One source, many groups, one total.
Bermuda Government Department of Statistics

## Mid-Year Population Projections July 1, 2000 to July 1, 2030

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## 2000-2030 POPULATION PROJECTIONS

## An Overview

"We cannot plan without looking ahead, and we cannot look ahead except in so far as the light of experience illuminates the future for us." (Toynbee (1966), Prospects of Population: Methodology and Assumptions, New York: United Nations, 1979)

## Introduction

According to Thompson and Whelpton (1943) cited in United Nations (1979), population projections are:
"... statements of what the size and the sex, age, color and nativity composition of the population would be at specified future times if birth rates, death rates and immigration were to follow certain specified trends."

The 2000-based projections of the population of Bermuda cover a 30 -year period from the year 2000 to 2030. These population projections are instrumental for postulating Bermuda's future based on the past, present and anticipated demographic trends. Bermuda usually conducts its census of population and housing every decade. It is, therefore, during the intercensal period that stakeholders use population projections to guide their future business and planning decisions.

Generally, population projections are developed from the civilian non-institutional population after the conclusion of the decennial census. Historically, Bermuda's population has been projected from Census Day (May 20, 2000), that is, the actual reference date for the enumeration. This is Bermuda's first time for producing mid-year population projections. The process involved ageing the 2000 census data by six weeks before commencing the projections, so that the reference date would be July 1, 2000. This methodology is used worldwide by statistical agencies for the production of population projections.

## Coverage of the Projections

The population of Bermuda was projected for the civilian non-institutional sheltered population from the year 2000. The series projects the population in five-year age groups from July 1, 2000 until July 1, 2030 by sex, race and Bermudian status. Bermuda's population is projected to grow from 62,131 in 2000 to 65,447 in 2030.

## Methodology

The Rural-Urban Projection (RUP) computer programme was used to generate the population projection series. This programme was developed by the United States Census Bureau whereby a cohort-component method was used to project the population by five-year age intervals.

It was important that the population was disaggregated by race and Bermudian status first. These sub-populations have different age structures, fertility, mortality, and migration patterns. As a result, separate projections for these sub populations will greatly improve the level of accuracy for the total population projections.

In producing population projections, a number of specific assumptions must be made for the calculation process. "These assumptions have been and continue to be the major problem aspect of demographic projections because of the uncertainty of the future"(United Nations 1979:16). A brief description of the basic assumptions for the population projections is provided below.

## Fertility

The age distribution, Bermudian status and race of mothers and the sex of their children for the years 2000 to 2004 were used to determine the level and pattern of fertility for the different subpopulation groups. The total fertility rate for 2005 was estimated by averaging the values implied by 2000 to 2004 births.

## Mortality

Non-Bermudian mortality rates were estimated by applying a proportional factor of $75 \%$ to the respective black and white age-specific mortality rates. Bermudian deaths were calculated by taking the difference between the total deaths and the non-Bermudian estimated deaths. It was necessary to use an estimation procedure to obtain Bermudian mortality rates because this information is not collected.

## Migration

Bermudian migrants were estimated by using the reverse-forward survival rate methodology. Estimation was necessary as there are currently no migration statistics by Bermudian status, age and sex. Similarly, the reverse-forward methodology was used to estimate the migration for the nonBermudian population but only as a preliminary step. These intercensal estimates by race, age and sex were then split into immigration numbers and emigration rates. Subsequently, the Rogers and Castro model was used to smooth the migration rates which were entered into the RUP programme.

## Use of Population Projections

Population projections are needed by businesses, governments and organizations for future planning and development of policies and programmes. Having knowledge of the expected size of the population by age and sex distribution will provide decision makers with the leeway to plan and prepare for future business, social and economic needs. These may include the number of potential pensioners, retirement homes, demand for elder care, work force size, schools, etc. The following diagram encapsulates the relationship between the components of population change and some of the sectors that are affected directly by population projections.

## Figure 1

## Interrelationship between Demographic Variables and the Public and Private Domains

| Fertility $y$ | Mortality $\downarrow$ |  | Migration $k$ |
| :---: | :---: | :---: | :---: |
| Census Population by Age, Sex, Race and Bermudian Status |  |  |  |
| K | $\downarrow$ | $\downarrow$ | У |
| Schools | Retirement | Families \& | Labour force |
|  | Facilities | Household |  |

## Prospects for Future Decades

The population projections for Bermuda reveal the following outcomes for the 30-year period:

- The age structure of the total population will become older throughout the projection period. The main cause of this is the below-replacement level of fertility since the 1970's and the aging of the population due to increased life expectancy. One indicator of aging is the population's median age which is the age at which half the population is below a given age and half above. In 2000, the median age for the total population was 37 and by 2030 the median age is projected to increase to 43 . This means that 30 years later half of the total population will be over 43 .
- Another indicator of aging is the total dependency ratio. The total dependency ratio estimates society's capacity to maintain the quality of life of children and seniors per 100 persons aged 15-64. Between 2000 and 2030 the total dependency ratio is projected to rise from 43 in 2000 to 62 by 2030, which means that in 2030 there will be 62 children and elderly for every 100 people of working age. Separate calculations can be derived for the young and the elderly population to determine the burden of dependency the working-age population must bear.
- In 2000, the aged dependency ratio which is the number of persons 65 years and over per one hundred persons 15 to 64 was 16 and by 2030 it will increase to 36 . By the end of the projections period the youth dependency ratio, that is the number of persons 0 to 14 years per hundred persons 15 to 64, is projected to decline from 27 in 2000 to 26 by 2030. This drop is mainly a result of the fall in the fertility level for the Bermudian population.
- In 2000, the sex ratio for the total population was 92 men per 100 women. By 2030, the sex ratio is projected to drop to 87 men for every 100 women. An analysis of the sex ratio by age reveals that at older ages the sex ratio is more unbalanced. Older women outnumber older men in almost every society. Among Bermuda residents, 65 and older in 2000, there were 69 men for every 100 women. By 2030, it is expected that older women will continue to dominate the senior citizen population, with the same ratio of men to women.


## Conclusion

Overall, the population trend that Bermuda takes depends on the accuracy of the assumptions. These population projections represent the statistical outcomes of various combinations of assumptions about future changes in the population of Bermuda. As such, it is imperative that we continue to monitor fertility, mortality and migration patterns during the intercensal period for inclusion in the 2010 population projections, due after the next census.

For further enquiries about this report and additional detailed information about the methodology, please contact:

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Total Population Projections, 2000-2005 ${ }^{1}$

|  | July $\mathbf{1 , 2 0 0 0}$ |  |  |
| :--- | ---: | ---: | ---: |
| Age Group | Total | Male | Female |
|  |  |  |  |
| Total | 62,131 | 29,834 | 32,297 |
| $\mathbf{0 - 4}$ | 4,018 | 1,992 | 2,026 |
| $\mathbf{5 - 9}$ | 4,028 | 2,015 | 2,013 |
| $\mathbf{1 0 - 1 4}$ | 3,833 | 1,910 | 1,923 |
| $\mathbf{1 5 - 1 9}$ | 3,550 | 1,781 | 1,769 |
| $\mathbf{2 0 - 2 4}$ | 3,217 | 1,553 | 1,664 |
| $\mathbf{2 5 - 2 9}$ | 4,637 | 2,237 | 2,400 |
| $\mathbf{3 0 - 3 4}$ | 5,459 | 2,703 | 2,756 |
| $\mathbf{3 5 - 3 9}$ | 6,208 | 3,066 | 3,142 |
| $\mathbf{4 0 - 4 4}$ | 5,642 | 2,717 | 2,925 |
| $\mathbf{4 5 - 4 9}$ | 4,750 | 2,330 | 2,420 |
| $\mathbf{5 0 - 5 4}$ | 4,152 | 2,000 | 2,152 |
| $\mathbf{5 5 - 5 9}$ | 3,284 | 1,549 | 1,735 |
| $\mathbf{6 0 - 6 4}$ | 2,614 | 1,225 | 1,389 |
| $\mathbf{6 5 - 6 9}$ | 2,338 | 1,062 | 1,276 |
| $\mathbf{7 0 - 7 4}$ | 1,843 | 790 | 1,053 |
| $\mathbf{7 5} \mathbf{- 7 9}$ | 1,284 | 480 | 804 |
| $\mathbf{8 0 - 8 5}$ | 718 | 250 | 468 |
| $\mathbf{8 5 +}$ | 556 | 174 | 382 |


| July 1, 2001 |  |  | July 1, 2002 |  |  |
| ---: | ---: | ---: | ---: | ---: | ---: |
| Total | Male | Female | Total | Male | Female |
|  |  |  |  |  |  |
| 62,455 | 29,969 | 32,486 | 62,754 | 30,092 | 32,662 |
| 3,996 | 1,996 | 2,000 | 3,975 | 2,010 | 1,965 |
| 3,982 | 2,002 | 1,980 | 3,921 | 1,962 | 1,959 |
| 3,884 | 1,932 | 1,952 | 3,900 | 1,936 | 1,964 |
| 3,617 | 1,820 | 1,797 | 3,709 | 1,867 | 1,842 |
| 3,166 | 1,519 | 1,647 | 3,169 | 1,534 | 1,635 |
| 4,441 | 2,126 | 2,315 | 4,313 | 2,049 | 2,264 |
| 5,435 | 2,676 | 2,759 | 5,308 | 2,592 | 2,716 |
| 6,047 | 3,021 | 3,026 | 5,892 | 2,956 | 2,936 |
| 5,822 | 2,799 | 3,023 | 5,911 | 2,857 | 3,054 |
| 4,877 | 2,355 | 2,522 | 5,011 | 2,392 | 2,619 |
| 4,225 | 2,054 | 2,171 | 4,335 | 2,088 | 2,247 |
| 3,463 | 1,629 | 1,834 | 3,608 | 1,717 | 1,891 |
| 2,613 | 1,207 | 1,406 | 2,705 | 1,252 | 1,453 |
| 2,383 | 1,104 | 1,279 | 2,353 | 1,075 | 1,278 |
| 1,839 | 778 | 1,061 | 1,901 | 825 | 1,076 |
| 1,353 | 523 | 830 | 1,365 | 534 | 831 |
| 755 | 256 | 499 | 809 | 272 | 537 |
| 557 | 172 | 385 | 569 | 174 | 395 |



Total Population Projection, 2006-2011 ${ }^{1}$


Total Population Projections, 2012-2017 ${ }^{1}$



[^0][^1]Total Population Projections, 2018-2023 ${ }^{1}$



Source: Department of Statistics
${ }^{1}$ Includes race not stated and Bermudian status not stated

Total Population Projections, 2024-2029 ${ }^{1}$

|  | July 1, 2024 |  |  | July 1, 2025 |  |  | July 1, 2026 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age Group | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| Total | 65,724 | 30,780 | 34,944 | 65,715 | 30,734 | 34,981 | 65,691 | 30,681 | 35,010 |
| 0-4 | 3,656 | 1,853 | 1,803 | 3,644 | 1,848 | 1,796 | 3,632 | 1,843 | 1,789 |
| 5-9 | 3,534 | 1,803 | 1,731 | 3,535 | 1,802 | 1,733 | 3,531 | 1,798 | 1,733 |
| 10-14 | 3,386 | 1,723 | 1,663 | 3,382 | 1,720 | 1,662 | 3,384 | 1,722 | 1,662 |
| 15-19 | 3,208 | 1,620 | 1,588 | 3,199 | 1,609 | 1,590 | 3,186 | 1,598 | 1,588 |
| 20-24 | 3,293 | 1,627 | 1,666 | 3,213 | 1,604 | 1,609 | 3,176 | 1,582 | 1,594 |
| 25-29 | 4,311 | 2,029 | 2,282 | 4,308 | 2,005 | 2,303 | 4,266 | 2,001 | 2,265 |
| 30-34 | 4,726 | 2,223 | 2,503 | 4,717 | 2,216 | 2,501 | 4,654 | 2,185 | 2,469 |
| 35-39 | 4,517 | 2,107 | 2,410 | 4,527 | 2,128 | 2,399 | 4,586 | 2,153 | 2,433 |
| 40-44 | 4,266 | 2,010 | 2,256 | 4,331 | 2,038 | 2,293 | 4,375 | 2,070 | 2,305 |
| 45-49 | 4,045 | 1,875 | 2,170 | 4,014 | 1,868 | 2,146 | 3,997 | 1,848 | 2,149 |
| 50-54 | 4,519 | 2,165 | 2,354 | 4,380 | 2,081 | 2,299 | 4,214 | 1,985 | 2,229 |
| 55-59 | 4,726 | 2,304 | 2,422 | 4,596 | 2,225 | 2,371 | 4,586 | 2,211 | 2,375 |
| 60-64 | 5,048 | 2,402 | 2,646 | 4,987 | 2,364 | 2,623 | 4,852 | 2,320 | 2,532 |
| 65-69 | 4,114 | 1,763 | 2,351 | 4,215 | 1,858 | 2,357 | 4,321 | 1,911 | 2,410 |
| 70-74 | 3,147 | 1,363 | 1,784 | 3,275 | 1,396 | 1,879 | 3,361 | 1,404 | 1,957 |
| 75-79 | 2,370 | 955 | 1,415 | 2,436 | 981 | 1,455 | 2,480 | 1,011 | 1,469 |
| 80-85 | 1,474 | 539 | 935 | 1,534 | 562 | 972 | 1,637 | 599 | 1,038 |
| 85+ | 1,384 | 419 | 965 | 1,422 | 429 | 993 | 1,453 | 440 | 1,013 |



Source: Department of Statistics

[^2]| Age Group | July 1, 2030 |  |  |
| :---: | :---: | :---: | :---: |
|  | Total | Male | Female |
| Total | 65,447 | 30,400 | 35,047 |
| 0-4 | 3,552 | 1,801 | 1,751 |
| 5-9 | 3,487 | 1,780 | 1,707 |
| 10-14 | 3,397 | 1,730 | 1,667 |
| 15-19 | 3,180 | 1,594 | 1,586 |
| 20-24 | 3,096 | 1,508 | 1,588 |
| 25-29 | 4,036 | 1,934 | 2,102 |
| 30-34 | 4,567 | 2,129 | 2,438 |
| 35-39 | 4,591 | 2,161 | 2,430 |
| 40-44 | 4,422 | 2,067 | 2,355 |
| 45-49 | 4,243 | 1,984 | 2,259 |
| 50-54 | 3,907 | 1,799 | 2,108 |
| 55-59 | 4,190 | 1,972 | 2,218 |
| 60-64 | 4,225 | 2,005 | 2,220 |
| 65-69 | 4,460 | 2,044 | 2,416 |
| 70-74 | 3,710 | 1,555 | 2,155 |
| 75-79 | 2,775 | 1,108 | 1,667 |
| 80-85 | 1,905 | 707 | 1,198 |
| 85+ | 1,704 | 522 | 1,182 |
| Source: Department of Statistics |  |  |  |

${ }^{1}$ Includes race not stated and Bermudian status not stated


[^0]:    Source: Department of Statistics

[^1]:    ${ }^{1}$ Includes race not stated and Bermudian status not stated

[^2]:    ${ }^{1}$ Includes race not stated and Bermudian status not stated

