# Aroostook-Washington Economic Development District
# Woods Products Analysis
# Compiled by staff at Northern Maine Development Commission with Assistance from the Aroostook Partnership and the Northern Forest Products Industry Cluster

**Executive Summary:**

The forest sector accounts for 8,275 jobs in Aroostook and Washington counties according to the Maine Forest Economy Report from the Maine Forest Products Council. Those jobs represent from the forest to the mills. Whether cutting dimensional lumber, producing specialty papers, or even niche wood products, the forest cluster represents $8-billion dollars to the Maine economy. Washington and Aroostook counties account for 30 percent of that figure. The region is home to large employers like Twin Rivers Paper Company in Madawaska and Woodland Pulp and Paper in Baileyville, large lumber mills in Nashville Plantation and Masardis, and three large specialty wood products manufacturers in Louisiana Pacific in New Limerick, Huber Engineered Woods in Easton and Columbia Forest Products in Presque Isle. Another major employer is Katahdin Cedar Homes in Oakfield. Smaller operations are found throughout the two county region. Not to be discounted is the role biomass energy plays in the region. Aroostook County is home to two biomass electricity generate facilities and a pellet manufacturer. This report will look at the products currently produced in the region and the potential for future growth.

**Market outlook:**

General economic conditions in the U.S. influence wood products markets. The consensus view from the Survey of Professional Forecasters (Federal Reserve Bank of Philadelphia, November 2014) is that the U.S. economy will continue to improve in 2015 and on into 2016. Real GDP is forecast to grow 3.0 percent in 2015 compared to 2.2 percent in 2014. Forecasters also predict only about a one in twelve chance of experiencing a negative growth quarter for GDP in 2015. Unemployment is forecast to fall to 5.6 percent in 2015 from an average of 6.2 percent in 2014. In 2015, average monthly non-farm employment is predicted to grow at a rate 2.9 percent above the 2014 rate. Inflation is expected to remain low in 2015 at about 2.1 percent.
The general wood products outlook for 2015 is markets are generally expected to improve, but may be more volatile than in 2014. Housing starts were projected to increase in the first half of 2015, but those projections were overly optimistic, with dimensional lumber mills in northern Maine reporting lower demand and high volumes of inventories.

**Individual Company Product Analysis:**

*Twin Rivers Paper*

Twin Rivers Paper Company is a specialty paper company manufacturing high-quality paper, pulp and lumber. The company is one of the largest employers in Northern New Brunswick and Maine with over 1,100 full-time equivalent jobs. Before tax revenue exceeds $23 million per year, with output of over $1 billion per year for the three mills. Operations are certified to the Sustainable Forestry Initiative® (SFI®) fiber sourcing standards, and produces Forest Stewardship Council® (FSC®) chain of custody certified paper.

Twin Rivers manufactures packaging, label, publishing and lumber products for targeted markets and applications and targets their manufacturing capabilities to specific market segments. In so doing the company maintains competitive advantages through the use of innovation and sound product development. Paper products are produced in Madawaska, Maine, pulp operations are located in Edmundston, New Brunswick, Canada and lumber products are produced in Plaster Rock, New Brunswick. The Madawaska plant currently has 5 paper making systems producing over 380,000 tons/year with bleached, sulphite pulp and groundwood pulp supplied by its Edmundston operations with an annual production capacity of 370,000 tons per year.

The Madawaska Paper Mill combines manufacturing flexibility and product development expertise with a strong service platform to best meets the needs of its customers. Of particular note, the Madawaska mill successfully integrates both sulphite and ground-wood pulp as base materials for its paper production, thus yielding excellent printability, "runnability" and paper converting performance. Madawaska also has an on-site product development center, mill-based customer service, and off-site technology center and rewinding equipment.

The Madawaska Paper Mill is part of the integrated East Papers pulp and paper complex which produces a wide variety of specialty packaging, publishing, label and converting papers.

<u>Label Products</u>

Label products include label papers that fall under the trade names *"Alliance® Release"* and *"Alliance® TT".*

- Alliance Release is a silicone coatable release liner offered in a range of calipers for roll label applications by combining high density with an enhanced proprietary coating for a versatile silicone coatable liner. The result is a smooth and uniform surface that ensures optimal silicone mileage, holdout and cure. Excellent dimensional stability and lay-flat properties contribute to proven runnability on high speed stripping and dispensing

equipment. Differential, two-side coating capabilities provide many options for customization. Twin Rivers also offers new basis weights for large format applications. Typical markets for Alliance Release products are Roll Labels, Industrial Tapes, as well as Graphic Applications.

- Alliance® TT is a premium pressure-sensitive face stock engineered with a specialized coating for thermal transfer bar code printing. With a proprietary coating formulation and smoothness, Alliance® TT (thermal transfer) offers high quality image reproduction. Improved brightness (89) and a blue-white shade provide superior contrast for bar code readability. Alliance® TT is designed with high strength properties to deliver performance through printing, laminating, die-cutting and matrix stripping operations. A backside coating imparts curl control and optimizes adhesive holdout and receptivity. Product advantages include:

    - Thermal transfer printability
    - Bar code readability
    - High brightness, blue-white shade
    - Receptive to flood coating and flexographic printing
    - Strength for narrow web printing and high speed matrix stripping
    - Functionality as a pressure-sensitive label
    - Compatibility with a range of thermal transfer (TT) ribbons and printers

    The Alliance® TT stock is primarily used for industrial and logistics bar code labels where printing options include thermal transfer, flexography and flood coating.

<u>Specialty Packaging Paper Products</u>

Twin Rivers Madawaska produces a variety of specialty packaging paper products. Twin Rivers has introduced Acadia® Natural, an environmentally responsible and unbleached lightweight packaging papers that are used in a wide variety of applications such as food service (QSR), retail food, and consumer packaging. Combined with their Acadia® EcoBarrier, a sustainable substrate that's oil- and grease-resistant (OGR), fluorochemical free, recyclable and compostable.

Twin Rivers' Bladepak® is the paper that is designed for strength and durability. Bladepak® is a premium C1S paper that is designed to handle industrial packaging needs. Bladepak® packaging paper delivers excellent print contrast and its smooth finish is ideal for vacuum metalizing and laminating applications. The product is available in varying levels of FDA-compliant post-consumer fiber, weights and wet-strength capabilities.

Acadia® is an uncoated, machine-finished paper used in a variety of packaging applications. Acadia® is regarded as a versatile packaging paper. Acadia® is available with oil and grease resistant properties and customized to specific packaging and converting applications.

Advantages to the Acadia product line include:

- Excellent glueability with aqueous and hot-melt adhesives
- Offers stability and stiffness when laminated to other substrates
- FDA-compliant for direct and indirect food contact
- Structural integrity optimized for converting and filling efficiency
- PFOA-free fluorochemical
- Fluorochemical-free option available
- Available with post-consumer fiber, wet-strength and fiber certification upon request
- Available in a natural fiber

The Acadia line of packaging papers include:

1. Acadia® Dairy Wrap which is an uncoated, machine-finished paper that offers superior oil and grease resistant properties. Typical applications include dairy products such as butter and margarine.
2. Acadia® EcoBarrier is an oil and grease resistant, uncoated, machine-finished paper manufactured without the use of fluorochemicals. Offered in a range of basis weights and available up to KIT 5, Acadia® EcoBarrier provides another OGR option for a wide range of packaging applications. Markets for this paper line include fast food companies.
3. Acadia® Lidding is an uncoated, high-finish paper that offers smoothness characteristics and blister-resistance, making it ideal for lidding applications. Manufactured with proprietary technologies, Acadia® Lidding delivers optimal convertibility with superb printability.
4. Acadia® MicroPop is an uncoated, machine-finished paper that offers excellent convertibility and printability for the outer ply of microwave popcorn bags. With superior oil and grease resistant properties, Acadia® MicroPop blocks stains from permeating the outer package, while delivering excellent print contrast to make your brand stand out.
5. Acadia® Natural is a compostable and recyclable paper made from unbleached pulp. It offers an environmentally-responsible substrate for food packaging applications such as fast-food sandwich wraps, French fry and carry-out bags and basket liners.
6. Acadia® Natural OGR is a compostable and recyclable paper made from unbleached pulp. It offers three levels of oil and grease resistance and is available in wet-strength up to eight percent. It offers an environmentally-responsible substrate for food packaging applications such as fast-food sandwich wraps, French fry and carry-out bags and basket liners.
7. Acadia® Waxing is an uncoated, machine-finished paper that offers the optimal solution for dry and wet wax applications. For dry wax pickup, these papers provide high absorbency. For wet wax holdout, Acadia® Waxing provides excellent holdout. Whether it is dry or wet wax applications, you can count on Acadia® Waxing to deliver superior printability and performance.
8. Allagash™ Bacon Layout is a Quilon-free bacon paper that is designed for easy release of raw and cooked bacon. Its advanced barrier properties provide excellent grease holdout and heat resistance for food service applications.

9. TR Specialty Bag is a premium, uncoated, machine-finished paper that is used in bag applications. These papers maintain stiffness and stability throughout the converting process. With a blue-white shade for superb print contrast, TR Specialty Bag is the optimal paper substrate to make your brand stand out in bag converting applications.

Publishing Papers

A number of years ago, Twin Rivers' scientists developed a proprietary technology that developed a new category of paper called "premium hybrid". Today, the lineup of lightweight publishing papers includes a wide variety of basis weights, brightness levels, shade and PPI ranges. Twin Rivers' publishing papers have proven to be an excellent choice for customers creating reference directories, compliance documents, annual reports and SEC filings.

- Custom Brite® is a line of lightweight opaque papers (LWO) is designed to increase printability, durability, runnability and permanence, it is ideal for financial printing applications. Custom Brite® is made with freesheet content to enhance surface characteristics.

- Custom Supreme® is a line of lightweight opaque papers offering a variety of basis weights, finishes, calipers and choices in shade. Optimized to increase printability, durability, runnability and permanence — ideal for high PPI publishing needs. Made with freesheet content to enhance surface characteristics.

- Border Brite® is an uncoated premium hybrid paper that blends of softwood and groundwood fiber. It is designed to help customers transition to groundwood-containing paper. Border Brite® offers a range of basis weights and category-leading brightness. Engineered to bridge the gap between freesheet and groundwood papers, this paper is formulated with the optimal pulp blend to enhance printability and runnability.

- Bridge Supreme® is a premium hybrid paper that competes with freesheet papers, pioneering a new category of high bright, high performance publishing papers. Available in the industry's lightest weights, Bridge Supreme® delivers yield savings without compromising aesthetics, printability or runnability. Twin Rivers claims it is the best performing groundwood containing paper in the market.

Additional research/due diligence was conducted to determine future product lines however due to restrictions imposed by the company, such information shared during a presentation at the Madawaska plant was cited as "strictly confidential" at this time.

*Woodland Pulp and Paper*

The Woodland mill is located on the international border between Maine and New Brunswick, Canada. The Woodland Mill produces St. Croix Hardwood, utilizing a Kamyr continuous digester and ECF 3-stage bleaching system. The mill is 100% energy self-sufficient.

Woodland St Croix Hardwood is a premium Northern ECF bleached Kraft pulp manufactured using hardwood chips from Maine and New Brunswick, Canada. The primary wood species are maple, birch, beech and aspen.
Woodland St Croix Hardwood combines the fine features of maple with the strength of birch to produce an excellent paper making material. The pulp has excellent optical and surface properties for the production of high-end paper grades. It exhibits good cleanliness, uniform high maple content. Its ease of refining make it ideal for use in low horsepower refiners. Woodland St Croix Hardwood is excellent for coated paper grades, machine glazed, carbonless, as well as bond and copy paper. It is the preferred pulp for coated papers with a closed or smooth printing surface. The high maple content is also suitable for soft tissue applications. The pulp is sold to paper makers all over the world.
Company officials announced a $120 million investment by parent company International Grand Investment Corp. in March of 2014 to install two tissue machines that will be operated by an affiliate, St. Croix Tissue, and employ about 80 people. When both are fully operational by the first quarter of 2016, the machines reportedly will produce 60,000 tons of tissue annually. The investment also is expected to spur 200-300 other jobs not directly related to operating the machines. The first of the two machines was installed as of Aug. 2015.
The new operations will produce “a full range of tissue products” targeted for household consumption and other markets

*Huber Engineered Woods*

Huber Engineered Woods LLC (HEW) in Easton creates innovative specialty products—AdvanTech® flooring and ZIP System® roof and wall sheathing—that provide residential and commercial builders with improved performance, easy installation and greater strength.

The recognized leader in specialty engineered woods in the United States, HEW brings together a team of professionals with experience in research and development, technical services and manufacturing to create products that solve specific problems. The business’ custom manufacturing capabilities provide specialty products for OEM (original equipment manufacturer) customers in the transportation, construction, cabinetry, furniture and other industries.

HEW combines its advanced adhesives and wood product technologies with state-of-the-art manufacturing capabilities. The result is innovative products like AdvanTech® flooring, which offers greater moisture-resistance than plywood and OSB, and has won the #1 Quality Brand Leader award from Builder magazine for a dozen consecutive years

*Louisiana Pacific*

Louisiana Pacific in Houlton produces laminated strand lumber.

LP® SolidStart® LSL has engineered strength that allows for longer spans and greater design flexibility. Available in various sizes, it features:

- Strength: Available in 1.75E grade, the industry's highest grade of LSL.
- Efficiency: Faster installation (buildup not required for 2x4 frame).
- Versatility: Use for floor beams, door and window headers, garage door headers, roof and wall framing, rim board, stair stringers and sill plates.
- Peace of Mind: Consistent low moisture content helps resist twisting, warping and shrinking.
- Sustainability: Wood sourced through programs certified under the Sustainable Forestry Initiative®.

*Columbia Forest Products*

Columbia Forest Products currently manufactures hardwood plywood in seven plants throughout the United States and Canada, including one in Presque Isle. The decorative interior veneers and panels are used in high-end cabinetry, fine furniture, architectural millwork and commercial fixtures. Columbia maintains a strong market presence in every plywood species, core and size category, including veneer core, medium density fiberboard (MDF), combination core and particleboard core. Wood species include ash, birch, cherry, hickory, maple, red oak, alder, walnut and many others.

*Katahdin Forest Products/Katahdin Cedar Log Homes*

Katahdin Cedar log Homes produces roughly 100 log homes per year, utilizing native Cedar trees within a 100-mile radius of its Oakfield mill. In keeping with a no waste policy, Katahdin Cedar Log Homes utilize the entire log. What can't be used for the walls, is used for fencing, posts, pillars and other assorted wood products.

*Dimensional Softwood Lumber Mills*

Aroostook County is home to a number of dimensional lumber operations, from one-person sawmills, to large facilities, which employ upwards of more than 100 people.

Maibec, recently purchased a mill in Masardis, which produces softwood dimensional lumber.

J.D. Irving, built a mill in Nashville Plantation, which also produces softwood lumber.
The $30 million sawmill started operating in June 2014 and today employs 60 people, producing over 100-million board feet of quality, environmentally certified softwood lumber per year. Ashland Sawmill is one of the most modern sawmills in North America and operates the fastest trim line on the continent.

The softwood lumber produced at this new facility will provide customers their choice of products that are environmentally certified under the Forest Stewardship Council® (FSC® C081657) or the Sustainable Forestry Initiative (SFI) programs. The majority of the lumber produced will be sold to major retail lumber yards located throughout the US Eastern Seaboard.

The round wood log supply for the new sawmill will be procured sustainably from the company's Maine freehold woodlands as well as other woodlot and timberland owners in the state.

*Other specialty product mills/pellet mills/hardwood/flooring*

Northeast Pellets is an Ashland, Maine-based wood pellets manufacturer, wholesaler and retailer producing premium wood pellets for home and business from 100% bark-free wood. The sawdust, shavings and chips, purchased from local mills are clean and bark-free. The word "recycled" has been removed from all marketing materials, as it was originally used to indicate that Northeast Pellets was using mill residues, not processing round wood for the purpose of pelleting.

Northern Maine has seen a shift from the predominant softwood economy of the last three decades to hardwood pulp chips, lumber, and value added products. Prior to 1998, no major hardwood lumber mill or chipping facility operated north of Millinocket with the exception of the Houlton Chip Plant. Hardwood logs traditionally went to Canada to be processed. In 1998, Maine Woods Company LLC was started by members of the Pingree Family who desired to manufacture hardwood lumber in Northern Maine, utilizing the hardwood logs harvested from their lands. A state-of-the-art hardwood lumber mill was built in 1999 in Portage, Maine. The goals of establishing the mill were to vertically integrate it with the family's 800,000 acre timberland ownerships located in the state, as well as to manufacture high quality hardwood lumber.

In the beginning, Maine Woods Company employed approximately 40 employees and produced 40,000 board feet of lumber per shift. Today, the complex employs 65 workers and produces over 80,000 board feet of hardwood lumber per shift. Approximately 60% of the total production is kiln dried to customer specifications and further processed as required by the customer. The current annual lumber production is 15 million board feet on a single shift basis, positioning the mill in the top 10 hardwood lumber mills in the U.S. All lumber is certified sustainable by the Forest Stewardship Council®.

At approximately the same time the mill was built, Georgia Pacific acquired leasing rights and built a hardwood chipping facility on the former Great Northern site in Portage, across from Maine Woods Company. When GP sold their Woodland mill to Domtar and closed their Old Town mill, the company had no need for the Portage Chip Plant and shut it down. In 2006, the Pingree family acquired the facility and integrated it with Maine Woods Company. The pulp chip market for the plant has been diversified to minimize risk associated with the current pulp and paper markets. Today the chip plant produces over 300,000 tons of chips each year.

MooseWood Millworks is the latest acquisition by Seven Islands, purchased in June 2012 from Kelly Lumber in Ashland, ME. The mill consists of breakdown, moulding, and warehouse buildings, kilns, and a new biomass boiler. MooseWood currently employs 29 workers and produces over 1.5 million square feet of flooring each year. Sales of flooring average over 1.6

million square feet each year. MooseWood helps to further support management initiatives and provide stable hardwood markets for Seven Islands and is highly integrated with MWC, which supplies low grade lumber to MooseWood to produce flooring.

The Portage and Ashland sites are an excellent — and perhaps the only example — of a fully integrated hardwood manufacturing complex in the Northeastern U.S. Drawing from over 5 million acres of timberlands via an off-road network, the mills are well positioned to support the regional hardwood forest, utilizing over 140,000 cords of hardwood per year.

**Potential new products**

Cross Laminated Timber is a nascent market with significant growth potential in North America. Its use of lumber in projects previously using concrete or steel opens up vast new opportunities to move wood products further into construction. As with any new market it faces challenges, but there is clearly opportunity. The opportunity to provide a market for Maine lumber, while building a manufacturing base to serve customers in the Northeast U.S., is very appealing.

A study previously commissioned by Eastern Maine Development Corporation, Northern Maine Development Commission and the Maine Technology Institute indicated that using assumptions Innovative Natural Resource Solutions LLC believes to be reasonable, a stand-alone greenfield project is not economically attractive to outside investors. However, if a facility can be located at an existing manufacturing site and take advantage of significant synergies, a project may be economically attractive and provide for significant economic development both at the site and through the lumber and in-woods supply chain.
INRS believes that at least three such sites exist in Maine, and there may be more. These potential sites have not been contacted or directly evaluated to assure an appropriate fit and an interest in further development effort, but such efforts could yield positive results.
The development of cross laminated timber manufacturing in Maine has meaningful potential, and would provide rural manufacturing jobs and secure a market for Maine lumber.

A possible product for the pulp mills in the region is nano-cellulose. U-Maine's Process Development Center is the nation's first Cellulose Nanofiber Pilot Plant. Funded through a $1.5 million grant from the U.S. Forest Service, the new facility can produce up to one ton per day of cellulose nanofiber, a material derived from wood chips with commercial potential as a component in foods, composites, transparent flexible films and a wide range of other products. That technology is available for a licensing fee and U-Maine officials say it is preferable to them to work with Maine companies.

**Summary outlook**

Continued weakness in the national economy may lead to more layoffs at paper mills across the state, particularly since some mills have been unprofitable for extended periods. Although indications are both pulp, paper and tissue mills in Aroostook and Washington counties are better prepared to face changing global markets. Lumber has declined approximately 21% over the past three months on concerns of a global economic slowdown. The Federal Reserve cited deteriorating global economic conditions, which could be a major concern in the lumber market. Two of the major lumber mills in the region are reporting excess raw material in the face of soft markets. Mills that produce more specialized products such as veneer, or the increasing popular oriented strand board or laminated strand lumber, face a somewhat brighter future if the new housing market increases. Flooring is estimated to grow by seven percent according to the report, “Flooring Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2015 - 2023". Although a major opportunity for additional value added processing is lost due to restrictive NOx and VOx regulations in Maine. Currently a local flooring manufacturer has to ship product to Quebec to have if finished, which if regulations were equal between regions the additional shipping costs could be avoided. Forest products will remain an important part of the local economy for years to come, but employment in this sector is likely to continue to decline gradually as operations seek ever increasing efficiency and reduction in costs.

**Recommendations**

Special attention is warranted for key facilities in the forest products cluster, including large paper and lumber mills, biomass plants, and specialty manufacturers. Loss of the some of these facilities could severely weaken the cluster in the future. Although there is a variety of products being produced, additional attention needs to be placed on more value added and enhanced research and development.

**Technical Note:**

Information for this report was gathered by information provided at five Northern Forest Products Industry Cluster (NFPIC) meetings, NFPIC Steering Committee Meetings, company visits and interviews, NMDC commissioned research and industry reports. Special thanks to all who have been mentioned but have contributed significantly to the development of this report.