MIAMI-DADE TRANSPORTATION PLANNING ORGANIZATION

2045LRTP

SUPPORTING DOCUMENTS

TECHNICAL REPORT 3

DATA COMPILATION REVIEW DEVELOPMENT REPORT

SEPTEMBER 2019

TECHINCAL REPORT 3
DATA COMPILATION REVIEW AND DEVELOPMENT REPORT

This document was prepared by the Miami-Dade Transportation Planning Organization (TPO) in collaboration with the Florida Department of Transportation (FDOT) District Six, Miami-Dade Expressway Authority (MDX), Florida's Turnpike Enterprise (FTE), South Florida Regional Transportation Authority (SFRTA), Miami-Dade Department of Transportation and Public Works (DTPW), Miami-Dade Regulatory and Economic Resources (RER) Department, Miami-Dade Aviation Department (MDAD), Miami-Dade Seaport Department, Miami-Dade County Office of Strategic Business Management, City of North Miami, City of Hialeah, City of Miami, City of Miami Beach, City of Miami Gardens, City of Homestead, Miami-Dade County Public Schools, Miami-Dade TPO Citizens' Transportation Advisory Committee (CTAC), Miami-Dade TPO Bicycle/ Pedestrian Advisory Committee (BPAC), Miami-Dade TPO Freight Transportation Advisory Committee (FTAC), Transportation Aesthetics Review Committee (TARC), Broward County Metropolitan Planning Organization (MPO), Palm Beach County Transportation Planning Agency (TPA), and the South Florida Regional Planning Council (SFRPC).

DATA COMPILATION REVIEW DEVELOPMENT REPORT

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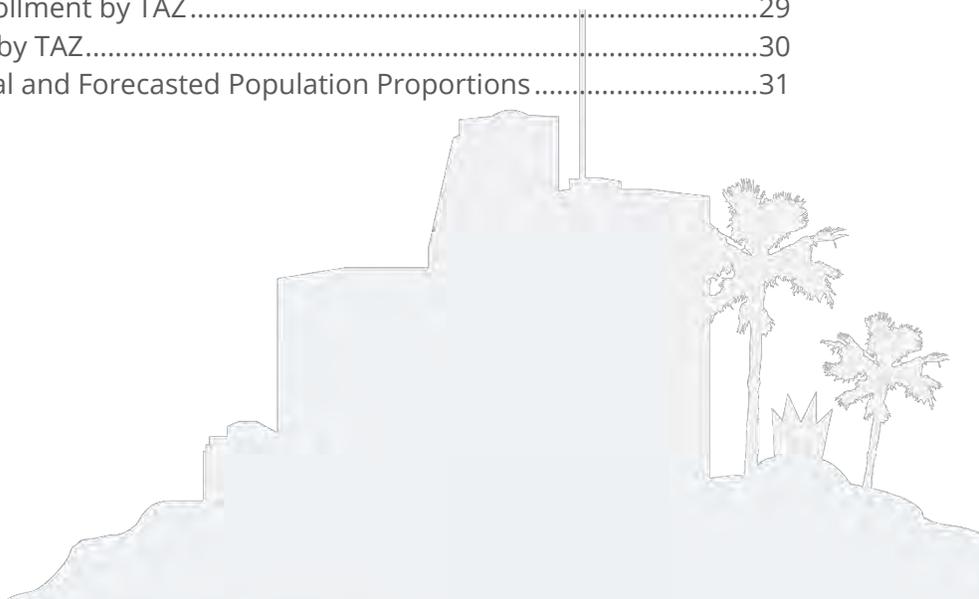Planning Organization (TPO)

September 2019

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INTRODUCTION

The performance of a transportation network is impacted by the growth and transformation of population, households, and employment in the region. Because of this inextricable link, it is important to assess the Miami-Dade County's socioeconomic changes to develop an understanding of the region's evolving travel patterns. Growth in population and employment underscores the need for a wide selection of transportation options. Therefore, a thorough understanding of the socioeconomic growth will help make informed decisions on how and where transportation investments should be leveraged over the next 26 years.

This report summarizes the data compilation effort and reviews the socioeconomic composition of Miami-Dade County, in preparation for the Miami-Dade 2045 Long Range Transportation Plan Update (2045 LRTP).

SOUTHEAST FLORIDA REGIONAL PLANNING MODEL (SERPM)

Much of the information contained within the report was utilized as data input to prepare the travel demand modeling process in forecasting the County's transportation needs through the year 2045. The socioeconomic datasets for the base (2015) and horizon (2045) years were prepared by the Miami-Dade Transportation Planning Organization (TPO) in close coordination with other regional partners, including the Florida Department of Transportation (FDOT), Broward Metropolitan Planning Organization (BMPO), and Palm Beach Transportation Planning Agency (TPA). The Southeast Florida Regional Planning Model Version 8 (SERPM 8) is a multimodal travel demand model serving the regional transportation modeling needs for the three counties in Southeast Florida – Miami-Dade, Broward, and Palm Beach. SERPM 8 is the travel demand forecasting tool that is used for the development of 2045 Long-Range Transportation Plan (LRTP) by Miami-Dade TPO.

For the 2045 LRTP, SERPM 8 was used to evaluate various land use and transportation improvement combinations that included the Strategic Miami Area Rapid Transit (SMART) Plan, highway, transit, multimodal improvements, and new technologies. Highway and transit level travel forecasts are developed in a time-of-day process that provides disaggregate information by periods during an average weekday. Detailed information about the SERPM 8 model is available through its online documentation website (https://sites.google.com/site/serpm8reference/). A modeling Technical Memorandum was also completed as part of the 2045 LRTP and can be found at the Miami-Dade TPO's website for LRTP Update (https://miami-dade2045lrtp.com/).

This report documents the methods and findings of the Miami-Dade County population and employment 2045 forecast for the 1,506 traffic analysis zones (TAZs) and 5,345 micro analysis zones (MAZs) as defined in SERPM 8 model. The main attributes include population, employment, household size, income class, ethnicity, and school enrollment. As part of the study, the 2035 socioeconomic data was also developed by linear interpolation between the 2015 and 2045 datasets and selected attributes for 2035 are also presented in the report as appropriate.

DATA DEVELOPMENT METHODOLOGY

The methodology used to develop the 2045 socioeconomic data was determined by the Miami-Dade TPO after an extensive review of the best practices in similar metropolitan areas throughout the country and a careful examination of unique socioeconomic characteristics in Miami-Dade County. The methodology incorporated multiple forecasting methods to determine the total growth in population and employment. The growth was allocated to MAZs and TAZs using a sub-allocation process that mimics the real-world development process driven by public and private sector demand and supply dynamics.
The following are major highlights of the forecast methodology:

1   Future population forecast is developed based on the cohort-component method. The cohort-component methodology considers births, deaths, and net-migration in different age-gender groups and grows the population in five-year increment. Migration tends to be the most complicating factor in the use of cohort-component models. Migration forecasts are more reliable when tied to regional population and employment dynamics. Forecasts from Woods & Poole Economics, Bureau of Economic and Business Research (BEBR), and Moody's Corporation were used to supplement and confirm the findings of the cohort-component analysis.

2   Future employment forecast is developed using a shift-share method. The Shift-share method quantifies the separate roles played by national employment trends, industry-specific trends, and local employment strengths when determining the final employment in a region. These "shares" of employment are independently forecasted to a future year and then re-combined to create a future year projection. Rather than relying solely on the quantitative method, future employment shares are vetted and modified based on a thorough review of national, regional, and local employment trends.

3   A sub-allocation procedure is used to distribute the total population and employment based on a balance of growth demand and growth supply at the MAZ level. The procedure identifies the demand for growth in each MAZ based on more than 30 variables that encompass factors such as land use mix and intensity, transportation infrastructure, make values, current and future land use policy, and sociodemographic preferences. The procedure determines growth supply through a combination of available developable land and a propensity for redevelopment based on existing uses and intensities. County-level population and employment is allocated in proportion to the demand growth up to available development supply.

4   The socioeconomic data development process was an iterative process that involved quantitative analyses and policy reviews. Multiple datasets were developed. The summaries and finding presented in the report are based on the dataset provided by the Miami-Dade TPO in June 2019.

STUDY AREA

Miami-Dade County serves as the geographic boundary that comprises the study area for the 2045 Long Range Transportation Plan (LRTP) update. Miami-Dade County includes approximately 1,978 square miles of land area, with approximately 421 square miles covering the urbanized portion. Miami-Dade is characterized by its diverse cultural and ethnic communities. The City of Miami is the largest municipality in the county with a population of 470,914 (2018 estimate). The county is bounded on the north by Broward County, on the south by Monroe County, on the west by Collier and Monroe Counties, and on the east by the Atlantic Ocean. Moreover, Miami-Dade County is part of the 2045 Southeast Florida Regional LRTP study area along with Broward and Palm Beach Counties.

The socioeconomic data will be presented by two types of geographic areas, Traffic Analysis Zones (TAZ) and Transportation Planning Areas. TAZs are the primary unit of analysis for most travel demand modeling; Miami-Dade County has 1,506 TAZs. Transportation Planning Areas are well-defined geographic sections in Miami-Dade County, distinguished by their unique characteristics, growth rates, needs, and transportation challenges. The Transportation Planning Areas are identified by the TPO. There have been seven Transportation Planning Areas in the County. For the 2045 LRTP Update, the number of Transportation Planning Areas remains the same. However, the Central Business District (CBD) was separated from the Beach/CBD Transportation Planning Area due to growth in the area and varying characteristics. The Transportation Planning Area boundaries used in this study are consistent with the restructured area boundaries. **Figure 1** shows a map of the planning area boundaries.

FIGURE 1 - MIAMI-DADE COUNTY PLANNING AREAS
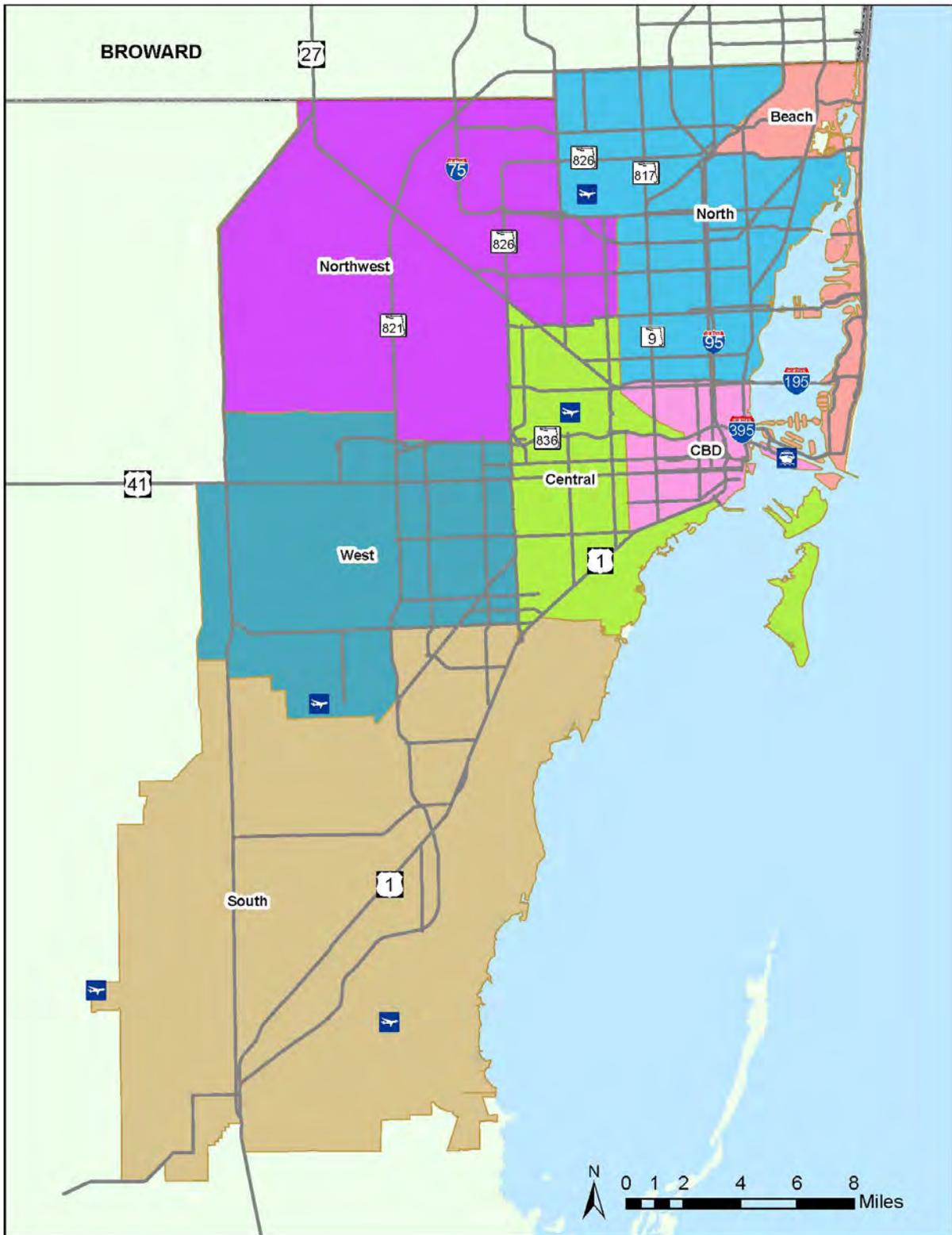
EXISTING TRANSPORTATION NETWORK

The Miami-Dade County transportation network consists of extensive roadways, bus transit routes, commuter rail service, and freight rail lines. The County also offers internationally renowned seaport and airport facilities. PortMiami is the cruise capital of the world with 22 cruise lines berthing 55 ships①. Millions of passengers travel through PortMiami every year. Miami International Airport (MIA) is the third-busiest airport for international passengers in the US, boasting a lineup of over 100 air carriers. MIA is also the top U.S. airport for international freight. In 2018, MIA handled approximately 1.95 million tons international freight, 0.36 million tons of domestic freight for a total of 2.31 million tons of freight②. **Table 1** provides an account of the existing center-line mileage and daily vehicle miles traveled by facility type based on information provided by FDOT Transportation Data and Analytics (TDA) Office. **Figure 2** depicts Miami-Dade County's roads by facility type.

**TABLE 1 – MIAMI-DADE COUNTY CENTER-LINE MILES
& DAILY VEHICLE MILES TRAVELED BY FUNCTION (2018)**

Facility Type	Center-line Miles			Daily Vehicle Miles Traveled		
	Rural	Large Urbanized	Total	Rural	Large Urbanized	Total
Interstate Road	0.00	28.42	28.42	0	5,611,858	5,611,858
Turnpike & Freeways	0.00	111.51	111.51	0	12,995,948	12,995,948
Other Principle Arterials	68.42	236.28	304.70	1,170,089	9,750,152	10,920,241
Minor Arterials	11.39	403.45	414.84	44,743	9,732,328	9,777,071
Major Collectors	14.63	544.03	558.66	96,268	5,453,104	5,549,372
Minor Collectors	55.28	39.18	94.46	195,968	247,225	443,193
Locals	93.32	5,658.84	5,752.16	34,215	10,286,437	10,320,652
Total	243.04	7,021.71	7,264.75	1,541,283	54,077,052	55,618,335

Source: FDOT https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/statistics/mileage-rpts/public18.pdf?sfvrsn=e0698171_2

① PortMiami Official Website: https://www.miamidade.gov/portmiami/cruise.asp
② Facts at a Glance: http://www.miami-airport.com/library/pdfdoc/Facts%20at%20a%20Glance/facts%20at%20a%20glance%20-%20October%202019.pdf

FIGURE 2 - 2018 MIAMI-DADE COUNTY'S ROAD BY FUNCTIONAL CLASSIFICATION

Source: FDOT https://gis-fdot.opendata.arcgis.com/datasets/functional-classification-tda?geometry=-82.019%2C25.774%2C-79.904%2C26.206

The Miami-Dade Department of Transportation and Public Works (DTPW) provides transit services and programs for residents and visitors. These transit services and programs are provided via four modes: Metrobus, Metrorail, Metromover and Special Transportation Services (STS).

Based on the 2019 Transit Development Plan Annual Update prepared by the DTPW, Metrobus operates more than 95 routes with close to 800 buses covering 29 million miles per year. Metrorail is a 24.8 miles dual track elevated rapid rail system with 23 stations connecting the northern and southern areas of the county. The Metromover service is an elevated guideway with rubber-tired vehicles largely serving Downton Miami and the Financial District. As mandated by the Americans with Disabilities Act of 1990 (ADA), The Miami-Dade County DTPW operates a demand-response service known as Special Transportation Services (STS). STS is a shared-ride, door-to-door transportation service for certified individuals with disabilities who are unable to utilize the accessible fixed-route transit system. The DTPW Service Characteristics by Transit Mode are shown in **Table 2**.

Tri-Rail is operated by the South Florida Regional Transportation Authority (SFRTA). It provides a 72-mile commuter rail service connecting Broward, Palm Beach, and Miami-Dade Counties. At present, there are five (5) Tri-Rail stations located within Miami-Dade County. In 2019, Tri-Rail will provide a direct connection to downtown Miami from the South Florida Rail Corridor (SFRC) to the little River FEC railroad spur and into the Miami Central Station adjacent to Government Center. Virgin Trains (formerly Brightline) is a new inter-city express train service that connects Miami, Fort Lauderdale, and West Palm Beach. The Miami train station is located at Miami Central located at 600 NW 1st Avenue in downtown Miami.

TABLE 2 - DTPW SERVICE CHARACTERISTICS BY TRANSIT MODE (2017)

System Characteristics	Metrobus			Metrorail	Metromover	STS
	DTPW Operated Routes	Contracted Routes (301 & 302)	14 Contracted Routes			
Operating Hours	24 hours	5:10am-1:10am	12:00am - 5:06am, 5:41am - 8:17pm	5:00am-12:00am seven days a week	5:00am-12:00am seven days a week	24 hours
Number of Routes	79	2	14	2	3	Demand Resp.
No. of Stations/Stops	8,319	32	893	23	21	N/A
Peak Headways	5-80 minutes	N/A	N/A	5-10 minutes	1½ - 3 minutes	(Pick up +/- 30 minutes of scheduled time)
Midday Headways	12 -70 minutes	N/A	N/A	15 minutes	1½ - 5 |minutes	
Weekend Headways	12 -70 minutes	N/A	N/A	Orange Line: 15 minutes Green Line: 30 minutes	3-6 minutes	
Routes Miles	1,850 (Directional Route Miles)	142 (Directional Route Miles)	207	24.8 miles	4.4 miles	N/A
Peak Vehicle Requirements	709	9	29	84	21	369
Total Fleet Size	781	11	32	136	26	385
Annual Revenue Miles	28,755,316	899,892	58,477	7,857,582	1,122,584	13,016,158
Annual Boarding	58,000,998	345,784	37,004	19,984,735	9,463,403	1,633,236
Park-Ride Spaces	3,355	N/A	N/A	9,091	0	N/A
Annual Operating Expense	$363,156,856	$7,588,950	$238,694	$101,483,951	$28,675,295	$50,311,740
Annual Operating Revenue	$70,367,510	$398,692	$13,161	$16,120,089	$0	$5,877,893
Annual Revenues (Other)	$20,355,930	$0	$0	$0	$0	N/A
Base Fare	$2.25	$2.65	$2.25	$2.25	Free	$3.50
Transit Center	2	N/A	N/A	N/A	N/A	N/A
Pedestrian Overpasses	1	0	0	3	0	N/A
Maintenance/ Storage Facilities	3	1	1	1	1	N/A

Source: Miami-Dade County Transit Development Plan https://www.miamidade.gov/transit/library/pdfs/misc/2019-tdp-annual-plan.pdf

SOCIOECONOMIC DATA CHARACTERISTICS

The socioeconomic data for the 2045 LRTP defines the demand on the County's transportation system through the next 26 years. This data reveals trends in housing, demographics, and employment from the base year (2015) to the horizon year (2045).

The 2045 forecasts for population and employment were developed using the recommended forecasting methodology described earlier. The 2035 socioeconomic data was obtained by linear interpolation between the 2015 and 2045 datasets. This section presents major findings of projected growth in population and employment.

Table 3 shows the overall changes in population and employment between 2015 and 2045 at county level. Population is projected to grow by 888,448 to reach almost 3.5 million while employment will grow by 503,517 to reach more than 1.8 million during the next 30 years.

TABLE 3 - COUNTY CONTROL TOTALS

	2015	2035	2045	Numerical Change (2015-2045)	Percent Change (2015-2045)
Population	2,587,396	3,179,695	3,475,844	888,448	34%
Employment	1,332,195	1,667,873	1,835,712	503,517	38%

The composition of the County's age groups, and projected changes are examined. The data is categorized into nine age cohorts. **Table 4** exhibits the change in the makeup of population the County is expected to experience from the base year to the year 2045 and the percent of the population each age group represents. The number of those reaching retirement age (65 and older) is growing their proportion of the total population is projected to increase significantly (14% in 2015 and 23% in 2045). **Figure 3** illustrates the changing age groups by planning area. The color of the bar charts represent age groups, and the height represents the magnitude of the changes.
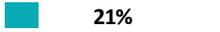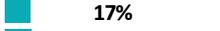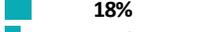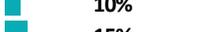
TABLE 4 - COUNTY AGE GROUPS

Age Group	2015		2035		2045		Change (From 2015 to 2045)		% Growth (From 2015 to 2045)	
4 and Younger	147,353	(6%)	169,081	(5%)	179,945	(5%)	32,592	(4%)		22%
5 to 14	299,208	(12%)	341,380	(11%)	362,466	(10%)	63,258	(7%)		21%
15 to 17	95,589	(4%)	106,300	(3%)	111,655	(3%)	16,066	(2%)		17%
18 to 24	235,724	(9%)	263,471	(8%)	277,344	(8%)	41,620	(5%)		18%
25 to 34	379,717	(15%)	406,084	(13%)	419,267	(12%)	39,550	(4%)		10%
35 to 49	565,270	(22%)	620,507	(20%)	648,125	(19%)	82,855	(9%)		15%
50 to 64	495,216	(19%)	610,949	(19%)	668,816	(19%)	173,600	(20%)		35%
65 to 79	265,557	(10%)	461,893	(15%)	560,061	(16%)	294,504	(33%)		111%
80 and Older	103,762	(4%)	200,031	(6%)	248,165	(7%)	144,403	(16%)		139%
Total	**2,587,396**	**(100%)**	**3,179,695**	**(100%)**	**3,475,844**	**(100%)**	**888,448**	**(100%)**		**34%**
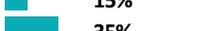
FIGURE 3 - 2015 TO 2045 CHANGES IN AGE GROUPS BY PLANNING AREA
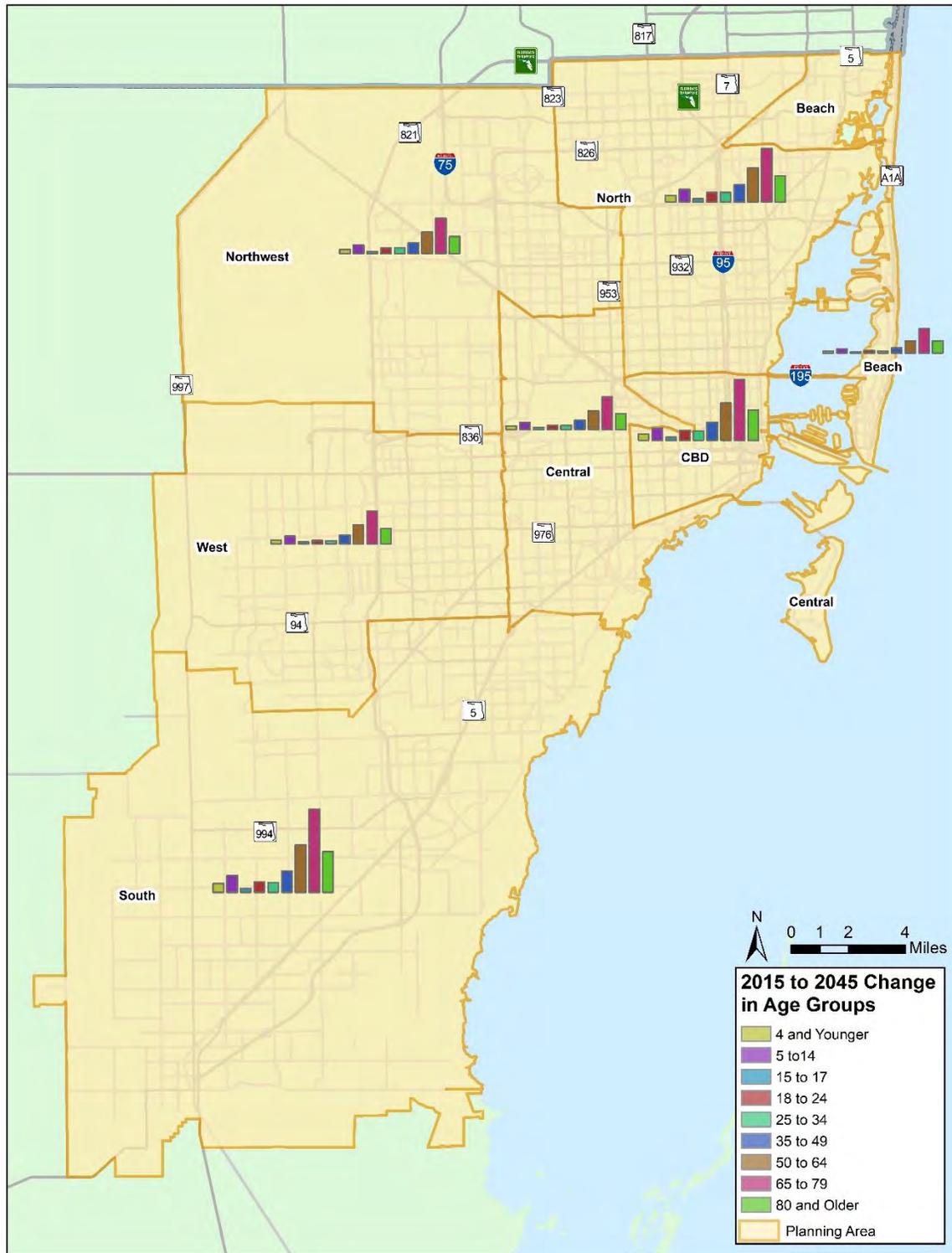
The County's Employment is further disaggregated by employment types. **Table 5** contains the number of employees in the 16 major employment sectors for 2015, 2035 and 2045. The shares of each employment type for both 2035 and 2045 are graphically displayed in **Figure 4**. The forecasts expect employment to continue to be driven by the tourism and local consumption (retail, amusement, hotel, personal services) economy, along with office jobs. Agriculture, utilities and transportation sectors are forecasted to show small losses after years of accelerating losses, while all other employment sectors are forecasted to grow to varying degrees.

TABLE 5 - 2015 & 2035 & 2045 EMPLOYMENT BY TYPE

Employment Type	2015 Employment	2035 Employment	2045 Employment	Changes (2015 to 2045)	% Growth (2015 to 2045)
Agriculture	2,423	2,311	2,255	-168	-7%
Construction	63,184	74,059	79,496	16,312	26%
Utilities	5,801	5,743	5,714	-87	-1%
Manufacturing	60,648	68,071	71,782	11,134	18%
Wholesale & Warehouse	78,970	96,756	105,649	26,679	34%
Transportation	70,625	69,116	68,362	-2,263	-3%
Retail	186,771	237,834	263,365	76,594	41%
Prof. Business Services	303,429	372,748	407,408	103,979	34%
Private Education	11,309	15,426	17,484	6,175	55%
Health	163,312	231,566	265,693	102,381	63%
Personal Services	118,622	148,980	164,159	45,537	38%
Amusement	29,612	37,992	42,182	12,570	42%
Hotel	34,581	42,388	46,292	11,711	34%
Restaurant & Bar	85,517	113,923	128,126	42,609	50%
State & Local Govt	60,783	61,504	61,865	1,082	2%
Public Education	77,758	96,506	105,880	28,122	36%

FIGURE 4 - 2035 & 2045 EMPLOYMENT BY TYPE
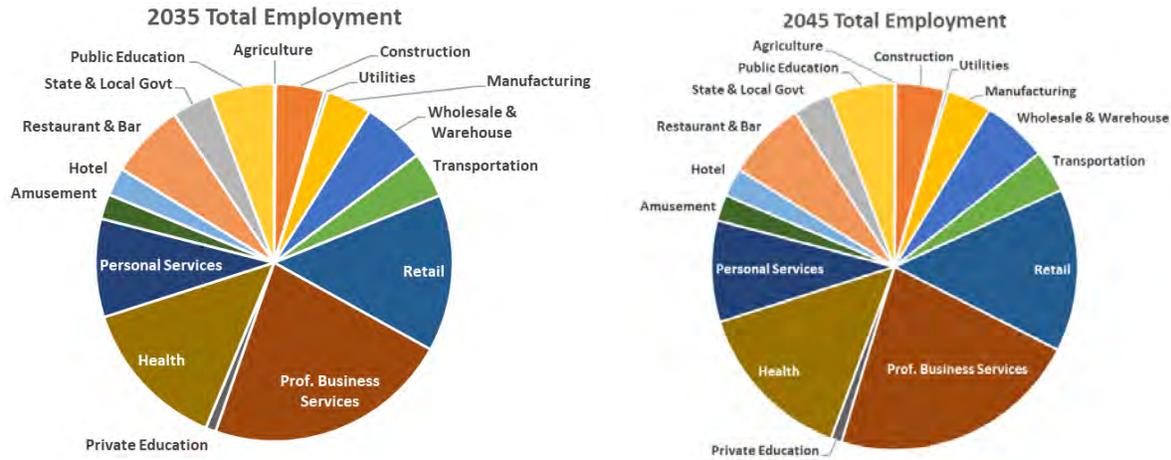
Population and employment growths by planning area are shown in **Table 6.**
They point to robust growth in the north, south, beach and CBD areas in particular.

TABLE 6 - POPULATION AND EMPLOYMENT CHANGES FOR PLANNING AREA (2015-2045)

Planning Area	Population Growth (Numerical Change)	Population Growth (Percentage Change)	Employment Growth (Numerical Change)	Employment Growth (Percentage Change)
Beach	59,724	26%	30,961	24%
CBD	171,270	64%	80,167	41%
Central	89,247	33%	95,098	37%
North	156,821	33%	63,322	37%
Northwest	100,649	27%	118,992	44%
South	221,320	46%	60,317	40%
West	89,753	18%	54,843	38%

The population and employment growths at municipal level are rounded to the nearest hundreds and presented in **Table 7** below.

TABLE 7 - MUNICIPAL FORECASTS

Municipality	2015 Population	2045 Population	% Growth Population	2015 Employment	2045 Employment	% Growth Employment
Aventura	35,800	45,000	26%	27,700	32,900	19%
Bal Harbor	3,300	5,400	62%	2,500	3,400	36%
Bay Harbor Islands	6,100	7,900	30%	2,600	3,600	43%
Biscayne Park	3,100	3,700	20%	300	300	21%
Coral Gables	45,500	72,800	60%	61,200	81,000	32%
Cutler Bay	43,300	58,200	35%	9,500	13,100	38%
Doral	54,900	83,400	52%	94,800	120,200	27%
El Portal	3,000	4,400	48%	600	1,800	201%
Florida City	12,900	25,800	101%	6,000	9,400	56%
Golden Beach	1,000	1,400	43%	100	200	60%
Hialeah	231,400	275,100	19%	91,600	123,300	35%
Hialeah Gardens	22,600	30,600	35%	8,900	13,000	46%
Homestead	68,100	112,800	66%	16,700	31,300	87%
Indian Creek Village	100	200	135%	100	200	88%
Key Biscayne	13,300	16,200	22%	4,900	7,000	43%
Medley	800	1,800	115%	21,800	32,600	49%
Miami	411,500	635,900	55%	259,100	357,200	38%
Miami Beach	91,400	111,700	22%	69,400	79,300	14%
Miami Gardens	109,100	139,400	28%	37,200	53,500	44%
Miami Lakes	29,900	39,500	32%	27,800	36,600	32%
Miami Shores	9,200	12,000	30%	3,800	5,100	34%
Miami Springs	13,900	18,000	29%	8,500	11,300	34%
North Bay Village	7,400	9,200	24%	2,400	3,100	29%
North Miami	62,100	83,600	35%	22,800	31,700	39%
North Miami Beach	43,400	59,100	36%	19,700	26,600	35%
Opa-Locka	15,500	19,900	28%	11,200	16,500	47%
Palmetto Bay	23,200	32,900	42%	12,600	14,500	15%
Pinecrest	18,800	24,500	31%	10,100	13,300	31%
South Miami	11,700	18,600	59%	15,800	22,200	41%
Sunny Isles Beach	23,100	29,300	27%	6,900	9,800	42%
Surfside	6,000	6,900	15%	1,700	2,200	25%
Sweetwater	20,300	24,600	21%	13,700	19,100	39%
Virginia Gardens	2,400	2,700	28%	2,500	3,000	44%
West Miami	6,700	8,000	13%	1,700	2,100	19%
Unincorporated Miami-Dade	1,136,600	1,455,100	20%	455,600	655,000	25%

Population and employment growths are also summarized by Traffic Analysis District (TAD). **Figure 5** and **Figure 6** summarize total population and total employment in 2045, respectively. **Figure 7** and **Figure 8** show the changes in population and employment from 2015 to 2045.

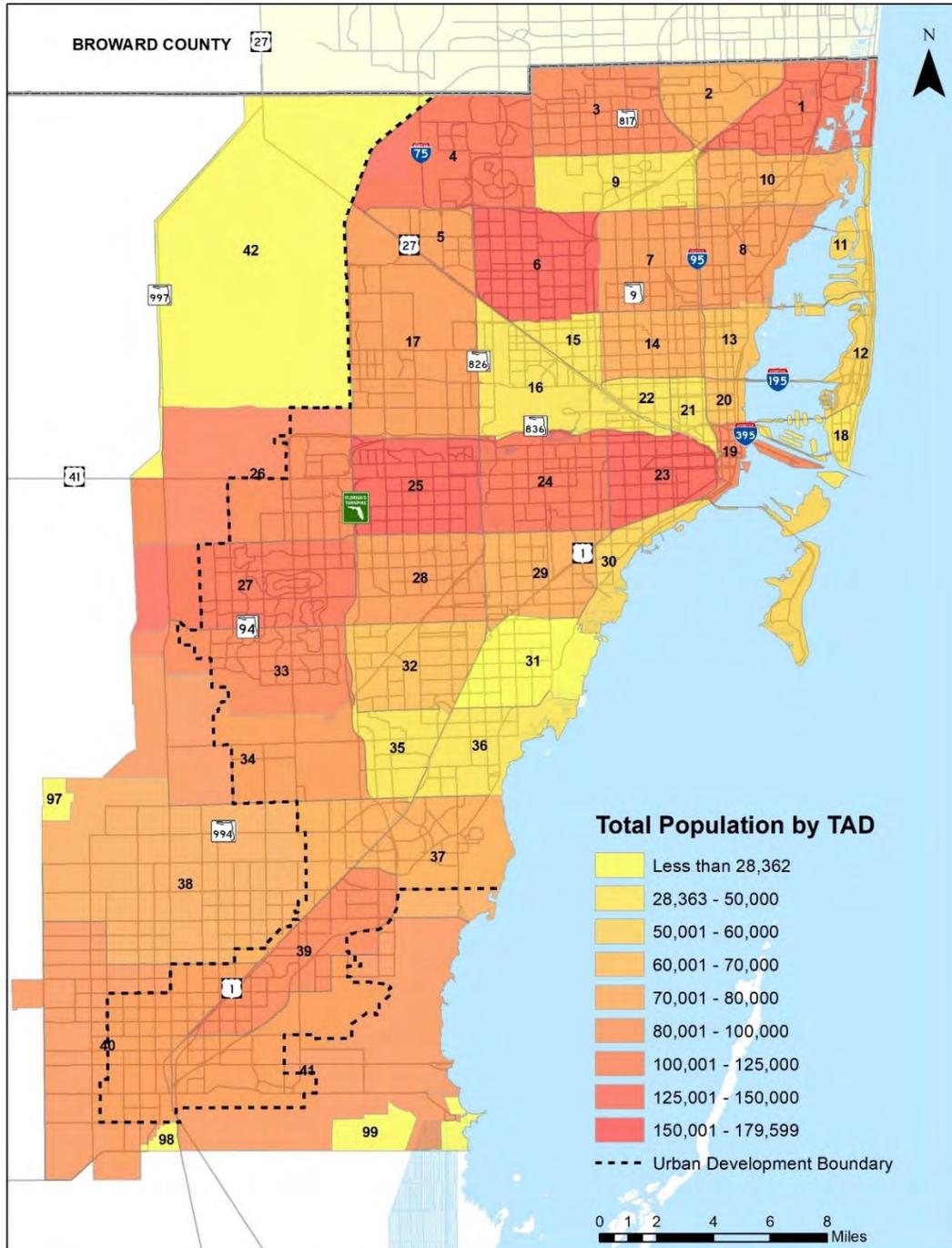**FIGURE 5 - TOTAL POPULATION IN 2045 BY TAD**
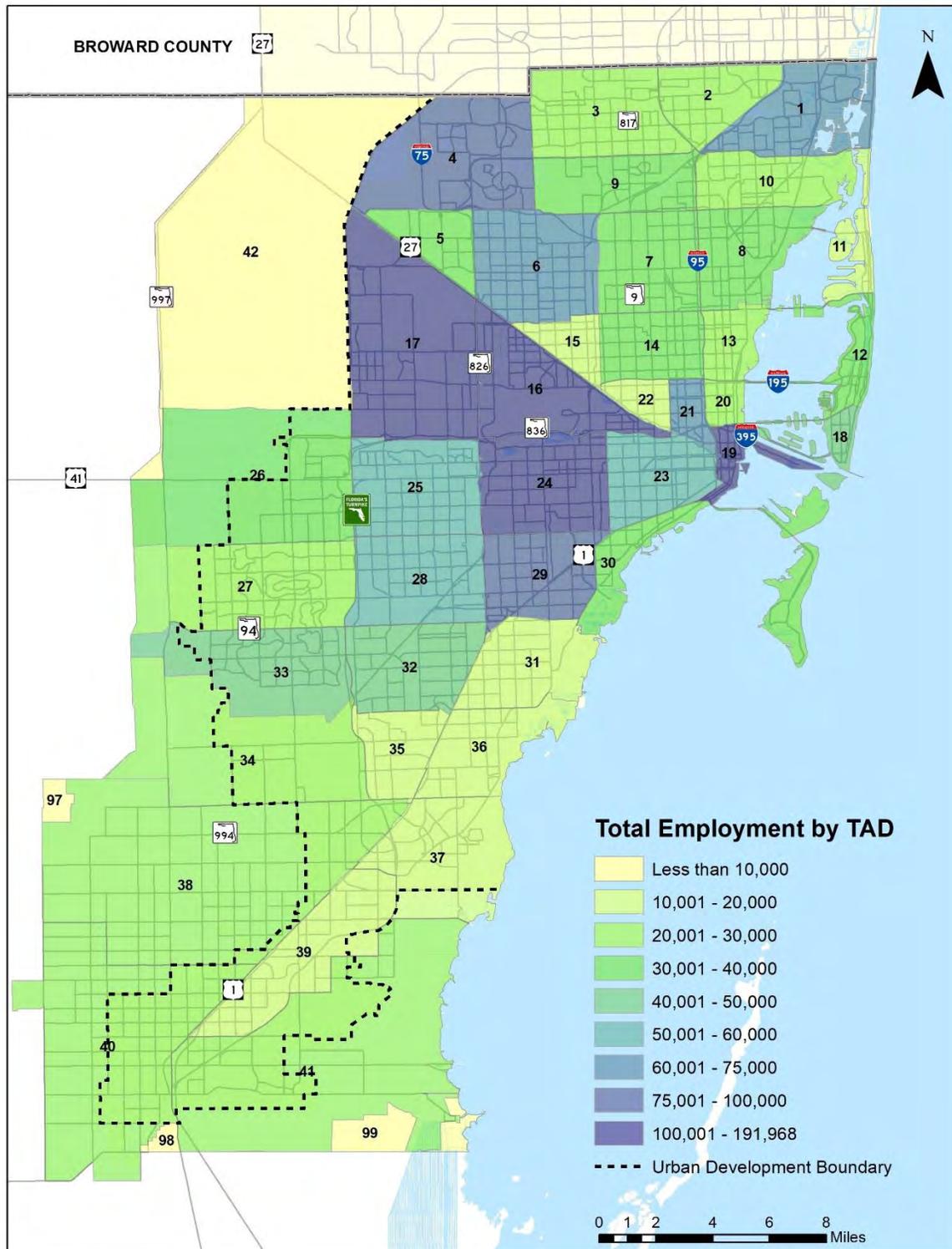
FIGURE 6 - TOTAL EMPLOYMENT IN 2045 BY TAD

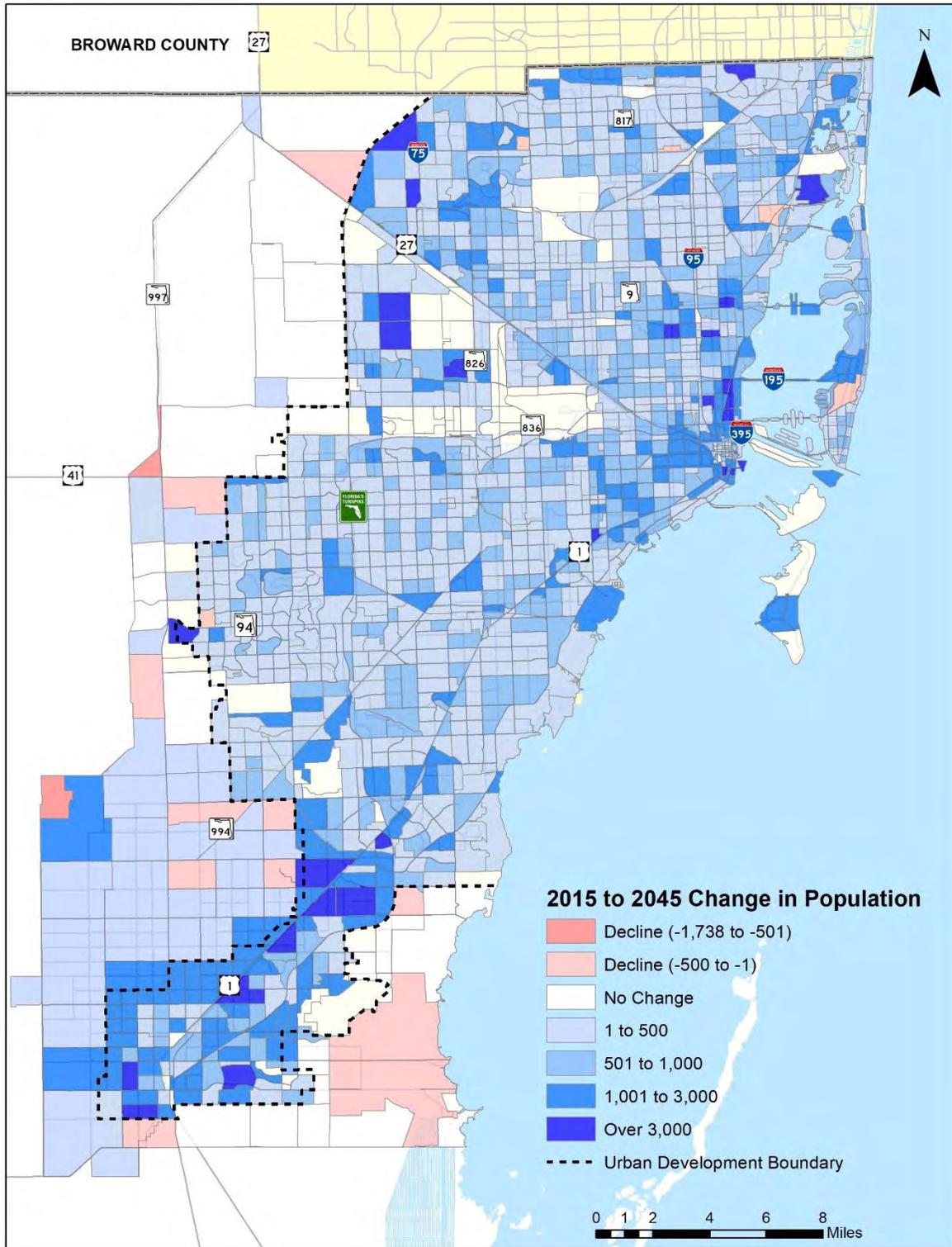**FIGURE 7 - CHANGES IN POPULATION BY TAZ (2015-2045)**

FIGURE 8 - CHANGES IN EMPLOYMENT BY TAZ (2015-2045)

2015 to 2045 Change in Employment

- Decline (-4,689 to -501)
- Decline (-500 to -1)
- No Change
- 1 to 500
- 501 to 1,000
- 1,001 to 3,000
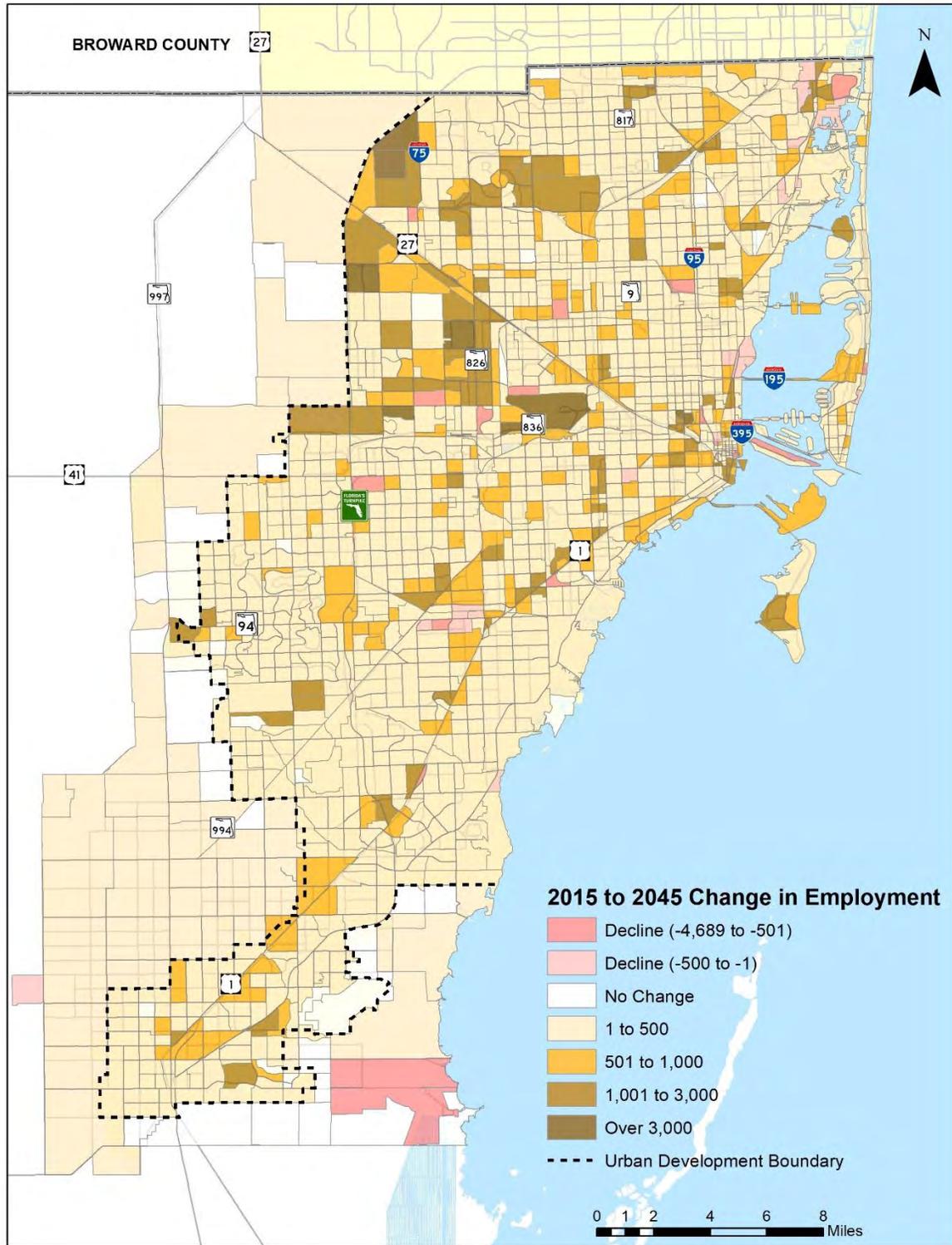- Over 3,000
- - - Urban Development Boundary

Figure 9 presents the employment by type at TAD level in 2045 by showing both the magnitude of and the proportion of employment by general type (office, industrial, consumption, and education & health). Notably, all 42 TADs contain at least some of each type of jobs, though there is a clear spatial focus of industrial employment in the northwest and western central portions of the county, with office and consumption jobs more prominent in the CBD and beach areas.

FIGURE 9 - TOTAL EMPLOYMENT IN 2045 BY TYPE BY TAD
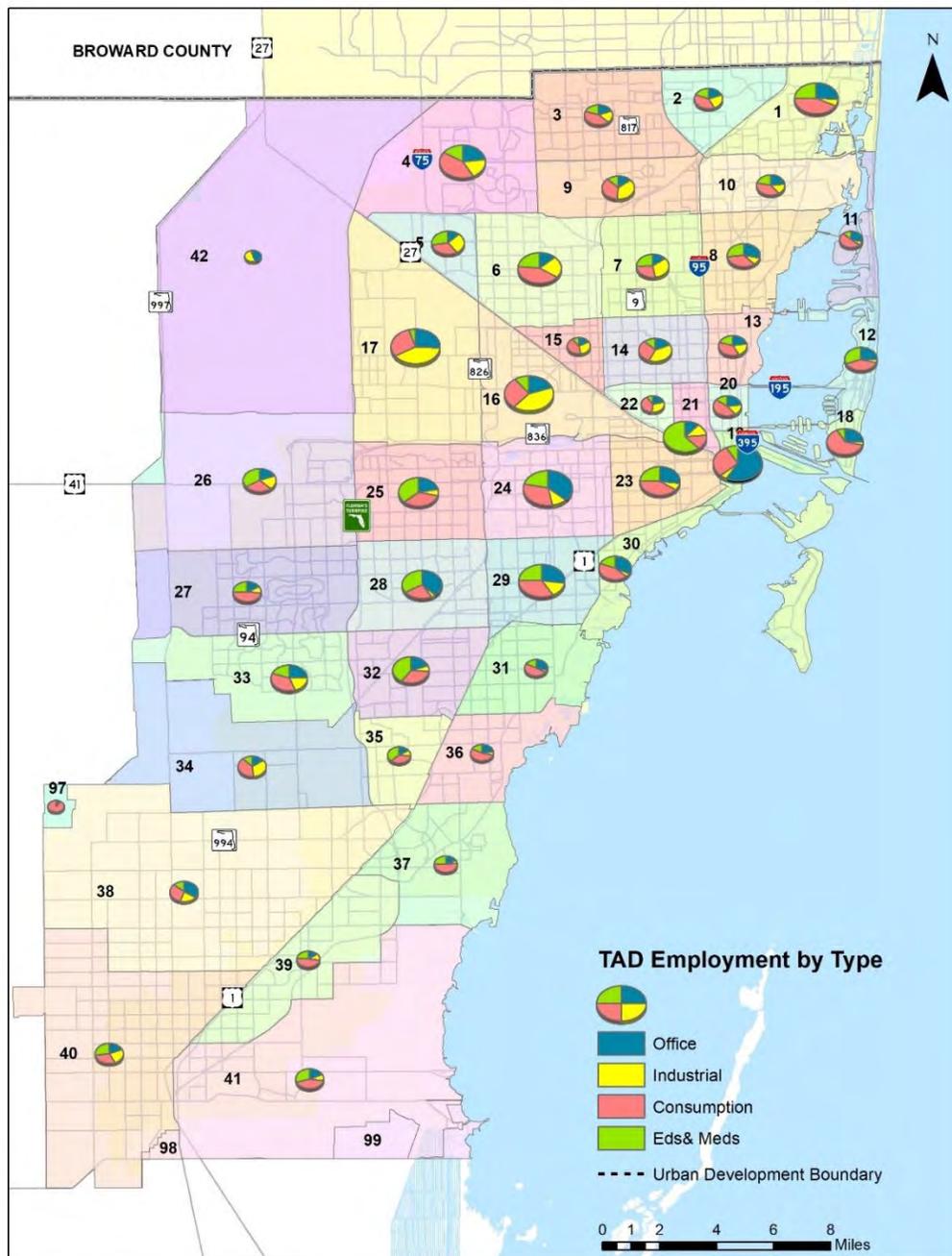
The maps that follow display various demographic distributions at the TAZ level in 2045, such as household size, income, and age, among others. In general, the forecast expects small shifts in the County's demographic profile, with a population that is getting older and slightly wealthier, with a more diverse housing mix and fewer children. A brief summary is provided for each map below, with the maps following.

Figure 10 provides average household size by TAZ in 2045, forecasting an overall decline in average size from 2.83 persons in 2015 to 2.78 persons in 2045. The map shows that sizes are commonly 2-4 people, though there are pockets of smaller households in dense areas or where the retiree population is expected to expand. Generally, household size is larger in the outskirts. **Figure 11** shows the changes in households from 2015 to 2045. The total households are expected to increase by 37% from 912,963 in 2015 to 1,249,589 in 2045.

Figure 12 provides the percent of households with children by TAZ in 2045. Generally, the percentage of households with children is forecast to drop from 34% in 2015 to 30% in 2045, reflecting an expected increase in older households without children. Generally, most households are not projected to have a child (defined as persons aged between 0 and 18 years old), though there are areas with 50% or more households with children, particularly in the south.

Figure 13 shows predominant housing type (single family, multi-family, or mobile home) by TAZ. The 2045 forecast continues the trend of increases in the proportion of multi-family housing (from 41.5% to 42.3%), though at a slower rate than recent years. Still, most of the county is forecast to have single family housing (approximately 56%) as the predominant housing type. A near-even split between single family and multi-family housing development reduces the county's expected to proportion of single-family housing from 57% in 2015 to 56% in 2045.

Figure 14 shows average age by TAZ in 2045. The county, like the nation, is forecast to get older, and there is a strong correlation between average age and household size, so that the places with larger households generally have lower average ages (due to the presence of children). Overall, the average age is expected to increase from 39 in 2015 to 43 in 2045.

Figure 15 provides predominant income class for each TAZ, including Class 1 (less than $25,000 per year per household), Class 2 (from $25,000 to $50,000 per year per household), Class 3 (from $50,000 to $75,000 per year per household), Class 4 (from $75,000 to $100,000 per year per household) and Class 5 (more than $100,000 per year per household). The forecast expects neighborhoods to continue their stratification by income, with some new pockets of expanding wealth near downtown and the American Dream Mall.

Figure 16 shows predominant ethnicity, focused on proportion of Hispanic populations. The overall proportion of Hispanic residents is expected to rise from 66.6% in 2015 to 68.6% in 2045. The forecast continues existing spatial patterns of ethnic diversity.

Figure 17 shows the enrollment of students in primary and secondary education in the County. Primary education includes all students enrolled in kindergarten to 12th grade in both public and private institutions. Secondary education refers to all higher education including universities, colleges, and vocational schools. K-8 enrollment is expected to increase from 285,480 in 2015 to 344,639 (approximately 21%) in 2045, High school enrollment is expected to increase from 128,482 in 2015 to 146,755 (approximately 14%) in 2045, and the enrollment in college is expected to grow from 268,355 in 2015 to 301,020 (approximately 12%) in 2045. **Figure 18** shows the total enrollment by TAZ in 2045, and the overall enrollment is expected to increase from 682,317 in 2015 to 792,414 (approximately 16%) in 2045.

Figure 19 shows the population in group quarters by TAZ in 2045. **The Institutionalized Group**, per the US Census, "includes facilities for people under formally authorized, super-vised care or custody at the time of interview, such as correctional facilities, nursing facili-ties/skilled nursing facilities, in-patient hospice facilities, mental (psychiatric) hospitals, group homes for juveniles, and residential treatment centers for juveniles." **The Non-Institutional-ized College group quarters** refer to those residing in college dormitories. The Non-Institu-tionalized Other, per the US Census, "includes facilities that are not classified as institutional group quarters, such as college/university housing, group homes intended for adult, residen-tial treatment facilities for adults, workers' group living quarters and Job Corps centers, and religious group quarters." The overall population in group quarters is expected to rise from 42,485 in 2015 to 57,163 (approximately 35% increase) in 2045.
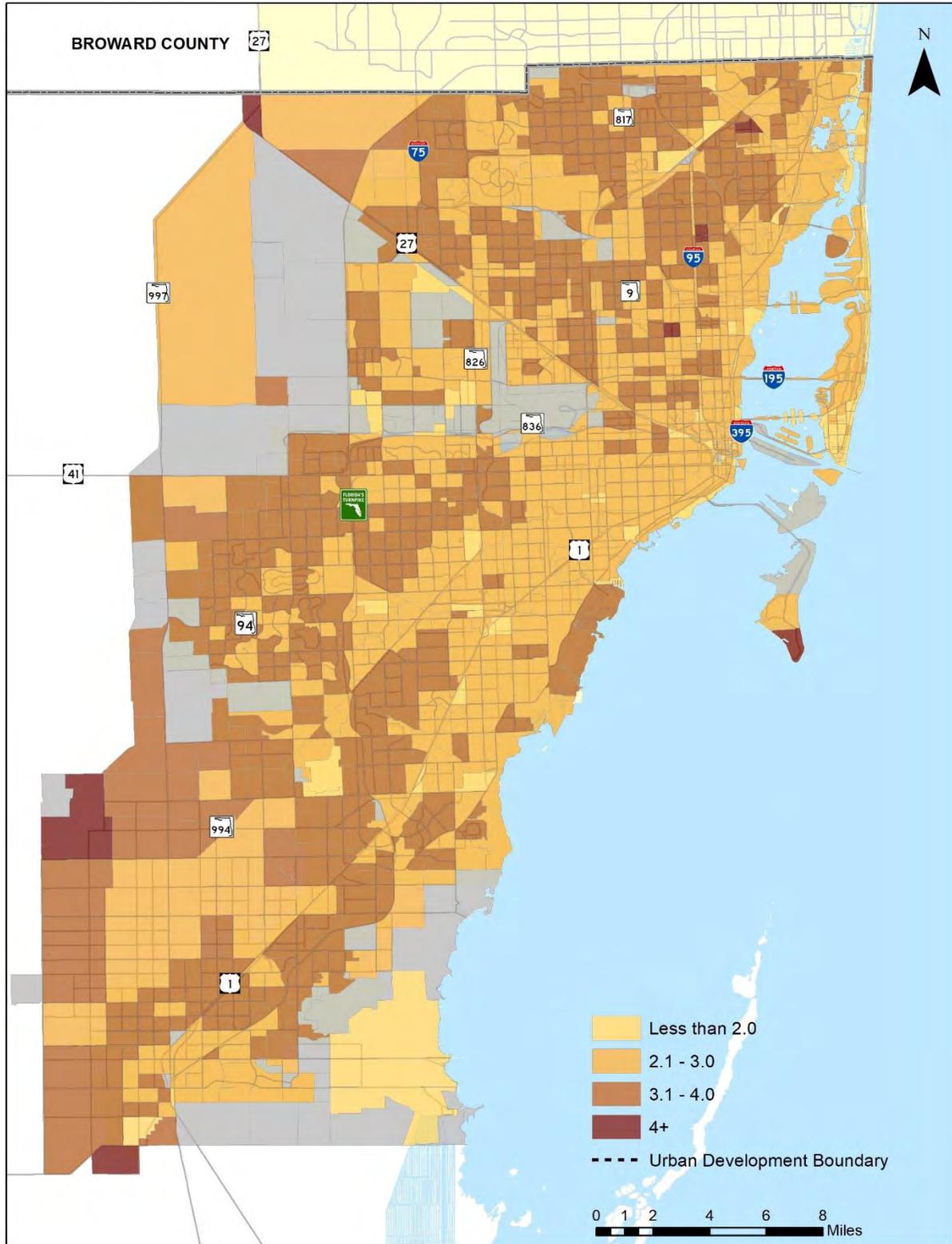
FIGURE 10 - 2045 AVERAGE HOUSEHOLD SIZE BY TAZ

Legend:
- Less than 2.0
- 2.1 - 3.0
- 3.1 - 4.0
- 4+
- - - - Urban Development Boundary

0 1 2 4 6 8 Miles

BROWARD COUNTY

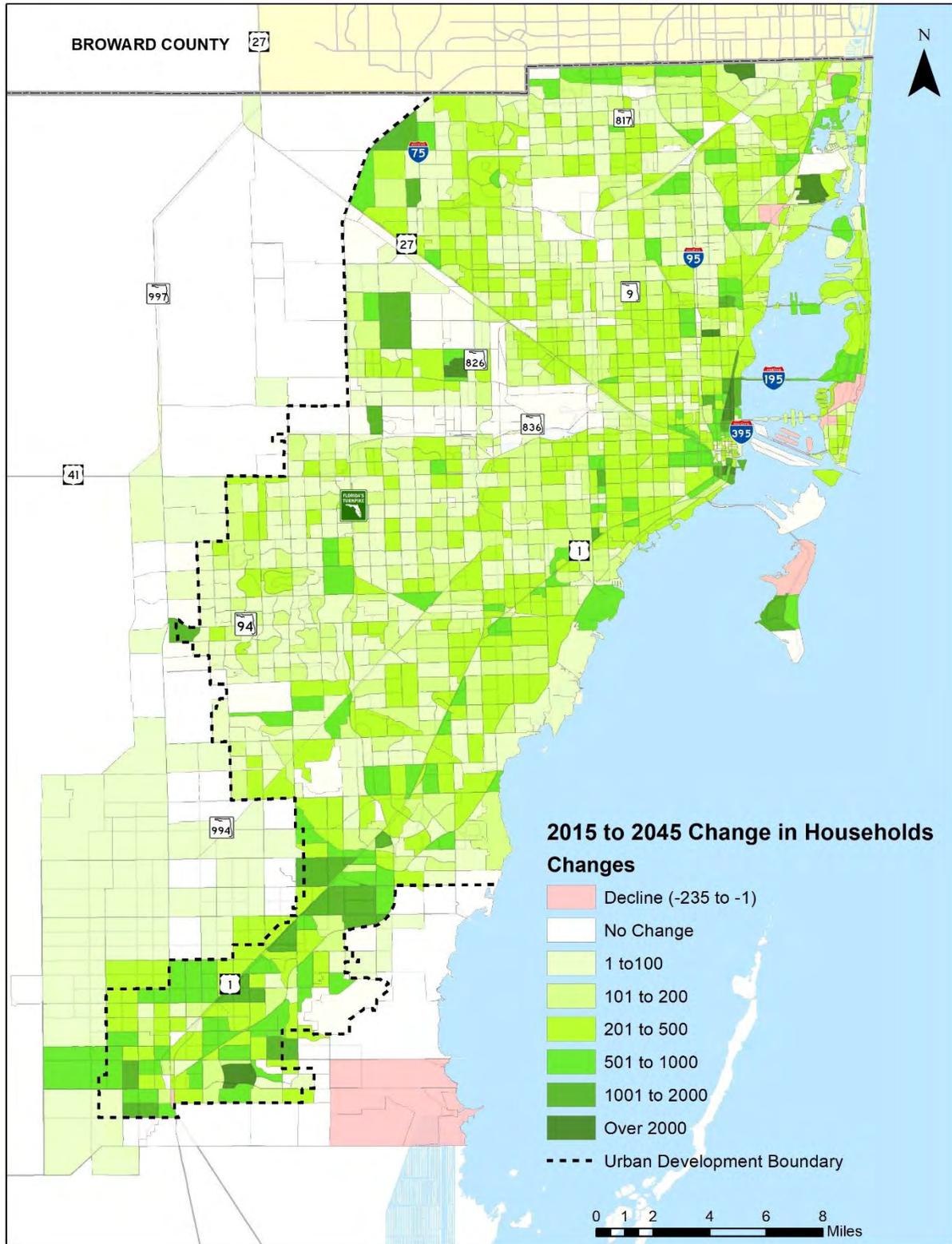**FIGURE 11- THE CHANGE IN HOUSEHOLDS BY TAZ (BETWEEN 2015-2045)**

FIGURE 12 - 2045 PERCENT HOUSEHOLDS WITH CHILDREN BY TAZ

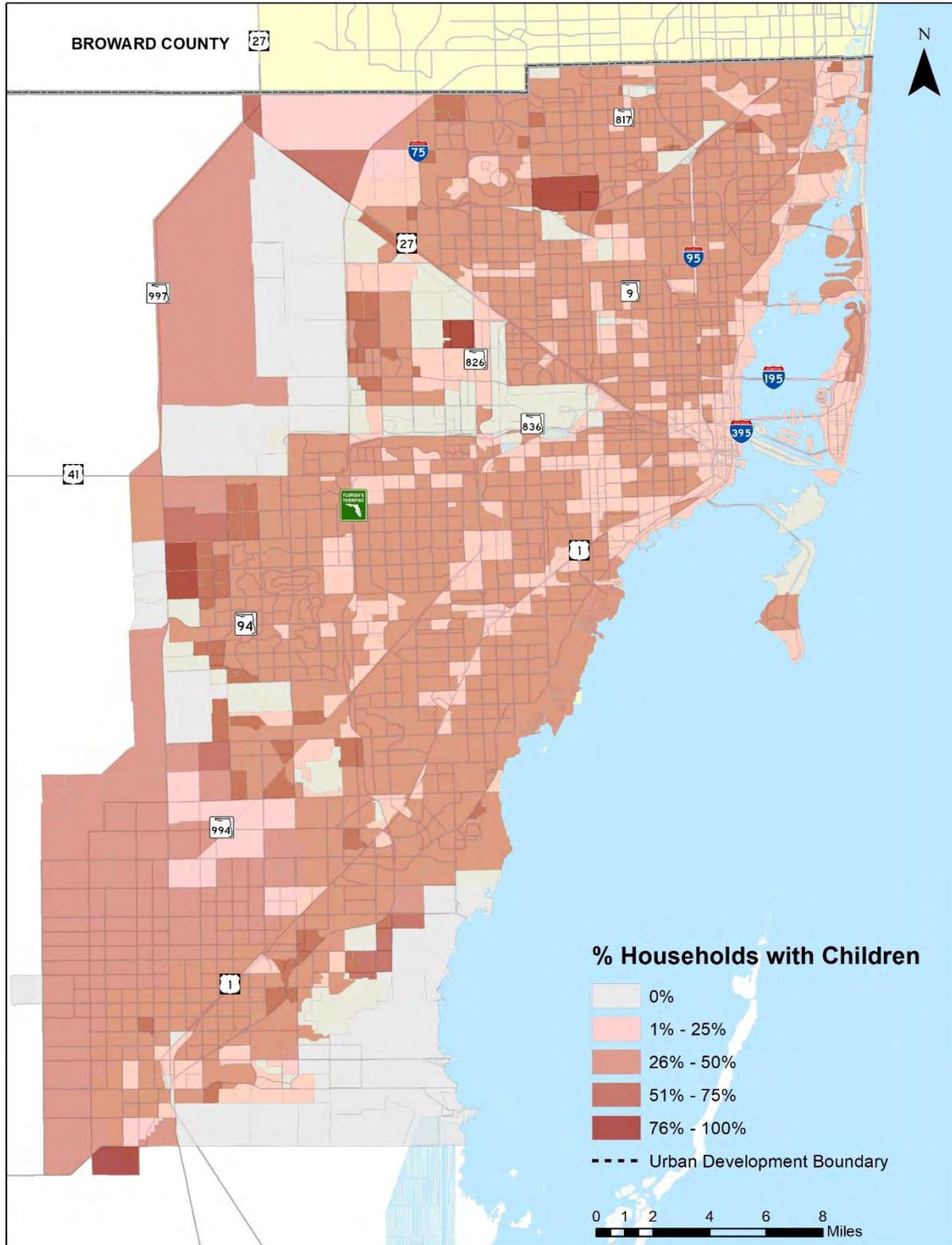## FIGURE 13 - 2045 PREDOMINANT HOUSING TYPE BY TAZ
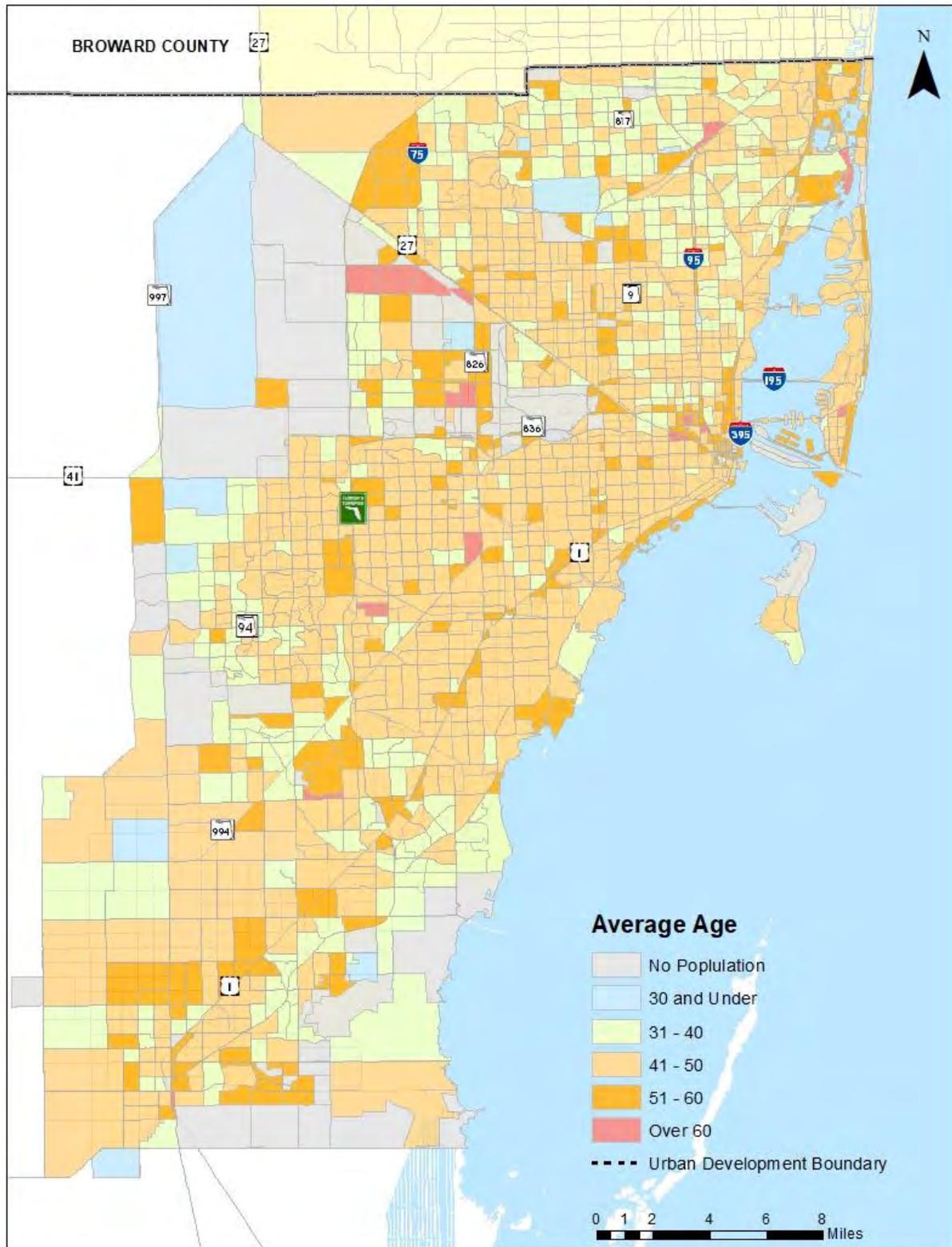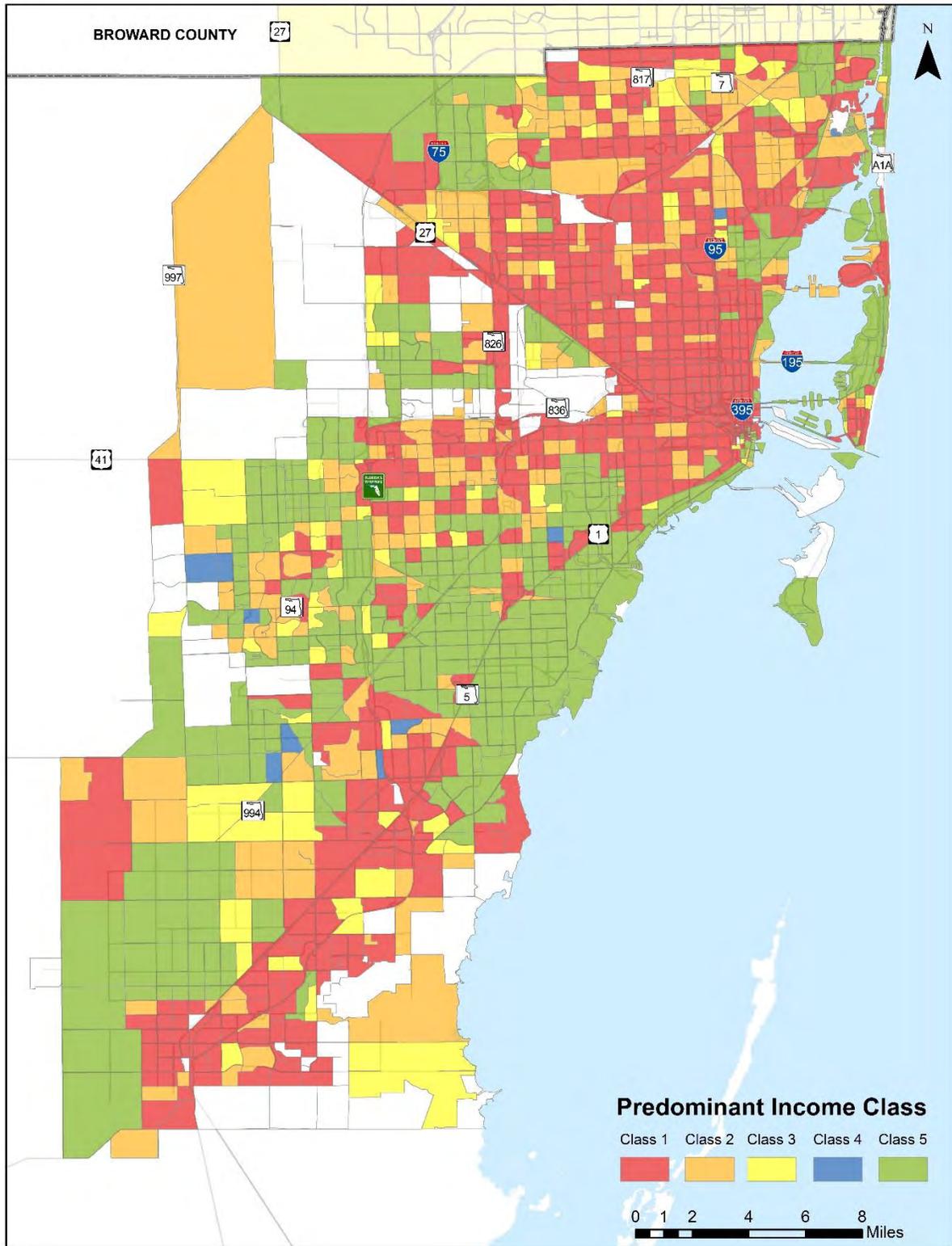
FIGURE 14 - 2045 AVERAGE AGE BY TAZ

FIGURE 15 - 2045 PREDOMINANT INCOME CLASS BY TAZ

Note: Color represents the predominant income class in one TAZ
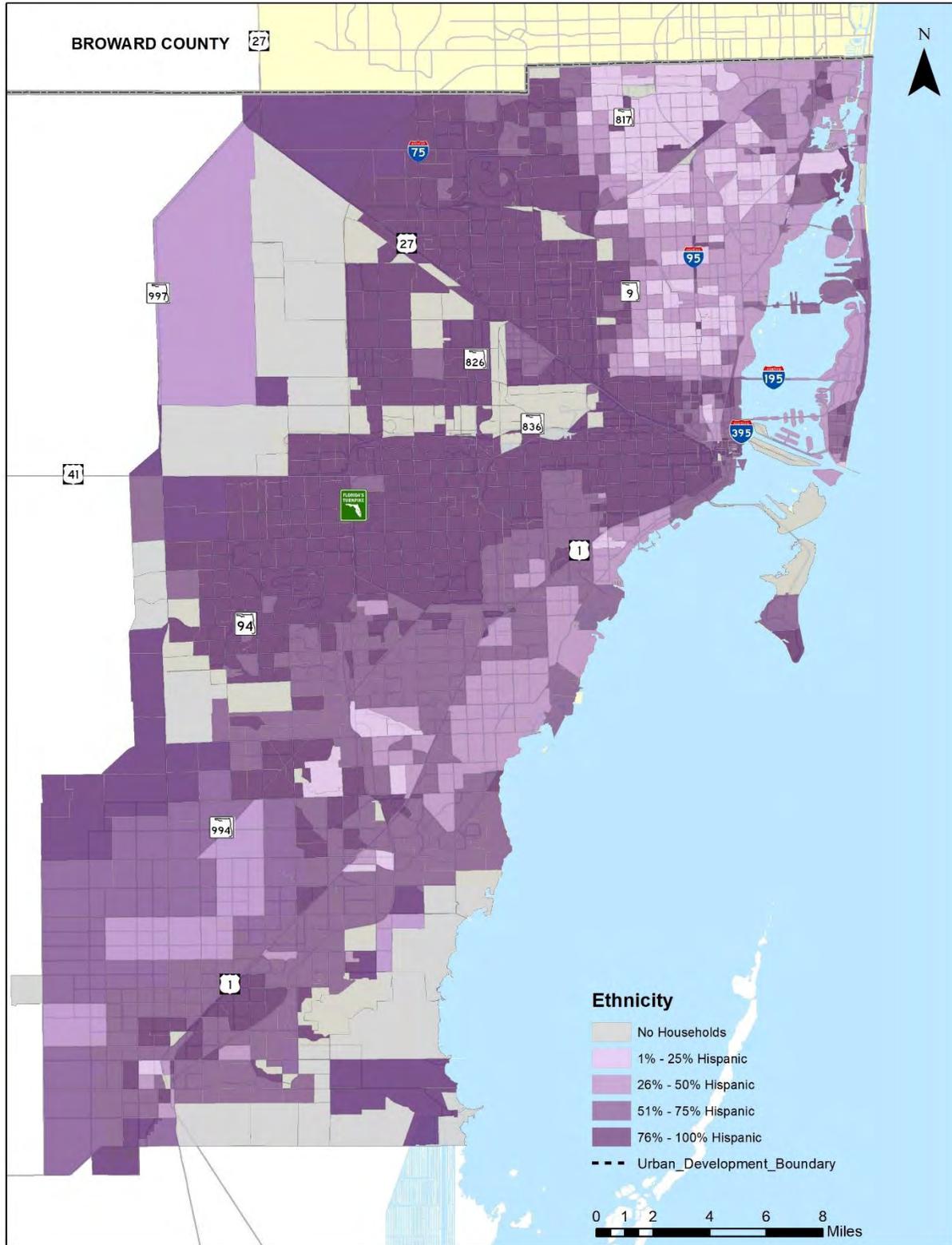
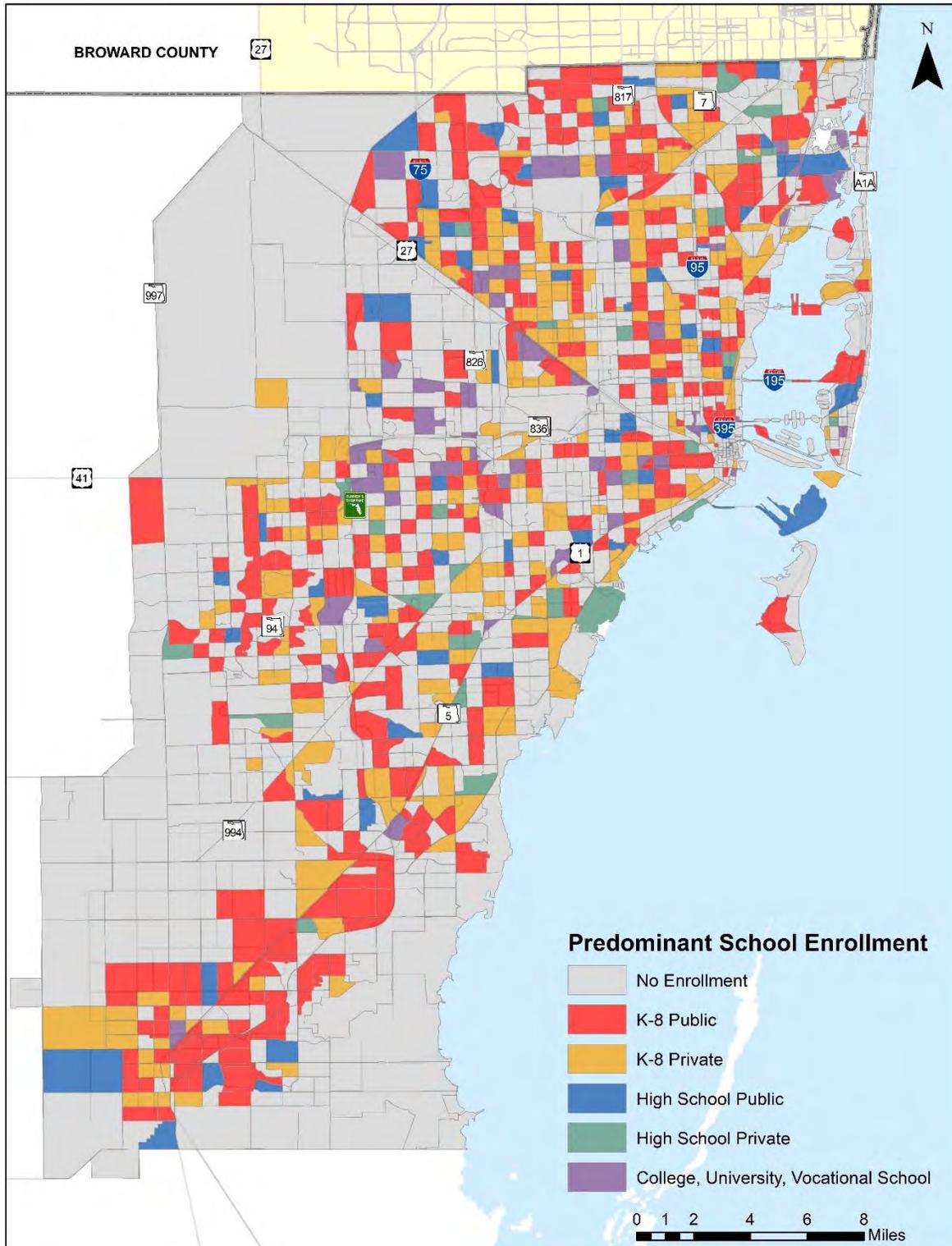**FIGURE 16 - 2045 PREDOMINANT ETHNICITY BY TAZ**

Ethnicity

- No Households
- 1% - 25% Hispanic
- 26% - 50% Hispanic
- 51% - 75% Hispanic
- 76% - 100% Hispanic
- - - - Urban_Development_Boundary

0 1 2 4 6 8 Miles

FIGURE 17 - 2045 SCHOOL ENROLLMENT IN PRIMARY AND SECONDARY EDUCATION BY TAZ

Predominant School Enrollment

- No Enrollment
- K-8 Public
- K-8 Private
- High School Public
- High School Private
- College, University, Vocational School

0 1 2 4 6 8 Miles

Note: *Color represents the predominant school enrollment group in one TAZ*

FIGURE 18 - 2045 TOTAL SCHOOL ENROLLMENT BY TAZ

Total School Enrollment

- No Enrollment
- 1 - 400
- 401 - 1,000
- 1,001 - 5,000
- 5,001 - 10,000
- 10,001 - 30,000
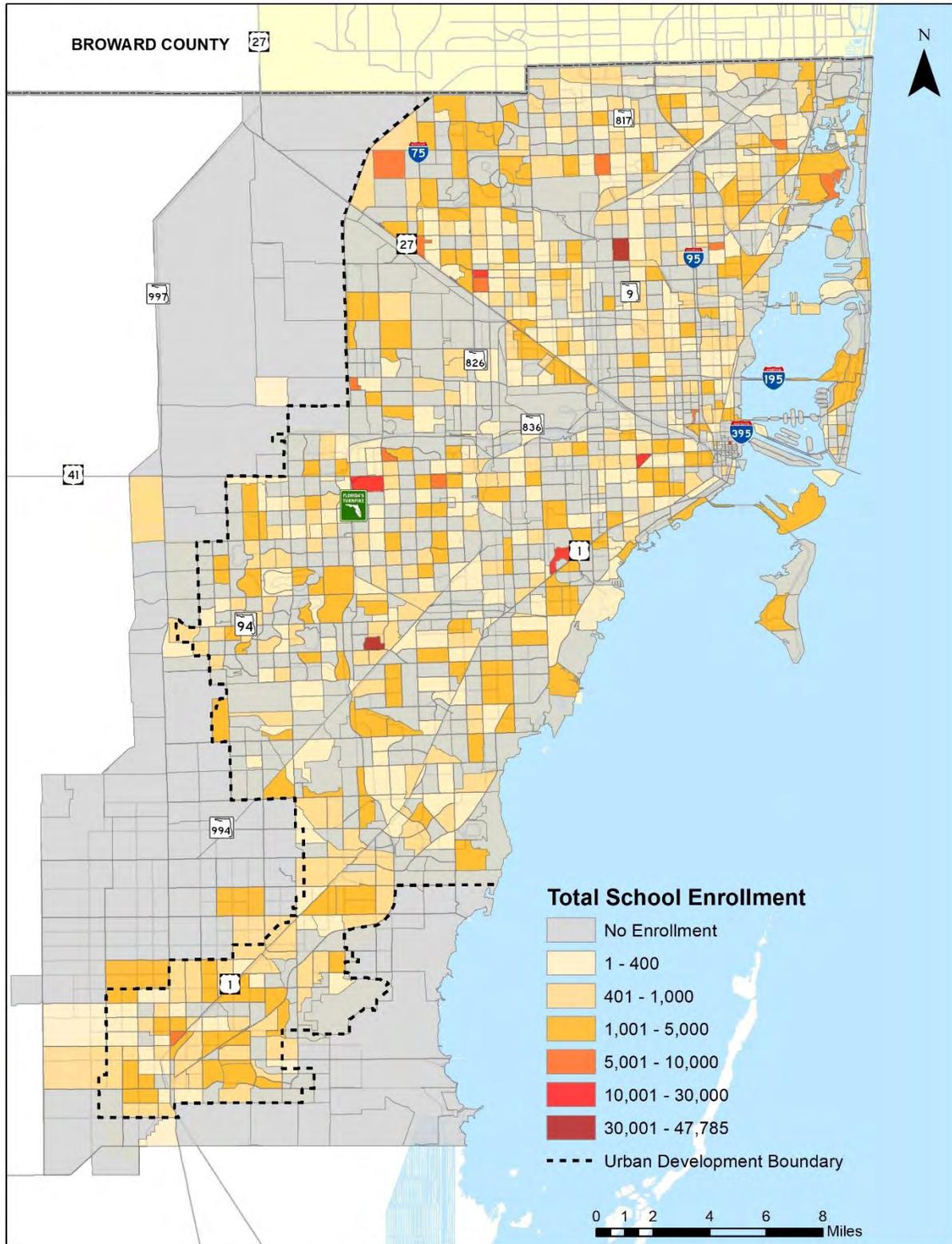- 30,001 - 47,785
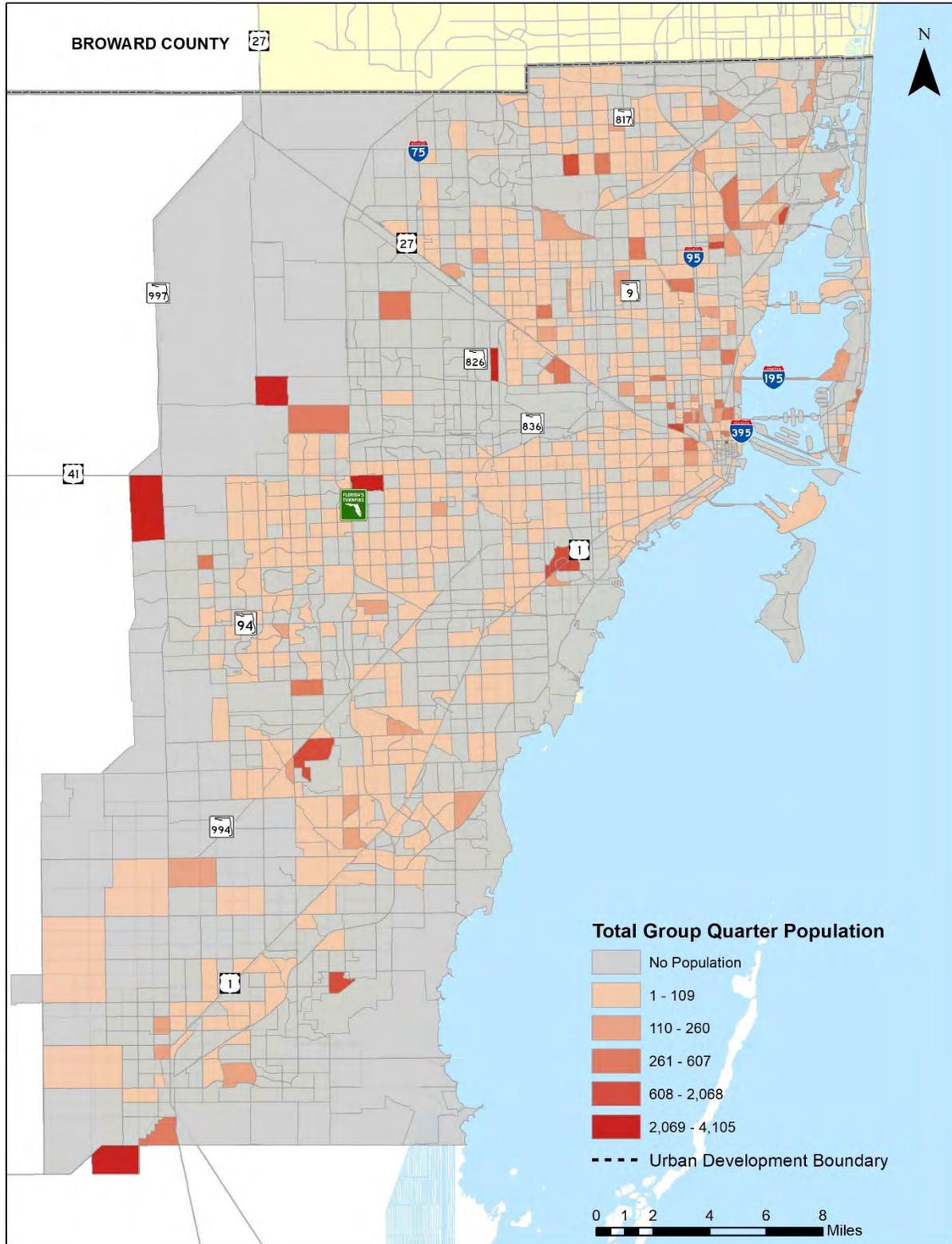- Urban Development Boundary

## FIGURE 19 - 2045 GROUP QUARTERS BY TAZ

While this forecasting effort was undertaken separately from similar efforts in Broward and Palm Beach Counties, it is worth evaluating the Miami-Dade forecast relative to regional forecasts. **Table 8** and **Figure 20** below show both historical proportions of population as well as 2045 forecasts derived from the dataset from Florida Economic & Demographic Research (EDR) and the dataset from Bureau of Economic and Business Research (BEBR). The slight increase in regional population forecasted for Miami-Dade County is consistent with a recent uptick in Miami-Dade's proportion of regional population, reflecting the lack of developable land in Broward County.

TABLE 8 - SOUTH FLORIDA HISTORICAL AND FORECASTED POPULATION

	2045	2015	2010	2005	2000	1995	1990	1985	1980
Broward	2,290,500	1,827,367	1,748,066	1,742,157	1,623,018	1,428,708	1,255,531	1,124,791	1,018,257
Palm Beach	1,811,000	1,378,417	1,320,134	1,273,752	1,131,191	988,743	863,503	723,317	576,758
Miami-Dade	3,523,500	2,653,934	2,496,435	2,395,071	2,253,779	2,076,171	1,937,194	1,789,309	1,625,509

FIGURE 20 - SOUTH FLORIDA HISTORICAL AND FORECASTED POPULATION PROPORTIONS

TP◯
Miami-Dade Transportation
Planning Organization
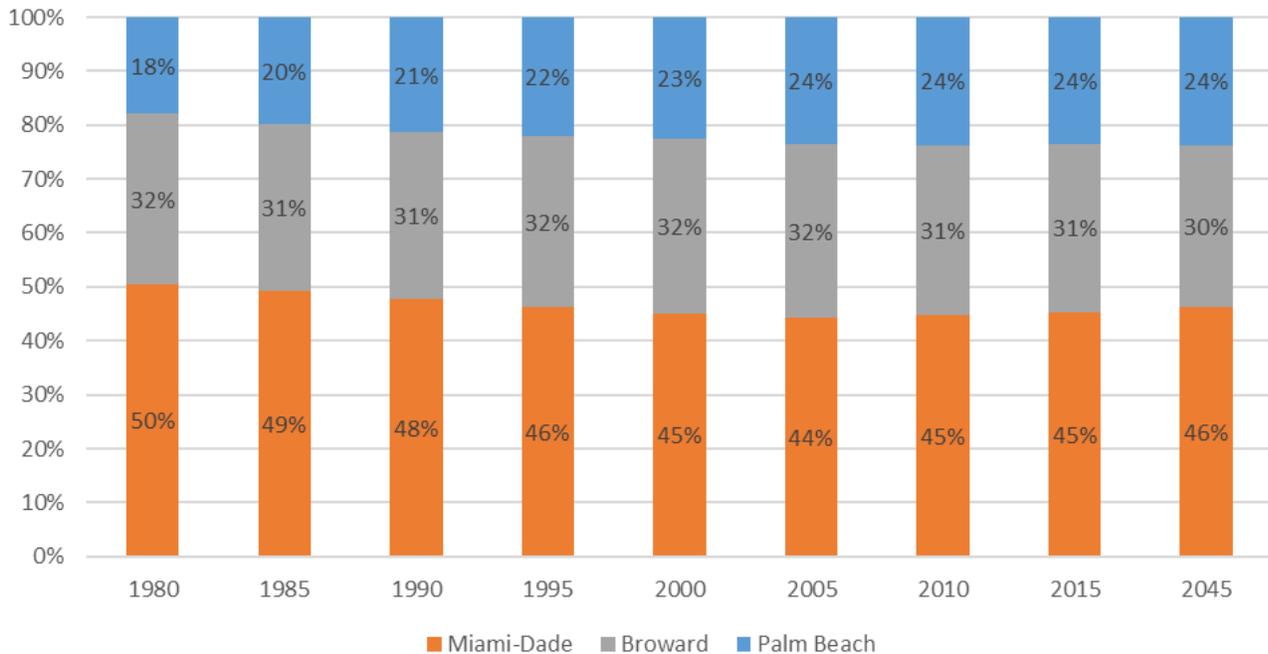
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