

# **A Profile of the Paper Industry in Wisconsin and Upper Michigan**

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Bay-Lake Regional Planning Commission

CUPPAD Regional Commission

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A Profile of the Paper Industry in Wisconsin and Upper Michigan

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## **ABSTRACT**

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This report examines the pulp and paper industry in Wisconsin and Upper Michigan. It was used by the three regional planning commissions involved to determine the next steps in developing strategies to help local units of government deal with events taking place in the paper industry in their area. A database of information was created using a listing of paper and pulp mills, as well as, the paper converters in the two states. Employment, capital investment, ownership, production, acquisitions, mergers, parent company information, and other categories of information were collected for inclusion in the database. It was found that local communities may not have the tools necessary to influence or prevent plant closings or layoffs at pulp and paper mills. The relatively smaller size and more independent nature at converters, however, present better opportunities to provide assistance, strategies that could be developed to help communities become more economically diversified, if necessary, and to (at a minimum), provide and maintain the public infrastructure and access to wood supply that is needed by this industry.

## EXECUTIVE SUMMARY

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The pulp and paper industry is an important economic sector in Wisconsin and Upper Michigan. In recent years this industry has undergone many changes, and layoffs and plant closings have occurred in several areas. Corporate acquisitions and mergers have also become commonplace in the industry.

Small, rural communities are most affected by plant closings and layoffs, in cases where the local economy is heavily dependent on a single employer. As a result of layoffs at several pulp and paper mills in northern Wisconsin in 1997 and 1998, two regional planning commissions in northern Wisconsin and the central Upper Peninsula of Michigan undertook this study in order to better understand the nature of the pulp and paper industry, and the relationship between the industry and local communities. The study looked at pulp and paper mills and paper converters.

A heavy concentration of pulp and paper industry employment is located in the Fox River Valley, in or near the communities of Green Bay and Appleton, Wisconsin. Other mills are scattered around northern Wisconsin and Upper Michigan. The presence of raw material and the availability of water for the manufacturing process determine the location of these mills. Within the areas where these plants are located they are often the largest employer, and typically provide the highest wage and benefit packages. While data on employment was sometimes difficult to compile, the general trend showed a small net employment loss in recent years across the study area.

While pulp and paper mills tend to be located in the northern parts of both Wisconsin and Michigan, converters are typically located in the more urbanized southern portion. Average employment and average wages at converters is generally less than at pulp and paper mills.

Pulp and paper mills in the study area produce a wide variety of products, including coated and uncoated papers, tissue, paper toweling, sanitary products, corrugating medium, and specialty paper products. Converters take uncut rolls of paper from mills and produce products such as envelopes, copier and printer paper, corrugated containers, tubes and cores, waxed paper, etc.

Most pulp and paper mills were established during the late 19<sup>th</sup> or early 20<sup>th</sup> centuries, although a few mills have been built in the 1980s and 90s. New mills represent a huge capital investment, and are subject to extensive permitting requirements, both of which are factors working against the establishment of new mills. Many older mills, however, have undergone extensive upgrades, and significant capital has been invested in keeping pace with current technology. Most of the plant closures or machine shutdowns that occurred in the study areas involved plants and equipment that had not been periodically upgraded and were allowed to become obsolete.

As mentioned above, corporate mergers and acquisitions have become common place. For example, more than half of the mills in the Upper Michigan have experienced an ownership change since 1990. The industry has become increasingly global, with most of the plants in the study area owned by large multi-national corporations. This means that local industries not only compete among themselves, but with plants in Europe, Asia, South America, and elsewhere. Expansion of pulp and paper capacity overseas, primarily in Asia and South American, has had major impacts on the paper industry.

This study concludes that the ability of communities to impact decisions regarding plant closings, layoffs, etc. is limited for pulp and paper mills due to their large size, the globally competitive market environment in which they operate, and the huge level of capital investment required to remain competitive. The relatively smaller size and more independent nature of converters, however, present better opportunities to provide assistance. It appears there are some potential strategies which warrant further investigation. Communities may be able to foster positive relationships with mills by critically examining infrastructure needs, and insuring that plants are adequately served. Identification of opportunities for local businesses to supply materials or services may strengthen a mill's ties to a particular community. Some communities may find that, rather than focusing on the existing pulp or paper industry as a mainstay of the local economy, a strategy of diversification and lessening of dependence on this industry is preferable.



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## 1.0 INTRODUCTION

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This report profiles the pulp and paper industry in Wisconsin and the Upper Peninsula of Michigan. This industrial sector is an important part of each state's economy. In 1997 and 1998, several plants in Wisconsin and Upper Michigan either closed or reduced employment levels in response to weak demand in worldwide markets for pulp and paper. Members of three regional planning commissions became concerned about these job losses and sought information from which they could determine how vulnerable their particular region might be to additional job losses in this industrial sector and what could be done to assist the industry and reduce the likelihood of future job losses.

Different sectors of the pulp and paper industry face different competitive environments. Individual plants within each sector also vary in their competitiveness based on their size, investment patterns and trends, and other factors. To be most useful in devising regional strategies to assist the industry, geographically based information on an individual plant level was needed. Prior to this project, there was no readily available database from which to conduct an analysis at a sub-state region. Creation of this database was a major focus of this report.

The database was created from a variety of publicly available information sources. Prominent among them were: *Lockwood-Post's Directory of the Pulp, Paper and Allied Trades Industry*, *Miller Freeman Pulp and Paper Industry Company Profiles*, *Classified Directory of Wisconsin Manufacturers*, and the *Classified Directory of Michigan Manufacturers*. Newspaper and magazine articles and company web sites also provided useful information. Given the large volume of publicly available information, the authors limited data collection to these sources to avoid any problems related to the confidentiality of information generated by private interviews.

A listing of all pulp and paper mills in both Wisconsin and Michigan, as well as paper converters, was developed using the *Lockwood-Post's Directory of Pulp, Paper, and Allied Trades Industry*. Each Wisconsin and Michigan manufacturer listed was classified as one of nine types of paper or pulp mill, or as a paper converter. This listing became the basis for the database (see Appendix A).

Data was collected for all paper and allied products industries in Wisconsin. This was not the case in Michigan where focus was limited to mills and converters in Upper Michigan (the Upper Peninsula and the northern 21 counties of the Lower Peninsula). Since the vast majority of converters are located in Lower Michigan and since this area was outside the study area, the information for this sector is very sketchy. In addition to converters, several pulp and paper mills are located in the southern Lower Peninsula of Michigan, but the relative economic impact of those mills on the local area is low.

The database contains information on types of industries, employment, primary product types, dates of plant establishment, ownership information, and other information determined to be useful in profiling the industry. The availability of information on individual plants varied. For some categories of information, a fairly complete data set could be assembled. For other types, the available data represents only a sample of the individual plants. These differences in the strength of the underlying data are reflected in the analysis.

For reporting purposes, the State of Wisconsin was divided into the following regions:

- Fox River Region                      Brown, Outagamie, and Winnebago Counties
- Milwaukee Region                      Milwaukee, Ozaukee, Washington, and Waukesha Counties
- Milwaukee Ring Region                Sheboygan, Fond du Lac, Dodge, Jefferson, Walworth, Racine, and Kenosha Counties
- Central State Region                   Lincoln, Marathon, Wood, and Portage Counties
- Western WI Region                      Eau Claire, Chippewa, Pierce, and St. Croix Counties

The database is available through any one of the three regional planning commissions that worked on the project. It is currently in Microsoft Access97 format, but can be downloaded to Microsoft Excel.

## **2.0 TYPES OF INDUSTRIES**

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In the information that follows, industries are divided into two separate groupings: pulp and paper mills and paper converters. Pulp and paper mills include mill operations that produce pulp or paper for subsequent reprocessing into final consumer products. The individual mills vary in their level of integration.

Nine different types of pulp and paper mills are identified. Pulp mills and recycled pulp mills produce pulp only and ship the pulp for subsequent reprocessing to other locations. Paper mills process pulp into large rolls of paper and ship these rolls to converters for reprocessing into final consumer goods. These three types of mills are identified in the analysis that follows as non-integrated facilities. They are non-integrated at the plant level only and often ship products produced to other mills affiliated with their parent company.

Pulp and paper mills, recycled pulp and paper mills, paperboard mills, and pulp and hardboard mills produce both pulp and paper rolls or hardboard in the same location. Plants which process pulp into paper rolls and convert it to final consumer papers are identified as paper mills and converters. Finally, a fully integrated plant that has pulping capability, produces paper rolls and converts them to final consumer papers is identified as a pulp and paper mill and converter.

Converters are mills that process paper into a variety of final consumer products. The converting operations within paper mills tend to produce printing and writing papers, while industries that are solely converters tend to produce a greater variety of final consumer products.

A total of 173 paper related industry plants are listed in Wisconsin within the assembled database. Of these, 121 or seventy percent, are converters and 52, or 30 percent, are pulp and paper mills. Five of these pulp and paper mills also have converting capabilities.

Upper Michigan contains 11 pulp and paper mills and three converters. Two of the paper mills also have converting capabilities. As mentioned earlier, the vast majority of the converters are located in southern Lower Michigan.

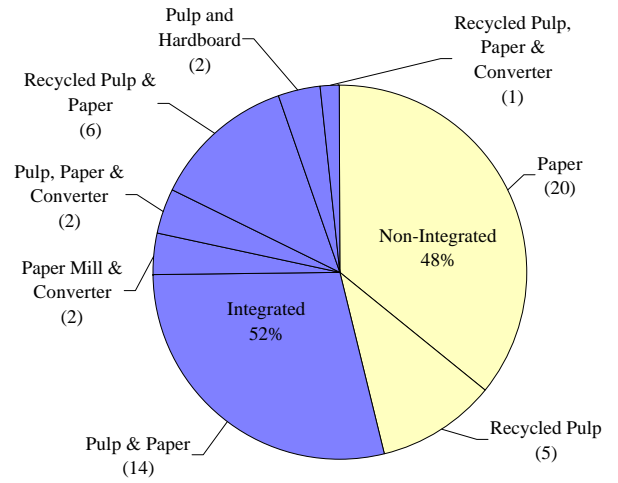
### **WISCONSIN PULP AND PAPER MILLS**

Eight different types of pulp and paper mills exist in Wisconsin. The most common type of mill is the paper mill without pulping or converting capacity. Twenty mills of this type are identified within the database. Many regular paper mills often use recycled pulp as part of their furnish but the majority of the furnish used by these mills is virgin fiber. This is especially true for mills that produce high quality printing and writing papers; a very important product in Wisconsin.

Mills with both pulping and paper making capability (but no converter capability) are the second most common type of mill. Twenty such mills are present in Wisconsin. Of these, six are recycled pulp and paper mills. Five stand alone recycled pulp mills also exist in the state

Three fully integrated mills that have pulping, paper making, and converting capabilities in the same location are present in Wisconsin (one being a recycled mill). Two paper mills with converting capabilities exist as well. The remaining two mills located in Wisconsin are pulp and hardboard mills (Map 2.1 and Figure 2.1).

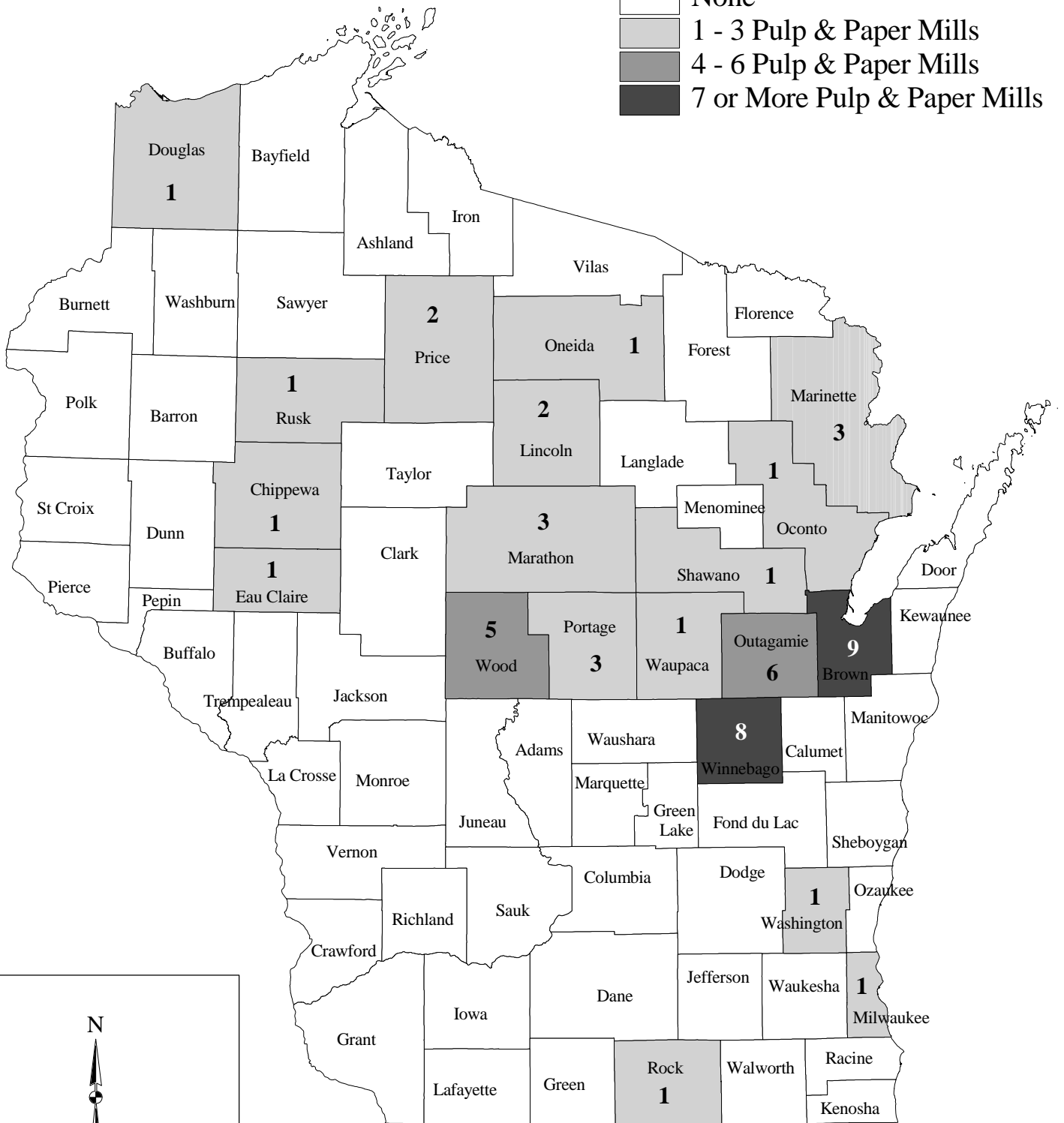
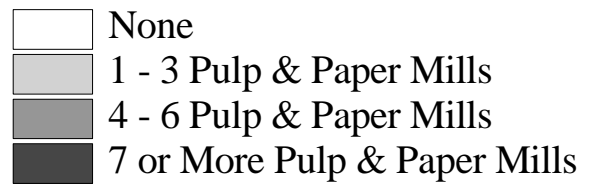
Figure 2.1: Number of Integrated & Non-Integrated Pulp & Paper Plants in Wisconsin



# Pulp & Paper Plant Locations in Wisconsin

## By County

Map 2.1



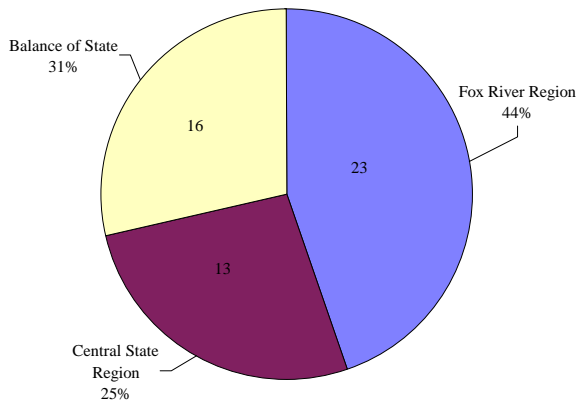
10 0 10 20 Miles

Source: Bay-Lake Regional Planning Commission, 2000.

## Locations

The locations of pulp and paper mills in Wisconsin are highly concentrated primarily as a result of the historical need for many of these mills to be adjacent to large sources of water (see Figure 2.2). As will become clear in the section that discusses date of plant establishment, green field construction of pulp and paper mills, that is, construction of an entirely new plant, rarely occurs. The much more common pattern is expansion and additions at existing sites.

Figure 2.2: Distribution of Pulp & Paper Plants in Wisconsin by Region



Sixty-nine percent of all Wisconsin pulp and paper mills occur in the seven counties that make up the Fox River Region and the Central State Region. The Fox River Region has 23 pulp and paper mills while the Central State Region has 13 plants. Only 16 mills exist in the entire rest of the state (Figure 2.2).

Within the Fox River Region, Brown County has nine mills, Winnebago County has eight mills, and Outagamie County has six. Thirteen of this region's mills were paper (only) mills, accounting for 65 percent of all paper (only) mills in Wisconsin (Figure 2.3).

Figure 2.3: Distribution of Pulp & Paper Plants in the Fox River Region by County

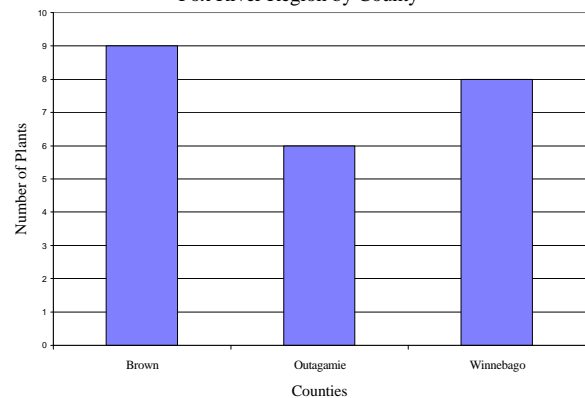
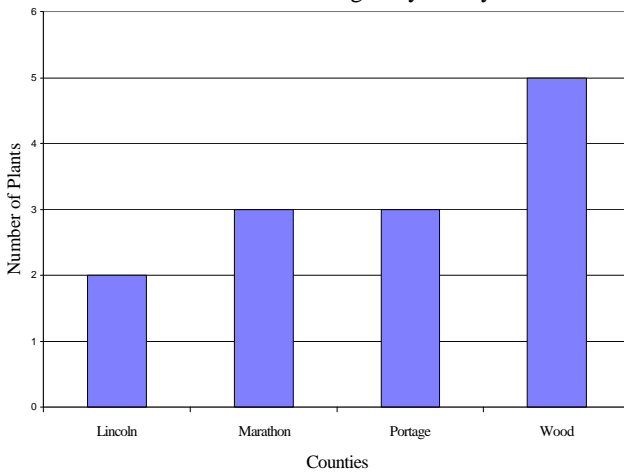


Figure 2.4: Distribution of Pulp and Paper Plants in the Central States Region by County



Within the Central State Corridor, Lincoln has two mills, Marathon and Portage Counties each have three mills, while Wood County has five (Figure 2.4).

Only two other counties in the state have more than one pulp and paper mill. Marinette County has three and Price has two. Counties with only one pulp and paper mill include Chippewa, Douglas, Eau Claire, Milwaukee, Oconto, Oneida, Rock, Rusk, Shawano, Washington, and Waupaca.

### **Processes**

There are two basic processes used to make pulp. Chemical processes include sulfate (kraft), soda, sulfite, semichemical, and solvent. Mechanical processes include groundwood, pressurized groundwood, refiner mechanical, thermomechanical, chemi-thermomechanical, and defibrated.

A bleaching sequence can also be added to produce pulp with high brightness. Bleaching is typically done in multiple stages with washing between each stage. Various chemicals can be used in bleaching including oxygen, chlorine dioxide, hydrogen peroxide, ozone, and sodium hydroxide. A new alkaline conversion process is also currently being used to produce whiter, brighter pulp product.

Public information on the type of processes and bleaching used at individual pulp mills in Wisconsin is not readily available. From the data that is available, it is clear that the mix of processes and bleaching sequences in Wisconsin is atypical when compared to national patterns. A much greater variety of processes are used in Wisconsin compared to national patterns.

Within North America, kraft pulp production represented 70 percent of North American capacity in 1997 and has become more common over time. In Wisconsin, in contrast, the kraft process is used by a much smaller percentage of mills. Beloit Box Board in Beloit, Georgia-Pacific's mill in Nekoosa, Mosinee Paper's mill in Mosinee and Thilmany's mill in Kaukauna are examples of mills which utilize the kraft process.

Utilization of the sulfite process has steadily declined nationally. This process is used by four mills in Wisconsin and represents 31 percent of the mills nationally which use this process. In the early 1990s, Wisconsin was home to five sulfite mills. Pulping operations at one of these mills, Badger Paper Mill in Peshtigo, closed down in the mid-1990s. An announced closure of Georgia-Pacific's Port Edwards sulfite mill was made in 1999 and later retracted. A primary determinate of the vulnerability of the remaining sulfite mills to closure is the amount of capital

investment that will be required to remain in compliance with EPA cluster rules due to take effect in 2000.

Other mills in Wisconsin use a variety of other types of processes. Consolidated Papers mills in Niagara and Kimberly utilize the groundwood process. Consolidated's Wisconsin Rapids and Stevens Point mills utilize the groundwood process and the thermomechanical process. Globe Building Materials in Cornell utilizes a defibrated/exploded/mechanical process. Appleton Papers at Combined Locks utilizes a chemi-thermomechanical process. This great variety of processes within one state is unusual compared to other states.

### **Production**

Wisconsin is the number one producer of paper in the nation. In 1995, 4.9 million tons of paper and over 1 million tons of paperboard were produced in the state according to the Wisconsin Paper Council. Alabama, Washington and Louisiana ranked second, third, and fourth annually producing 3.5 million tons, 3.4 million tons and 3.2 million tons, respectively.

Information on the level of production of paper on a ton/day basis was available for 35 mills in Wisconsin. Of these 35, five produced less than 100 tons/day (Figure 2.5). These five mills included American Tissue Mills in Tomahawk, Beloit Box Board Co. in Beloit, CityForest Corp. in Ladysmith, Filter Materials in Waupaca, and Geo. A. Whiting Paper Co. in Menasha. Sixty-nine percent of mills included in the data set produce 100 to 600 tons of paper per day. Mills with the largest production of paper in the state include Consolidated Papers' two Wisconsin Rapids plants, Inter Lake Papers in Kimberly and Tenneco Packaging in Tomahawk.

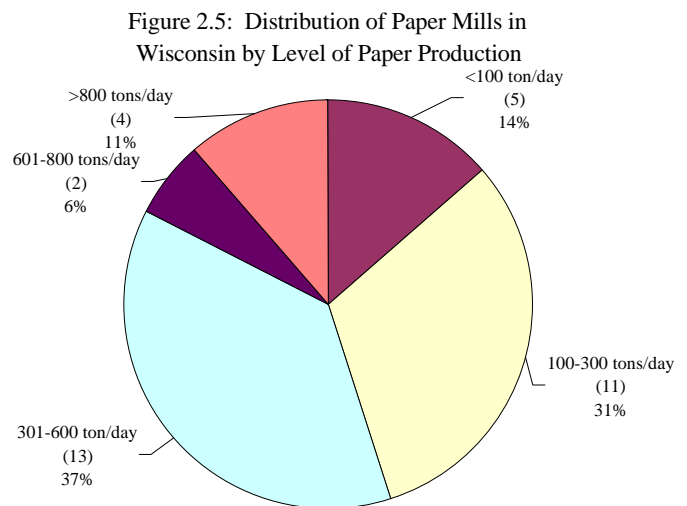
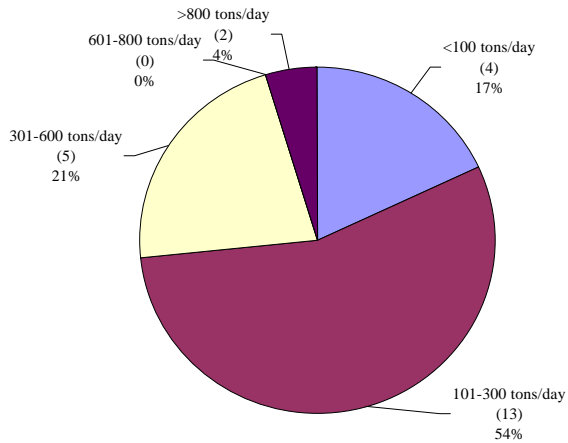


Figure 2.6: Distribution of Pulp Mills in Wisconsin by Level of Pulp Production



Information on the level of production of pulp on a ton/day basis was available for 24 mills in Wisconsin. The most common sized mills produce between 100 and 300 tons per day – 54 percent fell into this size range. The two largest producers are also two of the largest in terms of paper production: those being Tenneco Packaging in Tomahawk and Consolidated Paper’s pulp mill in Wisconsin Rapids.

### Raw Material Use

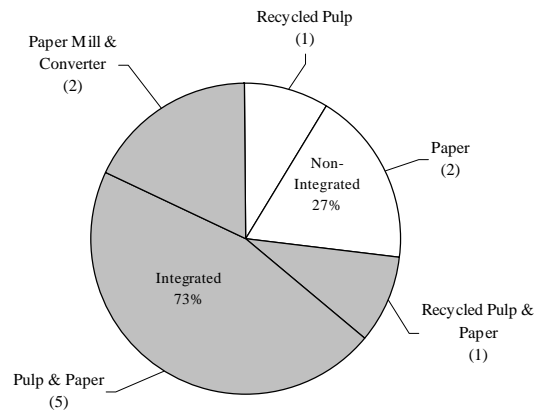
A variety of raw materials are utilized by pulp and paper mills in Wisconsin. Aspen is a predominate species in the raw material mix of most mills in Wisconsin and is often supplemented with other species. Appleton Papers at Combined Locks and Wausau Paper Mills at Brokaw use aspen exclusively. Fraser Paper in Park Falls uses white birch exclusively and represents the single largest market for this species of pulpwood in the state. Virtually all the mills with pulping capability in the state utilize roundwood often in combination with chips. Several firms utilize unprocessed recycled paper including EcoFibre and Fox River Fiber in De Pere, P.H. Glatfelter in Neenah, Refibre in Appleton, and CityForest in Ladysmith.

### UPPER MICHIGAN PULP AND PAPER MILLS

Among the 11 mills in Upper Michigan, five different types of pulp and paper mills exist. The most common type are mills with both pulping and paper making capability. Seven mills of this type are identified within the database.

Of the remaining mills in Upper Michigan, two are paper mills, two are paper mills and converters, one is a recycled pulp mill, and one is a recycled pulp and paper mill. (Map 2.2)

Figure 2.7: Number of Integrated and Non-Integrated Pulp & Paper Plants in Michigan





## **Locations**

Pulp and paper mills associated with firms in Upper Michigan are much more widely distributed compared to such firms in Wisconsin. Seven mills are located in the Upper Peninsula in six counties: Alger, Delta, Dickinson, Menominee, Ontonagon and Schoolcraft. Four mills are located in the Northern Lower Peninsula in Alpena, Cheboygan and Manistee counties.

## **Processes**

Unlike Wisconsin, pulp and paper mills in Upper Michigan use very few types of production processes. Champion International's Quinnesec mill uses a kraft process while Mead Corporation's Escanaba mill uses a combination kraft and refiner mechanical process. Two mills that use a semi-chemical process include Stone Container Corp.'s Ontonagon mill and Tenneco's Filer City mill. The only other process identified in use by Upper Michigan mills is a defibrated/exploded/mechanical process at ABTCo in Alpena.

## **Production**

Information on the level of production of paper for mills in Upper Michigan was available for eight mills. The largest producer of paper of these eight mills was Mead Corp.'s Escanaba mill at 1,550 tons per day. The smallest producer was the Fletcher Paper Co. in Alpena at 85 tons per day. Other mills included in the database are as follows:

Stone Container in Ontonagon – 815 t/d  
Champion International at Quinnesec – 775 t/d  
ABTCo Inc. at Alpena – 400 t/d  
Tenneco Packaging at Filer City – 325 t/d  
Manistique Papers at Manistique – 320 t/d  
Great Lakes Tissue at Cheboygan – 100 t/d

Pulp production figures were available for six mills in Upper Michigan. Pulp production in rank order is as follows:

Mead Corp. at Escanaba – 1,935 t/d  
Champion International Corp. at Quinnesec – 950 t/d  
Tenneco Packaging at Filer City – 600 t/d  
Great Lakes Pulp Co. at Menominee – 520 t/d  
ABTCo Inc. at Alpena – 400 t/d  
Menominee Paper at Menominee – 60 t/d

## **Raw Material Use**

A variety of raw materials are used by pulp and paper mills in Upper Michigan. Most companies utilize several different types of raw materials. For example, Mead Corporation in Escanaba utilizes mixed roundwood, softwood chips, and processed pulp. Champion International in Quinnesec utilizes softwood chips, hardwood roundwood and processed pulp. Firms that utilize unprocessed recycled paper include Great Lakes Pulp Co. in Menominee, Manistique Papers in Manistique and Menominee Paper Co. in Menominee. Other raw materials used by Upper Michigan mills include market pulp, hardwood chips and softwood chips.

## WISCONSIN CONVERTERS

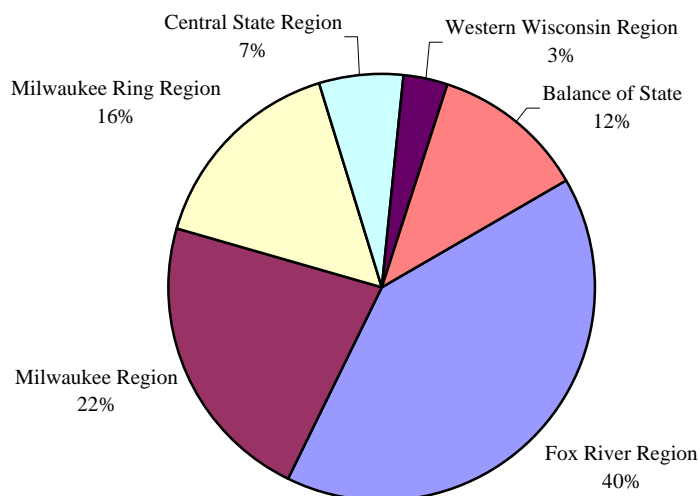
A total of 121 converters are located in Wisconsin. These operations tend to be concentrated in major metropolitan areas as is clear from the map on the following page.

Sixty-three percent of all converters in Wisconsin occur in just seven counties. The Fox River Region, consisting of Brown (16), Outagamie (15), and Winnebago (18) counties, has 49 converters while the Milwaukee Region, consisting of Ozaukee (1), Washington (6), Waukesha (4), and Milwaukee (16) counties has 27 plants. Unlike pulp and paper mills, there is no concentration of converters in the Central State Region.

The Milwaukee Ring Region consists of the seven counties that lie adjacent to the Milwaukee Region. These include Sheboygan, Fond du Lac, Dodge, Jefferson, Walworth, Racine, and Kenosha counties. Sheboygan County has the most converters in this region with eight, followed by Racine County with five, and Dodge County with two. The other four counties in this region have one converter each. The total number of converters in the Milwaukee Ring Region is 19.

The only other county with any concentration of converters is Marathon County located in the Central State Region with eight. The Western Wisconsin Region had a total of four converters and the remainder of the state had 14.

Figure 2.8: Distribution of Converter Plants in Wisconsin by Region



In the rest of the state, only Rock County and Calumet County have more than one converter with two each. Other counties in the rest of the state with one converter only include Adams, Columbia, Clark, Dodge, Dane, Green Lake, Manitowoc, Oconto, Waupaca, and Wood.



## **UPPER MICHIGAN CONVERTERS**

As is the case in Wisconsin, converters in Michigan are strongly concentrated in metropolitan areas. The Detroit metropolitan area has the greatest concentration of converters in the state with concentrations also occurring in the vicinity of Grand Rapids and Kalamazoo. Due to the fact that this study concentrated on operations affiliated with Upper Michigan firms only, data was not collected on most of the converter facilities in Michigan.

A total of three converter operations are located in Upper Michigan. Two of these, Escanaba Paper Converting and Bramco Containers (both in Delta County) are located in the Upper Peninsula. Tenneco Corrugated Products in Grand Traverse County is the only other such converter in the Northern Lower Peninsula. (Map 2.4).

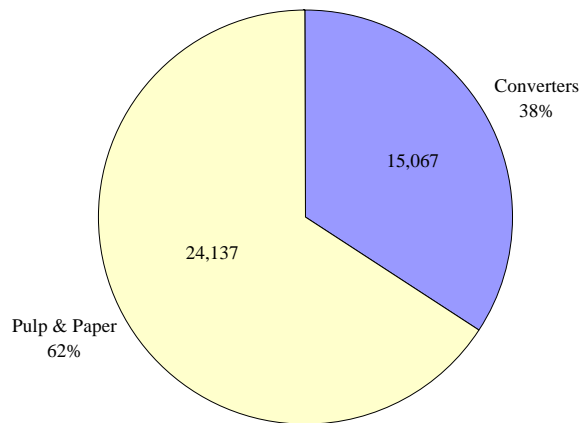




### 3.0 EMPLOYMENT

According to the Wisconsin Paper Council, 51,000 people are employed by paper and allied products industries in Wisconsin earning more than \$2.1 billion in wages annually. This level of employment represents one in every 11 Wisconsin manufacturing jobs.

Figure 3.1: Distribution of Employment at Paper Related Plants in Wisconsin in 1998



Based on an 88 percent sample of pulp & paper mills and an 87 percent sample of converters

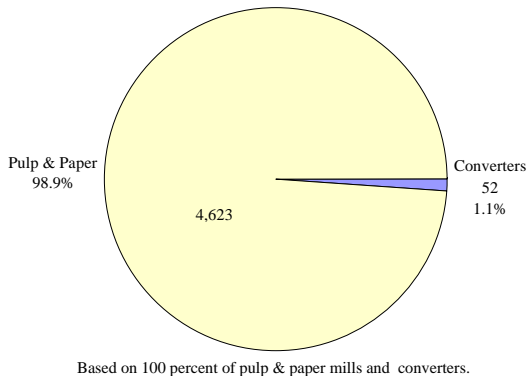
In this study, employment information was obtained for 46 of 52 pulp and paper mills in Wisconsin and 105 of 121 converters in Wisconsin. Based on these partial samples, the data indicate that approximately 62 percent of employment in the paper industry sector in Wisconsin is in pulp and paper mills compared to 38 percent at converters (Figure 3.1).

The relative size differential of each type of paper related mill is evident when employment is compared to the number of plants of each type in the state. Average employment at pulp and paper mills in Wisconsin is 525 employees per mill compared to an average of about 143 employees per mill at converters.

Pulp and paper industry employment is a much less significant sector on a statewide basis in Michigan. Of a total non-farm employment base of more than 4.6 million jobs in October 1999, only 19,900, or less than half a percent, were in the pulp and paper sector. Hourly and weekly wages in those sectors were about average for the manufacturing sector statewide.

In the Upper Peninsula, however, the local dependence on this sector is much greater. In October, 1999, 3,100 of 135,700 non-farm jobs were in the pulp and paper sector. Hourly and weekly wages were the highest of any employment sector in the Upper Peninsula, reinforcing the local perception that paper mill jobs are highly important to the local economy. Similar figures were not readily available for northern Lower Michigan, but it would be expected that the importance of pulp and paper jobs in that rural area would be greater than the statewide figures show.

Figure 3.2: Distribution of Employment at Paper Related Plants in Upper Michigan in 1998



In this study, employment information was obtained for the 11 pulp and paper mills in Upper Michigan and the three converters in Upper Michigan. Based on these partial samples, the data indicate that approximately 99 percent of employment associated with Upper Michigan affiliated paper firms is in pulp and paper mills compared to just over one percent at converters.

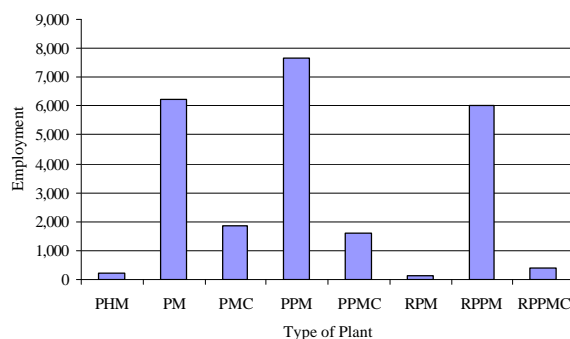
As in Wisconsin, pulp and paper mills affiliated with upper Michigan firms are larger on average compared to converters. Average employment at pulp and paper mills in the Michigan sample was 420 employees per mill compared to 17 at converters.

## WISCONSIN PULP AND PAPER MILLS

From an employment standpoint, integrated pulp and paper operations tend to be larger and provide more employment in Wisconsin compared to non-integrated facilities. Employment at 26 of 27 integrated facilities in Wisconsin, totaled 17,757 while employment at 20 of 25 non-integrated plants totaled 6,380. The average per plant employment level for integrated facilities was 683 compared to an average of 319 for non-integrated mills. There are significant size differences within the different plant categories, however, and between plants.

Pulp and paper mills make up the largest number of integrated facilities. Employment figures for 13 of the 14 mills in Wisconsin were available indicating that mills of this type employ over 7,640 in the state. Average employment at this type of mill is 588 employees per mill. The smallest mill in Wisconsin that is both a pulp mill and a paper mill is Filter Materials in Waupaca, employing 75 people. The largest mill is Inter Lake Papers in Kimberly with 1,140 employees.

Figure 3.3: Distribution of Employment at Pulp & Paper Plants in Wisconsin by Type of Plant in 1998



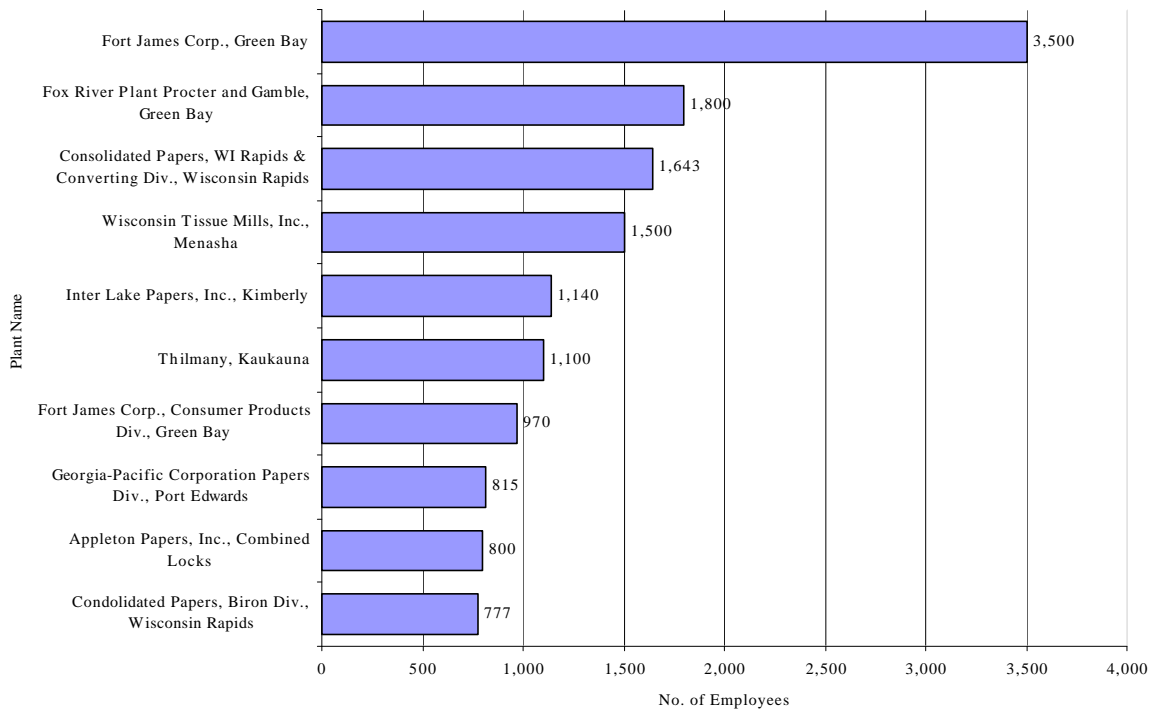
Recycled pulp and paper mills are the next largest type of integrated mill employer. Employment figures for all of the mills of this type were available and totaled 6,032. Average employment at this type of mill is estimated at 1,005 but there are vast differences between the sizes of this type of mill. The two largest of these mills in Wisconsin are Fort James Corporation mill in Green Bay (3,500) and Wisconsin Tissue Mills in Menasha (1,500). The two smallest mills are

CityForest in Ladysmith (67) and Kerwin Paper Company in Appleton (90). The other two mills of this type employ 425 and 450.

The largest numbers of non-integrated facilities are paper mills. Employment figures for 17 of the 20 mills of this type were available and totaled 6,252. Average employment at this type of mill is 368. The most common size of paper mill employs between 100 and 300 (9 of the 17). Two of the largest mills of this type in Wisconsin are Proctor and Gamble’s Fox River Plant in Green Bay with 1,800 employees and the Fort James Corp. mill with 970, also located in Green Bay. Fibreform Containers in Germantown is the smallest mill of this type in Wisconsin.

In total, the data for all plant types indicates that at least six mills in Wisconsin employ more than 1,000 employees, 12 employ between 500 and 1,000 employees, nine employ between 500 and 250 employees, nine employ between 250 and 100, and 10 mills employ less than 100. Not included in this count is Consolidated Papers Headquarters at Wisconsin Rapids that employs over 1,000. Figure 3.4 identifies ten of the largest pulp and paper mills in Wisconsin.

Figure 3.4: Ten of the Largest Pulp & Paper Related Operations in Wisconsin by Plant Employment



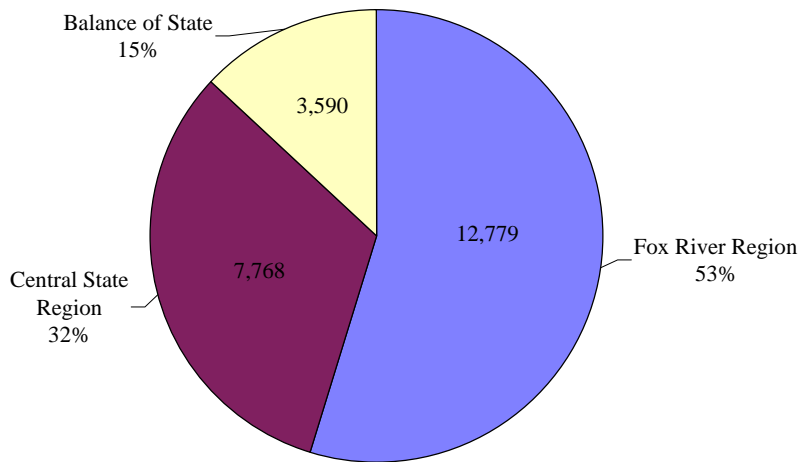
Information on employment change in the last five years was available for 23 of Wisconsin's 52 pulp and paper related mills. Of those 23 mills, nine lost employment in the last five years. These employment losses totaled just below 1,500. Employment either increased or did not change at 14 pulp and paper mills. These employment gains totaled just below 1,000. To the extent these companies are representative of all pulp and paper mills in Wisconsin, the net employment change in the state over the last five years is probably modest. Four Wisconsin mills that employment information was available for, appear to have lost 100 employees or more in the last five years. No employment losses appeared in the data for recycled pulp mills or recycled pulp and paper mills.

**Location**

Employment at Wisconsin pulp and paper mills is more highly concentrated than mill locations in the state. A previous section indicated that 44 percent of pulp and paper mills were located in the Fox River Region, 25 percent in the Central State Region and 31 percent in the balance of the state. Available employment figures indicate that the Fox River Region has over 53 percent of pulp and paper industry jobs, the Central State Region about 32 percent, and the balance of the state approximately 15 percent.

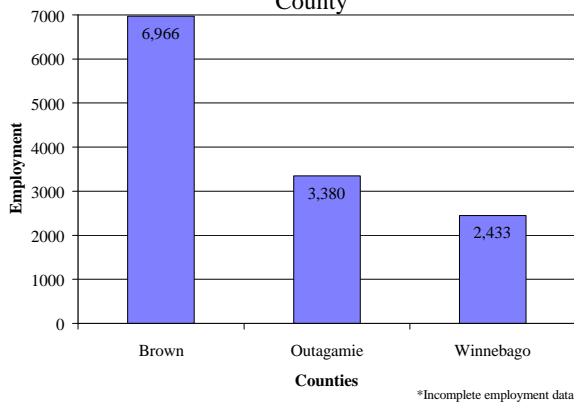
Figure 3.5 actually underestimates the amount of employment concentration since four of the plants for which employment information is missing are located in the Fox River Region and one is located in the Central State Region. Employment information on only one plant in the balance of the state is missing.

Figure 3.5: Distribution of Employment at Pulp & Paper Plants in Wisconsin in 1998



Based on an 85 Percent Sample of Pulp & Paper Mills

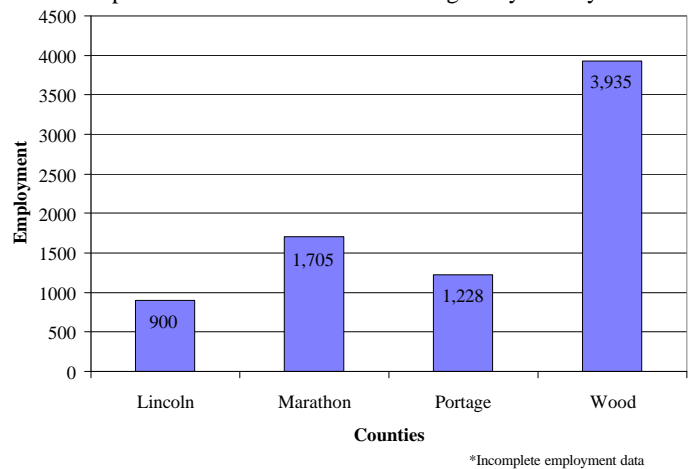
Figure 3.6: Distribution of Employment at Pulp & Paper Plants in the Fox River Region by County



Within the Fox River Region, Brown and Winnebago Counties have an equal number of mills but Brown County has considerably higher levels of employment (Figure 3.6).

Within the Central State Region, Wood County has more pulp and paper mill employment than the other three counties combined (Figure 3.7).

Figure 3.7: Distribution of Employment at Pulp & Paper Plants in the Central States Region by County



Employment in pulp and paper mills in counties in the balance of the state is more evenly distributed than the number of plants. Marinette, Oneida and Price Counties have the highest levels of pulp and paper mill employment with three, one, and two mills, respectively.

## **UPPER MICHIGAN PULP AND PAPER MILLS**

From an employment standpoint, integrated pulp and paper operations provide the vast majority of employment at pulp and paper mills in Upper Michigan compared to non-integrated mills. Employment at all eight integrated facilities in Upper Michigan totaled 3,958, while employment at the three non-integrated mills totaled 665. The average per plant employment level at integrated mills was 495 compared to an average of 222 at non-integrated mills. The smallest

integrated mill is Manistique Papers, Inc. in Schoolcraft County, which employs 177. The largest mill of this type is the Mead Corp. plant in Delta County, which employs 1,727. Three of the remaining mills employ between 275 and 500 and one employs 664.

Two of the three non-integrated facilities are paper mills, while the other is a recycled pulp mill. The two paper mills employed a total 556, and the recycled pulp mill employed 109.

Figure 3.8: Distribution of Employment at Pulp & Paper Plants in Michigan by Type in 1998

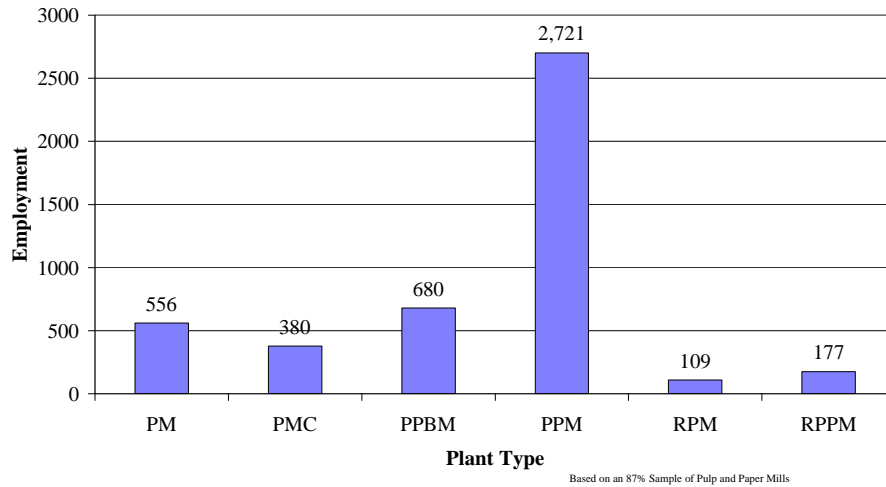
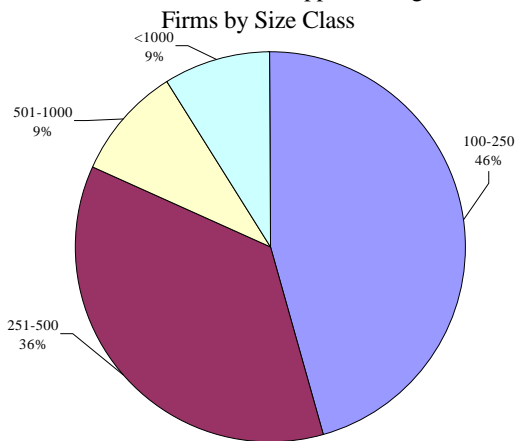


Figure 3.9: Distribution of Pulp & Paper Mills Associated with Upper Michigan

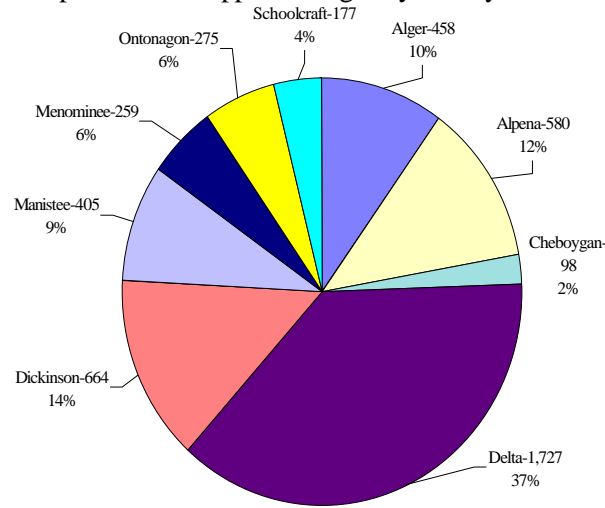


In total, the data indicate that one pulp and paper mill employs over 1000, one employs between 501 and 1,000, five employ between 251 and 500, and four employ between 100 and 250 (Figure 3.9).

## Location

Employment in pulp and paper mills in Upper Michigan is concentrated in the Upper Peninsula (U.P.). Employment in pulp and paper plants in the U.P. totals 3,560, or 77 percent of the Upper Michigan total employment in this SIC code sector.

Figure 3.10: Distributon of Employment at Pulp & Paper Plants in Upper Michigan by County



## WISCONSIN CONVERTERS

Although the actual number of converters in the State of Wisconsin outnumbered pulp and paper mills by over 2 to 1, employment in converters was out numbered 3 to 2 by pulp and paper mills. These figures, and all numbers relative to employment at converters in Wisconsin, are based on information available and obtained from the 105 out of 121 converters.

Total employment of the 105 converters in Wisconsin for which data was available was approximately 15,041 employees. Figures provided were usually 1997 or 1998 figures. Using these figures, the average number of employees at each plant was 143. Actual numbers, however, ranged from an extreme high of 1,400 employees at Appleton Papers, Inc. in Appleton down to several converters with under 20 employees.

### Location

As with employment in pulp and paper mills, employment in paper converting facilities appears to be concentrated in the Fox River Region. The three counties that make up this region are home to 49 of the 121 converters and account for 8,441, or 56 percent of all employment in paper converting. The Milwaukee Region accounts for 26 of the converting facilities with an estimated employment of 2,426 employees, or 16 percent of all employment in converting facilities in Wisconsin. Employment figures for five of the converters in the Milwaukee Region were not available. The Milwaukee Ring Region has 16 plants with 1,081 employees, plus three plants that employment was not available for. The Central State Region has seven converters that accounted for employment of 1,469 employees. Only four converters are located in the Western Wisconsin Region.

The Fox River Region has 16 converters located in Brown County, 15 in Outagamie County, and 18 in Winnebago County.

## **UPPER MICHIGAN CONVERTERS**

Insufficient data was available for Upper Michigan converters to draw any conclusions. Only a few converters exist in this region and information for them was not readily available.

## 4.0 PRIMARY PRODUCT TYPES

Pulp and paper mills and converters in both Upper Michigan and Wisconsin produce a wide variety of products ranging from market pulp to highly specialized paper products. With respect to individual pulp and paper mills, most mills are focused on a single product, or at best, a few related products. Some mills are vertically integrated, combining a pulp mill with a paper mill and converter, while others diversity in terms of the variety of products they produce. Converters, on the other hand, tend to be more specialized. Because converters are generally smaller and have a significantly lower capital investment, it is easier for converters to change their products to meet changing market conditions or to fill a market niche.

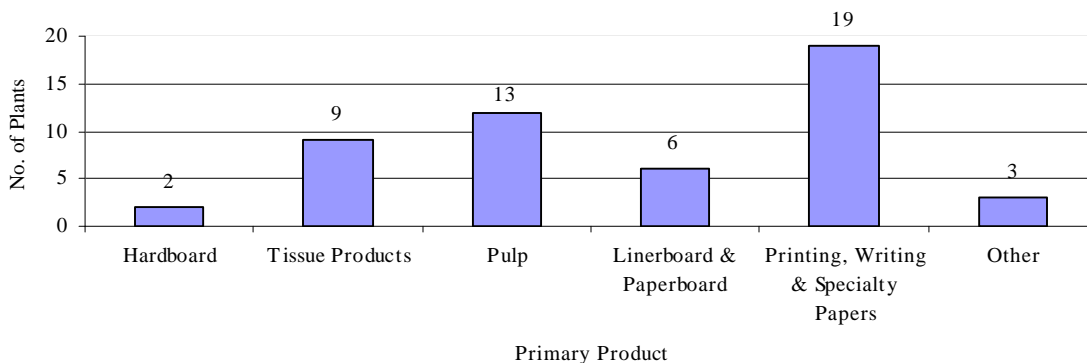
### WISCONSIN PULP AND PAPER MILLS

Twenty-eight out of 52 mills in Wisconsin produce pulp. In many cases, market pulp is produced, however, several integrated mills in the state use all or a portion of the pulp they produce in their own paper-making process. Groundwood pulp, sulfite pulp, and de-inked pulp are the three most common types of pulp produced by mills in Wisconsin. Recycled de-inked market pulp is the primary product of several mills in Wisconsin.

Five mills in Wisconsin are stand alone recycled pulp mills, while seven additional recycled pulp mills are integrated with paper-making operations; one also has converting capabilities. Sixteen other pulp producing mills (*non-recycled pulp mills*) are integrated with paper mills; two mills of this type also have converting capabilities.

Forty-five of the mills in Wisconsin produce some type of paper product. Three broad categories or types of paper products are produced. These categories include: 1) linerboard and paperboard; 2) tissue products; and 3) paper including printing, writing and specialty papers. The linerboard and paperboard category includes items that tend to be cardboard-like in nature like paper tubing stock and corrugated medium. Tissue products include items such as bathroom tissue, napkins, placemats, and paper toweling. Printing and writing papers include finer quality papers that are used in offices and schools, copier papers, colored construction papers, and typing papers. Specialty papers might include food wrappers, non-stick backing for labels, greaseproof or waxed papers, and coated magazine paper. Pulp and hardboard are also produced in Wisconsin.

Figure 4.1: Pulp & Paper Mills in Wisconsin by Primary Product Type



## **Locations**

The five pulp mills in Wisconsin that produce recycled pulp include Fox River Fiber in De Pere which produces deinked market pulp from 100 percent post consumer waste and Ponderosa Pulp Products in Oshkosh which produces market pulp from a full range of post consumer content. Ponderosa Pulp Product's parent company, Ponderosa Fibres, is the largest producer of deinked, recycled woodfree market pulp in North America. The three remaining recycled pulp mills are located in Oconto Falls, Appleton, and De Pere.

Both pulp and hardboard are produced at two individual integrated mills; Georgia Pacific's Industrial Wood Products Division in Superior and their Lionite Products mill in Phillips.

Nine mills produce tissue products. Of that nine, six of the mills are located in the Fox River Region. Four mills lie in Brown County, two are in Winnebago County, and one each resides in Eau Claire County, Lincoln County, and Marinette County. Some of the more popular name brands produced at Wisconsin mills include Charmin, Quilted Northern, Brawny, Kleenex, and Huggies.

Nineteen mills produce printing, writing and specialty papers in Wisconsin. The 16 plants that produce printing and writing papers are located in Winnebago County (4), Wood County (4), Outagamie County (4), Marathon County (1), Shawano (1), Portage (1), and Marinette County (1). Popular name brands produced at Wisconsin mills include Cross Pointe Bond, Royal Fiber, and Copyrite.

The production of the slippery backing papers for labels is a highly profitable business in Wisconsin and the barriers to entry are high. Wausau-Mosinee Paper Corporation's, Technical Specialty Division mill in Rhinelander is a major producer of this product and its only competitor is International Papers. Major buyers include Avery Dennison and 3M Corp. Other specialty papers are produced at Consolidated Papers in Stevens Point and Nicolet Papers Company in De Pere.

Paperboard, linerboard and tubing stock are all products of pulp and paper mills located in Brown County, Rock County, Winnebago County, Milwaukee County and Lincoln County. Green Bay Packaging in Brown County produces the name brand recycled linerboard, EcoStack.

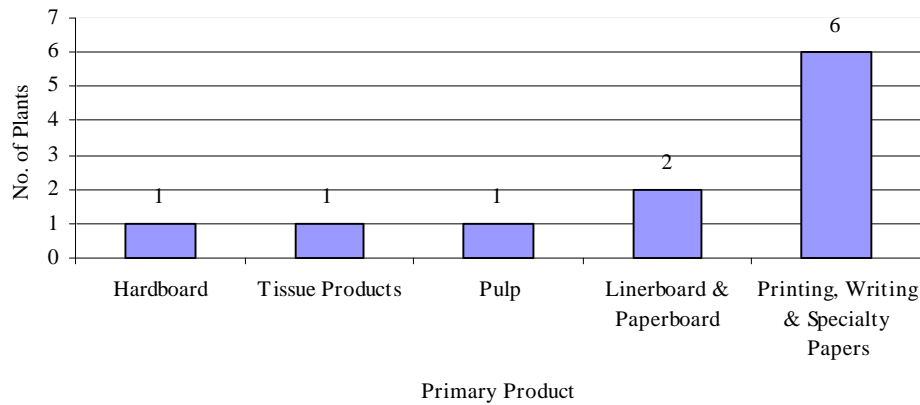
## **UPPER MICHIGAN PULP AND PAPER MILLS**

Of the 11 pulp and paper mills in the Upper Peninsula and Northern Lower Michigan, all but three produce pulp. Only one mill, Great Lakes Pulp Co. in Menominee, is exclusively a pulp mill. This mill produces dried, baled market pulp from mixed office waste. The other mills that produce pulp use it exclusively in the production of paper at the same plant, or use some of the pulp they produce and sell the remaining amount as market pulp. Champion International in Quinnesec and Mead Corporation both sell market pulp in addition to using it internally, while the remaining five mills use the pulp they produce internally.

Ten mills produce one or more paper product, and those products range from hardboard to highly specialized papers. Mead and Champion produce coated papers that are used in a variety of publications. Great Lakes Tissue in Cheboygan produces paper toweling, toilet and sanitary tissue. Manistique Paper, Kimberly Clark in Munising, and Fletcher Paper in Alpena all produce

specialty or technical papers. Two mills produce semi-chemical corrugating medium: Stone Container Corp. in Ontonagon and Tenneco in Filer City. Menominee Paper Corporation makes waxed paper that is sold under the brand name Waxtex. The Fletcher mill in Alpena is one of the smallest in the region, but produces highly specialized products, including onion skin, Bible paper, flame retardant and mold-inhibiting papers, and the like.

Figure 4.2: Pulp & Paper Mills in Michigan by Primary Product Type



The only significant change in the types of products produced at existing mills came in 1997, when Visy Paper shut down one paper machine at the Menominee paper mill, eliminating production of linerboard. The machine remains in the plant at present, and there are no plans for the current owners to re-enter the linerboard market.

The overall product mix produced in Upper Michigan changed with the addition of the Champion International pulp mill in 1985 and a paper machine at the same mill in 1990. In 1997 the Great Lakes Pulp Company’s de-inking mill began production of pulp from mixed office paper. This mill is one of two in the region using recycled paper exclusively as a raw material. Manistique Paper switched from roundwood to recycled paper, primarily magazines, in the 1970s.

## **WISCONSIN CONVERTERS**

The 121 converters in the state of Wisconsin produce products ranging from corrugated shipping containers and fiber cans to sanitary food containers, label backings, and disposable hospital products. In some cases, the converters are niche-oriented. They find there is a market for a specialized product and they build on it.

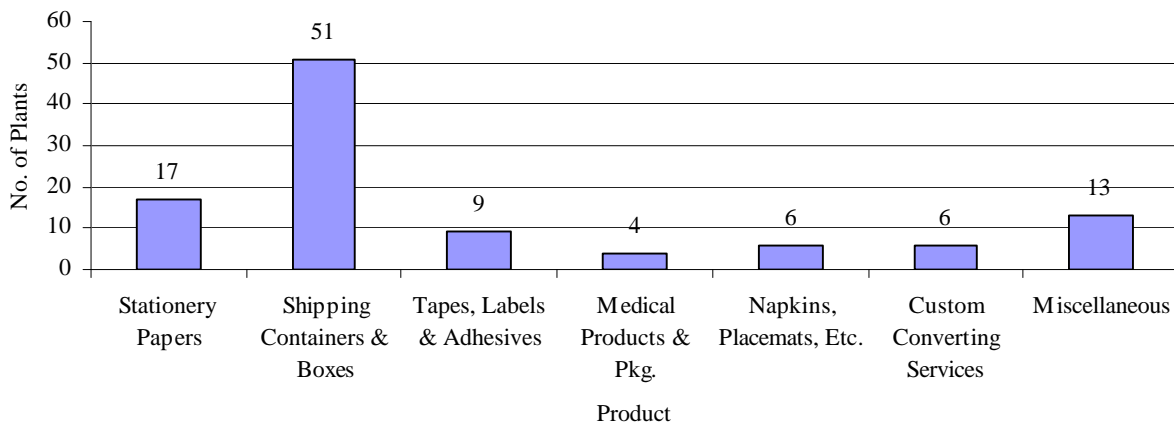
The most prevalent products produced by Wisconsin converters are by far shipping containers and folding boxes which accounts for about half of all the stand alone paper converting operations. Specifically, 51 out of the 106 converters for which information was available, fell into this category. A high percentage of these shipping containers and boxes are of the corrugated type.

Seventeen stand alone converters in Wisconsin produce stationery type paper products including printing papers, envelopes, school papers, and computer papers. Some of these same types of paper are also produced directly by paper mills in Wisconsin.

Appleton Papers, whose parent company, Arjo Wiggins, is the largest maker of fine writing paper in the world, has two converting facilities in Wisconsin, one in Appleton and one in Portage. The NCR brand of carbonless paper is the most widely used in the world and Appleton Papers and their sister companies are its sole producers. Other popular brand names of this type of product produced by converters in Wisconsin include BriteBond computer paper made by Shade/Allied Inc. in De Pere, Arrowhead brand envelopes made by Western States Envelope Co. in Butler, and Colorware school and office papers made by Pacon Papers in Appleton. These are just a few of the many brands produced in Wisconsin.

Other categories of converted paper products produced in Wisconsin include 1) tapes, labels, & adhesives; 2) medical products and packaging; 3) napkins, placemats, etc.; and 4) custom converting services.

Figure 4.3: Wisconsin Converters by Primary Product Type



## **UPPER MICHIGAN CONVERTERS**

The majority of paper converters are located outside of Upper Michigan, as mentioned previously. Only two converters exist in the Upper Peninsula, Bramco Containers and Escanaba Paper Converters. Bramco manufactures corrugated boxes and Escanaba Paper Converters produces a variety of converted paper and paperboard items. In the northern Lower Peninsula, a converter in Traverse City, Tenneco Corrugated Products, manufactures corrugated boxes.

## 5.0 DATE OF PLANT ESTABLISHMENT

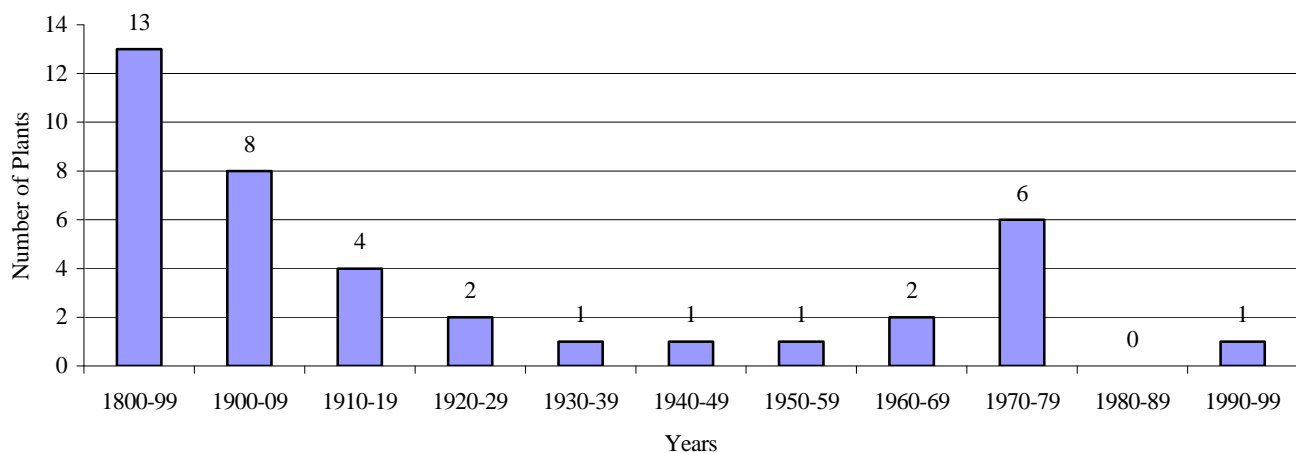
Establishment of pulp and paper mills and paper converters requires a great deal of capital investment. This is especially true of pulp and paper mills that are further constrained by very exacting site requirements related to water, power and air sheds. The more common pattern is for such firms to invest in existing plants, constantly upgrading buildings and equipment.

### WISCONSIN PULP AND PAPER MILLS

The date of plant establishment was available for 39 of the 52 pulp and paper mills in Wisconsin. Of these, a third of the plants were established before 1900. According to the Wisconsin Paper Council, the first paper mill built in the state was in 1848 in Milwaukee producing paper from rags. The first mill built in the Fox River Region was established in 1853 and the first mill built on the Wisconsin River in the Central State Region was established in 1888. Introduction of the groundwood process in 1873 led to establishment of a number of new mills in the following 20 years.

Construction of new mills was particularly active in the 1880s and 1890s. Consolidated Paper's Biron Division mill in Wisconsin Rapids, their Niagara Division mill at Niagara and their Wisconsin River Division mill at Stevens Point were all built in the 1890s. Other mills built during this time period include Appleton Papers Combined Locks mill, Fox River Paper Company's Appleton mill, Fraser Papers mill in Park Falls, Geo. A. Whiting Paper Company in Menasha, Little Rapids Corp.'s mill in Shawano, Nicolet Paper Co.'s mill in De Pere, the Plainwell Tissue mill in Eau Claire, Thilmany's mill in Kaukauna, and the Wausau Paper mill in Brokaw.

Figure 5.1: Date of Establishment of Pulp & Paper Plants in Wisconsin



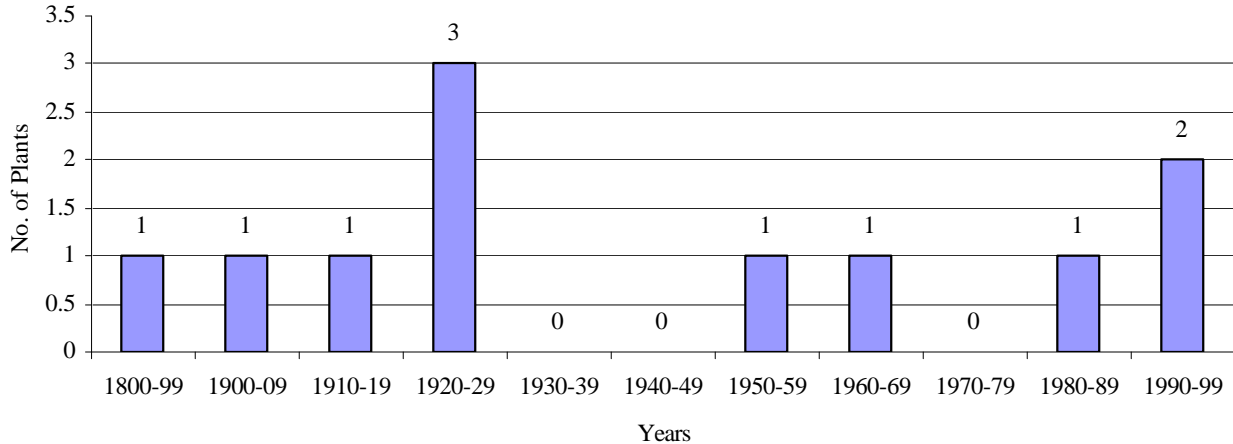
The 1970s were the most recent period when a significant number of pulp and paper mills were established. The six mills established in the 1970s were Fibreform Containers in Germantown, Globe Building Materials in Cornell, Inter Lake Papers in Kimberly, Ponderosa Pulp Products in Oshkosh, U.S. Paper Mills Corp. in De Pere and Wisconsin Paperboard Corp. in Milwaukee.

The most recently established paper industry in Wisconsin was CityForest Corporation in Ladysmith. This firm was a start-up recycled paper mill that purchased a closed pulp mill at that location.

## **UPPER MICHIGAN PULP AND PAPER MILLS**

The date of plant establishment was available for all of the 11 pulp and paper mills in Upper Michigan. Unlike Wisconsin, Upper Michigan has seen more recent establishment of mills. Only one mill in Upper Michigan was established before 1900; the Fletcher Paper Company's mill in Alpena, established in 1875. The first mill established in the Upper Peninsula was Kimberly-Clark's mill in Munising in 1902. Four more Upper Peninsula mills soon followed. Mead Corp.'s mill in Escanaba was established in 1919, Manistique Papers mill in Manistique in 1920, Stone Container Corp.'s mill in Ontonagon in 1923, and Menominee Paper Company's mill in Menominee in 1924. Three plants were established in the last 15 years: Champion International's pulp mill went into production in 1985, and a paper machine was added in 1990; Great Lakes Tissue was established in 1993; and the Great Lakes Pulp Co. recycled pulp mill in Menominee began production in 1996. The same group of investors who built the Great Lakes Pulp Co. mill have announced plans to construct a pulp mill using aspen roundwood as a raw material, but construction of this plant has not begun more than three years after announcement of building plans.

Figure 5.2: Date of Establishment of Pulp & Paper Plants in Upper Michigan



## **WISCONSIN CONVERTERS**

The date of plant establishment was available for 102 of 121 converters in Wisconsin. Unlike pulp and paper mills, converter operations are much more likely to have been started recently. Forty-eight percent of converter operations in Wisconsin were established in the 1960s, 1970s or 1980s. This coincides with the period of increasing consumer choice in product types and styles and increased consumption of such products in the United States.

Plants producing different types of products showed differences in the pattern of date of plant establishment. For example, none of the four converters that produce setup paperboard boxes (SIC 2652) in Wisconsin were established after 1960. The same is true for producers of stationary products (SIC 2678). In contrast, for the 25 plants that listed a date of establishment and corrugated and solid fiber boxes as a product (SIC 2653), 68 percent were established after 1960. Fifty percent of the converters that listed a date of plant establishment and produced sanitary paper products (SIC 2676) were established after 1960. Converters that produce other types of products were less likely to have been established after 1960 compared to all converters as a whole.

The oldest converter plant listed in Wisconsin is Menasha Corporation's Neenah mill which produces corrugated and solid fiber boxes and fiber cans, tubes and drums. The four mills identified as established in the 1990s include Brady, USA Inc. in Milwaukee, Contract Converting in Greenville, Innovative Packaging Corp. in Milwaukee, and Plas-Techs Inc. in Oconto Falls.

### **UPPER MICHIGAN CONVERTERS**

The date of plant establishment was available for two of the three converters in Upper Michigan. Similar to those in Wisconsin, these converters were established more recently compared to pulp and paper plants. Both converters whose dates of establishment are known began operations since 1990.



## **6.0 CAPITAL INVESTMENT**

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The amount of capital investment in pulp and paper mills is an important factor in keeping these mills economically viable. Because of the huge investment required to replace or upgrade outdated machines, mills that have allowed equipment to become outdated can be vulnerable to market downturns. Most of the mill closures and paper machines that have been taken out of production are directly related to the age of the plant and equipment. On the other hand, companies that continually invest in upgrades in order to stay current with new technology and operate as efficiently as possible are better able to compete during market downturns.

### **WISCONSIN PULP AND PAPER MILLS**

Although capital investment figures for most pulp and paper mills in Wisconsin is sketchy, it's still quite evident that a great deal of investment over the past several years has taken place in this industry in the state.

During the 1990s, several mills rebuilt paper machines to expand production capacity and to modify their products. Both Wausau-Mosinee Paper Corp's Rhinelander mill and International Papers' Nicolet Papers De Pere mill invested in the expansion of their specialty backing papers for use in labels. These two parent companies are strong competitors in this market, thus the need for capital investment to remain competitive. As recently as 1999, Wausau-Mosinee Paper Corp's mill in Rhinelander announced approval of a \$45 million project to increase the mills release production.

Other mills have completed or planned capital investments relating to other types of paper production. These investment plans or completed projects include, but are certainly not limited to, the following: a \$25 million investment at Appleton Papers in Combined locks to expand coated free sheet production and another \$150 million expansion to include a new paper machine; the rebuilding of a paper machine that produces premium correspondence and specialty papers for \$24.5 million at Neenah Papers in Whiting; and \$8 million in colored paper process improvements at Wausau Paper Mills in Brokaw.

Paper and pulp mill operations are also investing heavily in technologies to improve treatment of waste products. Wausau-Mosinee Paper's plant in Brokaw spent \$15 million dollars on expansion and modernization of its wastewater treatment plant in 1996 and Little Rapids Corporation in Shawano constructed a "state of the art" wastewater treatment plant in 1994.

High levels of capital investment at mills with pulping operations is occurring as well. CityForest Corp. in Ladysmith invested \$60 million in a new de-inking system and an upgrade of a paper machine in 1998. Consolidated Papers, Wisconsin River Division invested in a peroxide bleaching plant in 1999 and Wausau Paper Mills, Printing and Writing Division in Brokaw spent \$26 million to expand its pulp operations.

## **UPPER MICHIGAN PULP AND PAPER MILLS**

Although most of the Upper Michigan pulp and paper mills were established nearly one hundred years ago, those mills have been consistently upgraded in order to maintain competitiveness. Two of the mills, the Great Lakes Pulp Co. recycled pulp mill in Menominee and the Champion International pulp and paper mill in Quinnesec, are relatively new, coming into production in 1997 and 1985, respectively. Champion's paper machine is even newer than its pulping operation, with paper production starting in 1990.

Capital investments have occurred at both old and new mills. The Great Lakes Pulp Co. constructed a new wastewater treatment facility in 1998, and also improved its odor control systems in order to comply with regulatory requirements. The Champion International mill added new coaters to its paper machine in 1997. The Mead mill in Escanaba, which was established in 1919, has undergone several upgrades. The most recent, at a cost of about \$131 million, upgraded paper machines in 1998. Manistique Papers, established in 1920, just completed a paper machine upgrade costing several million dollars. The Stone Container mill in Ontonagon was upgraded in 1996 with a resulting increase in production of 67 tons per day of semi-chemical corrugating medium.

## **WISCONSIN CONVERTERS**

Unlike the pulp and paper mills, converters tend to be smaller and more specialized. They must be diverse enough to respond to changing markets. Large amounts of capital investment in converters are more common in those facilities that are affiliated with the large corporations like Consolidated Papers, Mead, Champion International, Proctor and Gamble, Georgia-Pacific Corp., Kimberly-Clark Corp., International Paper Co., and other paper giants.

Capital investment figures for converters in Wisconsin were very difficult to obtain. Data on capital investment was available for only two converters in the database for the last five years. This not to say that others did not invest, just that financial information was not readily available. The two converters that data was available for were Central Products in Menasha, a producer of paper sealing and reinforcing tape, who made an investment of \$11.7 million in the last five years and Innovative Packaging Corp. in Milwaukee, a producer of cardboard specialty sheets, who invested \$8.4 million. Innovative Packaging was established in 1997, thus capital investment was probably part of the start-up costs.

## **UPPER MICHIGAN CONVERTERS**

The two converters in the Upper Peninsula were established recently, and have not required any significant capital investments since start-up. Information on capital investment at other converters in the Lower Peninsula was difficult to obtain. In general, the amount of investment required for converters is far less than for pulp and paper mills, but the converters must be ready to respond to changing markets and increased competition more quickly.

## 7.0 OWNERSHIP

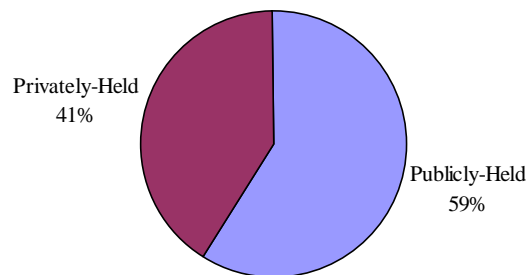
Most mills in Upper Michigan and Wisconsin, and many of the converters in the two state area, are owned by large, multi-national corporations, such as Mead, Champion International, Proctor and Gamble, Consolidated Papers, Georgia Pacific, International Paper and Kimberly-Clark. Most are U.S.-owned except Manistique Papers, which is owned by Kruger, Inc., a Canadian company based in Montreal; Appleton Papers whose parent company is London-based Arjo Wiggins; and Duni Corp, a converter located in Menomonee, whose headquarters is in Sweden. Plants without local ownership are dependent on corporate decision-makers in other, often distant, communities. In some cases, plants in the area serve as a division or area headquarters, or they are owned by a group of investors who do not participate in much of the day-to-day decision-making at the plant in question, but decisions about plant closings, layoffs, new investments, and the like are not made locally.

While the size and diversity of these large companies offer significant advantages to the company, and can increase the stability of local operations, the ties to local communities are often not as strong as with smaller, locally-owned companies.

### WISCONSIN PULP AND PAPER MILLS

Almost 60 percent of the pulp and paper mills in Wisconsin are publicly-held companies. Of these publicly-held companies, only two are actual headquarters to company operations. Badger Paper Mill in Peshtigo serves as a headquarters and Consolidated Papers has its headquarters in Wisconsin Rapids. Four paper mills and one recycled pulp and paper mill are privately-held companies that serve as a headquarters for the company. These privately-held companies with headquarters status are often smaller in size than publicly-held companies.

Figure 7.1: Ownership of Wisconsin Pulp & Paper Mills



Based on data from 46 pulp and paper mills

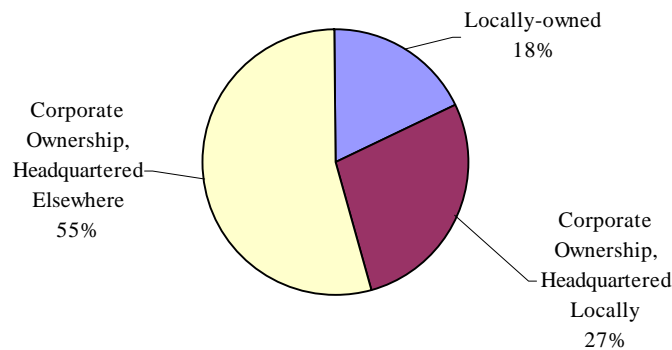
Publicly-held small companies run the risk of being taken over by larger multi-national pulp and paper corporations. Sometimes these takeovers are just a way to increase market share. Badger Paper in Peshtigo is an example of a mill subjected to repeated attempts to force a sale to a larger corporation. Each attempt to date has been thwarted by strong support from local management and stockholders.

Of the nineteen privately-held pulp and paper mills for which data was available, the average number of employees was 179 employees. The average number of employees working in a publicly-held pulp or paper mill was 763 employees. Fibreform Container, Inc., a privately-held company established in 1977 is the smallest mill of this type in Wisconsin with 1997-98 employment of 26.

## UPPER MICHIGAN PULP AND PAPER MILLS

None of the pulp and paper mills in the Upper Peninsula are locally-owned, but two of the four mills in the northern Lower Peninsula are. Fletcher Paper Corporation in Alpena and Great Lakes Tissue Corporation in Cheboygan are two of the smaller companies in the study area, and are both locally-owned. Great Lakes Pulp Company in Menominee was initially a locally-owned company when it opened in 1997, but is currently owned by a group of investors who also own a mill (American Fiber Resources) in West Virginia. A holding company headquartered in Menominee manages the day-to-day operations of both plants, but the investors are located outside the area.

Figure 7.2: Ownership of Upper Michigan Pulp & Paper Mills



In the case of corporations such as Kimberly-Clark, Smurfit-Stone, etc., the mills in Michigan are only a small part of multi-national operations that often encompass a wide variety of products. These companies make decisions to buy, sell, close, downsize or expand individual plants or entire product lines based on the overall goals of the corporation. Mead Corporation's mill in Escanaba is also the headquarters of the Mead Paper Division, which operates mills in Rumford, Maine; Chillicothe, Ohio; and Indianapolis, Indiana, in addition to the Escanaba plant; however, final decisions which can affect the local community are still made at company headquarters in Ohio.

It is interesting to note that a division of the Mead Corporation, Mead Pulp Sales, handles pulp sales for Great Lakes Pulp Co. and American Fiber Resources, as well as sales from Mead plants and other pulp producers.

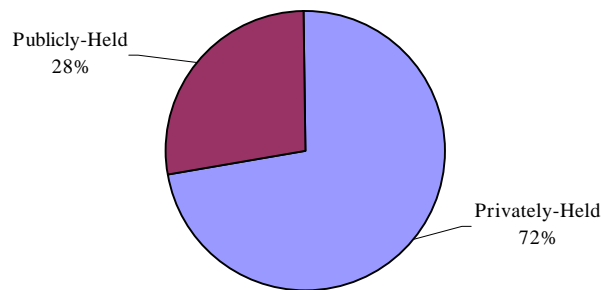
Both Mead and Champion have reinforced their competitiveness through ownership of significant amounts of woodlands in the region. Mead owns about 600,000 to 700,000 acres of woodlands, while Champion owns over 300,000 acres. Both companies obtain a significant amount of raw material from these woodlands.

## **WISCONSIN CONVERTERS**

In the database created for this project, there are 121 converters listed. Of these, 121 converters, ownership status was available for 100 converters. Converters that were publicly-held were generally affiliated with the larger paper companies. Twelve of the privately-held converters are headquarters for their operations. Only three of the publicly-held converting operations were headquarters.

Unlike pulp and paper mills ownership, which was almost 60 percent publicly-held, 72 converters, or 72 percent, were classified as privately-held and 28 converters, or 28 percent, were publicly-held.

Figure 7.3: Ownership of Wisconsin Converters



Based on data from 100 of the 121 converters.

## **UPPER MICHIGAN CONVERTERS**

The two paper converters in the U.P. are small, locally-owned firms, while the one converter in the northern Lower Peninsula is owned by Packaging Corporation of America, a new company formed when Tenneco sold its paperboard business in April, 1999. Other paper converters elsewhere in the state generally tend to be affiliated with a larger company. Packaging Corporation of America owns several plants in Michigan, as does Smurfit-Stone.



## **8.0 MERGERS/ACQUISITIONS AND OTHER PLANT OR PARENT COMPANY CHANGES**

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In recent years, several changes in ownership and management have occurred at mills and converters in the region. Paper companies merge with one another and often close or upgrade the least profitable operations. It is reasonable to expect that such changes will continue to take place in the future and in fact, will continue to accelerate as the level of activity has in the last several years. Companies undertake mergers for a variety of reasons including the desire to increase market share in strategic product lines and to reduce competition within product lines by buying a competitor and reducing production. Another reason for acquisitions and mergers is that it's cheaper and faster to acquire an existing mill than it is to build a new one. Historically, the paper industry's response to a market downturn was to add capacity in anticipation of the next up-tic. More recently focus has been on sales, mergers and acquisitions which can strengthen a company's market share in target product lines and increase its competitiveness without increasing capacity.

At each acquisition or restructuring, fears of plant closings and layoffs occur, and communities often worry about what the effect on the local area will be. Wisconsin's paper industry accounts for the highest payroll of all Wisconsin non-durable goods manufacturers and the loss of these higher paying jobs could have a devastating impact on local economies.

### **WISCONSIN PULP AND PAPER MILLS**

Mergers and acquisitions in Wisconsin's pulp and paper mills, as well as plant and parent company changes have occurred at a frenetic pace in the last five years. Most of these mergers, sales and acquisitions are done to increase market share in the companies product lines or to shed non-strategic product lines.

Wausau-Mosinee Paper Corp., headquartered in Mosinee, is a product of a 1997 merger between two neighboring mills, Wausau Paper Company and Mosinee Paper Corp. Fort Howard and James River merged in 1997 to create the new company called Fort James. This new company took two very large tissue makers and created one giant tissue maker. Even more recently, in 1999, Chesapeake Corp. announced it will create a partnership with its Wisconsin Tissue Mills (Menasha-based) and Georgia-Pacific. This partnership will allow Chesapeake to compete strongly with Kimberly-Clark and Fort James in the commercial-use tissue market.

One of the results of mergers is often a streamlining of the new operation and a reduction in duplication. This could mean layoffs and even plant closures. Under Fort James' merger in 1997, two mills were closed, including one in Ashland where 220 employees lost their jobs. Kimberly-Clark's purchase of Scott Paper Co. in 1995 caused layoffs in Marinette when they shut down two tissue-making machines. They also have plans for phasing out 100 workers in their Neenah operations. In 1995, Consolidated Paper purchased the Niagara of Wisconsin mill, then shut down one of the paper machines in 1999, creating job losses. Since then, Consolidated has announced major capital expenditures for their Niagara Division for the year 2000. American Tissue Corp. purchased the Badger-Globe Mill in Neenah in 1996. Since then, this mill has closed.

Fortunately, not all company changes impact Wisconsin negatively. Appleton Papers plans to move operations from its Newton Falls, New York, mill to its Combined Locks mill where it will spend \$25 million to expand its coated free sheet production capacity.

## **UPPER MICHIGAN PULP AND PAPER MILLS**

Some mills in Upper Michigan have been the subject of recent ownership changes. These include Great Lakes Pulp Company, which (as Great Lakes Pulp and Fibre) filed for Chapter 11 bankruptcy in 1997, not long after production began. The mill never closed or laid off workers, and was purchased by a group of investors who operate two new de-inking plants which produce dried, baled market pulp.

The Stone Container Corp. plant in Ontonagon, which manufactures semi-chemical corrugating medium, was one of several mills potentially affected by the 1998 merger of Stone Container and Jefferson Smurfit to form a new company known as Smurfit-Stone, Inc. The new company reviewed the performance of all its plants, and the Ontonagon mill survived without layoffs, although several mills in the southeastern U.S. were closed.

The Menominee Paper Company has undergone two acquisitions and name changes in recent years. In 1997, Bell Packaging Corporation sold the mill to Visy Papers, a subsidiary of Pratt Industries. Within months, Visy shut down the plant's linerboard machine, leaving only production of waxed paper. This resulted in the layoff of over half the workforce, and linerboard production has not resumed. Speculation locally is that Visy acquired the plant to eliminate competition in the linerboard sector. In early 1998 the plant was sold to a group of investors who also own Cellu Tissue in Connecticut, and the name Menominee Paper Company was restored.

In the northern Lower Peninsula, the ABTCO hardboard plant in Alpena was recently acquired by Louisiana-Pacific as part of the purchase of Louisiana-Pacific's 1999 acquisition of ABT Building Products Corporation. The paperboard mill in Filer City near Manistee, formerly owned by Tenneco, is now part of the Packaging Corporation of America. PCA was created when Tenneco sold its containerboard business in April, 1999.

Less recent mergers and acquisitions in the region include the acquisition of the Ontonagon Stone Container mill from Champion in 1986; the acquisition of Manistique Papers, Inc. by Kruger in 1991; and Mead's purchase of the Escanaba Paper Company mill in 1942.

## **WISCONSIN CONVERTERS**

Converters in Wisconsin have not been immune to acquisitions and sales. Some converter acquisitions occur as a means of increasing the vertical integration within the parent company, others as a means of diversifying the company's holdings. Sales of converter operations generally take place when a company makes the decision to get out of a certain product line or focus on key product lines. The bulk of converter acquisitions and sales occur between pulp and paper parent companies. This is probably due to the fact that 72 percent of converters are privately-owned and less subject to merger activity.

A number of converters have been subject to acquisitions recently. Mosinee Paper Co. acquired B & J Supply, Inc., a producer of school papers, prior to its own merger with Wausau Paper Corp. The result was a new name for the company, Mosinee Specialty Papers. Badger Paper in Peshtigo acquired Plas-Techs in Oconto Falls in 1991 to vertically integrate with their Peshtigo

operations. Consolidated Papers sold the Castle Rock Container Co. in Adams in 1998 when it decided to focus on its core business. In 1999, Great Northern Corporation sold one of its converters, Laminations, in Neenah.

### **UPPER MICHIGAN CONVERTERS**

The two converters in the Upper Peninsula have not been affected by mergers or acquisitions. The converter in Traverse City was a part of Tenneco's former paperboard segment, which was sold and became the Packaging Corporation of America in 1999. Several other converters in lower Michigan were also affected by this sale.



## 9.0 CONCLUSIONS

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Examination of the data and trends in the pulp and paper industry enables us to characterize this industry sector, and potentially define some issues of importance to the communities which depend, to an extent, on the employment and income generated by these plants. While important on a statewide level, the employment in this sector, at the local level, is often a critical part of the local economy. This is particularly true in Upper Michigan due to the fact that pulp and paper mills are huge employers in predominantly rural areas, and in Wisconsin due to the fact that all segments of the industry are highly concentrated.

The pulp and paper industry is cyclical and very heavily dependent on natural resources. Even pulp mills that utilize recycled paper as a raw material, still depend on large volumes of water for the pulping process. Therefore, the availability of natural resources, primarily wood and water, will continue to be an important factor in the siting of pulp and paper mills, and their continued operation. Cost of labor and raw materials, as well as environmental regulation, are also important factors which influence plant profitability. Many of the corporations that own plants in the study area are large, multinational corporations, with plants in South America, Asia, Europe, etc. Mills in the United States find themselves not only competing amongst themselves for market share, but also competing with plants throughout the world, where production costs may be significantly lower.

The trend in ownership away from small, independent, locally-owned plants has taken place gradually over the past 50 years or more, but has accelerated in the past 10-20 years. Very few of the plants in the study area are locally-owned. This has an impact on local economies in several ways. Most important is the fact that decisions about plant closings, layoffs, downsizings, etc., are not made locally, but at some distant corporate headquarters and the ability of local leaders to influence those decisions is lessened. While this is arguably good for the corporations in question, allowing them to streamline and achieve higher levels of efficiency, negative impacts do result. The most obvious is the closing of a plant in a small community with little economic diversity. In many of the rural communities in the study area, the pulp and paper mill is the largest single employer. While the impact of a plant closing or layoff may be a small increase in efficiency at the corporate level, the local impact can be devastating.

A less obvious impact of this trend toward large corporate ownership is the effect on community organizations and what is often termed “community spirit.” Plant managers and senior staff are often very active in their communities, but frequent ownership change often results in frequent changes in personnel. Also, staff at the local level generally lack the ability to commit funds, material, or labor to community causes without getting approval from corporate headquarters.

Over time, construction of new greenfield pulp and paper mills and converters has become increasingly rare. The more common pattern is expansion at and investment in existing locations and plants. There are several reasons for this pattern but primary among them is the increasing stringency of environmental regulations which increase capital costs and increasing concerns about the environment by citizens.

Potential environmental impacts due to air emissions, discharge of water from the pulping process, and other issues are of concern to many residents of communities where new mills are

proposed. A recently established pulp mill in Upper Michigan, for example, has responded to concerns about odors, noise, lighting, and wastewater discharges since starting production. The company has invested millions of dollars in a new wastewater treatment plant and other measures to comply with environmental regulations and respond to community concerns. It is probably reasonable to expect that environmental constraints will increase in the future.

One area where environmental concerns and regulations have had a significant impact on processes used by the industry is in the bleaching area. The industry is increasingly moving to chlorine-free bleaching processes. Use of chlorine in bleaching results in the formation of dioxin, a highly toxic and persistent compound. Ten pulp and paper mills in the study area use a bleaching process which is either totally chlorine-free or elementally chlorine-free. There may be additional mills using a chlorine-free bleaching process among those mills where the bleaching process data was not readily available. In the event that future regulations require the elimination of chlorine from the papermaking process, those mills that already use chlorine-free bleaching will be best prepared to respond.

As evidence of the globalization of the pulp and paper industry, several mills in Michigan and Wisconsin have had ownership changes since 1990, with one mill in Michigan changing hands twice since 1997. As large, multi-national corporations struggle to stay competitive, more mergers and acquisitions can be expected. While these events are beyond the control of local communities, the impacts can be significant. Sale of a plant or division generally is accompanied by close scrutiny of the operation by the acquiring company, and plant closings and layoffs are often related to changes in ownership.

One of the objectives of this study was to identify areas in which communities could potentially develop strategies to either strengthen a plant's ties to the community or to reduce the community's dependence on a single plant. Given the global nature of the pulp and paper industry, local communities are probably limited to provision of public infrastructure needed by the industry and maintenance at community support as the only way to affect decisions related to mills in their community. However, it is important for communities to understand the vulnerability of plants in their area, and identify potential strategies to help strengthen the industry locally or at least prepare for the possible loss of a large employer.

There may be actions which communities can take that will encourage additional capital investment. For example, the infrastructure provided to plants, including transportation systems, utilities, etc., may be in need of improvement. Perhaps local firms can supply a key chemical, or repair machinery, helping to lower shipping costs and reduce downtime for the mill. Tax incentives to encourage new investment may be appropriate in some cases. Additional study is called for to identify potential actions which communities can take to either forge better relationships with existing pulp and paper plants, or diversify local economies to reduce dependence on the pulp and paper sector.

A greater diversity of strategies can be employed to assist the converting segment of the industry given their relatively smaller size and higher level of private and local ownership. Access to capital, technical assistance, and applied research may be areas of interest to converters as forms of assistance where they would not be to the pulp and paper segment of the industry.

In looking at plant closures that have occurred in the study area, it is apparent that the plants which have closed were those with older, inefficient paper machines, and/or with physical plants

which had not been adequately maintained. That is why the amount of capital investment was a key part of this study. If a parent company has consistently invested in new equipment, building upgrades, and new technology, it is less likely that that particular plant will be targeted for closure or cutbacks. Lack of capital investment, especially in an older plant, may be a “red flag” to communities that a particular plant is vulnerable.





## WISCONSIN

Where there is a star before the companies name, the site is listed as the headquarters. Every entry followed by a city is an actual plant. Where an entry is not followed by a city, that is the parent company. The indented companies are separate plants or subsidiaries of the parent company which is left justified. Finally, the pulp and paper mills are italicized and the converters are in normal type.

These are the companies you should be searching for information on.

Ad-Tape & Label Co. Inc. - converter - Menomonee Falls

*American Tissue Mills -paper mill - Neenah*

*American Tissue Mills of Wisconsin Inc. - recycled pulp mill & paper mill - Tomahawk*

American Coating Technology Inc. - converting - Eau Claire

American Packaging Corp, Rotogravure Printing & Lam. Div. - converter - Columbus

\*Appleton Papers - headquarters - Appleton

*Appleton Papers Inc -pulp and paper mill - Combined Locks*

Appleton Papers Inc - converter - Appleton

Appleton Papers Inc - converter - Portage

\*Atlas Tag & Label Inc. - headquarters & converter - Neenah

Badger Packaging Corp. - converter - West Bend

Badger Tag & Label Corp. - converter - Random Lake

*Badger Paper Mills- paper mill - Peshtigo*

Plas-Techs Inc. - converter - Oconto Falls

Baker Paper & Printing Co. Inc. - converter - Plymouth

Beck Carton Corp. - converter - Milwaukee

*Beloit Box Board Co. -paper mill - Beloit*

Bemis Co.

Curwood, Inc. - converter - Oshkosh

Bemis Tape - converter - Oshkosh

Berenz Packaging Corp. - converter - Menomonee Falls

Brady, USA Inc. - converter - Milwaukee

Callenor Co. Inc. - converter - Menomonee Falls

Central Products - converter - Menasha

Circle Inc. - converter - Burlington

*\*CityForest Corp. - recycledpulp mill - Ladysmith*

*\*Consolidated Papers - headquarters - Wisconsin Rapids*

*Inter Lake Papers Inc. -pulp & paper mill - Kimberly*

*Consolidated Papers, Niagara Div. -pulp & paper mill - Niagara*

*Consolidated Papers, Stevens Pt. Div - paper mill - Stevens Point*

*Consolidated Papers, Wisconsin River Div. -pulp & paper mill - Stevens Point*

*Consolidated Papers, WI Rpds & Converting Div. -paper mill & converter - WI Rapids*

*Consolidated Papers, Biron Div. -pulp & paper mill - Wisconsin Rapids*

*Consolidated Papers, Kraft Div. -pulp mill - Wisconsin Rapids*

*Castle Rock Container Co. - converter - Adams*

*Consolidated Papers, Paperboard Products Div. - converter -Wisconsin Rapids*

*Contract Converting, LLC - converter - Greenville*

*Chesapeake Corp.*

*Wisconsin Tissue Mills, Inc. - recycled pulp mill & paper mill - Menasha*

*Converting Inc. - converting - Clintonville*

*Duni Corp. - converter - Menomonee Falls*

*Dunsirn Industries, Inc. - converter - Neenah*

*Duro Bag Mfg. Co. - converter - Hudson*

*Fibreform Containers Inc. -paper mill - Germantown*

*The Fonda Group*

*Hoffmaster - converter - Appleton*

*Hoffmaster - converter - Oshkosh*

*\*Fort Howard Corp. - headquarters, recycled pulp mill & paper mill - Green Bay*

*Fort James Corp., Consumer Products Div. -paper mill - Green Bay*

*Fort James Corp., Food Packaging Paper Plant - converter - Menasha*

*Fort James Corp., Folding Carton Plant - converter - Menasha*

*Fort James Corp., Folding Carton Plant - converter -Neenah*

*Fort James Corp., Folding Carton Plant - converter - Wausau*

*Fox Converting Inc. - converter - Green Bay*

*Fox River Fiber Co. - recycled pulp mill - De Pere*

*\*Fox River Paper Co. - headquarters & paper mill - Appleton*

*Fraser Papers Inc, Park Falls Operation -pulp & paper mill - Park Falls*

*Georgia-Pacific Corp., Communication Papers Div. -pulp & paper mill -Nekoosa*

*Georgia-Pacific, Lionite Products etc, Div. - pulp & hardboard mill - Phillips*

*Georgia-Pacific, Communication Papers Div. -pulp & paper mill - Port Edwards*

*Georgia-Pacific, Industrial Wood Products Div. - pulp & hardboard - Superior*

*Georgia-Pacific, Corrugated Container Div. - converter - Oshkosh*

*Georgia-Pacific, Corrugated Container Div. - converter - Sheboygan*

*P.H. Glatfelter Co., Bergstrom Div - recycled pulp mill & paper mill - Neenah*

*Globe Building Materials -pulp & paper mill - Cornell*

Great Lakes Packaging Corp. - converter - Germantown

Great Northern Corp., Container Group - converter - Appleton

Laminations -converter- Neenah

Great Northern Corp., Display & Container Div. - converter - Racine

*\*Green Bay Packaging Inc. - headquarters & paper mill - Green Bay*

Green Bay Packaging, De Pere Shipping Cont. Div. - converter - De Pere

Green Bay Packaging, Green Bay Shipping Container Div. - converter - Green Bay

Green Bay Packaging, Folding Carton Div. - converter - Green Bay

Green Bay Packaging, Coated Products Div. - converter - Green Bay

Green Bay Packaging, Wausau Container Div. - converter - Wausau

Gusiner Enterprises Inc.

*Filter Materials -pulp & paper mill - Waupaca*

Hamilton Box & Specialty Co. - converter - Milwaukee

Hargro Co.

Lamcote Flexible Packaging - converter - Oshkosh

*\*Hayes Manufacturing Group Inc. - headquarters & converter - Neenah*

Hayes Manufacturing Group Inc, Container Div - converter- Appleton

Ira L. Henry Co. Inc. - converter - Watertown

Inland Paperboard & Packaging, Inc.

Rexford Paper Co. - converter - Milwaukee

Inter Lake Papers

*Refibre - recycled pulp mill - Appleton*

International Paper Co.

*Nicolet Paper Co. -paper mill - De Pere*

*Thilmany -pulp and paper mill - Kaukauna*

International Paper Co., Container Div. - converting - Delavan

International Paper Co., Container Div. - converting - Elkhart Lake

Thilmany - converter - Kaukauna

Akrosil - converter - Menasha

Irving Industries

Erving Paper Products Inc. - converter - Green Bay

K & L Services Inc. - converting - Beaver Dam

Kell Container Corp. - converting - Chippewa Falls

Kendall Healthcare - converter - Green Bay

*Kimberly-Clark Corp. -paper mill -Marinette*

*Badger-Globe Mill -paper mill - Neenah*

*Neenah Paper -pulp & paper mill - Neenah*

*Oshkosh Mill - recycled pulp mill - Oconto Falls*

*Neenah Paper, Whiting Mill Div. -paper mill - Stevens Point*

Leader Paper Products - converter - Milwaukee

\*Little Rapids Corp. - headquarters - Green Bay  
*Little Rapids Corp. -paper mill - Shawano*  
Graham Medical Products - converter - Green Bay

\*Lohall Enterprises, Inc. - headquarters & converter - Milwaukee

Longview Fibre Co., Central Container Div. - converter - Milwaukee

MaraTech International - converter - Wausau

Master Package Corp. - converter - Owen

Mead Corp.  
*Gilbert Paper - paper mill - Menasha*  
Mead Containerboard - converter - Milwaukee

\*Menasha Corp. - headquarters & converter - Neenah  
Menasha Packaging - converter - Green Lake  
Menasha Packaging - converter - Hartford  
Menasha Packaging, Solid Fibre Plant Div. - converter - Menasha  
Menasha Printed Systems - converter - Neenah  
Wide Web Flexo Plant - converter - Neenah

Midland Container Corp. - converter - Racine

Midwest Paper Tube & Can Corp. - converter - New Berlin

Milprint Inc. - converting - Denmark

NCR Corp. - converter - Viroqua

Nelson Container - converter - Germantown

Newark Group Inc.  
*Wisconsin Paperboard Corp. -paper mill - Milwaukee*

Nichols Paper Products Co. - converter - Nichols

Pacon Corp. - converter - Appleton

Panoramic Inc. - converter - Janesville

Paper Box & Specialty Co. - converter - Sheboygan

Papercraft Inc. - converter - Milwaukee

Phoenix Products Co. Inc. - converter - Milwaukee

Ponderosa Fibres of America Inc.  
*Ponderosa Pulp Products - recycled pulp mill - Oshkosh*

*Pope & Talbot Inc. - recycled pulp mill & paper mill - Eau Claire*

Procter & Gamble Paper Products Co.,  
*East river plant -paper mill - Green Bay*  
*Fox river plant -paper mill - Green Bay*

\*Progressive Converting; Inc. - headquarters & converting - Appleton

Quincy Container Corp. - converting - Cedarburg

John Rauschenberger Co. - converter - Milwaukee

\*Riverside Paper Corp. - headquarters - Appleton  
*EcoFibre Inc. - recycled pulp mill - De Pere*  
*Kerwin Paper Co. - recycled pulp mill & paper mill -Appleton*  
CBC Coating Inc. - converter - Appleton  
Riverside Paper Corp. - converting - Appleton

Rock-Tenn Co., Olympic Packaging/Folding Carton Div. - converter - Madison  
Rock-Tenn Co., Folding Carton Div. - converter - Milwaukee

RSW Specialty Tapes - converter - Franksville

School Stationers Corp. - converter - Oshkosh

Semco Products Inc. - converter - Milwaukee

\*Shade/Allied Inc. - headquarters & converter - Green Bay  
Shade/Allied Inc. - converter - De Pere  
Sierra Coating Technologies - converting - De Pere

Sheboygan Paper Box Co. - converter - Sheboygan

Smead Manufacturing Co. - converter - River Falls

Jefferson Smurfit Corp. - converter - Milwaukee

Sohn Mfg. Inc. - converter - Elkhart Lake

Sonoco Products Co., Industrial Products Div. - converter - Menasha  
Sonoco Products Co., Consumer Products Div. - converter - Wausau

The Specialty Packaging Group Inc. - headquarters & converter - Wausau  
The Specialty Packaging Group Inc. - converter -,Plymouth

Stone Container Corp., Corrugated Container Div. - converter- Beloit  
Stone Container Corp., Corrugated Container Div. - converter - Germantown  
Stone Container Corp., Corrugated Container Div. - converter - Neenah

Strathmore Papers  
*Ward Paper Co. - recycled pulp mill & paper mill - Merrill*

Straubel Paper Co. - converter - Green Bay

Superior Specialties - converting - Appleton

Tape, Inc. - converting - Green Bay

*Tenneco Packaging -pulp and paper mill - Tomahawk*

Tenneco Corrugated Products - converting, - Burlington

Tenneco Corrugated Products - converting - Colby

Tenneco Corrugated Products - converter - Milwaukee

Tufco Technologies - converter - Green Bay

Union Camp Corp. - converter - Tomah

U.S. Paper Converters Inc. - converting - Appleton

*\*US. Paper Mills Corp. - headquarters & paper mill - De Pere*

*US. Paper Mills Corp., Menasha Mill Div. -paper mill - Menasha*

Wabash Fibre Box Co./The Weston Paper & Mfg. Co.

Wabash Pioneer Container Co. - converting - Cedarburg

Wausu Coated Products Inc. - converter - Wausau

*\*Wausau-Mosinee Paper Corp. - headquarters- Mosinee*

*Mosinee Paper Corp., Pulp and Paper Div. -pulp & paper mill - Mosinee*

*Wausau Paper Mills, Printing and Writing Div. -pulp & paper mill - Brokaw*

*Wausau Paper Mills, Technical Specialty Div. -paper mill - Rhinelander*

B & J Supply Inc. - converter - Appleton

Mosinee Paper Corp., Converting Div. - converter - Columbus

Western Container Corp. - converter- Beloit

Western States Envelope Co. - converter- Butler

Westvaco Corp., Envelope Div. - converter - Kenosha

*Weyerhaeuser Co. -pulp & paper mill - Rothschild*

Weyerhaeuser Co., Containerboard Packaging 2000 - converter - Manitowoc

*Geo. A. Whiting Paper Co. -paper mill - Menasha*

Williamhouse - converting - Appleton

Winnebago Color Press - converter - Menasha

Wisconsin Converting Inc. of Green Bay - converting - Green Bay

Wisconsin Packaging Corp. - converter - Fort Atkinson

Wright Bros. Paper Box Co. - converter - Fond Du Lac

## MICHIGAN

Where there is a star before the companies name, the site is listed as the headquarters. Every entry followed by a city is an actual plant. Where an entry is not followed by a city, that is the parent company. The indented companies are separate plants or subsidiaries of the parent company which is leftjustified. Finally, the pulp and paper mills are italicized and the converters are in normal type.

These are the companies you should be searching for information on.

AABCO Container Co. - converter - Dearborn

*ABT Guilding Products Corp.*

*ABTco Inc, Hardboard Div. - pulp mill & hardboard mill - Alpena*

A.J.M. Packaging Corp. - converter - Bloomfield Hills

Ace Paper Products Co. - converter - Monroe

Advance Packaging Corp. - converter - Grand Rapids

Advance Packaging - converter - Jackson

Alma Container Corp. - converter - Alma

American Twisting Co. - converter - South Haven

Americraft Carton Group, Inc.

Americraft Carton Inc. - converter - Sturgis

\*Anthony Industries Inc., Simplex Products Div. - headquarters - Adrian

*Simplex Products Div. -paper mill - Constantine*

Simplex Products Div. - converter - Adrian

Arrow Paper Products Co. - converter - Saginaw

Arvco Container Corp. - headquarters & converter - Kalamazoo

Arvco Container Corp. - converter - Cadillac

Atlas Tag & Label, Inc., Michigan Tag Div. - converter - Grand Rapids

Bay Corrugated Containers Inc. - converter - Monroe

*Becker Group Inc*

*American Fibrit Inc. -pulp & paper mill - Battle Creek*

*Bell Packaging Corp., Menominee Paper Div. -paper mill - Menominee*

Bell Packaging Corp. - converter - Grand Rapids

Blossomland Container Corp. - converter - Benton Harbor

*Blue Water Fibre, L.P. - recycled pulp mill - Port Huron*

Bradford Co. - converter - Holland

Cadillac Products Inc. - converter - Troy

CeCorr Inc.

Premier Corrugated Inc. - converter - Jackson

Cello-Foil Products, Inc. - converter - Battle Creek

*The Celotex Corp. - paper mill - L'Anse*

*Champion International Corp. -pulp & paper mill - Quinnesec*

Cherned Corp.

Henry Schine - converter - Troy

Classic Container Corp. - converter - Plymouth

River Rainsin Specialties Inc. - converter - Monroe

Colonial Packaging Corp. - converter - Grand Rapids

Coltec Industries Inc., Farnarm Sealing Systems Div. - converter - Troy

Compak Inc. and Webcor Packaging Corp. - converter - Flint

Custom Converting Co. of Michigan

Norwood Converting - converter - Schoolcraft

Duvall Paper Products Co. - converter - Detroit

Eagle-Picher Industries

\*Fabricon Products - converter- River Rouge

*E. B. Eddy Paper, Inc. -paper mill - Port Huron*

Ennis Business Forms, Inc.

Admore, Inc. - converter - Macomb

F & S Carton Co. - converter - Grand Rapids

Fiber Converters, Inc. - converter - Constantine

Field Container Co, L.P.

*Michigan Paperboard Co. -paper mill - Battle Creek*

Michigan Carton Co. -converter- Battle Creek

*Fletcher Paper Co. -paper mill -Alpena*

Flint Boxmakers Inc. - converter - Flint

The Fonda Group Inc. - converter - Three Rivers

\*Fort James Corp., EPIC Food Packaging Papers Plant - headquarters & converter - Parchment

*Fort James Corp., Paperboard Div. - paper mill - Kalamazoo*

Fort James Corp., Folding Carton Plant - converter - Kalamazoo

Fortifiber Corp. - converter - Howard

*Fournier Group*

*Portage Paper Co., Inc. -paper mill - Kalamazoo*

*French Paper Co. - paper mill - Niles*

General Mill Supply Co.

J.R. Paper Co. - converter - Detroit

Genesee Packaging Inc. - converter - Flint

*Georgia-Pacific Corp., Communication Papers Div. - pulp & paper mill - Kalamazoo*

Georgia-Pacific Corp., Corrugated Container Div. - converter - Milan

Georgia-Pacific Corp., Corrugated Container Div. - converter - Owosso

Golden State Container

\*Northland Container Corp. - converter - Plymouth

Grand Rapids Label Co. - converter - Grand Rapids

*Great Lakes Pulp & Fibre Inc. - recycled pulp mill - Menominee*

*Great Lakes Tissue Co. -paper mill - Cheboygan*

Green Bay Packaging, Kalamazoo Container Div. - converter - Kalamazoo

Greif Bros. Corp., Corrugated Products Div. - converter - Roseville

Greif Bros. Corp. - converter - Taylor

Greif Bros. Corp. - converter - Wayne

Handy Wacks Corp. - converter - Sparta

Illinois Envelope Inc. - converter - Kalamazoo

International Paper, Container Div. - converter - Howell

International Paper, Liquid Packaging Div. - converter - Kalamazoo

International Paper - converter - Sturgis

*IVEX Packaging Corp., IVEX Corp. -paper mill -Detroit*

Jason,Inc.

\*Sackner Products - converter - Grand Rapids

*Jefferson Smurfit Corp., Industrial Packaging Div. - paper mill - Monroe*

*Jefferson Smurfit Corp. - paper mill - Monroe*

Jefferson Smurfit Corp., Industrial Packaging Div. - converter - Saginaw

Jonesville Paper Tube Corp. - converter - Jonesville

Kal Grafx - converter - Kentwood

Kalamazoo Converting - converter - Kalamazoo

Kellogg Co. - converter - Battle Creek

*Kimberly-Clark Corp., Technical Paper Group -paper mill - Munising*

Kraft Container Corp. - converter - Grand Rapids

Kraft Foods, Carton & Container Div. - converter - Battle Creek

Kruger Inc.

*Manistique Papers Inc. - recycled pulp & paper mill - Manistique*

Laimbeer Packaging Co. - converter - Flint

Laimbeer Packaging Co. - converter - Melvindale

Lakeland Paper Corp. - converter - Sturgis

M.C. Industries - converter - Saginaw

Mall City Containers, Inc. - converter - Kalamazoo

\*Mark-Pack Inc. - headquarters & converter - Muskegon

Mark-Pack Inc. - converter - Grand Rapids

*Mead Corp., Publishing Paper Div. -pulp & paper mill - Escanaba*

Mead School & Office Products - converter - Kalamazoo

*Menasha Corp., Paperboard Div. -pulp & paper mill - Otsego*

Menasha Packaging - converter - Coloma

Michigan Box Co. - converter - Detroit

\*Michigan Packaging Co. - headquarters & converter - Mason

Michigan Packaging Co. - converter - Grand Rapids

Modem Packaging Corp. - converter - Monroe

Nagel Paper & Box Co. - converter - Saginaw

New Group Inc.

*Plainwell Paper Co., Inc. -paper mill - Plainwell*

*Nickal Paper Co. -paper mill -Kalamazoo*

*Packaging Papers Group*

*Crown Vantage Inc. -paper mill -Parchment*

*Crown Vantage Inc., Port Huron mill -paper mill - Port Huron*

\*Packing Material Co., Inc. -headquarters & converter- Farmington Hills

Packing Material Co., Inc. - converter - Farmington Hills

Penn Corp.

Beach Products - converter - Kalamazoo

Plymouth Packaging - converter - Battle Creek

Quality Packaging Products, Inc. - converter - Benton Harbor

Rapid-Packaging Corp. - converter - Grand Rapids

Renner-Davis - converter - Kalamazoo

*Rock- Tenn Co., Battle Creek Mill -paper mill - Battle Creek*  
*Rock- Tenn Co. -paper mill - Otsego*

Sanitor Mfg. Co. - converter - Portage

Sappi Group Co.  
*S.D. Warren Co. -pulp & paper mill - Muskegon*

Shoreline Container, Inc. - converter - Holland

*Simplicity Pattern Co., Inc. -paper mill - Niles*

Sonoco Products Co., Industrial Products Div. - converter - Shepherd

*Sorenson Paperboard Corp. -paper mill -Palmyra*

Spartan Paper Board Co. - converter - Kalamazoo

Stewart Sutherland, Inc. - converter - Vicksburg

*Stone Container Corp., Containerboard & Paper Div. -pulp & paper mill - Ontonagon*  
Laimbeer Packaging Co. - converter - Detroit  
Stone Container Corp, Flexible Packaging Div. - converter - Grand Rapids

\*Tecumseh Corrugated Box Co. - converter - Tecumseh

*Tenneco Packaging, Container Products Div. -pulp & paper mill - Filer City*  
Tenneco Corrugated Products - converter - Edmore  
Tenneco Corrugated Products - converter - Grandville  
Tenneco Packaging Hexacomb - converter - Kalamazoo  
Tenneco Corrugated Products - converter - Plymouth  
Tenneco Corrugated Products - converter - Traverse City  
Tenneco Folding Cartons - converter - Wyoming

Tesa Tape Inc. - converter - Sparta

Union Camp Corp., Corrugated Container Div. - converter - Kalamazoo

Universal Container Corp. - converter - Ferndale

Westcott Paper Products - converter - Detroit

Weyerhaeuser Co., Containerboard Packaging - converter - Three Rivers  
Weyerhaeuser Co., Containerboard Packaging - converter - Warren

The Wolf Detroit Envelope Co. - converter - Birmingham