Total number of hotel/motel occupants

Definition – The total number of hotel/motel occupants in occupied units during the peak season.

Methodology – Total hotel/motel units were multiplied by the hotel occupancy rate described in Variable #18 and then multiplied by a Person Per Hotel Room variable that was used during the development of the socioeconomic data for the 2025 Long Range Transportation Plan.

Variable # 20 – Persons per hotel room

Definition – The average zonal hotel/motel occupants in occupied units during the peak season derived by dividing the total number of occupants by the total number of occupied units.

Methodology – Used rate that was utilized during the development of the socioeconomic data for the 2025 Long Range Transportation Plan.

FORECASTS METHODOLOGY

Variable #17—Numbers of proposed hotel units in pending developments were inputted into a parcel based inventory during consultations with local planners during the Summer of 2008. Overall there were 1,171 hotel rooms that were planned in Alachua County. All were in the city limits of Gainesville or the Alachua County Urban Cluster.

VI. EMPLOYMENT VARIABLES

Employment for the modeled area is represented by four standard zonal variables in the GUATS model. The variables used in the model are industrial employment, commercial employment, service employment, and total employment by TAZ. Specific information by TAZ is provided in Appendix D.

DEFINITIONS

Variable #21 – Industrial Employment by Place of Work

Definition – All full-time and regular part-time employees, and self-employed persons by job location, whose job is in an industry classified in Standard Industrial Category (SIC) from 01 to 39 (i.e. agriculture, forestry, fisheries, mining, contract construction, and manufacturing).

Variable #22 – Commercial Employment by Place of Work

Definition – All full-time and regular part-time employees, and self-employed persons by job location, whose job is in an industry classified in Standard Industrial Category (SIC) from 50 to 59 (i.e. retail and wholesale trades, as these are commonly located in areas zoned for commercial land use activities).

Variable #23 – Service Employment by Place of Work

Definition – All full-time and regular part-time employees, and self-employed persons by job location, whose job is in an industry classified in Standard Industrial Category (SIC) from 40 to 49 and 60 to 99 (i.e. transportation, communication, and utilities service; finance, insurance, and real estate services; selected personal services; tourism and recreational services; health and educational services; government services).

Variable #24 – Total Employment by Place of Work

Definition – All full-time and regular part-time employees, and self-employed persons by job location, whose job is in an industry classified in Standard Industrial Category (SIC) from 01 to 99.

BASE YEAR ESTIMATES METHODOLOGY

2007 InfoUSA employment data was provided by the Florida Department of Transportation (FDOT). This data was mapped by using the latitude and longitude coordinates provided in the data. The data was reviewed by MPO staff for accuracy by cross checking the employment

information with information on major employers and by calling employers over 100 employees to verify the numbers. A number of changes were made to the data, including adding employers, deleting employers, and adjusting the number of employees at each location. The University of Florida supplied employment information for all campus TAZs. All figures were aggregated to TAZs. The planning staffs of Alachua County, University of Florida, City of Gainesville and other area municipalities reviewed the data prior to the submission of this report.

FORECASTS METHODOLOGY

OVERVIEW

In this section, the methodology used to produce the employment forecasts for the Modeled Area (Alachua County) is described. An employment control total for Alachua County was produced, sub-area allocation totals were produced, and then pending development employment totals were produced based on consultation with local planners. Pending development totals were subtracted from the sub-area totals. Finally the remaining employment was allocated based on a land use suitability model.

COUNTYWIDE EMPLOYMENT CONTROL TOTAL

A Countywide employment control total was approved by the Socio-economic Data Working Group on June 12, 2008. The table below explains the three forecast alternatives initially developed.

TABLE 10: ALACHUA COUNTY EMPLOYMENT CONTROL TOTAL FORECASTS ALTERNATIVES

High Forecast

- The Labor Market Statistics Center (LMS) part of the State of Florida Agency for Workforce Innovation develops 2015 employment projections for different industries
- Industry forecasts were summarized by employment types needed in the travel model
- A compound annual growth rate (CAGR) was calculated for each type
- CAGR was used to extrapolate the forecasts to 2035

Low Forecast

- Assumed Employment to Population Ratio will be 1.8 in 2035
- 1.8 arrived at by averaging 2000 and 2007 EMP to POP Ratios (1.7 and 1.89 respectively)

Medium Forecast

- High forecast was averaged with Low Forecast
- Assumes employment will be influenced by LMS predicted growth by industry and Employment to Population Ratio

The 2035 employment control total of 187,057 developed as an alternative to the three forecasts provided by staff. The Working Group elected to create this "Medium-Low Forecast" by averaging the Medium and the Low Forecast. The employment total in 2035 in the final data was slightly lower (181,289) due to the fact that the employment on the University of Florida campus was reduced to match data submitted by UF staff.

SUB-AREA ALLOCATION TOTALS

Sub-Areas were developed based on defined extra-territorial reserves (ETRs), except in the case of Gainesville, where there is not a defined ETR. The area surrounding Gainesville was either allocated to Alachua County or, for the area defined as the Gainesville Alachua County Urban Cluster, defined as a separate Sub-Area (see Figure 1).

Staff developed Sub-Area allocation scenarios based on different socio-economic variables that are indicative of future growth trends. These scenarios were based on; 1) distribution of current 2007 employment by model type in Alachua County; 2) pending development, and 3) population growth. Pending non-residential development, in terms of square footage, were quantified based on individual meetings with local governments and are representative of what planners are confident will be built in the future. This variable was used differently than in the population allocations. For the population allocations, only development that was anticipated to be built by 2015 was used. For the employment allocation scenario based on pending non-residential development, all pending development (out to 2035) was factored in. This was due to the difficult nature of forecasting the buildout year of pending non-residential, employment bearing projects. A fourth, "Weighted" allocation scenario, was developed that gave equal weight to each of the aforementioned variables. A fifth, "Unequal Weighted" allocation scenario was also developed that gave more weight to the existing distribution of employment. The Unequal Weighted distribution used the following formula:

Future EMP by Sub-Area = ((0.7% 07 EMP)+(0.15*Pending NR SQFT)+(0.15*POP Growth))*

The Working Group approved the Unequal Weighted Sub-Area allocation totals on October 29, 2008.

TABLE 11: 2035 EMPLOYMENT FORECAST APPROVED BY WORKING GROUP

Sub-Area Name	2007 EMP	2035 EMP	% Δ EMP Change 2007-2035	Δ 2007-2035	% of Total EMP Growth
ALACHUA	6,946	10,649	0.53	3,703	0.08
ALACHUA CO	2,505	3,243	0.29	738	0.02
ARCHER	842	1,523	0.81	681	0.02
GAINESVILLE	99,673	129,968	0.30	30,295	0.69
ALACHUA CO URBAN CLUSTER	22,786	33,434	0.47	10,648	0.24
HAWTHORNE	921	1,207	0.31	286	0.01
HIGH SPRINGS	2,463	3,982	0.62	1,519	0.03
LACROSSE	94	133	0.42	39	0.00
MICANOPY	319	404	0.27	85	0.00
NEWBERRY	2,516	4,351	0.73	1,835	0.04
WALDO	560	727	0.30	167	0.00
Total	139,625	189,621	0.36	49,996	1.00

EMPLOYMENT GROWTH TOTALS

The Sub-Area totals represent the total number of employees in each Sub-Area in 2035. In order to determine how many "new" employees were to be expected in each Sub-Area the 2007 employees were subtracted from the 2035 totals.

Next, the number of employees anticipated in known expansions of employers, including Alachua County schools, the University of Florida, and Shands as well as from pending projects that were identified by local planners during consultations during the summer of 2008, were subtracted from the number of employees left for allocation. Properties that were identified as being scheduled for non-residential development in the outlying municipalities were given a NR_DEN (FAR) of 0.1 and growth curves based on input from local planners. Employee estimates were produced for each pending development based on the figures in Table 12.

TABLE 12: EMPLOYEES PER SQUARE FOOT FOR PENDING DEVELOPMENT ESTIMATES

Employment Type	Employees Per Square Foot
Industrial	1.87/1000 sq.ft.
Service	4/1000 sq.ft.
Commercial	2/1000 sq.ft.

In some cases the number of employees that were expected in pending developments outnumbered the number of employees for allocation in that Sub-Area, in these cases an adjustment factor was applied to the pending development figures. The remainder of employees left for allocation, based on suitability, are shown in the following table.

TABLE 13: 2035 EMPLOYEES REMAINING FOR ALLOCATION BASED ON SUITABILITY

Sub-Area	IND	SER	COM	TOT
ALACHUA	-	201	-	203
ALACHUA CO	71	479	156	706
ARCHER	73	196	24	292
GAINESVILLE	1,571	14,954	2,104	18,629
ALACHUA CO URBAN CLUSTER	-	2,753	-	2,751
HAWTHORNE	40	109	77	226
HIGH SPRINGS	-	228	-	227
LACROSSE	6	27	6	39
MICANOPY	20	34	6	59
NEWBERRY	228	327	-	555
WALDO	28	89	50	167
Total	2,037	19,397	2,423	23,854

ALLOCATION BASED ON LAND USE SUITABILITY

A land use suitability model was developed in order to provide a basis for allocating the remainder of dwelling units to individual traffic zones.

The goals of the model were as follows:
Goal 1: Determine lands suitable for office/commercial use
Goal 2: Determine lands suitable for industrial land use
Goal 3: Determine lands suitable for service land use

Each goal had an objective to determine physically suitable lands and an objective to determine economically suitable lands. Sub-objectives that contributed to the physical suitability and economic suitability grids for each employment type were developed. The majority of the objectives and sub-objectives were based on the urban suitability model outlined in the book, *Smart Land Use Analysis*, written by Margaret Carr and Paul Zwick (2007, p. 234-237). There were slight differences and additions. For the environmental suitability analysis, a few more sub-objectives related to soils were added. Also, Alachua County restricts development in county defined Strategic Ecosystems; accordingly a sub-objective was added to take into account this ordinance. The economic suitability analysis was revised to include available datasets. For instance, a "high traffic roadways" objective was added due to the availability of a roadway file in the Florida Geographic Data Library (FGDL) that contained average daily traffic (ADT) counts on each major road in Alachua County. Also it was assumed that for employment, "like follows like," and future employment will likely be located near existing employment.

Suitability surfaces were developed for each sub-objective and combined to create suitability surfaces for each goal. Lands with future land use designations amenable to office and commercial, industrial and service oriented land uses were extracted from the suitability grids. Grids were then extracted based on sub-area boundaries, then reclassified based on the values of suitable cells within each sub-area. The employees by type remaining were then allocated based on the location of high value cells.

For more information regarding the suitability model used to allocate employment to TAZs see Appendix G.

VII. SCHOOL ENROLLMENT VARIABLES

This section describes the data collection effort for the school enrollment figures for Alachua County. The GUATS model utilizes school enrollment figures by TAZ in order to determine trip attraction rates.

DEFINITIONS

Variable #25 – School Enrollment

Definition – All students enrolled full-time and part-time in all public and private schools (except nursery and day schools), junior and senior high schools, charter schools, as well as community colleges, colleges and universities with enrollments under 2,000. Colleges and universities with enrollments of 2,000 or more are treated separately as special generators.

BASE YEAR ESTIMATES METHODOLOGY

Public Schools

Public school enrollment figures were provided by the School Board of Alachua County for 2007. MTPO Staff added a field to the InfoUSA point dataset for School Enrollment, verified the location of the school and cross checked employment figures with information provided by the personnel services manager with the Alachua County School Board, then aggregated the school enrollment figures to TAZs. See Appendix E for individual public school enrollment and employment totals.

Private and Charter Schools

Private and charter school enrollment figures were gathered from direct calls and online sources, including the Private School Review (www.privateschoolreview.com) and the Public School Review (http://www.publicschoolreview.com/). These figures were entered in the edited InfoUSA employment point layer and then aggregated to TAZs. See Appendix E for individual private school enrollment and employment totals.

University of Florida and Santa Fe Community College

The University of Florida and Santa Fe Community College have student enrollments that exceed 2,000 students. Accordingly these locations are treated as special generators in the GUATS model. Special generator information is further discussed in Section IX of this report.

FORECASTS METHODOLOGY

Forecasts for school enrollment were developed based on the Public School Facilities Element Data and Analysis report from June 3, 2008, obtained from Gene Boles at the University of Florida's Center for Building Better Communities. Additional enrollment at existing schools and enrollment from new schools were taken from the report (pp. 63-92). Locations of schools were estimated based on maps of target areas provided in the report. School employment was forecasted based on the assumption that staff to student ratios would remain the same. The ratio that was used assumed that for every new 7.29 students enrolled, there would be an addition of one employee.

VIII. SPECIAL GENERATORS

University of Florida

During the development of the GUATS transportation model it was determined that the trip generation characteristics of the University of Florida campus required special attention. For this reason the University of Florida is treated as a special generator and requires the collection of additional information. In addition to the socio-economic data collected for all of the traffic analysis zones in the model, staff worked with University staff to determine how many students resided in each TAZ (off campus and dorm beds), as well as the number of classrooms, seats, and commuter parking spaces in the TAZs on the University of Florida campus.

Santa Fe Community College

It was assumed that the employment figures associated with Santa Fe Community College (SFCC) would result in an accurate modeling of the attractions and productions within the TAZs that comprise SFCC. This assumption may be found flawed during the calibration process. If this occurs, SFCC may need to be treated as a special generator, much like the University of Florida.

IX. TABLES AND FIGURES

BASEYEAR RESIDENTIAL FIGURES

TABLE 14: BASEYEAR RESIDENTIAL DATA SUMMARY

Jurisdiction[c]	DU_00	SFDU_00	MFDU_00	POP_00[1]	POP_00[2]	DU_07	SFDU_07	MFDU_07	POP_07	BEBR Estimate[b]	Area (Acres)
ALACHUA	2,714	2,321	395	5,930	6,405	3718	3000	720	8739	7,854	22,218
ALACHUA CO	38,716	25,815	13,593		89,085	45371	30968	14396	103570	103,217	502,330
ARCHER	430	339	96		1,104	446	363	85	1131	1,229	3,164
GAINESVILLE	50,058	24,881	25,291	95,605	106,315	53911	26080	27834	114029	122,671	38,310
HAWTHORNE	416	360	52		942	437	383	55	994	1,401	3,104
HIGH SPRINGS	1,740	1,469	270	3,935	4,247	2149	1876	274	5250	4,739	12,840
LACROSSE	105	80	24		246	115	90	24	267	195	2,877
MICANOPY	213	203	8		428	217	209	8	440	637	688
NEWBERRY	1,633	1,273	369	3,330	4,073	1981	1625	356	4924	4,787	33,480
WALDO	296	174	123		658	311	189	123	695	831	1,465
UF Population*									10,420		
TOTAL	96,321	56,905	39,416	N/A	213,503	108,658	64,783	43,875	250,459	247,561	620,476

**UF Population not included in dwelling unit total due to special generator treatment in travel demand model*

POP_00[1]: 2000 Population using Census defined municipal boundaries

POP_00[2]: 2000 Population based on Census data allocated to current city limits using a weighted average distribution

[b] *BEBR Estimate = Bureau of Economic and Business Research*

[c] *Data summed based on area in TAZs as of August 2008*

TABLE 15: VACANCY AND AVERAGE HOUSEHOLD SIZE DESCRIPTIVE STATISTICS

	Maximum	Minimum	Mean	Standard Deviation
Vacancy Rates	0.99	0.73	0.92	0.037
Average Household Size	3	1.9	2.46	0.32

HOTEL FIGURES

TABLE 16: HOTEL UNIT SUMMARY BY SUB-AREA

Sub-Area	Hotel Rooms 2000	Hotel Rooms 2007	Hotel Rooms 2035
ALACHUA	166	266	266
ALACHUA CO	73	173	173
ARCHER	0	0	-
GAINESVILLE	2,221	2,595	3,366
ALACHUA COUNTY URBAN CLUSTER	1,495	1,941	2,341
HAWTHORNE	12	12	12
HIGH SPRINGS	50	50	50
LACROSSE	0	0	-
MICANOPY	0	11	11
NEWBERRY	0	20	20
WALDO	0	20	20
TOTAL	4,017	5,068	6,239

EMPLOYMENT FIGURES

TABLE 17: 2007 EMPLOYMENT BY JURISDICTION

Jurisdiction	INDUSTRIAL	SERVICE	COMMERCIAL	TOTAL EMPLOYMENT
ALACHUA	2,015	1,739	1,739	5,500
ALACHUA CO	4,334	19,612	8,208	32,149
ARCHER	177	120	107	403
GAINESVILLE	8,345	68,688	21,259	98,290
HAWTHORNE	49	255	50	356
HIGH SPRINGS	284	680	540	1,504
LACROSSE	6	30	7	45
MICANOPY	80	115	60	254
NEWBERRY	688	753	372	1,815
WALDO	13	21	14	49
TOTAL	15,991	92,013	32,356	140,365

SCHOOL ENROLLMENT FIGURES

TABLE 18: 2007 AND 2035 SCHOOL ENROLLMENT BY SUB-AREA

Sub-Area	Enrollment 2007	Enrollment 2035
ALACHUA	2,789	3,817
ALACHUA CO	61	61
ARCHER	477	1,233
GAINESVILLE	13,428	13,508
ALACHUA COUNTY URBAN CLUSTER	12,437	15,857
HAWTHORNE	632	632
HIGH SPRINGS	619	997
LACROSSE	-	-
MICANOPY	184	184
NEWBERRY	1,918	2,584
WALDO	211	211
TOTAL	32,756	39,084

MAPS

Electronic versions of the maps provided in this section can be requested from the Gainesville MTPO.

FIGURE 9: TAZ MAP OF ALACHUA COUNTY

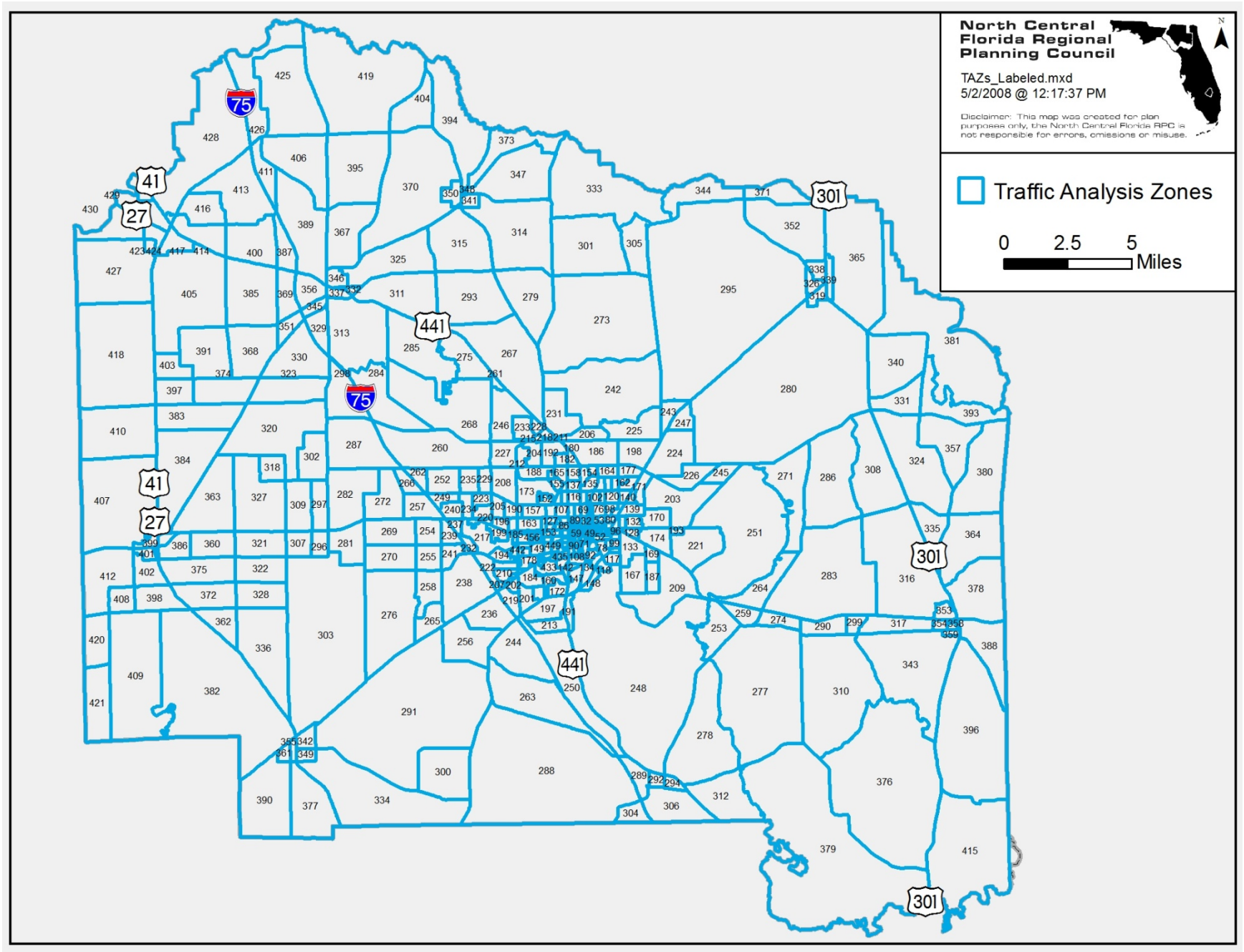


FIGURE 10: TAZ MAP OF GAINESVILLE

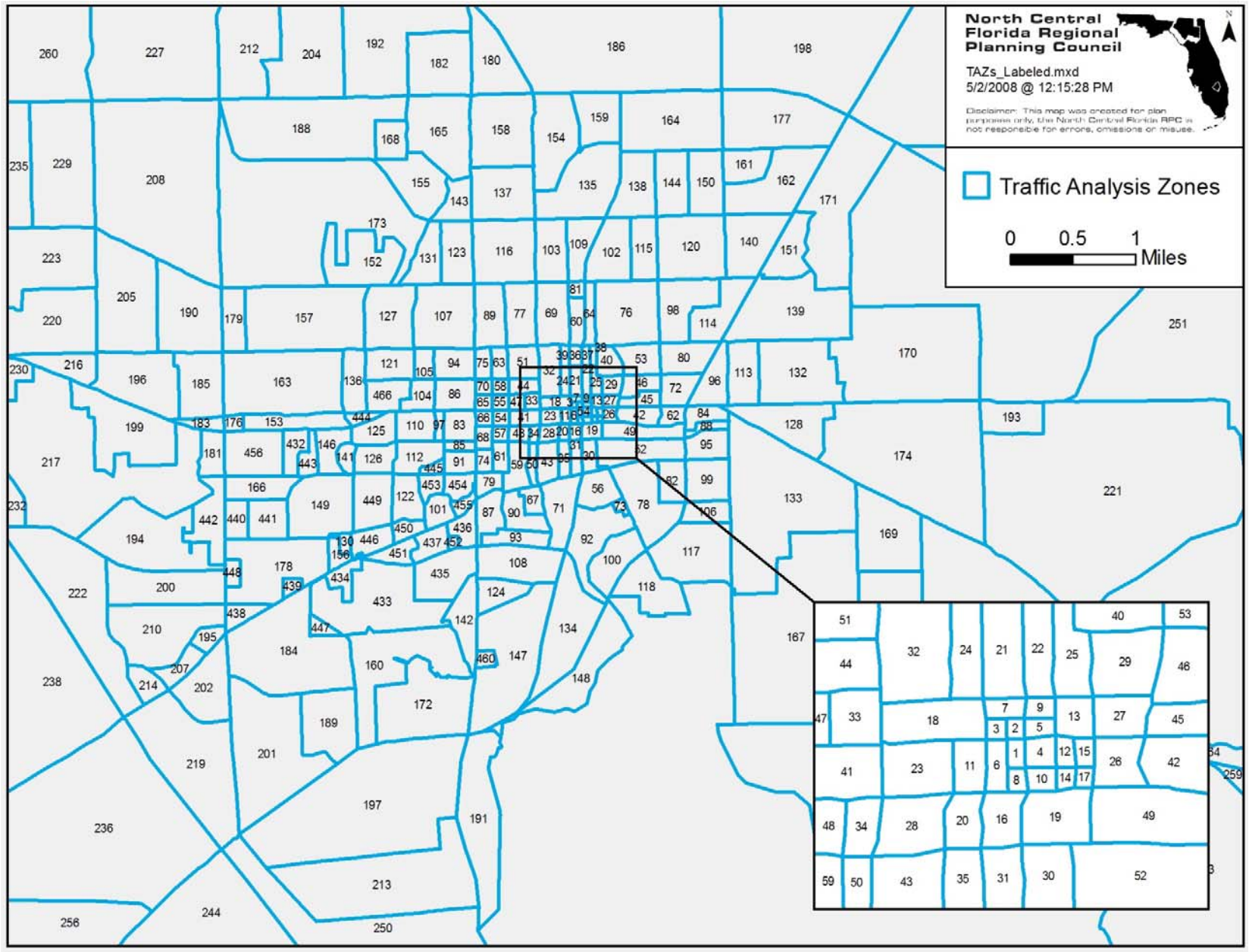


FIGURE 11: 2000 DWELLING UNITS

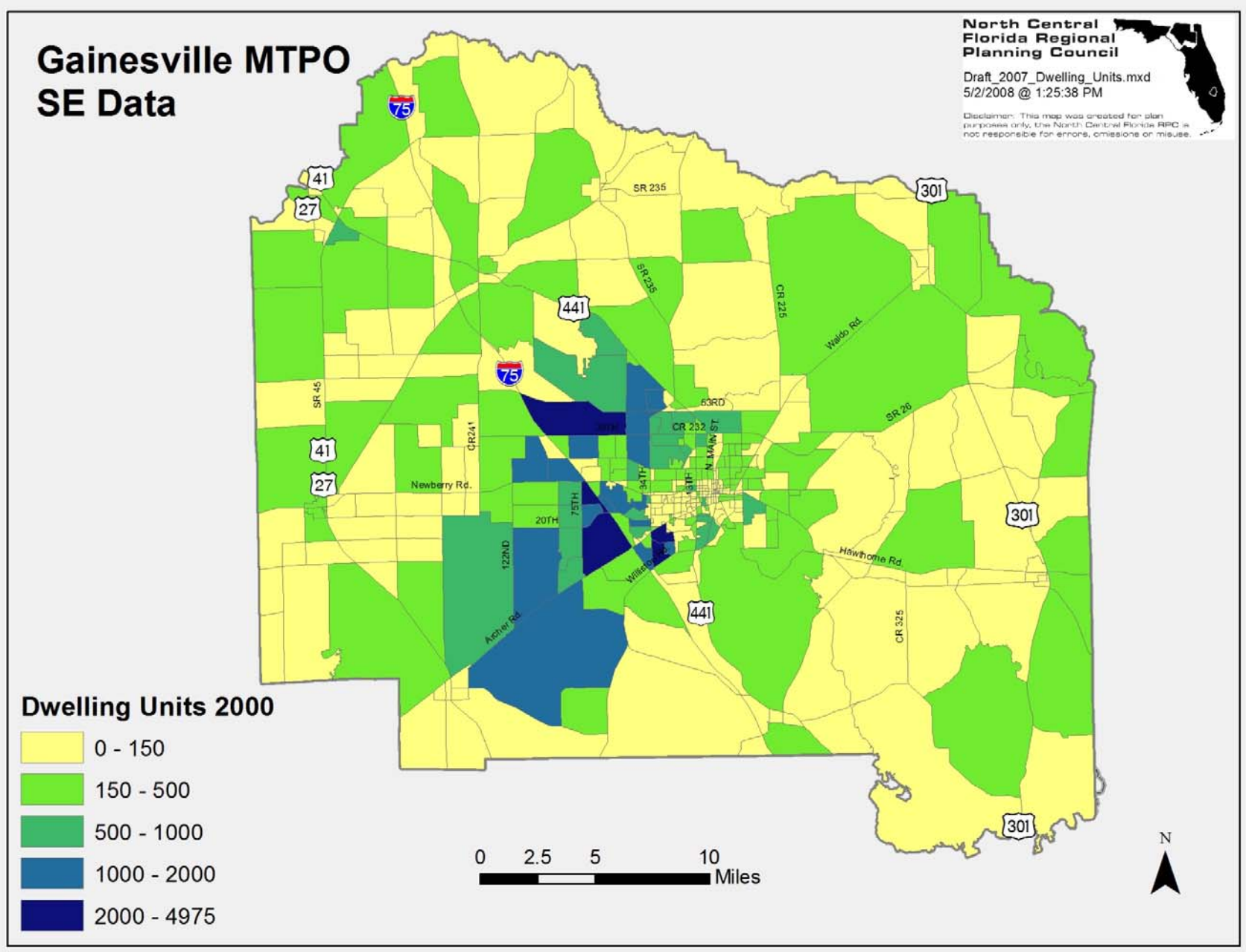


FIGURE 12: DWELLING UNITS 2000-2007 DOT MAP

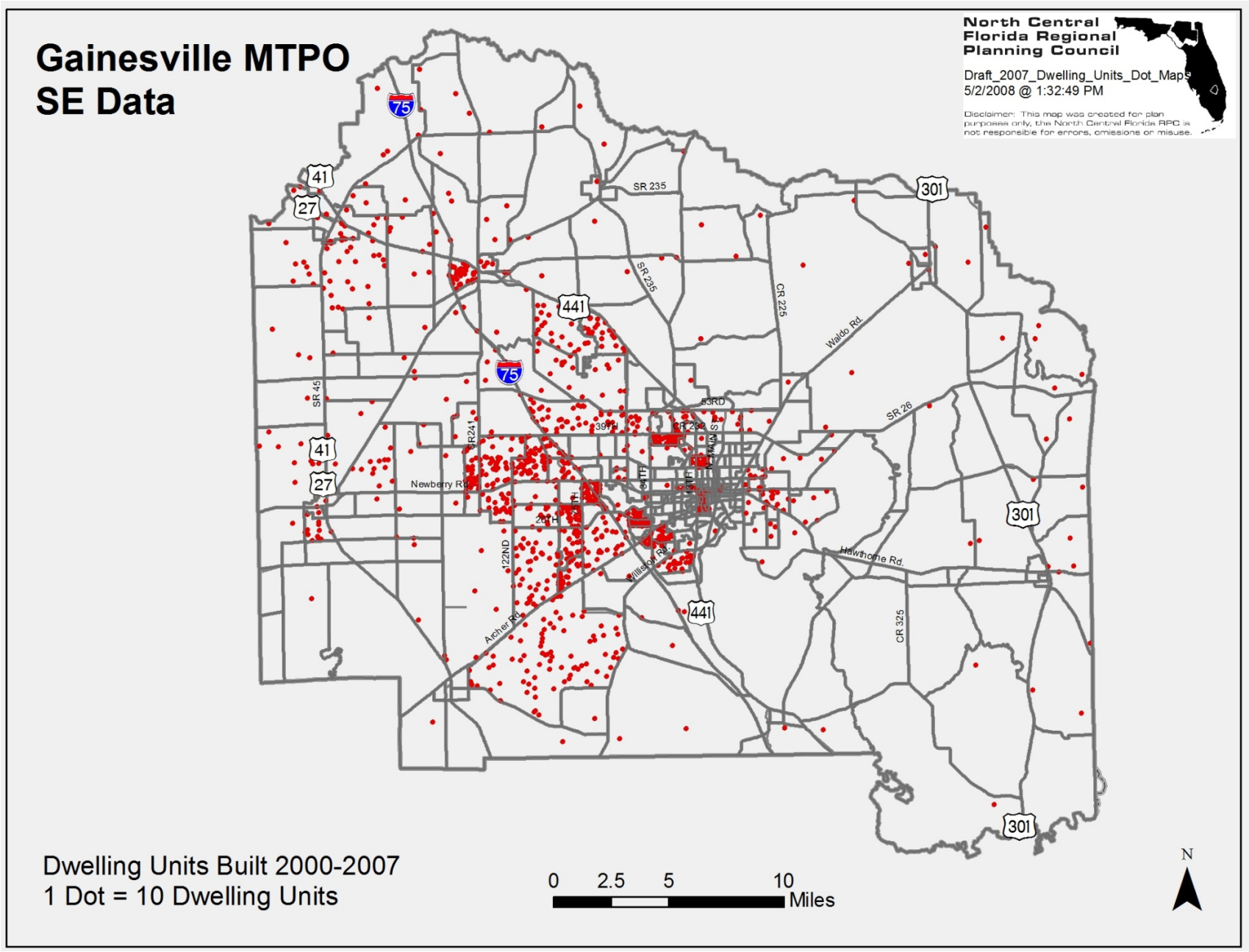


FIGURE 13: 2007 DWELLING UNITS

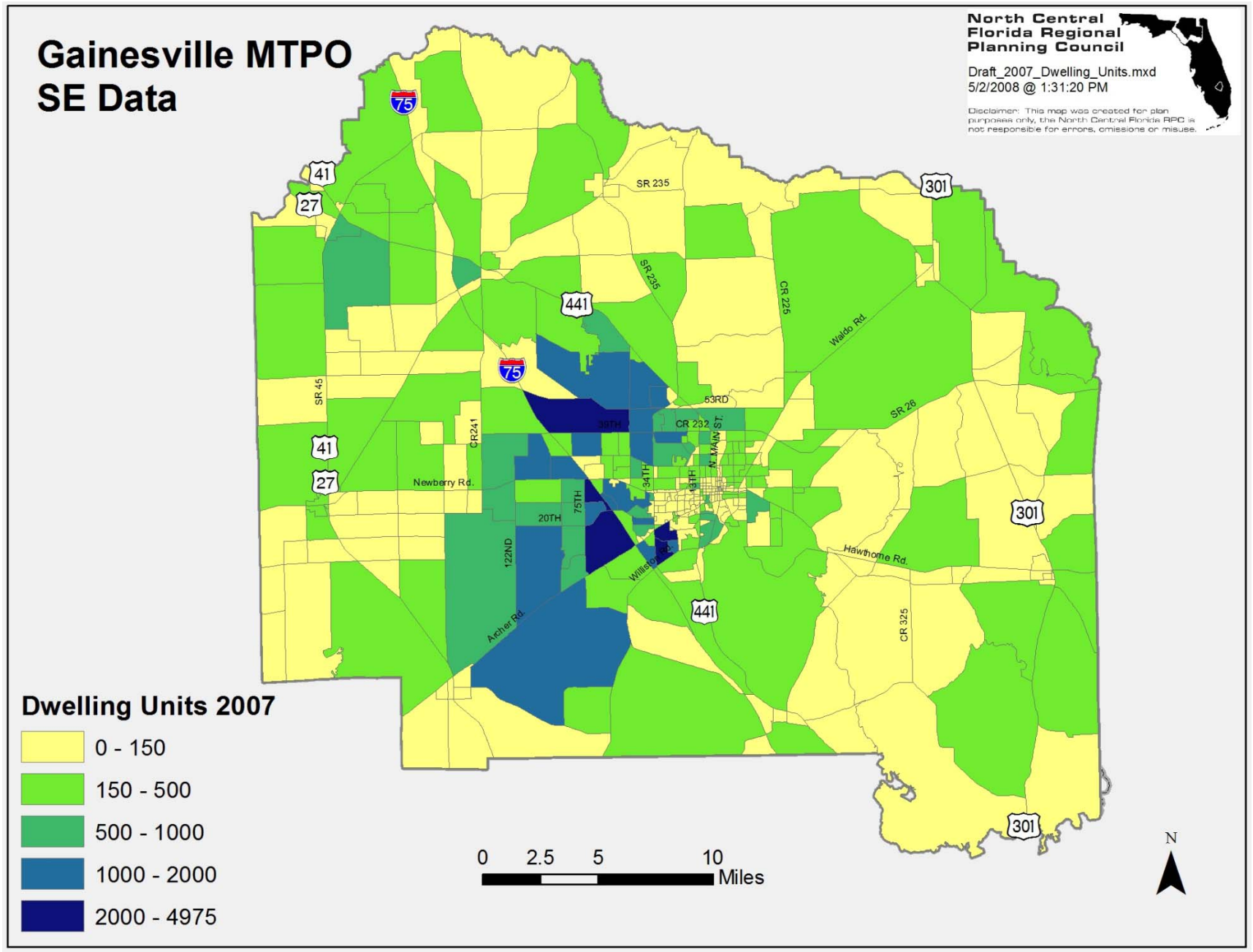


FIGURE 14: TOTAL MULTI-FAMILY DWELLING UNITS 2007

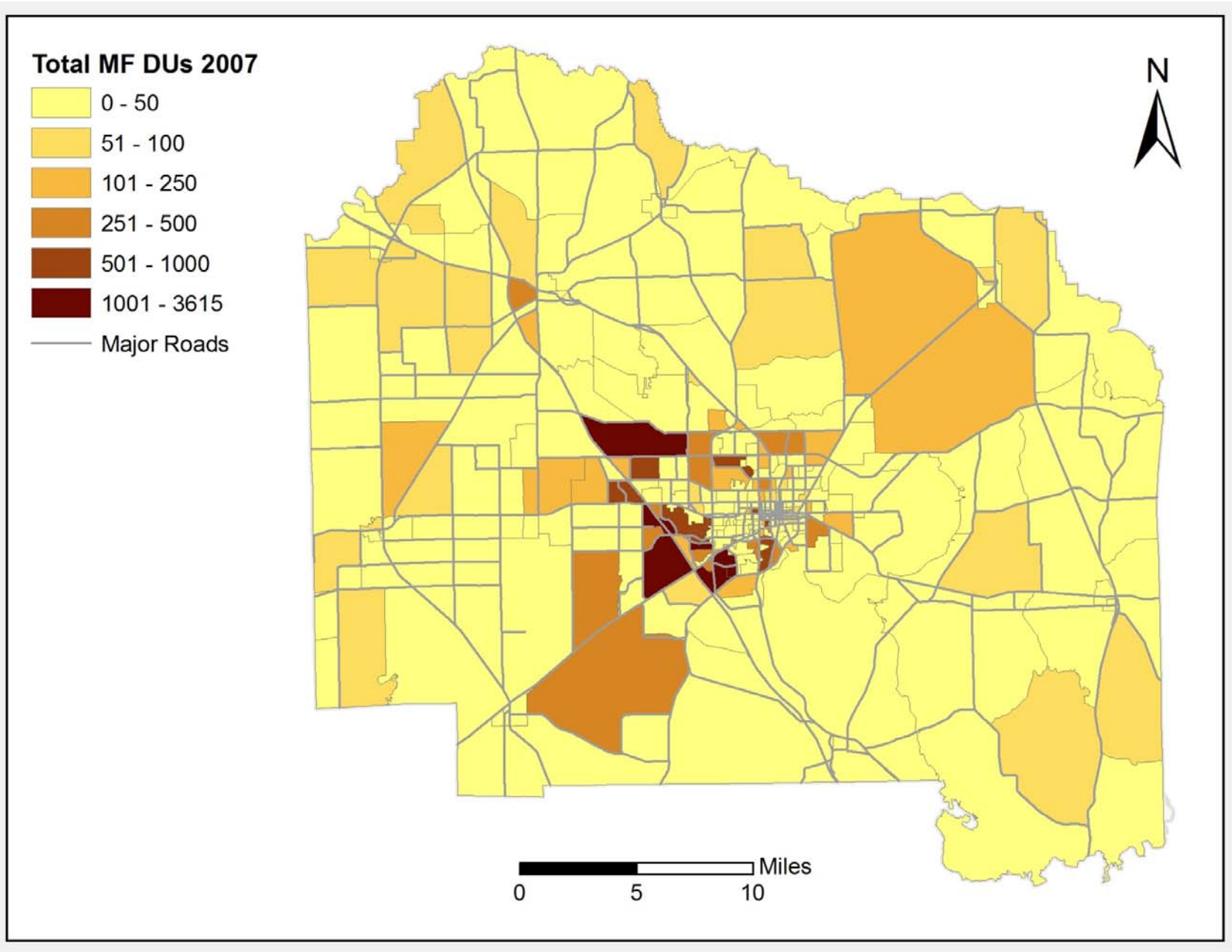


FIGURE 15: TOTAL 2035 MULTI-FAMILY UNITS

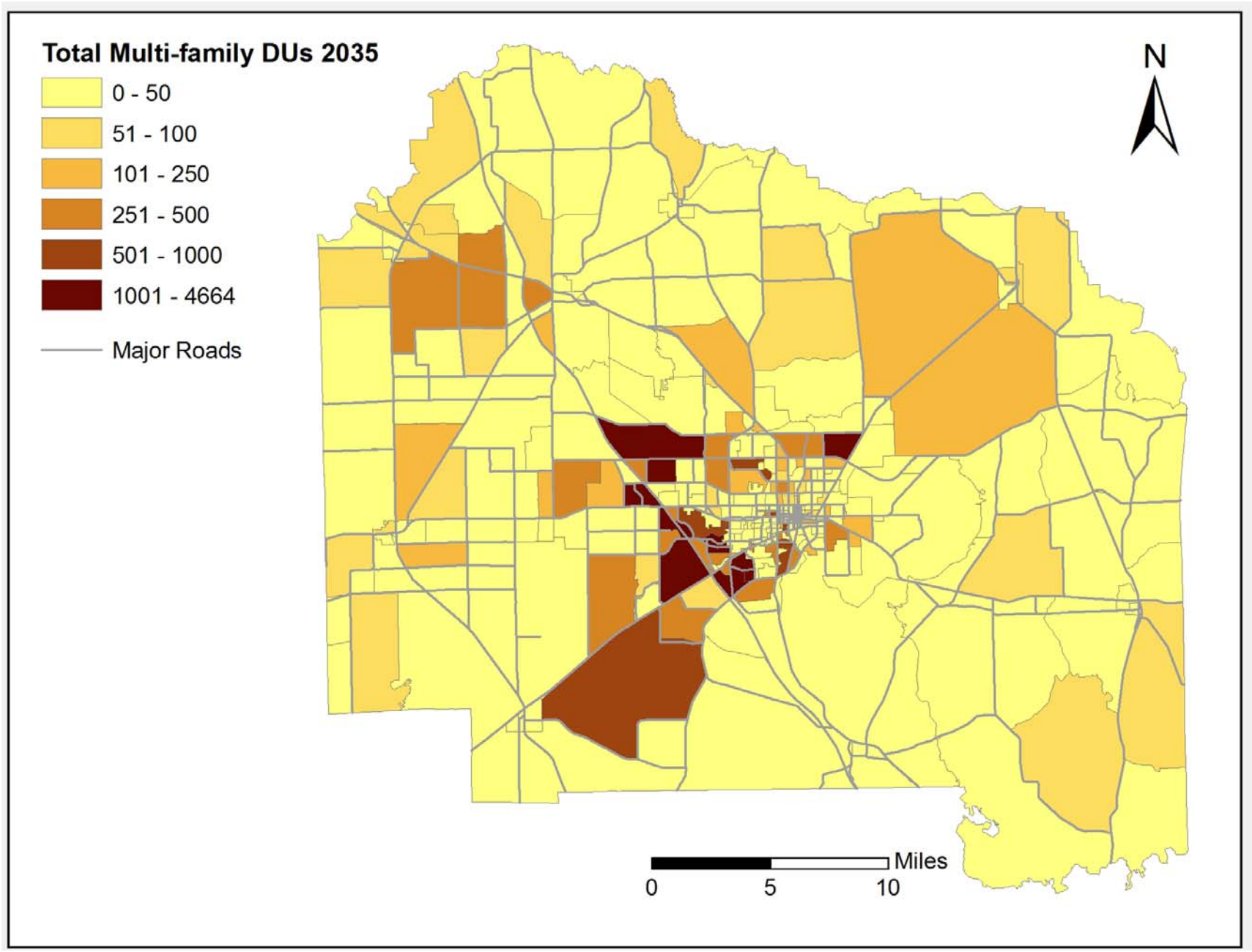


FIGURE 16: TOTAL SINGLE FAMILY DWELLING UNITS 2007

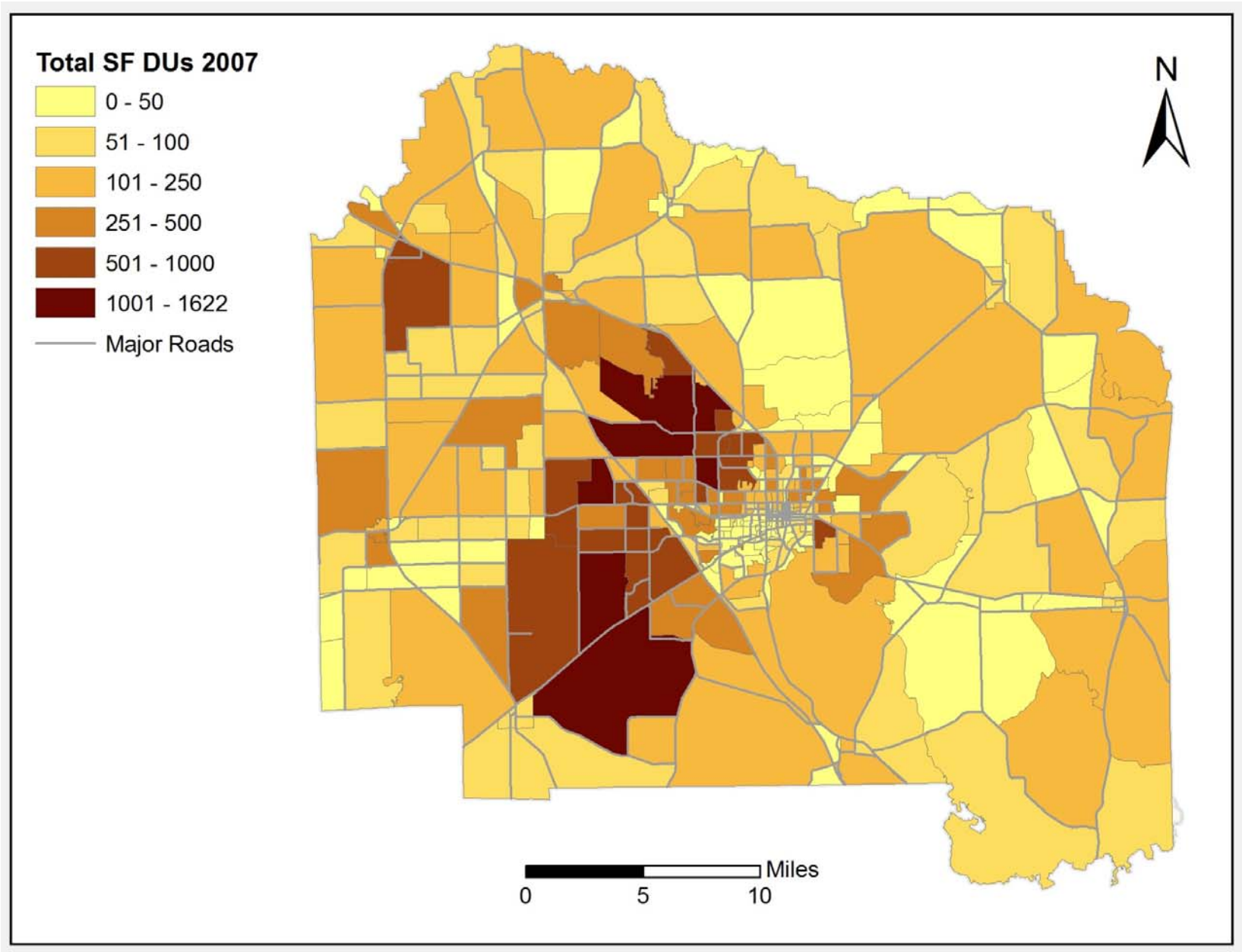


FIGURE 17: TOTAL 2035 SINGLE FAMILY DWELLING UNITS

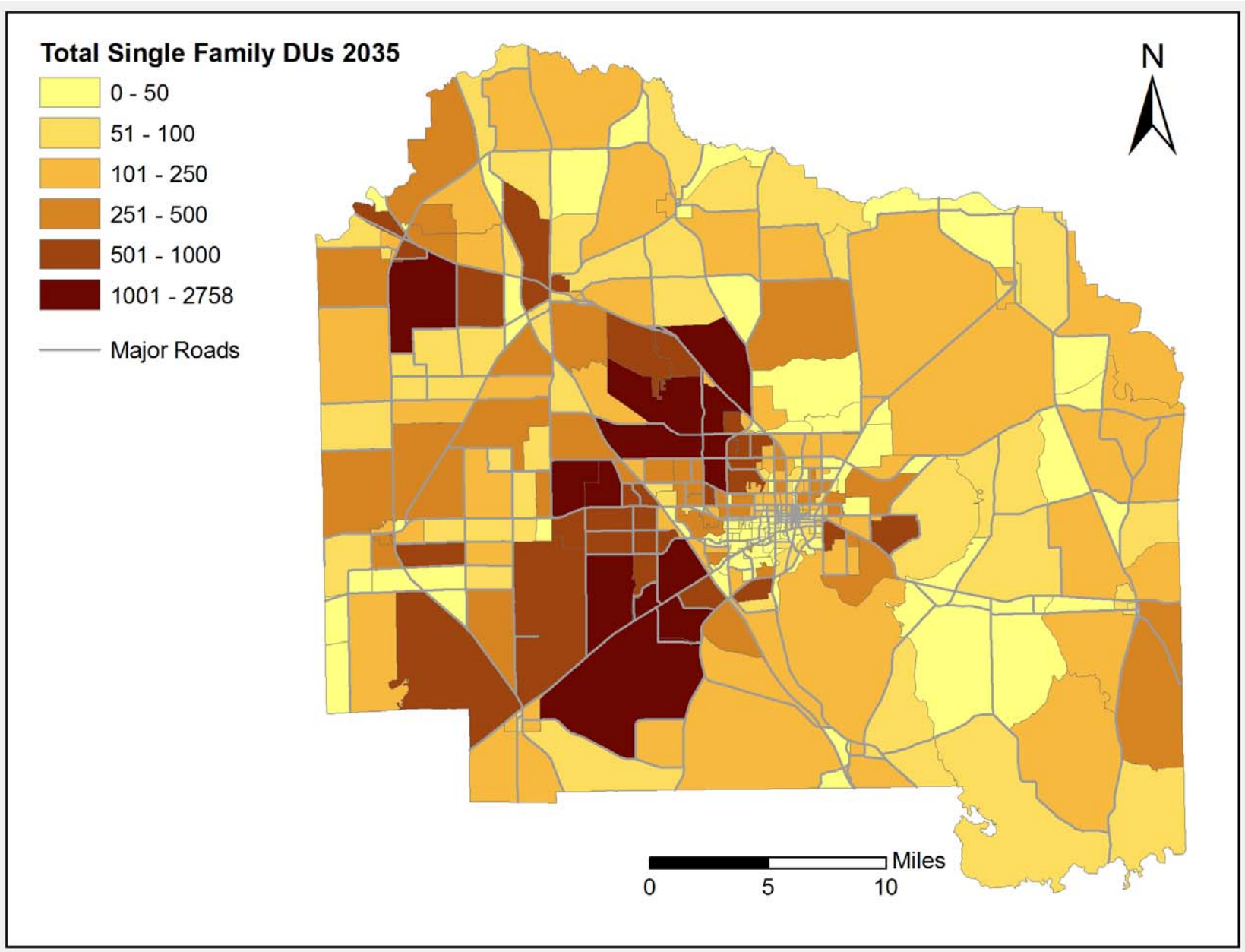


FIGURE 18: 2007 EMPLOYMENT

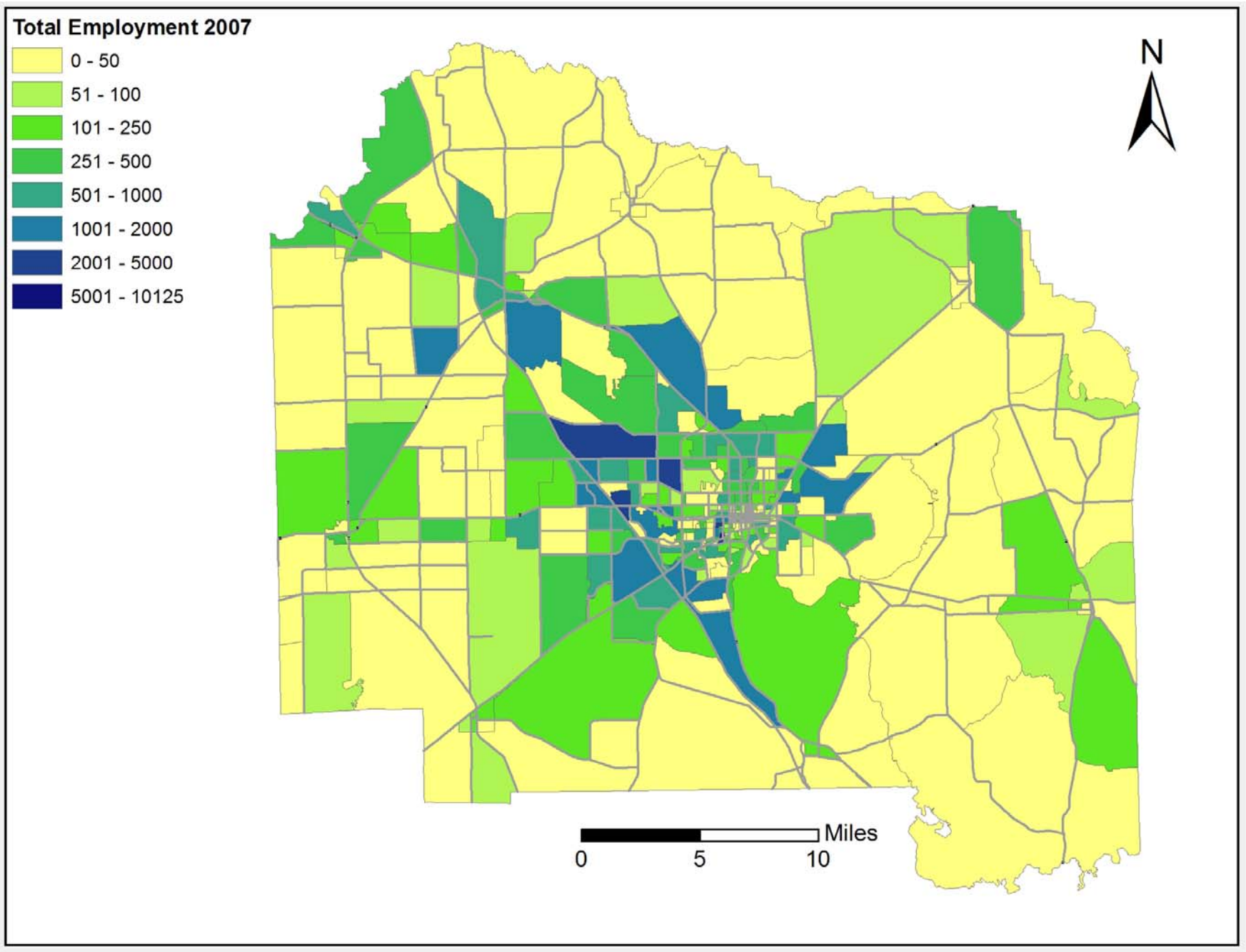


FIGURE 19: 2007 EMPLOYMENT PER ACRE

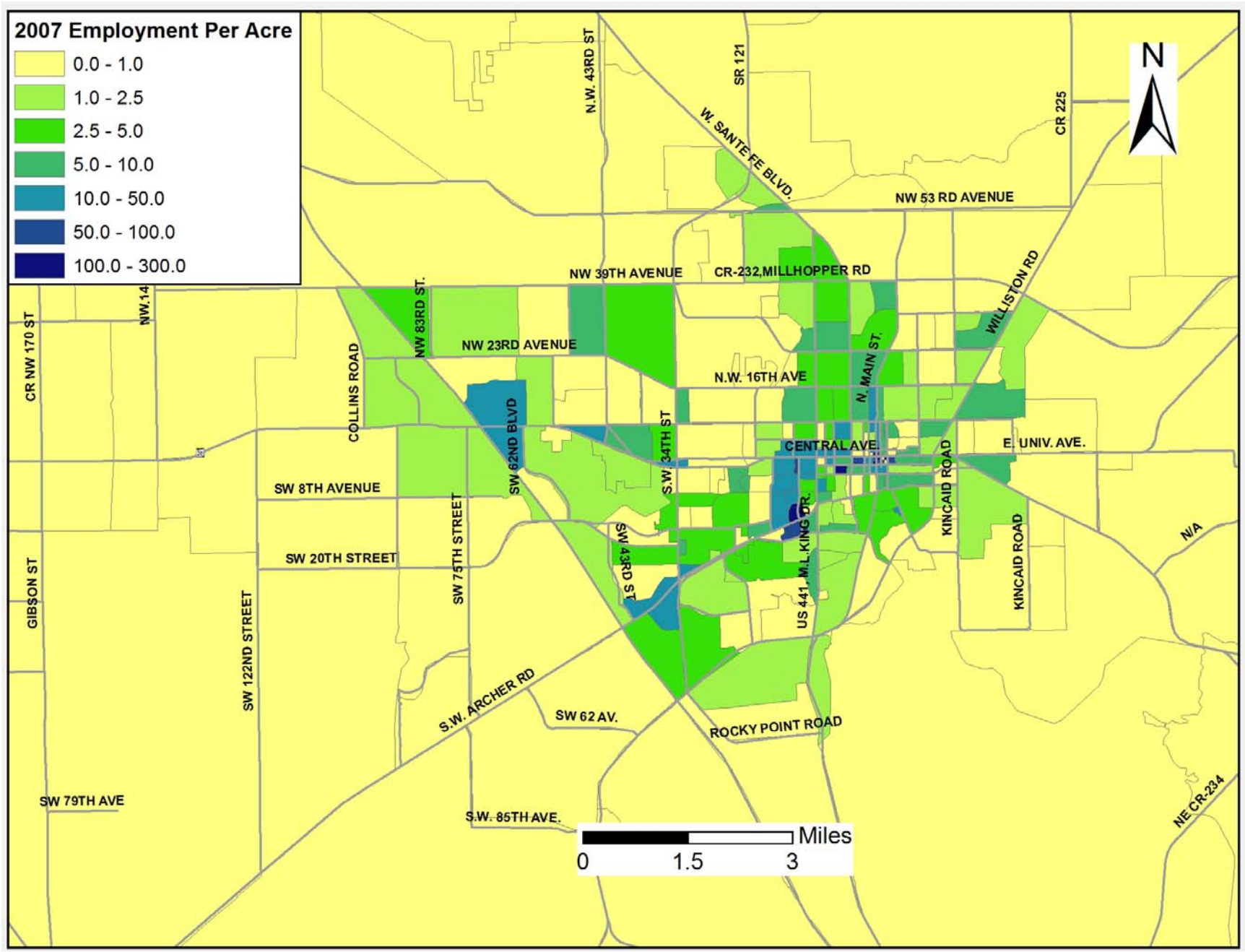


FIGURE 20: TOTAL EMPLOYMENT 2035

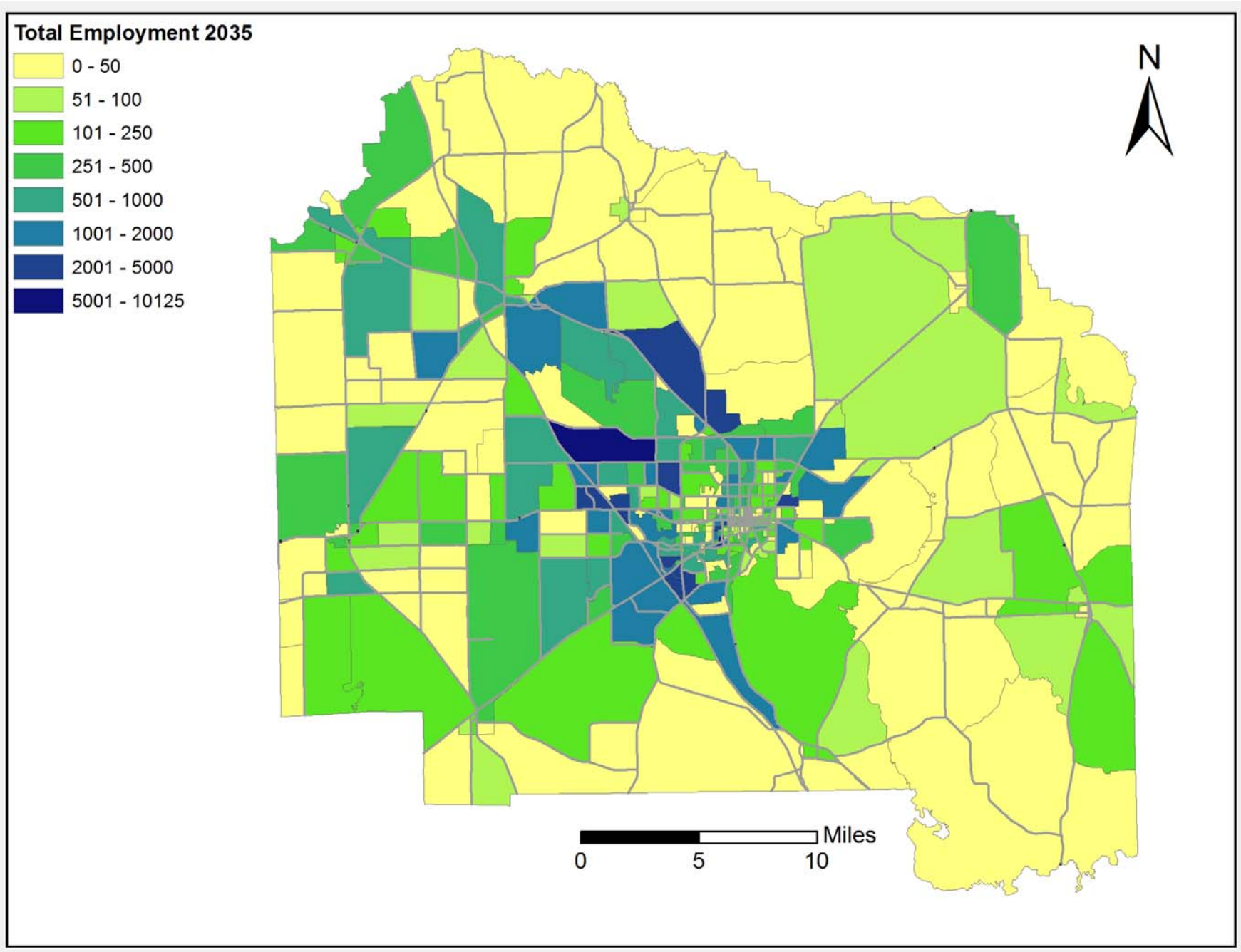


FIGURE 21: EMPLOYMENT PER ACRE 2035

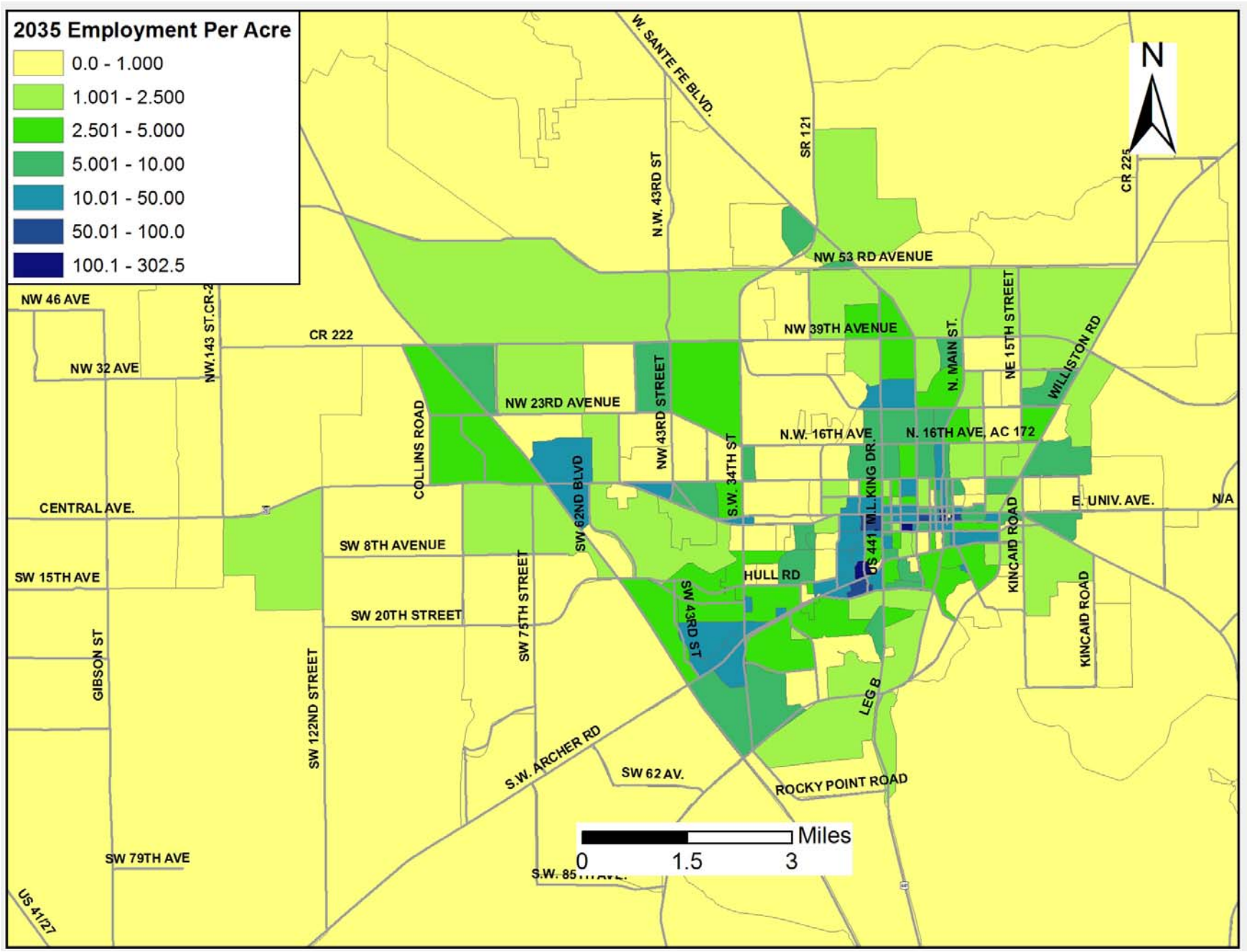


FIGURE 22: 2007 SCHOOL ENROLLMENT

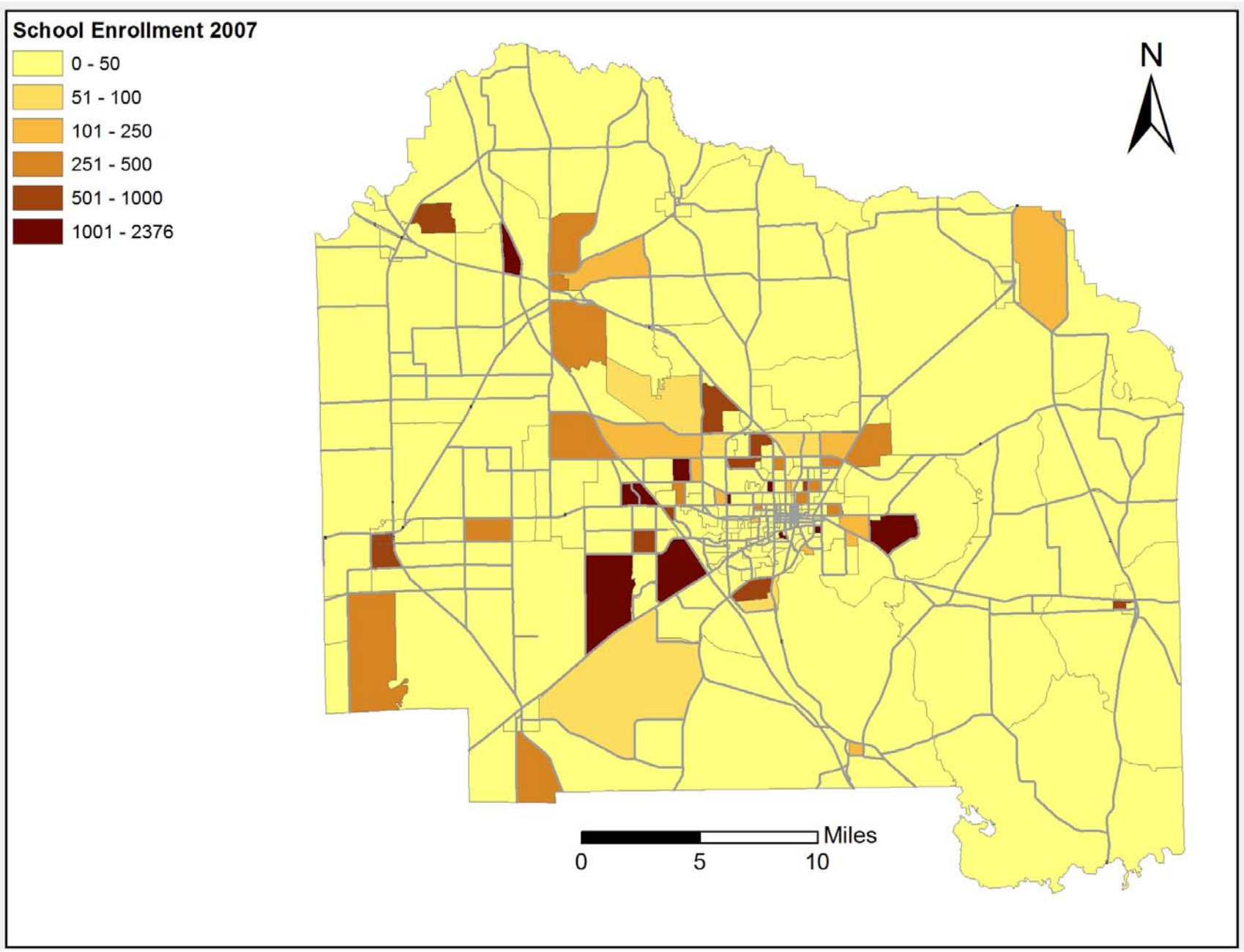
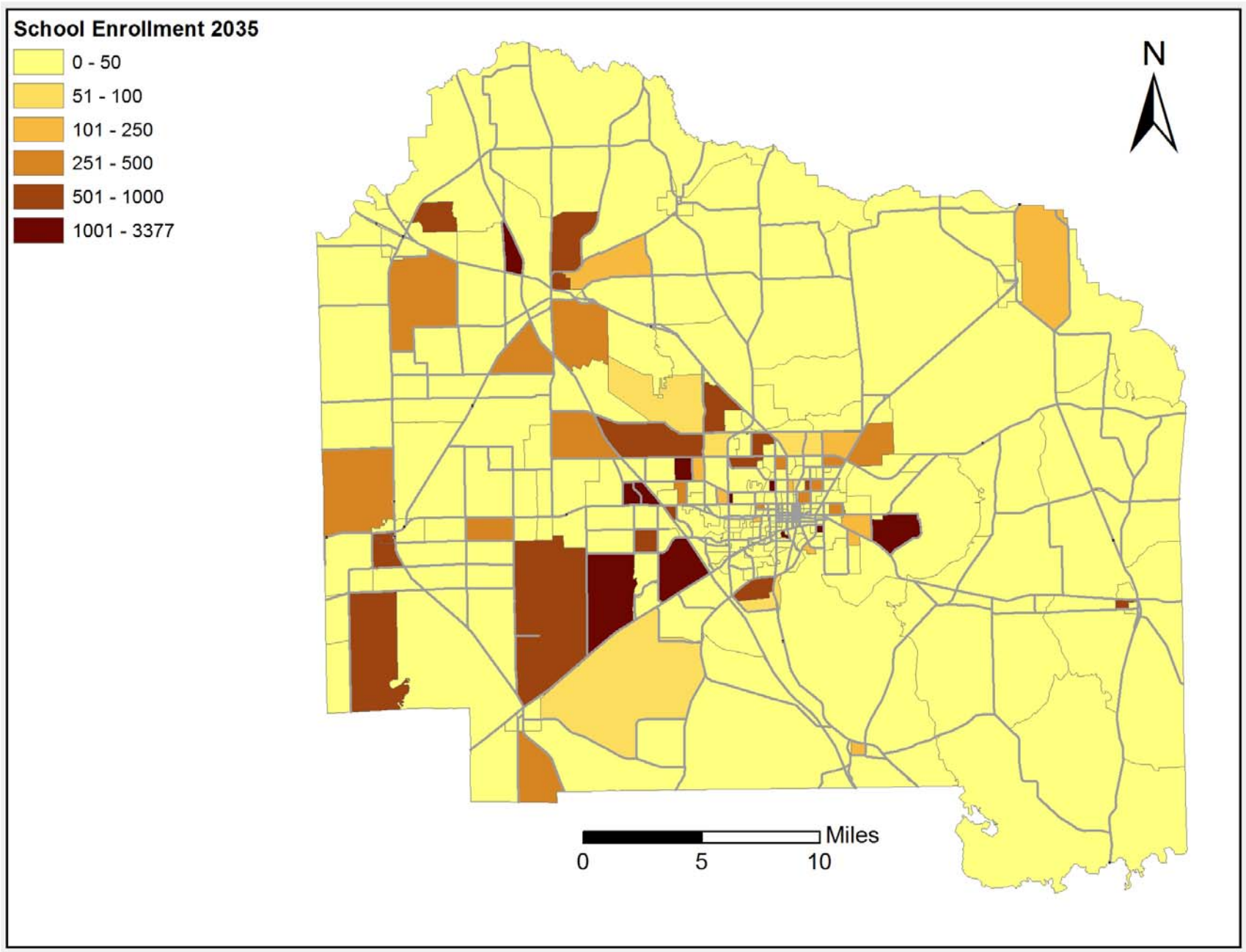


FIGURE 23: SCHOOL ENROLLMENT 2035



APPENDIX A: LOOKUP TABLE BETWEEN PROPERTY USE CODE AND GENERALIZED USE CODE

PUSE	DESC_	Count	Gen_Use_Code
		1602	????
3400	Bowling Alley	3	Commercial
3600	Camps	10	Entertainment
4500	Canneries/Bottlers	1	Industrial
7100	Churches	449	Church
7700	Clubs/Lodges/Halls	96	Community
8400	Colleges	42	School
0900	Common Area	608	Green Space
1600	Community Shopping	128	Commercial
0400	Condominium	4600	Multi-Family Residential
8600	County	169	County
5100	Cropland Class I	310	Agriculture
5200	Cropland Class II	345	Agriculture
5300	Cropland Class III	74	Agriculture
7900	Cultural Groups	2	Community
6800	Dairies/Feed Lots	342	Agriculture
1300	Department Stores	1	Commercial
2200	Drive-In Restaurant	89	Commercial
8800	Federal	15	Federal
2300	Financial Building	65	Commercial
3000	Florist/Greenhouse	11	Commercial
8200	Forest Parks, Rec	92	Green Space
3800	Golf Courses	13	Green Space
4200	Heavy Manufacture	8	Industrial
7400	Homes for the Aged	14	Senior
8500	Hospitals	3	Hospital
3900	Hotels/Motels	58	Hotel
5000	Improved Agriculture	10	Agriculture
2400	Insurance Company	17	Commercial
4100	Light Manufacture	128	Industrial
4300	Lumber Yards	9	Industrial
4700	Mineral Processing	7	Industrial
9200	Mining	8	Industrial
0700	Miscellaneous	1372	Miscellaneous
0200	Mobile Home	5693	Mobile Home
7600	Mortuary/Cemetary	87	Cemetary
0800	Multi-Family (less than 10)	1653	Multi-Family Residential
0300	Multi-Family (more than 10)	356	Multi-Family Residential
8900	Municipal	485	Municipal
3300	Nightclubs/Bars	42	Commercial
9900	Non-Ag Acreage	147	Green Space
7500	Non-Profit Services	25	Commercial

1700	Office Buildings	815	Commercial
4900	Open Storage	13	Storage
6600	Orchards/Groves	184	Agriculture
6900	Ornamentals, Misc.	139	Agriculture
4600	Other Food Processing	3	Industrial
4400	Packing Plants	2	Industrial
6000	Pasture Land I	469	Agriculture
6100	Pasture Land II	1550	Agriculture
6200	Pasture Land III	127	Agriculture
6300	Pasture Land IV	2	Agriculture
6500	Pasture Land VI	766	Agriculture
6700	Poultry/Bees/Fish	4	Agriculture
7300	Private Hospitals	5	Hospital
7200	Private Schools	90	School
1900	Professional Buildings	450	Commercial
8300	Public Schools	64	School
3700	Race Tracks	2	Entertainment
9700	Rec and park Land	33	Green Space
1500	Regional Shopping	2	Commercial
2500	Repair Service	157	Industrial
7800	Rest Homes	1	Senior
2100	Restaurants/Café	109	Commercial
0600	Retirement Homes	3	Senior
9400	Rights-of-Way	201	ROW
9500	Rivers and Lakes	48	Green Space
2600	Service Stations	18	Commercial
0100	Single Family Residence	53088	Single Family Residence
8700	State	285	State
1100	Stores, 1 story	535	Commercial
1200	Stores/Office/Residence	136	MU
1400	Supermarket	11	Commercial
3200	Theater/Auditorium	4	Entertainment
5700	Timberland 60-69	3	Timber
5600	Timberland 70-79	77	Timber
5500	Timberland 80-89	2357	Timber
5400	Timberland 90+	456	Timber
5900	Timberland Unclass	272	Timber
3500	Tourist Attraction	3	Entertainment
2000	Transit Terminals	3	Community
9100	Utilities	119	Utility
0000	Vacant	13976	Vacant
1000	Vacant Commercial	946	Vacant Commercial
4000	Vacant Industrial	360	Vacant Industrial
7000	Vacant Institutional	6	Vacant Institutional
2800	Vehicle Sales/Repair	157	Commercial
4800	Warehouse/Storage	491	Industrial
9600	Wasteland/Dumps	14	Utility
2900	Wholesale Outlet	47	Commercial

APPENDIX B: DETAILED DWELLING UNIT INVENTORY METHODOLOGY

Detailed Methodology

Step 1: Determine which dataset to utilize for the 2000 dwelling unit figure. The two options were the 2000 Census Block data from the Summary File 1 (95,113) and the dwelling unit figure in the existing model dataset (96,862). The Alachua County Tax Parcel information served as a control total (82,862 dwelling units).

Process Steps:

1. Compared the Census Block data aggregated to TAZs to the 2000 dwelling unit figures as derived from the 2000 dataset currently utilized in the model.
2. Joined the two datasets and symbolized them according to their difference. Selected individual TAZs and cross checked the dwelling unit figures with the Alachua County Tax Parcel Layer.

Findings: In 8 of the 8 TAZs selected and compared the 2000 dwelling unit figure as currently utilized in the model was more correct (according to the parcel layer).

Step 2: Compare dwelling units as reported by the Alachua County Tax Parcel Data to the dwelling unit figure in the existing 2000 SE Data and the 2000 Census.

Process Steps:

1. Compared the data from the parcel records, the census, and the existing dataset.
2. Cross checked data with aerial photographs and land use information contained in the parcel record.
3. Determined the corrected number of dwelling units that should be used for a year 2000 base.

Findings: In some cases each of the datasets was correct; the 2000 base numbers were adjusted accordingly. After adoption of draft dataset, the dwelling units in the following TAZs were revised (reduced) based on tax parcel records: 275, 184, 209, 194, 276, 49, 61, 98, 103, 104, 139, 167, 169, 185, 202, 205, 210, 227, 237, 250, 433, 439. This resulted in the population estimates for 2000 and 2007 getting closer to BEBR estimates.

Step 3: Use the 2000 dwelling unit figure in the existing model data and Alachua County tax parcel data to determine the percentages of single family and multi-family housing by TAZ in 2000. This will be used as a base to add the DUs constructed between 2000 and 2007. See Appendix A for land use codes.

Process Steps completed on December 14, 2007

1. Selected Multi-Family Parcels as of 2000: "DESC_" in ('Condominium', 'Homes for the Aged', 'Multi-Family (less than 10)', 'Multi-Family (more than 10)', 'Rest Homes',

'Retirement Homes', 'Mobile Home') AND Not "YEAR_BLT" in (2007, 2006, 2005, 2004, 2003, 2002, 2001)
2. Aggregated to TAZ
3. Selected Single Family Parcels as of 2000: "DESC_" in ('Single Family Residence', 'Stores/Office/Residence') AND Not "YEAR_BLT" in (2007, 2006, 2005, 2004, 2003, 2002, 2001)
4. Aggregated to TAZ
5. Calculated the percentage of multi-family and single family
6. Multiplied MF_00_Perc and SF_00_Perc by DU_2000 to get percentage of MF and SF residential in 2000

Step 4: Determine how many new units were added between April of 2000 and 2007 based on the Alachua County Tax Parcel Data.

Process Steps completed on December 14, 2007

1. Created a parcel based inventory of new residential units by utilizing Alachua County tax records. Parcel were selected where: "DESC_" in ('Condominium', 'Homes for the Aged', 'Mobile Home', 'Multi-Family (less than 10)', 'Multi-Family (more than 10)', 'Rest Homes', 'Retirement Homes', 'Single Family Residence', 'Stores/Office/Residence') AND "YEAR_BLT" in (2007, 2006, 2005, 2004, 2003, 2002, 2001)
2. Determine New SF/MF Residential Units
    a. Selected from New_Res_Parcels_01-07_2008_03_01 where "DESC_" in ('Condominium', 'Homes for the Aged', 'Multi-Family (less than 10)', 'Multi-Family (more than 10)') OR "UnitNum" >1
    b. Filled a new MF_Units field with UnitNum value
    c. Switched Selection and fill new SF_Units field with UnitNum value
3. Compared parcel data to CO data from Alachua County Building Department
    a. Selected where SFCOs 01-07 > Parcel SF Res Units 01-07
    b. Filled These records with SFCOs 01-07
    c. Selected where MFCOs 01-07 > Parcel MF Res Units 01-07
    d. Filled These records with MFCOs 01-07
4. Aggregated the New Dwelling Units to TAZs
5. Added the New Dwelling Units to the 2000 Dwelling Units
6. Edited 2001-2007 DUs for TAZ 275 and 356 in the City of Alachua based on Census LUCA (Local Update of Census Addresses) program data

Step 5: Compare dwelling units (00-07) as reported by the Alachua County Tax Parcel Data to the number of dwelling units reported by certificates of occupancy issued by the inspections departments of Alachua County and the City of Gainesville.

Process Steps

1. Requested CO data from Alachua Co., Gainesville, and other municipalities to verify the information contained in the tax records.

2. Created a lookup table to generalize the CO data points which assigned all records a value of: REMODEL, NR, MF, or SF based on FCC_DESC field.
3. Selected only MF and SF built in 2000-2007
    a. "YearIssued" in ('2001', '2002', '2003', '2004', '2005', '2006', '2007') and "RES_TYPE" in ('MF', 'SF')
4. Exported selection as a new layer
5. Tagged certificate of occupancy points with TAZ ID using a spatial join
6. Summed MF and SF by TAZ and compared to DUs that were built between 2000 and 2007 according to the Alachua County Tax Parcel data

Findings: The parcel layer contained 10,988 new residential parcels and the CO data contained 6,000 residential units.

Summary of QC: The census estimated 11.5k new housing units between 2000 and 2006 (1655 DU/year). Which if extrapolated would provide for 13.2k housing units in 2007. It is presumed that the 12,337 new dwelling units in the draft dataset is a reasonable figure.

APPENDIX C: MOTEL UNITS BY TAZ

TAZ #	Hotel Units 2007	Hotel Pop 2007	Hotel Units 2035	Hotel Pop 2035	New Units 00-35	Persons Per Unit	Occupancy Rate
65	165	229	165	218	0	2.20	0.63
70	11	15	11	14	0	2.16	0.63
23	38	53	38	50	0	2.21	0.63
134	6	8	6	8	0	2.12	0.63
108	100	139	100	132	0	2.21	0.63
18	7	10	7	10	0	2.27	0.63
14	0	0	124	164	124	2.20	0.63
49	17	24	17	23	0	2.22	0.63
4	8	11	8	10	0	2.18	0.63
27	4	6	4	6	0	2.38	0.63
42	21	29	21	28	0	2.19	0.63
104	0	0	170	224	170	2.20	0.63
86	20	28	20	27	0	2.22	0.63
343	12	17	12	16	0	2.25	0.63
376	6	8	6	8	0	2.12	0.63
288	60	83	60	79	0	2.20	0.63
238	205	283	205	270	0	2.19	0.63
239	419	581	419	553	0	2.20	0.63
210	0	0	400	528	400	2.20	0.63
214	207	288	207	274	0	2.21	0.63
219	531	736	531	701	0	2.20	0.63
244	80	110	80	105	0	2.19	0.63
250	100	138	100	131	0	2.19	0.63
197	51	71	51	67	0	2.20	0.63
191	36	50	36	48	0	2.20	0.63
172	80	110	80	105	0	2.18	0.63
147	73	101	150	198	77	2.20	0.63
386	20	28	20	28	0	2.19	0.63
287	152	210	152	200	0	2.19	0.63
292	11	15	11	14	0	2.19	0.63
310	7	10	7	10	0	2.27	0.63
428	50	69	50	66	0	2.19	0.63
387	60	83	60	79	0	2.20	0.63
356	100	138	100	131	0	2.19	0.63
369	44	61	44	58	0	2.20	0.63
389	62	86	62	82	0	2.20	0.63
339	20	28	20	26	0	2.19	0.63

TAZ #	Hotel Units 2007	Hotel Pop 2007	Hotel Units 2035	Hotel Pop 2035	New Units 00-35	Persons Per Unit	Occupancy Rate
180	40	55	40	53	0	2.19	0.63
254	48	67	48	64	0	2.22	0.63
257	106	147	106	140	0	2.20	0.63
266	152	211	152	201	0	2.20	0.63
240	134	186	134	177	0	2.20	0.63
222	612	848	612	807	0	2.20	0.63
194	0	0	150	198	150	2.20	0.63
442	248	344	248	328	0	2.20	0.63
199	330	457	330	435	0	2.20	0.63
435	133	184	133	175	0	2.20	0.63
260	0	0	250	330	250	2.20	0.63
142	195	269	195	256	0	2.19	0.63
124	59	82	59	78	0	2.20	0.63
436	90	125	90	119	0	2.20	0.63
112	36	50	36	47	0	2.19	0.63
137	122	169	122	161	0	2.20	0.63

APPENDIX D: EMPLOYMENT BY TAZ

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
50	0	0	0	0	0	16	2	18
59	0	45	0	45	0	61	2	63
90	0	108	0	108	0	290	32	322
67	0	0	2	2	0	0	2	2
71	10	57	183	250	36	57	190	283
87	0	65	25	90	0	160	35	195
43	0	13	22	35	0	13	22	35
35	0	52	9	61	0	52	9	61
48	6	1506	17	1529	6	1569	27	1602
57	2	18	0	20	2	18	0	20
61	4	40	6	50	4	40	6	50
41	6	156	32	194	6	282	42	330
54	150	42	0	192	150	74	2	226
55	100	102	72	274	100	134	74	308
65	0	102	178	280	0	149	185	334
58	0	15	0	15	0	15	0	15
70	0	0	21	21	0	16	21	37
63	0	66	16	82	0	66	16	82
34	0	25	10	35	0	57	15	72
28	10	49	12	71	10	81	17	108
23	218	587	146	951	218	682	207	1107
47	0	19	149	168	0	51	149	200
33	5	58	144	207	5	105	149	259
44	0	50	10	60	0	66	12	78
92	62	372	110	544	62	372	110	544
134	15	16	20	51	15	48	25	88
148	0	32	0	32	0	32	0	32
56	55	9	81	145	55	9	81	145
73	169	9	0	178	169	9	0	178
78	187	85	74	346	239	101	76	416
100	0	3	0	3	0	3	0	3
118	0	35	2	37	0	67	7	74
248	14	77	50	141	15	108	53	176
117	23	35	7	65	23	35	7	65
31	0	9	0	9	0	9	0	9

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
108	0	71	63	134	0	134	73	207
30	33	109	15	157	33	125	17	175
19	3	268	258	529	3	300	263	566
52	224	589	14	827	224	684	29	937
20	0	9	44	53	0	25	46	71
16	18	281	0	299	18	313	5	336
11	0	105	79	184	0	137	84	221
18	0	7	2	9	0	133	12	145
6	0	135	7	142	0	167	12	179
1	0	88	58	146	0	88	58	146
8	0	132	42	174	0	132	42	174
3	0	0	0	0	0	16	2	18
2	0	230	35	265	0	230	35	265
7	0	86	0	86	0	102	2	104
10	0	65	171	236	0	65	171	236
14	0	88	0	88	0	99	0	99
17	0	0	0	0	0	16	2	18
49	0	56	0	56	0	151	10	161
4	4	389	42	435	4	389	42	435
12	0	0	0	0	0	0	0	0
15	3	391	2	396	3	391	2	396
26	33	417	33	483	33	417	33	483
5	0	147	7	154	0	147	7	154
13	0	49	0	49	0	49	0	49
9	0	90	3	93	0	90	3	93
22	0	343	22	365	0	343	22	365
25	2	68	0	70	2	68	0	70
38	0	45	0	45	0	45	0	45
40	31	163	18	212	31	163	18	212
82	0	41	12	53	0	41	12	53
106	0	10	4	14	0	10	4	14
99	0	171	0	171	0	171	0	171
95	0	2	0	2	0	97	15	112
27	0	3	0	3	0	82	5	87
42	4	154	5	163	4	186	5	195
29	0	4	0	4	0	4	0	4
45	0	167	0	167	0	183	0	183
62	109	14	48	171	109	54	53	216

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
46	4	12	0	16	4	12	0	16
53	0	6	3	9	0	6	3	9
84	0	44	55	99	0	107	60	167
88	0	4	0	4	0	4	0	4
104	3	251	263	517	3	339	294	636
105	0	8	0	8	0	8	0	8
121	3	82	13	98	3	96	13	112
94	0	41	117	158	0	73	119	192
107	16	600	244	860	16	821	264	1101
127	0	27	0	27	0	27	0	27
86	67	231	412	710	67	381	419	867
75	0	0	0	0	0	47	5	52
123	7	301	62	370	7	427	74	508
131	0	4	0	4	0	4	0	4
173	5	66	22	93	5	169	37	211
354	0	138	1	139	0	142	4	146
343	15	21	42	78	15	31	51	97
359	1	42	2	45	1	46	2	49
396	22	49	81	152	22	83	104	209
376	0	10	15	25	0	25	15	40
316	4	17	89	110	26	29	97	152
317	109	1	2	112	109	7	7	123
299	0	3	0	3	0	18	0	18
388	0	10	15	25	18	49	17	84
415	0	14	20	34	0	14	20	34
358	0	20	0	20	0	20	0	20
366	1	83	14	98	1	85	16	102
353	45	17	2	64	45	24	7	76
378	0	6	56	62	0	43	87	130
364	4	2	10	16	4	2	10	16
133	32	866	68	966	32	1135	105	1272
72	5	16	49	70	5	48	51	104
96	0	72	15	87	0	104	20	124
80	2	501	12	515	2	612	24	638
382	4	18	0	22	4	137	4	145
336	2	20	5	27	2	20	5	27
362	0	0	0	0	0	0	0	0
328	1	6	0	7	1	6	0	7

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
303	18	38	27	83	18	302	43	363
372	0	6	1	7	0	6	1	7
322	14	0	0	14	14	0	0	14
300	18	11	1	30	18	11	1	30
334	9	0	10	19	9	0	10	19
288	1	10	5	16	1	22	6	29
377	5	63	0	68	5	63	0	68
349	0	1	3	4	0	1	3	4
291	38	118	13	169	38	118	13	169
342	56	49	88	193	118	154	184	456
276	66	367	67	500	66	709	67	842
265	17	131	3	151	17	334	131	482
256	69	183	96	348	73	1282	118	1473
307	39	0	16	55	39	0	16	55
296	3	9	91	103	70	113	140	323
281	164	399	338	901	164	700	366	1230
270	7	29	3	39	7	29	34	70
258	60	382	341	783	60	396	353	809
238	349	502	461	1312	349	687	525	1561
255	12	170	9	191	12	215	9	236
236	495	425	67	987	627	464	69	1160
241	79	172	44	295	79	172	44	295
239	16	232	339	587	16	266	340	622
210	4	129	36	169	108	1697	2078	3883
214	0	66	697	763	0	264	786	1050
219	655	566	447	1668	776	1252	598	2626
263	3	0	0	3	3	0	0	3
289	0	0	0	0	0	25	17	42
304	1	6	1	8	1	6	1	8
244	0	201	0	201	0	220	0	220
250	37	734	352	1123	37	802	360	1199
201	6	1450	95	1551	6	1916	162	2084
197	3	908	96	1007	3	1568	131	1702
184	27	166	273	466	27	577	340	944
202	29	199	1084	1312	29	629	1417	2075
189	2	71	0	73	2	103	5	110
213	8	27	0	35	8	29	0	37
191	3	272	39	314	3	332	42	377

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
172	16	6	25	47	16	223	25	264
160	0	2	0	2	0	2	0	2
147	0	268	70	338	0	412	80	492
386	32	45	55	132	32	56	55	143
360	11	29	37	77	11	52	37	100
363	89	7	5	101	89	70	5	164
392	4	75	43	122	4	219	43	266
384	339	54	37	430	479	74	37	590
320	9	5	17	31	9	5	17	31
327	4	6	6	16	4	92	24	120
375	0	4	9	13	0	4	83	87
321	92	263	104	459	92	277	104	473
309	3	7	0	10	3	7	0	10
318	6	3	0	9	6	3	0	9
297	8	24	3	35	8	97	8	113
383	68	2	2	72	68	2	2	72
374	4	4	0	8	4	4	0	8
397	0	2	0	2	0	2	0	2
368	551	8	599	1158	765	8	599	1372
323	0	0	45	45	0	0	45	45
287	109	166	117	392	109	500	277	886
302	3	7	3	13	3	7	3	13
298	6	9	117	132	6	9	117	132
330	3	3	1	7	3	68	1	72
351	0	4	0	4	213	368	153	734
277	1	0	0	1	1	0	0	1
278	12	1	3	16	12	66	10	88
294	85	40	50	175	105	46	51	202
167	1	4	3	8	1	4	3	8
209	2	27	7	36	2	32	7	41
253	0	0	0	0	0	0	0	0
292	15	87	23	125	15	115	28	158
187	4	4	0	8	4	4	0	8
169	40	55	4	99	40	74	4	118
174	0	114	12	126	3	170	14	187
221	7	257	2	266	7	395	2	404
251	3	1	9	13	3	1	9	13
312	3	1	2	6	3	1	2	6

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
306	14	2	1	17	14	2	1	17
379	1	27	0	28	1	27	0	28
259	0	3	0	3	0	3	0	3
274	0	0	0	0	0	0	0	0
310	0	0	0	0	0	0	0	0
264	1	0	3	4	1	0	3	4
290	0	0	0	0	0	2	0	2
271	2	7	0	9	2	29	1	32
283	4	3	0	7	4	83	0	87
400	0	98	8	106	0	165	126	291
413	19	0	0	19	19	0	0	19
416	8	123	0	131	8	125	0	133
428	43	77	172	292	43	78	172	293
422	14	40	150	204	14	42	150	206
429	76	247	181	504	76	292	181	549
431	0	16	1	17	0	16	1	17
426	0	7	0	7	0	7	0	7
387	11	150	137	298	11	205	137	353
385	36	4	12	52	36	34	12	82
414	4	82	71	157	4	442	254	700
411	3	0	0	3	3	0	0	3
329	8	7	0	15	8	7	0	15
313	773	537	267	1577	773	539	299	1611
345	233	25	2	260	233	25	2	260
356	75	340	215	630	75	608	297	980
369	0	6	0	6	0	16	0	16
389	83	132	425	640	83	169	545	797
337	416	164	212	792	416	170	212	798
332	0	42	38	80	0	44	38	82
311	157	101	221	479	385	338	362	1085
346	23	105	30	158	23	141	30	194
367	2	68	0	70	2	102	0	104
325	3	45	0	48	3	45	0	48
285	4	5	15	24	77	365	156	598
268	37	382	6	425	37	430	12	479
284	8	12	0	20	8	12	0	20
370	15	17	0	32	15	17	0	32
315	1	3	0	4	1	3	0	4

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
267	1198	506	187	1891	1605	960	330	2895
273	0	13	0	13	0	13	0	13
279	11	1	4	16	11	1	4	16
301	0	11	3	14	0	11	3	14
305	1	5	0	6	1	5	0	6
295	60	29	10	99	60	29	10	99
242	0	11	0	11	0	11	0	11
314	2	6	0	8	2	6	0	8
333	0	2	0	2	0	2	0	2
341	0	0	0	0	0	6	1	7
347	0	0	0	0	0	0	0	0
348	0	0	0	0	6	9	2	17
373	0	0	0	0	0	0	0	0
394	28	3	0	31	28	13	1	42
344	0	0	0	0	0	0	0	0
425	4	2	7	13	4	2	7	13
406	6	6	35	47	6	6	35	47
419	19	9	9	37	19	9	9	37
395	3	0	0	3	3	0	0	3
404	1	5	9	15	1	5	9	15
350	7	35	8	50	7	47	11	65
243	0	23	0	23	20	30	0	50
225	97	252	3	352	97	252	3	352
198	10	43	111	164	252	299	440	991
224	410	508	381	1299	410	508	381	1299
247	0	58	23	81	0	58	23	81
280	12	9	0	21	18	37	0	55
203	11	1386	5	1402	11	1391	5	1407
245	0	28	25	53	0	28	25	53
226	5	12	0	17	5	12	0	17
286	3	5	3	11	3	29	3	35
319	8	2	4	14	8	2	4	14
365	51	175	104	330	51	175	104	330
340	0	2	6	8	0	19	6	25
331	0	4	1	5	0	26	1	27
308	0	0	3	3	0	2	3	5
338	0	2	0	2	0	10	8	18
326	0	0	0	0	0	11	4	15

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
339	4	5	0	9	26	47	38	111
352	0	27	52	79	0	27	52	79
371	0	0	0	0	0	0	0	0
192	16	296	418	730	16	501	450	967
182	42	192	208	442	42	239	210	491
165	77	81	73	231	77	231	93	401
180	87	168	111	366	87	255	144	486
158	23	329	321	673	23	345	321	689
206	90	109	79	278	150	109	79	338
231	631	312	280	1223	1791	336	282	2409
218	0	90	15	105	0	106	17	123
154	63	194	8	265	63	241	8	312
186	214	301	296	811	438	904	419	1761
164	0	13	0	13	0	195	25	220
275	22	253	77	352	22	326	266	614
293	0	83	0	83	0	83	0	83
120	0	105	2	107	0	121	4	125
140	95	58	100	253	95	161	107	363
162	607	297	277	1181	607	297	277	1181
139	11	1604	7	1622	11	2023	304	2338
151	0	0	9	9	0	0	9	9
171	0	317	72	389	0	317	72	389
138	0	25	12	37	0	76	55	131
144	3	15	0	18	3	15	0	18
150	0	11	5	16	0	11	5	16
135	20	147	331	498	37	219	355	611
159	57	90	698	845	66	106	700	872
161	36	68	0	104	36	68	0	104
177	2	197	13	212	11	229	15	255
128	2	686	6	694	2	860	23	885
132	1	101	3	105	1	101	3	105
113	3	32	3	38	3	32	3	38
170	0	41	0	41	0	41	0	41
193	0	3	0	3	0	3	0	3
98	7	166	28	201	7	166	28	201
114	32	112	8	152	32	144	8	184
76	2	195	12	209	2	195	12	209
115	0	132	25	157	0	132	25	157

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
424	15	95	78	188	15	97	78	190
430	107	180	125	412	107	180	125	412
417	142	92	48	282	142	129	48	319
427	14	35	0	49	14	35	0	49
423	0	0	0	0	169	0	0	169
405	26	10	2	38	26	507	157	690
390	0	24	0	24	0	24	0	24
361	86	1	0	87	86	1	0	87
355	36	66	19	121	47	70	19	136
409	11	57	5	73	11	91	5	107
398	0	0	0	0	1000	0	0	1000
421	0	0	0	0	0	0	0	0
420	0	0	0	0	0	0	0	0
408	0	0	0	0	0	0	0	0
412	9	22	2	33	9	31	2	42
402	9	86	0	95	9	101	0	110
407	147	21	59	227	235	113	59	407
401	175	226	81	482	175	233	81	489
399	21	7	10	38	21	16	10	47
410	12	6	0	18	12	6	0	18
254	78	701	201	980	78	737	202	1017
257	160	618	818	1596	163	864	1031	2058
237	29	514	2451	2994	29	1059	2556	3644
232	0	1	0	1	0	33	5	38
269	2	37	10	49	2	37	10	49
272	19	92	30	141	19	92	30	141
266	121	402	164	687	665	481	284	1430
240	11	3028	693	3732	11	4182	782	4975
252	80	729	25	834	80	729	25	834
262	18	1158	165	1341	18	1548	323	1889
249	1	11	0	12	1	11	0	12
234	14	372	136	522	14	401	137	552
217	210	940	144	1294	210	1383	211	1804
235	11	287	16	314	11	331	16	358
222	76	203	271	550	173	700	314	1187
200	5	230	278	513	5	249	278	532
438	6	120	186	312	6	341	201	548
195	35	20	236	291	35	178	286	499

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
207	27	155	1295	1477	27	329	1347	1703
194	0	10	0	10	0	444	442	886
448	0	152	0	152	0	215	10	225
178	0	549	0	549	0	649	0	649
442	0	66	200	266	0	166	200	366
227	22	236	97	355	22	501	202	725
246	53	748	86	887	53	795	86	934
261	0	0	1	1	0	0	1	1
233	6	31	1	38	6	31	1	38
434	0	24	70	94	0	24	70	94
433	0	765	0	765	0	765	0	765
447	0	23	0	23	0	23	0	23
156	5	5	0	10	5	5	0	10
439	4	13	0	17	4	171	22	197
181	0	16	0	16	0	16	0	16
166	0	259	0	259	0	309	0	309
440	0	0	0	0	0	0	0	0
176	0	5	231	236	0	37	236	273
183	1	191	167	359	1	254	177	432
199	9	211	13	233	9	326	28	363
456	0	20	0	20	0	20	0	20
153	0	60	2	62	0	60	2	62
441	0	40	0	40	0	40	0	40
432	0	0	0	0	0	0	0	0
443	0	3	0	3	0	3	0	3
444	0	0	0	0	0	0	0	0
146	0	323	0	323	0	323	0	323
451	6	3	0	9	6	1003	0	1009
446	0	397	0	397	0	697	0	697
130	0	39	0	39	0	39	0	39
149	0	544	0	544	0	844	0	844
435	0	90	58	148	0	90	58	148
282	6	214	0	220	6	660	328	994
260	115	1757	907	2779	116	3409	2025	5550
391	2	1	2	5	2	1	2	5
403	0	0	0	0	0	0	0	0
152	0	8	3	11	0	8	3	11
157	4	15	0	19	4	15	0	19

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
179	0	354	0	354	0	354	0	354
208	86	1644	655	2385	86	1715	655	2456
155	0	26	0	26	0	26	0	26
168	3	8	0	11	3	8	0	11
188	49	194	67	310	49	194	67	310
204	5	261	15	281	5	261	15	281
143	2	97	267	366	2	295	297	594
460	0	0	0	0	0	0	0	0
142	201	149	52	402	201	434	94	729
124	0	35	25	60	0	114	35	149
452	0	452	0	452	0	452	0	452
436	0	280	15	295	0	1284	25	1309
437	0	3263	0	3263	0	3263	0	3263
455	0	0	0	0	0	0	0	0
93	0	259	17	276	0	291	24	315
450	0	336	0	336	0	336	0	336
101	0	10012	0	10012	0	10112	0	10112
122	0	1079	0	1079	0	1179	0	1179
453	0	504	0	504	0	604	0	604
454	0	136	0	136	0	136	0	136
112	0	2031	0	2031	0	2031	0	2031
445	0	133	0	133	0	133	0	133
79	4	166	0	170	4	166	0	170
91	0	76	0	76	0	76	0	76
74	0	363	0	363	0	458	15	473
68	0	69	0	69	0	148	0	148
110	0	1140	0	1140	0	1190	0	1190
97	0	771	0	771	0	821	0	821
85	0	288	0	288	0	288	0	288
83	0	1912	63	1912	0	1962	63	2025
66	0	10	0	10	0	73	0	73
449	0	5	0	5	0	5	0	5
141	0	161	3	164	0	161	3	164
125	0	99	0	99	0	99	0	99
126	0	8	0	8	0	8	0	8
466	0	108	0	108	0	108	0	108
136	0	2	0	2	0	2	0	2
185	10	153	217	380	10	169	219	398

TAZ #	IND EMP 2007	SER EMP 2007	COM EMP 2007	TOTAL EMP 07	IND EMP 2035	SER EMP 2035	COM EMP 2035	TOTAL EMP 35
196	58	550	436	1044	58	724	463	1245
163	14	120	97	231	14	136	99	249
190	8	76	12	96	8	76	12	96
205	40	125	17	182	40	157	17	214
418	7	18	15	40	7	18	15	40
230	0	11	0	11	0	11	0	11
220	20	121	6	147	20	153	11	184
223	6	34	50	90	6	34	50	90
229	279	1353	283	1915	279	1404	284	1967
216	4	1202	16	1222	4	1732	93	1829
212	12	118	85	215	12	126	85	223
64	14	113	14	141	14	113	14	141
102	8	149	186	343	8	196	193	397
109	49	116	299	464	66	132	301	499
103	30	200	201	431	30	216	201	447
137	6	202	779	987	6	566	833	1405
228	20	133	20	173	20	679	390	1089
215	10	0	18	28	10	0	18	28
211	95	61	45	201	95	156	57	308
51	7	456	33	496	7	472	35	514
89	31	244	14	289	31	639	81	751
77	9	255	28	292	9	302	28	339
32	0	39	24	63	0	55	24	79
116	55	269	134	458	55	617	164	836
24	0	0	0	0	0	0	0	0
21	0	14	4	18	0	69	6	75
39	10	15	13	38	10	15	13	38
36	7	17	84	108	7	25	84	116
69	43	375	49	467	43	422	49	514
60	0	213	286	499	0	213	286	499
81	0	214	90	304	0	246	95	341
37	0	149	14	163	0	149	14	163
381	11	8	2	21	11	10	2	23
393	27	30	5	62	27	45	5	77
335	0	0	0	0	0	5	0	5
324	3	10	0	13	3	22	0	25
357	0	2	0	2	0	2	0	2
380	4	25	8	37	4	32	8	44

APPENDIX E: INDIVIDUAL SCHOOL ENROLLMENT AND EMPLOYMENT

School Name	City	TAZ	Employment	Enrollment	Type
A Child's Place	Gainesville	238	16	125	Private
A Child's Place	Gainesville	227	10	70	Private
A L Mebane Middle School	Alachua	367	57	463	Public
A Quinn Jones School	Gainesville	63	50	60	Public
Abraham Lincoln Middle School	Gainesville	99	87	763	Public
Alachua Elementary School	Alachua	346	64	462	Public
Archer Community School	Archer	377	56	344	Public
Baby Gator Child Care Inc	Gainesville	125	25	130	Private
Brentwood School	Gainesville	234	35	265	Private
Charles W Duval Elementary	Gainesville	132	76	468	Public
Children's Center	Gainesville	213	11	60	Private
Christian Life World	Gainesville	276	5	44	Private
Compassionate Outreach	Gainesville	59	2	28	Private
Cornerstone Academy	Gainesville	190	35	183	Private
Countryside Christian School	Gainesville	287	15	119	Private
Eastside High School	Gainesville	221	181	1,839	Public
F W Buchholz High School	Gainesville	235	172	2,376	Public
Flowers Montessori School Inc	Gainesville	188	8	45	Private
Fort Clarke Middle School	Gainesville	257	91	862	Public
Gainesville Christian Academy	Gainesville	268	10	61	Private
Gainesville Country Day School	Gainesville	238	50	160	Private
Gainesville High School	Gainesville	123	183	2,023	Public
Glen Springs Elementary	Gainesville	188	71	464	Public
Hawthorne Middle High School	Hawthorne	354	68	438	Public
Hidden Oak Elementary School	Gainesville	257	99	819	Public
High Springs Elementary	Newberry	321	30	349	Public
High Springs Elementary School	High Springs	416	118	608	Public
Howard W Bishop Middle School	Gainesville	115	103	785	Public
Idylwild Elementary School	Gainesville	197	110	576	Public
Incaf Montessori School	Alachua	367	5	24	Private
Irby Elementary School	Alachua	313	80	477	Public
J J Finley Elementary School	Gainesville	121	73	420	Public
Jordan Glen Summer Camp	Archer	291	15	85	Private
Joseph Williams Elementary	Gainesville	99	80	499	Public
Kanapaha Middle School	Gainesville	238	95	879	Public
Kimball Wiles Elementary Schl	Gainesville	238	85	677	Public

School Name	City	TAZ	Employment	Enrollment	Type
Lake Forest Elementary School	Gainesville	221	70	368	Public
Lawton M Chiles Elementary	Gainesville	276	101	799	Public
Littlewood Elementary School	Gainesville	179	94	615	Public
Marjorie K Rawlings Elementary	Gainesville	177	70	344	Public
Metcalfe Elementary School	Gainesville	120	83	295	Public
Millhopper Montessori School	Gainesville	260	34	223	Private
Myra Terwilliger Elementary	Gainesville	237	75	507	Public
Newberry Elementary School	Newberry	402	86	594	Public
Newberry High School	Newberry	401	67	581	Public
North Florida Seventh-Day	High Springs	430	3	11	Private
Norton Elementary School	Gainesville	192	90	654	Public
Oak Hall School (6-12)	Gainesville	255	70	405	Private
Oak Hall School (Elementary)	Gainesville	255	60	350	Private
Oak View Middle School	Newberry	409	55	394	Public
P.K. Yonge Developmental Research Sc	Gainesville	90	78	1,150	Public
Prairie View Elementary School	Gainesville	169	48	199	Public
Queen of Peace Catholic Church	Gainesville	276	26	315	Private
Rock School	Gainesville	276	45	219	Private
Santa Fe High School	Alachua	387	95	1,230	Public
Shell Chester Elementary Schl	Hawthorne	354	52	194	Public
Sidney Lanier Ctr	Gainesville	103	78	130	Public
St Michael's Episcopal School	Gainesville	229	9	62	Private
St Patrick's Catholic School	Gainesville	76	70	500	Private
Stephen Foster Elementary Schl	Gainesville	158	75	479	Public
Trilogy School	Gainesville	229	8	89	Private
W Travis Loften High School	Gainesville	174	53	213	Public
Waldo Community School	Waldo	365	53	211	Public
Westwood Hills Christian Schl	Gainesville	179	40	300	Private
Westwood Middle School	Gainesville	179	99	924	Public
William S Talbot Elementary	Gainesville	246	107	700	Public
ZLSUNG Seventh-Day School	Gainesville	192	2	20	Private
St Francis Catholic High Schl	Gainesville	287	17	211	Private
Einstein Montessori School	Gainesville	238	30	103	Public/Charter
Pace Center for Girls	Gainesville	52	12	40	Private
Expressions Learning Arts	Gainesville	191	8	83	Public/Charter
Alachua Learning Ctr	Alachua	325	20	133	Public/Charter
Caring & Sharing Learning Schl	Gainesville	118	21	110	Public/Charter
De Soto High School	Archer	377	5	48	Public/Charter
Gainesville Job Corps	Gainesville	224	125	350	Vocational
Genesis Preparatory School	Gainesville	103	11	71	Public/Charter

School Name	City	TAZ	Employment	Enrollment	Type
Healthy Learning Academy	Gainesville	192	5	22	Public/Charter
Hoggetowne Middle School Inc	Gainesville	198	16	117	Public/Charter
Love to Learn Educational Ctr	Gainesville	109	10	66	Public/Charter
Micanopy Area Cooperative Schl	Micanopy	292	20	119	Public/Charter
Micanopy Middle School	Micanopy	292	8	65	Public/Charter
One Room School	Gainesville	186	15	96	Public/Charter
Totals			4,490	32,759	

APPENDIX F: RESIDENTIAL FORECASTING SUITABILITY ALLOCATION METHODOLOGY

Allocation Based on Suitability

Residential Suitability Model

A residential suitability model was developed in order to provide a basis for allocating the remainder of dwelling units to individual traffic zones.

Goals and Objectives for Residential Suitability Model

The objectives and sub-objectives were modeled after the urban suitability model outlined in Smart Land Use Analysis, written by Margaret Carr and and Paul Zwick (2007, p. 234-237). For this modeling exercise there was a distinction made between single family and multi-family residential land use due to the fact that the GUATS model requires housing forecasts to be categorized according to housing type. This allowed for the incorporation of several sub-objectives specific to multi-family land use, including proximity to bus routes, major roads and the University of Florida.

The residential suitability model was developed based on the following goals and objectives:

Goal 4: Determine lands suitable for multi-family residential development

Objective 4.1: Determine lands physically suitable for multi-family use
- Sub-objective 4.1.1: Identify non-hydric soils
- Sub-objective 4.1.2: Identify soils with proper drainage
- Sub-objective 4.1.3: Identify soils corrosive to concrete
- Sub-objective 4.1.4: Identify soils corrosive to steel
- Sub-objective 4.1.5: Identify soils supportive of roads
- Sub-objective 4.1.6: Identify lands not in floodplain
- Sub-objective 4.1.7: Identify lands not in wetlands
- Sub-objective 4.1.8: Identify lands in Strategic Ecosystems

Objective 4.2: Determine lands economically suitable for residential land use
- Sub-objective 4.2.1: Identify lands proximal to existing multi-family residential
- Sub-objective 4.2.2: Identify lands within and proximal to city limits
- Sub-objective 4.2.3: Identify lands proximal to roads
- Sub-objective 4.2.4: Identify lands proximal to schools
- Sub-objective 4.2.5: Identify lands proximal to hospitals
- Sub-objective 4.2.6: Identify lands proximal to bus routes

Sub-objective 4.2.7: Identify lands proximal to the University of Florida
Sub-objective 4.2.8: Identify lands that are vacant and not environmentally constrained
Sub-objective 4.2.9: Identify lands not occupied by residential development
Sub-objective 4.2.10: Identify lands not proximal to industrial uses
Sub-objective 4.2.11: Identify lands amenable to multi-family residential uses

Goal 5: Determine lands suitable for single-family residential development

Objective 5.1: Determine lands physically suitable for single family use
Sub-objective 5.1.1: Identify non-hydric soils
Sub-objective 5.1.2: Identify soils with proper drainage
Sub-objective 5.1.3: Identify soils corrosive to concrete
Sub-objective 5.1.4: Identify soils corrosive to steel
Sub-objective 5.1.5: Identify soils supportive of roads
Sub-objective 5.1.6: Identify lands not in floodplain
Sub-objective 5.1.7: Identify lands not in wetlands
Sub-objective 5.1.8: Identify lands in Strategic Ecosystems

Objective 5.2: Determine lands economically suitable for residential land use
Sub-objective 5.2.1: Identify lands proximal to existing single family residential
Sub-objective 5.2.2: Identify lands within and proximal to city limits
Sub-objective 5.2.3: Identify lands proximal to roads
Sub-objective 5.2.4: Identify lands proximal to schools
Sub-objective 5.2.5: Identify lands proximal to hospitals
Sub-objective 5.2.6: Identify lands proximal to parks
Sub-objective 5.2.7: Identify lands that are vacant and not environmentally constrained
Sub-objective 5.2.8: Identify lands not occupied by residential development
Sub-objective 5.2.9: Identify lands not proximal to industrial uses
Sub-objective 5.2.10: Identify lands amenable to single family residential uses

Sub-objective Data Processing

Each sub-objective was ranked. After the ranking occurred, all data for sub-objectives were converted from vector to raster format with 100 meter cell size. Then the data were reclassified and standardized to a 100 point scale by dividing by the number of classes and multiplying by 100. Each sub-objective for Objective 1.1 was ranked according to the methods described in table 4. The sub-objectives and ranking methodology was identical for Objective 4.1 and Objective 5.1.

TABLE 19: RANKING METHODS FOR OBJECTIVE 4.1

Description	Rank Method
Objective 1.1: Determine lands physically suitable for commercial development	***N/A***
Subobjective 1.1.1: Identify non-hydric soils	Ranked soils based on hydric/nonhydric (hydric = 0/non-hydric = 1)
Subobjective 1.1.2: Identify soils with proper drainage	Ranked soils based on drainage (Very Poorly Drained = 1/Poorly Drained = 2/Somewhat Poorly Drained = 3/Moderately Well Drained = 4/Well Drained = 5/Excessively Well Drained = 4/Not Rated = 1)
Subobjective 1.1.3: Identify soils corrosive to concrete	Ranked soils based on corrosive to concrete (Low = 3/Moderate = 2/High = 1/Not Rated = 1)
Subobjective 1.1.4: Identify soils corrosive to steel	Ranked soils based on corrosive to steel (Low = 3/Moderate = 2/High = 1/Not Rated = 1)
Subobjective 1.1.5: Identify soils supportive of roads	Ranked soils based on limitations regarding roads and streets (Not Ranked = 1/Very Limited = 1/Somewhat Limited = 2/Not Limited = 3)
Subobjective 1.1.6: Identify lands not in floodplain	Unioned with County Boundary, ranked land in floodplain as 0/land not in floodplain as 1
Subobjective 1.1.7: Identify lands not in wetlands	Unioned with County Boundary, ranked land in wetlands as 0/land not in wetlands as 1
Subobjective 1.1.8: Identify lands not in Strategic Ecosystems	Dissolved Strategic Ecosystems, unioned with county boundary, ranked land strategic ecosystem as 0/land not identified as a strategic ecosystem as 1

The sub-objectives for Objective 4.2 were ranked using the methods outlined in the following table.

TABLE 20: RANKING METHODS FOR OBJECTIVE 4.2

Objective 4.2: Economically suitable for multi-family residential	
Sub-objective 4.2.1: Identify lands proximal to existing multi-family residential	Selected multi-family parcels from tax parcel database, converted to point, kernel density function, classified by geometric interval with 9 classes, reclassed to 100 pt scale
Sub-objective 4.2.2: Identify lands within and proximal to city limits	Euclidean distance from city limits and Gainesville USA, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 4.2.3: Identify lands proximal to roads	Euclidean distance from roads, classified manually (<250=100, 250-500=75, 500-1,000=50, >1,000=25)
Sub-objective 4.2.4: Identify lands proximal to schools	Euclidean distance from schools downloaded from Alachua County GIS Portal, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 4.2.5: Identify lands proximal to hospitals	Euclidean distance from hospitals downloaded from FGDL, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 4.2.6: Identify lands proximal to bus routes	Euclidean distance from existing RTS bus routes, manual classification (0-.25 miles=100/.25-.5 miles=75/.5-1=50/1-2=25/>2=0)
Sub-objective 4.2.7: Identify lands proximal to the University of Florida	Euclidean distancce from UF TAZs, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 4.2.8: Identify lands that are vacant and not environmentally constrained	See Appendix A
Sub-objective 4.2.9: Identify lands not occupied by residential development	Selected residential parcels < 10 acres. Dissolve. 100 ft buffer. Union with County. Convert to Raster. 0=Residential Lands/1=Not Residential
Sub-objective 4.2.10: Identify lands not proximal to industrial uses	Euclidean distancce from existing industrial uses, manual classification (0-500=25/500-1000=50/1000-2500=75/>2500=100
Sub-objective 4.2.11: Identify lands amenable to multi-family residential uses	Selected future land uses amenable to multi-family uses. Convert to Raster 0=future land use not amenable to MF development/1=future land use amenable to MF development
Sub-objective 4.2.12: Identify lands proximal to major roadways	Euclidean distance from major roads, geometric interval classication to 9 classes, reclassed to 100 pt scale (inverted)

The sub-objectives for Objective 5.2 were ranked using the methods outlined in the following table.

TABLE 21: RANKING OBJECTIVES FOR OBJECTIVE 5.2

Objective 5.2: Economically suitable for single family residential	
Sub-objective 5.2.1: Identify lands proximal to existing single family residential	Selected single family parcels from tax parcel database, converted to point, kernel density function, classified by geometric interval with 9 classes, reclassed to 100 pt scale
Sub-objective 5.2.2: Identify lands within and proximal to city limits	Euclidean distance from city limits and Gainesville USA, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 5.2.3: Identify lands proximal to roads	Euclidean distance from roads, classified manually (<250=100, 250-500=75, 500-1,000=50, >1,000=25)
Sub-objective 5.2.4: Identify lands proximal to schools	Euclidean distance from schools downloaded from Alachua County GIS Portal, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 5.2.5: Identify lands proximal to hospitals	Euclidean distance from hospitals downloaded from FGDL, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 5.2.6: Identify lands proximal to parks	Euclidean distance from parks downloaded from Alachua County GIS Portal, classified by geometric interval to 9 classes, reclassed to 100 pt scale (inverted)
Sub-objective 5.2.7: Identify lands that are vacant and not environmentally constrained	See Appendix A
Sub-objective 5.2.8: Identify lands not occupied by residential development	Selected residential parcels < 10 acres. Dissolve. 100 ft buffer. Union with County. Convert to Raster. 0=Residential Lands/1=Not Residential
Sub-objective 5.2.9: Identify lands not proximal to industrial uses	Euclidean distancce from existing industrial uses, manual classification (0-500=25/500-1000=50/1000-2500=75/>2500=100
Sub-objective 5.2.10: Identify lands amenable to multi-family residential uses	Selected future land uses amenable to single family uses. Convert to Raster 0=future land use not amenable to SF development/1=future land use amenable to SF development

Sub-objectives 4.2.11 and 5.2.10 were based on future land use plans as downloaded from the Alachua County GIS Portal (http://growth-management.alachuacounty.us/gis/warehouse.php). Areas were selected where future land use was amenable to multi-family residential development based on the following queries:

- City of Gainesville:"FLU_type" in ('MUH', 'MUL', 'MUM', 'PUD' , 'RH' , 'RM' , 'MUR' , 'UMU1' , 'UMU2')
- Alachua County: "DESCRIPT" in ('Mixed Use Commercial', 'Mixed Use Residential Medium Density (4-8 du/acre)', 'Mixed Use', 'Office/Residential (4-8 du/acre)', 'Office/Residential', 'Residential High Density (14-24du/acre)', 'Residential Medium Density (4-8du/acre)', 'Residential Medium High Density (8-14du/acre)')
- City of Alachua: "FLUDEFIN" in ('Medium Density Residential', 'High Density Residential', 'Moderate Density Residential')
- Archer: "FLUDEFIN" = 'Residential'
- Hawthorne: "FLUDEFIN" in ('Residential Medium Density', 'Residential Moderate Density')
- High Springs: "FLUDEFIN" = 'Residential'
- Lacrosse: "FLUDEFIN" = 'Residential Low Density'
- Micanopy: "FLUDEFIN" = 'Residential'
- Newberry: "FLUDEFIN" = 'Medium Density Residential'
- Waldo: "FLUDEFIN" in ('Residential Medium Density', 'Residential High Density')

Areas were selected where future land use was amenable to single family residential development based on the following queries:

- City of Gainesville: "FLU_type" in ('MUM', 'MUL', 'MUR', 'PUD', 'RL', 'RM', 'SF')
- Alachua County: "DESCRIPT" in ('Mixed Use Commercial', 'Mixed Use Residential Medium Density (4-8 du/acre)', 'Mixed Use', 'Office/Residential (2-4 du/acre)', 'Office/Residential', 'Residential Estate (0.5 du/acre)', 'Residential Low Density (1-4du/acre)', 'Residential Medium Low Density (2-4 du/acre)', 'Residential Very Low Density (0-2du/acre)')
- City of Alachua: "FLUDEFIN" in ('Medium Density Residential', 'Moderate Density Residential', 'Low Density Residential')
- Archer: "FLUDEFIN" = 'Residential'
- Hawthorne: "FLUDEFIN" in ('Residential Medium Density', 'Residential Moderate Density', 'Residential Low Density')
- High Springs: "FLUDEFIN" = 'Residential'
- Lacrosse: "FLUDEFIN" = 'Residential Low Density'
- Micanopy: "FLUDEFIN" in ('Residential', 'Agricultural/Rural Residential')
- Newberry: "FLUDEFIN" = 'Low Density Residential'
- Waldo: "FLUDEFIN" in ('Residential Medium Density', 'Residential Low Density', 'Agriculture Low Density' , 'Agriculture High Density')

Determining Environmental Suitability

A rank reciprocal weighting method was used to determine the weighting for the sub-objectives in Objectives 4.1 and 5.1. The weighting and grid calculation was identical to that used for Objectives 1.1, 2.1 and 3.1.

Determining Economic Suitability

A weighted sum techniques was used to determine a suitability surface for single family and multi-family residential suitability. Equal weights were given to each of the sub-objectives to determine single family and multi-family economic suitability.

Removing Undevelopable Property

Certain parcels and areas in Alachua County needed to be removed from the suitability analysis due to their nature as undevelopable property. Four layers were used to create a mask that was then applied to the suitability grids prior to their final reclassification. The Alachua County Tax Parcel layer was joined with tax tables and the following query was used to select undevelopable land.
"DESC_" in ('Rec and park Land', 'Utilities', 'State', 'Rights-of-Way', 'Rivers and Lakes', 'Public Schools', 'Municipal', 'Forest Parks, Rec', 'County')

It was assumed that land that served as recreational land, rights of way, utilities, rivers and lakes, public schools and other publicly owned lands would not be developed. The 1:24,000 National Hydrography Dataset (NHD) data for Alachua County was downloaded from FGDL. A selection was made for open water. The selection is shown below. "DESCRIPT" in ('Lake or pond', 'Reservoir', 'Sewage disposal pond or filtration beds'). A shapefile of Florida Managed Lands (FMLA) was downloaded from the Florida Natural Areas Inventory website and clipped to Alachua County. Traffic Analysis Zones (TAZs) were selected that encompassed the University of Florida. These were dissolved and were used in the mask due to the fact that employment for these TAZs will be calculated in a separate effort with planners from the University. The undevelopable parcels, the NHD, the FMLA datasets, and the UF TAZs were merged. This polygon was dissolved and unioned with the county boundary, the portion of this polygon not included in the mask was selected and exported as a new layer. The final suitability layer for physical suitability, commercial, industrial and service suitability were extracted where they did not overlap the mask. This was then reclassified using a geometric interval method and 9 classes. The resulting layers are shown below.

Final Suitability Grids

A weighted sum technique was used to combine the environmental suitability grid and the residential suitability grids. The environmental suitability grid was weighted 0.1 and the economic suitability grids were weighted 0.9. The resulting grids were reclassified based on an equal interval method to get the final multi-family and single family suitability grids shown in the figures below.

FIGURE 24: FINAL MULTI-FAMILY SUITABILITY

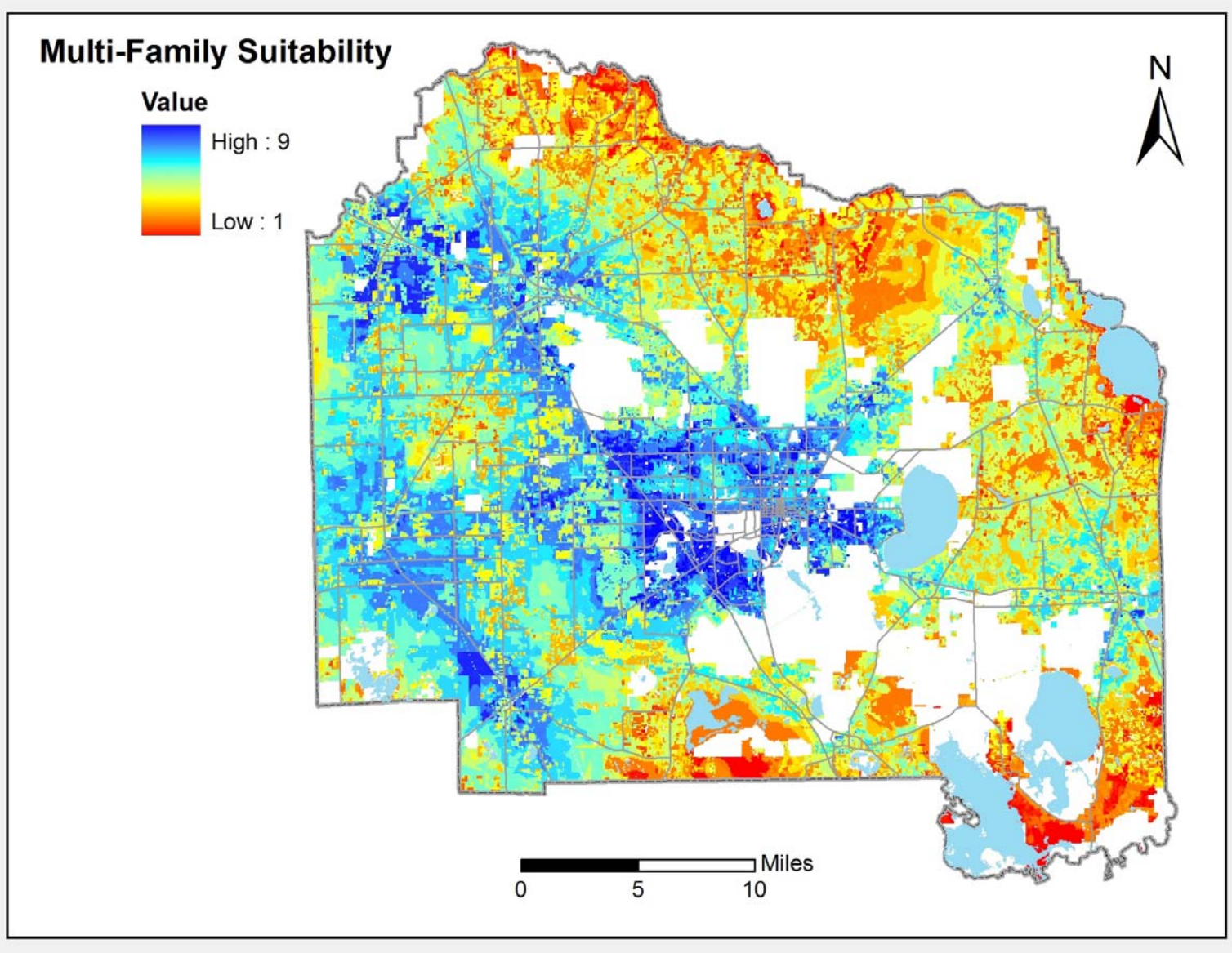
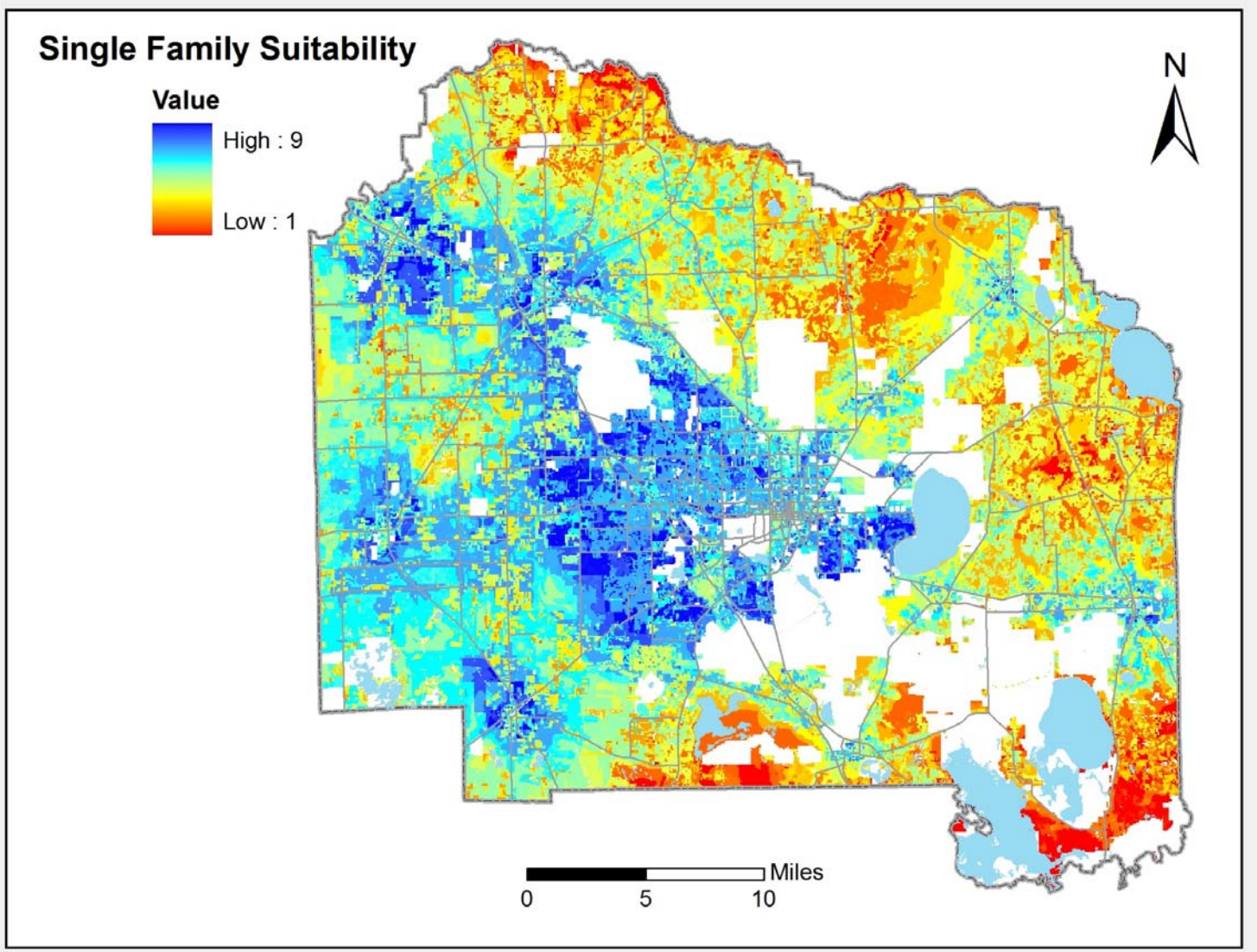


FIGURE 25: FINAL SINGLE FAMILY SUITABILITY



Final Suitability Grids Constrained to Allowable Future Land Use

The final suitability grids were constrained to areas where future land use elements of local comprehensive plans allowed single family and multi-family uses. Once the grids were extracted they were reclassified based on an equal interval method. The resulting suitability grids are shown below.

FIGURE 26:MULTI-FAMILY SUITABILITY GRID CONSTRAINED BY FUTURE LAND USE

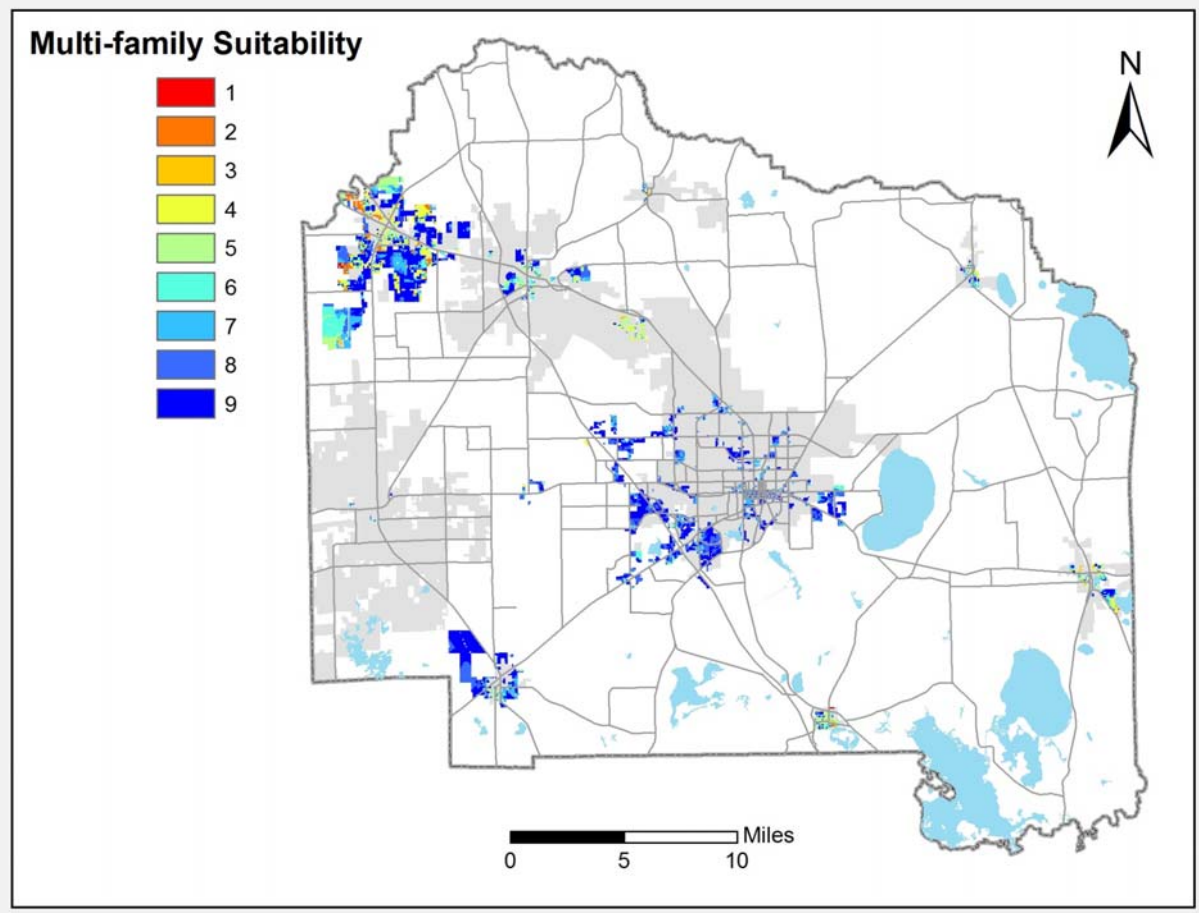
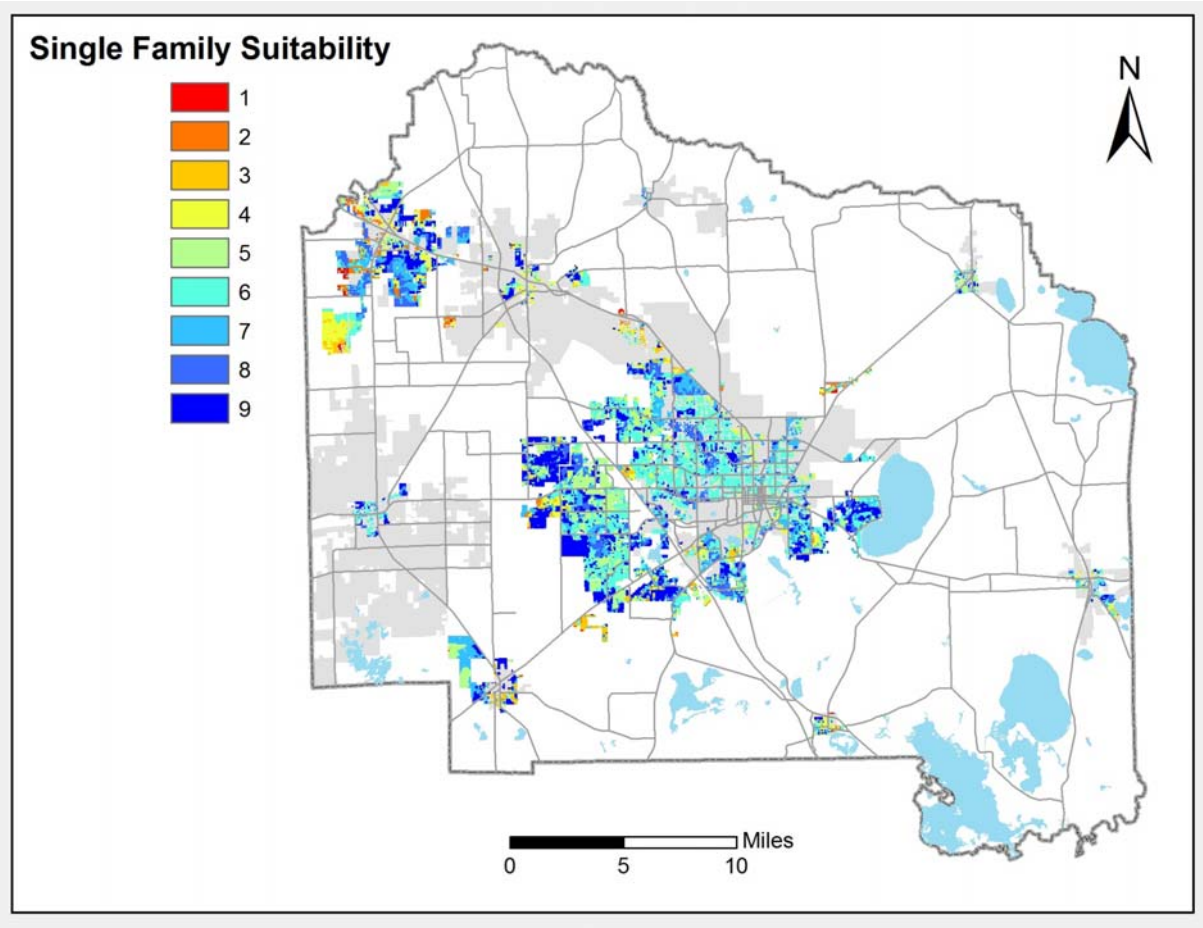


FIGURE 27: SINGLE FAMILY SUITABILITY GRID CONSTRAINED BY FUTURE LAND USE



Residential Allocation

New rasters were created by selecting cells from the final suitability layers that were equal to 7, 8, and 9. These cells represent the area most suitable for residential development. These raster values were summed by TAZ using the Zonal Statistics As Table command.

Multi-family dwelling units for allocation were distributed from Sub-Areas to individual TAZs based on the distribution of cells with high values.

Single family dwelling units for allocation were distributed by Sub-Areas based on cells with values of 7, 8, and 9. Seventy percent of the single family dwelling units were distributed based on the distribution of cells with the value of 9, twenty percent were distributed based on the distribution of cells with the value of 8, and ten percent of the single family dwelling units were distributed based on the distribution of cells with the value of 7.

APPENDIX G: EMPLOYMENT FORECASTING BASED ON LAND USE SUITABILITY METHODOLOGY

Introduction to Suitability

The concept of determining the suitability of land for different uses is not a novel concept. It is probable that farmers, engineers, and societies have used available methods for centuries to plan cities and the locations of dams, roads, and buildings. Over the past fifty years new methods have been developed to aid in this endeavor. Among these new methods is the concept of suitability. Overlays, using transparent maps were utilized by landscape architects in the late 1800s (Carr & Zwick 2005, p. 46). The concept of suitability via physiographic determinism, which was introduced by Ian McHarg in 1969 in the landmark work on ecological regional planning, Design with Nature (81). Plans and studies were discussed which used overlays of natural features, representative of beneficial natural processes, to determine areas suitable for development. McHarg wrote that, "Each area of land or water has an intrinsic suitability for certain single or multiple land uses and a rank order within these use categories (79)." An, "optimum pattern of development" was sought, one which accommodated growth, while protecting vital ecological processes (81).

Since this time, advances in geographic information systems (GIS), computers and data availability have allowed for the development of more advanced overlay techniques. Transparency paper is no longer the preferred medium for determining suitability, now GIS software and raster data is used (Carr & Zwick 2005, p. 47). Professors from the University of Florida have developed a suitability analysis process known as the Land Use Conflict Identification Strategy (LUCIS). LUCIS has its origin in Eugene Odum's theory of a regional ecosystems analysis procedure, which classifies land according to its ecological integrity and utility (10). The LUCIS process forecasts suitability for agriculture, conservation and urban land uses based on weighted overlays. A community's goals are defined through an interactive process with stakeholders. Stakeholder input influences weights assigned to individual measures of suitability. The result of the process is a determination of suitability for each land use category and an identification of areas of potential conflict between land use categories (195).

Within the LUCIS model, land is analyzed for suitability for urban land uses. The model factors in economic and environmental variables to determine suitability. In a sense, the LUCIS model improves on the theory of physiographic determinism introduced by McHarg by factoring in economic influences in determining where urban uses will go.

The suitability model used to forecast employment for the GUATS model uses a modified version of the urban suitability analysis employed by LUCIS in order to determine the suitability of land for employment bearing, non-residential uses.

Goals and Objectives

The goals of the model are as follows:
Goal 1: Determine lands suitable for office/commercial use
Goal 2: Determine lands suitable for industrial land use
Goal 3: Determine lands suitable for service land use

The objectives for each goal were crafted to determine which lands are physically attractive to the types of nonresidential development that host employment bearing uses and those lands that are economically attractive to the same types of development. The majority of the objectives and sub-objectives were based on the urban suitability model outlined in the book, Smart Land Use Analysis, written by Margaret Carr and Paul Zwick (2007, p. 234-237). There were slight differences and additions. For the environmental suitability analysis, a few more sub-objectives related to soils were added. Also, Alachua County restricts development in county defined Strategic Ecosystems; accordingly a sub-objective was added to take into account this ordinance. The economic suitability analysis was revised to include available datasets. For instance, a "high traffic roadways" objective was added due to the availability of a roadway file in the Florida Geographic Data Library (FGDL) that contained information on the average daily traffic on each major road in Alachua County. Also it was assumed that for employment, "like follows like," and future employment will likely be located near existing employment. For this sub-objectives 1.2.4, 2.2.5, and 3.2.4 were added. The suitability model was developed based on the following goals and objectives:

Goal 1: Determine lands suitable for office/commercial use
- Objective 1.1: Determine lands physically suitable non-residential development
  - Sub-objective 1.1.1: Identify non-hydric soils
  - Sub-objective 1.1.2: Identify soils with proper drainage
  - Sub-objective 1.1.3: Identify soils corrosive to concrete
  - Sub-objective 1.1.4: Identify soils corrosive to steel
  - Sub-objective 1.1.5: Identify soils supportive of roads
  - Sub-objective 1.1.6: Identify lands not in floodplain
  - Sub-objective 1.1.7: Identify lands not in wetlands
  - Sub-objective 1.1.8: Identify lands in Strategic Ecosystems

- Objective 1.2: Determine lands economically suitable for office/commercial land use
  - Sub-objective 1.2.1: Identify lands proximal to existing residential development
  - Sub-objective 1.2.2: Identify lands within and proximal to existing city limits
  - Sub-objective 1.2.3: Identify lands proximal to major roadways and high traffic roadways
  - Sub-objective 1.2.4: Identify lands proximal to existing office/commercial employment
  - Sub-objective 1.2.5: Identify lands proximal to existing office/commercial land uses

Sub-objective 1.2.6: Identify lands whose future land use is amenable to office/commercial use
Sub-objective 1.2.7: Identify lands that are vacant and not environmentally constrained
Sub-objective 1.2.8: Identify lands not occupied by residential development
Sub-objective 1.2.9: Identify lands proximal to interstates

Goal 2: Determine lands suitable for industrial land use

Objective 2.1: Determine lands physically suitable for industrial development
Sub-objective 2.1.1: Identify non-hydric soils
Sub-objective 2.1.2: Identify soils with proper drainage
Sub-objective 2.1.3: Identify soils corrosive to concrete
Sub-objective 2.1.4: Identify soils corrosive to steel
Sub-objective 2.1.5: Identify soils supportive of roads
Sub-objective 2.1.6: Identify lands not in floodplain
Sub-objective 2.1.7: Identify lands not in wetlands
Sub-objective 2.1.8: Identify lands in Strategic Ecosystems

Objective 2.2: Determine lands economically suitable for industrial land use
Sub-objective 2.2.1: Identify lands away from existing residential development
Sub-objective 2.2.2: Identify lands within and proximal to existing city limits
Sub-objective 2.2.3: Identify lands proximal to railroads
Sub-objective 2.2.4: Identify lands proximal to interstates
Sub-objective 2.2.5: Identify lands proximal to existing industrial employment
Sub-objective 2.2.6: Identify lands proximal to existing industrial land uses
Sub-objective 2.2.7: Idenitfy lands proximal to major highways
Sub-objective 2.2.8: Identify lands whose future land use is amenable to industrial use
Sub-objective 2.2.9: Identify lands that are vacant and not environmentally constrained
Sub-objective 2.2.10: Identify lands not occupied by residential development

Goal 3: Determine lands suitable for service land use

Objective 3.1: Determine lands physically suitable for service land use
Sub-objective 3.1.1: Identify non-hydric soils
Sub-objective 3.1.2: Identify soils with proper drainage
Sub-objective 3.1.3: Identify soils corrosive to concrete
Sub-objective 3.1.4: Identify soils corrosive to steel
Sub-objective 3.1.5: Identify soils supportive of roads
Sub-objective 3.1.6: Identify lands not in floodplain
Sub-objective 3.1.7: Identify lands not in wetlands
Sub-objective 3.1.8: Identify lands in Strategic Ecosystems

Objective 3.2: Determine lands economically suitable for service land use

Sub-objective 3.2.1: Identify lands proximal to existing residential development

Sub-objective 3.2.2: Identify lands within and proximal to existing city limits

Sub-objective 3.2.3: Identify lands proximal to major roadways and high traffic roadways

Sub-objective 3.2.4: Identify lands proximal to existing service employment

Sub-objective 3.2.5: Identify lands proximal to existing office/commercial land uses

Sub-objective 3.2.6: Identify lands whose future land use is amenable to service use

Sub-objective 3.2.7: Identify lands that are vacant and not environmentally constrained

Sub-objective 3.2.8: Identify lands not occupied by residential development

Data Gathering

The goals and objectives were constrained by available data. Four shapefiles were used to determine physical suitability (Objectives 1.1, 2.1, and 3.1). The Soils Survey Geographic (SSURGO) database for Florida was downloaded from the FGDL and used to identify hydric soils, areas with good drainage, soils not corrosive to concrete, soils not corrosive to steel, and soils supportive of roads. The digital 1996 Federal Emergency Management Agency Flood Insurance Rate Maps were downloaded from FGDL and used to determine floodplains. The U.S. Fish and Wildlife Service National Wetlands Inventory polygon shapefile was downloaded from FGDL and used to determine the extent of Alachua County's wetlands. The Alachua County Strategic Ecosystems shapefile was downloaded from the Alachua County Growth Management GIS website (http://growth-management.alachuacounty.us/gis/warehouse.php).

Existing residential development was determined by querying the Alachua County Tax Parcel records. Residential parcels were converted to a point dataset and used to create point density rasters used for Sub-objectives 1.2.1, 2.2.1, and 3.2.1. Municipal limits were downloaded in shapefile format from the Alachua County Growth Management GIS website. As previously mentioned the RCI Roads shapefile, available from FGDL, was used to determine high traffic roadways for both the retail and service economic suitability grids. Existing industrial, service and commercial land uses were queried using the Alachua County Tax Parcel records. Existing employment locations were determined using an InfoUSA dataset containing points and number of employees. This dataset was received by MTPO staff in the fall of 2007 and was corrected based on cross checking available sources and calling major employees. Future land use plans, downloaded in shapefile format from the Alachua County Growth Management GIS website were used to determine land amenable to employment bearing land uses. Vacant and non-environmentally constrained land was queried using tax records and a variety of environmental GIS layers (this process is outlined in Appendix A). Lands proximal to major highways were based on a Major Highways layer downloaded from FGDL. Details on how each layer was processed are included in the next section.

Sub-objective Data Processing

Each sub-objective was ranked. After the ranking occurred, all data for sub-objectives were converted from vector to raster format with 100 meter cell size. Then the data were reclassified and standardized to a 100 point scale by dividing by the number of classes and multiplying by 100. Each sub-objective for Objective 1.1 was ranked according to the methods described in table 4. The sub-objectives and ranking methodology was identical for Objective 2.1 and Objective 3.1.

TABLE 22: RANKING METHODS FOR OBJECTIVE 1.1

Description	Rank Method
Objective 1.1: Determine lands physically suitable for commercial development	***N/A***
Subobjective 1.1.1: Identify non-hydric soils	Ranked soils based on hydric/nonhydric (hydric = 0/non-hydric = 1)
Subobjective 1.1.2: Identify soils with proper drainage	Ranked soils based on drainage (Very Poorly Drained = 1/Poorly Drained = 2/Somewhat Poorly Drained = 3/Moderately Well Drained = 4/Well Drained = 5/Excessively Well Drained = 4/Not Rated = 1)
Subobjective 1.1.3: Identify soils corrosive to concrete	Ranked soils based on corrosive to concrete (Low = 3/Moderate = 2/High = 1/Not Rated = 1)
Subobjective 1.1.4: Identify soils corrosive to steel	Ranked soils based on corrosive to steel (Low = 3/Moderate = 2/High = 1/Not Rated = 1)
Subobjective 1.1.5: Identify soils supportive of roads	Ranked soils based on limitations regarding roads and streets (Not Ranked = 1/Very Limited = 1/Somewhat Limited = 2/Not Limited = 3)
Subobjective 1.1.6: Identify lands not in floodplain	Unioned with County Boundary, ranked land in floodplain as 0/land not in floodplain as 1
Subobjective 1.1.7: Identify lands not in wetlands	Unioned with County Boundary, ranked land in wetlands as 0/land not in wetlands as 1
Subobjective 1.1.8: Identify lands not in Strategic Ecosystems	Dissolved Strategic Ecosystems, unioned with county boundary, ranked land strategic ecosystem as 0/land not identified as a strategic ecosystem as 1

Each sub-objective for Objective 1.2 was ranked according to the methods described in table 5 below.

TABLE 23: RANKING METHODS FOR OBJECTIVE 1.2

Description	Rank Method
Objective 1.2: Economically suitable for commercial development	***N/A***
Subobjective 1.2.1: Identify lands proximal to existing residential development	Selected residential parcels, created point density grid, weighted by number of residential units, 100 meter cell size, Reclass based on geometric interval 9-1
Subobjective 1.2.2: Identify lands within and proximal to existing city limits	Ranked land 0=inside city limits/1=outside city limits according to GIS layer available at http://growth-management.alachuacounty.us/gis/warehouse.php
Subobjective 1.2.3: Identify lands proximal to major roadways and high traffic roadways	Selected from RCI roads where AADT > 20k, deselected interstate, reclass based on a manual classification (0-500=1/500-1,000=2/1,000-2,500=3/>2,500=4)/Clipped majhwys_apr08.shp from FGDL, Euclidean Distance, 100 meter cells, Reclass based on manual classification (0-200=10, 200-500=5, >500=0)
Subobjective 1.2.4: Identify lands proximal to existing commercial employment	Selected from InfoUSA point data all commercial employment, IDW default values, axis 20,000 meters, pwr 3, Reclass based on geometric interval 9-1
Subobjective 1.2.5: Identify lands proximal to existing office/commercial land uses	Selected where "GEN_USE" in ('Commercial', 'Church' , 'Entertainment', 'Hospital', 'Hotel', 'MU', 'School'), Euclidean Distance, 100 meter cell size, Reclass manually (0-500=1/500-1,000=2/1,000-2,000=3/>2,000=4)
Subobjective 1.2.6: Identify lands whose future land use is amenable to office/commercial use	Seleted office/commercial uses from future land use plans, merged to single layer, unioned with county boundary, ranked land (amenable land use designation = 1/other land use designation = 0), for specifics see Appendix A
Subobjective 1.2.7: Identify lands that are vacant and not environmentally constrained	See Appendix A
Subobjective 1.2.8: Identify lands not occupied by residential development	Selected residential parcels < 10 acres. Dissolve. 100 ft buffer. Union with County. Convert to Raster. 0=Residential Lands/1=Not Residential
Subobjective 1.2.9: Identify lands proximal to Interstates	Selected I-75 from majhwys_apr08.shp from FGDL, Euclidean Distance, 100 meter cell size, Reclass based on geometric interval 9-1

TABLE 24: RANKING METHODS FOR OBJECTIVE 2.2

Description	Rank Method
Objective 2.2: Economically suitable for industrial development	***N/A***
Subobjective 2.2.1: Identify lands not proximal to existing residential development	Selected residential parcels from alachua county tax parcel records, created point density grid, weighted by number of residential units, 100 meter cell size, Reclass based on natural breaks 1-9
Subobjective 2.2.2: Identify lands within and proximal to existing city limits	Ranked land 0=inside city limits/1=outside city limits according to GIS layer available at http://growth-management.alachuacounty.us/gis/warehouse.php
Subobjective 2.2.3: Identify lands proximal to railroads	Clipped Rails_2007.shp from FGDL to Alachua County Boundary, Euclidean Distance, 100 meter cell size, Reclass based on geometric interval 9-1
Subobjective 2.2.4: Identify lands proximal to interstates	Selected I-75 from majhwys_apr08.shp from FGDL, Euclidean Distance, 100 meter cell size, Reclass based on geometric interval 9-1
Subobjective 2.2.5: Identify lands proximal to existing industrial employment	Selected from InfoUSA point data all industrial employment, IDW default values, axis 20,000 meters, pwr 3, Reclass based on geometric interval 9-1
Subobjective 2.2.6: Identify lands proximal to existing industrial land uses	Selected where "GEN_USE" in ('Industrial', 'Utility') from Alachua County tax parcel records, Euclidean Distance, 100 meter cell size, Reclass manually (0-500=1/500-1,000=2/1,000-2,000=3/>2,000=4)
Subobjective 2.2.7: Idenitfy lands near major highways	Clipped majhwys_apr08.shp from FGDL, Euclidean Distance, 100 meter cell size, Reclass based on geometric interval 9-1
Subobjective 2.2.8: Identify lands whose future land use is amenable to industrial use	Seleted industrial uses from future land use plans, merged to single layer, unioned with county boundary, ranked land (amenable land use designation = 1/other land use designation = 0)
Subobjective 2.2.9: Identify lands that are vacant and not environmentally constrained	See Appendix A
Subobjective 2.2.10: Identify lands not occupied by residential development	Selected residential parcels < 10 acres. Dissolve. 100 ft buffer. Union with County. Convert to Raster. 0=Residential Lands/1=Not Residential

Each sub-objective for Objective 3.2 was ranked according to the methods described in table 6 below.

TABLE 25: RANKING METHODS FOR OBJECTIVE 3.2

Description	Rank Method
Objective 3.2: Economically suitable for service development	***N/A***
Subobjective 3.2.1: Identify lands proximal to existing residential development	Selected residential parcels, created point density grid, weighted by number of residential units, 100 meter cell size, Reclass based on geometric interval 9-1
Subobjective 3.2.2: Identify lands within and proximal to existing city limits	Ranked land 0=inside city limits/1=outside city limits according to GIS layer available at http://growth-management.alachuacounty.us/gis/warehouse.php
Subobjective 3.2.3: Identify lands proximal to high traffic roadways	Selected from RCI roads where AADT > 20k, deselected interstate, reclass based on a manual classification (0-500=1/500-1,000=2/1,000-2,500=3/>2,500=4)
Subobjective 3.2.4: Identify lands proximal to existing service employment	Selected from InfoUSA point data all service employment, IDW default values, axis 20,000 meters, pwr 3, Reclass based on geometric interval 9-1
Subobjective 3.2.5: Identify lands proximal to existing office/commercial land uses	Selected where "GEN_USE" in ('Commercial', 'Church' , 'Entertainment', 'Hospital', 'Hotel', 'MU', 'School'), Euclidean Distance, 100 meter cell size, Reclass manually (0-500=1/500-1,000=2/1,000-2,000=3/>2,000=4)
Subobjective 3.2.6: Identify lands whose future land use is amenable to service use	Seleted service uses from future land use plans, merged to single layer, unioned with county boundary, ranked land (amenable land use designation = 1/other land use designation = 0)
Subobjective 3.2.7: Identify lands that are vacant and not environmentally constrained	See Appendix A
Subobjective 3.2.8: Idenitfy lands proximal to major highways	Clipped majhwys_apr08.shp from FGDL, Euclidean Distance, 100 meter cell size, Reclass based on manual classification (0-200=10, 200-500=5, >500=0)
Subobjective 1.2.9: Identify lands not occupied by residential development	Selected residential parcels < 10 acres. Dissolve. 100 ft buffer. Union with County. Convert to Raster. 0=Residential Lands/1=Not Residential

Determining Environmental Suitability

A rank reciprocal weighting method was used to determine the weighting for the sub-objectives in Objectives 1.1, 2.1 and 3.1. The ranking results for Objectives 1.1, 2.1, and 3.1 are shown in the following table. The same data layers were used to determine the physical suitability for industrial, service, and commercial land uses. This methodology assumes that each of these uses have similar environmental constraints.

TABLE 26: RECIPROCAL RANKING OF ENVIRONMENTAL SUB-OBJECTIVES

Description	Rank	Reciprical Rank	Weight	Normalized Weight
Sub-objective 1.1.1: Identify non-hydric soils	3	6	0.75	0.17
Sub-objective 1.1.2: Identify soils with proper drainage	5	4	0.5	0.11
Sub-objective 1.1.3: Identify soils corrosive to concrete	8	1	0.125	0.03
Sub-objective 1.1.4: Identify soils corrosive to steel	6	3	0.375	0.08
Sub-objective 1.1.5: Identify soils supportive of roads	4	5	0.625	0.14
Sub-objective 1.1.6: Identify lands not in floodplain	2	7	0.875	0.19
Sub-objective 1.1.7: Identify lands not in wetlands	1	8	1	0.22
Sub-objective 1.1.8: Identify lands not in Strategic	7	2	0.25	0.06

Data was gathered for the sub-objectives for environmental suitability and the raster layers used for each are shown in the following table.

TABLE 27: RASTER LAYERS USED FOR ENVIRONMENTAL SUITABILITY

Description	Raster
Sub-objective 1.1.1: Identify non-hydric soils	st_hydric
Sub-objective 1.1.2: Identify soils with proper drainage	st_welldrain
Sub-objective 1.1.3: Identify soils corrosive to concrete	st_notcorcon
Sub-objective 1.1.4: Identify soils corrosive to steel	st_notcorstl
Sub-objective 1.1.5: Identify soils supportive of roads	st_rdslim
Sub-objective 1.1.6: Identify lands not in floodplain	st_floodplain
Sub-objective 1.1.7: Identify lands not in wetlands	st_wetlands
Sub-objective 1.1.8: Identify lands not in Strategic Ecosystems	st_strateco

To produce a final grid for Objective 1.1, 2.1, and 3.1, the raster calculator was used with the following formula:

*([st_rdslim] * 0.14) + ([st_welldrain] * 0.11) +([st_hydric] * 0.17) + ([st_wetlands] * 0.22) + ([st_floodplain] * 0.19) + ([st_notcorstl] * 0.08) + ([st_notcorcon] * 0.03) + ([st_strateco] * 0.06)*

Determining Economic Suitability

A number of economic factors were determined to influence the suitability of land for industrial, service and commercial uses. These factors vary between each type of non-residential land uses. For instance, industrial development was assumed to be influenced by the location of roadways, whereas, commercial and service development was not. The factors influencing economic suitability for employment bearing, non-residential land uses were used to create index suitability grids for commercial employment, industrial employment and service employment. The rasters used for the creation of the commercial economic suitability index grid are listed in the following table.

TABLE 28: RASTER LAYERS USED FOR COMMERCIAL ECONOMIC SUITABILITY

Description	Variable
Subobjective 1.2.1: Identify lands proximal to existing residential development	st_pddenres
Subobjective 1.2.2: Identify lands within and proximal to existing city limits	st_citylimits
Subobjective 1.2.3: Identify lands proximal to major roadways and high traffic roadways	st_roadscom
Subobjective 1.2.4: Identify lands proximal to existing commercial employment	st_idwcom
Subobjective 1.2.5: Identify lands proximal to existing office/commercial land uses	st_edcmsv
Subobjective 1.2.6: Identify lands whose future land use is amenable to office/commercial use	st_comsvcflu
Subobjective 1.2.7: Identify lands not occupied by residential development	st_vacnenvc
Subobjective 1.2.8: Identify lands not occupied by residential development	st_existhomes
Subobjective 1.2.9: Identify lands proximal to interstates	st_i75

The following equation was used in the Raster Calculator to produce an index suitability grid for commercial employment:

[st_busyrds] + [st_citylimits] + [st_comsvcflu] + [st_edcmsv] + [st_idwcom] + [st_pddenres] + [st_vacnenvc] + [st_edmhy3]

The rasters used for the creation of the industrial economic suitability index grid are listed in the following table.

TABLE 29: RASTER LAYERS USED FOR INDUSTRIAL ECONOMIC SUITABILITY

Subobjective 2.2.1: Identify lands not proximal to existing residential development	stptdenresIND
Subobjective 2.2.2: Identify lands within and proximal to existing city limits	st_citylimits
Subobjective 2.2.3: Identify lands proximal to railroads	st_rail
Subobjective 2.2.4: Identify lands proximal to interstates	st_i75
Subobjective 2.2.5: Identify lands proximal to existing industrial employment	st_idwind
Subobjective 2.2.6: Identify lands proximal to existing industrial land uses	st_edind
Subobjective 2.2.7: Idenitfy lands proximal to major highways	st_edmhy2
Subobjective 2.2.8: Identify lands whose future land use is amenable to industrial use	st_indflu
Subobjective 2.2.9: Identify lands that are vacant and not environmentally constrained	st_vacnenvc
Subobjective 2.2.10: Identify lands not occupied by residential development	st_existhomes

The following equation was used in the Raster Calculator to produce an index suitability grid for industrial employment:

[st_citylimits] + [stptdenresIND] +[st_vacnenvc] + [st_rail] + [st_i75] + [st_idwind] + [st_indflu] + [st_edind] + [st_edmhy2]

The rasters used for the creation of the service economic suitability index grid are listed in the following table.

TABLE 30: RASTER LAYERS USED FOR SERVICE ECONOMIC SUITABILITY

Subobjective 3.2.1: Identify lands proximal to existing residential development	st_pddenres
Subobjective 3.2.2: Identify lands within and proximal to existing city limits	st_citylimits
Subobjective 3.2.3: Identify lands proximal to high traffic roadways	st_busyrds
Subobjective 3.2.4: Identify lands proximal to existing service employment	st_idwsvc
Subobjective 3.2.5: Identify lands proximal to existing office/commercial land uses	st_edcmsv
Subobjective 3.2.6: Identify lands whose future land use is amenable to service use	st_comsvcflu
Subobjective 3.2.7: Identify lands that are vacant and not environmentally constrained	st_vacnenvc
Subobjective 3.2.8: Idenitfy lands proximal to major highways	st_edmhy3
Subobjective 3.2.9: Identify lands not occupied by residential development	st_existhomes

The following equation was used in the Raster Calculator to produce an index suitability grid for service employment.

[st_vacnenvc] + [st_pddenres] + [st_edcmsv] + [st_comsvcflu] + [st_citylimits] + [st_busyrds] + [st_idwsvc] + [st_edmhy3]

Removing Undevelopable Property

Certain parcels and areas in Alachua County needed to be removed from the suitability analysis due to their nature as undevelopable property. Four layers were used to create a mask that was then applied to the suitability grids prior to their final reclassification. The Alachua County Tax Parcel layer was joined with tax tables and the following query was used to select undevelopable land.

> *"DESC_" in ('Rec and park Land', 'Utilities', 'State', 'Rights-of-Way', 'Rivers and Lakes', 'Public Schools', 'Municipal', 'Forest Parks, Rec', 'County')*

It was assumed that land that served as recreational land, rights of way, utilities, rivers and lakes, public schools and other publicly owned lands would not be developed. The 1:24,000 National Hydrography Dataset (NHD) data for Alachua County was downloaded from FGDL. A selection was made for open water. The selection is shown below. "DESCRIPT" in ('Lake or pond', 'Reservoir', 'Sewage disposal pond or filtration beds'). A shapefile of Florida Managed Lands (FMLA) was downloaded from the Florida Natural Areas Inventory website and clipped to Alachua County. Traffic Analysis Zones (TAZs) were selected that encompassed the University

of Florida. These were dissolved and were used in the mask due to the fact that employment for these TAZs will be calculated in a separate effort with planners from the University. The undevelopable parcels, the NHD, the FMLA datasets, and the UF TAZs were merged. This polygon was dissolved and unioned with the county boundary, the portion of this polygon not included in the mask was selected and exported as a new layer. The final suitability layer for physical suitability, commercial, industrial and service suitability were extracted where they did not overlap the mask. This was then reclassified using a geometric interval method and 9 classes. The resulting layers are shown below.

Suitability Grid Development

The following maps show the composite environmental suitability grid and the economic suitability grids by employment type.

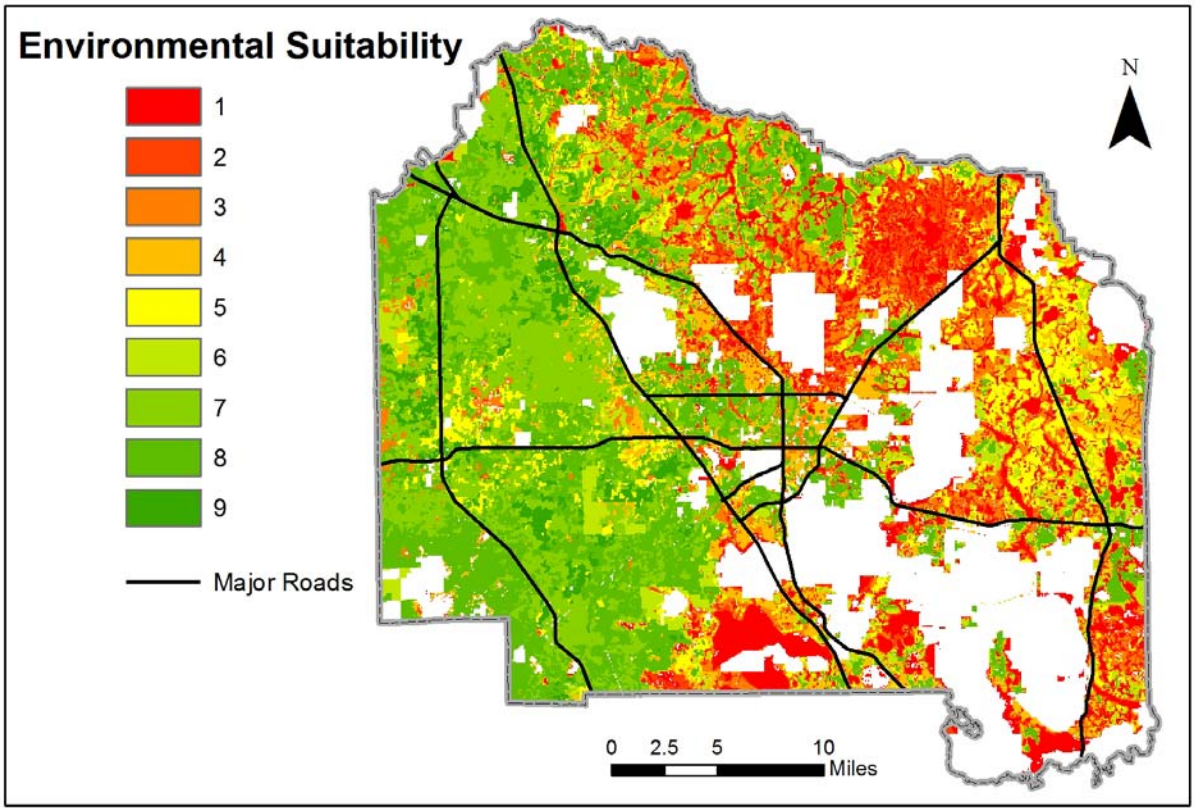


FIGURE 28: MAP OF ENVIRONMENTAL SUITABILITY

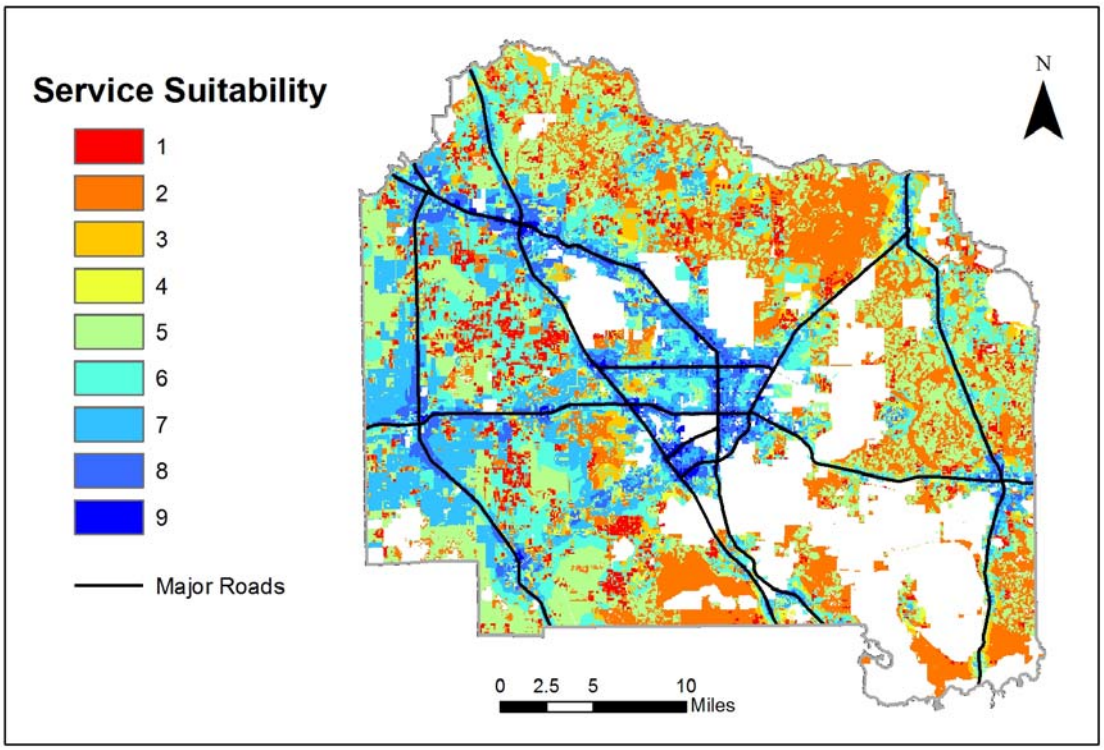


FIGURE 29: MAP OF SERVICE ECONOMIC SUITABILITY

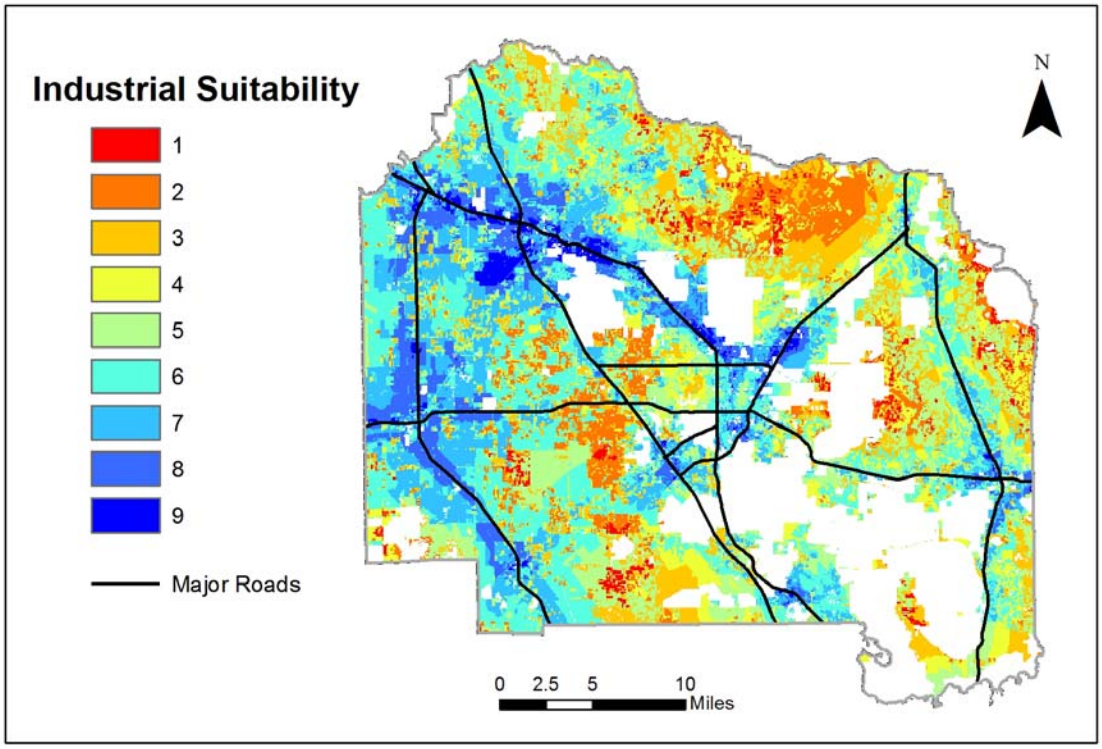


FIGURE 30: MAP OF INDUSTRIAL ECONOMIC SUITABILITY

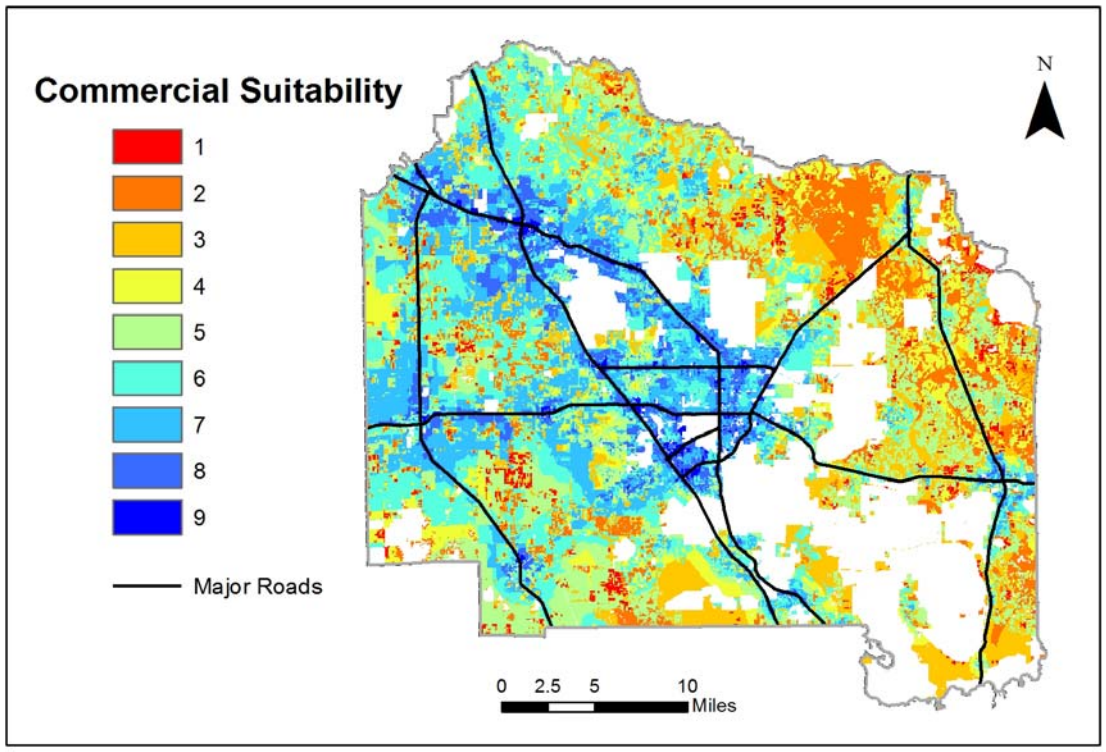


FIGURE 31: MAP OF COMMERCIAL ECONOMIC SUITABILITY

A weighted sum technique was used to combine the environmental suitability grid and the employment suitability grids. The environmental suitability grid was weighted 0.1 and the economic suitability grids were weighted 0.9. Cells were extracted from these grids based on allowable land uses.

The following queries were used to select allowable land uses for each employment type:

Commercial/Service
City of Gainesville
"FLUCODE" in ('C', 'E', 'MUH', 'MUL', 'MUM', 'MUR', 'O', 'UMU1', 'UMU2')
Alachua County
"DESCRIPT" in ('Commercial', 'Commercial Enclaves', 'Mixed Use', 'Mixed Use Commercial', 'Mixed Use Residential Medium Density (4-8 du/acre)', 'Office', 'Office/Business Park', 'Office/Medical', 'Office/Residential', 'Office/Residential (2-4 du/acre)', 'Office/Residential (4-8 du/acre)', 'Rural Cluster', 'Rural Commercial Agriculture', 'Rural Community Employment Center', 'Rural Employment Center', 'Shopping Center', 'Tourist/Entertainment')
Newberry
"FLUDEFIN" = 'Commercial'
Waldo
"FLUDEFIN" = 'Commercial High Intensity'
Micanopy
"FLUDEFIN" = 'Commercial'
Lacrosse

"FLUDEFIN" = 'Commercial'
High Springs
"FLUDEFIN" = 'Commercial'
Hawthorne
"FLUDEFIN" = 'Commercial'
Alachua
"FLUDEFIN" in ('Commercial', 'Rural Employment Center')
Archer
"FLUDEFIN" = 'Commercial'

Industrial
City of Gainesville
"FLUCODE" in ('IND')
Alachua County
"DESCRIPT" in ('Heavy Industrial', 'Industrial/Manufacturing', 'Light Industrial', 'Warehouse/Distribution')
Newberry
"FLUDEFIN" = 'Industrial'
Waldo
"FLUDEFIN" = 'Industrial'
Micanopy
"FLUDEFIN" = 'Industrial'
Lacrosse
"FLUDEFIN" = 'Industrial'
High Springs
"FLUDEFIN" = 'Industrial'
Hawthorne
"FLUDEFIN" = 'Industrial'
Alachua
"FLUDEFIN" in ('Industrial', 'Rural Employment Center')
Archer
"FLUDEFIN" = 'Industrial'

This was done in order to meet guidelines that require that demographic forecasts to be compatible with future land use plans. The query was performed on the future land use layers available from Alachua County's GIS website.

The grids were then extracted by Sub-Area using a model created in Model Builder and then reclassified based on the equal interval method. The final grids were then combined into one grid using the Mosaic to New Raster model in ArcToolbox.

Final Suitability Grids

FIGURE 32: SERVICE SUITABILITY EXTRACTED BY ALLOWABLE LAND USE

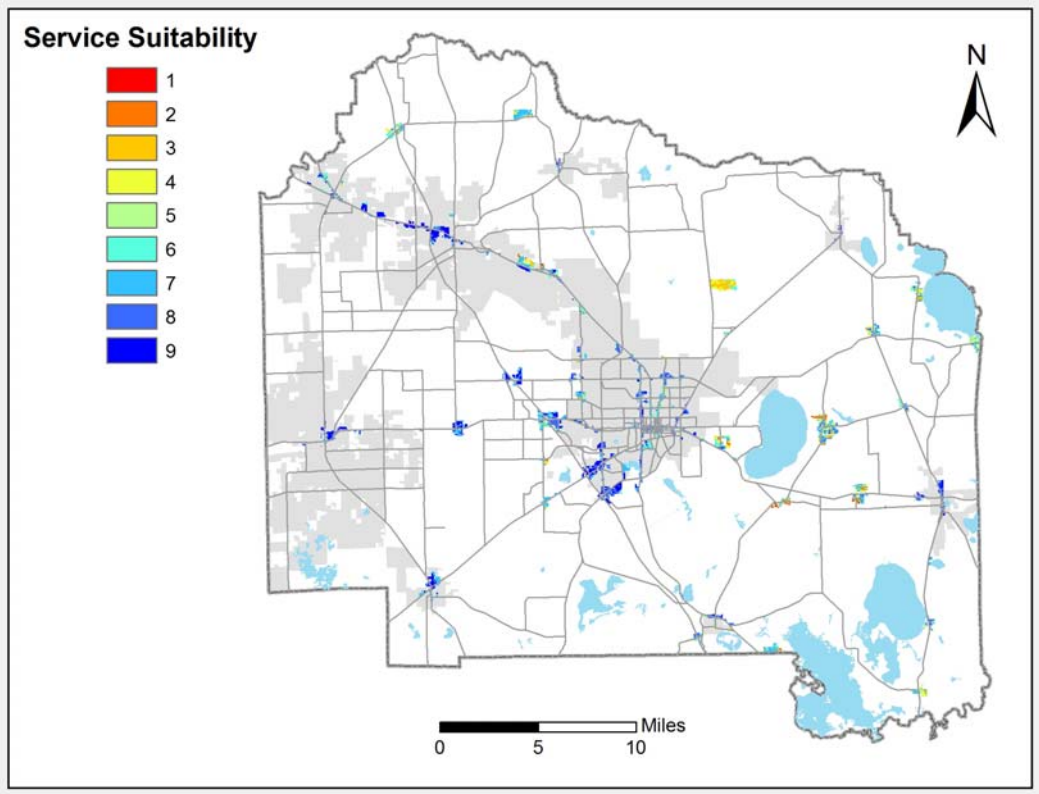


FIGURE 33: COMMERCIAL SUITABILITY EXTRACTED BY ALLOWABLE LAND USE

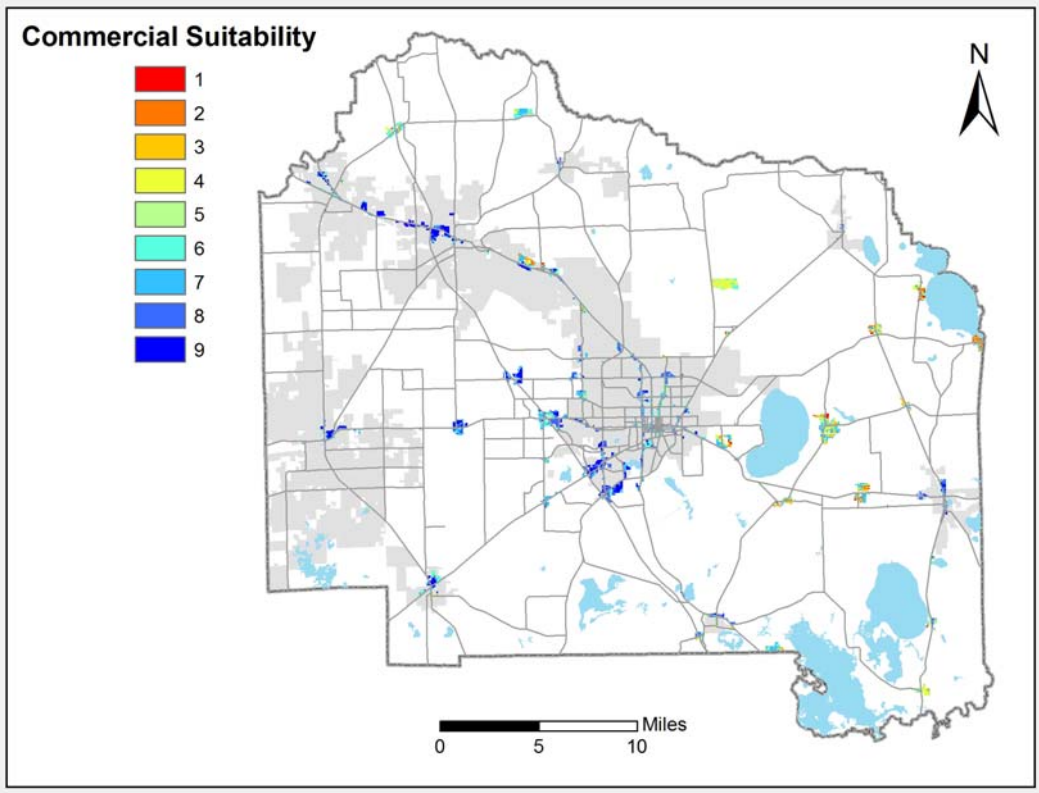
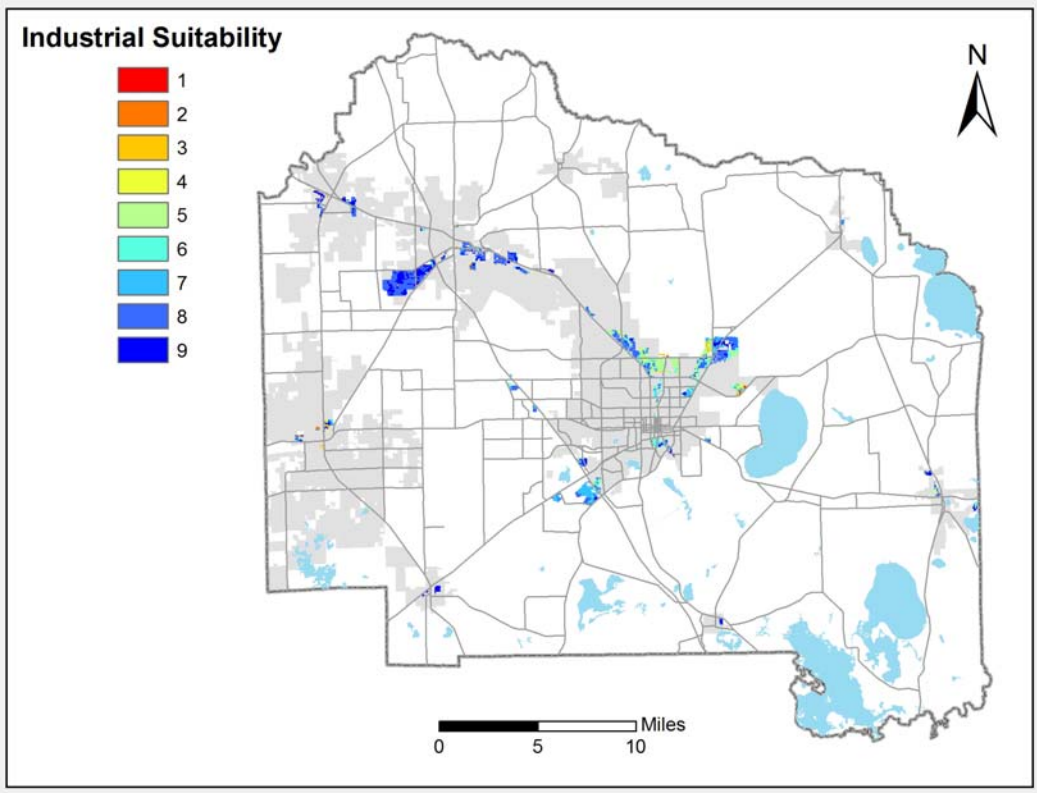


FIGURE 34: INDUSTRIAL SUITABILITY EXTRACTED BY ALLOWABLE LAND USE



Employment Allocation

New rasters were created by selecting cells from the final suitability layers that were equal to 8 and 9. These cells represented the most suitable areas for employment bearing development. These raster values were summed by TAZ using the Zonal Statistics As Table command. Sub-Area employment totals were allocated to TAZs based on the number of cells that were in the TAZs that had a value of 8 and 9. It was assumed that cells with values of 9 were likely to absorb more dense development. Density was derived from a formula that assumed a 0.25 floor to area ratio (FAR). Cells with a value of 8 were anticipated to have a density equal to the employment densities by employment type noted in Table 2. Cells with a value of 9 were anticipated to have an employment density double the density noted in Table 2. For a number of Sub-Areas it was decided that the distribution and extent of cells with values of 9 were sufficient to accommodate the projected growth in a certain employment type. Industrial employment was allocated to individual TAZs in the City of Alachua, Hawthorne, High Springs, and Newberry based only on the distribution of cells with values of 9. Service employment was allocated to individual TAZs in the City of Alachua, Archer, and Newberry based only on the distribution of cells with values of 9. Commercial employment was allocated to individual TAZs in the City of Alachua, Archer, and Newberry based only on the distribution of cells with values of 9.

APPENDIX H: CONVERSION TO NEW TAZ STRUCTURE

The following describes the process used to convert data in the TAZs used to compile the SE Data to the TAZs that will be used to run the GUATS model during the development of the 2035 Long Range Transportation Plan Update.

1. Calculate Area fields in new TAZs and Old TAZs
2. Use TAZ Conversion Model Part 1
    a. The model accomplishes the following:
        i. Unions Old TAZs and New TAZs
        ii. Calculates Areas of new polygons (F_AREA)
        iii. Adds Perc_TAZ field
        iv. Calculates percentage of old TAZs by dividing F_AREA by Area_Acres
3. Export slivers of Old TAZs not in New TAZs (to select use "NwTAZID" = 0)
4. Convert to point, use existing XY coordinates, then adjust points manually
5. Spatially join XY coordinates of slivers old centroids to nearest New TAZs (unioned version, product of TAZ Conversion Model Part 1)
6. Join point layer back to unioned version and calculate NwTAZID, this will ensure that
7. Delete slivers that were in new TAZs but not in old TAZs
8. Use TAZ Conversion Model Part 2
    a. The model accomplishes the following:
        i. Adds Zdata fields
        ii. Calculates Zdata fields
9. Make sure all features have a NwTAZID, and fill with nearest TAZ ID if they do not, this prevents slivers that would not be aggregated correctly
10. Use TAZ Conversion Model Part 3 to summarize Zdata
11. Add UF specific fields based on joining UF_TAZ_Data_NewTAZIDs_2009_05_28.csv with the new TAZ layer
12. Calculate off campus students based on information provided by Erik Lewis at UF
13. Recalc school enrollment because weighted average distorted enrollment locations
14. Create a ZData table for 2007 and 2035 (Use TAZ Conversion Model Part 4)

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3. McHarg, Ian. 1969. *Design With Nature*. Garden City, N.Y. The Natural History Press.

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