

RESEARCH BRIEF

Department of Research Services

Overview

July 2000

The Office of Evaluation and Research contracted with the Research Division of the Metro-Dade Planning Department, to prepare long-term enrollment projections for the Miami-Dade County Public Schools (M-DCPS). The Department of Research Services requested enrollment projections from the Metro-Dade Planning Department for each Minor Statistical Area by age and ethnicity for the five-year periods 2005, 2010, and 2015. These enrollment projections were based on population projections adopted as part of the Miami-Dade County Comprehensive Development Master Plan (October 1999).

The purpose of this research brief is to highlight important features in the Metro-Dade report in order to assist M-DCPS staff in their effort to plan effectively for future programs, construction, and fiscal needs. Selected highlights from this report are summarized below. The methodology used to develop the enrollment projections and detailed maps depicting areas of greatest population growth can be found in the Appendix.

< By the year 2005, M-DCPS can anticipate an enrollment of approximately 395,000 students in grades PK to 12 (approximately 58 percent Hispanic, 30 percent Black, non-Hispanic, and 12 percent White, non-Hispanic/Other).

< The area west of the Turnpike Extension from County Line Road in the north to 184th Street in the south is projected to absorb most of the projected increase of 35,000 students.

< The area of North Miami Beach and the area surrounding the Opa-Locka Airport will also continue to grow at an accelerated rate.

< By the year 2015, Metro-Dade projects there will be 431,000 students in M-DCPS of which 64 percent will be Hispanic, 28 percent Black, and 8 percent White/Other.

Where is the Greatest Projected Growth?

Before 1995, the area between SW 184th Street north to Tamiami (8th Street) and from US1 west to the Turnpike Extension (Major Statistical Area #5, see Attachment A) was considered the largest sector of Miami-Dade County student enrollment. The subarea between SW 72nd Avenue and US1 and Tamiami to Kendall Drive (Minor Statistical Area 5.3) was the

Table 1
Areas With the Greatest (Projected) Growth Rate: 2005-2015

Description of Area	Percent Increase			Student Increase		
	2005	2010	2015	2005	2010	2015
Between Tamiami Trail south to SW 184th Street and west of the Turnpike Extension (Major Statistical Area #6)	22%			9,300		
Between County Line Road and Tamiami Trail and west of the Turnpike Extension (Major Statistical Area #3)	19%			9,100		
Between SW 184th Street north to Tamiami Trail and from US1 west to the Turnpike Extension (Major Statistical Area #5, South Miami/Kendall)	7%			5,300		
North Miami/North Miami Beach				3,900		

largest. A close second was the adjacent area between SW 72nd Avenue and the Turnpike Extension (Minor Statistical Area 5.4). These two areas (partly South Miami and the northern part of Kendall) had expanded very rapidly and required that M-DCPS focus its resources to alleviate the overcrowding. Starting in 1995 and projected until 2015, the area north of Tamiami to NW 108th Street and east of the Turnpike Extension to US1 (Major Statistical Area #4) will be the number one area of enrollment. These two eastern sections of the county will continue to be the largest until 2015. However, size is not the only factor that should be considered. For planning purposes, an even more important factor is the growth rate. The growth rate helps to decide where new schools or expansions of existing schools should occur.

Between 2005 and 2010, this trend will continue. Major Statistical Area #6 will grow by approximately 7,900 students, followed by Area #3 with approximately 6,600 students, and Area #5 at 4,000 students. By 2015, Area #6 will grow by another 5,200 students, followed by Area #3 with a growth of another 4,800 students.

By 2015, the population growth curves were tapered off to prevent population projections from exceeding the area capacity. The capacity of an area is determined by Miami-Dade from land use, available infrastructures, existing construction, and other factors. When the growth curves are near the population capacity for the area, the curves are tapered off not to exceed 110 percent of the area's capacity. The overflow

is apportioned to surrounding areas. It should also be noted at this point that enrollment growth does not necessarily parallel population growth. For example, the southern portion of the county, from SW 184th Street to Monroe County (Major Statistical Area #7), will experience a large growth spurt between 2005 and 2015 of about 75,000 people. This is not reflected in the student enrollment which is predicted to grow by 2,400 students in the same time-frame. Generally, children represent roughly 25 percent of the population. Simply stated, while overall population growth is dependent on migration rates, births, and mortality, student projections parallel the population growth only when women of childbearing age are proportionally represented.

How Does the Miami-Dade Projections Compare to Other Methods?

Miami-Dade's projections are aligned with the medium-level estimates calculated by the University of Florida's Population Program, Bureau of Economic and Business Research. These state-level projections use a cohort-component method in which births, deaths, and migration were projected separately for each age-sex cohort in the population. The base or starting point of these projections was also the 1990 census. The medium-level projections for each county was calculated by taking an average of several projection techniques and adjusting the

Table 2
Comparison of Miami-Dade Population Projections to Other Methods

Source	2000	2005	2010	2015
Miami-Dade	2,209,402	2,361,995	2,517,256	2,677,561
Bureau - Low	2,088,100	2,074,800	2,044,400	2,000,600
Bureau - Medium	2,151,700	2,270,800	2,384,800	2,502,400
Bureau - High	2,217,200	2,485,200	2,765,900	3,064,300
Differences between Miami-Dade and Bureau's Medium level projections	-57,702	-91,195	-132,456	-175,161
Estimated number of M-DCPS students not funded in FDOE's planning with the medium level projections @ 16% of the difference	9,232	14,591	21,192	28,026

result to be consistent with the total population change implied by the state projections. The underlying assumption is that the counties' population changes will be similar to the state projections.

Another area of concern is that the Bureau estimated that Miami-Dade County permanently lost approximately 40,000 due to Hurricane Andrew in 1992. Miami-Dade's medium level projections were adjusted accordingly. The low and high level projections are estimates of variance or the range in which two-thirds of actual future county populations could fall, if future forecast errors are similar in pattern to previous forecast errors. The importance of these projections should not be understated. Most governmental agencies use them as a basis for their own forecasting and planning., **including the Florida Department of Education for funding**, which generally uses the medium level as their starting point. Table 2 compares the Bureau's projections to Miami-Dade.

Although children represent about 25 percent of Miami-Dade County's population, M-DCPS students represented a ten-year average of sixteen percent of the total population for the county. None of these projections take into consideration an unexpected wave of immigrants or the children of migrant farmers.

What Conclusions Can Be Reached?

In total, Miami-Dade predicts an increase of approximately 71,2000 students in fifteen years. This is an overall growth of almost 20 percent or 1.3 percent per year. This is a rather conservative estimate, considering that M-DCPS membership has been growing at an average rate of 2.2 percent per year for the past five years. These projections have an underlying expectation of what we could construe as a "best-case scenario."

At no point in the projections are the Statistical Areas allowed to grow beyond ten percent over capacity. Due to the land size, current land use, zoning, and infrastructures, Miami-Dade does not project beyond the current cap. It is quite possible that some areas will surpass their cap beyond the 10 percent allotment. Also, the Urban Development Boundary (UDB, see Attachment A) is still being adhered to. It is possible that between 2000 and 2015 this boundary may be adjusted. Already, several areas are being developed in such a way that they are currently encroaching beyond this boundary. Should the UDB be enlarged, the resulting urbanization in the areas beyond the

boundary would ceate a faster growth scenario that the one projected by Miami-Dade. Also, Miami-Dade Planing did not compensate for the seven percent undercount of the census data. This undercount particularly impacts the Black and Hispanic growth rates. Also, since Hispanic growth rates were built from the average of the White and Black rates, they may have been underestimated.

What Conclusions Can Be Reached?

It can be difficult to estimate the impact of growth in concrete terms. However, there are two aspects that car crucial to a school system: the facilities/schools to accommodate the students and the staff to teach them. According to the Office of Facilities Planning and Construction, there is an average of 1,085 students per elementary school, 1,400 students per middle school, and 2,600 students per high school. These figures are not nased on program capacity/percent utilization, but on the number of students versus the number of schools exclusive of alternative schools and specialized centers. The following table describes the number of schools needed at each education level for the next three five-year intervals based solely on enrollment growth. This tabulation does not include any attempt to decrease overcrowding. It simply illustrated the number of additional schools M-DCPS would need to house these additional studetns at the conservative 1.3 percent annual growth predicted by Miami-Dade.

Table 3
Title/Number of Additional Schools Required to Cover Enrollment Growth

Additional Schools	2005	2010	2015
Elementary Schools	None	10	3
Middle Schools	14	0	4
High Schools	6	6	0
Total	20	16	7

One of the measures used to establish whether a school system is well staffed is the staffing ratio. The staffing ration gives us an overall measure regarding the number of students per classroom teacher. M-DCPS has a 1:19 staffing ratio. In other words, there is one teacher for every nineteen students. The staffing ration does not account for Exceptional Student Education staffing, alternative centers, or other special staffing needs. It

is a rough approximation of how many teachers are needed and it does not take into consideration the subject or educational level. The following table illustrates the number of additional teachers M-DCPS would need to maintain a 1:19 ratio at a conservative growth rate of 1.3 percent a year.

**Table 4
Additional Teachers Required to
Cover Enrollment Growth**

Additional Teachers	2005	2010	2015
Teachers @ 19 students per teacher	1,838	1,361	549

A Cautionary Note

Support functions such as food services, transportation, guidance, etc., will also need additional funds and resources to serve these students. Of particular interest is transportation, since some geographical areas will outpace other areas in growth and transporting students to less crowded schools may become a major concern. Furthermore, as school choices expand, parents and students may have to select from schools that are further and further from the home as area schools become capped.

Appendix

How Were the Population Projections Calculated?

Minor Statistical Areas (MSA's) are census tracts used for planning purposes. Miami-Dade County has a total of 32 tracts. Miami-Dade Planning calculated the survival rates (births versus deaths) and migration rates of eighteen age groups. Births data were available for 1990-1996 and were projected for subsequent years. Five year survival rates were then applied to the 1990 census population. These rates were obtained from the U.S. Bureau of the Census. It should be noted that Hispanic rates were not available, but were extrapolated as midway between the White and Black rates. The migration rates were then applied to the 1990 census population. It is important to note that for each five-year population projection, updated survival rates and migration rates were used. Also, the 1990 census has an undercount of approximately seven percent for Blacks and persons of Hispanic origin. Miami-Dade did not attempt to adjust for the undercount in these projections. Projections were made based on place of residence and not by school location.

What Conclusions Can Be Reached?

Since the census data is in five-year age groups, it was apportioned into individual years of age from the 1990 census. For example, the number of five-year-olds was pulled out of the census by a ratio (grossly one-fifth) from the population of children 0-5 years of age. The U.S. Bureau of the Census provided the relative age distribution within the five-year groups. These new figures were then applied to the student enrollment projections as an enrollment ratio.

The Miami-Dade County Planning Department developed age-specific enrollment ratios to the projected population in each corresponding age. For example, the ratio used for second grade Hispanics was expressed as Miami-Dade County enrollment in the second grade for Hispanic students, versus the census data for seven-year-old Hispanic children in the county. Enrollment ratios were held constant for all projected five-year intervals. This method was used since the difference between the 1989-90 ratios and the 1994-95 ratios were averaged out to smooth the change over time.