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December 2007

The closing of the Wausau Paper Mill in the Northumberland Village of Groveton, NH, along with the recent closings of the Groveton Paperboard Mill and Fraser Paper's Burgess Pulp Mill in Berlin, represents a continuation of a long downward trend in pulp and paper manufacturing employment in New Hampshire's North Country. The transition from a manufacturing-based to a service-based economy is creating challenges for state and local leaders and area residents. The combined effects of these employment losses has further accelerated this transition and intensified the challenges.

Governor John H. Lynch has been leading the state's efforts to ensure everything possible is done to get these dislocated workers the assistance they need to reenter the workforce. NH Employment Security (NHES) and its local office network have already been assisting workers to find reemployment through placement, training, and counseling services. NHES is also coordinating efforts with the Department of Resources and Economic Development (DRED), the Workforce Opportunity Council (WOC), and other NHWORKS partner agencies to facilitate services to communities, including referrals for supportive services.

The advances in technology and the increasing number of jobs going overseas has realized the diminished demand for the pulp and paper industry that has long been the cornerstone of the North Country economy. These industrial centers throughout the North Country will be facing economic development challenges necessary for community survival through industry development and recruitment of businesses.

This study, published by New Hampshire Employment Security's Economic and Labor Market Information Bureau, will aid the North Country communities and its leaders in the ongoing transition from the predominately paper-based economy to a more diversified economy.

NH Employment Security has undertaken this study to create a resource for the North Country and is committed to assisting the communities with meeting challenges as they arise.

Sincerely,

Richard S. Brothers
Commissioner

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Coös County Perspectives



State of New Hampshire
John H. Lynch, *Governor*

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Richard S. Brothers, *Commissioner*

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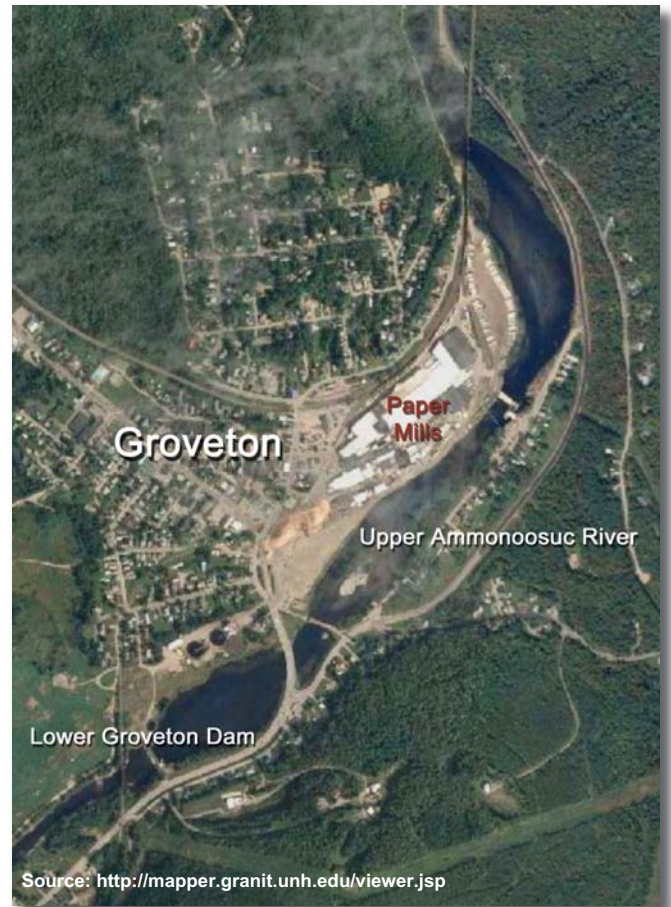
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Executive Summary

In the original Coös County Perspectives publication, subtitled *Pulp and Paper ... Parks and Prisons*, we observed: “For a hundred years, Paper manufacturing has been the mainstay of the economy of Coös County and New Hampshire’s Great North Woods. But now the region’s residents are contemplating the possibility of a Coös County future without paper.”

With the imminent closing of the Wausau Paper Corp. plant in the Northumberland village of Groveton, the paper industry in Coös County is preparing to be hit again. The Groveton mill site once employed more than 1,000 paper mill workers. Less than a year and a half ago it was occupied by two paper making establishments, one employing 108 and the other around 300, and it will go silent as the final curtain is drawn on 2007. Total average private covered employment in Northumberland was just 710 in 2005. This loss of more than half of the town’s private employment, in less than two years is nothing short of devastating to a once vibrant center of industry.



In this study we examine the impact that these plant closings will have on the economy of Northumberland and its residential and economic center of Groveton. We will also look at how the latest blow, Wausau’s closing, will impact the broader Coös County economy. We will then look to the possibilities for the future of Coös County, focusing on the Groveton/Northumberland region but considering as well, the redevelopment activities underway in the nearby Androscoggin River Valley where Berlin, 25 miles to the east, lost its pulp mill in May 2006. We also discuss the transferable skills and characteristics of the workers losing their jobs in the Wausau mill closure and list jobs

to which their skills and abilities may be transferred into new industries as the Coös County economy evolves.

To project the future of Groveton/Northumberland and Coös County, we used our New Hampshire ten-county, 169 industry sector, econometric model developed by Regional Economic Models, Inc. (REMI). For this study, we analyzed two scenarios. First we examined the impact of the two mill closures in Groveton. The March 2006 closing of the Groveton Paperboard mill caused a direct loss of 108 jobs. The closing of the Wausau mill will represent a loss of an additional 303 jobs. The Model projects that the combined direct loss over a two-year period of 411 jobs at the two mills will lead to a total loss, in 2008, of 732 jobs. By 2009, the job losses mount to 742 and then start to taper off.

Of the 732 jobs lost in 2008, 60 percent are in the Manufacturing sector. This, of course includes the direct loss of 411 jobs in the two mills. Added to this are another 321 jobs lost from other industries due to secondary effects. These secondary jobs are lost because the mills no longer make purchases in the local economy, and there are no mill worker wages to generate local purchasing. Lack of jobs leads to population loss, leading to fewer people available to purchase local goods and services.

We go on to look at the impact of the Groveton closures on the entire county. Coös County suffered the additional blow, in May 2006, of the closure of the Burgess Pulp Mill in Berlin. The prospects for redevelopment of the Berlin area revolve around the construction of a new minimum security federal prison. To the extent that Groveton residents can commute the twenty-five miles to Berlin, they may reap some of the advantages of prison construction and staffing. The proposal for an alternative energy park in Groveton will likely not come to fruition soon enough to help Wausau workers who lose their jobs on New Year's Eve. Even if the regulatory and site approval processes can be sped up, there are still serious issues to resolve. Is the new, unproven wood to biofuel technology commercially viable? Will the electric transmission system be upgraded to allow new "green" power production plants to come on-line? Who will pay the significant costs of these upgrades? Are these upgrades valuable to just a small, rather sparsely-populated and remote region, or will benefits from them be felt in the rest of the state and beyond? Northern New Hampshire is dotted with the remains of former logging and farming communities that over time lost their economic viability. Clear cutting depleted the woods; farmers went into the mills or moved to areas where farming was more profitable. What is the future of Groveton/Northumberland? Only time will tell.

The Impact of the Wausau Paper Mill Closure

- ❖ The 303 jobs to be lost at the Groveton Wausau Paper Mill represent 38 percent of Northumberland's total covered employment in 2006. When added to the prior loss of 108 jobs from Groveton Paperboard, the share rises to 46 percent.
- ❖ Between the two mills, the total loss of 411 jobs represents 3.7 percent of Coös County's total private employment in 2005.
- ❖ Most of the Wausau workers live in close proximity to the mill. Forty-four percent (134) live in Groveton/Northumberland, and 25 percent (76) live in the adjacent communities of Stratford, Lancaster, and Stark in New Hampshire, and Guildhall and Maidstone in Vermont.
 - 10 percent of Wausau workers (30) commute from Berlin, a distance of approximately 25 miles.
- ❖ Based on simulation results from the REMI Model, the Wausau Mill closure impacts the economy of Coös County in the following ways:
 - In 2008, 536 jobs will be lost - the initial removal of Wausau's 303 jobs from the manufacturing sector in Paper, pulp, and paperboard, plus the loss of 233 additional jobs throughout the county.
 - Statewide, the number rises to 599. Therefore, the loss of each Wausau job creates a secondary effect of 0.977 additional jobs lost from other areas of the state's economy.
 - The Wausau closure will also create a \$72.36 million reduction (in fixed 2000 dollars) in Coös County's Gross Regional Product (GRP). This figure represents 7.5 percent of Coös County's total GRP.
 - In 2008, the population of Coös is projected to fall by 62. By 2018, the Model projects a county population of nearly 300 fewer than if the mill continued to operate. These losses continue to grow throughout the simulation period.
 - The average annual compensation (wages and benefits) of Coös County workers will drop by \$709 in the first year, and by 2018 wages will be more than \$1,000 below the levels forecasted assuming continued operation of the mill.

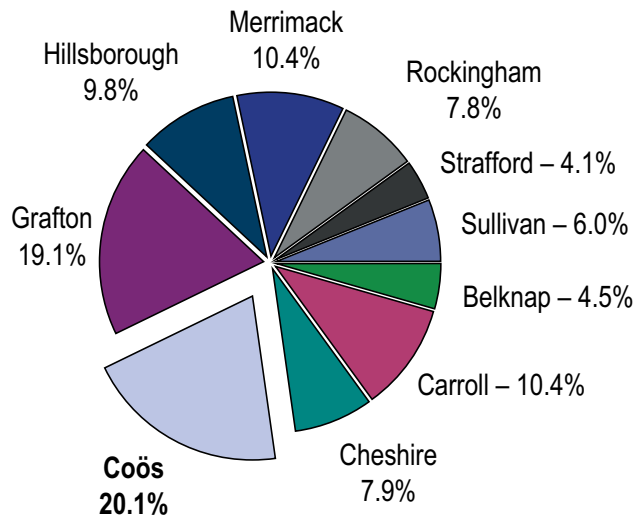
Introduction

The Wausau Paper Mill is located in the village of Groveton, which is within the town limits of Northumberland. For this reason, we refer to both the village of Groveton as well as the town of Northumberland.

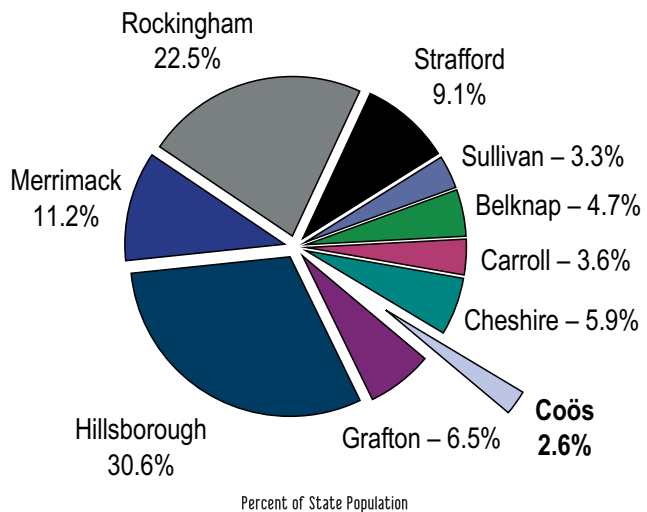
Coös County is New Hampshire’s northernmost county and the largest geographically. It is also the least populated. With Quebec to the North, Vermont to the West, and Maine to the East, the county’s people are separated from the populous and prosperous southeastern part of the state by wilderness tracts, the White Mountain National Forest, and two-lane rural highways.

Despite this remote location, an industrial, manufacturing-based identity is one of the most visible threads woven throughout the economic and social fabric of life in Coös. This identity is best exemplified by the paper and pulp industry, which for the past century has been one of the primary drivers county-wide of employment and population growth. However, the recent announcement of the New Year’s Eve closure of the Wausau Paper Corporation paper mill in Groveton could portend the end of this era. This closing, coupled with prior mill closures in Berlin and Groveton in 2006, means that only one mill remains – the Fraser Papers, Inc. paper mill at Gorham Cascade. Fraser has offered no long-term guarantees for the Cascade plant and

Coös has the largest land area of the state’s 10 counties



Coös has the smallest population of the 10 counties



its 300 employees, and continuing pressures from around the globe could signal the end of the 150 year reign of paper in Coös County.

As the influence of one industry has begun to recede, new opportunities are beginning to emerge. This report traces the impacts of the immediate mill closures throughout Coös County, focusing specifically on the town of Northumberland and its hard-hit village of Groveton. This analysis is augmented with a discussion of the economic redevelopment prospects, including prisons and green energy plants.

Portraits of Coös: Northumberland, Berlin, and the Industrial Development of Coös County

As with most of New England, the industrial development of Coös County was founded upon river and railroad. The Ammonoosuc River flows through Groveton, southwest into the Connecticut River, and the Androscoggin River flows southeast through Berlin and Gorham to Bath, Maine, just north of Portland. As early as 1780, settlers in the area began construction of both grist mills and saw mills to make use of the plentiful water power. Despite the abundance



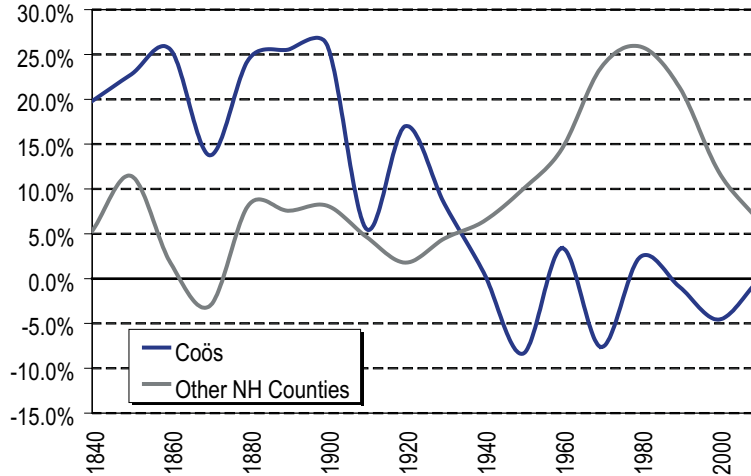
Courtesy of: Tim Sullivan, <http://photos.nerail.org>

of lumber and the ease with which logs could be floated downstream to the newly constructed mills, for nearly a century there was no efficient way to get the lumber from sawmill to market. In July 1851, however, the Atlantic to St. Lawrence Railroad completed a connection from Gorham to Portland, Maine. A year later the rails reached Northumberland. In January 1853, the line extended to Island Pond, Vermont where it joined the St. Lawrence and Atlantic Railroad. This network of tracks reached north to Montreal, becoming the world's first international railway.

This new railroad was a crucial ingredient of early industrial development in New Hampshire and its North Country. Although the primary purpose of the railroad was to provide Québec Province with access to world markets via a port that was ice-free year round, it simultaneously opened new trade routes to the towns

of Berlin, Gorham, and Northumberland. Across New Hampshire and northern New England, the railroad also provided immigrant labor that not only harvested the trees and operated the paper mills, but fueled the growth of the textile industry during the early stages of the industrial revolution. The seemingly limitless supply of trees was incentive for financiers such as the Brown family of Portland to build more and bigger sawmills. As a result, the boom was on with the population of Coös County growing at a rate substantially higher than that of the rest of New Hampshire until the Great Depression of the 1930's.

Coös County grew at a higher rate than the rest of New Hampshire until the mid 1930s



Berlin, eventually nicknamed “The City That Trees Built,” was settled in the early 1780s. First known as Maynesborough, it was incorporated as the town of Berlin in 1829 with an initial population of 65. It remained smaller than Northumberland until the 1880 census when its population more than doubled from 1870. In 1897, Berlin became Coös County’s only city, as it remains today. Berlin held the position of New Hampshire’s fourth largest city in the 1920, ‘30, and ‘40 censuses, until the buildup of military bases in the Portsmouth area during World War II resulted in a greater rate of population growth in the southern cities of Portsmouth and Dover.

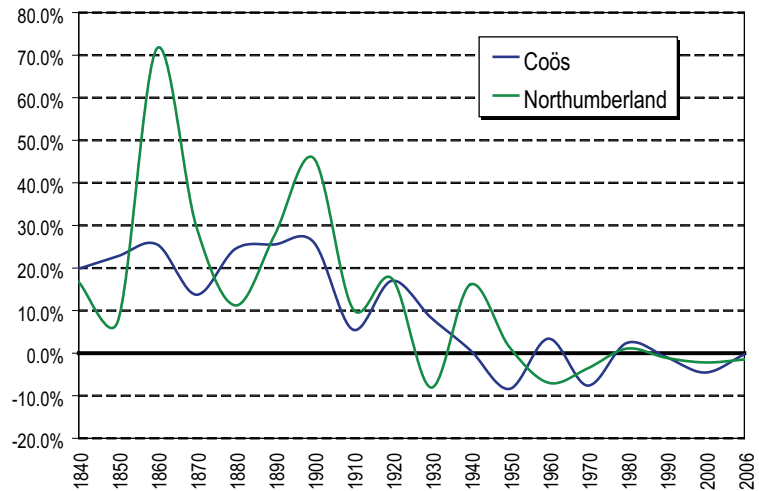
Northumberland, because of its proximity to the Connecticut River, was established almost twenty years earlier than Berlin. Originally granted in 1761, the town had no more than 100 settlers until the 1790 census. Originally the site of numerous conflicts between settlers and Native

Largest Communities in Coös County (by Population)

	1950	1970	1990	2006
1 Berlin	16,615	15,256	11,824	9,954
2 Lancaster	3,113	3,166	3,522	3,351
3 Gorham	2,639	2,998	3,173	2,911
4 Northumberland	2,779	2,493	2,492	2,402
5 Colebrook	2,116	2,094	2,444	2,395
6 Whitefield	1,677	1,538	1,909	2,034

Americans, Northumberland was home to Fort Wentworth, a Revolutionary War garrison which sporadically housed troop regiments between the years of 1775 and 1782. As the railroad expanded in the 19th century, Northumberland became a hub of manufacturing, providing such goods as starch, straw-board (a coarse yellow cardboard made of straw pulp), shoe pegs, tanned leather, and construction materials such as clapboards and shingles. By the end of the 20th century, manufacturing in Northumberland was limited to the paper industry, and the town was home to paper mills owned by International Paper, Smurfit-Stone Container, and the James River Company who sold their Groveton operations to Wausau in 1993.

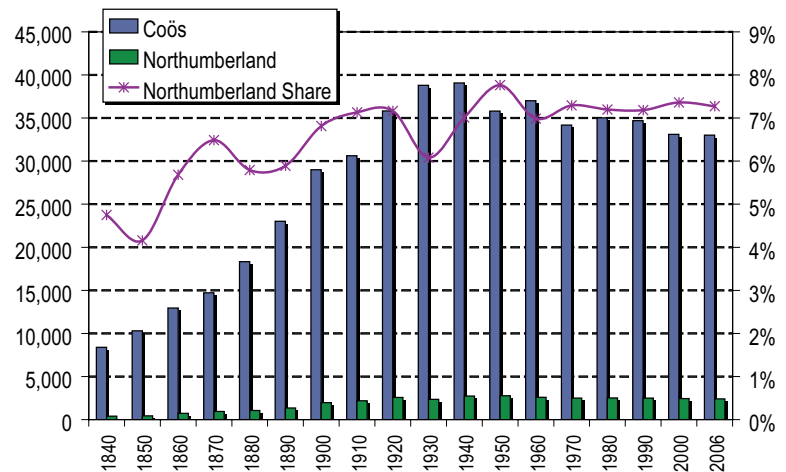
The rate of population growth in Northumberland has slowed in recent years to a similar trend as the County



Northumberland Today

In 2006, the U.S. Census Bureau’s estimated Northumberland’s population at 2,402 residents, which ranked it 4th among Coös County’s cities and towns, and represented a 13.5 percent decrease from 1950. Statewide, Northumberland was ranked 122nd in population among the 259 locations in the state. It has experienced the third largest decrease in both percent and numeric population change over the last 50 years.

Although Northumberland was one of the first towns with a reportable population, its share of the county population has been fairly steady

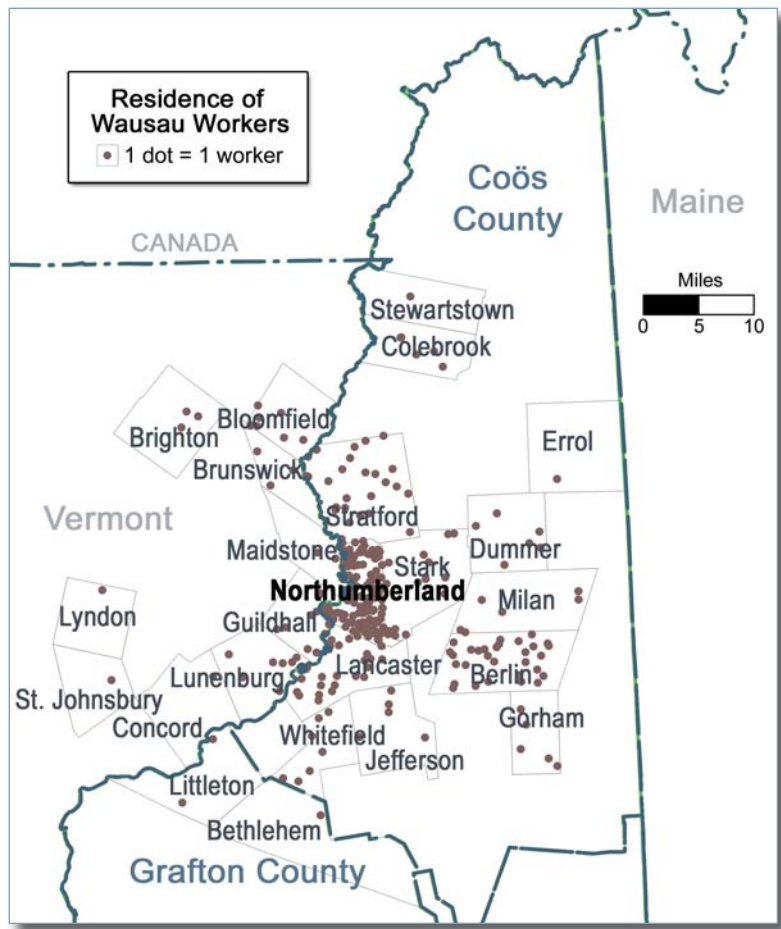


While the late 19th century saw large swings in the growth of Northumberland’s population, the growth rate in recent times has closely paralleled that of Coös County as a whole. With the exception of a brief period captured by the 1980 Census, Northumberland has experienced negative growth since 1950. The similarities in population change between Northumberland and Coös County are also reflected by the fact that Northumberland has consistently accounted for between seven and eight percent of Coös County’s population in nine of the last ten decennial censuses. Most of the town’s population is native to the area. Just 30.5 percent of Northumberland’s population was born outside of New Hampshire.

Analysis of the 2000 Census data suggests that many of the demographic characteristics of Northumberland’s population are representative of New Hampshire as a whole, especially in terms of average age (38.4 years versus 37.1 years), male/female distribution (49.6 percent male versus 49.3 percent male for the state), and race (98.4 percent white versus 96.0 percent for the state). Of the Northumberland residents older than age fifteen, 52.0 percent are married, as compared to Coös County (56.6 percent) and New Hampshire as a whole (57.3 percent). This is primarily because Northumberland has a higher percentage of divorced residents (13.9 percent) than both Coös County and New Hampshire (11.0 percent and 10.5 percent, respectively).

The postsecondary education levels among the residents, age 25 years and older, of Northumberland were lower than residents of Coös

134 of Wausau Paper’s 300 workers live in Northumberland

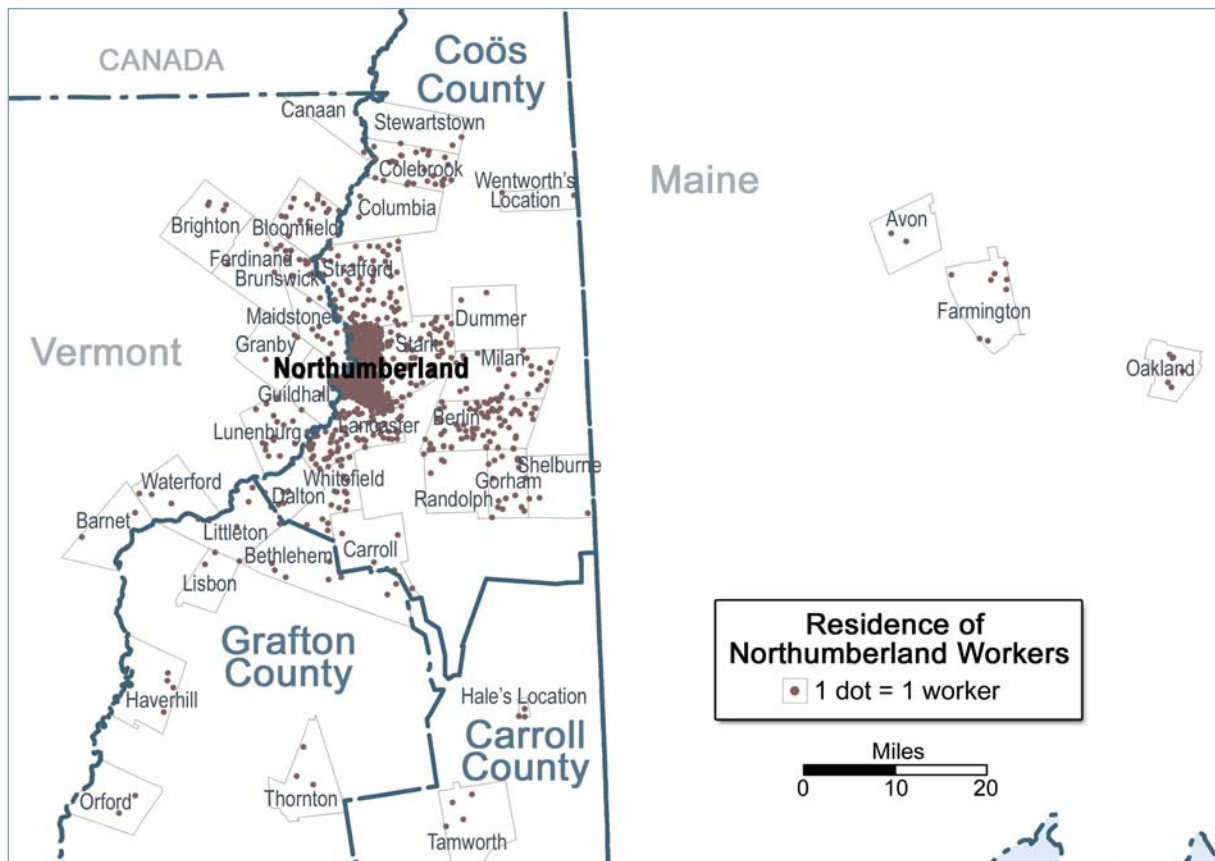


Coös County Perspectives...The Groveton Mill Closures

County and New Hampshire. Specifically, only 24.9 percent reported having any amount of college coursework, as compared to Coös County (35.3 percent) and the rest of New Hampshire (57.4 percent). Northumberland residents with only a high school degree (or equivalent) make up 48 percent of the population, greater than the 41.6 percent of high school graduates in Coös and the 30.1 percent throughout New Hampshire.

At the time of the 2000 census, per capita income in Northumberland was \$15,101, which is roughly 30 percent lower than the New Hampshire average of \$23,844. In 2005, prior to the mill closings, the unemployment rate in Northumberland was 4.2 percent, 0.6 percentage points higher than the 3.6 percent estimated statewide. In and around the Northumberland area, the economic foundation captured by the census was primarily based on manufacturing, tourism and recreation, and education.

Commuting patterns from the 2000 Census, although from before the paper mill closures, continue to parallel the commuting patterns of Coös County



The importance of tourism to the area is reflected in the fact that 22.9 percent of Northumberland's residents were employed in retail, arts, entertainment, recreation, or lodging, which is comparable to the 32.4 percent of workers employed in the manufacturing sector. The remaining sectors - agriculture, technology, and the sector including finance, insurance, and real estate, had a smaller impact on the economy, as only 5.1 percent of Northumberland residents were employed in those industries.



Photo credit: Kimberly Cooper, www.portsmouthnh.com/photos

Northumberland's economic characteristics are bound to change significantly after the announced closing of Groveton's Wausau Paper mill in December 2007. Based in Mosinee, Wisconsin, Wausau Paper, Inc. employs 3,200 people in seven states, and has operated the Groveton mill since 1993. The Groveton facility employs 303 people, 39 of which (12.9 percent) function in a supervisory capacity. The average length of service of Groveton's employees is 21.4 years, and they receive an average hourly wage of \$31.36 for salaried workers and \$18.64 for hourly workers.¹

The economic impact of Wausau's closure will not be limited to Northumberland, or even Coös County. Forty-four percent of the mill's workforce resides in Northumberland, 11.5 percent of the workforce resides in the Northeast Kingdom of Vermont; most of the rest reside in towns throughout Coös County. The commuting patterns of Wausau's employees are similar to the patterns exhibited by the aggregate of those who work in Northumberland. Of the total, 50.6 percent live in Northumberland, 3.0 percent reside in New Hampshire outside of Coös County, and 9.5 percent live in Vermont and Maine.

When coupled with recent employment uncertainty throughout the North Country, the closing of Wausau Paper will ultimately result in an economic landscape unfamiliar to Northumberland's residents and business-owners. While only time will tell the story of economic recovery in Coös County and Northumberland, the impacts and outcomes of several possible scenarios deserve further investigation.

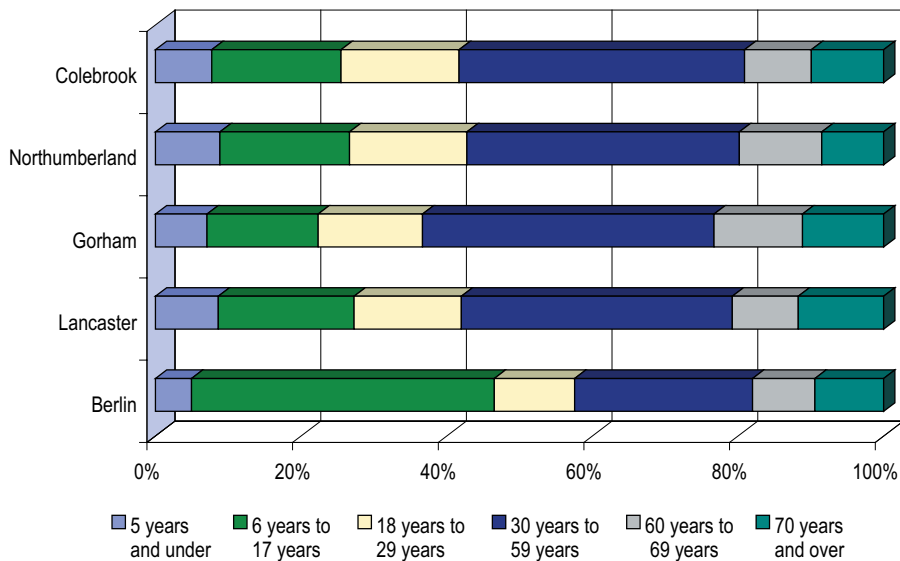
¹ Email information received from Greg Nolin, HR Director, Wausau Paper Mill, October 25, 2007

About the Wausau Paper Workers²

The hourly employees affected by the Wausau Paper mill closing range in age from the youngest worker at age 25 to the oldest at 67. The average age is 49.6 years. The salaried workers are slightly more concentrated in age, covering the span from 31 years to 61 years, with an average age of 50.5 years. Additionally, 134 of the 303 people released from work at the paper mill live in Groveton. The average length of service of the workers at the Wausau Paper mill is 21.4 years. A rough timestamp, it would have been around 1983 when the average worker stepped into the mill for the first time.



Except for Berlin, the most populous towns in Coös County have larger shares of people 30 years old and over



² Email information received from Greg Nolin, HR Director, Wausau Paper Mill, October 25, 2007

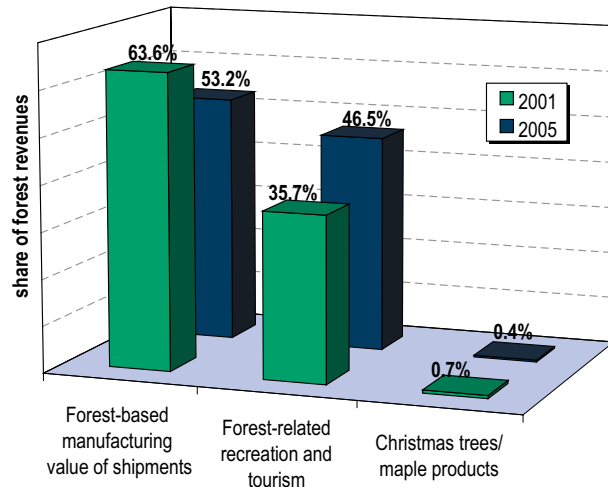
The Forest-Based Economy

Forests cover 84 percent of New Hampshire’s total land area. Gauging cyclical and structural change in the forest-based economy is difficult at best. Environmental change which shortens the winter freeze, extends mud seasons, and produces hard summer rain can play a role in access to New Hampshire’s forests. Limited access to the supply can play a greater role in the woods’ production than reduction in demand.



Traditionally the predominant industry in the North Country has been paper-related manufacturing because of the proximity to rivers and the forests. As the concentration of wood production shifts to alternative areas with longer growing seasons and less expensive labor, New Hampshire is experiencing a shift in the source of forest-based revenues. According to the North East State Foresters Association, the value of forest-based manufacturing shipments made up almost 64 percent of annual revenues from New Hampshire’s forests in 2001. By 2005, the share of those revenues had dropped to just over 53 percent. Forest-related recreation and tourism had contributed about 36 percent of the revenues in 2001 and grew to over 46 percent in the same time period.³

Forest revenues have shifted from manufacturing value of shipments to recreation and tourism in the State



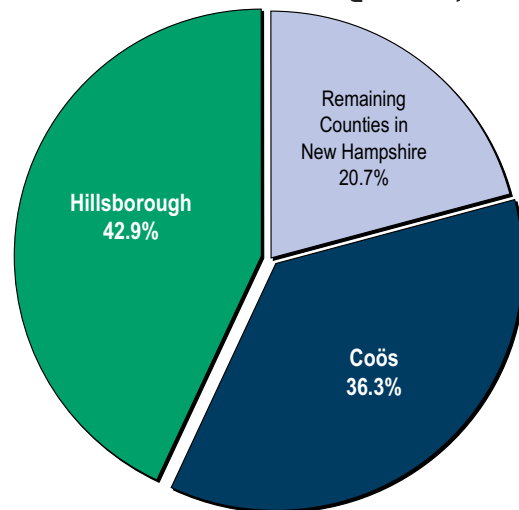
³ The Economic Importance and Wood Flows from New Hampshire’s Forests, 2007. North East State Foresters Association. [www.nefainfo.org/publications/2007 percent20Publications/NEFAEconomicImportNH.pdf](http://www.nefainfo.org/publications/2007%20percent20Publications/NEFAEconomicImportNH.pdf). Accessed November 2, 2007.

This economic trend can also be seen in the change in covered employment levels. Even though Coös County represents only two to three percent of New Hampshire’s employment, the county provided roughly 36 percent of statewide employment in paper manufacturing industries in 2006.

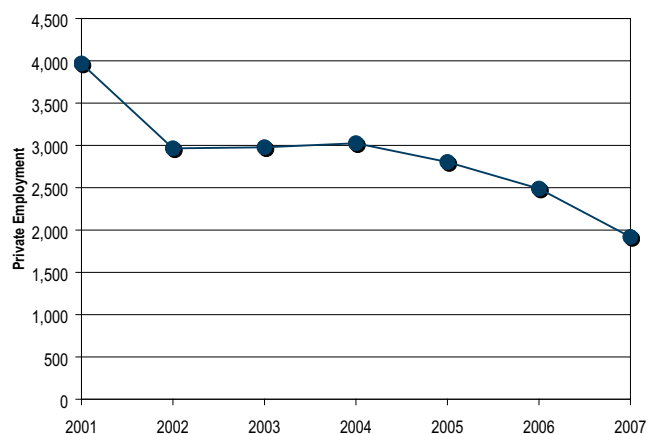
During the first quarter of 2001, there had been almost 4,000 people employed in Paper manufacturing in all of New Hampshire. By first quarter 2007 paper manufacturing employment in the state had slipped to barely over 1,900 workers. One of the largest collapses was when American Tissue announced bankruptcy and closed its doors in Berlin and Gorham during September 2001, abandoning over 850 workers. There was some recovery when Fraser Papers, Inc. purchased and reopened the mill in June 2002, restoring 600 jobs.

Gradual changes saw many employment opportunities slip overseas as economic pressure grew. A double hit to New Hampshire paper manufacturing, and specifically the North Country, was the closure of the Groveton Paperboard mill in March 2006, leaving 108 workers unemployed, then two months later Fraser Paper closed the Burgess Pulp mill in Berlin, affecting another 250 workers in the area. And these were only the counts of those directly employed by the mills, not the loggers and those suffering the ripple effects of the closures. Again, those in the North Country stand to bear the brunt of another shock with the 303 jobs lost from the Wausau Paper closure.

By 2006 Coös County’s 36 percent share of Paper manufacturing employment ranked 2nd to Hillsborough County



New Hampshire Paper Manufacturing Employment Changes

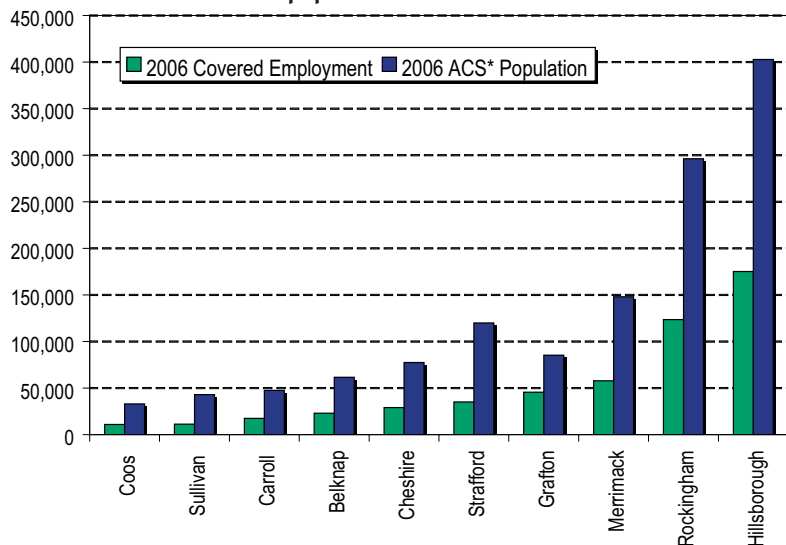


Examining the Groveton Mill Closures

Prior to the closing of the Groveton Paperboard mill in 2006, the two plants, Groveton Paperboard and Wausau Paper mills, shared the same site as well as some of the infrastructure. Wausau operated a steam-driven energy plant for the benefit of both mills at the site. In announcing the closing of their paper mill, Wausau officials cited, among other things, the increased operating expenses since the closure of Groveton Paperboard. These expenses had been shared by the two companies prior to the closing of the paperboard mill. They then fell entirely on Wausau after closure. New Hampshire Employment Security (NHES) used the New Hampshire 10-county, 70 industry sector econometric model developed by Regional Economic Models, Inc. (REMI) to simulate the impact on Groveton, Northumberland, and Coös County of the closures of the Groveton Paperboard mill in March 2006 and the planned New Year’s Eve 2007 closure of the Groveton mill owned by Wausau Paper Corp.

To complete our look at what is currently known about the prospects for the county’s economy, we examined the impact of the new Federal medium security prison. Ground-breaking took place in Berlin earlier this fall. In this analysis, we considered to what extent the new prison will serve to counter the loss of these paper and pulp industry jobs in Groveton and the jobs lost in Berlin when the Burgess pulp mill was shuttered by Fraser Papers, Inc. in May of 2006.

Coös County had the smallest employment and population levels in 2006



*ACS=American Community Survey by the US Census Bureau, www.census.gov

Paper, Pulp, and Paperboard Mill Closures

To simulate these events, we first dealt with the paper industry contraction. We removed 257 jobs from Coös County in the Pulp, paper, and paperboard industry in 2006. This represents the closures of Groveton Paperboard and the Burgess pulp mill, both of which occurred part-way into the year. We removed the full employment of these mills (358 jobs) from 2007 onward. From 2008, onward, we further reduced Coös County Pulp, paper, and paperboard industry employment by 303 jobs to represent the closing of the Wausau plant.

The Federal Prison

The siting of a new medium security federal prison in Berlin will bring much-needed, stable, well-paying jobs to Coös County.

The first injection of activity to the local economy comes during the construction phase. By adding 150 construction jobs in 2007 and 301 to both 2008 and 2009 we simulated the construction phase. Because wages for Coös County construction workers are low, we adjusted the wages of these added workers upward.

The second injection of economic activity is the ongoing operation of a fully-staffed prison. We added 325 federal civilian government jobs. We made adjustments for the wages of these new jobs because Coös County federal wages in the model were higher than the average expected for the new prison staff.

It is anticipated that 40 percent of the prison employees will be transferred from other federal correctional facilities. This means that about two-thirds of the new hires will not be from the northern New Hampshire region. In other words, approximately 266 employees would be new to the area. Working with this number adjusted to the assumption that some households will supply more than one worker to the prison, 240 households will migrate to the area to help staff the prison. Assuming 2.6 persons per household, we added 626 econometric migrants⁴ to Coös County to represent these households transferring their employment from elsewhere in the U.S. Bureau of Prisons System.

⁴ 240 households multiplied by 2.61 average household size equals 626. We did not migrate any population into the model in the construction phase as the construction crews are only going to be stationed in Coös County temporarily.

Measuring the Economic Impact

In the first Coös County Perspectives, published in May 2006, we discussed the impact of Groveton Paperboard mill closure in combination with the closure of the Burgess pulp mill. There were 257 workers employed at the Berlin plant and 108 at the Groveton plant. The Groveton Paperboard operation was an integrated pulp and paper mill which was able to turn pulpwood and “dirty” wood chips into pulp



Photo by Tim Hanson, Hanson Studio; Charlestown, NH; www.hansonstudio.com

which it then manufactured into corrugated paperboard. In that study, in addition to removing the direct employment in the two mills, we reduced logging employment in Coös, Carroll, and Grafton counties.

We reduced logging employment in that study because a significant share of the raw materials for the two pulp mills was supplied by that industry in New Hampshire’s North Country. The model generally accounts for the intermediate demand, which includes materials and suppliers for the final product. The model, however, does not have sufficient industry detail to distinguish between paper and pulp production. In the prior study, we described the possibilities of the surplus supply of low-grade softwood being used for alternative energy source generation such as a wood-powered energy plant. So far no such plans have been implemented.

We also described how the start-up of the Schiller Wood Energy Plant in Portsmouth would increase the demand for wood chips by about 500,000 tons per year. (This is about half the amount of what was used at the two pulp mills that closed in Spring 2006.) According to Sarah Smith, forestry industry expert from the University of New Hampshire Cooperative Extension service, wood from the North Country would not be transported all the way to Portsmouth, due to the distance and lack of roadways capable of supporting the transporting of heavy loads. Since the closure of the two pulp mills, the wood that is harvested in the North Country has been redirected to closer markets in Maine and Quebec. She explained that the closures of the two pulp mills

were only pieces in a very complex and changing forestry industry puzzle.⁵ Because the local loggers are very resilient, most have been able to find alternative markets for their services and alternative uses of their machinery (i.e. logging, clearing, trucking, and excavating).⁶ Therefore, in this current study, we let the model calculate the effect on logging as part of the intermediate demand required for the Pulp, paper, and paperboard industry.

The most recent year of history available in the model is 2004. This means that the paper industry employment projection had not been adjusted downward to reflect the 2006 closures of the two mills. Because the data within the model does not reflect the 2006 mill closings, we made these adjustments to update the baseline employment for this study.

For the following analysis, we ran two scenarios in the model. First is the impact of the closure of the two paper mills in Groveton over the two-year period. In the second scenario, we will examine the combined impact that the decline in the paper manufacturing industry, and the boost expected from the construction and start up of the federal prison in Berlin will have on Coös County.

The Impact on Groveton

The effect of the closure of the two local mills on the town of Northumberland is devastating. In March 2006, Groveton Paper Board mill ceased production and 108 workers lost their jobs. And now, with the announcement of the closure of the Wausau Paper mill at the end of 2007, an additional 303 workers will be out of work. Combining the two paper mill closures, Northumberland will have lost 411 paper mill jobs within a two-year period. Annual average covered employment data in 2005⁷ showed 474 Manufacturing jobs in Northumberland.



⁵ Sarah Smith pointed to other factors that have contributed to the hardship of the loggers in the North Country. These are the two recent mild winters, cost of operations (gas, insurance, etc.) rising at a faster rate than the value of the harvested wood, and changes in the method of logging (heavily dependent on major equipment investment).

⁶ The landowners establish the contracts with the pulp mill, and the loggers are contracted to cut and deliver to the plants.

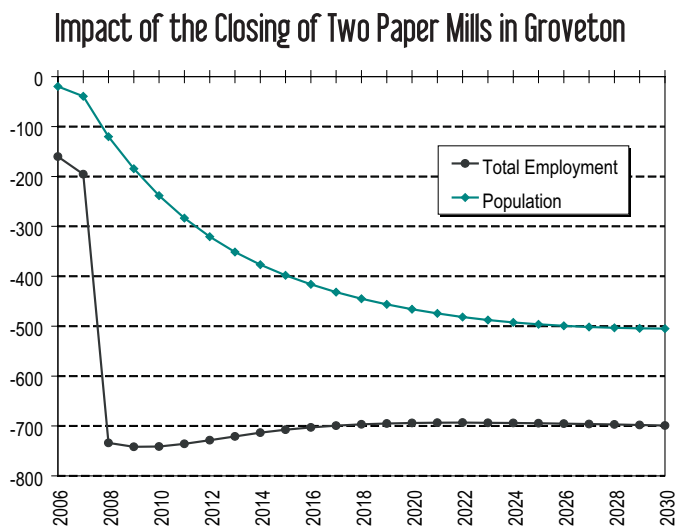
⁷ The 2006 annual average employment data for Northumberland is not discloseable because of confidentiality.

These two closures account for close to 60 percent of all private jobs in Northumberland. (Annual average private employment was 710 in 2005.) Historically, the paper industry has been the “bread and butter” for the town of Northumberland in several ways. The village of Groveton’s town seal carries the phrase “Our little paper world.” The town collected property taxes from commercial land and buildings from the two plants and almost half of the employees at Wausau Paper lived in Groveton and similarly paid residential property taxes.

Assumptions for the Groveton Mill Closures

Because the closure of the Groveton Paper Board mill took place in May 2006, we reduced Coös County employment by 90 jobs for that year (2006) and then removed the entire 108 jobs from 2007 onward.

The closure of Wausau Paper was simulated by taking out the 303 jobs from the projected employment of Pulp, paper, and paperboard industry of Coös County from 2008 onwards.



Results

The total impact on the county, of losing 411 paper mill jobs over a two-year period, is 734 total jobs lost in 2008. The additional “secondary” job losses result because the mills are no longer purchasing goods and services in the local economy and the mill workers’ wages are no longer available to make local purchases. These secondary impacts are not restricted just to Coös County. Statewide an additional 88 jobs are lost bringing the total to 822.

By 2009, the total employment losses in Coös County peak at 742 jobs and by 2017 they stabilize at 700 jobs in comparison to the projected baseline for the county. The impact on population becomes more pronounced over time. People may not move away immediately after the closure of the paper mills. As time passes, however, and no new employment opportunities arise, they become more likely to migrate out of the area. If the former paper mill employees move out of the area, the losses are exponential as these migrants take their dependents with them. In 2008, only 120 people are projected to leave the area as a consequence of both paper mills closing in Groveton. Population losses continue through 2026, stabilizing at about 500 fewer residents than previously

projected for Coös County. The impact of people leaving Coös County, where population is sparse in the first place, is likely to have a more drastic impact on demand for health care services and on the need for local schools. Therefore, employment in these industries will probably stagnate and decline as demand diminishes. This is more evident in Coös County than it would be in the more densely populated southern part of the state.

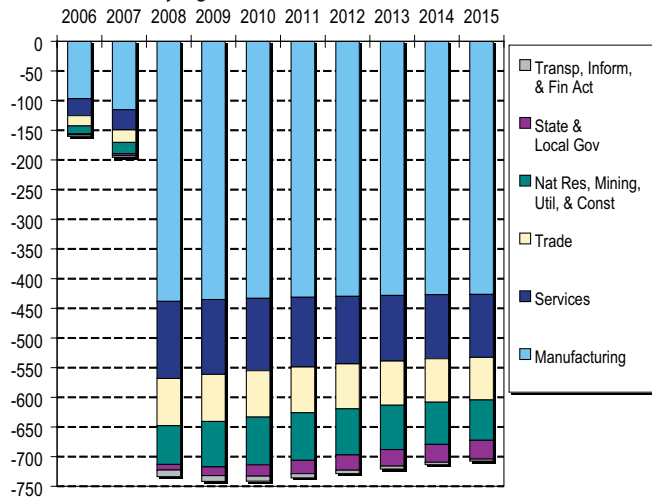
The projected economic impact was calculated for Coös County as a whole. Hence, the secondary losses of jobs are not solely located in Groveton, nor can we assume that the people migrating out of the county were all residents of Northumberland. Because a large percentage of the workers at the Wausau Mill were residents of Northumberland, the impact will be greatest on this town.

Industry Employment

Of the total 734 jobs lost in Coös County in 2008, the Manufacturing sector accounts for 60 percent of the losses. The model projects that an additional 23 jobs are lost in Pulp, paper, paperboard mills manufacturing and three jobs are lost in Wood product manufacturing. There is no way to distinguish between a paper or pulp mill. What is driving the additional job losses in Pulp, paper, paperboard mills manufacturing is hard to tell. It could be the lack of future demand for local pulp production (which is absent after the closure of the Burgess pulp mill) or it may reflect the disappearance of clustering advantages (the dynamic in the market for pulp, labor and expertise is changing).

Secondary job losses cover both the indirect job losses and induced job losses. Indirect job losses are the jobs that were/are dependent on goods and services purchased by the Groveton Paper Board and Wausau Paper mills. The induced jobs are those jobs that were depending on consumer spending by the employees of the two paper mills. The induced job losses are mainly in Services and Trade (Wholesale and Retail). Within Services, Accommodations and food services and Other services will experience most of the losses. After Pulp, paper, and paperboard mills, Retail trade is the industry

In addition to the 411 jobs directly related to the closing the two paper mills in Groveton, secondary job losses are projected to reach more than 300



that takes the next biggest employment hit. Construction follows, then Food services and drinking places. These are areas where people spend the bulk of their disposable income. This represents spending on groceries, clothing and electronics, on housing and household furnishings, on fast food or a nice meal out. This results in Retail output (sales) being off by \$44 million compared to the expectations. Spending on food services and drinking places is down by almost \$1.2 million.

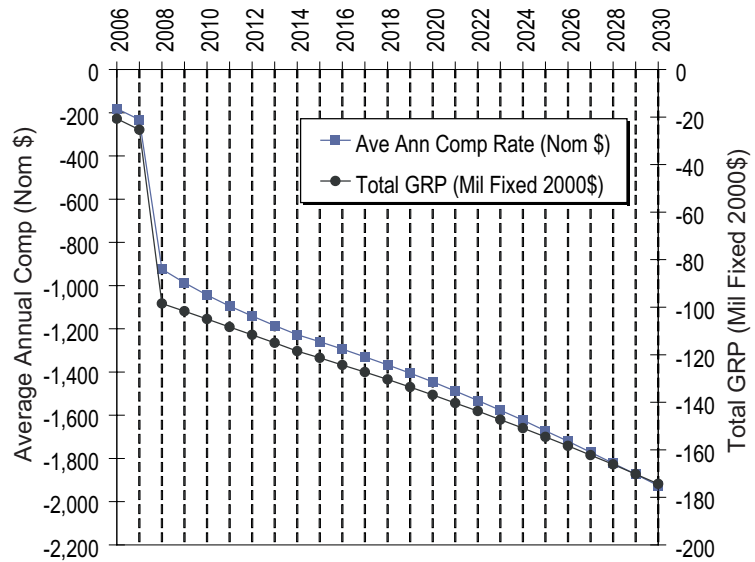
The job losses in the Natural resources, Mining, Utilities, and Construction sectors include both indirect and induced. These job losses increase from 65 jobs in 2008 to 80 jobs in 2010 and 2011 because demand for Construction will decline over time as people are moving out of the area. The logging industry is projected to lose 14 jobs in 2008 in response to the closing of the two paper mills. Industrial, commercial, and residential real estate will also be expected to feel the downturn in the economy caused by an oversupply of real estate.

Gross Regional Product and Average Annual Compensation

Gross Regional Product (GRP) for Coös County will be \$98.5 million lower in 2008 than originally projected after the closure of the two paper mills. This reduction accounts for 9.4 percent of Coös County GRP.

Average annual compensation (wages plus benefits) for Coös County workers will decline by \$924 nominal dollars in 2008. The reason these closures have such a large impact on average annual compensation is that the jobs lost are high paying and have higher than average benefits in comparison to the rest of the economy. The baseline average annual compensation for Pulp, paper, paperboard workers in Coös County is \$65,173 nominal dollars in 2008 as compared to \$30,519 nominal dollars as the average for all Coös County workers.

Gross Regional Product (GRP) and average annual compensation will be reduced significantly due to the closing of the two paper mills in Groveton



Countywide Impact of the Decline in the Paper Manufacturing Industry and Redevelopment

Assumptions

This second scenario assumes the closures of the three paper mills over the two year period, and includes the addition of the federal prison. To simulate this, we reduce Coös County employment in the Pulp, paper, and paperboard industry by 257 jobs in 2006, and an additional 358 jobs from 2007 forward. This reduction in employment reflects the closures of both the Burgess Pulp Mill in Berlin and Groveton Paperboard in Northumberland in early 2006. Then, to account for the closing of the Wausau paper mill, 303 jobs were removed from 2008 onwards.



Offsetting these blows to the Coös County economy is the employment boost from construction, staffing, and ongoing operation of a federal prison in Berlin. In June 2007, we released a study that isolated the impact of the new federal prison on Coös County. In this current study, we model the federal prison using estimated employment and payroll data, and migration estimate counts from the Federal Bureau of Prison's Environmental Impact Statement (EIS).⁸ We simulate the construction phase of the federal prison by adding 150 jobs in 2007 and 301 jobs in 2008 and 2009. We also adjusted the compensation of these construction workers upward to account for the deficit between average construction industry wages in the county and federal government contract rates.⁹

To model the impact of a fully staffed 1,230-bed medium security prison, we added 325 workers to federal civilian government employment from 2010 onwards. By modeling the federal prison, we are not suggesting that the workers laid off by the paper and pulp mills are likely candidates for reemployment there. (They might be if they have the right skills.) Establishing a federal prison in Coös County generates demand for

⁸ Proposed Federal Correctional Institution, Berlin, New Hampshire - Volume I Final Environmental Impact Statement (EIS), August 2006. U.S. Department of Justice, Federal Bureau of Prisons.

⁹ For further details on how these estimated counts were translated to inputs for the REMI Model, please see earlier study released in June 2007, *Coös County Perspectives... The Federal Prison*

additional goods and services. This creates opportunities for local businesses to sell goods and services directly to the prison or to the employees of the prison.

In the June 2007 study, we estimated that 82 percent of the additional federal civilian government jobs will be filled with people from outside the region. We estimated that 240 households will migrate to Coös County by 2010, thus adding 624 new residents under 64 years of age to the population of Coös County.

Results

Adding a federal prison to the Coös County economy will not fully compensate for the harm done by the direct loss of 661 jobs in the closures of three paper mills. In 2008, during the construction phase of the prison, the overall employment loss is 766 jobs and Coös County population is expected to decline by 192 persons compared with the model's baseline projections. By 2010, the impact of staffing and operations of the prison will have reduced county job losses to 685 from 1,187 – a recovery of 502 jobs. Since these are additional jobs, and the population had declined with prior job losses, we added 625 migrants. This, with the impact of the added federal jobs, resulted in the county's population increasing by 352 compared to projections prior to the closures. By 2016, however, overall population is back below the original baseline. Job losses stabilize at around 631 jobs from 2021 to 2025, but then as some people leave the region, employment losses will continue to grow slowly.

Industry Employment

Manufacturing accounts for 72 percent of all the jobs lost in 2008. Ninety-nine percent of all the jobs lost in manufacturing are in Pulp, paper, and paperboard manufacturing. Modeling the loss of 661 jobs from the closure of three paper mills shows a secondary impact of 42 additional jobs lost in Pulp and paper manufacturing.

From 2007 to 2009, additional jobs are generated in Natural resources, Mining, Utilities, and Construction. But the number of jobs generated in Construction is greater than the total for the combined sector, as there are losses in the other industries with logging

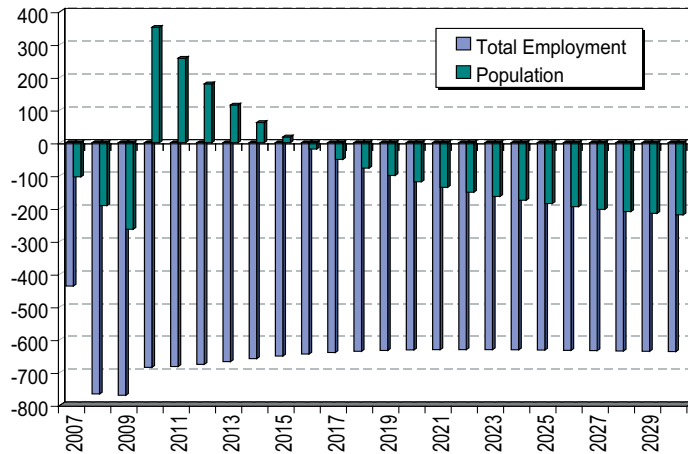


being the largest contributor. In 2008, Construction is projected to add 240 jobs more than the baseline projections. After the completion of the federal prison in 2010, employment in this combined industry group is projected to be just 100 jobs below the model's original employment forecast for Coös County.

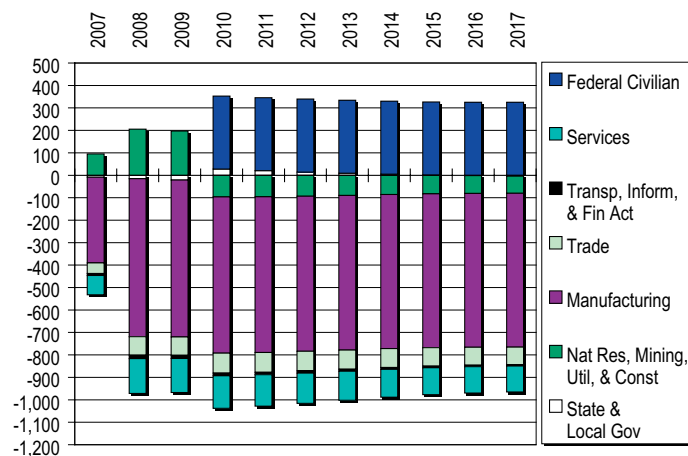
Secondary jobs created by adding construction and federal prison jobs are not sufficient to erase the secondary job losses caused by the closure of three paper mills in the county. Even though the jobs created by adding a federal prison near Berlin are comparable in wages and benefits, the number of jobs lost in the paper manufacturing industry are more than double the number of jobs created at the prison (661 jobs lost in manufacturing versus 325 gained in federal civilian government).

From 2008 to 2016, job levels in Trade are 80 to 90 jobs below the original forecast each year. The bulk of these are in Retail trade even though, as a percent of the forecasted levels, Wholesale trade suffers more. Job losses in Services will continue to decline over time. In 2008, 155 Services jobs will be lost in response to the closure of the three mills, but by 2017 these losses will have diminished to 115 jobs. This is due in part to the injection of additional population, but more because the model presumes that, over time, businesses find other markets for their services.

Impact of the Decline in Paper Manufacturing in Coös County



Overall Impact of Paper Industry Decline and the Construction and Operation of a Federal Prison in Coös County

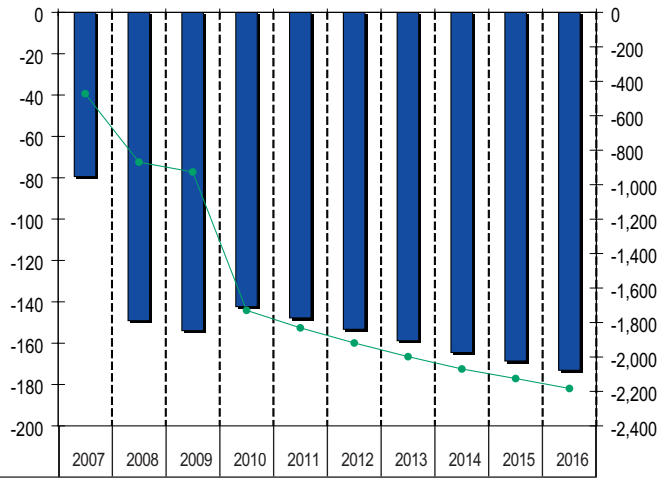


Gross Regional Product and Compensation

The federal prison has been characterized as the largest construction project in the State since the building of the Seabrook Nuclear Power plant. It will only soften the blow of the three paper mill closures in Coös County. Without the production from the three mills, the Gross regional product (GRP) will be reduced by \$149.1 million fixed 2000 dollars in 2008. This equates to 14.3 percent of Coös County's GRP. Staffing and operating the prison in 2010

diminishes the reduction in the county's GRP to \$142.3 million fixed 2000 dollars. Over time, the losses in GRP grow larger with inflation. By 2014, this reduction of the county's GRP stabilizes at 14.5 percent.

Gross Regional Product and Annual Average Compensation



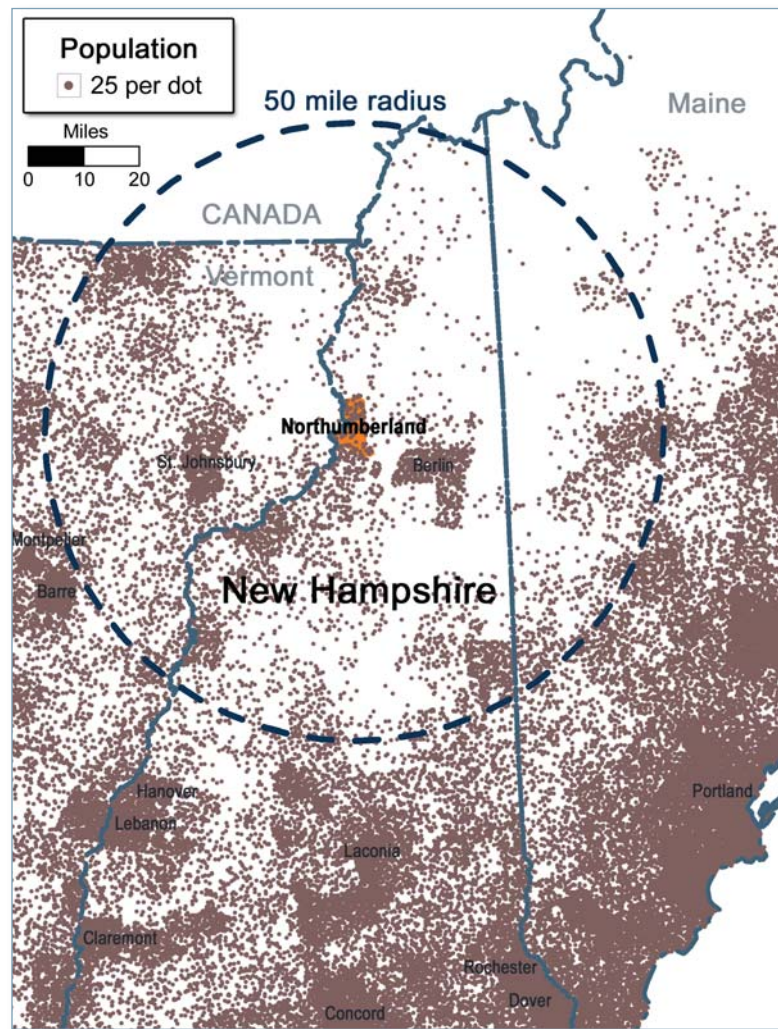
Total GRP (Mill Fixed 2000\$)	■	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ave Ann Comp Rate (Nom \$)	—●—	-79.43	-149.1	-153.9	-142.3	-147.8	-153.3	-158.8	-164.5	-168.6	-173.1
		-472	-869	-926	-1,729	-1,831	-1,919	-1,998	-2,070	-2,125	-2,183

Reemployment/Redevelopment Prospects

As has been previously discussed, Coös County is the least populated area in the state. Not only that, but the county also has the smallest employment among the counties in the state. Additionally, services that might enhance the attractiveness of the county to businesses have been slow to arrive because of the small population and remote location. Take for example the availability of high speed Internet service. In 2004, the entire populations in Rockingham, Belknap, and Strafford counties had access to either cable or DSL Internet service. Five other counties had either DSL or cable service available to all but 5 to 20 percent of their towns. Cheshire County found itself without service available to a third of its towns. Coös County was on the other end of the scale – only a third of its listed towns had either DSL or cable Internet service available.¹⁰

That compounds the difficulty in attracting new businesses that could add to the industrial mix of the county.

Northumberland and Berlin represent population islands in a sparsely populated three-state region



¹⁰ High Speed Internet Availability for New Hampshire Businesses, Listed by County. nheconomy. Updated March 2004. www.TechnologyNH.com. Accessed November 15, 2007.

Are Biofuel Production and Wood-Fueled Electricity Generation in Groveton's Future?

Early in 2007, the formation of North Country Renewable Energy, LCC, a partnership between Tamarack Energy and Xgenesys Development Corporation, was announced. At that time plans to develop an innovative renewable energy park in Groveton were presented to the community. This park would include a 75 megawatt biomass-fired power generation facility and biofuel facility. The biofuel facility, as proposed, would produce an ethanol-like additive for gasoline from clean chips produced from low-grade wood, while the power generation facility would burn dirty wood chips and the



waste from the biofuel production process. It was estimated that the two facilities could create 150 to 250 new permanent jobs in Groveton, and a demand for 1.2 million tons of wood chips annually from local loggers.

With the impending closure of the Wausau paper mill and the loss of more than 300 well-paying jobs, is this project going to help to fill the void? One thing is clear, it will not happen overnight. Before construction can begin, the siting of the plant will take time. Environmental approvals will have to be secured. In addition there are electric grid infrastructure obstacles to overcome that are already delaying other North Country green electricity generation proposals, and the wood-to-biofuel technology is unproven.

Ethanol has typically been produced from food crops such as corn. The use of corn for ethanol production competes with the use of corn for food and feed for livestock. This drives up the price of production. So there is a significant incentive for researchers to develop methods of producing biofuels from other materials. Low grade wood is just one possibility. The structure of wood cells and the cells of most other potential non-food sources creates challenges to biofuel production. These materials contain a stiffening agent called lignin. Just as the lignin in wood and cornstalks makes these

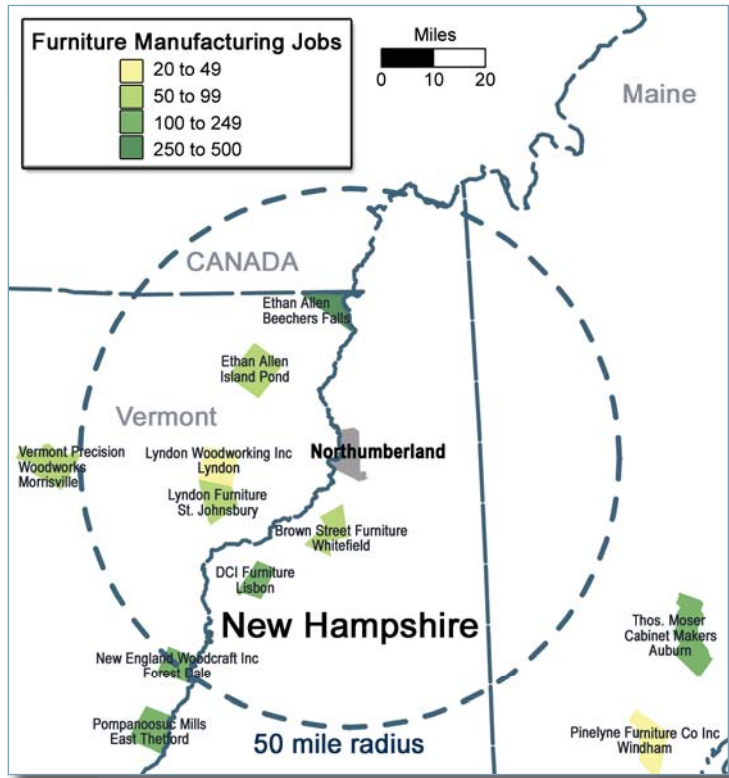
materials difficult for most animals to digest, they also pose a problem for biofuel production. The production of biofuels from wood is still in the developmental stage. It has not yet been done commercially on a large scale.

Perhaps more daunting than the technological challenges are the infrastructure challenges. Several “green” energy proposals for Coös County, including wood fired power plants and wind farms, are on hold because the existing power transmission grid cannot take on any additional load. Before these projects and the North Country Renewable Energy, LLC’s proposed 75 megawatt wood-fired power plant can get off the ground, the transmission system that runs through Coös County must be upgraded. That will take some time and a significant capital investment. In the 2007 legislative session the New Hampshire legislature enacted Senate Bill 140 which, among other things, mandates that the state Public Utilities Commission “shall facilitate discussions among parties interested in the upgrade of electricity transmission in the northern part of the state.” Those discussions are now underway. Perhaps the most difficult questions are: will the benefits from these upgrades reach far beyond the North Country? and who will pay for the infrastructure upgrades? If the potential benefits prove to be widespread then the costs can be spread accordingly. If the North Country alone benefits, can the region raise the capital required to make the improvements? The viability of green energy proposals as a catalyst for redevelopment of the region hangs in the balance.

The Furniture Industry

Another local use of wood resources is in the furniture manufacturing industry. There are a number of furniture manufacturers employing hundreds of mill workers in the tri-state region surrounding Groveton/Northumberland. Although mostly located outside of the usual commuting distance for North Country residents these could potentially offer reemployment opportunities. Unimproved roads and severe winter driving conditions are not conducive to long commutes. The furniture industry, like the paper industry, is vulnerable to foreign competition.

There are 11 Furniture Manufacturers with 20 or More Workers in or Near Coös County



Furniture Manufacturers with Twenty or More Employees

New Hampshire			
Furniture Manufacturer	Employment	Location	Population
Brown Street Furniture	50-99	Whitefield	2,034
DCI Furniture	100-249	Lisbon	1,654

Vermont			
Furniture Manufacturer	Employment	Location	Population
Ethan Allen	250-499	Beecher Falls (Canaan)	1,102
Ethan Allen	50-99	Island Pond (Brighton)	1,333
Lyndon Woodworking Inc	20-49	Lyndonville (Lyndon)	5,709
Lyndon Furniture	50-99	St. Johnsbury	7,556
New England Woodcraft Inc	100-249	Forest Dale (Brandon)	2,714
Pompanoosuc Mills	100-249	East Thetford (Thetford)	2,809
Vermont Precision Woodworks	50-99	Morrisville	5,550

Maine			
Furniture Manufacturer	Employment	Location	Population
Pinelyne Furniture Co Inc	20-49	Windham	16,546
Thos. Moser Cabinet Makers	100-249	Auburn	23,156

This data is extracted from the Employer Database which is part of the Workforce Information Database (WID). The Workforce Information Database is designed, developed and maintained by U.S. Department of Labor, Employment and Training Administration's Analyst Resource Center (ARC) in cooperation with state employment security agencies' labor market information units.

Information and data in the WID Employer Database is not gathered or developed by New Hampshire Employment Security. The source of this information is the national infoUSA database. The Employer Database is licensed only for career exploration, job search assistance, and related One-Stop Career Center services.

Skills for Change

According to the 1980 Census, 265 people in town walked to work. That number had shrunk to 103 by the 2000 Census. But the average travel time to work, 18.9 minutes, in Northumberland, according to the 2000 Census, was shorter than Coös County at 19.3 minutes or the state average of 25.3 minutes.

Many things have changed about society since 1983, when the first Wausau worker punched the time clock at the mill. There are fewer full service gas stations, fewer full time stay-at-home moms, many more SUVs and 4-wheel drive trucks.

Personal computers, for example, were new then. Census studies show in 1984 barely eight percent of households had a personal computer. By 2000, the country had experienced an increase of more than five times the share of households with a computer to over half of all households.¹¹ The advent of wireless/cellular communication has become commonplace as well. The evolution of technological advances has demanded an overall increase in formal education levels. The aging of the baby boomer generation also influences this group.

Wausau Paper Mill Transferable Skills*

Skill	Definition
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Active Listening	Giving full attention to what others are saying, taking time to understand points being made, asking appropriate questions.
Equipment Maintenance	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.
Critical Thinking	Using logic and reasoning to identify strengths/weaknesses of alternative solutions, conclusions or approaches to problems.
Mathematics	Using mathematics to solve problems.
Operation and Control	Controlling operations of equipment or systems.
Operation Monitoring	Watching gauges, dials, or other indicators to make sure a machine is working properly.
Installation	Installing equipment, machines, wiring, or programs to meet specifications.
Coordination	Adjusting actions in relation to others' actions.
Time Management	Managing one's own time and the time of others.
Repairing	Repairing machines or systems using the needed tools.
Speaking	Talking to others to convey information effectively.
Troubleshooting	Determining causes of operating errors and deciding what to do about it.

*Appeared in at least ten occupations identified at Wausau Paper Mill. Source: O*Net (<http://online.onetcenter.org/>)

¹¹ U.S. Census Bureau. Home Computers and Internet Use in the United States: August 2000. Issued September 2001. www.census.gov/prod/2001pubs/p23-207.pdf. Accessed November 6, 2007.

Considering all the outside changes, it is challenging to envision alternative jobs for individuals who have been working at the same company facility for an average of 21 years. In recent years, new methods of matching job requirements from one job to different jobs have been established. While these workers grew and cultivated their skills to work in the paper mill, they were also developing what is now known as transferable skills.

Current Wausau employees were grouped as:¹²

Job Group	Count
Finishing	56
Papermachines	38
Mechanical	35
Stock preparation	33
Supervisors	31
Labor Pool	28
Shipping	24
Electrical and Instrument	15
Clerical	13
Utilities	10
Managers	7
Technical workers	6
Stores and Receiving	5
Executives	1

Job titles associated with Wausau Paper workers

SOC Code	Occupational Title	Number Employed at Wausau
Finishing Jobs		56
51-9032	Cutting and Slicing Machine Setters, Operators	
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	
51-9111	Packaging and Filling Machine Operators	
Papermachine Jobs		38
51-9196	Paper Goods Machine Setters, Operators,	
Mechanical Jobs		35
49-9041	Industrial Machinery Mechanics	
49-9042	Maintenance and Repair Workers, General	
Labor Pool Jobs		28
37-2011	Janitors and Cleaners, Except Maids and	
Shipping Jobs		24
53-3032	Truck Drivers, Heavy and Tractor-Trailer	
53-7051	Industrial Truck and Tractor Operators	
43-5071	Shipping, Receiving, and Traffic Clerks	

Information provided from Wausau officials shows that the average wage for their hourly workers is \$18.64 per hour, and the average hourly wage among salaried employees is \$31.36. This emphasizes the importance of the paper mill to the area. Overall the average wage in Coös County is \$12.85 per hour for all workers and \$29.44 for management occupations.

¹² Email information received from Greg Nolin, HR Director, Wausau Paper Mill, October 25, 2007

Related Occupations for Workers of Wausau Paper

Occupation	SOC code	statewide average hourly wage
51-9032 Cutting and Slicing Machine Setters, Operators, and Tenders		
Computer-Controlled Machine Tool Operators, Metal and Plastic	51-4011	\$15.52
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	51-4072	\$13.53
Sawing Machine Setters, Operators, and Tenders, Wood	51-7041	\$13.25
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	51-7042	\$13.05
51-9061 Inspectors, Testers, Sorters, Samplers, and Weighers		
Computer-Controlled Machine Tool Operators, Metal and Plastic	51-4011	\$15.52
Machinists	51-4041	\$18.12
Packaging and Filling Machine Operators and Tenders	51-9111	\$12.52
Printing Machine Operators	51-5023	\$16.03
Sewing Machine Operators	51-6031	\$11.76
51-9111 Packaging and Filling Machine Operators and Tenders		
Bindery Workers	51-5011	\$13.31
Conveyor Operators and Tenders	53-7011	\$13.65
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	51-4072	\$13.53
Sewing Machine Operators	51-6031	\$11.76
49-9041 Industrial Machinery Mechanics		
Aircraft Mechanics and Service Technicians	49-3011	\$21.11
Automotive Master Mechanics	49-3023	\$17.88
Farm Equipment Mechanics	49-3041	\$16.22
Helpers--Installation, Maintenance, and Repair Workers	49-9098	\$10.99
Inspectors, Testers, Sorters, Samplers, and Weighers	51-9061	\$15.94
49-9042 Maintenance and Repair Workers, General		
Aircraft Mechanics and Service Technicians	49-3011	\$21.11
Helpers--Carpenters	47-3012	\$11.40
Pipe Fitters and Steamfitters	47-2152	\$20.08
Plumbers	47-2152	\$20.08
Welders, Cutters, and Welder Fitters	51-4121	\$19.03

The Wausau jobs were translated to Standard Occupational Codes (SOC) in order to describe the specific functions of each job, and the related transferable skills. O*Net, a national source of occupational information, has developed a method of determining the knowledge, skills and abilities for each occupation. The system also allows for these characteristics to be matched up with other occupations, establishing related

Related Occupations for Workers of Wausau Paper

Occupation	SOC code	statewide average hourly wage
51-9196 Paper Goods Machine Setters, Operators, and Tenders		
Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	51-4035	\$16.13
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	51-4072	\$13.53
Printing Machine Operators	51-5023	\$16.03
37-2011 Janitors and Cleaners, Except Maids and Housekeeping Cleaners		
Automotive Glass Installers and Repairers	49-3022	\$16.30
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	47-3011	\$15.47
Helpers--Installation, Maintenance, and Repair Workers	47-3015	\$13.36
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	49-9098	\$10.99
Landscaping and Groundskeeping Workers	37-3011	\$11.90
53-3032 Truck Drivers, Heavy and Tractor-Trailer		
Bus Drivers, School	53-3022	\$11.77
Bus Drivers, Transit and Intercity	53-3021	\$14.84
Industrial Truck and Tractor Operators	53-7051	\$13.52
Truck Drivers, Light or Delivery Services	53-3033	\$13.84
53-7051 Industrial Truck and Tractor Operators		
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	37-2011	\$11.33
Refuse and Recyclable Material Collectors	53-7081	\$13.39
43-5071 Shipping, Receiving, and Traffic Clerks		
Coin, Vending, and Amusement Machine Servicers and Repairers	49-9091	\$14.02
Mail Clerks and Mail Machine Operators, Except Postal Service	43-9051	\$12.19
Procurement Clerks	43-3061	\$15.32
Production, Planning, and Expediting Clerks	43-5061	\$19.18
Stock Clerks- Stockroom, Warehouse, or Storage Yard	43-5081	\$11.21
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	43-5111	\$12.61

occupations. The related occupations are jobs that people can easily move into because they have transferable skills, although there may be some retraining needed.

We selected the groups that included the largest volume of workers to provide related occupations and associated wages.

Conclusion

The history of Coös County is closely tied to its natural resources. The mills developed because of the proximity to the rivers and forests, enhanced by the rail system that ran through. Northumberland thrived with the prosperity of the mills in the mid 1900s. The industrial growth of the area revolved around optimizing the mills. The seal on the sign that welcomes visitors to the village of Groveton proclaims “Our little paper world.”



Photo courtesy of www.greatnorthwoods.org

The winds of change are blowing that paper world apart, just as stacks were felled at the Burgess mill site in Berlin earlier this fall. The ways that North Country residents view their natural resources are changing.

Employment opportunities in the Groveton area are limited. Many of those losing their jobs in Groveton are used to working in the same town as they live. There are no easy roads to commute in the area. The closest “city center” is Berlin, 25 miles to the east. Construction has started on the federal prison. The construction phase will bring some jobs to the area, mostly temporary, as the prison complex is completed. When the prison opens in Berlin it will provide some 300 jobs but not enough to replace all those lost over an 18-month period with the three mill closures. There is also looming doubt about outlook for the only remaining mill in Gorham which employs another 300 people.

Discussions have taken place about using wood-based biomass fuel to produce electricity. One advantage is that it would help restore the demand for low-grade wood lost with the mill closures. One problem, however, is how to transmit the energy produced because the current infrastructure cannot handle any significant additional volume of electricity. Upgrades to the transmission system would run at least \$250 million. It is a slow process from concept to completion and it provides little hope of immediate employment opportunities to those displaced in the mill closings.

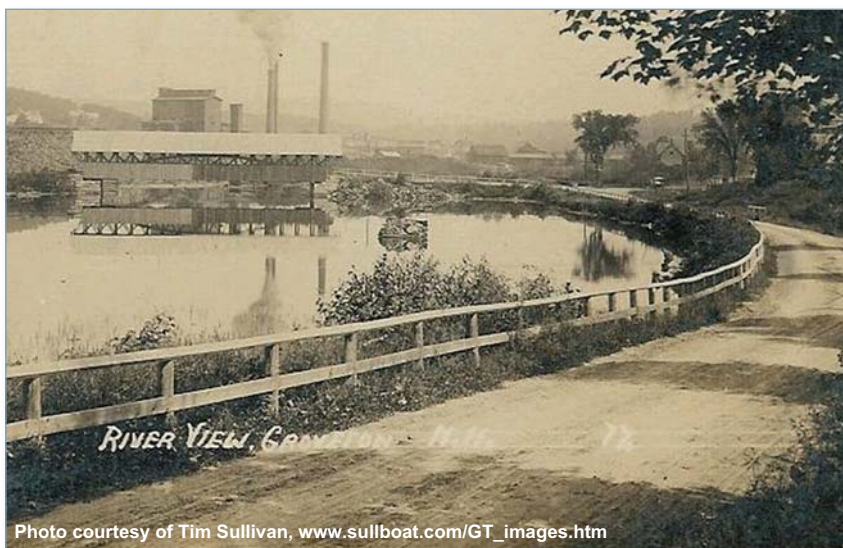
It is good to remember that econometric modeling is done to generate information that can be used as a guide for possible redevelopment. It cannot fully predict the future because of the multitude of variables that would need to be considered. The goal is to provide some insight that can assist the community and local leaders in envisioning future needs.

Because two of the last three mill closures were in the same small town of Northumberland, we evaluated the devastating economic impact on this area from those two mills. However, the process used includes the entire county. In 2005, almost 87 percent of the jobs in Northumberland were in Manufacturing, the bulk of those in paper manufacturing. The initial shock of losing over 400 jobs expands to more than 730 jobs by 2008. This is because of secondary effects that are attributable to the presence of the mill and the disposable income. If no new employment opportunities arise, people will eventually move out of town, closer to where the jobs are.

The total effect will reduce the need for services supported by the wages of the mill workers and the wages of workers in other industries supported by the mill's presence. These services range from construction to health care to education because of the declining population. Additionally, property values may slip as a result of a housing surplus created by out-migration. The gross regional product will drop in the absence of revenues generated directly and indirectly by the mills. The tax revenues of the area will likely also decline from the loss of both property and business taxes paid by the mills.

The second analysis includes all three of the mill closures. These events reduce the labor pool by another 357 jobs. This section also takes into consideration the introduction of the federal prison and the jobs that it will bring. The effects of the closures are similar, with immediate job reductions and secondary employment losses. Even with the advent of prison employment, the lack of diversity in the northern economy leaves it vulnerable and eventually leads to migration out of the area in order to secure work. Over time, without the introduction of new industries, employment will decline and eventually so will population as residents will migrate closer to the source of work.

Many pieces need to come into place to help provide new opportunities in the north, with more variety in the industrial mix, a key to preventing the "single basket of eggs" from being dropped.



The REMI Model¹³

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.

In the Model, businesses produce goods to sell locally to other firms, consumers, investors, and governments, and 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. Of course, the Model has many other feedback variables. For example, changes in wages and employment impact income and consumption, while economic expansion changes investment, and population growth impacts government spending.

¹³ The following discussion of the REMI model was taken from material prepared by Regional Economic Models, Inc., page 1.

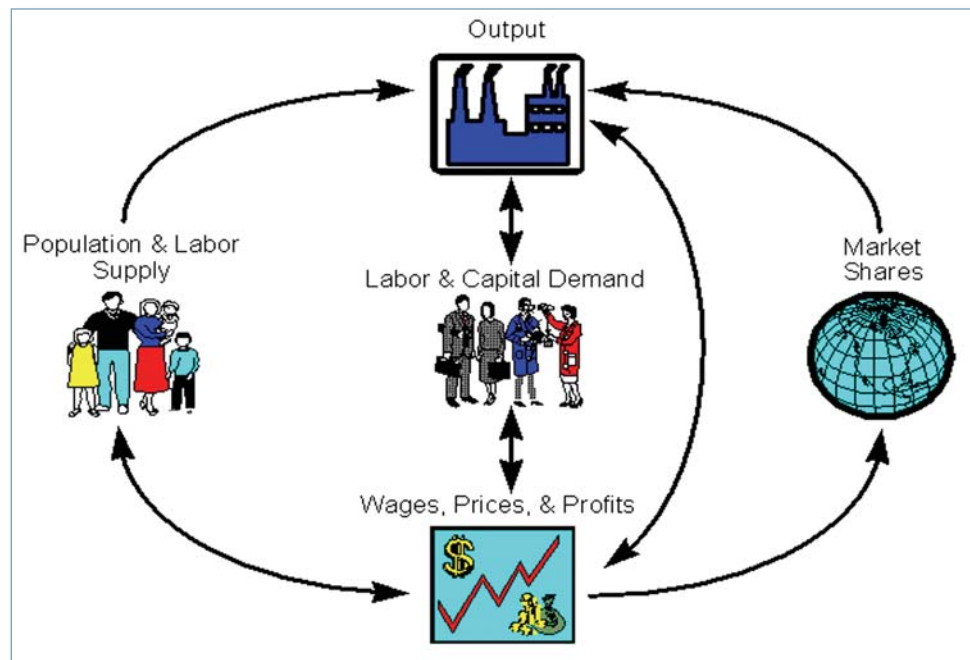
Figure 1

Figure 1 is a pictorial representation of REMI Policy Insight®. The Output block shows a business that sells to all the sectors of final demand as well as to other industries. The Labor and Capital Demand block shows how labor and capital requirements depend both on output and their relative costs. Population and Labor Supply contribute to demand and to wage determination. Economic migrants in turn respond to wages and other labor market conditions. Supply and demand interact in the Wage, Prices, and Profits block. Prices and profits determine market shares. Output depends on market shares and the components of demand.

The REMI model brings together all of the above elements to determine the value of each of the variables in the Model for each year in the baseline forecast. The Model includes all the interindustry interactions that are included in input-output models in the Output block, but goes well beyond an input-output model by including the linkages among all of the other blocks shown in Figure 1.

In order to broaden the Model in this way, it was necessary to estimate key relationships. This was accomplished by using extensive data sets covering all areas in the country. These large data sets and two decades of research effort have enabled REMI to simultaneously maintain a theoretically sound model structure and build a model based on all the relevant data available.

Figure 1: REMI Policy Insight Overview



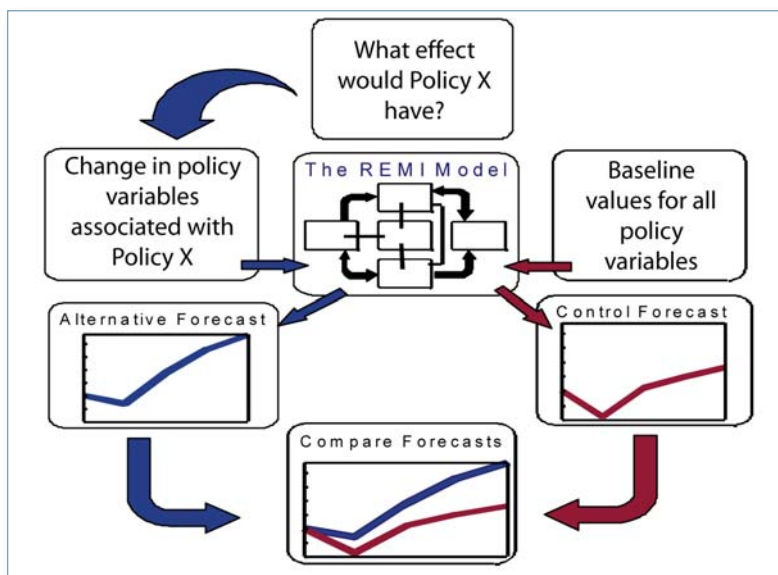
The Model has strong dynamic properties, which means that it forecasts not only what will happen but also when it will happen. This results in long-term predictions that have general equilibrium properties. This means that the long-term properties of general equilibrium models are preserved while maintaining accurate year-by-year predictions and estimating key equations using primary data sources.

Figure 2

Figure 2 shows the policy simulation process for a scenario called Policy X. The effects of a scenario are determined by comparing the baseline REMI forecast with an alternative forecast that incorporates the assumptions for the scenario. The baseline REMI forecast uses recent data and thousands of equations to generate projected economic activity for a particular region. The policy variables in the Model are set equal to their baseline value (typically zero for additive variables and one for multiplicative variables) when solving for the baseline forecast. To show the effects of a given scenario, these policy variables are given values that represent the direct effects of the scenario. The alternative forecast is generated using these policy variable inputs.

For this study, Policy X is the closure of the Groveton Paperboard mill and the Wausau Paper mill. We created an additional policy variable (each representing another Policy X) such as the federal prison and expanding the existing state prison. The result of each policy variable is assessed separately with the exception of the cumulative result.

Figure 2: Policy X Scenario



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