Memo

To: Melanie Needle, *CCRPC* and Regina Mahoney, *CCRPC*
CC: Charlie Baker, *CCRPC* and Jonathan Slason, *RSG*
From: John M. Dellipriscoli and Robert A. Chase, *Economic & Policy Resources*
Date: February 10, 2017
Re: Initial Household Size Forecast – County and Municipal Breakout

The table provided to you on February 9, 2017 via email summarizes the results of our initial household size forecast for Chittenden County and its respective municipalities. These results reflect the forecasted average household size in each area from 2020 through 2040, consisting of both wage and salary employment and proprietors' employment. Table 1 below summarizes the results sent in the email on February 9, 2017[1]:

Table 1: Initial Household Size Forecast – February 8, 2017

	Year					
Area	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Chittenden County	2.36	2.38	2.36	2.33	2.29	2.24
Bolton	2.35	2.44	2.35	2.25	2.13	2.02
Buels gore	3.07	3.19	3.32	3.46	3.59	3.71
Burlington	2.20	2.24	2.26	2.28	2.28	2.29
Charlotte	2.60	2.60	2.53	2.45	2.36	2.27
Colchester	2.37	2.36	2.31	2.25	2.18	2.11
Essex (Town and Junction)	2.43	2.47	2.40	2.31	2.21	2.11
Hinesburg	2.55	2.36	2.31	2.25	2.18	2.11
Huntington	2.47	2.42	2.39	2.37	2.34	2.32
Jericho	2.62	2.72	2.72	2.72	2.71	2.68
Milton	2.59	2.65	2.61	2.55	2.47	2.39
Richmond	2.61	2.61	2.66	2.71	2.75	2.80
Shelburne	2.49	2.54	2.56	2.55	2.52	2.47
So. Burlington	2.19	2.22	2.19	2.14	2.08	2.01
St. George	2.50	2.36	2.31	2.27	2.23	2.19
Underhill	2.63	2.61	2.58	2.54	2.50	2.46
Westford	2.71	2.67	2.66	2.65	2.65	2.64
Williston	2.37	2.45	2.41	2.35	2.28	2.20
Winooski	2.27	2.22	2.26	2.30	2.33	2.35

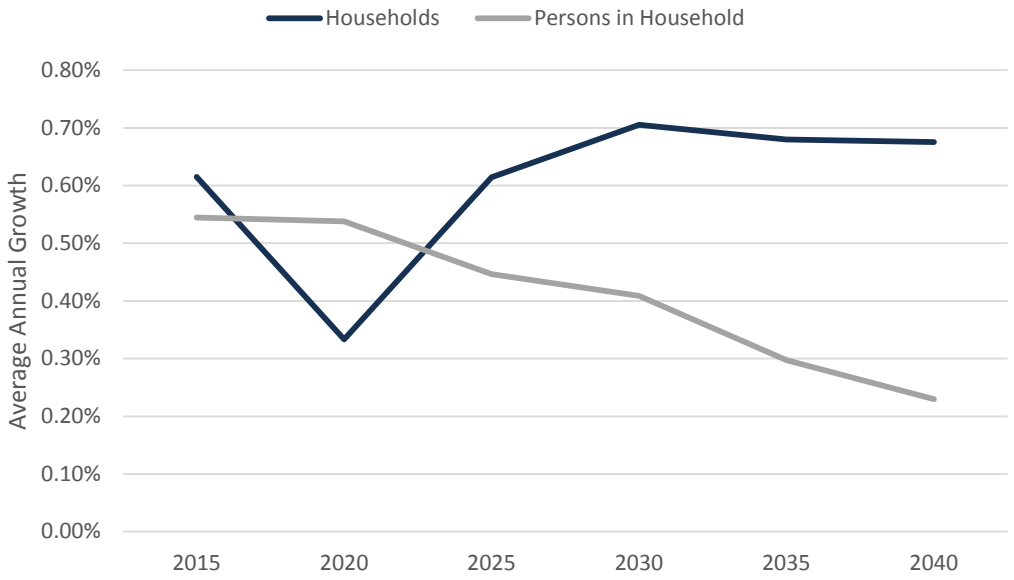
It is important to note that the household size is calculated as the number of people living in a household divided by number of households.[2] Persons living in group quarters are not included in people living in households. 2010 – 2015 U.S. Census ACS 5 year household data for all areas

[1] The forecasted average household size for Chittenden County has been revised from the table sent in the February 9, 2017 email.
[2] United States Census Bureau

were regressed against Moody's forecast for households at the state level. Persons living in households was projected to grow at the same rate as the total population for all areas (anchoring the forecast to the population forecast). At the county level we forecast a slight increase in household size in 2020, followed by a sustained decrease through to 2040. This is attributed to the faster rate growth in households (denominator) vs the growth in population living in households (numerator).

Chart 1 below shows how the average annual growth between 5 year periods differed for households and persons in households in Chittenden County, respectively:

Chart 1: Average Annual Growth in Households and Persons in Households – Chittenden County



Please note that the dip in the growth rate in 2020 for households is essentially a function of smoothing the historical data.

While both the number of households and the number of persons living in households are increasing at the county level, the number of households is moving at a relatively faster rate. This can perhaps be tied into the fact that the June 2016 Moody's Analytics forecast had a more aggressive forecast of Vermont population growth relative to the June 2016 Vermont Statewide Population Consensus Forecast—Legislative Joint Fiscal Office–Shumlin Administration. With a more conservative population forecast and consequently more conservative persons in household forecast being compared to a number of households forecast that reflects Moody's more liberal approach, it is not necessarily surprising that we see this divergence.

From a historical and demographic consideration however and looking at the forecasted trends in the age cohorts previously supplied, the forecasted county trend in household size can be expected. First, the average annual growth rate in households in Chittenden County from 2010 to 2015 is approximately 0.61%. While that average annual growth rate fluctuates throughout the 5-year periods, we see over the 2015 through 2040 period the average annual growth to be approximately 0.60%. Chittenden County also saw its share of total Vermont households to be 24.6% in 2015 and is forecasted to increase that share to 26.2% in 2040 – similar to the expected increase in State population share from 25.8% in 2015 to 26.7% in 2040.

Second, looking at the forecasted growth in age cohorts, the 45-64 age cohort increases its share of the total county population relative to the rest of the separated age cohorts. This age cohort would be expected to no longer have children in the household, reducing the average household size while also increasing the number of households (relative to older or younger cohorts that would be more likely to join a preexisting household). A declining birth rate and increasing housing options would also fuel this trend in lower household size at the county level.

The forecasted growth in household size at the municipal level offers a mix of results which, as expected, don't all conform to the county forecast's downward trend in household size. Burlington, Jericho, and Winooski are all examples of municipalities which are forecasted to increase household size in the long run. The determination of the increase or decrease in the municipalities' household sizes are largely correlated with each municipality's household and persons in households' growth between 2010 and 2015. This series of data is then regressed against the households forecast performed by Moody's Analytics which captures the driving factors in the state and the county. The municipal household size forecasts, much like the population and employment forecasts, are functions of their own historical trends and correlated with the predictive variables at the state and county level.