# Population Estimates for New York City
# The Housing Unit-Based Alternative

## Overview

The Department of City Planning (DCP) alternate method produces a July 1, 2014 population for New York City of 8,392,900 persons, which is 98,200 or 1.2 percent lower than the estimate produced by the U.S. Census Bureau.  The difference is greatest in the Bronx, where the DCP estimate is 2 percent lower than the Census Bureau estimate.  Queens has the largest absolute difference, 39,000 fewer persons than the Bureau estimate, or 1.7 percent.  The differences in Manhattan, Brooklyn and Staten Island are 1 percent or less, with the DCP estimate for Staten Island effectively the same as the Census Bureau estimate.  These differences are modest, when considering the limitations in capturing the high level of population mobility in the city, using the methods described herein.  However, combined with an earlier adjustment by DCP to account for the 2010 undercount (discussed below), the DCP alternate method places the city's population on a growth trajectory more consistent with the Department's 2040 population projection of 9.025 million.[1]

| DCP and Census Bureau Population Estimates- July 2014 New York City by Borough | | | | |
|---|---|---|---|---|
| | **DCP Housing Unit Method*** | **Census Bureau Admin Records Method** | **Difference** | |
| | | | **Number** | **Percent** |
| New York City | 8,392,885 | 8,491,079 | -98,194 | -1.2 |
| Bronx | 1,410,007 | 1,438,159 | -28,152 | -2.0 |
| Brooklyn | 2,607,992 | 2,621,793 | -13,801 | -0.5 |
| Manhattan | 1,619,556 | 1,636,268 | -16,712 | -1.0 |
| Queens | 2,282,593 | 2,321,580 | -38,987 | -1.7 |
| Staten Island | 472,736 | 473,279 | -543 | -0.1 |

*with Brooklyn and Queens adjustment

Sources: Population Division-New York City Department of City Planning (DCP);
Population Estimates Program, U.S. Census Bureau

## Methods

The Census Bureau adopts a single method for estimating the populations of thousands of local governments across the nation.  This standardized approach uses vital statistics on births and deaths, survey data on international migration, along with administrative records on Medicare enrollment and changes of address and exemptions on federal tax returns to estimate change in the population.  This administrative records (ADREC) method has been shown to work well in many communities throughout the nation, especially in places where rates of population mobility and turnover are low and many people age in place.  However, in a place like New York City, where population turnover is common and where complex patterns of migration are the order of the day, the ADREC method may not be the most useful way to gauge population change.  Other approaches, such as the Housing Unit (HU) method have proven to be very useful for local area population estimation.

"The HU method is an accurate, comprehensive, and extremely flexible form of population estimation."[2] Each year DCP reviews the Census Bureau's estimates derived from the ADREC methods against estimates derived from the HU method. The HU method is based on changes in the number of housing units, their level of occupancy, and persons per household (PPH). This method is widely used by local governments because most jurisdictions keep records on new housing units for the purposes of compliance with local laws and for taxation. Each of these methods, and a number of others, all have their strengths and weaknesses, which usually makes the use of multiple methods for evaluation and review purposes helpful.[3]

The HU method employed by the Population Division begins with a 2010 Census base that is adjusted for deficiencies in census coverage (aka "undercount"), based on an analysis that was conducted shortly after the 2010 Census results were released.[4] The analysis found strong evidence that two Local Census Offices, from which the decennial census enumeration was conducted, implemented procedures resulting in the erroneous identification of housing units as vacant and/or nonexistent. As a consequence, the populations for two of New York City's five boroughs – Brooklyn and Queens – were increased to make up for this deficit, using data from the triennial New York City Housing and Vacancy Survey (NYCHVS).

The DCP estimates used persons per household (PPH) and occupancy rates from the 2010 Census, with adjustments for the undercounts described above. The net change in the number of housing units is based on certificates of occupancy for new units and permit data on the number of housing units that have been demolished. Selected data on housing units created through the conversion of existing buildings also were included. Finally, DCP performed a post-2010 update of the population in group quarters.[5]

The net number of new housing units for the period from April 1, 2010 to June 30th of 2014 was about 65,000, which is insufficient to accommodate the additional 98,200 persons in the Census Bureau estimate without an upward shift in occupancy rates and/or a large positive change in average household size. Given that the objective of the NYCHVS is to estimate the level of vacancy in the city, the occupancy rate is independently determined. DCP reviewed changes in the NYCHVS occupancy rates since 2010 as a means of adjusting the rates for 2014, but found only small changes, which had little effect on the population estimates.

An analysis was conducted to gauge whether the change in PPH necessary to close the gap between the DCP and Census Bureau estimates would be reasonable by historical standards. For the Bronx and Queens, PPH would have to be raised by .06 and .05 of a person respectively, in order to equal the Census Bureau's population estimates. In Manhattan, PPH would have to be raised by .02 of a person. Since the differences between DCP and the Census Bureau were less than 1 percent for Brooklyn and close to zero for Staten Island, little or no change in PPH was required. By historical standards, a change in the range of .05 or .06 of a person over four years would be implausible; even .02 is very unlikely. And, judging from the attenuation of post-2010 domestic migration losses, which is likely a result of increases in the influx of young domestic migrants in non-family households, PPH has not likely increased and may even have *declined* in the post-2010 period.[6]

# Endnotes

[1] See *New York City Population Projections by Age/Sex & Borough, 2010-2040*
http://www.nyc.gov/html/dcp/html/census/projecting_future.shtml

[2] Smith, S.K. and Cody, S. 1994. Evaluating the Housing Unit Method: A Case Study of 1990 Population Estimates in Florida, *Journal of the American Planning Association* 60: 209-221.

[3] In fact, in the 1980s, the Census Bureau's Population Estimates Program utilized multiple methods for the creation of population estimates, a practice that was discontinued in the 1990s.

[4] For more information, see http://www.nyc.gov/html/dcp/html/census/census_challenge_2010.shtml

[5] A group quarters is a place where people live or stay that is normally owned or managed by an entity or organization providing housing and/or services for the residents. People living in group quarters are usually not related to each other. Group quarters include such places as college residence halls, residential treatment centers, skilled nursing facilities, group homes, military barracks, correctional facilities, workers' dormitories, and facilities for people experiencing homelessness.

[6] For a more thorough discussion, see Salvo, J.J. and A.P. Lobo (2013) "A Portrait of New York's Immigrant Mélange," in *One Out of Three: Immigrant New York in the Twenty-First Century*, Nancy Foner (Ed). New York: Columbia University Press, 2013, PP. 56-8.