



UVLSRPC Regional Plan 2015

Chapter 4

Economic Development

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4.1 INTRODUCTION

What is economic development and why does it matter to our region? Economic development generally refers to efforts that either increase or maintain a preferred standard of living within communities. Policy changes, educational opportunities, and investment in public infrastructure are often supported to promote opportunities for individuals to raise their income and/or employment opportunities. It is important to understand how the Upper Valley Lake Sunapee region compares to other areas of the country and the State of New Hampshire in order to be competitive in attracting a talented workforce and ensuring business ventures are successful. The following information is intended to provide an overview of the regional economic picture and outline strategies for enhancing the future development of the region's economy.

Vision

The region will maintain a resilient economy with new employment opportunities, building upon existing strengths in the health care, manufacturing, tourism, and creative sectors. All residents and businesses in the region will have access to viable and effective vocational education opportunities to retain and attract a talented workforce. The region's downtown areas will be prosperous and economically vibrant, anchored by strong locally-owned businesses and access to local agriculture.

4.2 DEMOGRAPHIC TRENDS AFFECTING OUR ECONOMY

Historic Population Growth

The 2010 U.S. Census reports the State of New Hampshire's population as 1,316,470. The Upper Valley Lake Sunapee (UVLSRPC) region population was reported as 89,552, comprising 6.8% of the state's population. Between 2000 and 2010, the region's population increased by 6,094 persons. Population change is driven both by natural increase (excess of births over deaths in the resident population) and by people moving in from outside the region, or in-migration. The 45-54 and 55-64 year old age groups show the most increase over the past 20 years, reflecting the maturation of the Baby Boom population. While 13.8% of the region's population was age 65 or older in 1990, the proportion in 2010 was 16.4%. This percentage will continue to rise over the next 20 years, with persons 65 or older reaching an estimated 34% of the region's total population by 2030.

With the exception of a slight dip in population between 1850 and 1890; the Upper Valley Lake Sunapee Region's population has steadily increased since the first U.S. Census was conducted in 1790. However, a different pattern emerges when historic population growth in the region's four most populous communities- Claremont, Hanover, Lebanon, and Newport- is analyzed separately from the more rural communities in the region. In rural communities, there was a consistent population decrease between 1840 and 1930, a period of almost 100 years (see Figure 4.2.1). In the region's four largest communities, where infrastructure could accommodate growth, there was a consistent increase in population even during the period when the rest of the region saw mass migration of farmers moving to the Midwest in the late 1800's (see Figure 4.2.2).

Figure 4.2.1- Historic Population Changes in UVLSRPC Rural Communities

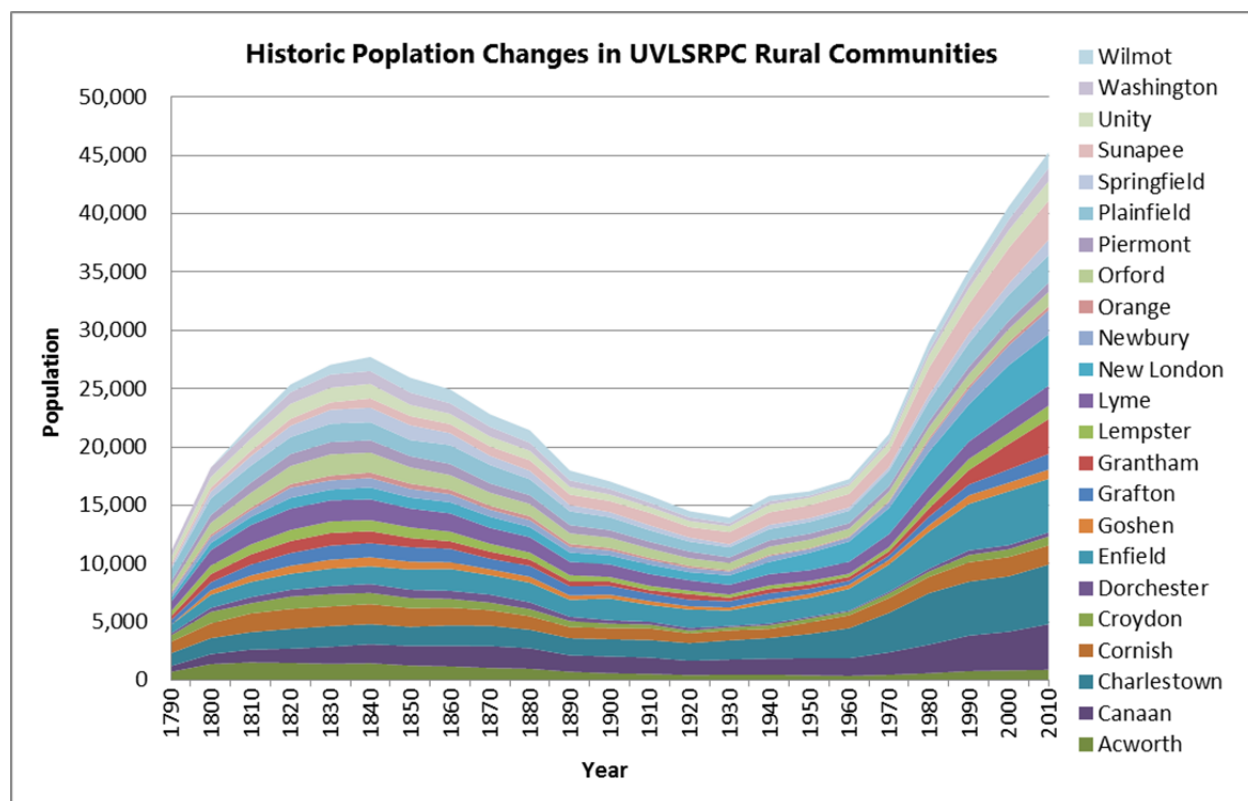
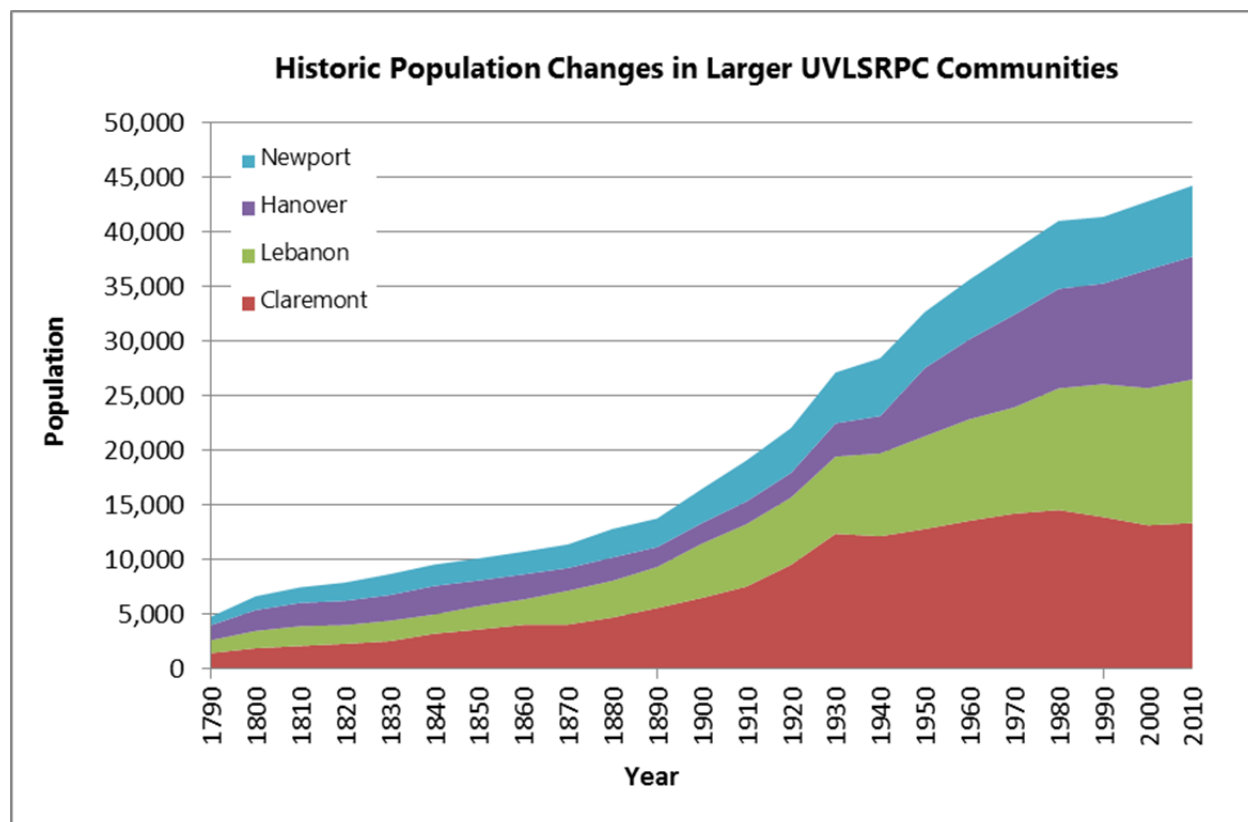


Figure 4.2.2- Historic Population Changes in Larger UVLSRPC Communities



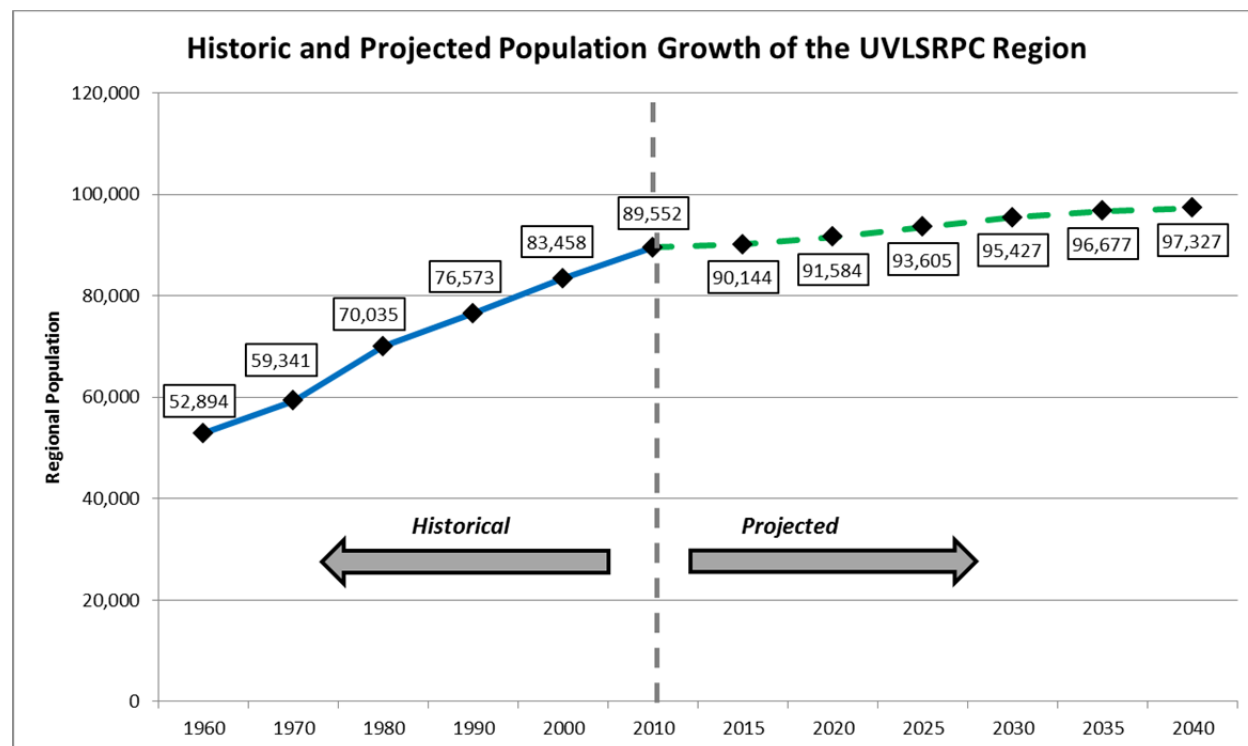
The ebbs and flows of population in the region are a result of a number of factors. New Hampshire continues to have one of the lowest birth rates in the nation, and for many decades, natural increase has not been the primary driver of population increases. Historically, New Hampshire's increase in population has come from in-migration, predominantly from Massachusetts. More recently, in-migration has slowed considerably and New Hampshire has even seen some net out-migration in the past few years.¹ Much of the decline in in-migration was a result of the economic recession in 2008. Even if opportunities may be available for people to move, the uncertainty of the economy has proven to keep many people stationary.

Future Population Growth

The population of the Upper Valley Lake Sunapee Region, like the State of New Hampshire as a whole, is projected to grow much more slowly over the next twenty-five years than over the past fifty years. In 2013, the state's nine regional planning commissions pooled funds to commission RLS Demographics, Inc. to develop statewide, county-level, and town-level population projections based on a cohort-component analysis.

Looking just at the 27 communities of the Upper Valley Lake Sunapee Region, the population of the region is projected to grow less than 9% between 2010 and 2040. Figure 4.2.3 below shows historic and projected population growth in the UVLSRPC Region between 1960 and 2040.

Figure 4.2.3- Historic and Projected Population Growth of the UVLSRPC Region



¹ What is NH? NH Center for Public Policy September 2013.

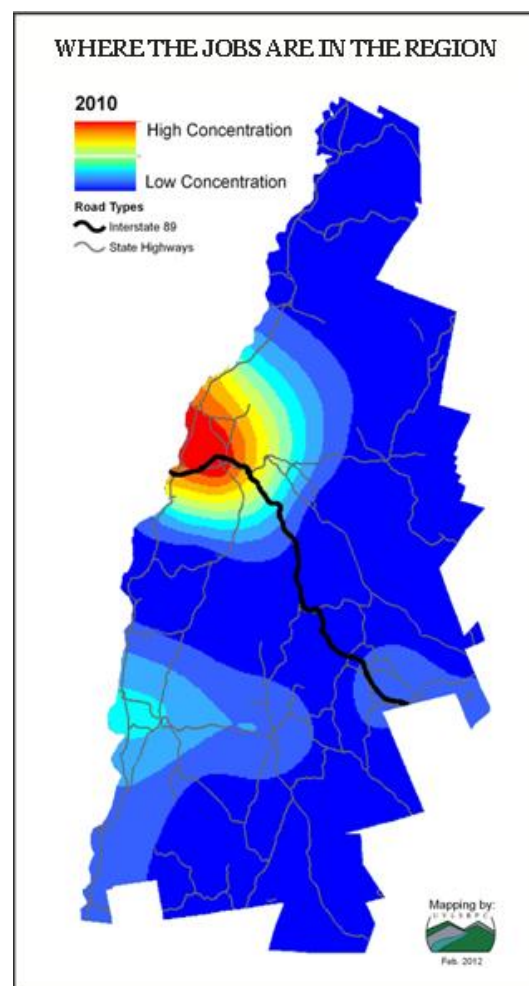
The cohort-component analysis projects that the region will see substantially lower population growth as a result of the aging and natural decline of the Baby Boom population. Every age cohort below 30 in Sullivan County is anticipated to lose population between 2010 and 2020, and between 2020 and 2030. Additionally, Sullivan County may see a slight increase in population of those 30-39 years of age between 2010 and 2020. Contrary to the statewide trends, in Grafton County, the age cohort from 15-19 may see an increase in population between 2020 and 2030. As many rural communities in the region struggle with declining school enrollment, population projections for this age cohort should be updated regularly.

The economy of the region will be greatly influenced by the proportion of working-aged residents to the total population. Worker ages vary throughout the towns in the UVLSRPC region. The region has approximately three percent fewer workers aged 29 and younger, than either New Hampshire or Vermont as a whole. The higher percentage of older workers in the Upper Valley is a reflection of the fact that fewer young workers are in the labor market. At 43.3 years, the median age in the Upper Valley is older than the median age for both New Hampshire and Vermont.²

Employment

Job growth in the region was over 20% from 1990 to 2000, but only 3% from 2000 to 2010. The region's long term (20 year) average annual job growth was about 1.2% per year. The most recent projection of regional and employment issued by the New Hampshire Department of Employment Security, forecasts employment growth of 10.2 percent between 2012 and 2022.³

While the Educational Services sector in the region is the most concentrated in the state, it is the Healthcare and Social Assistance sector that is projected to grow the most over the next ten years. The Healthcare and Social Assistance sector is projected to add 2,200 jobs between 2012 and 2022 in the region. Additionally, the Construction and Extraction Operations sector in the region is projected to have the highest growth rate in the state during this period at 24.8%. However, this sector has a small employment base in the region and only 65 additional jobs are expected in the sector annually (whereas the Healthcare and Social Assistance sector is expected to add more than 200 jobs in the region annually).



² The Upper Valley – On the Map, A profile of the Lebanon NH-VT Micropolitan NECTA, NH Employment Security, ELMI, November 2012.

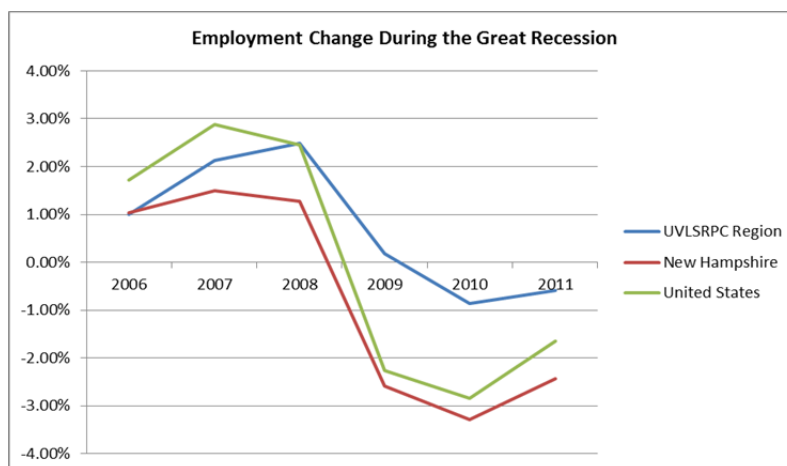
³ Planning Regions- Looking Ahead to 2022. NH Employment Security, ELMI.

Approximately 74% of all the businesses found within both the Claremont and Lebanon Micropolitan Statistical Areas (MSA) are small businesses with less than 20 employees. These small businesses make up about 28% of the employment base in the Claremont labor market and 18% in the Lebanon labor market. Larger employers (those over 500 employees) dominate the Lebanon MSA. While making up only 9% of the employer base, large employers generate 53% of the total jobs within the area (SBA 2010)⁴. Relative to the state, the UVLSRPC region has a high concentration of jobs in agriculture, mining, manufacturing, information, and an especially high reliance on the healthcare and social assistance sector. The region also has comparatively low concentrations of federal and state government employment.

Grafton and Sullivan County contain 8% and 3% of New Hampshire's employers, respectively. However, the two counties are home to 22% of the agricultural employers. Grafton County makes up 10% of the state's employment base, as large employers like the Dartmouth-Hitchcock Medical Center and Dartmouth College are located in the County. In 2010, Sullivan County made up 2% of NH's employment base, but 4% of the State's manufacturing base. The Sullivan County Comprehensive Economic Development Strategy (CEDS) reported that, in 2002, manufacturing made up 26% of the employment base of Sullivan County, the highest level of any County in NH. The bulk of this employment continues to be comprised of machinery and fabricated metal production. While the total number of jobs is not large, the potential for these skills to be used in newly emerging businesses should not be overlooked, as a long-term strategy.

Between 2008 and 2010, the region had the first significant net loss in total jobs in 20 years. During this time period, job losses were experienced around the country as a result of The Great Recession. However, as shown in Figure 4.2.4, the region's reliance on Health Care and Social Assistance employment has provided a means of economic resilience, as demographic shifts (i.e. aging population) continue to drive demand for health care services.

Figure 4.2.4- Employment Change During the Great Recession



The region has benefited significantly from the strong local economy and unemployment rates below state and national averages. Over the past 20 years (1990-2010), the New Hampshire portion of the Lebanon NH-VT NECTA gained 8,695 jobs (principally service industry jobs), while other regional employment centers sustained losses⁵. The City of Lebanon was the center of the region's employment growth over this period. The higher wages prevalent in the Lebanon-Hanover area attract workers from areas of Vermont and New Hampshire outside the Lebanon NH-VT NECTA.

⁴ SOURCE: 1989-2010 Business Information Tracking Series.

⁵ 2012 Housing Needs Assessment, UVLSRPC

Income and Poverty

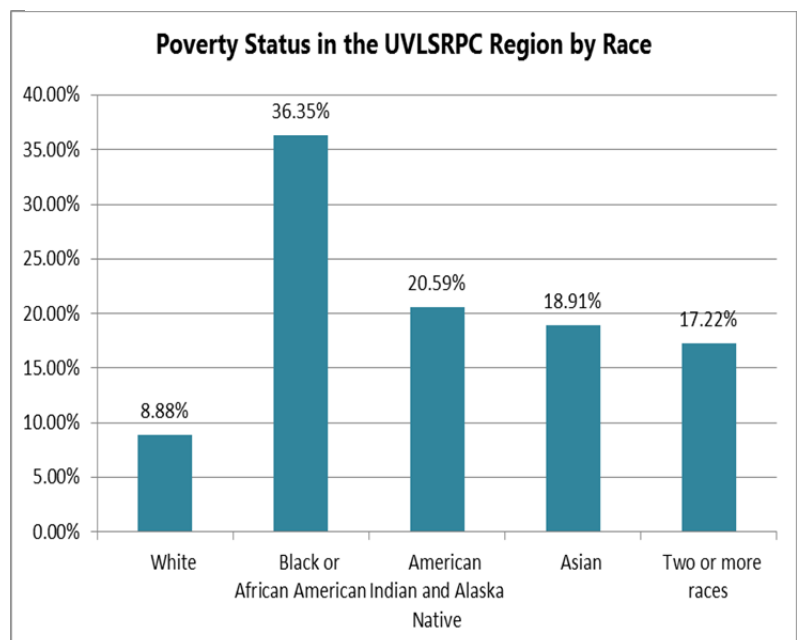
Average wage levels in the UVLSRPC region in most major sectors exceed that of New Hampshire state averages. The average wage paid by industries of the UVLSRPC region in 2010 was \$959 per week, or an equivalent annual wage of \$49,868. At a 30% housing cost ratio, this income supports a \$1,250 per month housing cost budget, which is more than sufficient to support the median gross rent in the area but not sufficient to afford a median priced home without a second household member who works.

The region, like all of New Hampshire, has maintained low poverty rates in comparison to the rest of the country. In 2012, the percent of people living below the poverty line in New Hampshire was 10%, whereas 15.9% of people were living below the poverty line nationwide. While poverty rates are currently lower in New Hampshire than the rest of the nation, they are growing at a faster rate. There was a 30% increase in the percent of people with income below the poverty line nationwide between 2000 and 2012, but there was an 89% increase in New Hampshire during that same time period. This may indicate a loss in economic competitiveness for the state of New Hampshire.

According to the American Community Survey⁶ five-year estimates for 2006 through 2010, approximately 9.4% of the UVLSRPC region's population lives below the poverty line. In Sullivan and Grafton County, single-parent households with children under 18 years of age have poverty rates of 48.5% and 30.2% respectively. In Sullivan County this is almost half of the estimated 1,200 single-parent families with children under 18 living in poverty.

Inequality is a weakness that undermines regional economic performance. Disparity in income data according to race or gender can signal underlying social problems that limit the productivity potential of a region's entire workforce.⁷ The disparity of poverty within our region is large. While Black or African Americans make up only 2.6 % of the population, more than 36% of that population lives below the poverty line. Other races within the region also have higher levels of poverty than those that reported their race as white. Figure 4.2.5 demonstrates that, while the number of minorities in the region is low, the percent of minorities living below the poverty line is much higher within those populations than for white populations.

Figure 4.2.5- Poverty Status in the UVLSRPC Region by Race



Note: Since the 2010 U.S. Census, Hispanic or Latino ethnicity has not been considered a race.

⁶ American Community Survey uses a 5 year average.

⁷ October 2005 Council on Competitiveness, Measuring Regional Innovation

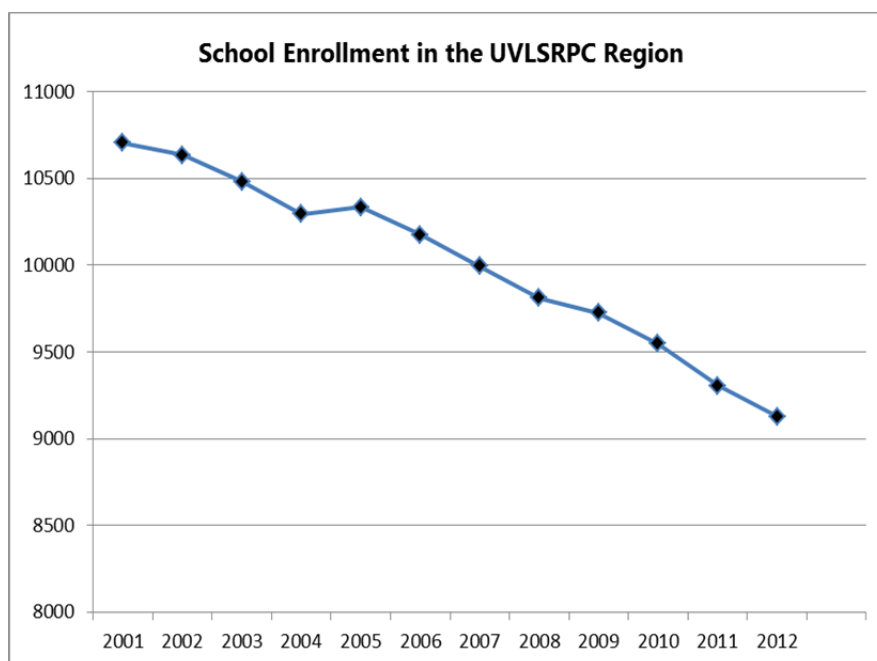
Schools and Education

One of the most consistent topics that came up at UVLSRPC regional plan outreach events during the summer of 2012 was education. It is clearly valued within the region and many people have personal connections, whether through employment or their children, grandchildren or neighbors, to the local school. The schools are seen as public investments and centers that unite the community.

The UVLSRPC region is home to 15 School Administrative Units (SAU), five of which are single municipalities. Unique to this region, there are two interstate SAUs with Vermont communities. The two largest SAUs in the region, Mascoma Valley and Kearsarge, have clearly established regional identities.

School populations have declined throughout the state and the region in recent years. In New Hampshire, there was an overall decline in school enrollment between 2001 and 2012 of 8%. However, during that same time period the UVLSRPC region saw more than a 15% decline. While overall enrollment numbers have declined, each community in the region faces its own unique situation. The Town of Lyme, for example, saw an enrollment increase of more than 20% for the same time period. Each community will need to assess their individual situation when determining the future of school-related public investments and policymaking.

Figure 4.2.6- School Enrollment in the Region (2001-2012)



In research completed by the NH Center for Public Policy in 2013⁸ it was reported that, "while minorities represented only 4.9 percent of New Hampshire's population in 2000, they produced 50 percent of the population gain between 2000 and 2010. Minorities make up a small percentage of the school age population within the region, but the trends demonstrating a change in this are significant. Between 2002 and 2012, there was a 51% increase in the percentage of minorities enrolled in New Hampshire's public school system. In the UVLSRPC region during this same time period, there was a 57% increase in the percentage of minorities enrolled in local schools. Consistent with the NH Center for Public Policy study, the largest percent of minorities seem to be in those schools that are seeing an increase in enrollment. Lyme has the highest percent (16.75%) of minority students in the region. Minority enrollment is predominately Asian and Hispanic. The region lost enrollment between 2002 and 2012 among black and Native American populations.

⁸ Health and Equity in New Hampshire 2013 Report Card, NH Center for Public Policy, January 2013

The results of the fall 2013 New England Common Assessment Program (NECAP) for grades three through eight and high school students in New Hampshire demonstrated 77 percent of students tested were proficient or above proficient in reading, compared to 79 percent the year before. In math, 65 percent of students were proficient or above proficient compared to 68 percent the year prior.⁹ However, these percentages have increased by almost 10% over the past ten years.

STEM (science, technology, engineering, and math) education continues to be a high priority within the region's schools, and the school districts within the region have varying degrees of test proficiencies in STEM disciplines. In the statewide (May 2011) Elementary and Middle School District rankings for improvement in testing, Washington (3), Lyme (10) and Newport (14) ranked in the top 15 in mathematics. Cornish (1), Washington (6) and Sunapee (9) ranked in the top 10 in science. At the High School level, rankings on improvement included Mascoma Valley (8), Fall Mountain (12) and Claremont (14) in science. Three district High Schools in the region (Lebanon, Kearsarge, and Dresden) were ranked higher than the state average in math assessments. Five district High Schools in the region (Dresden, Sunapee, Fall Mountain, Lebanon, and Newport) were ranked higher than the state average in science assessments.

Workforce Development

As evidenced by the public outreach conducted during the drafting of this plan (see Chapter 1), residents of the region want to continue to develop targeted workforce and vocational training opportunities.

In a January 2015 speech, New York Governor Andrew Cuomo noted that "There is no generic skills package anymore" during a discussion of the community college system. Thus, it is imperative that vocational training be linked to realistic job opportunities at large regional employers like Sturm Ruger, Hypertherm, and Timken. The closure of Lebanon College in 2014 further underscored this need.



Lebanon College closed in 2014, underscoring the need for workforce development to be better tied with employer needs.

River Valley Community College (RVCC) has adapted well to this new reality, and now offers targeted programs in Advanced Manufacturing, Sales, Project Management, and Computer applications. The Commission should advocate for the continued expansion of River Valley Community College's targeted workforce development programs, and support the adaptive re-use of the former Lebanon College facility for new or expanded workforce development programs.

⁹ NH Department of Education <http://www.education.nh.gov>

4.3 ECONOMIC CHALLENGES IN THE REGION

Home Affordability

While Chapter 2 of this plan discusses home affordability in detail, economic conditions and regional employment opportunities relate directly to regional housing availability, choice, diversity, and affordability. Levels of “housing need” often refer to a housing cost burden level (percentage of income devoted to gross monthly housing costs). Below is a summary of the estimated regional levels of housing cost burden based on 2010 housing costs and household income levels.

High Housing Cost Burden (at least 30% of income is used for housing): There are an estimated 12,897 households (36% of all households in the region) that have a high housing cost burden. The most significant cost burden ratios exist for homeowner households with incomes under \$50,000 and renter households with annual incomes under \$35,000.

Very High Housing Cost Burden (at least 40% of income is used for housing): There are 7,659 households that have a very high cost burden (21% overall, 18% of owner households and 28% of renter households).

Severe Housing Cost Burden (at least 50% of income is used for housing): There are 5,085 households (14% overall, 13% of homeowner households and 17% of renter households) that have a severe cost burden.

- Housing cost burden data for homeowners in the Lebanon NH-VT NECTA (including 12 Vermont communities) is about the same as the UVLSRPC regional average. However, renter households living in the NECTA have proportionately higher rental costs relative to their income.
- Overall, 42% of all renters and 33% of all homeowners in the UVLSRPC region spend 30% or more of their gross income on monthly housing costs. The highest prevalence of high housing cost burden is found among the youngest households.
- There are few homeowners in the under-25 age group, but 70% of those that do own a home have a high housing cost burden.

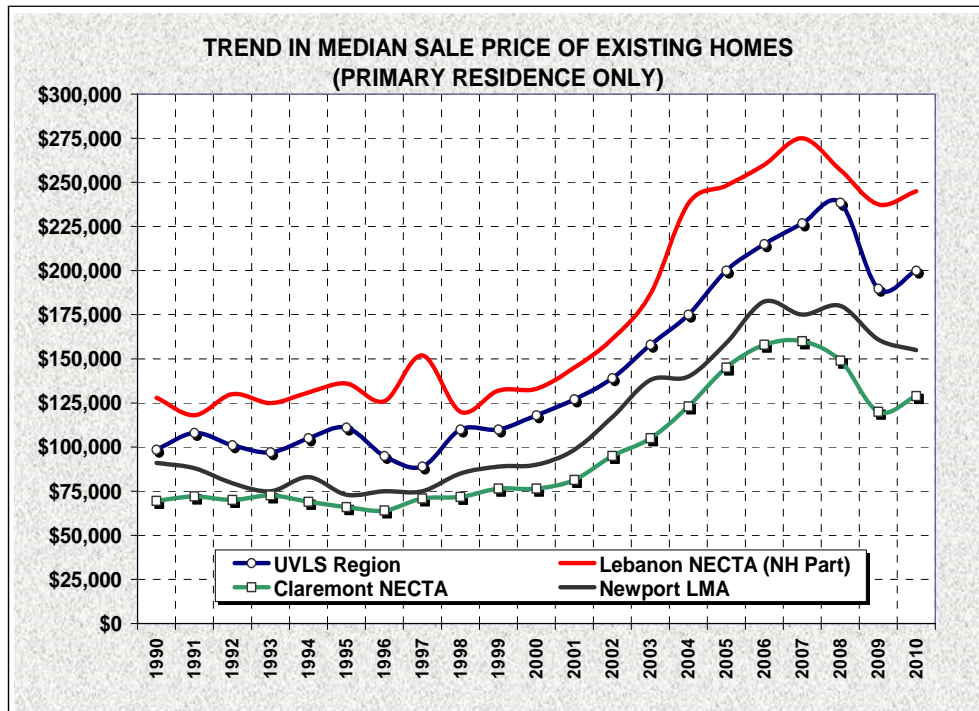
Rental housing in the region is particularly difficult to afford among households less than 35 years of age. In that age group, 46% have a high housing cost burden.

As mentioned in Section 4.2 above, the average wage paid by industries in the UVLSRPC region in 2010 was \$959 per week, or an equivalent annual wage of \$49,868. At a 30% housing cost ratio (the % of wages used for housing), this income supports a \$1,250 per month housing budget. This income level could support the median gross rent in the area but would be insufficient to afford a median priced home without a second household income.

Affordability problems occur more frequently among those who are in lower wage sectors or in entry-level positions. Average entry-level wages in some of the largest occupational sectors range

from about \$9 to \$20 per hour. At \$11.50 per hour, a single wage earner could afford a monthly rent of \$624 per month. Market-rate rents at this level are generally unavailable in the region.

As the number of jobs in the region continues to grow there will be more demand on the housing market to support the labor force. At the same time, the demographics show a decline in the labor force under 65 years of age. This may make it increasingly difficult for employers to fill their needs. Increasing the availability of affordable housing, particularly rental units, may make it easier to attract the workforce needed in the future.



Source: UVLSRPC Housing Needs Assessment

Brownfields

The U.S. Environmental Protection Agency defines a brownfields as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Brownfields are often, but not always, former industrial or commercial properties.

According to New Hampshire Department of Environmental Services (NHDES) data shown in the table below, the UVLSRPC Region is home to more than 1,100 identified remedial sites. Within the region, Claremont, Hanover, Lebanon, and Newport are home to higher concentrations of brownfields sites. These sites include those that were known to be contaminated, or have the potential to be contaminated based on the past or present use of the site. Every community in the Upper Valley Lake Sunapee region is home to at least one NHDES-designated remedial site.

The presence of brownfield sites hinders the redevelopment potential of the region's former industrial centers, and correlates to public health, welfare, and economic impacts in the region's communities.

Currently, there is no coordinated brownfields assessment program in the region to assist communities and landowners in evaluating site-specific contamination and planning for the reuse of brownfields sites.

The UVLSRPC should apply for U.S. Environmental Protection Agency Brownfields Assessment funding that would accomplish the following:

- Establish a regional Brownfields Advisory Committee to identify, solicit, and prioritize brownfields sites for assessment;
- Conduct community outreach to landowners and the general public in municipalities affected by the presence of brownfields;
- Conduct Phase I and Phase II environmental assessment work that leads to the development of site-specific reuse plans.

The establishment and success of a regional brownfields assessment program will rely on strong partnerships with the U.S. Environmental Protection Agency, New Hampshire Department of Environmental Services, municipalities, chambers of commerce, local economic development councils, environmental advocacy groups, and landowners.

Community	Number of Remedial Sites
Acworth	5
Canaan	42
Charlestown	50
Claremont	156
Cornish	19
Croydon	6
Dorchester	5
Enfield	63
Goshen	10
Grafton	18
Grantham	28
Hanover	108
Lebanon	192
Lempster	22
Lyme	26
New London	61
Newbury	32
Newport	100
Orange	2
Orford	14
Piermont	9
Plainfield	36
Springfield	25
Sunapee	57
Unity	18
Washington	6
Wilmot	13
Total Region	1,123

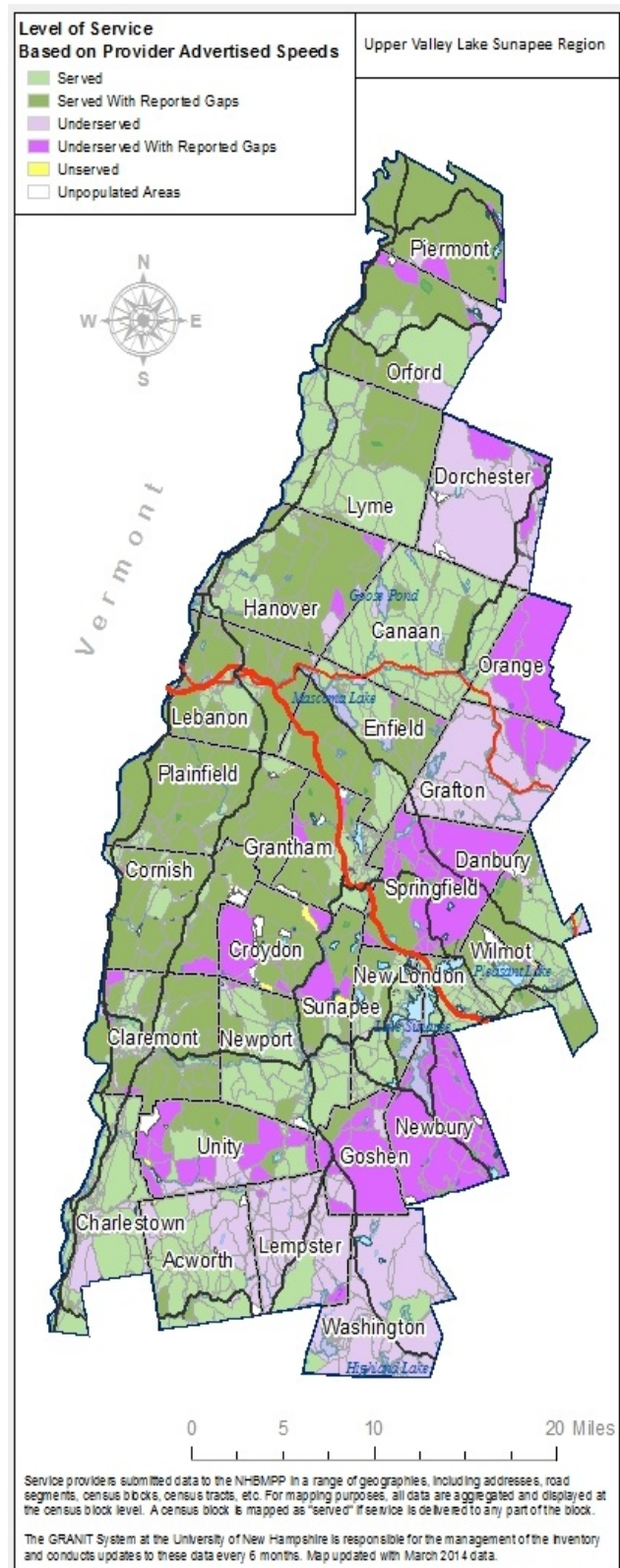
Lack of Broadband Communication Infrastructure

While Chapter 7 of this plan discusses regional broadband availability in detail, the importance of broadband for the region's economic development cannot be understated.

As part of the New Hampshire Broadband Mapping and Planning Program broadband needs by economic sector were determined through telephone surveys, public forums, and sector-specific interviews.

Three major themes cross-cut all economic sectors and are evidence of how quickly "online business" has become mainstream and is transforming how business is conducted:

- ***Telework/Tele-education:*** Employees are increasingly working beyond the four walls of their employers' headquarters, e.g. at home, satellite locations, and travelling for business locally and globally. Both employers and employees face challenges to achieving a connected workforce because there is limited high-capacity broadband service in residential and rural neighborhoods. Educational institutions also seek tele-education opportunities, either online learning as a supplement to the classroom or curricula delivered fully online.
- ***Doing More Business Online:*** All businesses and organizations interviewed reported that they have a growing dependence on online interaction with external companies or organizations. It is essential to have sufficient broadband service to conduct online business with suppliers, customers, accounting/billing services, electronic medical records firms, off-site IT/security back-ups and partnering organizations, such as Inter-Library Loan, Code Red reverse 911 system and state agencies.



- *Online Training and Professional Development:* Access to training and professional development online, including keeping up to date with training on ever-changing technology is imperative. There is a particular need for training in sectors that rely on volunteers, such as local government, social services and public safety.

The Upper Valley Lake Sunapee Regional Planning Commission, advised by a group of broadband stakeholders representing multiple interests from 19 communities in the region, developed a Regional Broadband Plan to better understand current broadband (or high-speed Internet service) availability in the region, to identify the challenges and barriers to universal access, and to plan for increased broadband adoption and utilization over the next six years.

This plan establishes four performance-based goals to achieve the regional vision of “fast, reliable and affordable broadband service through a competitive marketplace throughout all parts of the Upper Valley Lake Sunapee Region” and “a future with rural regions having the opportunity to access broadband services equal to that in metropolitan areas.”

The regional broadband plan is intended to serve as a comprehensive document that describes broadband availability in the Upper Valley Lake Sunapee region and identifies ways to increase broadband adoption and utilization. The plan serves as a guidance document for communities, policy makers, businesses, institutions, and residents to better understand the availability and need for and utility of broadband now and into the future.

Looking ahead to future needs, the Federal Communications Commission’s National Broadband Plan calls for gigabit service (1 Gbps or higher down/up) to all community anchor institutions by 2020. Currently, this speed is only available in a few locations in the region – one census block in Hanover, three census blocks in Claremont, four census blocks in Washington and eleven census blocks in Lebanon. Again, the southeastern and northeastern parts of the region, as well as parts of Croydon and Grantham, have the lowest speeds of broadband available.

2020 Broadband Goals for our Region

1. Provide affordable broadband service that would support telework and tele-education (20 Mbps download, 10 Mbps upload) in all areas of the region.
2. Build “Gigabit Communities” – expand “big broadband” (1 Gbps download, 1 Gbps upload) to all community anchor institutions and city/town centers, with extensions to residential and outlying areas.
3. Encourage marketplace entry of competitive, innovative service providers.
4. Work towards parity in broadband service availability across the rural areas of our region, the downtowns and village centers of our region, and metropolitan areas in the Northeast.

Deteriorating Transportation Infrastructure

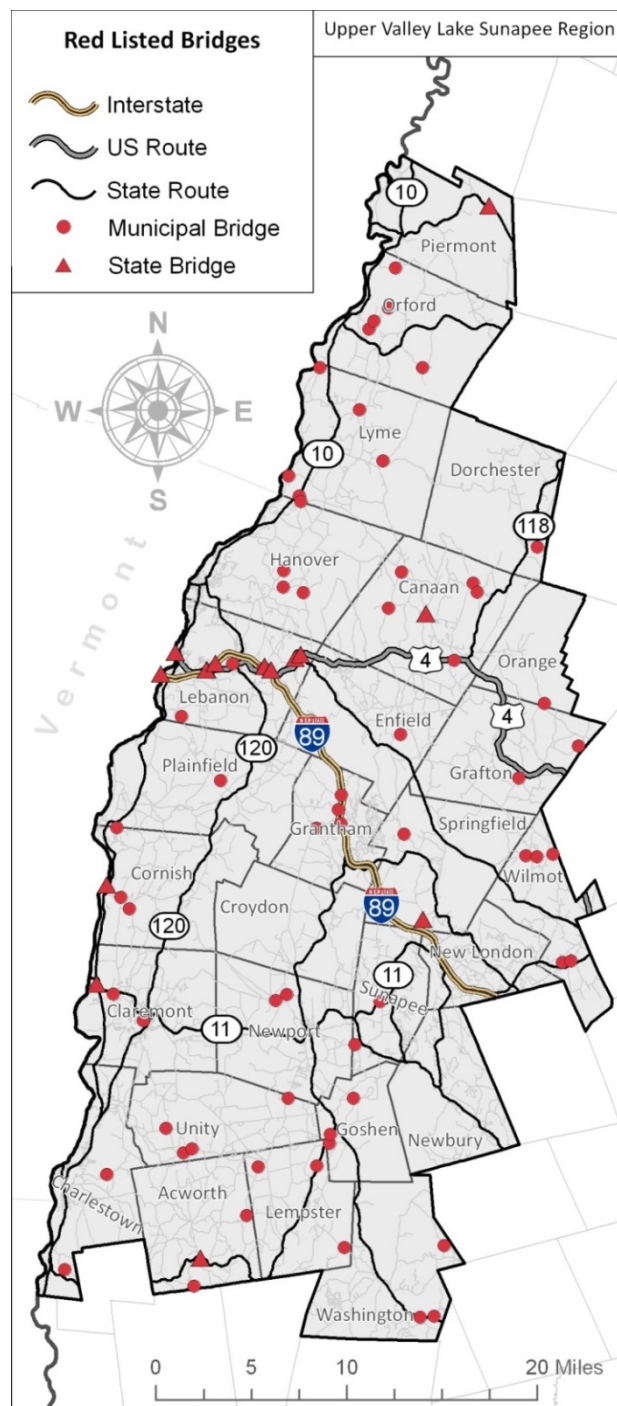
The flow of goods and people over well-maintained transportation infrastructure is fundamental to any economy. As Chapter 3 of this plan details, the UVLSRPC Region faces acute transportation infrastructure deficiencies.

The region's 27 communities are home to 80 "red listed" (i.e. structurally deficient) bridges, and nearly 50% of the region's state highway network is in poor pavement condition. Recent closures of the U.S. Route 4 Bridge over the Connecticut River in Lebanon and the Shaker Bridge over Mascoma Lake in Enfield highlight the economic importance of our region's transportation infrastructure.

Transportation infrastructure funding at the state and federal level has remained essentially stagnant over the past decade while the costs of infrastructure components like liquid asphalt have increased exponentially over the same time period. Without a substantial change in this funding structure, the region's transportation infrastructure will continue to deteriorate and act as a headwind to our economy.

In addition to road and bridge infrastructure needs, improved rail connectivity is needed to line the region to Boston and other large markets on the eastern seaboard. Similarly, maintaining infrastructure at the region's three airports (Lebanon Municipal, Claremont Municipal, and Parlin Field in Newport) is essential to maintaining the passenger air and general aviation operations that form an important part of our economy.

The region's major employers increasingly benefit from and rely on the public transportation services provided by Advance Transit and Community Alliance Transportation Services. These agencies are providing more than 600,000 rides annually in our region. It is important that the region's transit fleet be considered an essential component of our transportation infrastructure. Compared to the statewide average, our region's public transportation fleet is aging (37.8% of remaining useful life) and in need of substantial new investment.

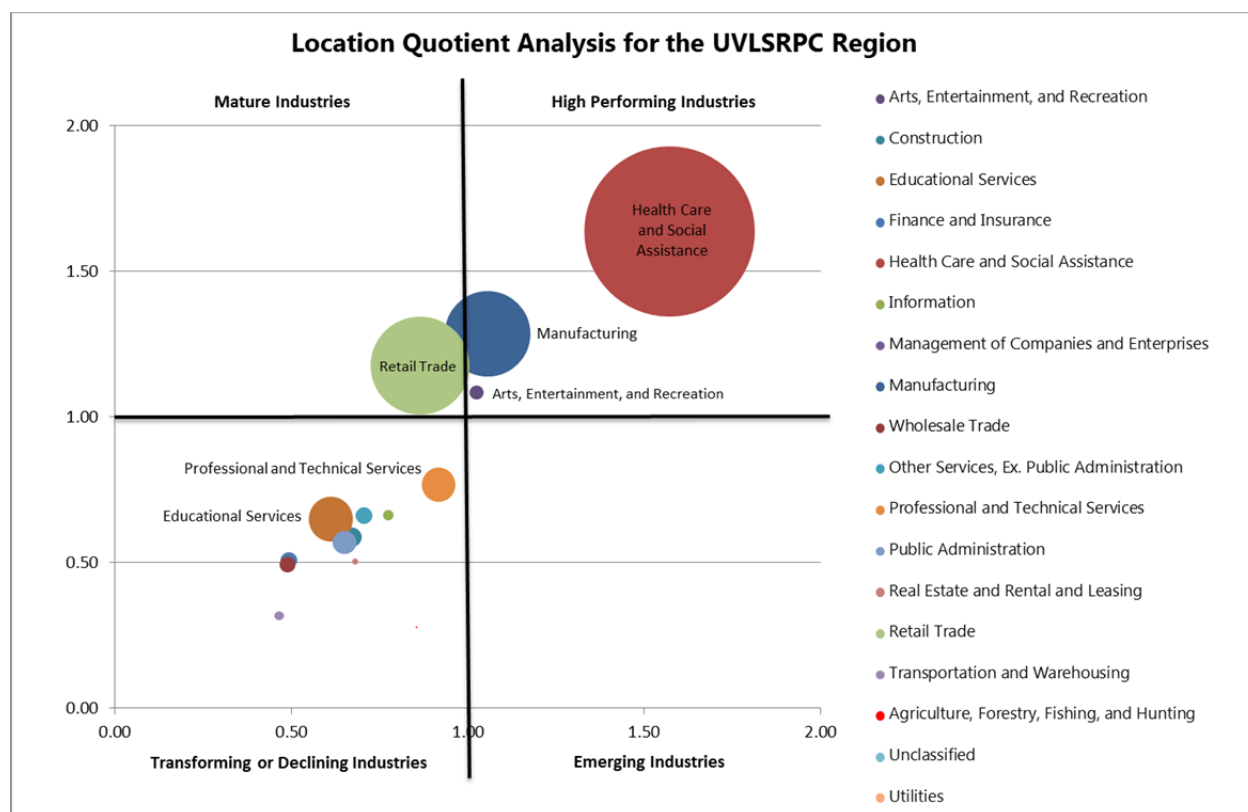


5.4 ECONOMIC STRENGTHS IN THE REGION

Location Quotient Analysis

A location quotient is a measure of an industry's concentration in an area relative to the rest of the state or nation. It compares an industry's share of local employment with its share of state or national employment. Although determining a location quotient requires several assumptions, including uniform local consumption patterns and labor productivity across the country, it is a useful tool in determining a region's key industries.

Figure 5.4.1- Location Quotient Analysis for the UVLSRPC Region



A location quotient greater than one indicates that the industry is producing more goods and services than are used locally. The X axis provides a comparison of the relative concentration of an industry in the region versus the national concentration of that industry. The Y axis shows the relative concentration of an industry in the region versus the statewide concentration of that industry. The size of the circle on the chart indicates the relative size of the industry. Each quadrant in a location quotient chart tells a different story, as detailed below:

Upper Right-Hand Quadrant: Industries in this quadrant are fundamental to the regional economy and are steadily growing. Large industries in this quadrant will increase workforce demand, while small industries are emerging high exporters and should be developed.

Lower Right-Hand Quadrant: Industries in this quadrant are growing, but are less concentrated than the statewide average. If trends continue, their Location Quotient will eventually be in the upper right-hand quadrant.

Upper Left-Hand Quadrant: Industries in this quadrant are more concentrated regionally than nationally, but are mature and declining regionally. If a large industry is in this quadrant, the region may lose a substantial portion of its export base.

Lower Left-Hand Quadrant: Industries in this quadrant are less competitive nationally and statewide, and are declining or transforming.

The location quotient analysis indicates the following about the region's economy:

- The Health Care and Social Assistance sector forms the foundation of the region's economy, and provides the region with a statewide and national competitive advantage. The presence of the Dartmouth-Hitchcock Medical Center and related medical research and development companies has also spurred innovation in this sector. Between 2001 and 2014, the UVLSRPC region produced more than 16% of the patents filed in New Hampshire, with many of those patent applications emerging from the Health Care sector.
- The Manufacturing sector remains the third most important sector in the region's economy. However, additional business development is needed in this sector to ensure that it remains a high-performing industry in the future. Looking specifically at Sullivan County, the Manufacturing sector is the largest and most high-performing industry in the county.
- The Arts, Entertainment, and Recreation Sector has emerged as an industry that provides the region with a statewide and national competitive advantage. However, this industry is still small in the region, and additional business development is needed in this sector.
- The Retail Trade sector remains concentrated in the region, but is weakening. A renewed focus should be placed on the development of this sector to minimize future job losses. Looking specifically at Sullivan County, the Retail Trade sector is the second largest and second most high-performing sector in the county.
- The Educational Services sector, while the fourth largest employment sector in the region, is located in the lower left-hand quadrant, indicating that the sector is declining or transforming.

While more than 20% of the New Hampshire's Agriculture and Forestry sector employers are located in Grafton and Sullivan County, the location quotient analysis demonstrates that this sector does not yet provide the region with a statewide or national competitive advantage. If the Agriculture and Forestry sector is to be included as part of the region's economic development strategy, there would need to be changes that have local impacts via job creation or the development of value-added agricultural product industries.

Shift-Share Analysis

Shift-Share Analysis can provide economic development leaders in the region with basic information on the growth of industries and the local economic base compared to larger economies. It demonstrates which industries are most competitive locally, meaning that they are likely exporters and could bring wealth and investment into the local economy. It will also reveal which industries might require assistance to sustain their performance if they are valued by the region. The employment data presented in this analysis were obtained from the U.S. Bureau of Labor Statistics' (BLS) Census of Employment and Wages.

The number of jobs in an area is a primary indicator of local economic health and vitality. Between 1990 and 2012, employment in Grafton and Sullivan Counties averaged 61,552, with a high of 66,700 in 2008 and a low of 52,059 in 1991.

Figure 5.4.2- Employment Changes in Grafton and Sullivan Counties (2002-2012)

Sector	Employment (2002)	Employment (2012)	Employment Change	Percent Growth (2002-2012)
Education and Health Services	19,952	22,879	2,927	14.7
Trade, Transportation, and Utilities	12,000	12,151	151	1.3
Manufacturing	9,458	8,065	-1,393	-14.7
Leisure and Hospitality	6,835	7,270	435	6.4
Professional and Business Services	3,300	4,556	1,256	38.1
Public Administration	2,641	2,081	-560	-21.2
Construction	2,304	1,911	-393	-17.1
Financial Activities	2,102	1,899	-203	-9.7
Other Services	1,644	1,540	-104	-6.3
Information	1,244	765	-479	-38.5
Natural Resources and Mining	453	421	-32	-7.1
	61,933	63,538	1,605	

Figure 5.4.2 shows sector-level employment statistics for the region's 11 largest industries. The sectors are ordered according to how many people they employed in 2012. During the period from 2002 to 2012, employment in Sullivan and Grafton Counties increased by 1,605 jobs. In terms of employment growth, the most important industry was Education and Health Services (2,927 jobs) followed by Professional and Business Services (1,256 jobs), and Leisure and Hospitality (435 jobs). Manufacturing employment declined by 1,393 jobs, which is partially the result of plant closings (e.g. Customized Structures in Claremont in 2008).

Figure 5.4.3- Shift-Share Analysis for Grafton and Sullivan Counties (2002-2012)

Sector	National Growth Component (Percent)	National Growth Component (Jobs)	Industrial Mix Component (Percent)	Industrial Mix Component (Jobs)	Competitive Share Component (Percent)	Competitive Share Component (Jobs)
Professional and Business Services	2.7	90	9.3	306	26.0	859
Manufacturing	2.7	258	-24.4	-2,310	7.0	659
Trade, Transportation, and Utilities	2.7	328	-3.5	-420	2.0	244
Construction	2.7	63	-19.0	-438	-0.8	-18
Natural Resources and Mining	2.7	12	16.7	76	-26.5	-120
Financial Activities	2.7	57	-5.4	-113	-7.0	-148
Other Services	2.7	45	3.9	64	-13.0	-213
Information	2.7	34	-22.4	-278	-18.9	-235
Education and Health Services	2.7	545	14.5	2,883	-2.5	-501
Leisure and Hospitality	2.7	187	11.9	816	-8.3	-567
Public Administration	2.7	72	-0.9	-22	-23.1	-610
		1,691		564		-650

The purpose of a shift-share analysis is to evaluate the change in employment for an area through the consideration of the three components of employment change: 1) The National Growth Component; 2) The Industrial Mix Component; and 3) the Competitive Share Component.

The National Growth Component

The National Growth Component is the growth or contraction in the United States economy over a given time period. From 2002 to 2012, the nation's employment grew by 2.7 percent (i.e., America's employment in 2002 and 2012 was 128.2 million and 131.7 million, respectively). The effect of the

national growth component is felt most acutely during the peaks and valleys of the business cycle, (i.e. during recessions and boom times). For instance, the largest employment sector in Grafton and Sullivan Counties is the Education and Health Services sector. The 2.7 percent national growth component led to this sector's employment growing by 545 jobs (i.e., 2.7 percent times the sector's base employment, 19,952, equals 545 jobs). Overall, the national growth component was responsible for a total of 1,691 jobs in Grafton and Sullivan Counties during this time period.

The Industrial Mix Component

The Industrial Mix Component is determined by calculating the growth rate for an economic sector at the regional level and subtracting from it the national growth component. Thus, the Industrial Mix Component measures how well an industry has grown, net of effects from the business cycle. The highest industrial mix component was 16.7 percent in the Natural Resources and Mining sector, and it was responsible for 76 jobs in Grafton and Sullivan Counties. If the counties' employment were concentrated in sectors with higher industrial mix components, then the area could expect more employment growth. In total, the Industrial Mix Component was responsible for increasing employment in Grafton and Sullivan Counties by 564 jobs between 2002 and 2012. The majority of these jobs can be attributed to growth in the Education and Health Services sector. Shift-share analysis does not explain why an economic sector has slower or faster growth. Rather, the local leaders must use knowledge about the local business conditions facing particular industries to understand these dynamics.

For instance, the region's growth in the Education and Health Services sector is largely attributable to the presence of the Dartmouth Hitchcock Medical Center (DHMC) which employs more than 7,000 people in the City of Lebanon. DHMC's position as a national leader in medical research and cancer treatment has led to allied industries (e.g. medical R&D and pharmaceutical companies) wanting the synergy of locating as close to the medical center as possible. This has resulted in substantial non-residential development pressure in the City of Lebanon, as shown in Figure 5.4.4 below.

Figure 5.4.4- Non-Residential Development Permitted in the City of Lebanon

Non-Residential Development Permitted (Not Yet Built) in the City of Lebanon	
Development Name	Square Footage (SF)
Iron Horse Park	667,200 SF
River Park	714,020 SF
Altaria Industrial Planned Unit Development	217,970 SF
Altaria Business Park	240,000 SF
ICV Holdings Phase II	56,364 SF
DHMC- Williamson Center Expansion	162,000 SF
Chaloux Hotel and Conference Center	96,306 SF
TOTAL	2,153,860 SF

The Competitive Share Component

The third component of shift-share analysis is called the Competitive Share Component. It is the remaining employment change that is left over after accounting for the national and industrial mix components. If a sector's competitive share is positive, then the sector has a local advantage in promoting employment growth. The top three sectors in competitive share were Professional and Business Services, Manufacturing, and the Trade, Transportation, and Utilities sector. Across all sectors, the Competitive Share Component totals -650 jobs between 2002 and 2012 in Grafton and Sullivan Counties. This indicates that Grafton and Sullivan Counties were not competitive in securing additional employment between 2002 and 2012 through local advantages.

The information above provides an overview of both Sullivan and Grafton Counties between 2002 and 2012. Assessing each county individually between 2010 and 2012, Sullivan County appears to have a competitive edge driven by a local productive advantage. Sullivan County was the only county in New Hampshire to gain total employment between 2010 and 2012 due to competitive share, with an increase of 503 jobs during this period. This represents a 4% increase in Sullivan County's employment. During that same time period Grafton County had a 1% increase in employment and the state of New Hampshire had a 2% increase in employment. Shift-share analysis indicates that, of the 4% increase in employment in Sullivan County, 25% of that increase was derived from a local competitive advantage. At both the state level and within all other counties in NH there was a negative contribution from competitive share to the total employment.

5.5 ECONOMIC SCENARIO ANALYSIS

As a component of the UVLSRPC Regional Plan, the New Hampshire Employment Security's (NHES) Economic and Labor Market Information Bureau analyzed two separate economic impact scenarios in coordination with Commission staff. The impact analysis was conducted using the Economic and Labor Market Information Bureau's New Hampshire Econometric Model, which is a REMI Policy Insight® Model. The following information summarizes the findings of this study, while the full report detailing these economic scenario analyses can be found in Appendix A of this chapter.

The UVLSRPC would like to acknowledge the contributions of NHES staff members Katrina Evans, Annette Nielsen, and Elisabeth Richardson, who were instrumental in developing these analyses.

To understand the employment impacts of these scenarios, the following terms are defined:

- Direct Jobs- Jobs that have been entered or removed from the regional economy in the REMI model.
- Indirect Jobs- Jobs that are created from the "ripple effect" of the direct jobs from inter-industry purchases (i.e. business-to-business services).
- Induced Jobs- Jobs created from an increase in consumer spending and from population increase.

Indirect and Induced jobs are collectively referred to as "secondary jobs."

Scenario #1: The Economic Impact of a Large Manufacturer in Sullivan County

Scenario #1 considers the economic value of a large manufacturer located in Sullivan County, Sturm, Ruger and Co., which is located in the Town of Newport. The scenario evaluates the economic impact of the estimated 823 manufacturing jobs supported by Sturm, Ruger and Co. The following results are based on the REMI Policy Insight® Model analysis developed by staff at New Hampshire Employment Security's Economic and Labor Market Information Bureau.

Employment Impacts

- In 2014, the total impact on Sullivan County of 823 manufacturing jobs would be 1,380 direct, indirect, and induced jobs. Over the simulation period of 2014 to 2035, the total average employment impact on the county is estimated to be 1,460 jobs.
- In 2014, the distribution of secondary jobs impacted would be spread across 12 employment sectors. The largest secondary job impacts would be in the State and Local Government (202 jobs), Construction (94 jobs), and Retail Trade (68 jobs) sectors.

Gross Domestic Product

- In 2014, the total value of the 823 manufacturing jobs to the local economy in terms of Gross Domestic Product (GDP) would be \$115.2 million (in 2005 dollars). This impact would grow over time. By 2035, GDP in the region would be impacted by \$159.1 million (in 2005 dollars).
- The economic activity created by the 823 manufacturing jobs would account for 9.4% of total GDP in Sullivan County in 2014. Over time, as other sectors in the economy recover, the value of these manufacturing jobs is reduced. In 2035, the value of the 823 manufacturing jobs would be reduced to 7.7 percent of Sullivan County's GDP.

Personal Income

- The impact of the 823 jobs on total real personal income would be \$54.6 million (in 2005 dollars) in 2014. By 2035, the impact on real personal income would grow to \$137.2 million (in 2005 dollars).

Population

- In 2014, 823 manufacturing jobs sustained 424 persons to Sullivan County's population. Over time, the impact of these manufacturing jobs on the county's population increases to about 3,600 persons. This represents 7.1 percent of the projected population baseline for the county.

Job Multiplier

- The multiplier effect on Sullivan County of each manufacturing job in this scenario is between 1.7 and 1.8 jobs annually over the simulation period.

Scenario #2: Development of Claremont Industrial Parks

Scenario #2 considers the economic benefits of the development of the Claremont Industrial District (e.g. Syd Clarke Industrial Park). This scenario assumes that building-out the industrial park between 2014 and 2035 would have construction costs totaling \$104 million. The following results are based on the REMI Policy Insight® Model analysis developed by staff at New Hampshire Employment Security's Economic and Labor Market Information Bureau.

Employment Impacts

- By 2035, at the anticipated full implementation of development of the Claremont Industrial District, the total impact on jobs is estimated to be 2,394 direct, indirect, and induced jobs.
- By 2035, the distribution of secondary jobs impacted would be spread across 13 employment sectors. The largest secondary job impacts would be in the Construction (354 jobs), State and Local Government (253 jobs), and Retail Trade (118 jobs) sectors.

Gross Domestic Product

- In 2014, the first year of the expansion of the Claremont Industrial Park, the Gross Domestic Product (GDP) in Sullivan County would increase by \$14.0 million (in 2005 dollars). By build-out in 2035, GDP in the region would grow by \$221.6 million.
- The economic activity created from the expansion of the Claremont Industrial District would account for 10.7 percent of total GDP in Sullivan County by 2035.

Personal Income

- Total real personal income would increase by \$8.1 million (in 2005 dollars) in 2014. By 2015, the increase in real personal income would grow by \$172.9 million (in 2005 dollars) above the baseline.

Population

- Sullivan County's population would gain 42 persons above the baseline in 2014. By 2035, the population of Sullivan County would gain close to 3,400 persons above the projected population baseline (a 6.7 percent increase above the forecasted baseline).

Job Multiplier

- The multiplier effect on Sullivan County of each job created in the Claremont Industrial District is between 1.6 and 1.7 jobs annually over the simulation period. The impact of construction costs on the region is excluded.

5.6 REGIONAL ECONOMIC DEVELOPMENT STRATEGIES

Regional Economic Development Strategies
<ul style="list-style-type: none"> Reconvene the Sullivan County Comprehensive Economic Development Strategy (CEDS) Committee and develop an updated CEDS for the County through the inclusion of diverse public and private stakeholders.
<ul style="list-style-type: none"> Investigate the feasibility of adding Sullivan County to the Northern New Hampshire Economic Development District.
<ul style="list-style-type: none"> Engage in CEDS planning in both East Central Vermont and Northern New Hampshire to ensure that both the UVLSRPC region's interests and inter-regional projects are considered.
<ul style="list-style-type: none"> Develop a Regional Brownfields Assessment Program.
<ul style="list-style-type: none"> Develop specialized regional business incubators focused on value-added products in the <i>Agriculture</i> and <i>Arts, Entertainment, and Recreation</i> and <i>Manufacturing</i> sectors.
<ul style="list-style-type: none"> Coordinate with local and statewide partners to implement the recommendations of the UVLSRPC Regional Broadband Plan.
<ul style="list-style-type: none"> Complete an inventory of existing providers of workforce training within the UVLSRPC region (and in neighboring communities in Vermont) to identify training gaps.
<ul style="list-style-type: none"> Coordinate with local and statewide partners to develop targeted workforce/vocational training opportunities specific to the unique needs of the region's large employers (e.g. Sturm Ruger).
<ul style="list-style-type: none"> Ensure that the strategies identified in Chapter 2 (Housing) of this plan to promote and encourage the construction of an affordable housing stock in the region are implemented.
<ul style="list-style-type: none"> Develop and maintain a "Regional Dashboard" of key economic indicators to guide the formation of local and regional economic development policies.
<ul style="list-style-type: none"> Provide technical assistance to UVLSRPC communities in streamlining local land use permitting processes to ensure that the local regulatory environment is equitable and efficient for all applicants.
<ul style="list-style-type: none"> Provide technical assistance to rural UVLSRPC communities wishing to expand their economic base through cottage industries and home-based businesses.
<ul style="list-style-type: none"> Ensure that infrastructure programs prioritized at the regional level (e.g. Ten-Year Transportation Improvement Plan) place priority on infrastructure projects at direct growth towards the region's existing village and city centers.
<ul style="list-style-type: none"> Promote the tourism economy within the region and provide technical assistance to the Connecticut River Scenic Byway and Lake Sunapee Scenic Byway councils.

Economic Impact of Current and Future Industrial Developments in Sullivan County

prepared by

Economic and Labor Market Information Bureau
New Hampshire Employment Security

for

Upper Valley-Lake Sunapee Regional Planning Commission

Granite State Future

November 2014

Economic Scenario Analysis for Granite State Future

Acknowledgments

The following New Hampshire Employment Security staff members were instrumental in producing this publication:

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This report was funded by the Granite State Future – a Housing and Urban Development Sustainable Communities Initiative. The report was created by New Hampshire Employment Security's Economic and Labor Market Information Bureau under contract with the Nashua Regional Planning Commission.

For more information about Granite State Future, go to www.granitestatefuture.org.

The economic impact of current and future industrial developments in Sullivan County

Two separate scenarios were developed for the Upper Valley/Lake Sunapee Regional Commission. The inputs used were provided by Mike McCrory, Senior Planner at the Upper Valley Lake Sunapee Regional Planning Commission, in consultation with Nancy Merrill, Director of Planning & Development for the City of Claremont. With the first scenario, the regional planning commission wanted to assess the economic value of Sturm, Ruger & Co., a large manufacturer, being located within the region. According to the New Hampshire Business Review's 2014 Book of Lists, Sturm, Ruger & Co. was listed with 823 employees at their New Hampshire locations. The planning commission agreed to using this number as a proxy for the company's employment in the region. The second scenario was an attempt at assessing the economic impact on the region from expanding job creation in the Claremont Industrial District. Mike McCrory and Nancy Merrill provided employment by industry data and construction costs for proposed economic development in the Claremont Industrial District over a 22-year period. The employment data for the development of the city's industrial district was translated into the REMI model's NAICS-based industries.²

This impact analysis was conducted using the Economic and Labor Market Information Bureau's New Hampshire Econometric Model – a REMI Policy Insight + ® model.¹

By using this econometric model, we are able to estimate both the number of direct jobs added in Sullivan County as well as the indirect and induced jobs gained in the region.

For each of the scenarios, inputs and assumptions will be described, followed by the anticipated implications that each of the scenario would have on Sullivan County. Each scenario result will include the direct jobs generated at the company location or industrial park, as well as the secondary (in-direct and induced) jobs added in Sullivan County. The results include impacts on the region in terms of added gross domestic product, personal income, and population.

Scenario 1: The economic value of a large manufacturer being located within the region

Inputs and assumptions

According to *2014 Book of Lists*,³ Sturm, Ruger & Co. employed 823 workers in New Hampshire and according to the New Hampshire Community profile,⁴ Sturm, Ruger & Co. had 818 employees located

1. Product of Regional Economic Models, Inc. of Amherst, MA.

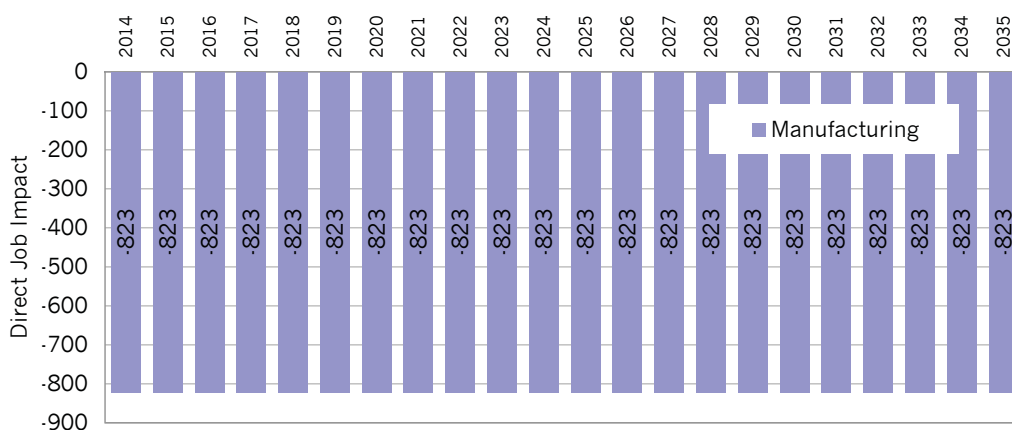
2. NAICS is the North American Industry Classification System, used to classify business establishments according to type of economic activity (process of production) in Canada, Mexico and the United States. An establishment is typically a single physical location, though administratively distinct operations at a single location may be treated as distinct establishments. Each establishment is classified to an industry according to the primary business activity taking place there.

3. New Hampshire Business Review, 150 Dow Street, Manchester NH. Copyright 2014 McLean Communications.

4. Economic & Labor Market Information Bureau, NH Employment Security, February 2014. Based on a Community Response from the town of Newport that was received on July 11, 2013.

in the town of Newport, a town located in Sullivan County. To evaluate the impact of these manufacturing jobs to the county, 823 manufacturing jobs were removed from the baseline Sullivan County manufacturing employment in the REMI Model. These manufacturing jobs were removed from the REMI model as a constant number over the entire simulation period from 2014 to 2035. The method of removing baseline employment in order to measure the value of a specific job type and/or event is called a counterfactual scenario.

**Removal of manufacturing jobs from Sullivan County
projected employment baseline to measure the value of these jobs**



Scenario Results: Economic value of 823 manufacturing jobs in Sullivan County

The following results are an assessment of the value of these manufacturing jobs. The results include both direct jobs currently located in the region as well as the secondary (indirect and induced) jobs depending on the presence of these 823 manufacturing jobs in Sullivan County. [Despite the current manufacturing jobs being removed from the REMI model baseline employment, the results are expressed in terms of value added to the region.]

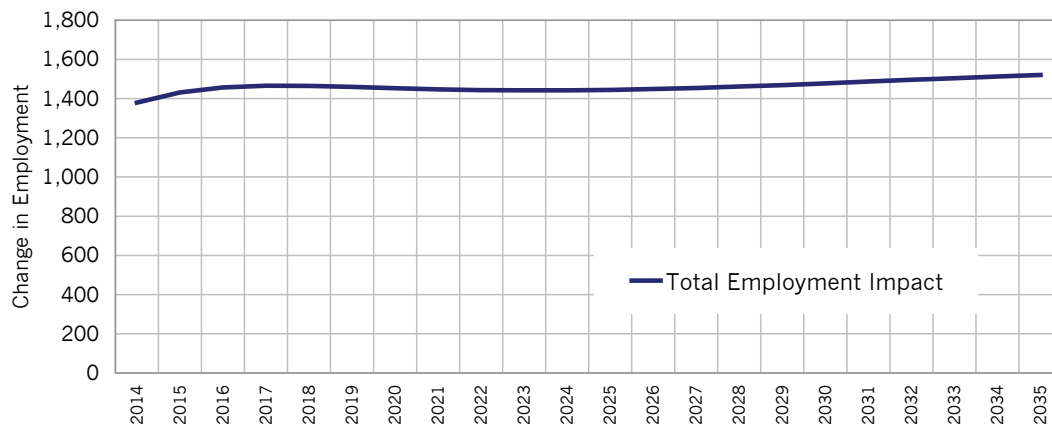
Employment Impacts

- In 2014, total impact on Sullivan County of 823 manufacturing jobs would be 1,380 direct, indirect and induced jobs.⁵ On average, over the entire simulation period, total impact on the county is about 1,460 direct, indirect and induced jobs. The REMI model is dynamic in the sense that migration responds to economic opportunities over time. If there are more economic opportunities, in-migration occurs and

⁵ The direct jobs are jobs that have been entered or removed from the regional economy in the REMI Model. The indirect jobs are those created from the ripple effect of the direct jobs from inter-industry purchases (business-to-business services). The induced jobs are those generated from an increase in consumer spending and from the increase in population. Indirect and induced jobs, combined are also referred to as secondary jobs. Jobs in the REMI model are based on Bureau of Economic Analysis (BEA) definition of employment. The BEA estimates of employment and wages differ from covered employment data because BEA makes adjustments to account for self-employment. So the employment count in the REMI model is larger than what is reported by the Economic and Labor Market Information Bureau (ELMIB), New Hampshire Employment Security. The REMI model does not distinguish between full-time and part-time jobs.

similarly, if economic opportunities decline, out-migration occurs. This explains why more jobs are generated and/or lost over time.

Total employment Impact on Sullivan County due to 823 jobs in Manufacturing



- In 2014, the distribution of the secondary jobs⁶ impacted would be as follows: 94 jobs would be impacted in *Construction*, 68 jobs would be impacted in *Retail trade*, and 33 jobs would be impacted in *Health care and social assistance*. Another 202 *State and local government* jobs would be impacted.⁷

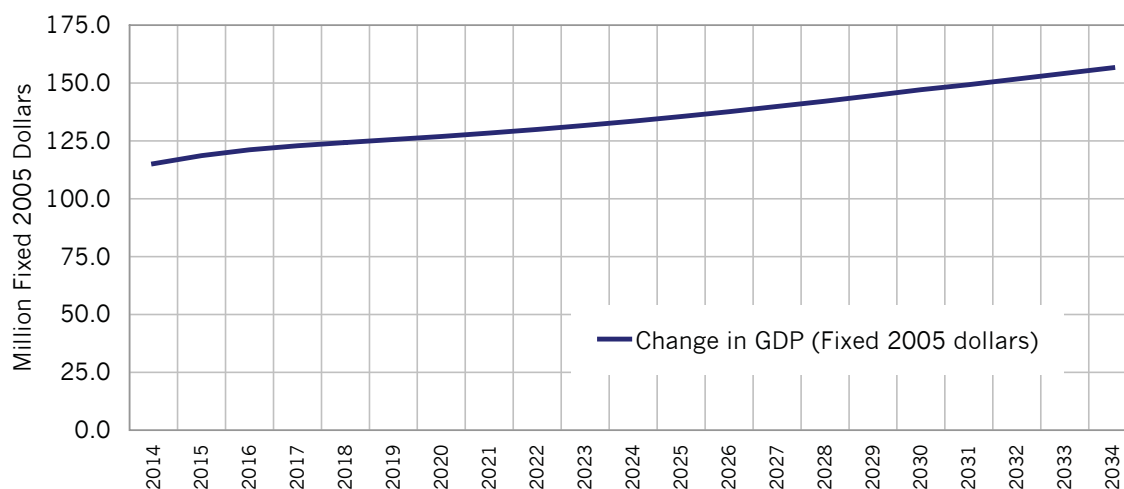
Table 1. Direct and Secondary Jobs Impacted	2014	
	Direct Jobs	Total jobs Impacted
Manufacturing	823	848
Construction		94
Retail Trade		68
Health Care and Social Assistance		33
Wholesale Trade		28
Administrative and Waste Management Services		26
Accommodation and Food Services		25
Other Services, except Public Administration		22
Real Estate and Rental and Leasing		16
Professional, Scientific, and Technical Services		10
Arts, Entertainment, and Recreation		5
State and Local Government		202

⁶. The difference between total jobs created and the direct jobs added to the local economy.

⁷. The impact on *State and local government* jobs would best be interpreted as employment that would be required in order to provide for the overall increase in the demand for shared government services. Shared services could include education, public safety, water and sewage treatment, road construction and maintenance, and other services related to an increase in business activity and resident population.

Gross Domestic Product

- In 2014, the total value of the 823 manufacturing jobs to the local economy expressed in terms of Gross Domestic Product (GDP) would be \$115.2 million (in fixed 2005 dollars). This impact would grow over time and by 2035, GDP in the region would be impacted by \$159.1 million (in fixed 2005 dollars).
- The economic activity created by the 823 manufacturing jobs would account for 9.4 percent of total GDP in Sullivan County in 2014. Over time, as other sectors in the economy recover, the value of these manufacturing jobs is reduced. In 2035, the value of the 823 manufacturing jobs would be reduced to 7.7 percent of the county's GDP.

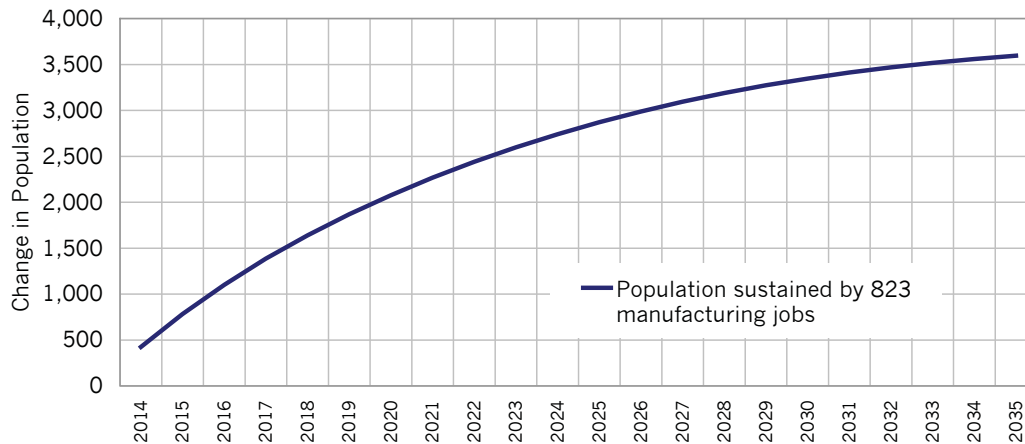
The impact on GDP in Sullivan County due to 823 manufacturing jobs**Personal Income**

- The impact of the 823 jobs on total real personal income would be \$54.6 million (in fixed 2005 dollars) in 2014. By 2035, the impact on real personal income would grow to \$137.2 million (in fixed 2005 dollars).

Population

- In 2014, 823 manufacturing jobs sustained 424 persons to Sullivan County's population. Over time, the impact of these manufacturing jobs on the county's population increase to about 3,600 persons. This represents 7.1 percent of the projected population baseline for the county.

The impact on population in Sullivan County due to 823 manufacturing jobs



Job Multiplier

- The multiplier effect on Sullivan County of each *Manufacturing* job in this current scenario is between 1.7 and 1.8 jobs⁸ — including the direct job created — annually over the entire simulation period.

Scenario 2: Development of the industrial parks in Claremont

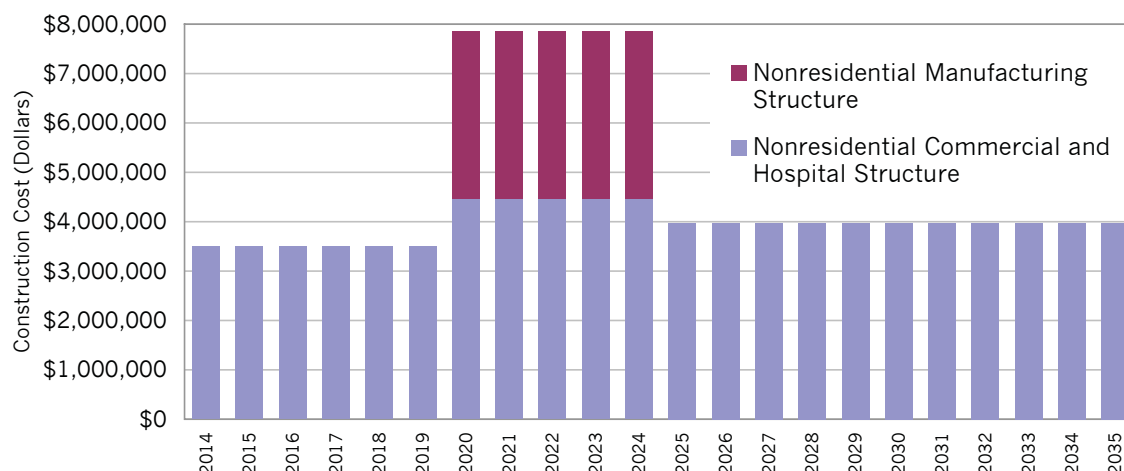
Inputs and assumptions

Construction Costs. It was assumed that construction costs would total \$104 million, spread out over the entire time period. About 84 percent of the construction cost was modeled as *Nonresidential commercial and hospital structure* and the remaining half was added to the REMI model as *Nonresidential manufacturing construction*. The costs for *Nonresidential commercial and hospital structure* were added to the model annually over the entire period, whereas costs for *Nonresidential manufacturing construction* were spread over the years 2020 to 2024.

⁸. A job multiplier of more than one indicates that the new job created in the local economy have a ripple effect that generates more employment in the region. A multiplier of less than one indicates that some of the current employment in the region would be eliminated due to the competition from the expanding businesses.

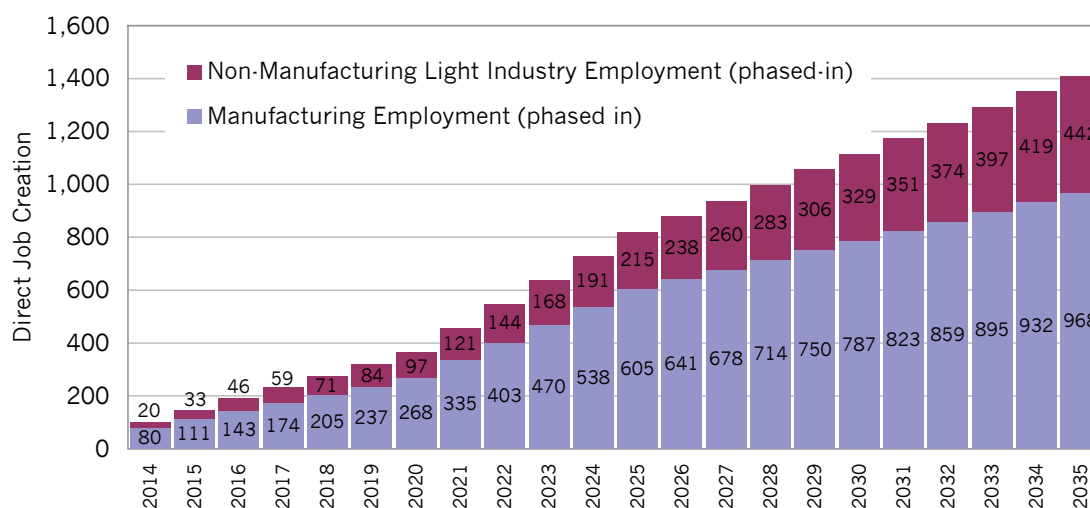
Table 2. Claremont Industrial District Construction Costs	2014-2019	2020-2024	2025-2035
Nonresidential Commercial and Hospital Structure	\$20,960,000	\$22,325,000	\$43,720,000
Nonresidential Manufacturing		\$17,000,000	

Distribution of construction costs for the expansion of Claremont Industrial District



Direct Jobs. In this scenario, it was assumed that 1,410 direct jobs would be created in Sullivan County over the period 2014-2035. About two-thirds of these jobs are expected to be in manufacturing with the remaining jobs created in non-manufacturing light industries.

Distribution of Jobs Created due to the expansion of Claremont Industrial District



Upper Valley/Lake Sunapee Regional Planning Commission

In the REMI model, the manufacturing sector is comprised of 75 detailed industries. In Sullivan County, 45 those detailed industries contained employment. Employment added to the Manufacturing sector were proportioned over ten targeted detailed industries in the REMI model, using the 2035 projected employment for Sullivan County as the basis for the proportions.

Table 3: Selected manufacturing industries	2035 Employment Share
Machine shops; turned product; and screw, nut, and bolt manufacturing	23.2%
Plastics product manufacturing	13.5%
Electric lighting equipment manufacturing	12.9%
Household and institutional furniture and kitchen cabinet manufacturing	12.4%
Cement and concrete product manufacturing	10.5%
Other wood product manufacturing	9.1%
Sawmills and wood preservation	8.2%
Medical equipment and supplies manufacturing	3.5%
Hardware manufacturing	3.4%
Aerospace product and parts manufacturing	3.3%

The non-manufacturing light industry employment was spread between two non-manufacturing targeted REMI industries using the 2035 projected employment for Sullivan County for those two industries as the basis for the proportions.

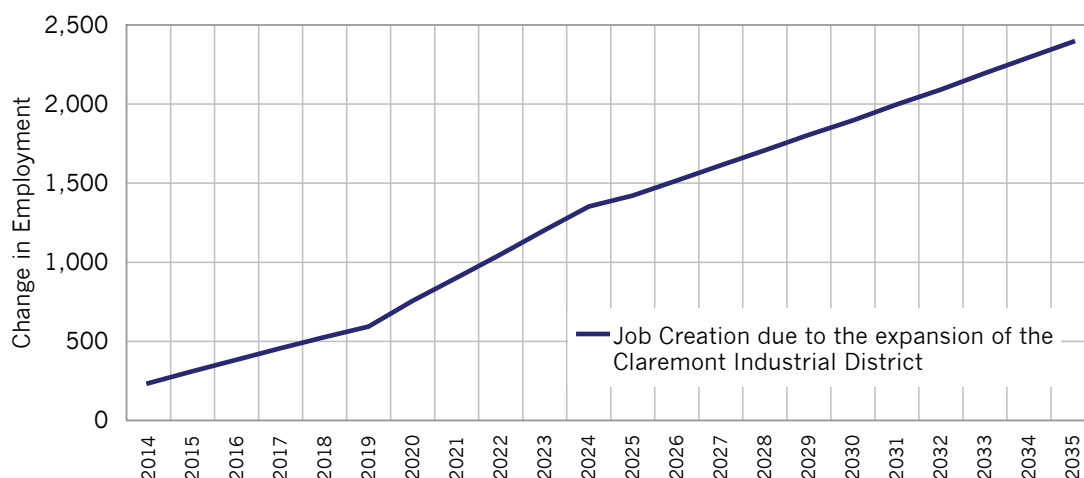
Table 4: Selected non-manufacturing light industries	2035 Employment Share
Management, scientific, and technical consulting services	38.5%
Other professional, scientific, and technical services	61.5%

In this development scenario, it was assumed that the anticipated job creation would not displace existing employment in the county.

Scenario Results: Impact on Sullivan County of the economic development at the Claremont Industrial District

- In 2014 a total of 236 direct, indirect and induced jobs⁹ would be created in Sullivan County.
- By 2035, at the anticipated full implementation of development of the Claremont industrial district, the total impact on jobs will have increased to 2,394 direct, indirect and induced jobs.

Change in employment in Sullivan County due the expansion of Claremont Industrial District



- By 2035, the distribution of the secondary jobs¹⁰ created would be as follows: 118 jobs would be created in *Retail trade*; 83 jobs would be created in *Health care and social assistance* and 76 jobs would be created in *Accommodation and food services*. Another 253 jobs would be created in *State and local government* (see footnote 7 on page 5). A total of 354 jobs would be created in *Construction*. Some of these jobs would be created due to input construction cost, while others would be created as secondary jobs, responding to the increase in business activity and increase in population.

⁹. The direct jobs are defined in footnote 3. The indirect jobs are those created from the ripple effect of the direct jobs from inter-industry purchases (business-to-business services). The induced jobs are those generated from an increase in consumer spending and from the increase in population. Indirect and induced jobs, combined are also referred to as secondary jobs. Jobs in the REMI model are based on Bureau of Economic Analysis (BEA) definition of employment. The BEA estimates of employment and wages differ from covered employment data because BEA makes adjustments to account for self-employment. So the employment count in the REMI model is larger than what is reported by the Economic and Labor Market Information Bureau (ELMIB), New Hampshire Employment Security. The REMI model does not distinguish between full-time and part-time jobs.

¹⁰. The difference between total jobs created and the direct jobs added to the local economy.

Table 5. Direct and Secondary Jobs Created	2035	
	Direct Jobs	Total jobs created
Manufacturing	968	957*
Professional, Scientific, and Technical Services	442	433*
Construction**		354
Retail Trade		118
Health Care and Social Assistance		83
Accommodation and Food Services		76
Wholesale Trade		47
Other Services, except Public Administration		29
Administrative and Waste Management Services		28
Arts, Entertainment, and Recreation		14
Real Estate and Rental and Leasing		5
Educational Services		2
Forestry, Fishing, and Related Activities		1
Utilities		1
State and Local Government		253

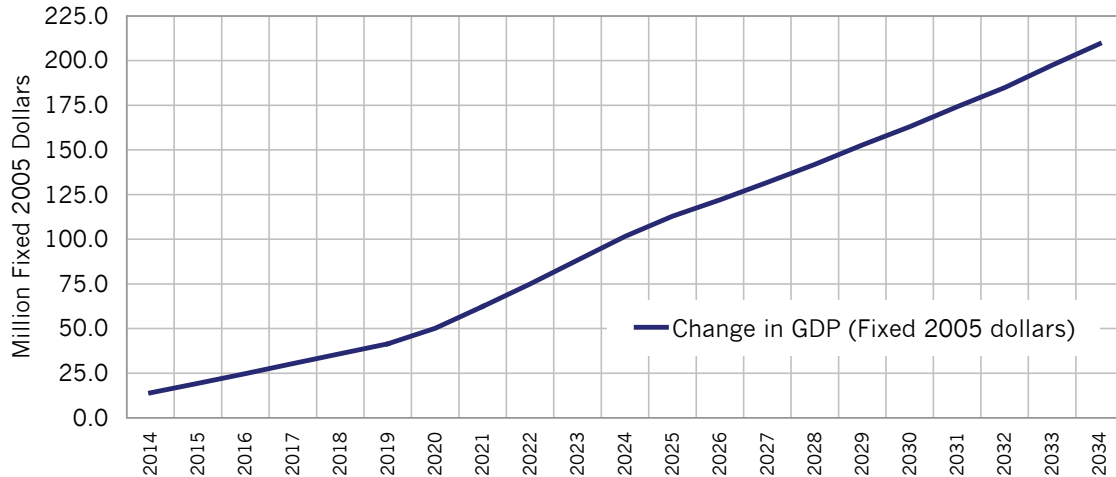
* Due to innovation and agglomeration, efficiency will cause a slight decline in comparison to the direct jobs created

** Includes estimated construction costs

Gross Domestic Product

- In 2014, the first year of the expansion of the Claremont Industrial Park, the Gross Domestic Product (GDP) in Sullivan County would increase by \$14.0 million (in fixed 2005 dollars) above the baseline. By 2035, GDP in the region would grow to \$221.6million (in fixed 2005 dollars) above the baseline.
- The economic activity created from the expansion of the Claremont Industrial District would account for 10.7 percent of total GDP in Sullivan County by 2035.

The impact on GDP in Sullivan County due to the expansion of Claremont Industrial Park



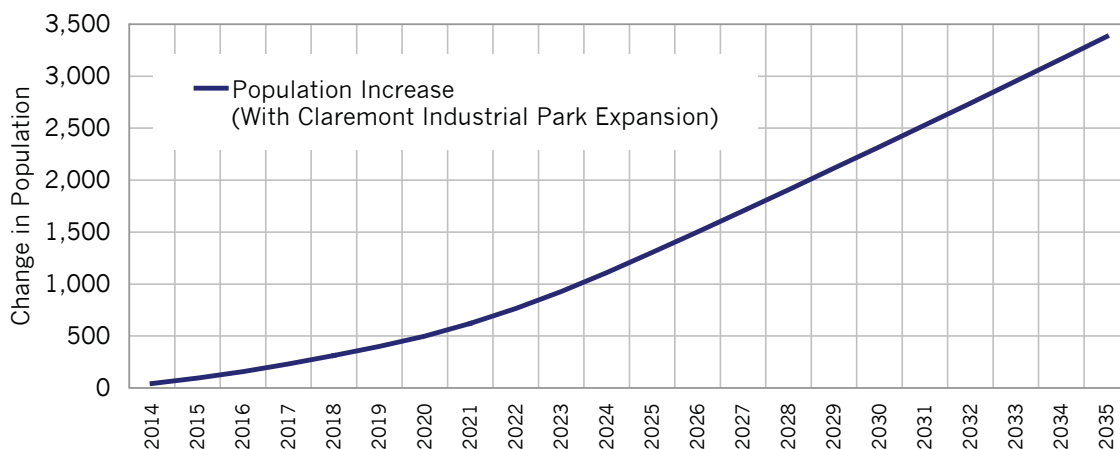
Personal Income

- Total real personal income would increase by \$8.1 million (in fixed 2005 dollars) in 2014. By 2035, the increase in real personal income would grow by \$172.9 million (in fixed 2005 dollars) above the baseline.

Population

- Sullivan County's population would gain 42 persons above baseline in 2014. By 2035, the population of Sullivan County would gain close to 3,400 persons above the projected population baseline (a 6.7 percent increase above the forecasted baseline).

The impact on population in Sullivan County due to the expansion of Claremont Industrial Park



Job Multiplier

- The multiplier effect on Sullivan County of each job created at the Claremont Industrial District is between 1.6 and 1.7 jobs (see footnote seven on page 6) — including the direct job created — annually over the entire simulation period. (The impact of construction costs on the region is excluded.)

Summary

The impact of these two scenarios to the region are vastly different, as one scenario assesses the current value of existing manufacturing employment versus the other economic development scenario is built-out over a 22-year period.

- The first scenario shows how the county is very dependent on one large employer in the region, accounting for 9.4 percent of total Gross Domestic Product for Sullivan County in 2014.
- The second scenario shows that the potential expansion of the Claremont Industrial District would generate up to \$221.6 million (in fixed 2005 dollars) in additional Gross Domestic Product (GDP) to the region by 2035, accounting for 10.7 percent of Sullivan's County GDP in that year.

The explanation below is the economic theory and empirical data behind the REMI model.

The REMI Model

REMI Policy Insight® is a structural model, meaning that it clearly includes cause-and-effect relationships.

The model is based on two key underlying assumptions from mainstream economic theory: households maximize utility and producers maximize profits. Since these assumptions make sense to most people, lay people as well as trained economists can understand the model. The tool is often used by economic developers and planners to gage the potential impact on a regional economy of proposed projects such as transportation infrastructure, office and retail development, relocation or expansion of businesses, etc.

In the model, businesses produce goods and services to sell locally to other firms, investors, governments, and individuals, and to sell as exports to purchasers outside the region. The output is produced using labor, capital, fuel, and intermediate inputs. The demand, per unit of output, for labor, capital, and fuel depends on their relative costs, since an increase in the price of any one of these inputs leads to substitution away from that input to other inputs. The supply of labor in the model depends on the number of people in the population and the proportion of those people who participate in the labor force. Economic migration affects the population size. People will move into an area if the real after-tax wage rates or the likelihood of being employed increases in a region.

Supply and demand for labor determine the wage rates in the model. These wage rates, along with other prices and productivity, determine the cost of doing business for each industry in the model. An increase in the cost of doing business causes either an increase in prices or a cut in profits, depending on the market for the product. In either case, an increase in costs would decrease the share of the local and U.S. market supplied by local firms. This market share, combined with the demand described above, determines the amount of local output. Many other feedbacks are incorporated in the model. For example, changes in wages and employment impact income and consumption, while economic expansion changes investment, and population growth impacts government spending.

The effects of a change scenario to the model are determined by comparing the baseline REMI forecast with an alternative forecast that incorporates the assumptions for the change scenario.