

# **County Population and Housing Estimates and Projections Methodology and Assumptions**

## Estimate Methodology and Assumptions

The July 1, 2004 population estimate was completed in the following steps.

First, the number of building permits issued from October 1, 1999 through December 31, 2003 was added to the housing unit count in existence on April 1, 2000 as published in the US Census of Population and Housing of 2000 for each municipality in Warren County. The type of permits issued were classified as single family, 2 to 4 family, and multi-family, and age restricted. It is assumed that six months are required to build a housing unit from the time the building permit is issued. This explains why the building permit count must begin with the month of October 1999 because it is six months prior to April 1, 2000. Similarly, the building permit tally ends with December 31, 2003, thereby forming the basis for the estimate for July 1, 2004.

Next, the number of occupied housing units (households) was estimated by multiplying the occupancy rate reported in the Census for each municipality. To calculate household population, the average number of persons per household was multiplied by the estimated number of occupied housing units. Age restricted, multifamily, and two to four family units were assigned lower values based, in part, on countywide figures contained in the US Census of Population. The figures used were as follows: for multifamily units, 1.78 persons per household, two to four family households, 2.0 persons per household, and for age restricted the planning department estimated 1.8 persons per household. Then, to calculate the total estimated population, the population reported to be in group quarters was added to the estimated household population.

## Issues with Assumptions

The year 2000 housing unit count for Hackettstown and Mansfield are estimated. The published population count for Hackettstown and Mansfield were in error. When the population counts were contested by the municipalities and the county, the US Census Bureau corrected the population figures. However, the Bureau did not correct any of the other data, including the housing unit count for the two municipalities. Therefore the Warren County Planning Department had to estimate the number of housing units in both municipalities based on the number of building permits issued in each municipality through the 1990's and assuming average population per household figures.

Although average household sizes have been declining over the last 30 years, the rate of decline has slowed. From 1970 to 1980 the countywide average persons per household declined by 29%, from 1980 to 1990 the decline was 17% and from 1990 to 2000 the decline was 5%. Because the rate of decline is leveling out, it is better not to continue the trend because extrapolating the trend may produce an underestimation of population. Therefore, the household size as documented in the 2000 US Census of Population was used.

The countywide average household size for households where the householder is over fifty five years of age is 1.55 persons. Using this number for age restricted communities would mean that 50% of the housing units would be occupied by one person only which would be too low of a figure to use for these communities. Definitive data could not be found regarding household sizes for age restricted communities; however, it was assumed that most that move into age restricted communities are couples and that average household size would be between 1.55 and 2.0 persons per unit. Therefore, 1.8 persons per household seems to be a reasonable figure to use.

Occupancy rates were held constant. In general since 1970, municipal occupancy rates in Warren County municipalities have ranged from 90% to 97%. Countywide the occupancy rate has ranged from 93% to 95%. Because no trend or pattern can be assumed in the occupancy rates, the year 2000 rate for each municipality will be used until updated reliable figures are obtained.

The group quarters' population for the year 2000 was held constant as well. Population in group quarters can be defined as people residing in prisons, group homes, nursing homes, dormitories, and military installations.

#### Population Projections Methodology

The population projections attempt to predict the amount of residential growth that might occur over the next 25 years by taking the Highlands Preservation and Water Protection Act, a county build out projection based on local zoning, environmental factors, and low density zoning ( 10 acre density or more) into account. The assumptions and methodology are described below.

A build out analysis was completed to attempt to reflect the stricter environmental standards that were imposed on land areas in the Preservation Area. For this analysis, it was assumed that, residential development would take place at a density of 1 dwelling unit per 8 acres, unless already zoned at a lower density, and that no additional non-residential development will take place in the preservation area. Land areas that were zoned for non-residential purposes were converted to residential at a density of one dwelling unit per 8 acres. Environmental constraints in the preservation area are preserved open space and farmland, steep slopes over 15%, 300 feet around all water bodies, wetlands, and floodplains. Outside of the Highlands Preservation area, environmental constraints include preserved open space and farmland, steep slopes over 25%, 300 feet around all C1 streams, wetlands, and floodplains. After factoring out the environmentally constrained lands, existing developed areas, and reducing the resulting “developable” land areas by an additional 15% to account for roadways, utilities, drainage facilities, etc, the number of new housing units that could be built was calculated based on the existing zoning densities. The total number of projected new housing units was multiplied by the average number of persons per household as reported in the US Census of Population for 2000, for each municipality to arrive at a full buildout population.

The 2005 projection assumes that the ratio of the county population to the state population will be the same as it was in 2004. Similarly, it assumes that each municipality in Warren County will have the same ratios of population to the county population as in 2004. In absence of

official state estimates for the years 2004 and 2005, the state population was projected by the planning department at the current short term trend rate.

To calculate the 2010 population, a baseline projection was calculated. To calculate baseline, the ratio of the county to state population was assumed to remain constant from 2005 to 2010. The latest population projection released by the NJ Dept. of Labor was used for the 2010 state projection. The ratios of municipal to county population were projected based on the trend in the change of the annual ratios from 2000 to 2005. The county projection was then disaggregated to the municipal level based on the trend in ratios.

Next, the 2010 baseline projection was adjusted to reflect the impacts of the Highlands Preservation Area, and large lot zoning ( 10 acre density and lower). To account for the Highlands Preservation Area the population increase was reduced by one half of the proportion of developable land in the preservation area to the amount of developable area in the entire municipality. To account for large lot zoning, the population increase was reduced by one quarter of the proportion of developable land zoned 10 acres or more to the amount of developable land in the municipality. These factors are a method to attempt to reduce the rate of growth in the preservation area and in areas that are zoned for lower densities.

Additional refinements were made to the 2010 projection to account for proposed development activity. Population numbers were adjusted to consider the larger proposed developments located outside of the Highlands Preservation Area that would increase the population to more than the 2010 adjusted baseline projection. A listing of the proposed development considered is on page 4.

The final projection figure for each municipality was limited to the build out population forecast. The final county population is the sum of the municipal population figures after all adjustments were made. Then the ratio of municipal population to the final county population was calculated.

For the years 2015 to 2030, the following methodology was used. Using the latest release from the NJ Dept. of Labor the baseline county population was calculated based on the previous years ratio of county to state population. Similarly, the county population was disaggregated to the municipal level based on the last calculated ratio of municipal to county population. Adjustments to the population numbers were then made for the highlands preservation area and large lot zoning using the methodology described above. If the adjusted numbers were still higher than the buildout number, after the adjustments were made, the buildout number was used as the final projected number.

For municipalities where buildout was reached in the previous projection, it was assumed that the population would not remain stagnant. Subsequent population increases were assumed to take place at one-half the calculated rate after factoring out the impacts of the Highlands preservation area and large lot zoning.

Household population numbers were calculated by subtracting the group quarters population as reported in the 2000 Census from the total population.

### Issues with Projections

The projections presented attempt to consider trend, policy, and known factors possibilities such as development applications and environmental constraints. One factor not dealt with is the possibility that the areas outside of the Highlands Preservation area may experience a greater rate of growth due to a redistribution of economic demand for housing from the preservation area. Another unknown factor is where the Highlands Regional Master Plan will recommend for Transfer of Development receiving zones in the Highlands planning area. The Highlands Planning Council will be completing the plan in 18 months.

### **Listing of Proposed Development Considered in 2010 Projection**

#### Allamuchy

Mountain Ridge – 347 condominium and 47 single family  
Village 9 – 168 condo apartments

#### Alpha

Alpha 519 -- 108 single family and townhouse

#### Belvidere

Quality First Builders -- 14 single family  
Adult Restricted Proposal -- 240 units

#### Franklin

R.L.L. – 10 single family  
Brandywine—120 units

#### Hackettstown

Hunters Brook – 101 units

#### Harmony

Riverwalk – 310  
American Developers – 25

#### Mansfield

Meadows – 226 adult  
Other age restricted – 200? Units

Pohatcong

Regency at Pohatcong – 312 adult  
Highlands at Pohatcong – 466 units

**METHODOLOGY FOR HOUSING UNITS AND HOUSEHOLDS**

The number of households (occupied housing units) was calculated by dividing household population by the average number of persons per household for each municipality as reported in the 2000 US Census of Population.

To project the total number of housing units the number of occupied housing units was divided by the occupancy rate as reported in the 2000 Census of Population and Housing for each municipality.