

# **Population and Housing Demand Projections for Metro Boston**

*Regional Projections and Provisional Municipal Forecasts*

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Metropolitan Area Planning Council

## **Appendix E:**

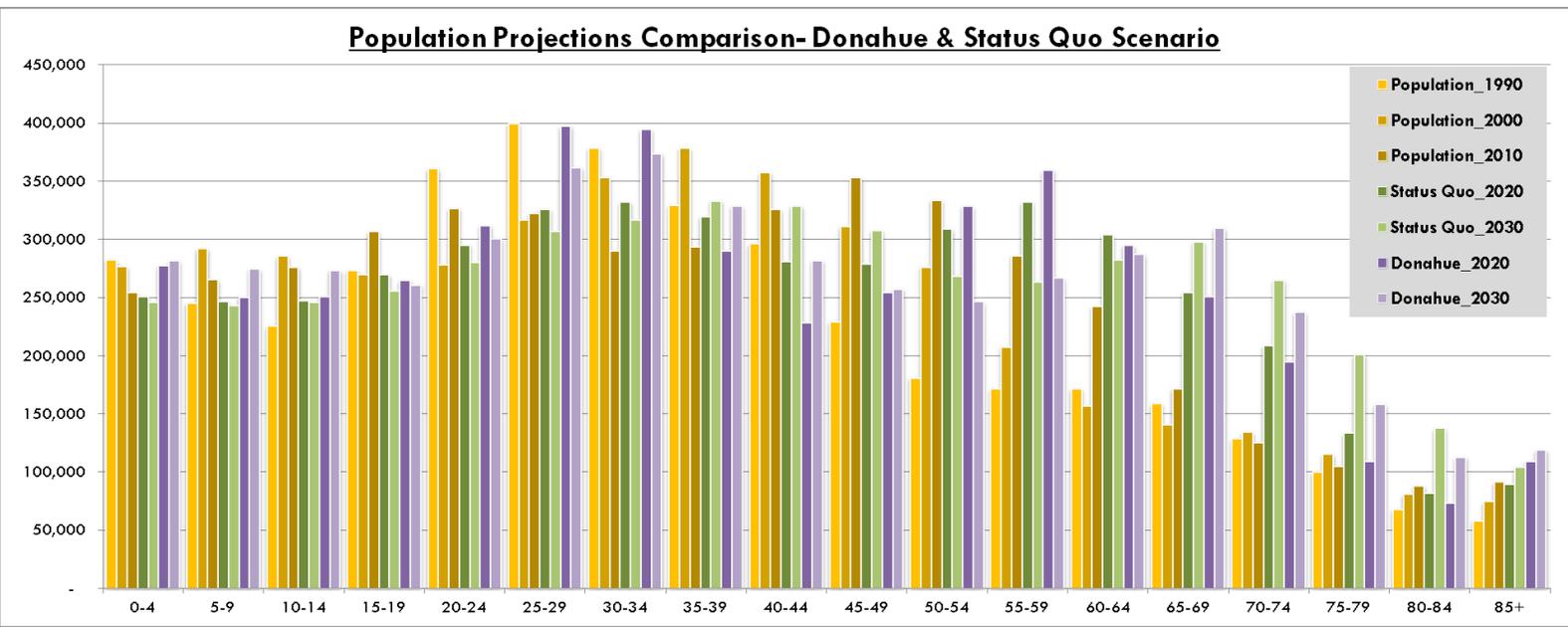
**Comparison with UMass Donahue Institute 2013 Population Projections**

MAPC compared our population projections with the Population Projections for Massachusetts Municipalities prepared by the Population Estimates Program of the Donahue Institute at the University of Massachusetts Amherst (<http://pep.donahue-institute.org>.) While the methods and overall estimates for the two sets of projections are similar (MAPC and Donahue Staff consulted with each other during the parallel processes), certain differences between the two methodologies show a variance in the two estimates. Key differences in the two methodologies are as follows:

- MAPC used the publicly available births and deaths data from the DPH portal. At a certain level of granularity, for towns with very few people in a particular cohort for example, some of the data was suppressed in the portal. Donahue Institute's data did not have such suppression. MAPC also estimated the fertility and mortality rate from the estimated population for each cohort in each municipality based on the 2000 and 2010 population that accounted for the adjustment in the over estimates in Census population projections for 2006-2009. Donahue Institute used DPH's age adjusted rates for the fertility and mortality rates.
- MAPC population projection region was the 164 cities and towns in Eastern Massachusetts which was used as the control total for the municipal forecast allocation. The Donahue projection region that overlapped with this geography constituted of multiple regions for its analysis- namely Greater Boston, Northeast, Southeast, Metrowest and Central regions. Each of these subregions was used as the control total for the municipalities in the group which could result in differing allocation and adjustment between the two sets of projections.
- Both the methodologies used in and out migration flows with some differences. MAPC used total flows into the region and then allocated it to the age cohorts based on data about the composition of in-migrants. For out-migrants, since the denominator i-e- beginning population was known for each age group- out migration rates were calculated and applied to the beginning population in each cohort. The Donahue Institute used in-migration and out-migration rates for each age cohort based on PUMS data. Donahue institute also had two parts to the domestic in-migration, with different rate estimates for neighboring North-East states, and for the rest of US. MAPC used rest of MA and other 49 states to get total in-migration number which was then allocated to the age categories. The differences in the in-migration estimate, as well as the difference in the definition of the control region as mentioned above, vary the net migration estimate totals and age breakdown.
- MAPC adjusted some atypical trends from the past decade that are unlikely to occur in the future at the municipal level. These include events such as construction of large age-restricted housing causing an influx of seniors in a particular municipality that is less likely to continue in similar magnitude in the future, and municipal level adjustments that assume future development and investments will change previously observed trends. The Donahue Institute forecasts do not include any municipal-specific adjustments.
- MAPC developed two alternative scenarios by incorporating certain assumptions about anticipated changes in demographics, while the Donahue Institute did not include alternate growth scenarios. The following comparison of MAPC's and Donahue Institute's projection numbers uses the Status Quo scenario.

Overall the population projections between the two methods vary marginally, with the Status Quo scenario projecting lesser population than the Donahue projections by 2% and 1% for 2020 and 2030 respectively. There is more variation in the age structure- with MAPC projecting fewer 25- 35 year olds in the region, and subsequently fewer kids below 15 years of age. The Status Quo scenario projects more people in the 40-50 year and over 70 year age groups as compared to the Donahue projections.

Differences in the other age groups are within the 5-7% range. Figure 1 below shows the population trends in the region and the two sets of projections by age group.



The difference in the migration methodology between the two sets of numbers can explain the deviation in the estimates for the 25-45 year age group. Comparison of our projected net migration indicates that MAPC projects that future immigration of 25-35 year olds (in 2020) will be lower than previous decades, while the Donahue report anticipates that net immigration will increase substantially. Conversely, for the 35-44 year olds in 2020, MAPC estimates lesser net out-migration than previous trends have seen, and Donahue estimates show more out-migration for the cohort.

The high number of children under 14 years age can be attributed to both the migration methodology differences and the differences in the fertility rates, and the variation in the over-70 age group can be a result of the different rates of survival the two methods estimated and used. The comparison of age structure does not vary substantially when analyzed for the different community types in the region.

The municipal totals for the 164 cities and towns are comparable between the two sets of estimates. A total of 26 municipal totals vary by more than 10% between the two sets of estimates, of which 9 show a variation in the two sets by over 15%. The reasons for this variation can be explained by two methodological differences- the primary being the municipal level adjustments MAPC applied to adjust atypical trends, and also the adjustment to account for the lowering of rents and subsequent filing of housing units so as to not have existing housing stock vacant and no housing demand in the future. Since the Donahue projections do not estimate households and their occupancy, the adjustments are made in the MAPC estimates.

All the municipalities with over 10% difference in the population estimates were adjusted in the MAPC methodology and the variation can be attributed to the adjustments and/ or different control totals for the region in the two methodologies as mentioned above. The age structure variations of the region overall carry forward to the municipalities with small variations in the age structure. The following map shows the variation in the school age population (age group 5-14 years) between the two estimates.

# Total Population over 5-14 yrs. age change, 2010-2030

Status Quo Scenario & Donahue projections

