



Photo by Joe Anastasi

The Case for CLT Manufacturing In Maine

Compiled by
Maine Mass Timber Commercialization Center
University of Maine

<https://composites.umaine.edu/key-services/wood-composites/maine-mass-timber-commercialization-center/>

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About the Maine Mass Timber Commercialization Center

The Maine Mass Timber Commercialization Center (MMTCC) was founded in 2017 in direct response to a 2017 Department of Commerce federal interagency Economic Development Assessment Team (EDAT) report on the Maine forest-based economy, specifically Priority “E” of the EDAT report stating: “Invest in the research, development and commercialization of emerging wood technologies”. In particular, the EDAT report singled out the unique opportunity that exists for development of Mass Timber (e.g. cross laminated timber) production in Maine:

“Cross Laminated Timber (CLT) research at the University of Maine is linked to several potential manufacturing facilities seeking east coast locations. Immediately form a collaboration of appropriate parties to promote the siting of a CLT facility in Maine and identify recommendations to incentivize wider use of CLT and possible demonstration projects.”

Through the recommendations of the EDAT, MMTCC was established through a grant with the U.S. Economic Development Administration. Based at the University of Maine, the MMTCC works in collaboration with industrial partners, trade organizations, construction firms, architects, and other stakeholders in the region to support the revitalization and diversification of Maine’s forest-based economy by means of encouraging innovative mass timber manufacturing in the State of Maine. Through science-based research and development at the University of Maine, the MMTCC is actively involved in exploring new applications and design practices for mass timber, with extensive regional outreach activities to increase awareness of mass timber technologies and practices throughout the Northeastern U.S. with architects, engineers, building contractors, investors, legislatures and fire/code officials to increase product demand and adoption.

Maine Mass Timber Advisory Committee Member Organizations:

- American Wood Council
- Becker Structural Engineers
- CHA Architecture
- Consigli Construction
- Fontaine Inc.
- Gray Organschi Architecture
- Hancock Lumber Co.
- Innovative Natural Resource Solutions
- Katahdin Region Economic Development
- Leers Weinzapfel Associates
- LignaTerra Global, LLC
- Maibec Lumber Co.
- Maine Forest Products Council
- Maine Street Solutions
- MaineHousing
- Massachusetts Institute of Technology
- New England Forestry Foundation
- Northern Forest Center
- Northeastern Lumber Manufacturers Association
- Olifant, LLC
- Our Katahdin
- PDT Architects
- Pleasant River Lumber Co.
- Robbins Lumber Co.
- Scott Simons Architects
- SmartLam North America
- Stratton Lumber Inc.
- Thornton Tomasetti
- University of Maine
- University of New Hampshire Cooperative Extension
- University of Southern Maine
- Vermont Sustainable Jobs Fund
- Verrill Dana LLP
- WBRC Architects and Engineers
- Woodworks – Wood Products Council
- Yale School of Architecture

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Table of Contents

- About the Maine Mass Timber Commercialization Center ii
- Maine: The Choice for CLT Manufacturing in the Northeast..... 1
 - Demographics 1
 - Economy..... 1
- Domestic and Regional CLT Demand 2
- Proximity to Markets 4
- Supply of Softwood Sawlogs 6
 - Maine Forest & Timberland Information..... 7
 - Sustainability of Maine’s Forests 7
 - Certified Forests in Maine..... 8
 - Maine Megaregion and County Level Forest Data 10
 - Predicted 50-Year Spruce-fir Wood Supply in Maine 12
- SPF-S Sawmills in Maine..... 14
 - Current Maine SPF-S Mills..... 15
 - Daaquam Lumber Maine, Inc..... 15
 - Irving Forest Products - Ashland 15
 - Pleasant River Lumber Company – Dover-Foxcroft..... 16
 - Pleasant River Lumber Company - Moose River..... 16
 - Stratton Lumber, Inc. 17
- Workforce 18
 - Wood Product Manufacturing Workforce 19
- Infrastructure 22
 - Off-Highway Logging Roads 23
 - Intermodal Truck, Rail & Seaport Facilities..... 23
 - Maine State Highway System 24
 - Seaports 24
 - Rail System 26
 - Terminals and Intermodal Connectors 27
 - Bulk Transload and Warehouse Facilities 28
- State Incentives..... 30
 - Pine Tree Development Zones..... 30

Municipal Tax Increment Financing	31
Business Equipment Tax Exemption Program	31
Research Expense Tax Credit	32
New Market Tax Credits (NMTC)	32
Maine Seed Capital Tax Credit Program	32
Jobs and Investment Tax Credit	33
Opportunity Zones	33
Maine Innovation Partners	34
The University of Maine System	34
The University of Maine	34
The University of Southern Maine	35
Maine & Company	37
Maine Department of Economic & Community Development (DECD)	38
Finance Authority of Maine (FAME)	39
Maine Technology Institute (MTI)	41
Coastal Enterprises, Inc.	42
FOR/Maine	43
Maine Forest Service	44
Maine International Trade Center	45
Regional Forest-Focused Partners	46
Northern Border Regional Commission	46
New England Forestry Foundation	48
Northern Forest Center	49
Workforce Training & Education	50
Public Colleges and Universities	50
University of Maine	50
University of Maine at Augusta	50
University of Maine at Farmington	50
University of Maine at Fort Kent	50
University of Maine at Machias	51
University of Maine at Presque Isle	51
University of Southern Maine	51

University of Maine School of Law.....	51
Maine Maritime Academy	51
Maine Community College System	52
Maine Career and Technical Education Schools	52
Maine Quality Centers	52
Maine Apprenticeship program	52
Workforce Information Services.....	53
Center for Workforce Research and Information.....	53
Economic and Business Development Groups	54
Maine Economic Development Districts.....	54
Other Regional Development Partners.....	54
Maine Small Business Development Centers (SBDCs).....	55
Workforce Development Boards	55
State Workforce Board	55
Central Western Maine Workforce Development Board	56
Coastal Counties Workforce, Inc.....	56
Tri County Workforce Investment Board.....	56
Additional Online Resources.....	57
Maine Forest Service.....	57
Maine Department of Transportation	57
USFS Regional Forest Resource Reports	57
References	58

Maine: The Choice for CLT Manufacturing in the Northeast

The Northeastern U.S. is known for its vast forestlands of commercial softwood timber. Sitting atop this region lies Maine – the most heavily forested state in the nation (as a percentage of land area) containing nearly 26 billion cubic feet of wood. With a unique combination of vast softwood resources and proximity to the large population centers of the Northeastern U.S., Maine’s experienced workforce, sustainably managed private forests and economic development partners are working together to develop a “new forest economy”. By supplementing our traditional products with advanced manufacturing, emerging technologies and new market applications, the goal is to continue Maine’s 400-year history of supplying products to consumers both in our region and the world. This document demonstrates that Maine is well situated, and its many stakeholders are organized and fully supportive of mass timber products.

Demographics

Population	1.38 million
State capital	Augusta
Largest city	Portland
Land area	35,380 sq. miles / 91,633 sq. km
Length of coastline	3,478 miles / 5,597 km
Lakes and ponds	6,000
Forest	17.6 million acres / 6.9 million ha. (89% forest)
Location	Northeast region (includes Boston, New York, Philadelphia, and Washington D.C.) is home to 18% of the U.S. population and generates \$3.75 trillion in annual economic output

Economy

GDP 2018	\$56.7 billion
Median household income 2017	\$56,277
Annual real GDP Growth	1.9%
State budget 2020-2021	\$8 billion
Exports 2018	\$2.8 billion
Imports via Maine 2018	\$3.8 billion

Domestic and Regional CLT Demand

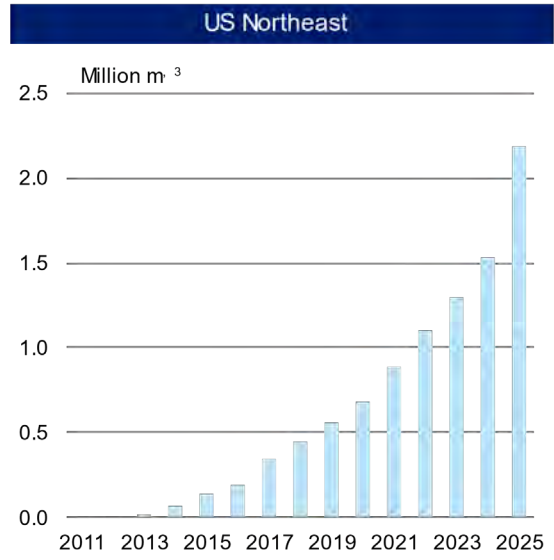
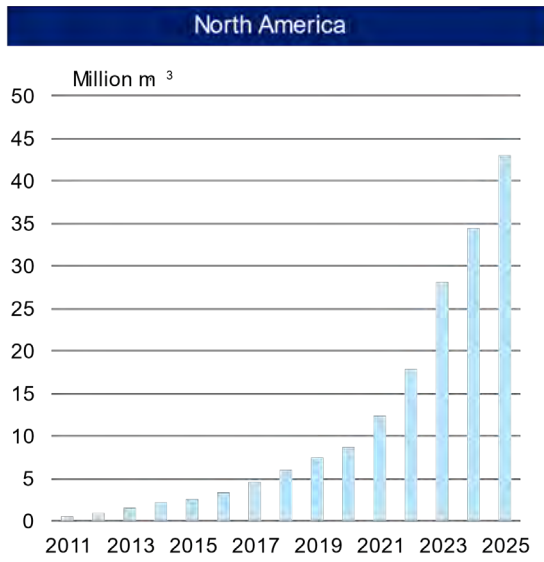
Around the world there are now numerous timber buildings constructed above six stories tall. In the United States, such buildings have been constrained by a strong reliance on prescriptive building code limits and less willingness to use performance-based fire protection engineering. Even with these challenges, mass timber construction has grown significantly; as of June 2019, 599 mass timber projects have been constructed or were in design in the United States, with 88 in the Northeastern U.S.¹ Most of these projects were within the size limits of the prevailing building codes of the time, with others successfully using an (more arduous) alternative means & methods process to go beyond the prescriptive code limits. In January 2019, the International Code Council (ICC) approved a set of proposals to allow certain types of tall wood buildings as part of the 2021 International Building Code (IBC). Based on these proposals, the 2021 IBC will include three new construction types—Type IV-A, IV-B and IV-C—allowing expanded use of mass timber. These new construction types are based on the previous Heavy Timber construction category (renamed Type IV-HT) but with additional fire-resistance ratings and levels of required noncombustible protection. The code will include provisions for up to 18 stories of Type IV-A construction for Business and Residential Occupancies. These code changes will be instrumental in increasing demand for mass timber products such as CLT.

With the adoption of the revised 2021 IBC standards, there are clearly defined national specifications and criteria for implementing mass timber into a variety of construction types to eliminate confusion and increase clarity to building code officials and architects in every state. These revisions will create market opportunities throughout the Northeastern United States as more code officials, architects, engineers and builders gain familiarity with the technology. To date, two states (Oregon and Washington) have been early adopters of these 2021 tall wood code provisions. There are significant efforts currently taking place by several organizations to educate building code officials, Fire Marshalls, architects and contractors on these code updates and the building system opportunities afforded by CLT construction methodologies across the nation and in the Northeastern region. An advisory committee of the Maine Mass Timber Commercialization Center is currently in discussions with officials in Maine on the subject as well.

Figure 1 outlines the predicted growth of cross-laminated timber in North America and the Northeastern U.S. As these predictive models were established prior to the adopted revisions of the IBC, it is reasonable to expect a potentially greater rate of growth due to the clarity of code adoption provided to code agencies and architects.

¹ Source: WoodWorks

Figure 1: Predicted North America and Northeast CLT Demand (Source: Poyry, 2017)



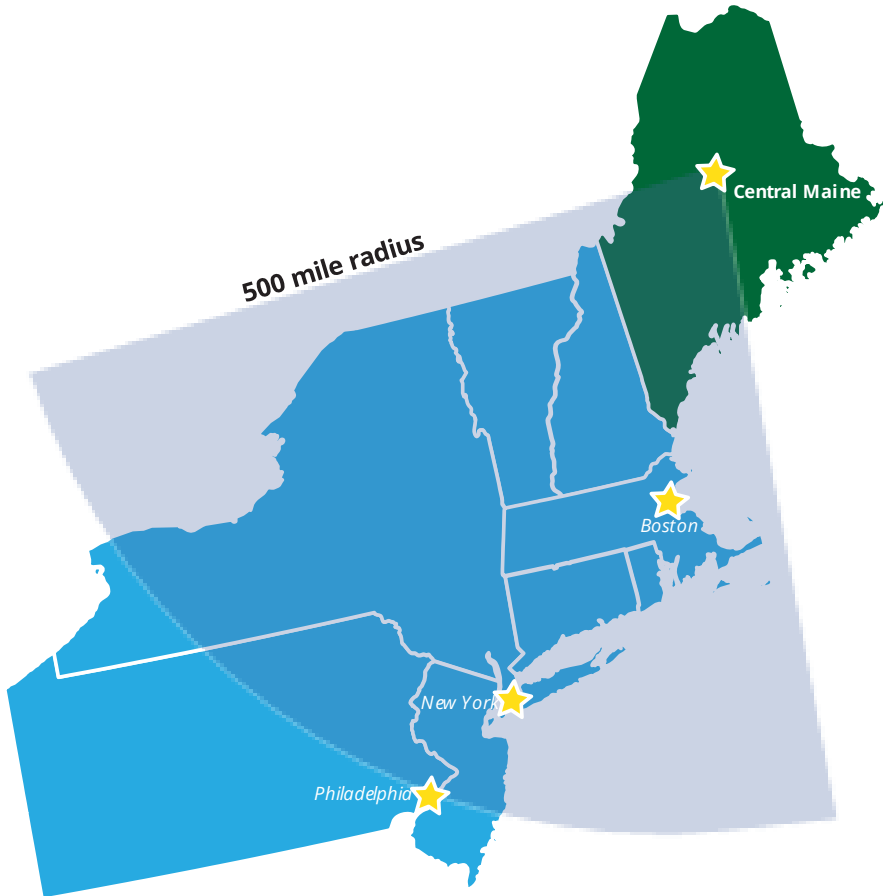
Proximity to Markets

The Northeastern United States contains over 56 million people, with nearly 20 million located in the Greater New York Metropolitan Area. Most of the large population centers within the Northeastern United States fall within 500 miles of the geographic center of Maine (Table 1 and Figure 2). This allows mass timber harvested and manufactured in Maine to be eligible for LEED regional materials status with the U.S. Green Building Council.

Table 1: Major Metropolitan Regions, Northeastern U.S.²

Metropolitan Region	2018 Population Estimate	Distance to Central Maine
Boston, MA	4,875,390	234
New York-Newark-Jersey City, NY-NJ	19,979,477	437
Philadelphia, PA-NJ	6,096,372	500

Figure 2: Relation of Central Maine to Major Northeastern Markets



² Source: US Census Bureau

Supply of Softwood Sawlogs

For CLT manufacture, availability and access to spruce-pine-fir-south (SPF-S) lumber is critical. There are 10 species that make up the SPF-S grouping in the U.S. with the eastern half containing red (*Picea rubens*), black (*Picea mariana*), and white spruce (*Picea glauca*), Norway (*Picea abies*) spruce, balsam fir (*Abies balsamea*), jack (*Pinus banksiana*) pine, and red (*Pinus resinosa*) pine. Based on the USDA 2018 FIA data, there are nearly 3 billion cubic feet of spruce-fir and 140 million cubic feet of red pine sawtimber on Maine's timberland. Within the Northeast, Maine has the highest volume and concentration of accessible spruce-fir and red pine sawlogs.

Figure 4 shows the county-level density of available SPF-S sawlogs on timberlands throughout the Northeastern U.S., indicating the highest concentrations throughout Maine.

Figure 4: SPF-S Sawlog Availability in Northeastern U.S., by County (Source: USDA)

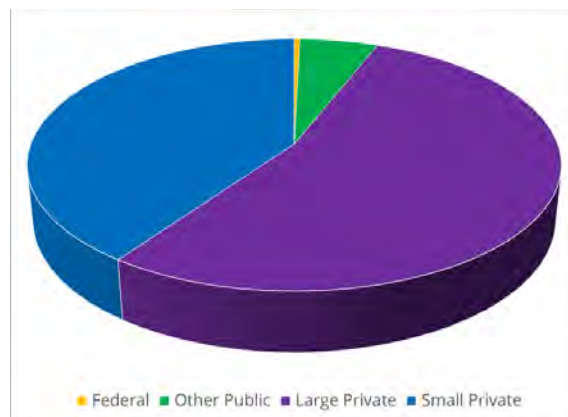


Maine Forest & Timberland Information

Maine has the largest percentage of timberland acres of any state (85%). At 16.7 million acres, Maine has the largest amount of timberland acres of any state in the Northeast, providing accessible timber resources to supply a CLT facility.

Contrary to land ownership in the Western United States, very little of Maine's timberlands are owned by the government. The timberland acreage of Maine is primarily privately owned (94%) with large private corporations consisting of 60% of the private land holdings (Figure 5). Unlike other regions where large harvesting operations on State or Federal lands often leads to legal action, Maine's private forests allow for simplified commerce. The long-standing culture of Maine supports active forest operations and the concept of working forests.

Figure 5: Timberland Ownership in Maine, by Category



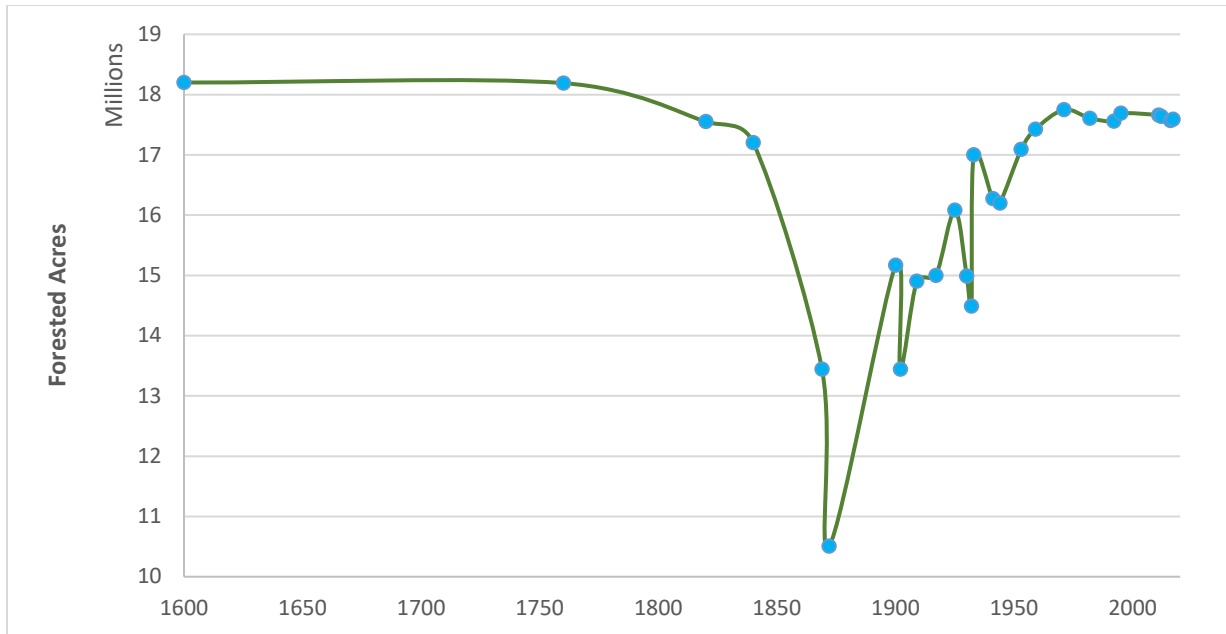
Sustainability of Maine's Forests

The state of Maine has historically been proactive regarding the stewardship of our forests. For the last 150 years, there has been a strong public awareness of the unique value of maintaining our forest resources in a sustainable manner. 98% of Maine's forest growth is naturally regenerated, maintaining forest diversity and increasing resilience to pests and disease. In addition, 97% of Maine's logging activities are centered around partial harvesting and shelterwood harvesting, not large-scale clearcutting, with separation zones and setbacks to reduce impacts to soil, ecology, watersheds and wildlife. These activities help to maintain our forest biodiversity (over 65 different tree species), support over 20,000 species of wildlife, and maintain a high level of water quality.

Figure 6 outlines the acreage of forests within Maine over the last 400 years. Upon European settlement of Maine in the 1600's, the state was 92% forested (Barton, 2012). By 1872, Maine's forested acreage reached a low of 10.5 million acres (Whitman, 1873). Beginning in the mid-1850s, the United States Conservation Movement increased public awareness of our natural resources, inspiring Maine's citizens, landowners and legislatures to return the state back towards its historical forested nature. While there were dips in the forested acres in Maine coinciding with the resource demands associated with World War II and the Great Depression, the state was able to return to a forested level near 90%. Given the

economic value of the Maine forest resource to the state, the fact that the forest land base has remained relatively consistent for over 60 years contributes to a stable economic resource base.

Figure 6: Forested Acreage History of Maine (Source: Barton, 2012)



Certified Forests in Maine

As of 2018, nearly one half of all Maine’s timberlands are certified under one or more certification agencies (Table 2). The value of forest certification is that the quality and sustainability of the forest management and harvesting practices are assessed and monitored by a third-party agency. Forest certification, and associated labelling, is a way of informing consumers about the sustainability of the forests from which wood and other forest products were produced. Most forest management certification standards address a wide range of economic, social, environmental and technical aspects of forest management, including the well-being of workers and of families living in and around the forest area subject to certification. As environmental factors become more important in consumer purchasing decisions (sustainability; carbon sequestration), CLT and other building products produced from certified wood will factor into product selection.

For more information on the various forest certification programs, refer to the following web links

Forest Stewardship Council (FSC) - <https://us.fsc.org/>

Sustainable Forestry Initiative (SFI) - <https://www.sfiprogram.org/>

American Tree Farm System (ATFS) - <https://www.treefarmssystem.org/>

Table 2: Certified Forests in Maine, 2018 (Source: Sirois, 2018)

Certified Land Manager	SFI Certification Acres	FSC Certification Acres	Dual Certification Acres	SFI Only Acres	FSC Only Acres	ATFS Acres	Total Acres
BBC Land LLC	969,434			969,434			
Conservation Resource Partners, LLC	221,797			221,797			
Fallen Timber LLC	135,097			135,097			
Hilton Timberlands, LLC	45,368			45,368			
J.D. Irving Limited	1,247,880	1,255,000	1,247,880		7,120		
Katahdin Forest Management LLC	300,000			300,000			
Landvest, Inc.	317,000	27,614	27,614	289,386			
Maine Bureau Parks and Lands	632,365	632,365	632,365				
Pingree Associates	830,807	836,471	830,807		5,664		
Prentiss & Carlisle	777,341	743,376	743,376	33,965			
Rayonier USFR	124,495			124,495			
The Conservation Fund	36,975	5,947	5,947	31,028			
Wagner Forest Management, Ltd	1,020,393	731,684	731,684	288,709			
Weyerhaeuser Company	839,100			839,100			
Downeast Lakes Land Trust		55,576			55,576		
Trust to Conserve Northeast Forestlands		3,682			3,682		
New England Forestry Consultants Inc		7,636			7,636		
Mid-Maine Forestry		8,126			8,126		
Baskahegan Company		118,193			118,193		
The Nature Conservancy		228,251			228,251		
Subtotal	7,498,052	4,653,922	4,219,673	3,278,379	434,249	375,000	8,307,301
Total							

Maine Megaregion and County Level Forest Data

Figure 7 outlines the four megaregions of Maine with the inclusive counties.

Figure 7: Forest Inventory and Analysis (FIA) Megaregions of Maine (McCaskill et. al, 2016)

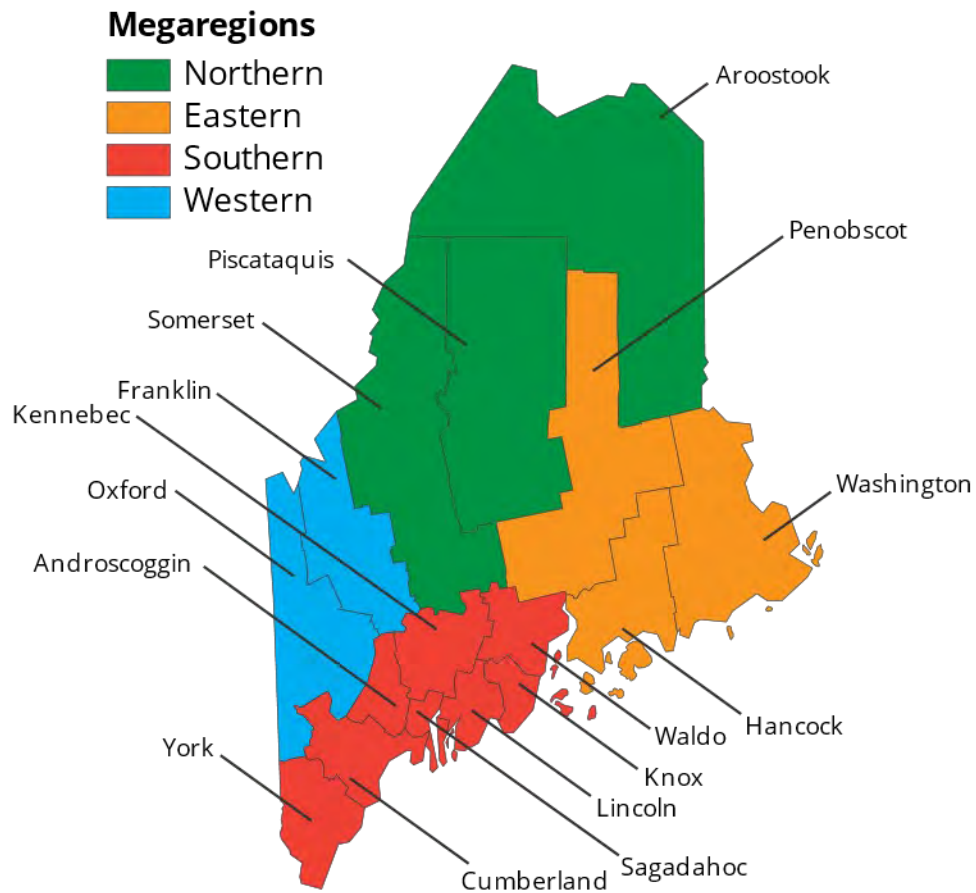


Table 3 outlines the distribution of land area and timberland acreage in Maine and by Megaregion, with the percentage of each Megaregion's timberland are determined based on the state total. The important points to note are:

- The Northern Megaregion (Aroostook, Somerset, and Piscataquis counties) accounts for nearly half (48%) of all of Maine's timberland acreage
- The majority of Maine's timberland acreage are contained within the Northern, Eastern and Western Megaregions, with timberland concentrations over 85%
- The Southern Megaregion counties (with major population centers) coincide with the lowest levels of timberland acreage

Table 3: Forest and Timberland Distribution in Maine, by Megaregion (USDA 2018)

Region	Land Area (acres)	Timberland (acres)	% Timberland	% Maine Timberland
Maine	19,718,493	16,763,654	85.0%	
Megaregion				
Northern	9,300,854	8,173,961	87.9%	48.8%
Eastern	4,822,952	4,169,430	86.4%	24.9%
Southern	3,189,124	2,266,960	71.1%	13.5%
Western	2,405,560	2,153,303	89.5%	12.8%

Figure 8 shows the timberland density of spruce-fir and white/red pine in Maine on a tons/acre basis, emphasizing the availability of Spruce-fir in the Northern, Western and Eastern megaregions, with high concentrations of white/red pine in the Southern and Eastern Megaregions. Note that while red pine is part of the SPF-S lumber grouping, white pine is not.

Figure 8: Density of Spruce-fir and White/Red Pine on Maine Timberlands (Source: Sewall, 2018)

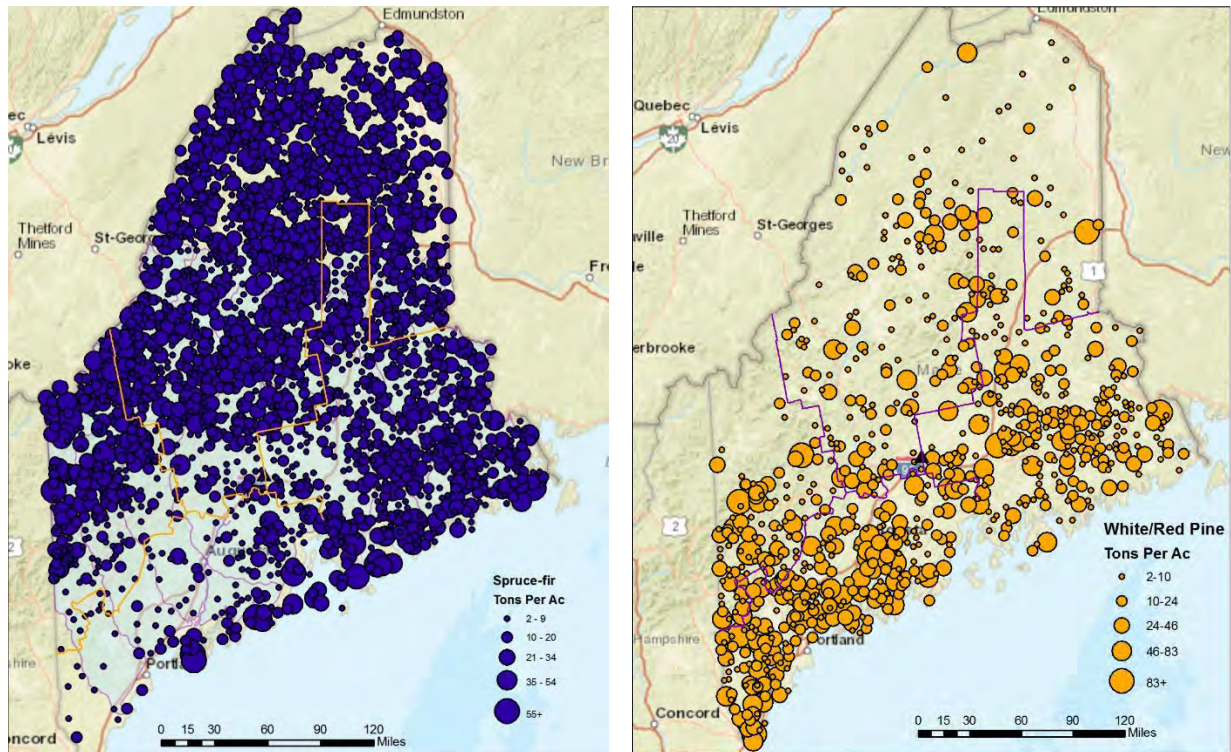


Table 4 outlines the net sawtimber availability of spruce-fir and red pine in Maine and by Megaregion. All four of Maine’s megaregions provide significant levels of spruce-fir sawlogs, while the Eastern, Northern and Southern Megaregions provide the highest levels of red pine sawlogs.

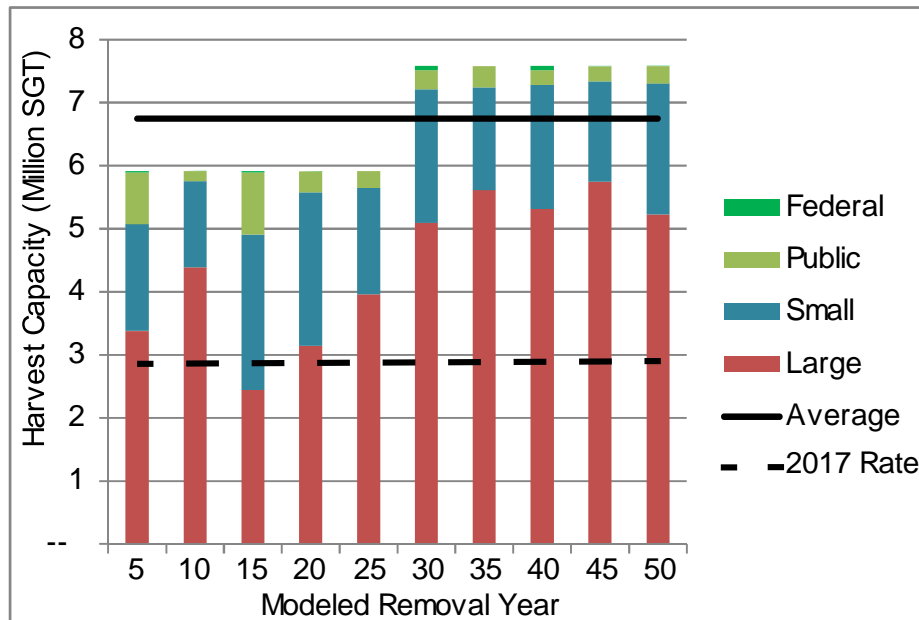
Table 4: Net Spruce-fir and Red Pine sawlog volume of sawtimber trees, in cubic feet, on timberland (Source: USDA FIA 2018)

Region	Spruce-fir		Red Pine	
	Sawlogs (ft ³)	Sawlog Density (ft ³ /acre)	Sawlogs (ft ³)	Sawlog Density (ft ³ /acre)
Maine	2,876,978,806	172	138,367,984	8.3
Megaregion				
Northern	1,532,787,635	188	67,864,816	8.3
Eastern	755,310,439	181	43,379,762	10.4
Southern	187,229,253	83	17,642,034	7.8
Western	401,651,479	187	9,481,372	4.4

Predicted 50-Year Spruce-fir Wood Supply in Maine

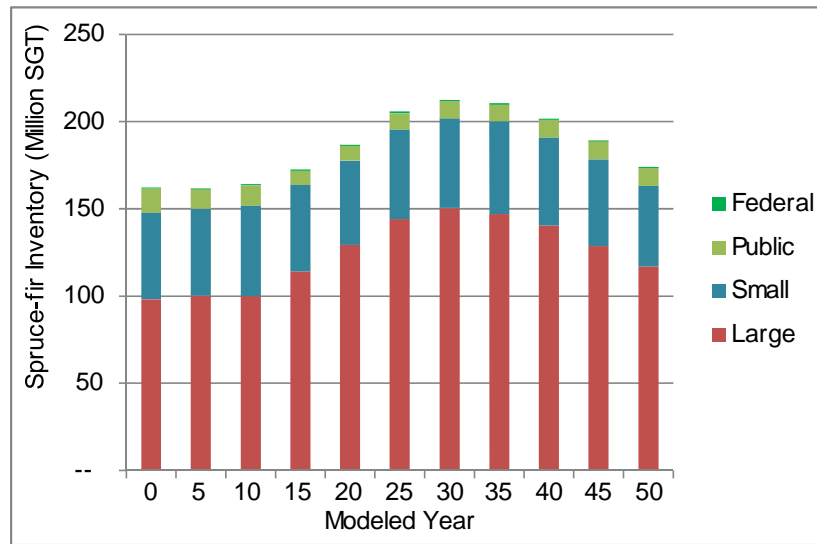
In 2018, Maine’s Forest Opportunity Roadmap (FOR/Maine) commissioned the James W. Sewall Company to conduct a wood volume projection study on Maine’s forests. In this analysis, a variety of species of wood were evaluated for their potential sustainable harvest levels to determine the state’s capacity to increase production. In the modeling criteria, harvest levels were permitted to increase over the state’s 2017 level, and inventories at the end of the 50-year analysis had to remain greater than or equal to starting inventories. Figure 9 outlines the potential short green ton harvest rates (by landowner type) for spruce-fir in Maine over the 50-year period. These increased potential harvest rates have become possible in Maine through the closure of several paper mills in the state which were significant historical consumers of SPF-S species. This creates an opportunity for new technologies and industries to utilize a resource which was otherwise committed to the manufacture of newsprint and bonded paper.

Figure 9: 50-Year Spruce-fir Harvest Rate by Landowner Type (Source: Sewall, 2018)



Similarly, the 50-year spruce-fir inventory levels were modeled to maintain a sustainable growth rate within the state (Figure 10).

Figure 10: 50-Year Spruce-fir Inventory Levels by Landowner Type (Source: Sewall, 2018)



Next, the type of wood harvested was separated into sawtimber and pulpwood. The current mix of spruce-fir inventory in Maine ranges from 70-98% sawtimber depending on the mill specifications for roundwood. Utilizing the “worst-case” of 70% sawtimber, the average potential harvest in Maine by category over the next 50 years is outlined in Table 5.

Table 5: 50-Year Potential Harvest Levels of Spruce-fir in Maine

Studwood Specifications	7" dbh - 16'6" min to a 5.0 top		5" dbh - 8'6" min to a 4.0 top	
	Year 1-25	Year 26-50	Year 1-25	Year 26-50
Pulp Only (sGT/year)	1,733,122	2,244,564	115,541	149,638
Sawable (sGT/year)	4,043,952	5,237,317	5,661,533	7,332,244
Total	5,777,074	7,481,881	5,777,074	7,481,881

In short, Maine can increase spruce-fir harvesting by over 2.8 million short green tons over the next 25 years and by 4.5 million short green tons over the 25 years following with no loss in current inventory levels (Table 6), pointing to sustainable inventory capacity for the addition of new mass timber manufacturing in Maine.

Table 6: Potential Spruce-fir Harvest Increase Volumes Compared with 2017 Actual Harvest Rates

Harvest Type	Volume (sGT)	Potential Increase (sGT)
2017 Harvest ¹	2,910,810	
Year 1-25 Harvest ²	5,777,074	2,866,264
Year 26-50 Harvest ²	7,481,881	4,571,071

Source: ¹Maine Forest Service Wood Processor Report, 2018

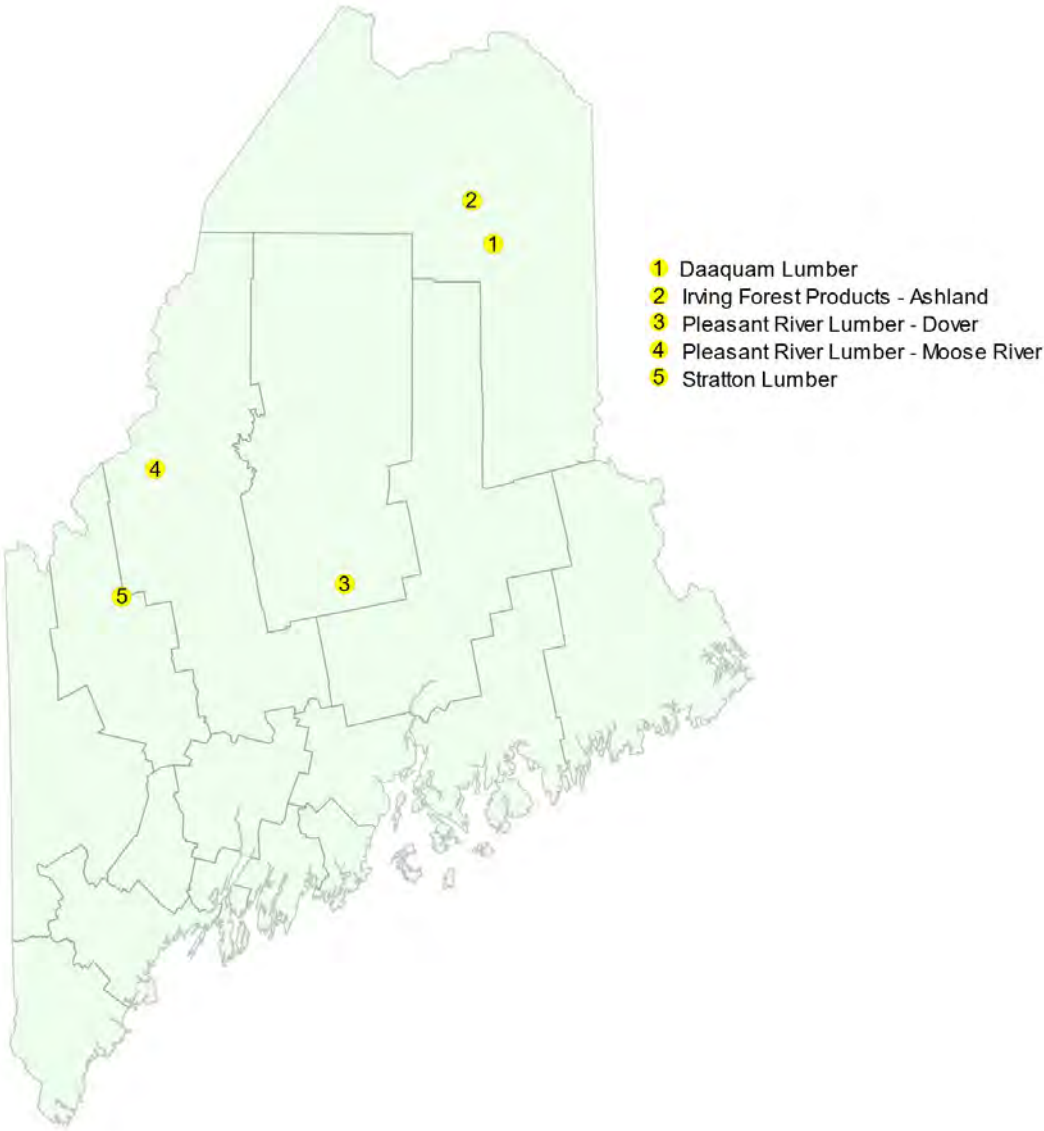
²Sewall, 2018

SPF-S Sawmills in Maine

Figure 11 shows the current spruce, pine, and fir south (SPF-S) mills in Maine who are members of the Northeastern Lumber Manufacturer’s Association (NeLMA). These are the current mills in Maine which could support a CLT facility and represent roughly 500 MMBF of lumber annually. With over 2.8 million green tons of sustainably harvestable spruce-fir sawlog capacity in the state available over current sawmill demand, the state can support five or more sawmills (depending on design capacity). Currently, SPF-S is a qualified species group for CLT (V4 grade, as listed in ANSI/APA PRG-320, Standard for Performance-Rated Cross-Laminated Timber). In addition, the University of Maine is currently qualifying two new CLT grades utilizing SPS-S lumber.

Information on each mill site is outlined in the sections below.

Figure 11: NeLMA SPF-S Sawmills in Maine (Source: NeLMA)



Current Maine SPF-S Mills

Daaquam Lumber Maine, Inc.

Mill Info 1200 Masardis Road, Route 11
Masardis, ME 04732
P: (207) 435-6401
F: (207) 435-6117

Contact 1 Janick Bouffard, Sales Representative
P: (418) 571-5465

Contact 2 Phil Nadeau, Shipping Manager
P: (207) 435-6401 X102

Production ANNUAL PRODUCTION: 100 MMBF
GRADE STAMP: 155
SERVICES: Manufacturer
SPECIES: SPFs, Balsam Fir, Assorted Spruce
PRODUCTS: FSC Certification, MSR Lumber, Structural Grades, Heat Treatment, Kiln Drying

Irving Forest Products - Ashland

Mill Info 1218 Portage Road
Nashville Plantation, ME 04732
P: (207) 435-3132
www.jdirving.com

Contact 1 Christian Gilbert, Sales Manager, Spruce
P: (506) 632-6331
gilbert.christian@jdirving.com

Contact 2 Scott Schryer, Spruce Sales
P: (506) 632-5133

Production ANNUAL PRODUCTION: 100 MMBF
GRADE STAMP: 011
SERVICES: Manufacturer
SPECIES: Eastern Spruce - Balsam Fir, SPFs
PRODUCTS: Structural Grades, FSC Certification, Kiln Drying, Heat Treatment, SFI Certification

Pleasant River Lumber Company – Dover-Foxcroft

Mill Info 432 Milo Road
Dover-Foxcroft, ME 04426
P: (207) 564-0242
F: (207) 206-7257
www.pleasantriverlumber.com

Contact 1 Jason Brochu, Co-President
P: (207) 564-8520
jason@pleasantriverlumber.com

Contact 2 Bill Ossenfort, V.P. Sales
P: (207) 564-0242

Production ANNUAL PRODUCTION: 90 MMBF
GRADE STAMP: 098
SERVICES: Manufacturer
SPECIES: SPF's
PRODUCTS: Structural Grades, FSC Certification, Dimension Lumber, Kiln Drying, Heat Treatment, Boards, Rough Sawn Lumber, Furring Strips

Pleasant River Lumber Company - Moose River

Mill Info 25 Talpey Road
Jackman, ME 04945
P: (207) 564-0242
F: (207) 206-7257
www.pleasantriverlumber.com

Contact 1 Jason Brochu, Co-President
P: (207) 564-8520
jason@pleasantriverlumber.com

Contact 2 Bill Ossenfort, V.P. Sales
P: (207) 564-0242

Production ANNUAL PRODUCTION: 85 MMBF
GRADE STAMP: 054
SERVICES: Manufacturer
SPECIES: SPF's
PRODUCTS: Structural Grades, Dimension Lumber, Kiln Drying, Heat Treatment, Timbers, Boards, Rough Sawn Lumber, Furring Strips

Stratton Lumber, Inc.

Mill Info 66 Fontaine Road
Stratton, ME 04982
P: (207) 246-4500
F: (207) 246-3253

www.fontaine-lumber.com

Contact 1 Nicolas Fontaine, President
P: (207) 246-4500

nfontaine@fontaine-lumber.com

Contact 2 Michael LoPresti, Vice President of Sales
P: (845) 562-0362

Production ANNUAL PRODUCTION: 60 MMBF

GRADE STAMP: 104

SERVICES: Manufacturer

SPECIES: SPF's

PRODUCTS: Structural Grades, FSC Certification, Kiln Drying, Heat Treatment

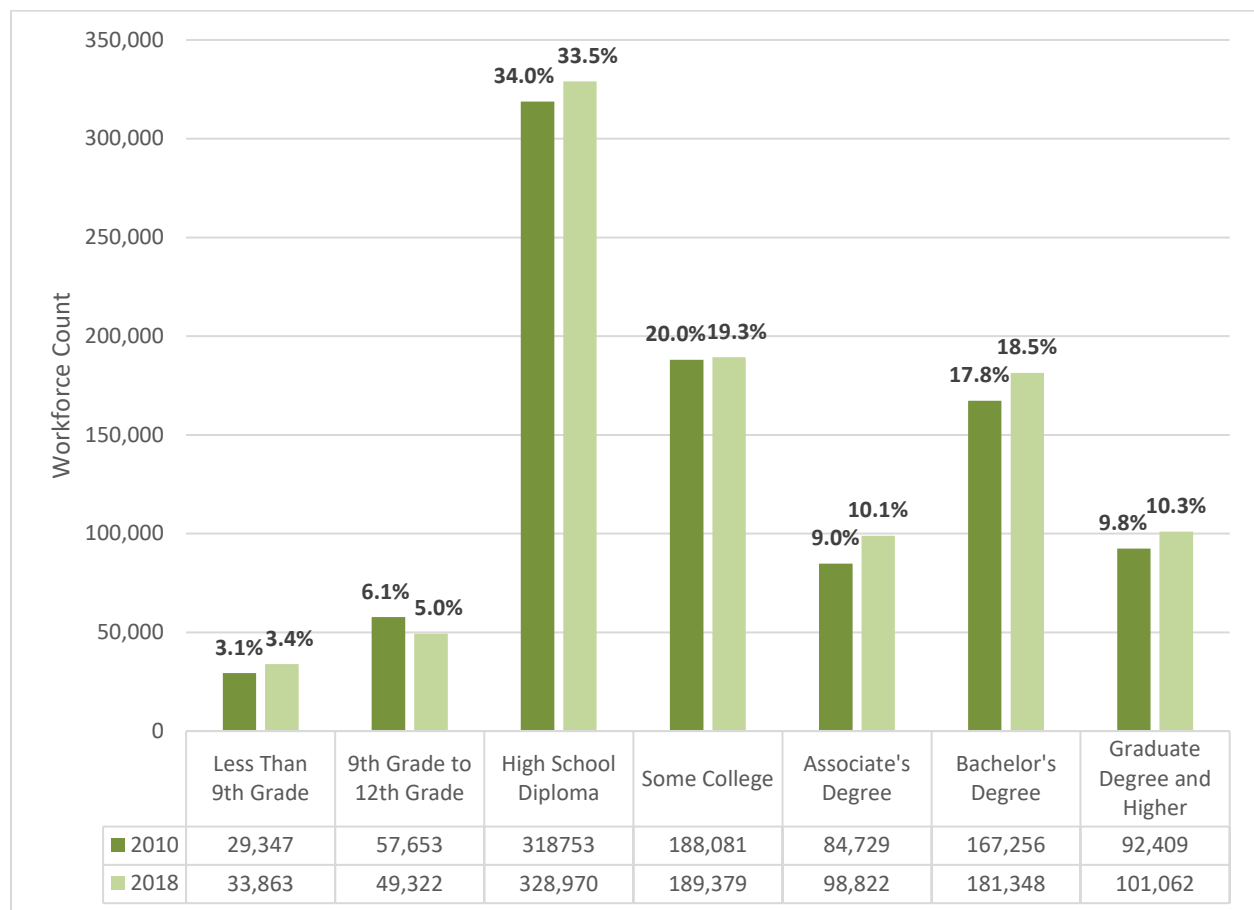
Workforce

Maine has always been regarded as an entrepreneurial state. A diverse business base is the foundation of the state's success. Maine workers are constantly praised for their high work ethic and have an international reputation for high quality work done on time and under budget. Quality of work...Quality of place...Quality of life.

Mainers are known for their “Yankee ingenuity” and commitment to delivering quality performance every workday. Labor disputes are rare. Employers consider their workers their best asset. Mainers continue working well into their ‘retirement’ years and labor force participation rates are among the highest in the nation. In comparison with other states in the Northeast, Maine has more people employed in wood processing careers per 1,000 workers (6.6 per 1,000 employed).

Figure 12 outlines the education level of Maine’s workforce. A significantly higher share of Maine’s workforce has completed high school (91.5%) compared to the nation (86%), 58% of Maine’s workforce has received some level of post-primary educational experience.

Figure 12: Maine Workforce Education Level, 2010 + 2018 (Source: EMSI; MCBER)



Note: Percentages correspond to respective year totals.

Wood Product Manufacturing Workforce

Table 7 shows employment, growth, and average earnings in related industries across Wood Product Manufacturing.

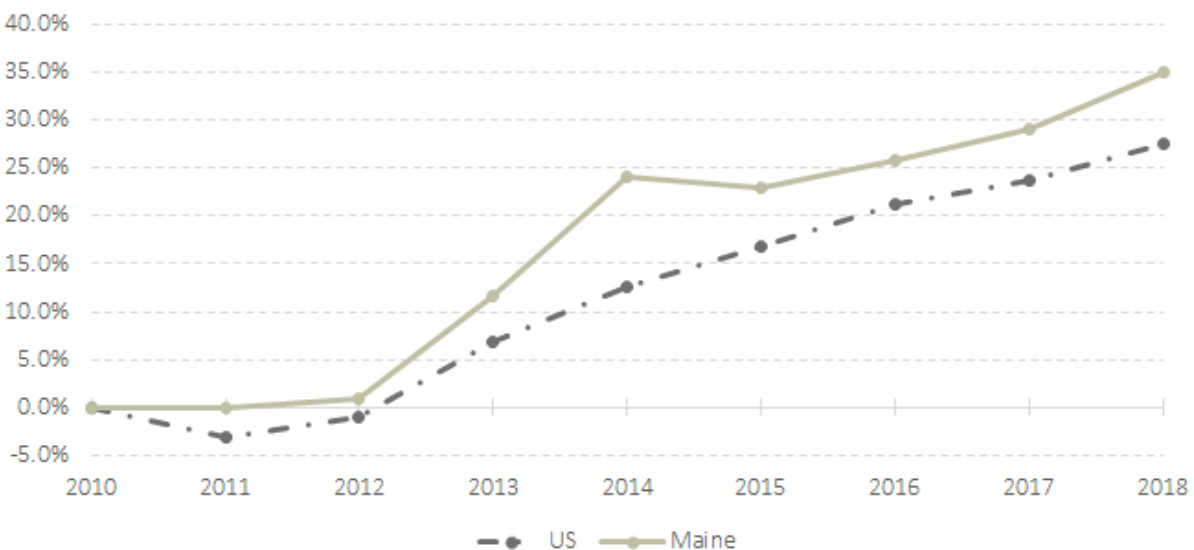
Table 7: Maine Employment Trends in Wood Processing (Source Maine CBER)

Description	2010 Jobs	2018 Jobs	2010-2018 % Change	Avg. Earnings Per Job
Sawmills and Wood Preservation	1,746	2,028	16%	\$58,965
Veneer, Plywood and Engineered Wood Product Manufacturing	495	668	35%	\$67,279
Other Wood Product Manufacturing	1,863	1,868	0%	\$45,201
Wood Product Manufacturing Total	4,104	4,565	11%	\$54,549

The harvesting, manufacturing, and production of forest and related products has been the heartbeat of Maine communities for decades and this knowledge and experience is embedded in the workforce. Relative to the overall size of the state’s workforce, Maine has 3 times the specialization in forest products than the national average and 3.4 times in wood product manufacturing industry.

Specific to *Engineered Wood Product Manufacturing* the talent pool is not only specialized but growing in Maine - employment in the industry increased by 35% between 2010-2018, outpacing the national growth rate of 27.5% over the period (Figure 13).

Figure 13: Maine Employment Trends in Engineered Wood Product Manufacturing (Source: EMSI; Maine Center for Business and Economic Research (MCBER))



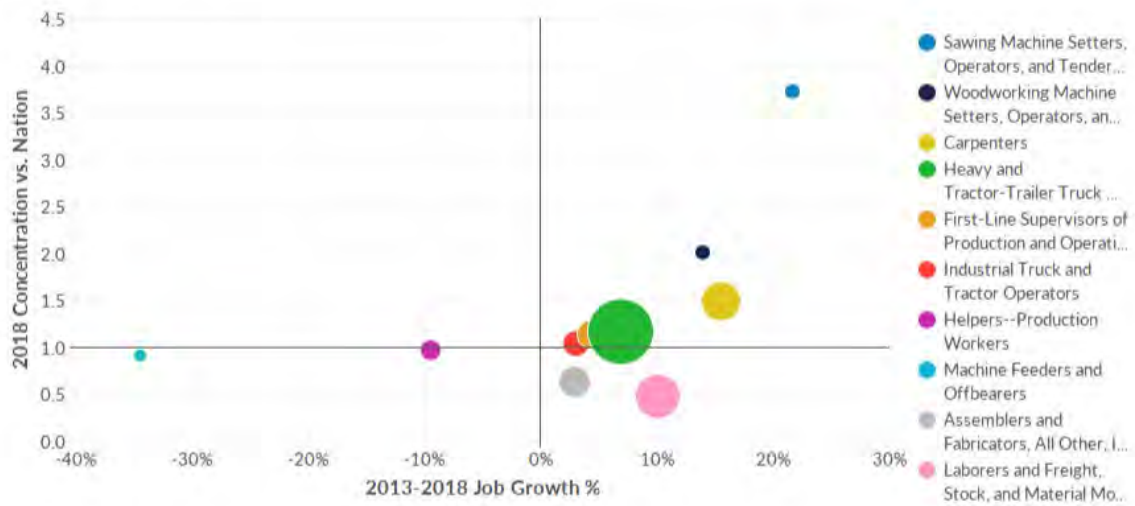
The talent pool is not limited to *Engineered Wood Product Manufacturing*, but occupations commonly found in this industry are more prevalent on the whole as a share of Maine’s workforce suggesting

above average workforce availability. Meanwhile, employment in these occupations across the economy grew at 6.4 percent between 2013 and 2018 suggesting the talent pool is growing statewide (Figure 14).

Figure 14: Key Maine Workforce Availability Data in Wood Product Manufacturing

Workforce Availability

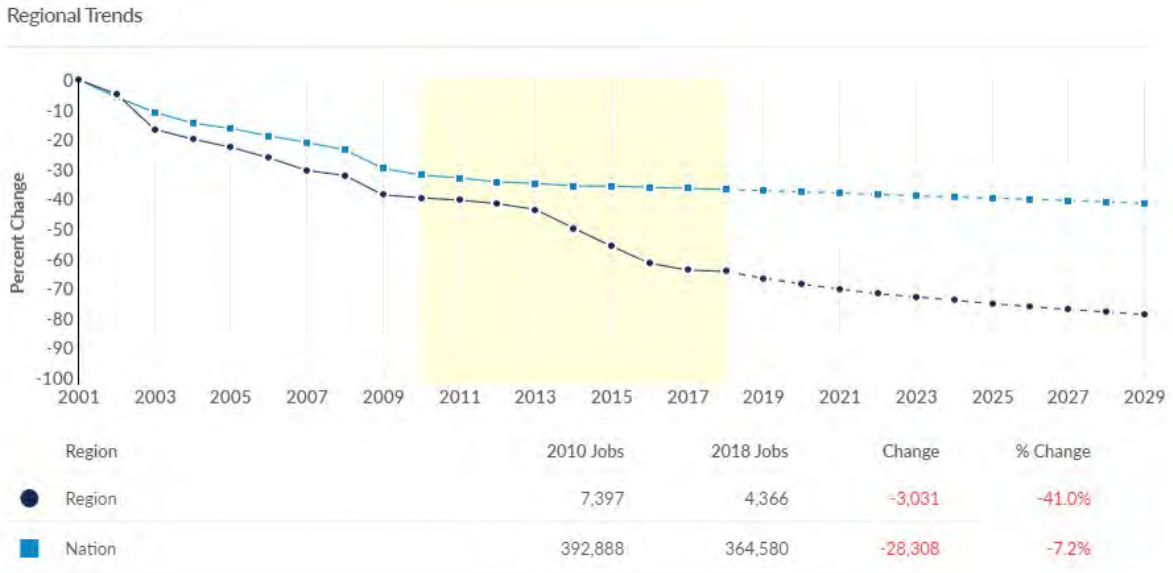
Key occupations for the selected Veneer, Plywood, and Engineered Wood Product Manufacturing have an overall concentration of 1.46, indicating above average workforce availability. These occupations experienced overall job growth of 6.4% from 2013-2018, indicating that the regional talent pool is increasing.



SOC	Key Occupation	Concentration	2013 Jobs	2018 Jobs	2023 Jobs	Median Hourly Earnings	Average Hourly Earnings
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	3.73	677	825	782	\$15.24/hr	\$16.06/hr
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	2.02	597	681	648	\$12.73/hr	\$13.97/hr
47-2031	Carpenters	1.50	3,967	4,586	4,626	\$19.22/hr	\$19.57/hr
53-3032	Heavy and Tractor-Trailer Truck Drivers	1.16	8,263	8,837	8,687	\$18.30/hr	\$19.55/hr
51-1011	First-Line Supervisors of Production and Operating Workers	1.13	2,807	2,931	2,879	\$29.16/hr	\$29.31/hr
53-7051	Industrial Truck and Tractor Operators	1.04	2,545	2,624	2,598	\$17.40/hr	\$17.56/hr
51-9198	Helpers--Production Workers	0.97	1,866	1,691	1,678	\$14.52/hr	\$15.37/hr
53-7063	Machine Feeders and Offbearers	0.91	494	324	307	\$12.59/hr	\$13.00/hr
51-2098	Assemblers and Fabricators, All Other, Including Team Assemblers	0.64	3,367	3,467	3,291	\$16.28/hr	\$17.22/hr
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	0.48	5,120	5,639	5,838	\$12.03/hr	\$13.03/hr
	Total	1.46	29,703	31,603	31,334		\$18.37/hr

As Maine’s forest products sector transitions from declining market segments to a new forest products economy, there are also workers who historically were involved in forest product oriented manufacturing who have training and experience in wood processing that can be repurposed to manufacture CLT in Maine with minimal training (Figure 15). In particular, plant closures in the paper manufacturing industry have resulted in a pool of about 3,000 workers over the last 8 years, many of which possess skill sets adaptable to CLT manufacturing at lower costs.

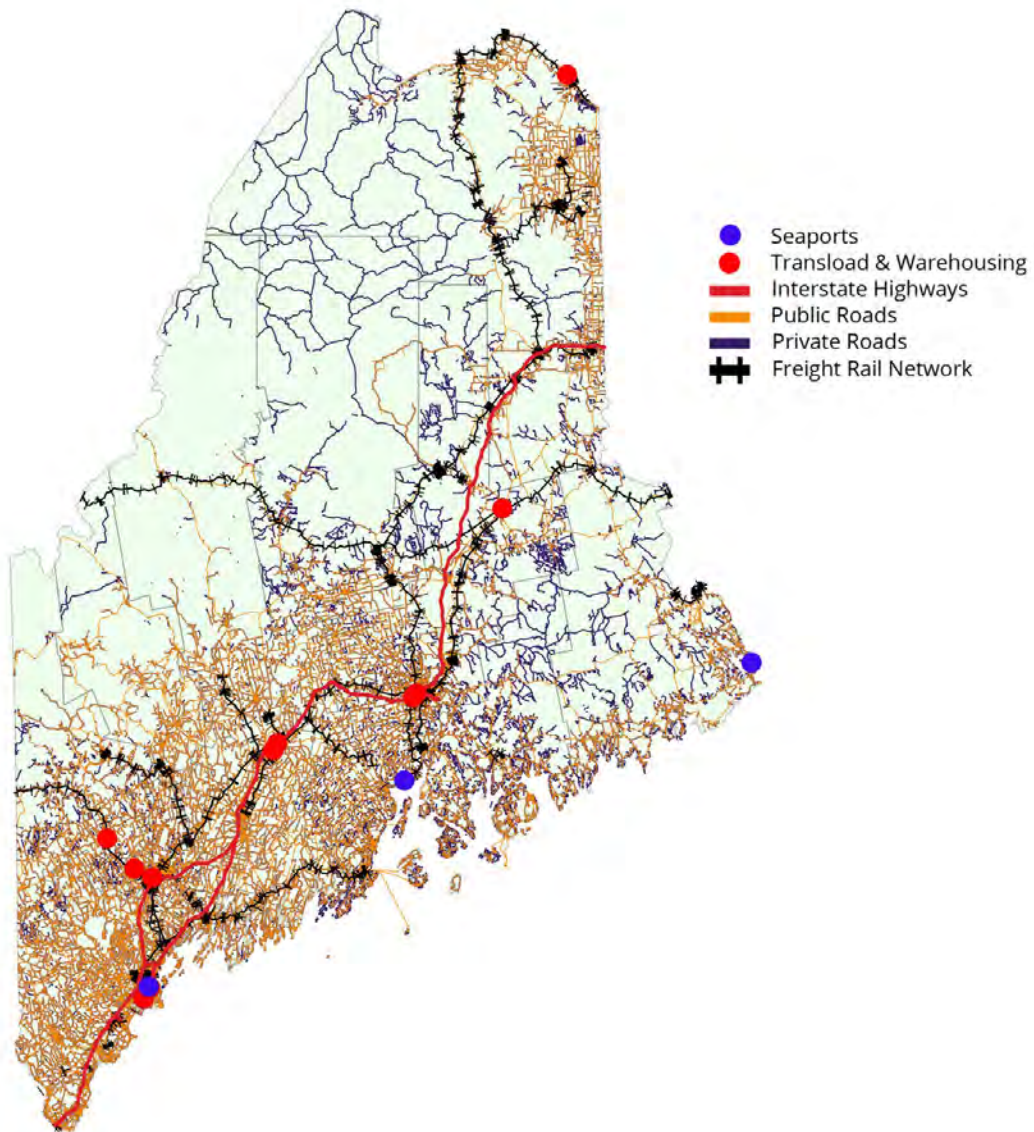
Figure 15: Employment trends in Paper Manufacturing in Maine, 2010-2018 (Source: Emsi; MCBER)



Infrastructure

With an extensive private logging road network to transport sawlogs to mills, through a complete modern intermodal transportation system to move finished goods to customers, Maine can move CLT products to market (Figure 16). In 2015, nearly 97 million tons of goods worth \$96 billion traveled on Maine's roads, rails and ports (Source: Cambridge Systematics, Inc., 2017).

Figure 16: Infrastructure Network of Maine (Source: MEGIS)



With over 30 million potential consumers within 500 miles, Maine’s location provides access to wood resources, regional markets and international opportunities through its infrastructure (Table 8).

Table 8: Distance to Markets from Central Maine (Source: U.S. Census Bureau)

Metropolitan Region	2018 Population Estimate	Distance to Central Maine
Boston, MA	4,875,390	234
New York-Newark-Jersey City, NY-NJ	19,979,477	437
Philadelphia, PA-NJ	6,096,372	500

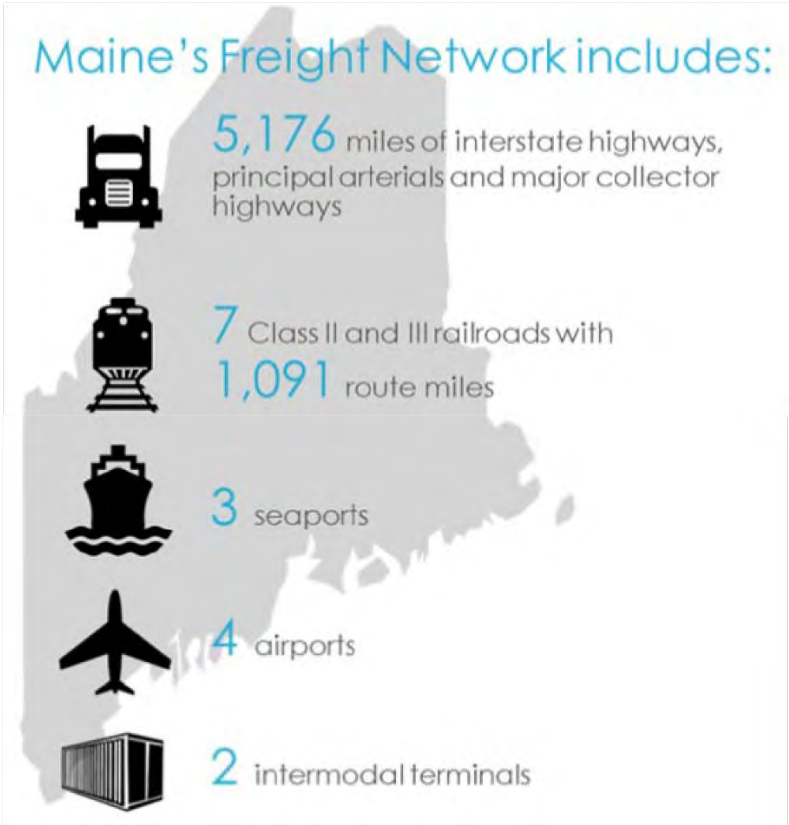
Off-Highway Logging Roads

Over 20,000 miles of privately maintained and operated logging roads cover a significant portion of the North Maine woods. This road network was established beginning in the late 1960’s to efficiently move sawlogs from the forests to mills in lieu of river log drives.

Intermodal Truck, Rail & Seaport Facilities

Maine has an extensive network of intermodal transport options open to manufacturers to move finished goods throughout and out of state (Figure 17).

Figure 17: Maine's Freight Network (Source: Cambridge Systematics, 2017)



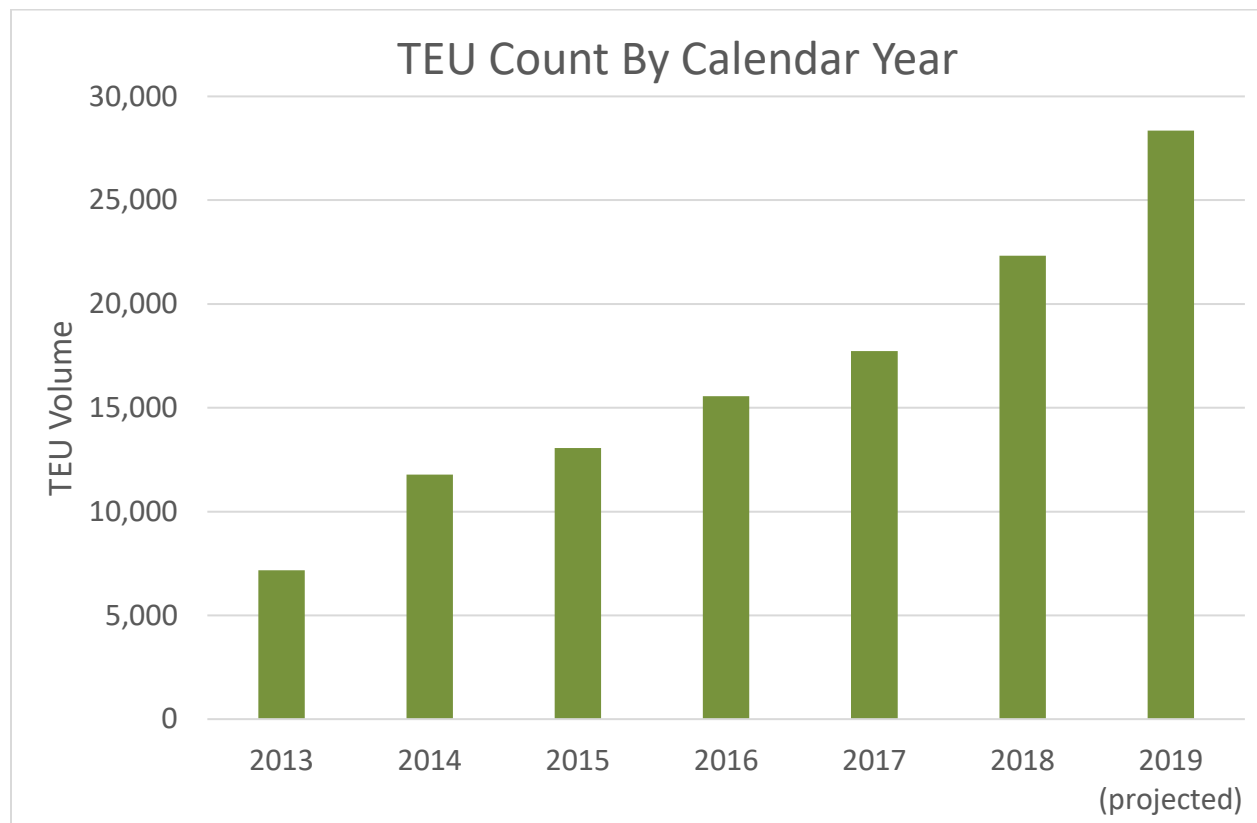
Maine State Highway System

Through a 23,513-mile network of interstate, state and route roads, Maine's highway network provides ease of movement of goods and materials throughout the state. The central corridor of this network is Interstate I-95, traversing from Houlton through Kittery in Maine, then through Boston, New York City, Philadelphia and Washington D.C., terminating south of Miami, FL. As the longest North-South interstate and the sixth longest interstate overall in the U.S., I-95 provides access through the entire eastern seaboard of the U.S. from one road. The 5,176 miles of principal arteries and highways in Maine account for 86% of all freight tonnage moved through and out of the state.

Seaports

With the 2013 arrival of Iceland's largest shipping company, Eimskip, in Portland and the acquisition of a \$14 million federal grant to help fund improvements at the state's three deep-water ports, Maine is becoming an international shipping hub. Since 2013, Maine's international marine terminal volumes have experienced significant growth (Figure 18), with a four-fold increase in TEU volumes in six years.

Figure 18: Annual International Marine Terminal Volumes in Maine (Source: Maine Port Authority)



Eastport

The Maine Port Authority (MPA) operates the Estes Head Cargo Terminal (EHCT) in Eastport, the deepest natural seaport in the continental United States. The Terminal can accommodate a ship of 900 feet length overall (LOA) in Berth A and one up to 550 feet in Berth B. Berth B is also an excellent berth for barges. EHCT's 55-acre site has several open storage areas, three 20,000 square foot, drive-thru

warehouses, and one 43,000 square foot warehouse. The operations are easily supervised from the Federal Marine Terminals' office located just above the Estes Head pier. Approach depths to this pier are also well in excess of 100 feet and a 64-foot MWL depth. With an additional 140 acres of open land available for future expansion and operations updates, the Port of Eastport can accommodate a variety of growth possibilities.

Accompanying the pier at Estes Head is 133K square feet of dry warehouse storage and a state-of-the-art bulk materials handling system. The system, completed in 2013 as part of a \$10M USD port expansion, is anchored by a 7-acre open storage pad with additional acreage available for future expansion. Adding to this is the automated conveying system that runs direct from storage to ship loading. The system is capable of 1,000 tons per hour loading rate dependent on density. The facility also has modern receiving and truck weighing capabilities.

With the recent infrastructure and investments, Estes Head is well positioned for increased freight volume.

Portland

The Port of Portland has a collection of privately-operated terminals capable of accepting all forms of cargo including project, containerized, bulk & break bulk and petroleum. The Maine Port Authority operates the International Marine Terminal, primarily handling container traffic, moving \$460M worth of goods through the terminal in 2018³. The MPA continues to develop transportation infrastructure and multi-modal capacity, opening Maine to new markets, business and investment. With recently updated rail siding and transloading capacity, the International Marine Terminal features a 785-foot pier with a depth of 35 feet MLW.

The Sprague Terminal operates an 800-foot LOA cargo dock. With rail service by Pan Am Railways, the terminal provides the transfer of goods and equipment easily from truck or rail to ship with a designated depth of 36 feet mean low water (MLW) and 50,000 deadweight tonnage (DWT).

The Port of Portland is currently participating in the New England Marine Highway Project (NEMHP). Sponsored by the Maine Port Authority, the NEMHP is a short-sea shipping initiative to design, build and operate a containerized Articulated Tug Barge (ATB) along the M-95 Marine Highway, servicing ports from Portland to New York/New Jersey. The NEMHP offers a regional short haul alternative to potential CLT manufacturers in Maine to transport CLT panel systems to the New York metropolitan area.

Searsport

Sprague Energy is the terminal operator in the Port of Searsport. Searsport is located at the heart of Penobscot Bay. The Port of Searsport is one of five official cargo ports in the State of Maine, and it is the second largest deep-water port. With the port's recently reconstructed rail yard, freight can readily be distributed throughout the United States and Canadian heartlands. With a tidal range of ten feet, the

³ Source: Maine Port Authority

approach channel and turning basin in the Port of Searsport offer a depth of 35 feet mean low water (MLW).

The Mack Point Marine Intermodal Cargo Terminal is the main cargo-handling facility in the Port of Searsport. Mack Point has a dry cargo pier with a 1.3-acre working surface, a 90 thousand square foot warehouse, five supplemental paved storage pads and an additional 70 acres of land available for development. The dry cargo pier has two berths, each of them almost 800 feet long with alongside depths of 40 and 32 feet MLW. Mack Point terminal has more than 6,500 feet of on-site rail siding operated by the Central Maine and Quebec Railway with direct connections to the Canadian Pacific Railway.

Rail System

With over 1,000 rail miles in the state connecting hundreds of communities local to forest resources, Maine's six freight railroads can move your goods to markets or into the intermodal system.

Freight rail has been an important component of Maine's freight network for over 150 years. Unlike the Interstate highway system, which connects Maine south to the northeast and Atlantic U.S. states and east to New Brunswick, Maine's rail lines were designed in part to link the State north and west to Montreal and the Great Lakes (Maine Dept of Transportation, 2014). While trucks are now the dominant mode of freight shipping in the State, railroads still provide significant freight capacity for domestic and international trade and provide alternatives for shippers. Freight rail is a cost-effective option for moving high-volume, low-value commodities, so rail continues to play a particularly important role for Maine's forest products industry. In 2015, an estimated 66,100 carloads of rail freight originated or terminated in Maine, and approximately 42 percent of the carloads originating in Maine carried pulp, paper, lumber, and wood products (Cambridge Systematics, 2017).

Rail Operators

Table 9 outlines the rail operators in Maine and their track mileage in the State.

Table 9: Rail Operators in Maine (Source: Cambridge Systematics, 2017).

Rail Operator	2015 Mileage Operated
Class II	
Central Maine and Quebec Railway (CMQR): Connects to the Canada Pacific (CP); links northern Maine, Saint John, New Brunswick, and Montreal; and provides access to the port facilities of St. John in New Brunswick and Searsport, Maine. The rail's route from Searsport to Montreal can accommodate double-stack intermodal services and has the capacity to carry 286K lb. rail cars.	295
Pan Am Railway (PARI): Formerly known as the "Guilford Rail System." Main line connects Mattawamkeag in Maine to Mechanicville in New York, via the lines of other New England-based rail lines. Maintains repair shops in Waterville, Maine.	372
Subtotal	667
Class III	
Maine Northern Railway (MNR): Operates on a portion of the former "Montreal, Maine, and Atlantic Railroad" (MMA) lines, which are now state-owned Aroostook Lines. Major freight commodities are forest products, including finished lumbers, wood products, wood chips, and paper. Uses a yard at Oakfield as its operational hub for the Aroostook lines.	233
Eastern Maine Railway (EMRY): Created as a holding company to own trackage in Maine. Operations provided by the New Brunswick Southern Railroad (NBSR).	105
Saint Lawrence and Atlantic Railroad (SLR): Headquartered in Auburn, Maine and Richmond, Quebec. Contiguous mainline track between Maine and Quebec. Serves warehouse distribution and intermodal transloading facilities in Maine.	84
Subtotal	422
Terminal and Switching	
Turner's Island, LLC (TI): Connects with Pan Am Railways in South Portland, Maine to provide shipping nationwide. Privately owned and operated. Open area with 14 acres for bulk storage, 9,000 sq. feet of dry warehouse space.	2
Total	1,091

Terminals and Intermodal Connectors

The rail freight network depends not only on the railroads, but also on yards, terminals, and other facilities that allow for storage, repair, rail switching, interchange (moving rail cars between railroads), intermodal transfers (moving containers between rail and other modes), and transloading (transferring bulk commodities between rail and other modes). As of 2010, there were 15 general purpose freight rail yards in Maine with different rail operators: nine operated by Pan Am Railway, three by Central Maine and Quebec, three by Saint Lawrence and Atlantic. The only active intermodal facility transferring containers between truck and rail is the Pan Am Intermodal Facility in Waterville owned by Pan Am

Railways. This facility has two transfer tracks and currently is primarily used for intermodal service for Poland Springs Water. The intermodal ramp at the Portland IMT has also been used in the past years for truck to rail transfers. Two other facilities at Presque Isle and Auburn are capable of intermodal activity but have not operated recently.

There are also several facilities in the State offering transloading of bulk materials (but not transfer of containers), including the Port of Auburn, Savage-Safe Handling in Auburn, GAC Chemical in Searsport, Truck/Rail Log/Chip Transfer along the CMQR and MNR, Turner's Island marine-rail terminal in South Portland, and the Rockland Cement Pier.

Bulk Transload and Warehouse Facilities

Privately owned and operated transload and warehouse facilities throughout the state allow the transfer and temporary storage of freight between rail and truck.

Auburn

Lynch Logistics operates a 115,000 square foot facility in Auburn with 4 railcar doors, 3 truck doors and specializes in dry storage, floor level load/unload and covered rail exchange. Located 2.8 miles from the Interstate, the facility is serviced by St. Lawrence & Atlantic Railroad.

NEPW Logistics operates a 75,000 square foot facility in Auburn with 6 railcar doors, 8 truck doors, are located 3 miles from I-95 and is serviced by St. Lawrence & Atlantic Railroad and Pan Am Railways.

Bangor

Lynch Logistics operates a 142,000 square foot facility in Bangor with 6 railcar doors, 9 truck doors and specialize in paper handling. The facility is less than a mile from the Maine Turnpike (I-95). Located on Pan Am Railways, Lynch Logistics sister company Central Maine Transport can handle trucking from Bangor to points nationwide.

Galt Block's facilities are comprised of 5 buildings totaling 376,000 square feet on a campus in Bangor. The facilities are in close proximity to three I-95 interchanges and is serviced by Pan Am Railways.

Fairfield

NEPW Logistics operates a 42,000 square foot facility in Fairfield with 3 railcar doors, 8 truck doors, are located 1 mile from I-95 and is serviced by Pan Am Railways.

Hermon

Since 1972, Pottle's Transportation has continued to expand, transforming into a major motor carrier operation in the Northeast. Pottle's 75,000 square foot warehouse in Hermon specializes in paper handling, has 3 railcar doors and 7 truck doors with service on Pan Am Railways.

Mattawamkeag

Perma Treat, a division of Pan Am Railways, provides lumber and other reload services at its Mattawamkeag, ME cogen facility. The facility can handle boxcars, gondolas and center beam flatcars.

Mechanic Falls

NEPW Logistics operates a 80,000 square foot facility in Mechanic Falls with 8 railcar doors, 8 truck doors, are located 7 miles from I-95 and is serviced by St. Lawrence & Atlantic Railroad.

Portland

NEPW Logistics operates a 175,000 square foot facility in Mechanic Falls with 14 railcar doors, 9 truck doors, are located 3 miles from I-95 and is serviced by Pan Am Railways.

Scarborough

NEPW Logistics operates a 147,000 square foot facility in Scarborough with 8 railcar doors, 12 truck doors, are located 4 miles from I-95 and is serviced by Pan Am Railways.

South Paris

NEPW Logistics operates a 233,000 square foot facility in South Paris with 11 railcar doors, 6 truck doors, are located 21 miles from I-95 and is serviced by St. Lawrence & Atlantic Railroad and Pan Am Railways.

South Portland

Turners Island (TI) is a privately owned and operated 14-acre marine-rail cargo terminal located in South Portland, Maine. TI can handle almost any cargo that can be shipped by either rail or sea. Commodities presently handled include biodiesel, poles, scrap steel and dimensional stone.

Van Buren

A part of the JD Irving family of companies, New Brunswick & Maine Railways operates a lumber reload facility at Van Buren, ME. Sister company, Sunbury Transport, provides flatbed service to and from the reloads for Canadian origins.

Waterville

US Intermodal operates a container loading operation at the Pan Am Railways Waterville intermodal terminal with two 3,000-foot intermodal tracks and 100 feet of paved area between tracks for loading and unloading freight with two reach stackers/packers. With additional yard tracks available in the Waterville yard, this site has infrastructure in place for additional volume and expansion.

State Incentives

As part of the State of Maine's efforts to encourage new, expanding, or relocating businesses of all kinds of sizes, Maine offers a wide variety of assistance including financial, practical, and technical. Assistance includes Pine Tree Development Zones, Municipal Tax Increment Financing, the Business Equipment Tax Exemption Program, the Research Expense Tax Credit, New Market Tax Credits, and State of Maine Training Incentives. These are summarized below to present assistance options that could be leveraged by a CLT manufacturer newly locating or expanding in Maine.

Pine Tree Development Zones

The Pine Tree Development Zones (PTDZ) program offers eligible businesses the chance to greatly reduce or virtually eliminate state taxes for up to ten years when they create new, quality jobs in certain business sectors, or move existing jobs in those sectors to Maine. This program is available currently through the end of 2021 barring extension by the state legislature. More than 240 Maine businesses have participated in the PTDZ program with reimbursements from thousands to hundreds of thousands of dollars for taxes paid on new employees.

Eligible sectors are:

- Biotechnology
- Aquaculture and Marine Technology
- Composite Materials Technology (*CLT qualifies here*)
- Environmental Technology
- Advanced Technologies for Forestry and Agriculture (*CLT qualifies here*)
- Manufacturing and Precision Manufacturing (*CLT qualifies here*)
- Information Technology
- Financial Services

A **new, quality job** is defined as one that:

- Meets the income requirements for the current year. Income includes "income derived from employment" (IDE) or employee earnings, and employer payments toward employee benefits including retirement, health insurance, education, and dependent care. That total for any new, quality job must exceed the per capita personal income for that county
- Includes access to group health insurance with an employer contribution encouraged but not required
- Includes access to group retirement benefits subject to ERISA with an employer contribution encouraged but not required

The PTDZ incentives that a new CLT facility would qualify for are as follows:

- Corporate Income Tax Credit (100%, Years 1-5; 50%, Years 6-10):
The tax credit benefit derives from net new PTDZ payroll and property as a percentage of all Maine payroll and property. Since all payroll and property is new, the full credit is available.

- **Employment Income Tax Financing (80% in a Pine Tree Zone, Years 1-10):**
This program refunds 80% of the state withholding taxes paid by the business for up to ten years for all net new employees hired (minimum 5 new full-time employees, 1 in a PTZ). The company must offer those employees a group health care plan and an Employee Retirement Security Act (ERISA)-qualified retirement plan. In addition, average annual income for each new employee must be higher than the average for the county in which the business is located.
- **Sales and Use Tax (100% Personal and Real Property Exemption, Years 1-10):**
This tax exemption benefit derives from the qualified business paying no tax on all new tangible property purchases that are to be physically incorporated in, and become a permanent part of, real property of a qualified business and used in its qualified business activity, and all new tangible personal property purchases for its qualified business activity.
- **Access to reduced electricity rates as requested by Central Maine Power and/or Emera Maine and approved by the Public Utilities Commission.**

For more information on the Pine Tree Development Zone Program, go to the State of Maine Revenue Service at <https://www.maine.gov/revenue/taxrelief/ptdz.htm>

Municipal Tax Increment Financing

Tax Increment Financing (TIF) is a flexible finance tool used by municipalities, towns, plantations, and the Unorganized Territory to leverage new property taxes generated by a specific project or projects within a defined geographic district. A percentage of the new taxes may be used to finance public or private projects for a defined period of time up to 30 years.

The program is locally-driven: the municipality, town, or city defines the district and chooses how much of the new taxes will go to what public and private projects over what period of time, with the whole package requiring local political approval.

A business may approach a municipality with a proposal for investment for which a TIF district would provide financing. Or, a town might take advantage of an already-planned and financed project and create a TIF district around it, capturing a portion of new property tax revenue for specific uses.

For more information on Municipal Tax Increment Financing, go to the Maine Department of Economic and Community Development at <https://www.maine.gov/decd/business-development/tax-incentives-credit/municipal-tax-increment-financing>

Business Equipment Tax Exemption Program

The Business Equipment Tax Exemption (BETE) Program helps new and established businesses to invest for growth. This program eliminates the personal property tax on eligible business equipment that is first subject to assessment on or after April 1, 2007.

For more information on the Business Equipment Tax Exemption Program, go to the State of Maine Revenue Service at <https://www.maine.gov/revenue/propertytax/propertytaxbenefits/bete.htm>

Research Expense Tax Credit

The credit is based on a percentage of the federal Credit for Increasing Research Activities. Limitations: the credit is limited to 5% of the excess qualified research expenses over the previous three-year average plus 7.5% of the basic research payments under IRC § 41(e)(1)(A). The credit is further limited to 100% of the first \$25,000 in tax liability plus 75% of the tax liability in excess of \$25,000. The credit cannot be carried back but can be carried forward for up to 15 years.

For more information on the Research Expense Tax Credit, Refer your tax professional to <http://legislature.maine.gov/statutes/36/title36sec5219-K.html>

New Market Tax Credits (NMTC)

The New Markets Tax Credit (NMTC) is a federal program designed to increase the flow of capital to businesses and low-income communities. Over the last 15 years, the NMTC has proven to be an effective, targeted and cost-efficient financing tool valued by businesses, communities and investors across the country

The program attracts capital to low income communities by providing private investors with a federal tax credit for investments made in businesses or economic development projects located in some of the most distressed communities in the nation – qualifying census tracts have poverty rates of at least 20 percent or where median family income does not exceed 80 percent of the area median. A NMTC investor receives a tax credit equal to 39 percent of the total qualified investment and the credit is realized over a seven-year period.

In addition to the Federal Program, Maine has created a parallel program, the Maine New Markets Capital Investment Program. The two programs can be used together in the federal designated qualifying census tracks.

The State Program is administered by the Finance Authority of Maine, in cooperation with Maine Revenue Services and the Maine Department of Economic and Community Development.

For more information on Maine's New Market Tax Credits Program, go to the Finance Authority of Maine at <https://www.famemaine.com/business/programs/equity-capital/maine-new-markets-investment-program/>

Maine Seed Capital Tax Credit Program

This program is designed to encourage equity and near equity investments in young business ventures, directly and through private venture capital funds. State income tax credits to investors for up to 50% of the cash equity they provide to eligible Maine businesses may be authorized. Investments may be used for fixed assets, research or working capital.

Eligibility

- Businesses located in Maine.
- Investor must own less than 50% of the business.

- Principal owners and their immediate relatives are not eligible.
- Annual gross sales of less than \$5,000,000.
- Business must either:
 - be a manufacturer;
 - provide goods or services with 60% of sales derived from outside the state or to out-of-state residents;
 - develop or apply advanced technologies;
 - be a value-added natural resource enterprise; or
 - be certified as a visual media production company.
- Operating the business must be the professional, full-time activity of at least one of the principal owners.

For more information on the Maine Seed Capital Tax Credit Program, go to the Finance Authority of Maine at <https://www.famemaine.com/business/programs/equity-capital/maine-seed-capital-tax-credit-program/>

Jobs and Investment Tax Credit

This program helps businesses with an income tax credit on equipment and facilities that generate new jobs. The program provides a credit against Maine income taxes for investment in most types of personal property that generates at least 100 new jobs within two years, as long as the investment is at least \$5 million for the taxable year. The credit amount is tied to the federal investment tax credit and is limited to \$500,000 per year with carry-forwards available for seven years.

For more information on the Jobs and Investment Tax Credit, Refer your tax professional to <http://legislature.maine.gov/statutes/36/title36sec5215.html>

Opportunity Zones

Based on the bipartisan Investing in Opportunity Act, Opportunity Zones is a national community investment tool established by Congress in the Tax Cuts and Jobs Act of 2017 to encourage long-term investments in low-income urban and rural communities nationwide. Opportunity Zones provide a tax incentive for investors to re-invest their unrealized capital gains into dedicated Opportunity Funds. In the state of Maine, there are a total of 32 Opportunity Zones located throughout the state, many of which are in prime areas of softwood resource availability.

For more information on Maine's Opportunity Zones, go to the Maine Department of Economic & Community Development at <https://www.maine.gov/decd/business-development/opportunity-zones>

Maine Innovation Partners

The University of Maine System

Established in 1968, the University of Maine System (UMS) is a network of public Universities in the state of Maine consisting of eight universities, each with a distinct mission and regional focus. Within the system, there are approximately 35,000 students enrolled.

The University of Maine

Founded in 1865, the University of Maine is located in Orono, eight miles from Bangor. This institution is Maine's land grant university and the flagship of the University of Maine System. Approximately 12,000 students attend the institution. The University of Maine in Orono will be a tremendous resource for a company producing a product that requires engineers and other professionals with a focus on the forest products industry.

Office of Innovation and Economic Development

The University of Maine Office of Innovation and Economic Development helps support new and existing businesses. This is done by linking businesses and industry experts; facilitating commercialization activities, such as new innovations developed at UMaine; and helping to transfer university research and development into marketable products and services. The office also is a responsive liaison, facilitating the relationship between the University of Maine at large and elected officials.

For more information, go to <https://umaine.edu/econdev>

Advanced Structures and Composites Center

The University of Maine's Advanced Structures and Composites Center is a world-leading, interdisciplinary center for research, education, and economic development encompassing material sciences, manufacturing, and engineering of composites and structures. The Center is housed in a 100,000 ft² ISO 17025 and PRG-320 accredited testing laboratory with more than 150 full and part time personnel. The center has over 20 years of research experience in mass timber manufacturing and evaluation, with over \$1M USD of research on CLT in the last three years and is expected to continue to expand as expertise is built.

Housed within the ASCC, the Maine Mass Timber Commercialization Center (MMTCC) was founded in 2017 focused on collaborating with industrial partners, trade organizations, construction firms, architects, and other stakeholders in the region to promote mass timber and tall wood construction in Maine and New England. The MMTCC serves to educate stakeholders and the public on mass timber technologies and benefits while promoting Maine's timber supply and geography as an ideal location for mass timber manufacturing facilities to support the growing mass timber industry needs of the Northeastern United States.

For more information, go to <https://composites.umaine.edu>

Forest Bioproducts Research Institute

The University of Maine's Forest Bioproducts Research Institute and its Technology Research Center (TRC) validates, demonstrates, and helps commercialize developing fuel, chemical and advanced material technologies from forest bioproducts at an industrially relevant scale. It provides wood suppliers and wood users the opportunity to collaborate with each other and with University of Maine faculty researchers. TRC is a one-stop shop for processing and analysis of technologies. The 40,000-square-foot facility, located in Old Town, Maine, features state-of-the-art process control and process information systems.

For more information, go to <https://forestbioproducts.umaine.edu>

Advanced Manufacturing Center

The Advanced Manufacturing Center (AMC) is part of the University of Maine's College of Engineering which provides a link from the traditional University of Maine activities of education and research with the University's active industrial support and economic development programs. The AMC is an engineering support and service center that is committed to maintaining a first-class facility equipped with the latest manufacturing technologies. It designs and builds prototypes and development projects ranging from large scale fabrications to machined parts with micro-millimeter tolerances. The AMC has the ability to expand its range of expertise by working with engineering faculty, other UMaine research centers, and our partners in private industry.

For more information, go to <https://umaine.edu/amc>

University of Maine Contact:

Jake Ward

Vice-President of Innovation and Economic Development

Office of Innovation and Economic Development

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The University of Southern Maine

Established in 1878, the University of Southern Maine (USM) is situated in Maine's economic and cultural center. As public university with 8,000 undergraduate and graduate students taking courses online and at campuses in Portland, Gorham and Lewiston-Auburn, USM is known for its academic excellence, student focus and engagement with the community. USM provides students with hands-on experience that complements classroom learning and leads to employment opportunities in one of the nation's most desirable places to live.

Maine Center for Business and Economic Research

Since 1977, the Maine Center for Business and Economic Research (CBER) has been critical resource in supporting Maine's economy by providing the public and private sectors with university-based expert

research and services. CBER is designated by the US Economic Development Administration (EDA) as a University Center for the state of Maine and is supported in part by the Maine Economic Improvement Fund (MEIF). In addition to providing sponsored services to organizations across the state, the Center's core programs are focused on supporting innovation and diversification in Maine's forest resource economies and communities and supporting efforts that build Maine's knowledge workforce.

CBER provides services and expertise in the following areas:

- Economic Modeling & Forecasting
- Labor Market & Workforce Research
- Industry and Occupational Analyses
- Demographic Forecasting
- Spatial Analysis & GIS
- Local & Regional Economic Development
- Market Research
- Survey Design & Implementation
- Program Evaluation

CBER maintains a host of analytical suites, including models of Maine's economy developed by Regional Economic Models Incorporated (REMI), that allow modeling and forecasting a range of economic, demographic, and policy scenarios. CBER is a forecast manager for Maine for the New England Economic Partnership (NEEP) and prepares timely briefs on key economic issues affecting the state's economies.

For more information on the Maine Center for Business and Economic Research, go to <https://www.maineceber.com>

Maine Center for Business and Economic Research Contact:

Ryan Wallace
Director of CBER
34 Bedford Street
Portland, Maine 04101
P: (207) 780-5859
maineceber@maine.edu

Maine & Company

Maine & Company is a private, non-profit organization that helps companies grow and expand in Maine. Maine & Company believes in the power of growth in the private sector. The Board of Directors, consisting of leaders of Maine's private economy, have invested their own resources to promote employment and company growth in Maine.

Their mission is to see companies succeed in Maine and will help companies find the resources they need to be successful in Maine. They offer the following assistance and services to organizations seeking to locate in Maine no cost to their clients.

- *Real Estate Site Searches.* After consulting with the client and determining relevant real estate needs, Maine & Company's staff searches a statewide database for appropriate properties and connects with regional and local real estate leaders.
- *Data Collection and Analysis.* Maine & Company provides detailed and up-to-date information on incentives, labor, employment, energy, real estate, taxes, telecommunications, and wages.
- *Incentives Identification and valuation.* Maine & Company's staff assists companies in identifying and packaging all the relevant programs available for business expansion, relocation activities, and analyzes the short- and long-term value of these incentives.
- *Site Visit Coordination.* On behalf of our clients, Maine & Company coordinates in-state site visits with local public and private sector representatives for the purpose of evaluating business location opportunities and addressing technical questions about doing business in Maine.
- *Workforce Analysis.* Maine & Company will work with clients to provide a workforce analysis that is based on both quantitative data from respected and trusted databases and anecdotal information from actual employers in the regions under consideration to get a true feel for the hiring culture.

For more information on Maine & Company, go to <http://www.maineeco.org>

Maine & Company Contact:

Peter DelGreco

President & CEO

P: (207) 871-0234 or C: (207) 653-2798

pjdelgreco@maineco.org

Maine Department of Economic & Community Development (DECD)

The Maine Department of Economic & Community Development (DECD), is comprised of more than two dozen experts whose broad mission is to help communities and businesses prosper through a variety of programs providing everything from targeted tax relief to community block grants to tourism marketing. Whether a business wants to make a film here, bring a Maine-made product to market, expand an aquaculture project, or explore financing when moving a business to our state, the experienced DECD staff can help.

DECD and its partners show companies how to benefit from millions of dollars in tax credits, reimbursements, R & D credits, capital loans, even direct investment. Every year, DECD helps Maine communities attract jobs and grow infrastructure with unique financing programs.

DECD's Office of Business Development specializes in assisting businesses of all sizes to grow, including startups, innovators, entrepreneurs, and large industries that have reached scale. The Office of Business Development also works to attract new investment to the State. The Office of Business Development has worked with hundreds of companies all over Maine helping with issues from high speed internet access to finding facilities to house 100 employees to helping communities and companies benefit from the creation of special Pine Tree Development Zones and Tax Increment Financing districts to ease the tax burdens on new and growing businesses.

For more information on the Maine Department of Economic & Community Development, go to <http://www.maine.gov/decd>

DECD Contact:

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Director, Office of Business Development
Maine Department of Economic and Community Development
59 State House Station
Augusta, ME 04333-0059
P: (207) 624-7448
Charlotte.Mace@maine.gov

Finance Authority of Maine (FAME)

The Finance Authority of Maine (FAME), a quasi-governmental agency, has several financing options available to companies designed to provide commercial grade credits with access to attractive interest rate structures.

Some commonly used options:

- The Secondary Market Tax Exempt Bond Program– This program provides tax-exempt interest rate bond financing for manufacturing borrowers.
- The Secondary Market Taxable Bond Program– This program provides long-term bond financing on loans of for real estate and machinery and equipment acquisitions.
- The Major Business Expansion Bond Program– This program provides long-term, credit-enhanced financing up to \$25,000,000 at taxable bond rates for businesses creating or retaining 50 jobs and long-term, tax-exempt bond rates on bonds of up to \$10,000,000 that are used to finance manufacturing expansions.

In addition, FAME offers direct lending programs for forestry-based manufacturing companies including:

FAME DIRECT LOAN

This program helps new or existing businesses with flexible gap financing. Businesses must be Maine-based, exhibit reasonable ability to repay the loan, and demonstrate that other sources of capital have been exhausted. Fixed rate loans of up to \$1,000,000 may be available if substantial public benefit is demonstrated and sufficient funds are available. Most often, however, FAME Direct Loans are less than \$500,000. Loan terms are a maximum of five years. Amortization may be based on the useful life of the assets being financed or additional collateral pledged, with a balloon payment at the end.

Interest Rate

Wall Street Journal Prime plus 2%, at time of loan commitment.

Guarantees

Any individual or entity that owns 20% or more of the borrower or owns 5% or more of the borrower and receives substantial income from the borrower, must guarantee the loan. All loans must be guaranteed by owners of at least 51% of the borrower in aggregate, except for nonprofit borrowers and borrowers owned by 20 or more shareholders. Exceptions to this policy must be approved by the FAME board.

Forestry, Fishing and Farming Initiative (3Fs)

This initiative's goal is to provide access to capital in order to leverage Maine's natural resources. This program will provide subordinate (gap) financing to assist new entrants and/or existing companies undertaking a project to materially expand their operations in forestry, fishing and farming industries.

Eligibility

New entrants to Maine-based natural resources businesses working in Maine's forestry, fishing and farming sectors, or existing companies in those industries undertaking a project to materially expand their operations. This initiative is available for a limited time.

Interest Rate

- FAME Direct Loans: Prime, fixed
- Commercial Loan Insurance: Lending institution's current lending rate Loan Term
- FAME Direct Loans: Maximum term of 5 years (up to 10-year amortization)
- Commercial Loan Insurance: Set by the lender Security Business assets and other collateral as required. Guarantees Unlimited personal guarantees of the business principals secured by personal real estate (where available) generally required.

For more information on the Finance Authority of Maine, go to <http://www.famemaine.com>

FAME Contact:

Charlie Emmons
Senior Commercial Loan Officer
P.O. Box 949
5 Community Drive
Augusta, ME 04332-0949
P: (207) 620-3510 or 1-800-228-3734
cemmons@famemaine.com

Maine Technology Institute (MTI)

The Maine Technology Institute (MTI) is an industry-led, publicly-funded, nonprofit corporation that offers early-stage capital and commercialization assistance in the form of competitive grants, loans and equity investment for the research, development and application of technologies that create new products, processes and services, generating high-quality jobs across Maine.

Maine Technology Institute was established by the Maine State Legislature in 1999. MTI, working with partners across the state, “shall encourage, promote, stimulate and support research and development activity leading to the commercialization of new products and services in the State’s technology-intensive industrial sectors (one of which is Forest Products and Agriculture where a CLT manufacturer would qualify for funding) to enhance the competitive position of those sectors and increase the likelihood that one or more of the sectors will support clusters of industrial activity and to create new jobs for Maine people.” MTI is critical to the State’s economic development strategy and a significant driver in the long-term expansion of research and development assets resulting in the creation of new ventures.

For more information on the Maine Technology Institute, go to <https://www.mainetechnology.org>

MTI Contact: info@mainetechnology.org or [Ready to Start?](#)

Coastal Enterprises, Inc

Founded in 1977, Coastal Enterprises (CEI) integrates financing, business and industry expertise and policy solutions to grow good jobs, environmentally sustainable enterprises and more broadly shared prosperity in Maine and other rural regions. CEI assists Maine businesses through a variety of services, including:

- Lending to and investing in businesses and community organizations
- Providing comprehensive business development advice
- Working with entrepreneurs to find operations and workforce solutions
- Offers expert advice in natural resource-based industries
- Advocates for pragmatic policies that build an economy that works for everyone

For more information on Coastal Enterprises, go to <https://www.ceimaine.org>

CEI Contact:

Betsy Biemann
Chief Executive Officer
30 Federal Street
Brunswick, ME 04011
P: (207) 504-5900

FOR/Maine

Established in 2016, Forest Opportunity Roadmap/Maine (FOR/Maine) is a unique cross-sector collaboration between industry, communities, government, education, and non-profits, which have come together to realize the next generation of Maine's great forest economy. The coalition was created with support from the U.S. Economic Development Administration, U.S. Department of Agriculture, and the Maine Timberlands Charitable Trust, to assess Maine's current industry, assets and readiness, and determine a strategy to capitalize on new opportunities. FOR/Maine combines collaborative actions, innovation, market and resource management expertise, and reliable data to guide smart investment and market expansion in the forest economy.

For more information on FOR/Maine, go to <https://formaine.org/>

FOR/Maine Contact:

Brianna Bowman

Program Director: FOR/Maine

Maine Development Foundation

2 Beech Street, Suite 203

Hallowell, ME 04347

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Maine Forest Service

Under the Department of Agriculture, Conservation and Forestry, the Maine Forest Service (MFS) works to ensure that the trees and forest lands of Maine will continue to provide benefits for present and future generations of Maine people. The MFS accomplishes this through three primary divisions:

- Forest Health and Monitoring
- Forest Policy and Management
- Forest Protection

Through these three divisions, the Maine Forest Service develops, advocates for, and promotes activities that encourage the sound long term management of Maine's forest resources. The Maine Forest Service has 10 District Foresters who provide technical assistance and educational services to landowners, loggers, schools and educational institutions, municipalities and other stakeholders. Field Foresters conduct educational workshops, field demonstrations, media presentations and can provide limited one-on-one contact with individual landowners. MFS provides publications on various aspects of Maine forests, including annual wood processing, silviculture and harvesting reports.

For more information on the Maine Forest Service, go to <https://www.maine.gov/dacf/mfs/>

MFS Contact:

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Maine International Trade Center

Maine International Trade Center (MITC) is Maine's leading source for international business assistance. MITC offers customized consulting and research, affordable trade show participation, and an extensive network of connections across Maine and around the world to help businesses expand global markets for their products and services. A public-private partnership, MITC activities are supported by annual membership dues of nearly 300 businesses and organizations, corporate sponsors, and the Maine Department of Economic & Community Development (DECD).

MITC members are in each of the 16 counties throughout Maine, range from sole proprietors to major employers, and represent a wide variety of industry sectors. MITC members include manufacturers and service providers, economic development and government agencies, educational and research institutions and trade organizations. MITC supports activities with both exporters and importers.

Current MITC programs include:

- Invest in Maine - A collaborative program between MITC and the Maine Department of Economic and Community Development established to promote job creation and growth through overseas business attraction.
- Maine North Atlantic Development Office (MENADO) – formed in 2013 as an initiative by MITC to increase trade, investing and collaborative activity between Maine and the markets of the North Atlantic and to develop Maine's engagement in Arctic affairs.

For more information on the Maine International Trade Center, go to <https://www.mitc.com/>

MITC Contact:

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Regional Forest-Focused Partners

These agencies work within Maine and the region dedicated to a sustainable forest economy

Northern Border Regional Commission

Established in 2008, The Northern Border Regional Commission (NBRC) is a Federal-State partnership for economic and community development in northern Maine, New Hampshire, Vermont, and New York. Each year, the NBRC provides Federal funds for critical economic and community development projects throughout the northeast. These investments lead to new jobs being created and leverages substantial private sector investments. The mission of the Northern Border Regional Commission is to catalyze regional, collaborative, and transformative community economic development approaches that alleviate economic distress and position the region for economic growth.

Working with states in the region, Northern Border Regional Commission invests in four areas:

- Economic & Infrastructure Development Investments
- Regional Forest Economy Partnership
- Local Development Districts
- State Capacity Grant Program

For more information on the Northern Border Regional Commission, go to <http://www.nbrc.gov>

NBRC Contact:

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fedcochair@nbrc.gov

U.S. Forest Service – Northern Research Station

The Northern Research Station's science is complex, but the need for the research is simple. Land managers, city planners, and policy-makers need sound science on all aspects of the natural world and its complex connections with people to achieve decisions resulting in a healthy and sustainable future for present and future generations of Americans. In a region extending from Maine to Minnesota and from Missouri to Maryland, Northern Research Station science aims to understand all of the elements of forests and related landscapes. Part of the Forest Service Research and Development program, the Northern Research Station is one of seven Forest Service research units conducting research with in all 50 States as well as in U.S. territories and commonwealths.

Northern Research Station scientists reach these audiences in a variety of ways, including:

- Publishing in peer-reviewed journals and Station General Technical Reports; approximately 12,000 publications authored or co-authored by Northern Research Station scientists.
- The Station develops web-based tools that deliver sound, peer-reviewed science in a format that is convenient for land managers and others.

The Station manages 22 of the 80 experimental forests that are part of the Forest Service Experimental Forest Network; most of these long-term research sites lie within National Forests. The ability to conduct scientific research in-house, to apply research findings on National Forest System lands, and to transfer these findings to others for use on all of the nation's forest land sets the Forest Service apart as a natural resource agency.

For more information on the U.S. Forest Service's Northern Research Station, go to <https://www.nrs.fs.fed.us>

U.S. Forest Service Northern Research Station Contact:

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New England Forestry Foundation

Founded in 1944, the New England Forestry Foundation (NEFF) helps the people of New England to sustain their way of life, protect forest wildlife habitat and ecosystem services, and mitigate and adapt to climate change. Through the application of our core expertise in conserving forestland and advancing Exemplary Forestry, NEFF works to manage and conserve the natural forest resources in New England for future generations to work and recreate in. NEFF accomplishes this through the following pathways:

- Conserving forestland for future generations through purchases, gifts, and bequests of land and easements.
- Actively managing NEFF-owned lands as demonstration and education forests, applying advanced practices in sustainable forestry and modeling tools and techniques that private landowners may wish to adopt.
- Advocate for policies and incentives that encourage and sustain private forestland ownership, ensuring that landowners have economically viable alternatives to selling their land for development.
- Keep more than 140 NEFF lands open to the public as Community Forests, with no charge for admission, ensuring New Englanders have access to all the recreational opportunities that forests provide.
- Serve as a resource for forestland owners in our region, helping them to achieve their own land management and legacy objectives.
- Educate landowners and the general public about the importance of forestry through outreach and programming.
- Steward conservation easements that have been entrusted to us, ensuring that landowners' conservation intents are sustained in accordance with their expressed wishes.
- Are future-focused and committed to innovation and integrity. NEFF helps prepare the region for a future where forestry is increasingly important, not only to keep forests healthy in the face of climate change, but also as a part of a global environmental solution to climate change. NEFF engages in numerous strategic initiatives to expand the region's land protection capacity, further forest education, and ensure that NEFF fulfills its mission.
- Endorse and partner with organizations and supporters to work towards the Harvard Forest Wildlands and Woodlands vision to conserve 30 million acres of New England forest.

For more information on the New England Forestry Foundation, go to <https://newenglandforestry.org>

NEFF Contact:

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Northern Forest Center

Founded in 1997, The Northern Forest Center has rallied people around a vision for the region's future that is built on three essential ingredients: thriving communities, healthy forests and innovative and resilient local economies. The Center's mission is to build economic and community vitality while fostering sound forest stewardship across the Northern Forest of Maine, New Hampshire, Vermont and New York. The Center advances its mission through network-based programs to create jobs, leverage investment and conserve forests for community benefit. Program strategies focus on locally grounded projects to secure tangible benefits for the region's people, communities and ecosystems through a series of focused efforts:

- **Community Vitality** - Partner with community leaders to implement projects that attract and retain residents who value quality of life and connections to the forest.
- **Automated Wood Heating** - Catalyze market demand for high-efficiency, automated wood heating systems to support the forest economy, reduce heating costs, keep dollars circulating locally, reduce net carbon dioxide emissions and generate millions of dollars of regional positive economic impact.
- **Wood Products Innovation** - Assist wood products manufacturers to implement innovations and advance worker training and career opportunities. These programs help businesses become more competitive, enabling them to sustain and create living-wage jobs.
- **Community Forests** - Advance creation of locally-owned and managed community forests that conserve forestland and generate economic and community benefits such as recreational tourism, timber income and outdoor classrooms.
- **Tourism** - Strengthen the tourism segment of the economy to enhance visitor experiences and improve job opportunities in rural communities. Programs deliver direct business assistance and advance quality-based branding and destination development.
- **Tax Credit Financing** - Facilitate New Markets Tax Credit (NMTC) financings that provide capital for and subsidize multimillion-dollar projects that promote the forest-based economy while also providing community and environmental benefits.
- **Regional Strategy** - Advocate for the needs of the Northern Forest's communities at the state and federal level. The Center brings a unique regional perspective, grounded by specific local projects, to each state capital and the region's congressional delegation and federal agency staff in Washington, D.C. to help shape public policy and secure federal funding for the Northern Forest.

For more information on the Northern Forest Center, go to <https://northernforest.org>

Northern Forest Center Contact:

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Workforce Training & Education

Maine is a leader in developing programs and training initiatives that meet business demands for a highly skilled, technical workforce. Employers praise the state's customized approach, which includes broad-range training, reimbursement, and apprenticeship programs. From covering the cost of training for new employees to partially reimbursing training costs for upgrading skills to providing on-the-job and classroom instruction, Maine strives to help companies have the best employees possible.

Public Colleges and Universities

University of Maine

The University of Maine, founded in Orono in 1865, is the state's Land Grant university and the leading research university in the state. It is among the most comprehensive higher education institutions in the Northeast and attracts students from across the U.S. and 65 countries. It currently enrolls approximately 12,000 total undergraduate and graduate students. UMaine students directly participate in groundbreaking research working with world-class scholars. The University of Maine offers undergraduate and graduate degrees in several areas of interest to the forest economy, including engineering, engineering technology, forestry and forest products.

For more information about the University of Maine, go to <https://umaine.edu>

University of Maine at Augusta

The University of Maine at Augusta (UMA) is the third largest public university of Maine with its main campus in the state's capital and a sister campus in Bangor. UMA also operates a system of nine University Centers and 27 Community Sites to deliver education and distance learning opportunities to communities throughout the state. Of interest to a potential CLT manufacturer, UMA offers the only professional architecture degree in Maine and the only public 5-year professional degree in northern New England.

For more information on the University of Maine at Augusta, go to <https://www.uma.edu>

University of Maine at Farmington

The University of Maine Farmington (UMF) is the premier teacher education and public liberal arts college for the state of Maine, preparing students for engaged citizenship, enriching professional careers, and an enduring love of learning. Since 1864, UMF has focused on educating teachers with the distinctive contemporary mission as a public liberal arts college.

For more information on the University of Maine at Farmington, go to <https://www.umf.maine.edu>

University of Maine at Fort Kent

Nestled in the St. John Valley, an international crossroads of Maine, Quebec and New Brunswick, the University of Maine at Fort Kent (UMFK) is a unique learning institution that is a perfect place for people seeking a rural scholastic atmosphere of modern academic standards combined with an eclectic mix of rugged outdoor vistas, world class sports opportunities, and access to cosmopolitan epicenters across

two countries. Since 1878, UMFK has provided education experiences to students in the northern border region.

For more information on the University of Maine at Fort Kent, go to <https://www.umfk.edu>

University of Maine at Machias

Founded in 1909, the University of Maine at Machias (UMM) has served as Maine's coastal university, providing Environmental Liberal Arts education and creating enriching opportunities for students in collaboration, leadership and community engagement to enhance the social, cultural, economic, and natural environments of the State of Maine.

For more information on the University of Maine at Machias, go to <https://machias.edu>

University of Maine at Presque Isle

Founded in 1903, the University of Maine at Presque Isle (UMPI) has provided traditional and non-traditional students with life-changing opportunities in a caring, small-university environment. UMPI combines liberal arts and selected professional programs and serves as a cultural and educational resource for the entire region.

For more information on the University of Maine at Presque Isle, go to <https://www.umpi.edu>

University of Southern Maine

The University of Southern Maine is a second largest public university of Maine with its main campus in Portland, and two sister campuses located in Gorham and Lewiston. USM offers degrees of interest to potential CLT manufacturers in Mechanical and Electrical Engineering.

For more information on the University of Southern Maine, go to <https://usm.maine.edu>

University of Maine School of Law

Founded in 1962, the University of Maine School of Law (Maine Law) is the only American Bar Association-accredited law school in Maine. Focused only on matters of Law, Maine Law's primary mission is to educate students to serve the public and private sectors with distinction, to contribute to the advancement of the law through scholarly and professional research and writing, and to engage in public services aimed at improving the legal system.

For more information on the University of Maine School of Law, go to <https://mainelaw.maine.edu/>

Maine Maritime Academy

Maine Maritime Academy is a public, co-educational college located in the coastal town of Castine, Maine. Our student population numbers approximately 950 students in courses of study in engineering, management, science, and transportation. MMA students become world-class engineers, supply chain managers, logistics professionals, and scientists here in Maine and beyond.

For more information about Maine Maritime Academy, go to <https://mainemaritime.edu>

Maine Community College System

Consisting of seven colleges with nine campuses throughout the state (Table 10), the Maine Community College System trains over 16,000 students in a variety of disciplines focused on business needs. Training areas specifically of interest to a potential CLT manufacturer include Building Construction Technology, Architectural and Civil Engineering, Electromechanical Technology, Facilities Maintenance and Management, Precision Manufacturing Technology, Electrical & Automation Technology, Woodworking, and Trade & Technical Occupations.

Table 10: List of Maine Community Colleges

College	Location	URL
Central Maine Community College	Auburn	http://www.cmcc.edu/
Eastern Maine Community College	Bangor	http://www.emcc.edu/
Kennebec Valley Community College	Fairfield; Hinckley	http://www.kvcc.me.edu/
Northern Maine Community College	Presque Isle	http://www.nmcc.edu/
Southern Maine Community College	South Portland; Brunswick	http://www.smccme.edu/
Washington County Community College	Calais	http://www.wccc.me.edu/
York County Community College	Wells	http://www.yccc.edu/

For more information about the Maine Community College System, go to <https://www.mccs.me.edu>

Maine Career and Technical Education Schools

With a network of 27 locations co-located within high schools throughout Maine, the goal of the Career and Technical Education Schools is to ensure that students acquire the high-quality technical skills that will prepare them for post-secondary education and entry into an ever-changing workplace. Offering direct training experiences to Maine's high school students, the CTE programs expose students to a variety of career path options and provide hands-on experience to supplement their education.

For more information on Maine Career and Technical Education Schools, go to <http://mainecte.org>

Maine Quality Centers

The Maine Quality Centers program provides customized recruitment and guaranteed fast-track training designed to employer specifications. The Maine Quality Centers have helped over 261 Maine businesses expand and strengthen their workforce and trained over 17,000 people for new positions. The program is offered at no cost and is delivered by the state's community college system. Funds are available to new or expanding firms or consortia creating a minimum of eight new full-time jobs with benefits in the state of Maine. The award is based on skill requirements, wage benefit levels, and company and labor market analysis.

For more information on the Maine Quality Centers, go to Maine's Community Colleges at <https://www.mccs.me.edu/workforce-training/train-my-workforce/maine-quality-centers/>

Maine Apprenticeship program

The Maine Apprenticeship program is available to businesses that want to train their existing and/or new employees in registered apprenticeship positions. It is a customized, systematic training program

designed to meet the needs of Maine employers through on-the-job training (OJT) and related classroom instruction. The program pays for a portion of the registration fees for two courses per semester during the apprenticeship period.

For more information on the Maine Apprenticeship Program, go to the State of Maine Department of Labor at https://www.maine.gov/labor/jobs_training/apprenticeship/

Workforce Information Services

Center for Workforce Research and Information

The Center for Workforce Research and Information develops and disseminates state and area labor market information to employers, job seekers, and other users; provides measurements of labor market outcomes to assist local and state officials, employers, educators, trainers, and the public in making decisions that promote economic opportunity and efficient use of state labor resources; and supports the Department with management and actuarial analyses for program planning and delivery.

For more information on the Center for Workforce Research and Information, go to <https://www.maine.gov/labor/cwri>

Economic and Business Development Groups

Within Maine there are several economic and business development groups focused on business success in their regions. These groups provide access to a variety of programs, including business lending, workforce development, business services and procurement assistance. Working with the local and regional development groups also provides businesses clear pathways to understanding state and local resources available to businesses and employers.

Maine Economic Development Districts

- Androscoggin Valley Council of Governments <http://www.avcog.org>
 - Coverage Area: Androscoggin and Franklin counties as well as all of Oxford County EXCEPT for the municipalities of Denmark, Fryeburg, Hiram, Lovell, Porter, Stoneham, Stow, and Sweden
- Eastern Maine Development Corporation www.emdc.org
 - Coverage Area: Hancock, Penobscot, and Piscataquis counties as well as the Waldo County municipalities of Belfast, Frankfort, Knox, Liberty, Monroe, Morrill, Montville, Prospect, Searsport, Stockton Springs, and Winterport
- Greater Portland Council of Governments <https://www.gpcog.org>
 - Coverage Area: 26 municipalities in the Greater Portland and Lakes Region, including Bridgton, Cape Elizabeth, Casco, Chebeague Island, Cumberland, Dunham, Falmouth, Freeport, Frye Island, Gorham, Gray, Harrison, Long Island, Naples, New Gloucester, North Yarmouth, Portland, Pownal, Raymond, Scarborough, Sebago, South Portland, Standish, Westbrook, Windham, and Yarmouth
- Kennebec Valley Council of Governments www.kvcog.org
 - Coverage Area: Kennebec and Somerset counties as well as well as the Waldo County municipalities of Burnham, Freedom, Palermo, Thorndike, Troy, and Unity
- Midcoast Council of Governments www.mceddme.org
 - Coverage Area: Knox County as well as the Waldo County municipalities of Belmont, Lincolnville, Northport, and Searsport
- Northern Maine Development Commission <http://www.nmdc.org>
 - Coverage Area: Aroostook and Washington counties
- Southern Maine Regional Planning Commission www.smpdc.org
 - Coverage Area: The Oxford County municipalities of Brownfield, Denmark, Fryeburg, Hiram, Lovell, Porter, Stoneham, Stow, and Sweden

Other Regional Development Partners

- Aroostook Partnership <http://www.arostookpartnership.org>
 - Coverage Area: Aroostook County
- Our Katahdin <http://www.ourkatahdin.com>
 - Coverage Area: Katahdin region, including the communities of East Millinocket, Medway, Millinocket, Patten and surrounding areas.
- Sunrise County Economic Council <http://sunrisecounty.org>

- Coverage Area: Washington County

Maine Small Business Development Centers (SBDCs)

Since 1977, Maine's Small Business Development Centers have leveraged federal, state and higher education resources to assist entrepreneurs and spur economic growth. The SBDC concept is a simple but effective one: assist entrepreneurs and small businesses through no-cost confidential business advising and training.

The Maine SBDC program helps build and strengthen small businesses through business advising, training and educational resources. Certified business advisors provide guidance on topics such as business feasibility, business plan development, capital acquisition, financial management, marketing and sales, e-commerce, customer service, personnel management, small business strategic planning and more.

The Maine SBDC is a program of the U.S. Small Business Administration, the Maine Department of Economic and Community Development and the University of Southern Maine. Accredited by America's Small Business Development Centers, the Maine SBDC operates a network of 22 service centers in partnerships with development groups throughout the state to provide a variety of services to Maine's small businesses and startups, including:

- Business planning
- Financing and taxes
- Marketing and sales
- Operations and management

For more information on the Maine Small Business Development Centers, go to

<http://www.mainesbdc.org>

Workforce Development Boards

Within Maine there are several boards dedicated to addressing workforce challenges by developing strategies and programs to connect employees and employers with resources which align employee skillsets with employer needs to increase employment and employee retention.

State Workforce Board

The State Workforce Board was created by the Maine Legislature to ensure that the State's workforce development system helps Maine people and businesses compete successfully in the global economy. It is part of a larger network called the Workforce Development System (WDS) which includes other State agencies such as Department of Education, Adult Education, Department of Health and Human Services, as well as the College and University System and employers. The board works with industry and state partners to develop strategies to:

- Address current and emerging skill gaps in Maine's workforce
- Provide a means to engage directly with industry across traditional boundaries, and
- Better align state programs and resources serving employers and workers

For more information on the State Workforce Board, go to <https://www.maine.gov/swb>

Central Western Maine Workforce Development Board

Serving Androscoggin, Franklin, Oxford, Kennebec and Somerset counties, the Central Western Maine Workforce Development Board is the primary coordinator for providing comprehensive, professional and timely workforce development services for job seekers and employers in the region. CMMWDB guides investments in workforce preparation, skill development, education and training to result in a diverse and satisfied workforce meeting the needs of employers. By designing initiatives which consider and address the demands and areas of focus for local employers, businesses, educators and trainers, CMMWDB strives to resolve skill and education gaps within the available local workforce to strengthen local businesses and create a more resilient workforce. CMMWDB believes regular interaction between the education system, employers and the workforce development system is absolutely necessary for success.

For more information on the Central Western Maine Workforce Development Board, go to <http://cmmwdb.org>

Coastal Counties Workforce, Inc.

Serving Maine's six coastal counties (York, Cumberland, Sagadahoc, Lincoln, Waldo and Knox), CCWI develops and directs regional workforce development policies and regional strategies. Through their role as regional convener and ongoing partnerships with other local, state and federal agencies, education, and economic development organizations, CCWI strives to provide access to jobs, skill development and business services vital to the social and economic well-being of our region's communities.

For more information on the Tri County Workforce Investment Board, go to <http://www.coastalcounties.org>

Tri County Workforce Investment Board

Serving Penobscot, Hancock, and Piscataquis counties, the Tri-County Workforce Investment Board is a local organization dedicated to bringing together employers and employees to promote a healthy economy in the region. The board directs the use of employment resources for the benefit of employees and current and future employers by:

- nurturing partnerships,
- working in conjunction with local economic development initiatives,
- and being mindful of the needs of the local economy.

The Tri County Workforce Investment strives to develop a skilled and diverse workforce, create opportunities for employers and employees, maintain a high quality of life sustainable over changing economic conditions.

For more information on the Tri County Workforce Investment Board, go to <http://www.tricountywib.org>

Additional Online Resources

These resources are outlined to provide additional information for exploring Maine as a viable CLT manufacturing location.

Maine Forest Service

Annual reports on silviculture, stumpage and wood processing

https://www.maine.gov/dacf/mfs/publications/annual_reports.html

Maine Department of Transportation

Maine Freight Map <https://www.maine.gov/mdot/maps/docs/FreightMap2016.pdf>

Maine Rail System Map https://www.maine.gov/mdot/maps/docs/RailSystem_2016.pdf

Maine Highway Corridor Priorities Map

[https://www.maine.gov/mdot/docs/maps/Highway_Corridor_Priorities%20 October2017.pdf](https://www.maine.gov/mdot/docs/maps/Highway_Corridor_Priorities%20October2017.pdf)

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