



CHITTENDEN COUNTY RPC
Communities Planning Together

Draft 2050 Population + Households + Employment Forecast

CCRPC Board Meeting

2/15/2017



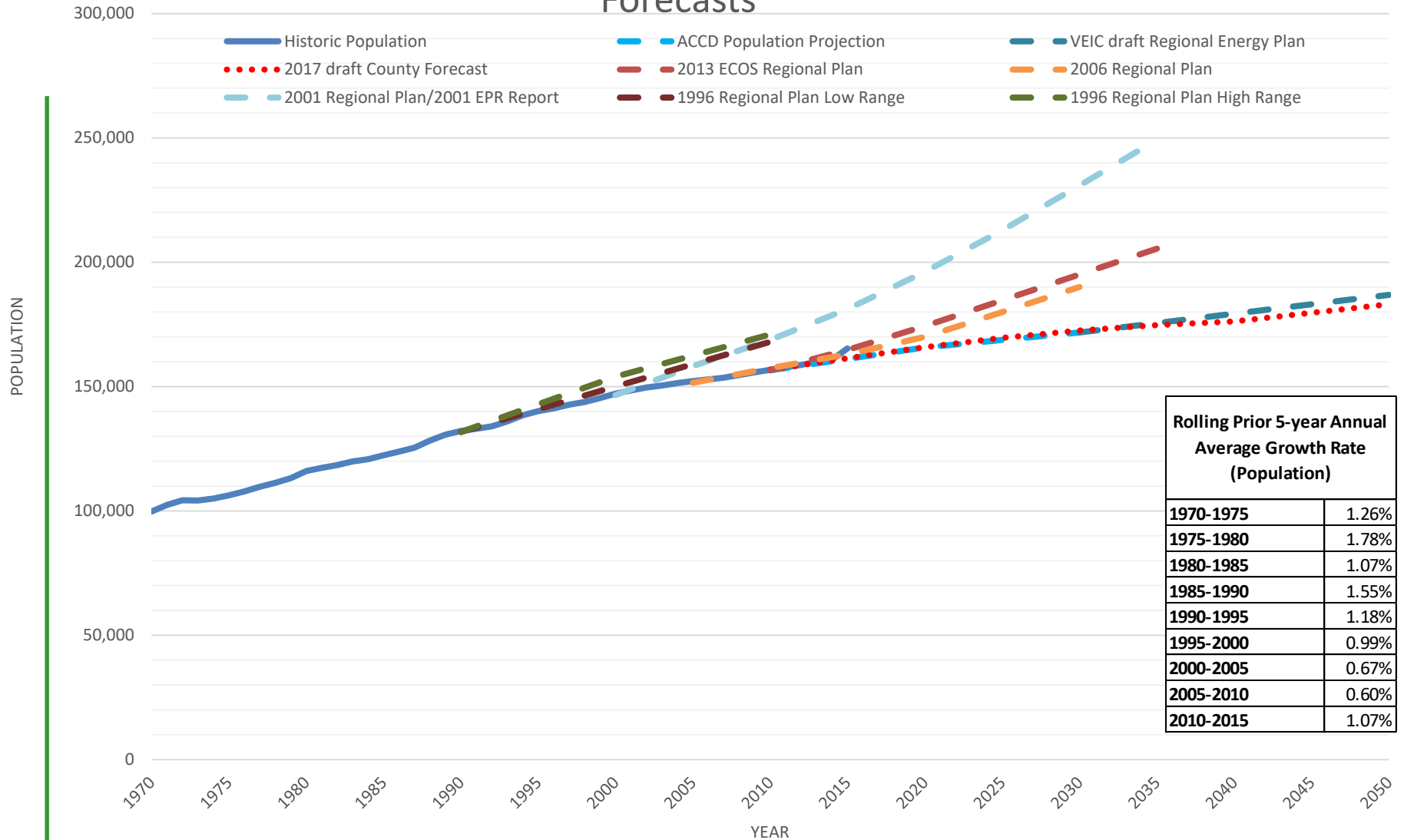
Background

- Vermont Statute requires that all plans shall be based upon surveys of existing conditions and probable future trends, and shall be made in light of present and future growth and requirements (24 VSA §4302(d)).
- Economic and Policy Resources (EPR) + RSG has been working on developing a forecast for the County and municipalities.
 - Population, Employment, Households
- During February and March, Staff will review the forecasts with the TAC, LRPC, PAC, and the Board and share any feedback with the consultant. It is anticipated that the Board will consider approval of the county and municipal forecasts at their March meeting.
 - Regional Energy Plan, Metropolitan Transportation Plan, and ECOS Regional Plan

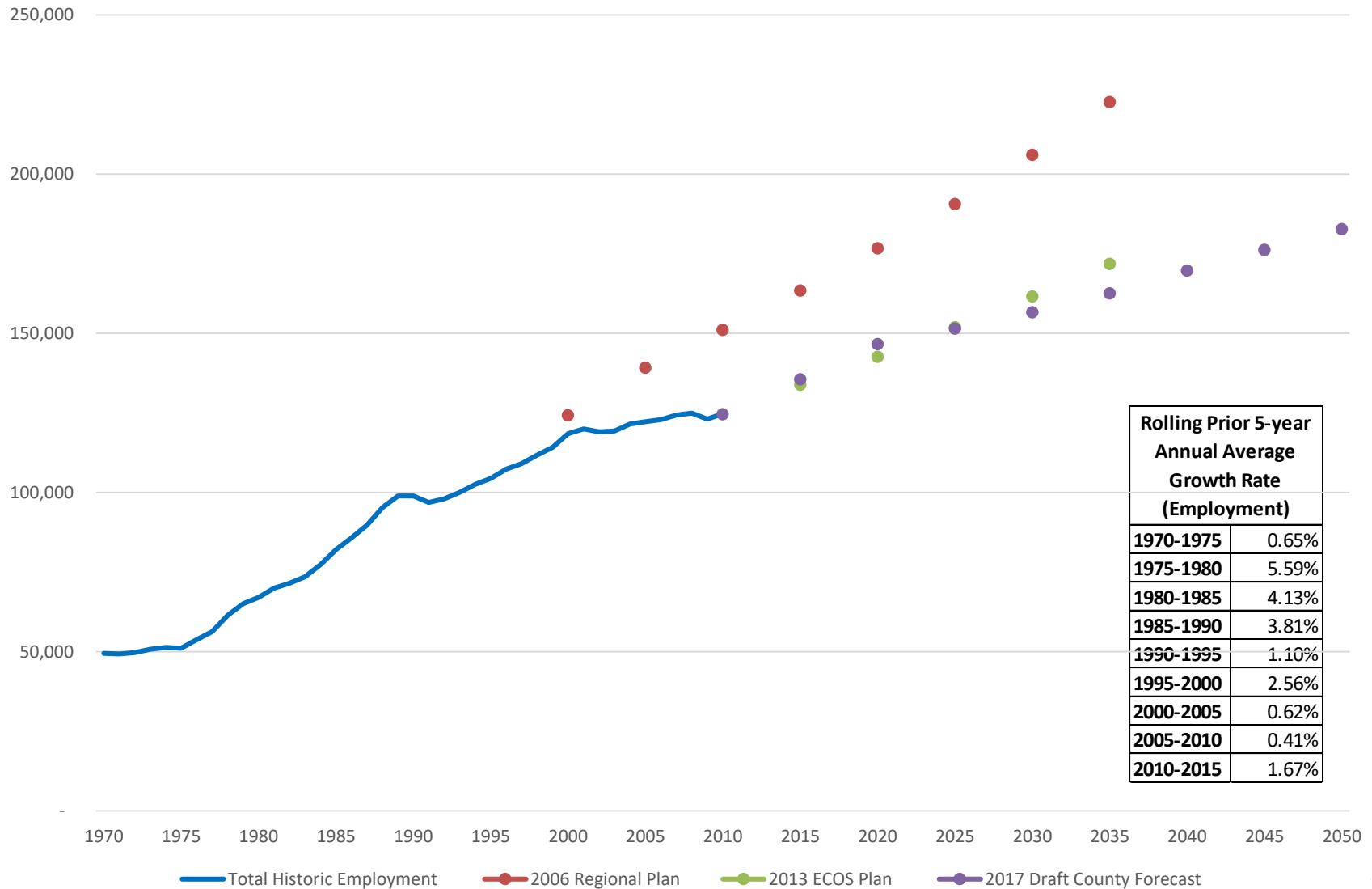
Keep in mind

- In previous iterations of approving forecasts, the CCMPO/CCRPC have agreed that forecasts should **describe the future as we expect it to be, not as we want it to be.**
- Forecasts are a necessary planning tool which help us to understand the impacts of increased population and enable us to make informed decisions based on a potential growth scenario. **Future growth predictions are continually updated and revised along with the Regional Plan.**
- **Forecasts are needed for modeling purposes to help us make more informed decisions.**
- Forecast vs. Projection
 - Projection: Trend approach
 - Forecast: involved complex modeling and statistical approaches to estimate future growth.

Chittenden County Historic Population (1970-2015) & Population Forecasts



Chittenden County Historic Total Employment + Forecast

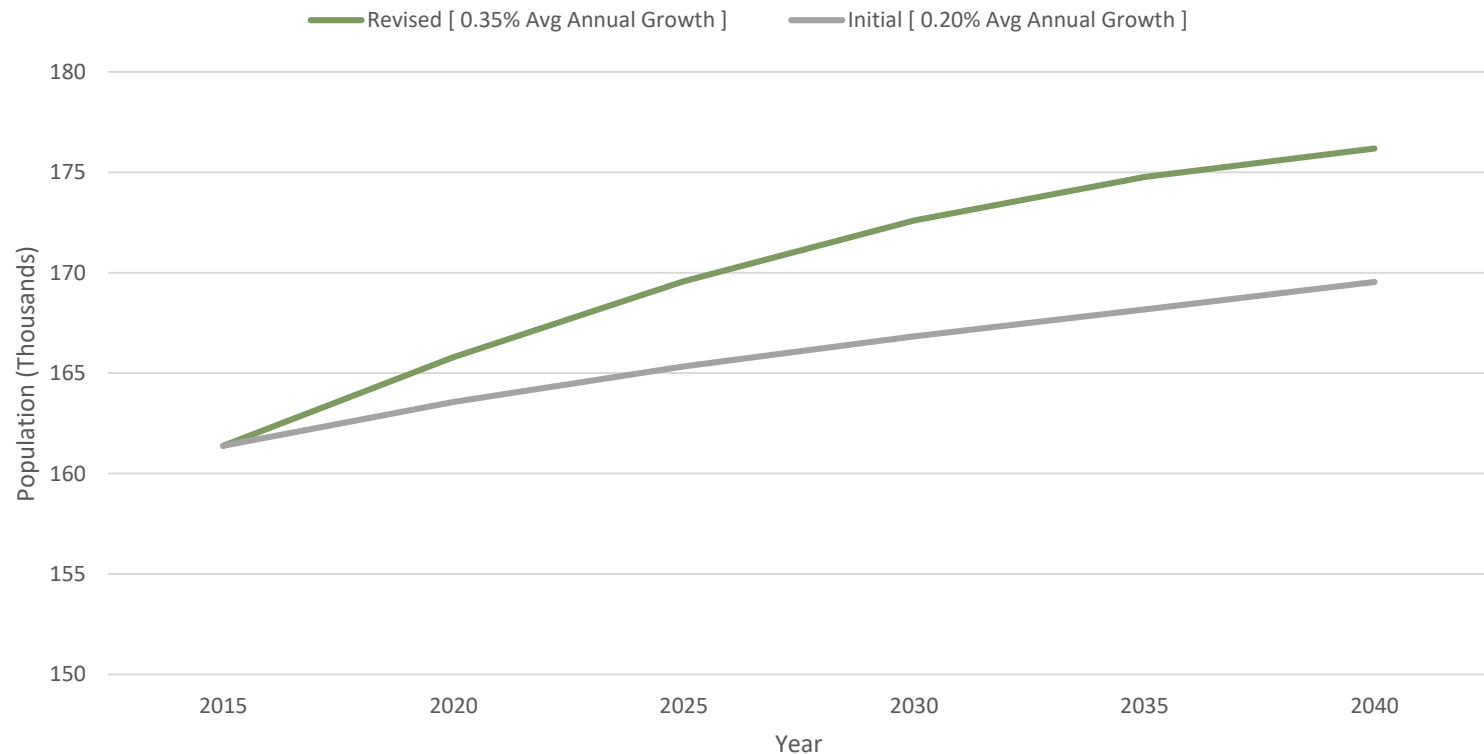


Chittenden County Population Forecast (2010-2040 (EPR))

- Derived from the June 2016 Vermont Statewide Population Consensus Forecast—Legislative Joint Fiscal Office—Shumlin Administration that was utilized in the most recent VTrans Long-Range Transportation Plan update.
 - EPR and Tom Kavet adjust the June 2016 Statewide forecast produced by Moody's Analytics based on survival rates, birth rates, migration information, and other factors.
 - Chittenden County forecast is a function of the county's historical share of the State's total population and the anticipation of factors that will increase its share in the future (county-to-county migration, relative increase in housing, etc.)
- EPR adjusted additionally from the consensus forecast based on feedback from the CCRPC – used statistical methods to smooth age cohort data and increased the total county and state population.

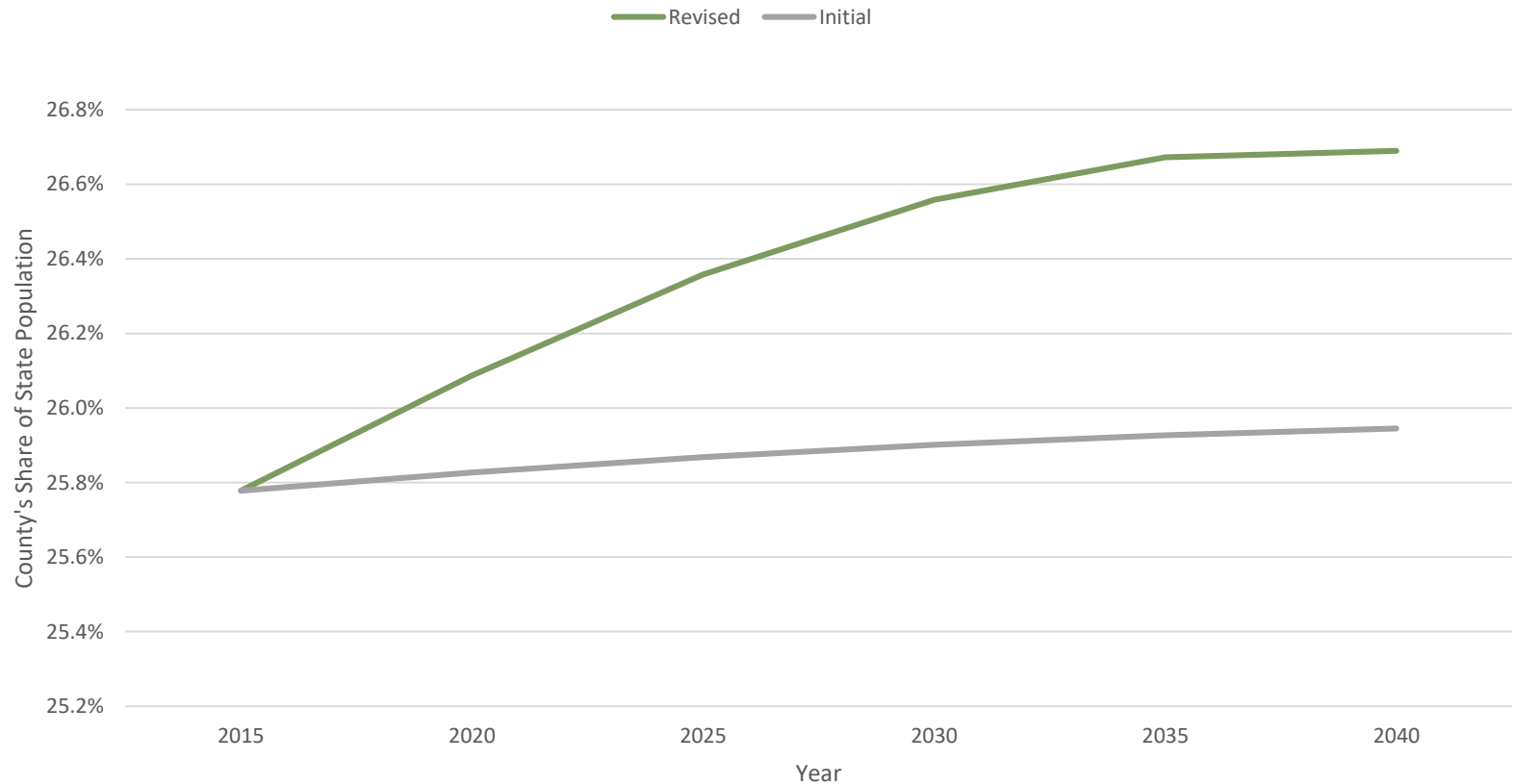
Chittenden County Population Forecast

- Change between consensus and EPR adjusted with CCRPC Feedback

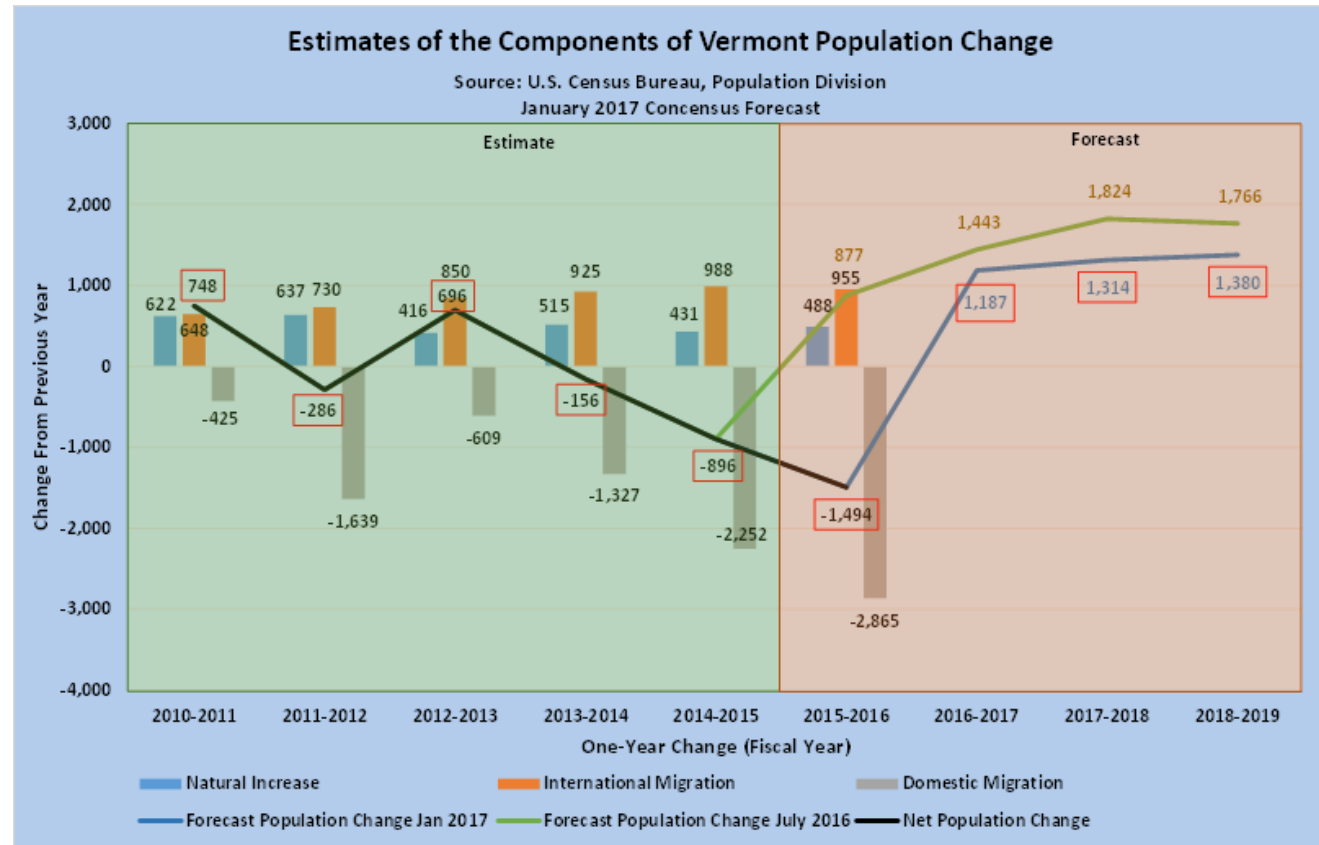


Chittenden County Population Forecast

- Change between consensus and EPR adjusted with CCRPC feedback



Vermont Population Forecast



Chittenden County Population Forecast

- Age cohort breakdown

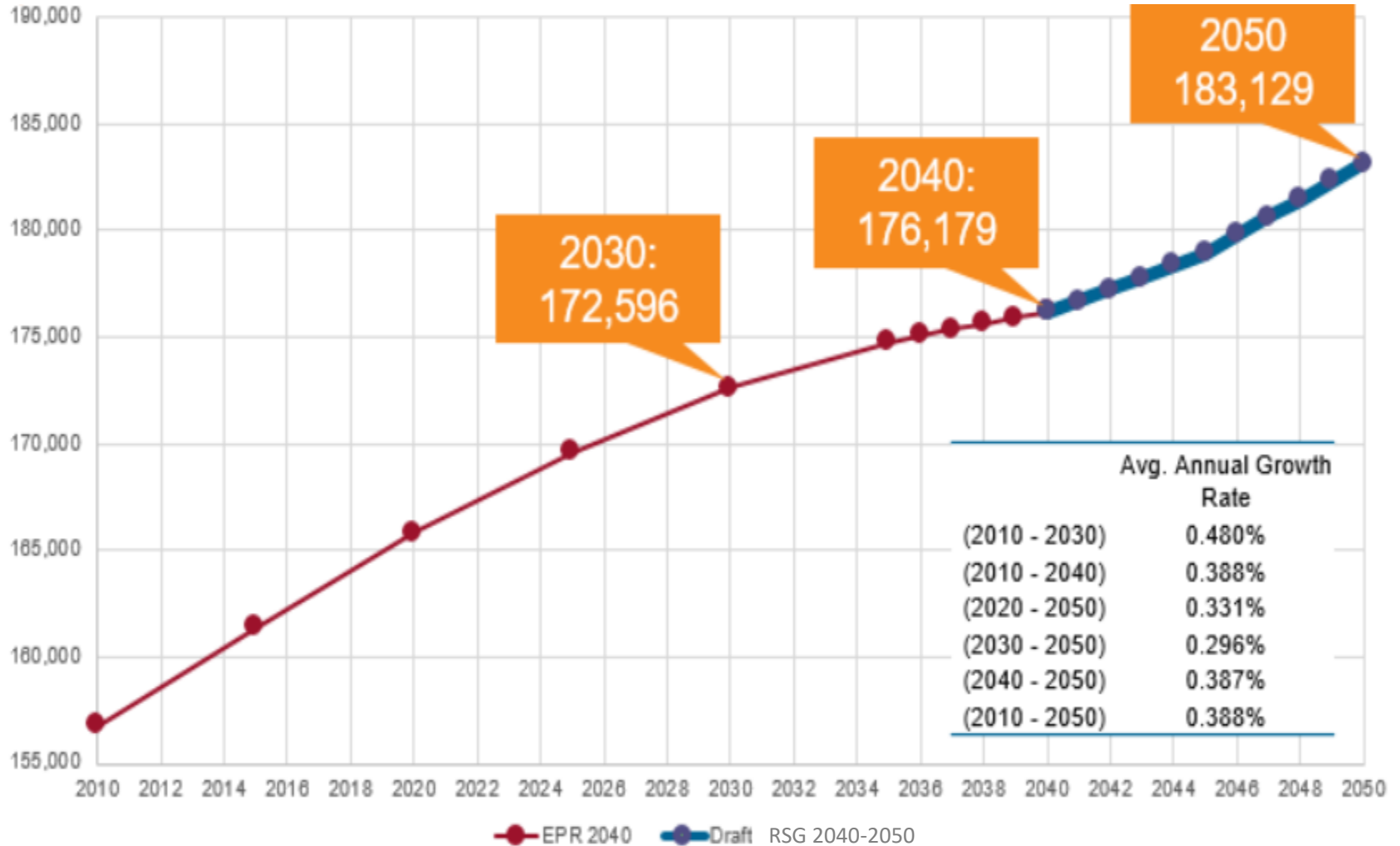
Population and Share of Population --Chittenden County-- Revised Forecast December 2, 2016																		
Calendar Year	Total Projected Population		Adjusted Total Over 65 Years		Total Under 65 Years		Total 0-4 Years		Total 5-19 Years		Adjusted Total 20-24 Years		Adjusted Total 25-44 Years		Adjusted Total 45-64 Years		Driving Age Population 16-84 Years	
2010	156,805	100.00%	17,824	11.37%	138,981	88.63%	7,882	5.03%	31,219	19.91%	16,535	10.54%	40,419	25.78%	42,926	27.38%	126,127	80.44%
2015	161,382	100.00%	22,049	13.66%	139,333	86.34%	7,976	4.94%	29,738	18.43%	18,117	11.23%	40,556	25.13%	42,946	26.61%	131,950	81.76%
2020	165,803	100.00%	25,866	15.60%	139,937	84.40%	7,162	4.32%	30,677	18.50%	18,345	11.06%	38,010	22.92%	45,743	27.59%	135,665	81.82%
2025	169,580	100.00%	26,335	15.53%	143,245	84.47%	7,343	4.33%	31,442	18.54%	19,094	11.26%	38,946	22.97%	46,419	27.37%	138,620	81.74%
2030	172,596	100.00%	26,295	15.23%	146,301	84.77%	7,498	4.34%	32,044	18.57%	19,474	11.28%	39,308	22.77%	47,978	27.80%	140,971	81.68%
2035	174,764	100.00%	26,264	15.03%	148,499	84.97%	7,625	4.36%	32,453	18.57%	19,723	11.29%	39,796	22.77%	48,902	27.98%	142,618	81.61%
2040	176,179	100.00%	26,294	14.92%	149,885	85.08%	7,700	4.37%	32,762	18.60%	19,854	11.27%	40,268	22.86%	49,301	27.98%	143,704	81.57%

Chittenden County Population Forecast

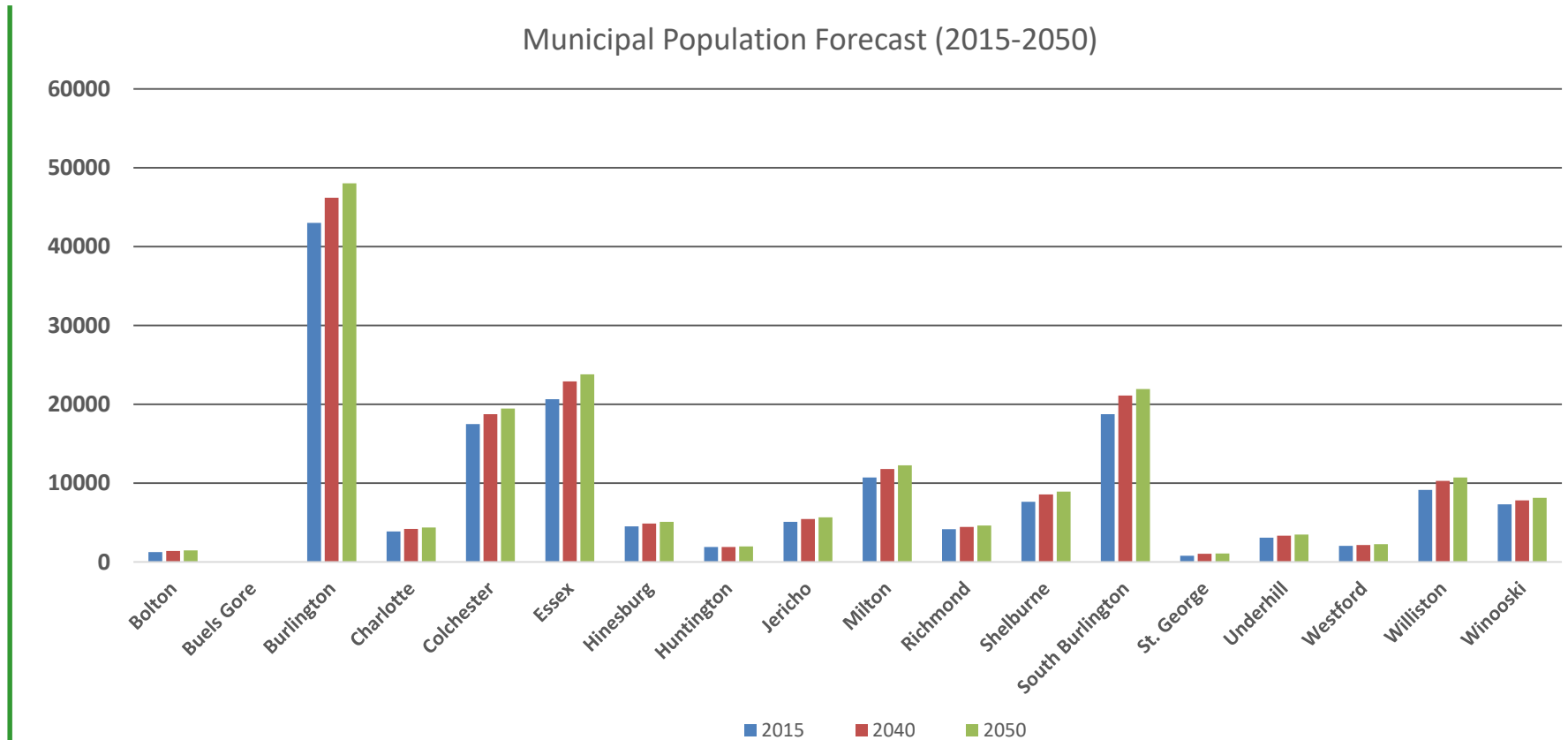
2040-2050 (RSG)

- County Population
 - Considered alignment with the Department of Public Service Energy Modeling – **2050 Projection at nearly 187,000**
 - General birth rate reduction, the baby boomer age cohort, and a general net migration increase, the population was projected off the 2040 data points developed by EPR.
 - The annual average growth rates for the population growth between 2040 and 2050 at 0.387% also aligns with the long term annual growth rate between 2010 and 2050 at 0.388%.
 - Municipal allocation for 2045 and 2050 was assigned based on the municipal share totals that were developed for the 2040 Forecast. The 2045 and 2050 share of county population was fixed based on the 2040 value.
 - ****2040-2050 is a projection****

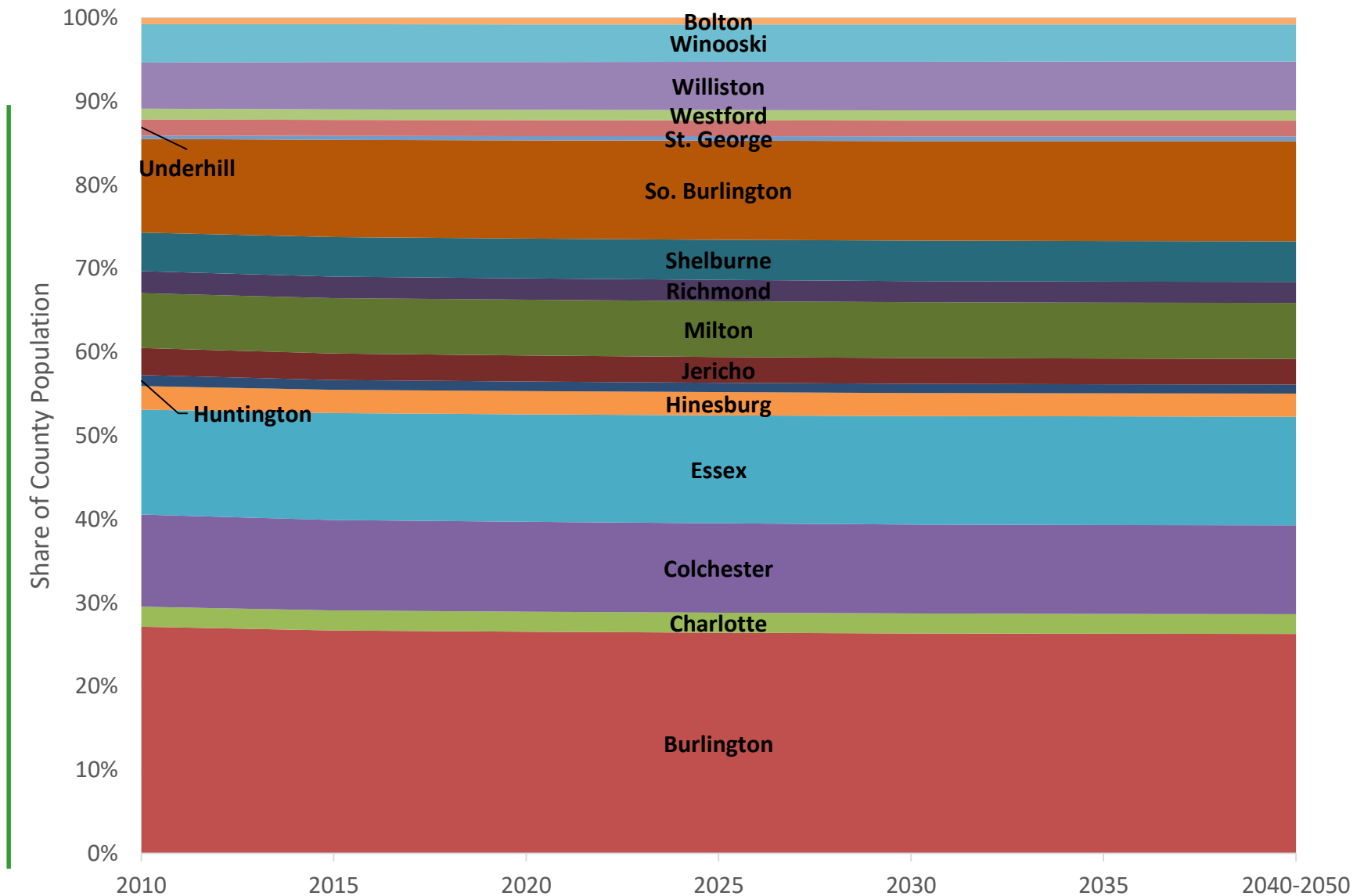
Chittenden County 2050 Population Forecast



2050 Municipal Population Forecast



Municipal Share of County Population



Municipal Average Annual Change

- Municipal Breakout – important to note that there is relatively little predictive input incorporated in the municipal breakout. It is more a correlation to county growth factors. 2015 Column shows the 2010 – 2015 Average Annual Change.

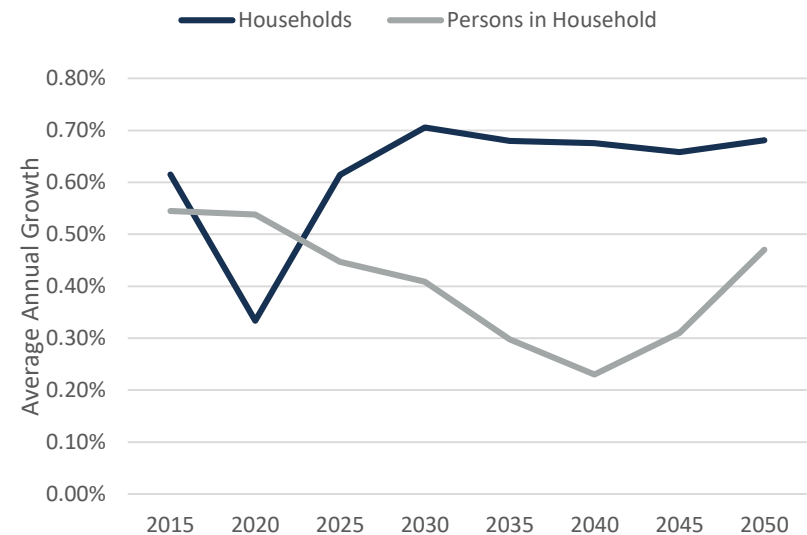
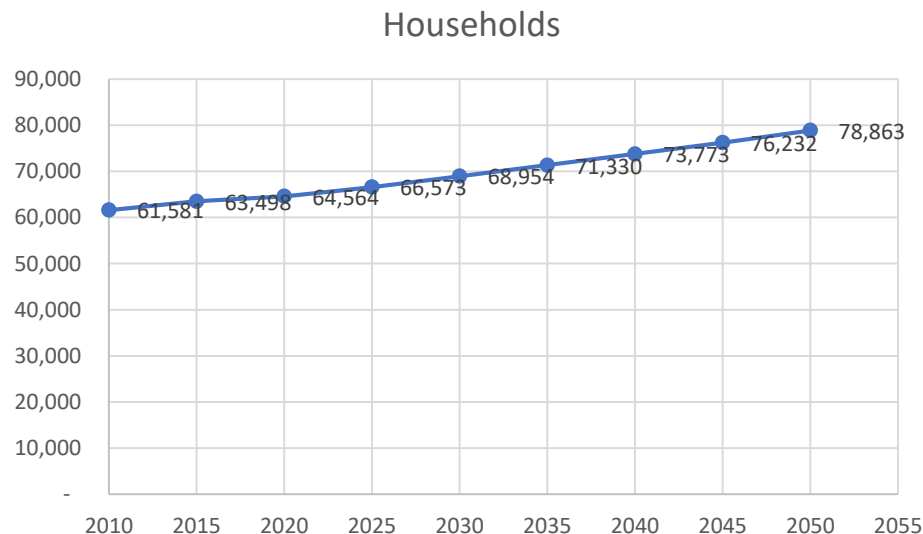
Area	Year								2015 - 2050 Average
	2015	2020	2025	2030	2035	2040	2045	2050	
Chittenden County	0.58%	0.54%	0.45%	0.35%	0.25%	0.16%	0.31%	0.47%	0.36%
Bolton	1.22%	0.75%	0.62%	0.48%	0.30%	0.20%	0.31%	0.47%	0.45%
Buels gore	18.00%	1.05%	0.78%	0.88%	0.86%	0.49%	0.31%	0.47%	0.69%
Burlington	0.24%	0.43%	0.36%	0.28%	0.22%	0.14%	0.31%	0.47%	0.31%
Charlotte	0.49%	0.51%	0.43%	0.33%	0.24%	0.15%	0.31%	0.47%	0.35%
Colchester	0.20%	0.42%	0.35%	0.27%	0.22%	0.13%	0.31%	0.47%	0.31%
Essex (Town and Junction)	0.94%	0.66%	0.54%	0.42%	0.28%	0.18%	0.31%	0.47%	0.41%
Hinesburg	0.36%	0.47%	0.39%	0.31%	0.23%	0.15%	0.31%	0.47%	0.33%
Huntington	-1.38%	-0.11%	-0.07%	-0.04%	0.08%	0.03%	0.31%	0.47%	0.09%
Jericho	0.07%	0.37%	0.31%	0.25%	0.21%	0.13%	0.31%	0.47%	0.29%
Milton	0.75%	0.60%	0.49%	0.38%	0.26%	0.17%	0.31%	0.47%	0.38%
Richmond	0.08%	0.37%	0.32%	0.25%	0.21%	0.13%	0.31%	0.47%	0.29%
Shelburne	1.16%	0.73%	0.60%	0.47%	0.30%	0.20%	0.31%	0.47%	0.44%
So. Burlington	1.27%	0.77%	0.63%	0.49%	0.31%	0.21%	0.31%	0.47%	0.45%
St. George	4.68%	1.90%	1.54%	1.17%	0.59%	0.44%	0.31%	0.47%	0.91%
Underhill	0.27%	0.44%	0.37%	0.29%	0.22%	0.14%	0.31%	0.47%	0.32%
Westford	0.03%	0.36%	0.31%	0.24%	0.20%	0.12%	0.31%	0.47%	0.29%
Williston	1.22%	0.75%	0.62%	0.48%	0.30%	0.20%	0.31%	0.47%	0.45%
Winooski	0.19%	0.41%	0.35%	0.27%	0.22%	0.13%	0.31%	0.47%	0.31%

Chittenden County Household Forecast

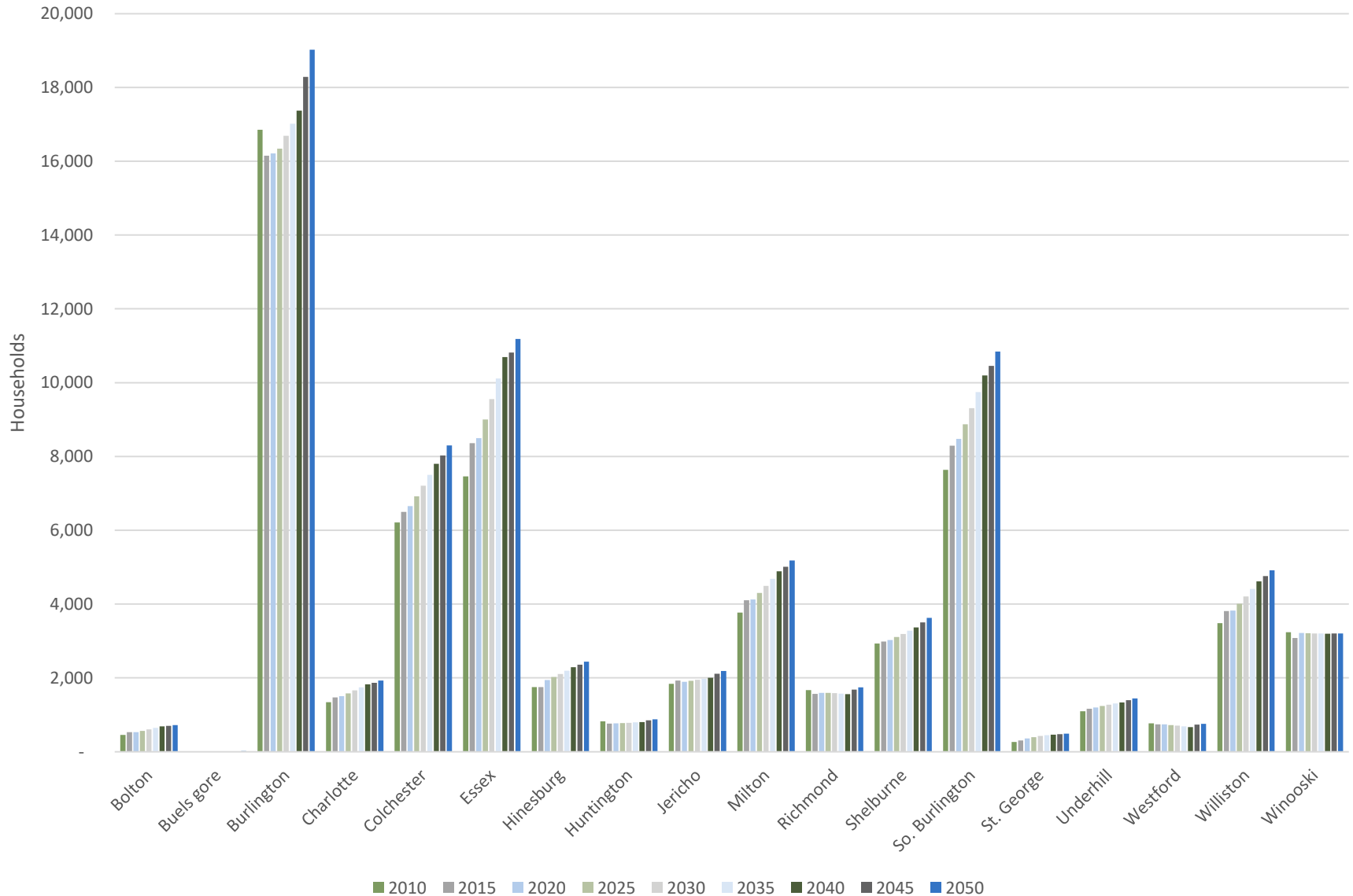
- Utilizes the June 2016 Moody's Analytics (not consensus adjusted) forecast for households in the State of Vermont.
- Historical Household and Household Size County and Municipal data from the US Census ACS five year data set – derived “household population” from that data.
- Municipal historical data “smoothed” for better results.
- Linear regressions performed against the State forecast at the county and municipal levels and then reconciled to match.
- Forecasted household and household population* for each area: household population / households = household size
- Statistical and demographic explanations when compared to population forecast
- The 2050 projection was developed creating a linear extrapolation of the EPR 2040 forecast. The county total was extended to 2050 and the proportional share of households within each municipality was generally held constant from between 2041 and 2050.

Chittenden County Household Forecast

- Households vs Household Population – households are rising at a faster rate than population.
 - Population growth is anchored by the consensus forecast – households are not
 - Fits into demographic narratives – smaller family sizes, decreasing birth rate, rise in 45 – 64 age cohorts share of total population in the county.
 - Municipalities driven more by their historical correlation with the county factors.



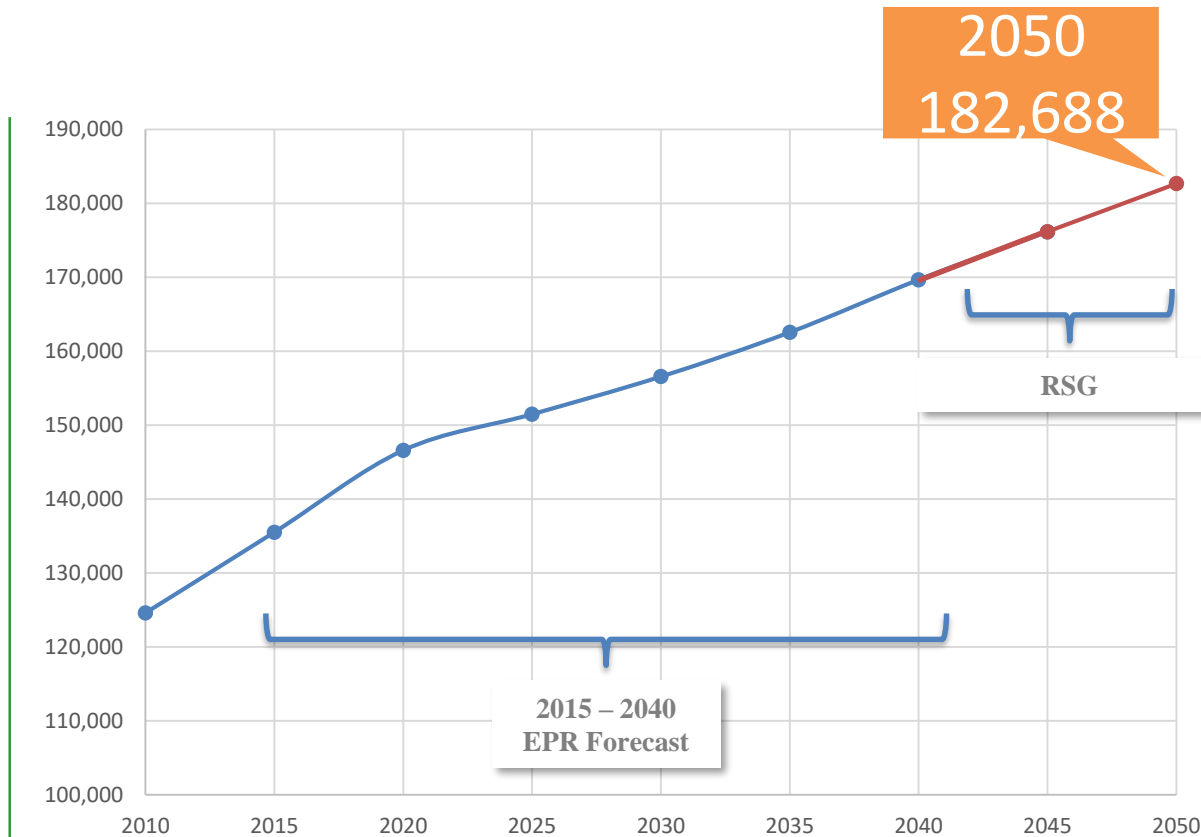
Municipal Household Forecast



Chittenden County Jobs Forecast

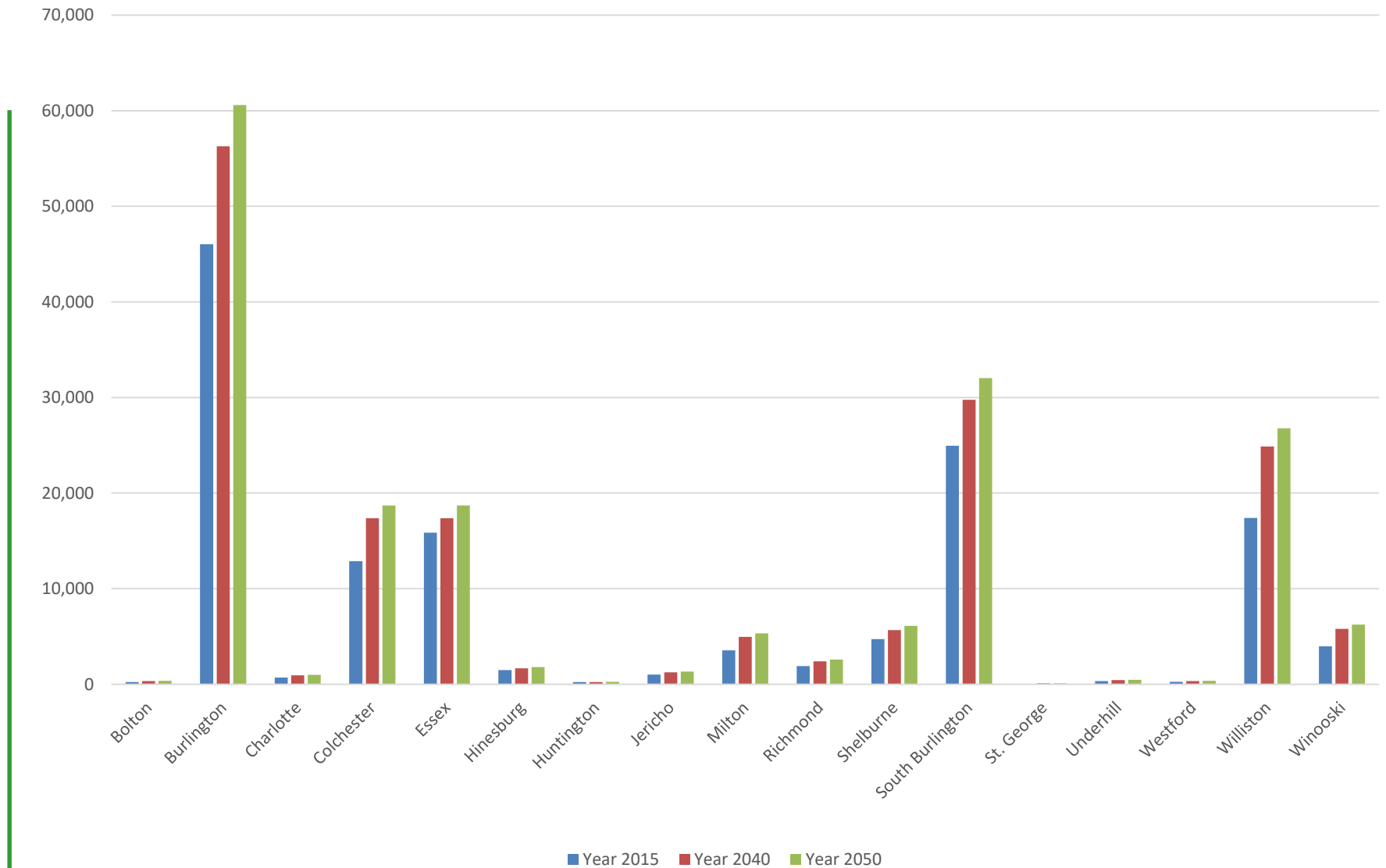
- Jobs forecast is where the jobs are located, not where the employee resides
- Municipal-level forecast utilizes historical data from the Quarterly Census of Employment and Wages (“QCEW”) from the BLS and VT Dept. of Labor – consists of only “covered” jobs.
- The municipal/county historical data is regressed and forecasted against the forecasted payroll jobs for Chittenden County from the June 2016 Vermont Statewide Population Consensus Forecast—Legislative Joint Fiscal Office—Shumlin Administration.
- The county-level forecast for total jobs takes historical data on both salary and wage jobs and proprietors jobs (and other non-covered employment) from the Bureau of Economic Analysis (“BEA”) for Chittenden County.
- The shares of municipal covered employment as a percent of county payroll jobs for each municipality is applied to the county-level forecast in order to reconcile the two forecasts.
- The Total Employment projection for 2045 and 2050 was generally developed by linear extrapolation of the prior 15-year trend, representing approximately a 0.75% per year annual growth rate.

Total County Employment

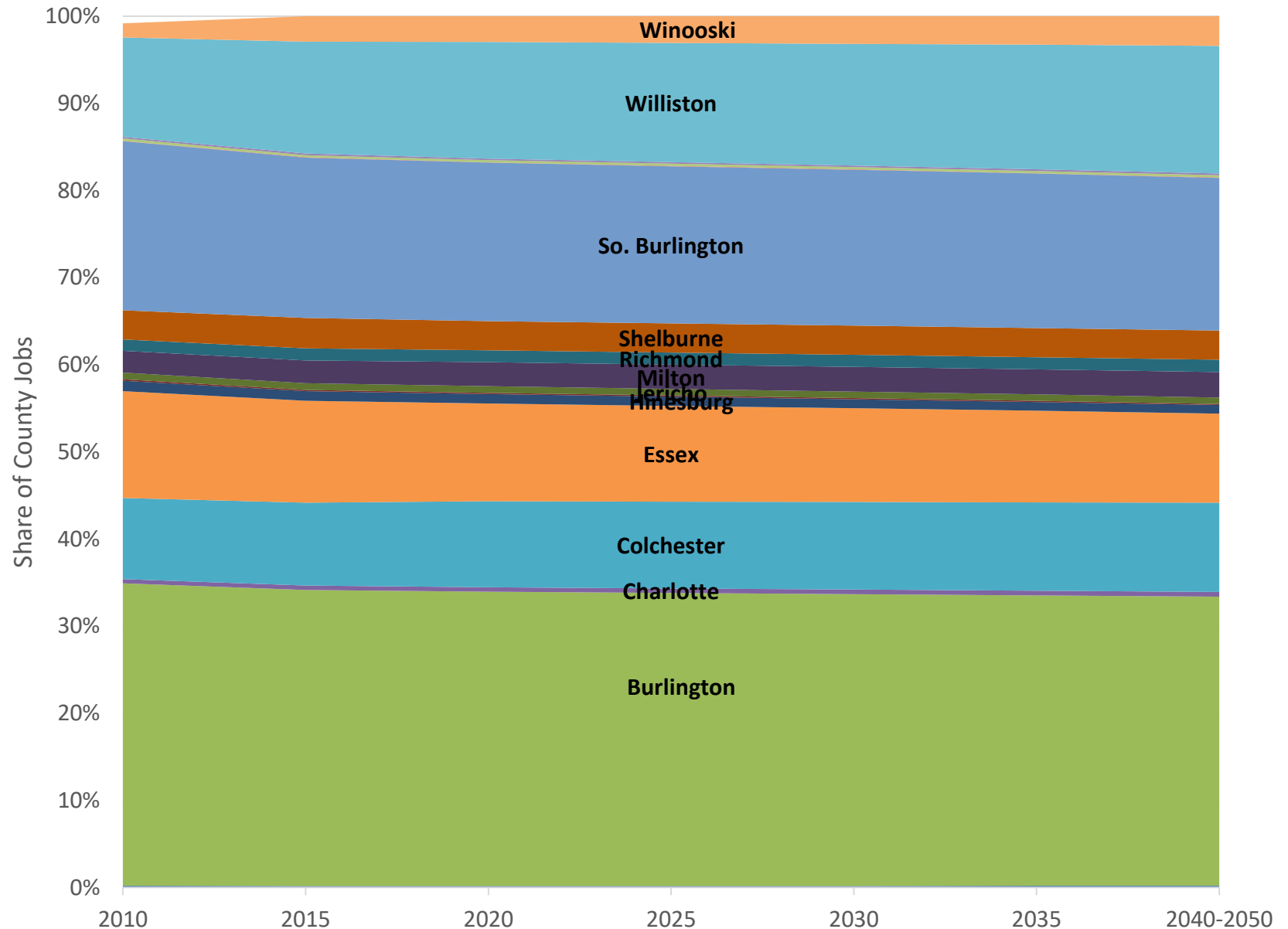


Calendar Year	Total Projected Employment	Average Annual Growth Rate
2010	124,597	
2015	135,511	1.69%
2020	146,589	1.58%
2025	151,475	0.66%
2030	156,567	0.66%
2035	162,560	0.75%
2040	169,671	0.86%
2045	176,179	0.75%
2050	182,688	0.73%

Municipal Total Employment Forecast



Municipal Share of Total County Employment Jobs



Chittenden County Jobs Forecast

- Chittenden County and Municipalities Total Jobs – Salary and Wage and Proprietorship
 - 2015 Column shows 2010 – 2015 Average Annual Change.

Area	Year								2015 - 2050
	2015	2020	2025	2030	2035	2040	2045	2050	Average
Chittenden County	1.69%	1.58%	0.66%	0.66%	0.75%	0.86%	0.75%	0.73%	0.86%
Bolton	-1.58%	2.24%	1.10%	1.24%	1.41%	1.57%	0.75%	0.73%	1.29%
Buels gore	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Burlington	1.26%	1.45%	0.58%	0.58%	0.66%	0.76%	0.75%	0.73%	0.79%
Charlotte	3.34%	1.68%	0.92%	0.92%	1.03%	1.16%	0.75%	0.73%	1.03%
Colchester	2.10%	2.39%	0.80%	0.84%	0.94%	1.06%	0.75%	0.73%	1.07%
Essex (Town and Junction)	0.72%	0.72%	0.25%	0.25%	0.29%	0.34%	0.75%	0.73%	0.48%
Hinesburg	0.01%	1.35%	0.19%	0.17%	0.20%	0.23%	0.75%	0.73%	0.52%
Huntington	0.52%	-0.15%	0.04%	0.04%	0.04%	0.05%	0.75%	0.73%	0.21%
Jericho	1.82%	1.43%	0.59%	0.59%	0.67%	0.77%	0.75%	0.73%	0.79%
Milton	2.51%	2.61%	0.94%	0.93%	1.05%	1.18%	0.75%	0.73%	1.17%
Richmond	3.33%	1.08%	0.84%	0.84%	0.94%	1.07%	0.75%	0.73%	0.89%
Shelburne	2.32%	0.95%	0.62%	0.62%	0.71%	0.81%	0.75%	0.73%	0.74%
So. Burlington	0.63%	1.33%	0.49%	0.50%	0.57%	0.66%	0.75%	0.73%	0.72%
St. George	5.26%	4.39%	1.49%	1.44%	1.57%	1.72%	0.75%	0.73%	1.72%
Underhill	-0.51%	1.82%	0.62%	0.62%	0.71%	0.81%	0.75%	0.73%	0.86%
Westford	2.53%	1.25%	1.11%	1.10%	1.22%	1.36%	0.75%	0.73%	1.07%
Williston	4.13%	2.40%	1.11%	1.10%	1.22%	1.36%	0.75%	0.73%	1.24%
Winooski	5.31%	1.94%	1.33%	1.30%	1.43%	1.58%	0.75%	0.73%	1.29%

Next Steps

- 2050 Forecast for population, households, and employment
- Reviews will continue through February and March
- Board will consider the forecast for adoption in March
- The model will be used to allocate growth to traffic analysis zones.

Comments or Questions:
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Deadline March 3, 2017