



The Economic Impact of Value-Added Wood Manufacturing on Vancouver Island September 2017

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1. EXECUTIVE SUMMARY

To help assess the current contribution of the value-added wood manufacturing industry on Vancouver Island, the Vancouver Island Economic Alliance (VIEA) engaged MNP LLP (MNP) to carry out an economic impact study of the industry.

Value-Added Wood Manufacturing on Vancouver Island

Value-added wood manufacturing refers to the use of primary manufacturing products (e.g. dimensional lumber, pulp and paper, and panels) to produce semi-finished and finished products such as plywood, veneer pallets, furniture and other wood products. Value-added manufacturers on Vancouver Island produce a range of products, including:

- Remanufactured products used in construction applications and by other value-added wood product manufacturers.
- Cabinets and furniture.
- Artisanal products, such as art, hot tubs, oars and paddles, greenhouses, garden structures, instruments and other handcrafted items.
- Millwork.
- Engineered wood products, such as glue laminated timber and laminated veneer lumber.

Value-added wood manufacturing is a significant industry and employer on Vancouver Island. There are approximately 137 value-added wood manufacturing businesses on Vancouver Island, which employ over 1,600 people.* Most of the value-added wood manufacturers are small operations and have fewer than 20 employees.

**VIEA and MNP estimates.*

According to interviews with industry representatives most of the inputs used in value-added wood manufacturing on Vancouver Island are sourced locally. The products produced by value-added manufacturers are sold in BC, and some cases exported to the United States, China, Japan and Russia.

Economic Impacts of Value-Added Wood Manufacturing on Vancouver Island

The value-added wood manufacturing industry on Vancouver Island generates positive economic impacts through direct expenditures on goods and services, the generation of employment and the generation of tax revenues for local, provincial and federal governments. The estimated annual economic impacts of the industry on Vancouver Island are shown in Table A.

Table A: Estimated Economic Impacts of Value-Added Wood Manufacturing on Vancouver Island (2016)

| | Output (Millions) | GDP (Millions) | Employment (FTEs) | Federal Tax (Millions) | Provincial Tax (Millions) | Municipal Tax (Millions) |
|----------------------------|----------------------|-------------------|----------------------|------------------------------|---------------------------------|--------------------------------|
| Direct | \$241.7 | \$78.8 | 1,587 | \$9.5 | \$5.4 | \$1.1 |
| Indirect and Induced | \$264.4 | \$133.9 | 1,306 | \$16.9 | \$12.9 | \$4.2 |
| Total | \$506.1 | \$212.7 | 2,893 | \$26.4 | \$18.3 | \$5.3 |

The direct and indirect employment impacts created by wood product manufacturing are equivalent to the direct and indirect employment supported by the construction of approximately 1,155 new homes in BC.¹ In 2016, this was equivalent to roughly 25 percent of the new home starts in Vancouver Island's seven largest communities.^{2,3}

Direct Employment by Subsector

Table B shows the number of value-added manufacturers on Vancouver Island and the estimated direct employment multiplier by category of product produced. In 2016, value-added wood product manufacturing directly employed over 1,600 people on Vancouver Island. Every \$1 million in revenue generated by the industry was estimated to support an average of 6.77 FTEs.

Table B: Estimated Direct Employment Impacts of Value-Added Manufacturing by Subsector (2016)

| Subsector | Number of Value-Added Manufacturers | Direct Employment | | Estimated Direct Employment per \$ Million of Output | |
|--|-------------------------------------|-------------------|-------------------|--|-------------|
| | | Jobs | FTEs ⁴ | Jobs | FTEs |
| Sawmills and wood preservation | 60 | 853 | 810 | 7.80 | 7.40 |
| Veneer, plywood and engineered wood products | 6 | 215 | 204 | 7.86 | 7.46 |
| Other wood product manufacturing | 71 | 603 | 573 | 5.75 | 5.46 |
| Overall | 137 | 1,671 | 1587 | 6.91 | 6.77 |

¹Canadian Home Builders Association, 2016 British Columbia Impacts of New Home Construction, http://www.chba.ca/CHBA/Housing_in_Canada/Information_and_Statistics/impacts/1%20British%20Columbia%20Economic%20Impacts%20of%20New%20Home%20Construction%202016.pdf.

² The seven largest communities on Vancouver Island are Victoria, Nanaimo, Campbell River, Courtenay, Duncan, Port Alberni, and Parksville - Qualicum Beach.

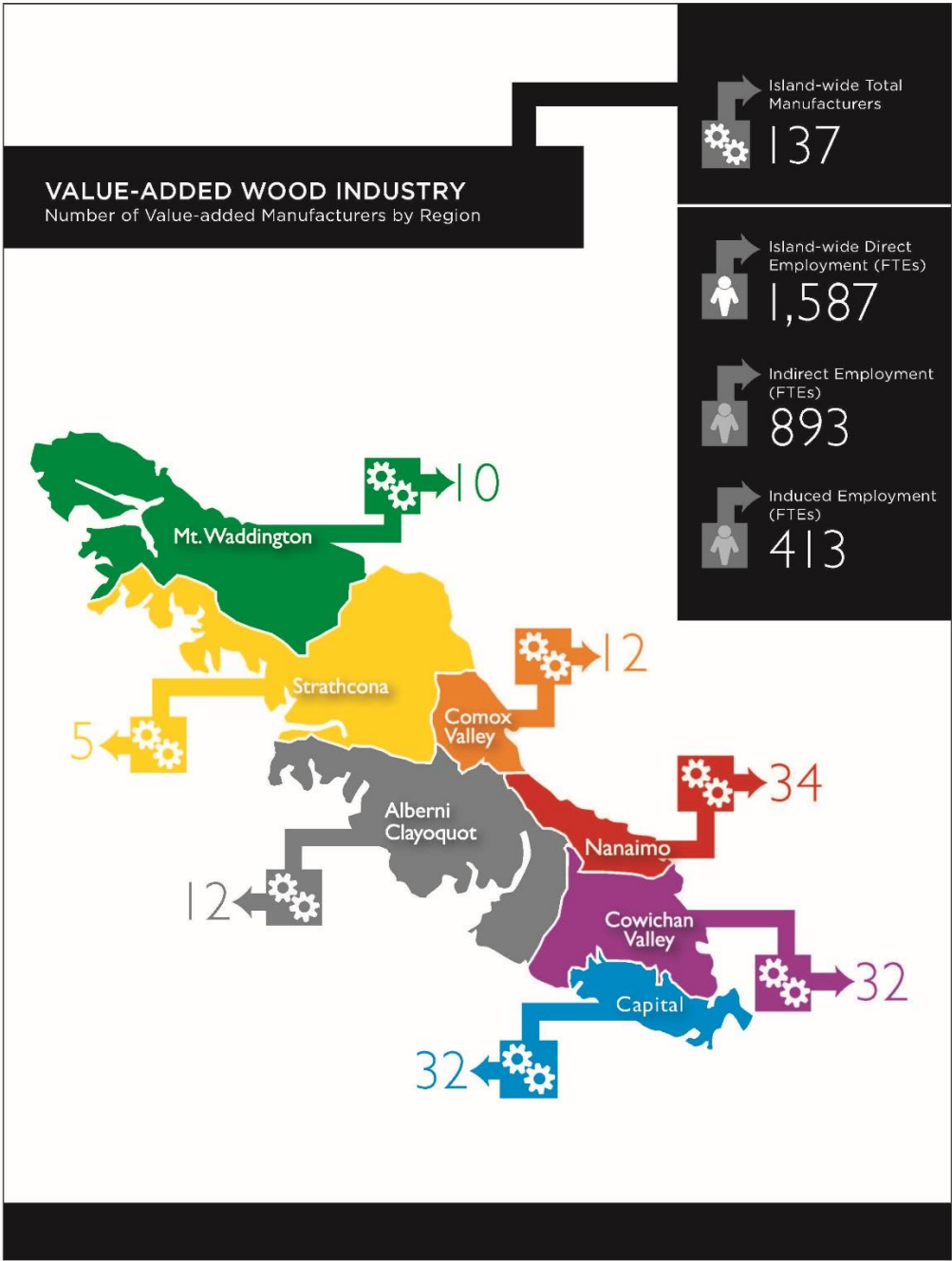
³ New home starts data retrieved from BC Stats, Housing Starts, <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Economy/BuildingPermitsHousingStartsandSales.aspx>.

⁴ Jobs were converted to FTEs based on the share of full-time employment in durable product manufacturing reported by Statistics Canada (CANSIM) Table 282-0008

Regional Economic Impacts

The estimated employment impacts generated by value-added wood product manufacturing are distributed across all of Vancouver Island’s major regions. Figure 1 shows the regional distribution of value-added wood manufacturing.

Figure 1: Regional Distribution of Value-Added Manufacturing on Vancouver Island



2. INTRODUCTION

Background and Purpose

The Vancouver Island Economic Alliance (VIEA) is interested in diversifying the forest/wood industries on Vancouver Island. Of particular interest is the enhancement of value-added (secondary) wood manufacturing. To help assess the current contribution of value-added wood manufacturing to local communities across Vancouver Island and to Vancouver Island as a whole VIEA engaged MNP LLP (MNP) to undertake an economic impact study of the industry.

Scope

The scope of this study included:

- Describing the value chain of the value-added wood manufacturing industry on Vancouver Island.
- Estimating the economic impacts of the value-added wood manufacturing industry on Vancouver Island.

Approach

In preparing this report MNP carried out the following activities:

- Reviewed information on the sizes, locations and products of value-added wood manufacturers on Vancouver Island provided by VIEA.
- Gathered information from publicly available sources on production and revenues of value-added wood manufacturers on Vancouver Island.
- Identified gaps in the data and developed strategies to fill those gaps.
- Conducted interviews with industry representatives to gather information on the value-added wood manufacturing value chain on Vancouver Island.
- Developed a value chain describing the linkages between the activities of value-added wood manufacturers and other components of the Vancouver Island economy.
- Developed estimates of the economic impacts of the value-added wood manufacturing industry on Vancouver Island, using an input-output methodology.

Structure of the Report

The remainder of the report is organized as follows:

- Section 3 describes the methodology and data sources used in the study.
- Section 4 describes of the role of value-added wood manufacturing on Vancouver Island.
- Sections 5 and 6 present estimates of the economic impacts of the value-added wood manufacturing industry on Vancouver Island overall, and at the subsector and community level.

Limitations

This report is provided for information purposes and is intended for general guidance only. It should not be regarded as comprehensive or as a substitute for personalized, business investment advice.

We have relied upon the completeness, accuracy and fair presentation of all information and data obtained from VIEA and public sources, believed to be reliable. The accuracy and reliability of the findings and opinions expressed in the presentation are conditional upon the completeness, accuracy and fair presentation of the information underlying them. As a result, we caution readers not to rely upon any findings or opinions expressed for business or investment decisions and disclaim any liability to any party who relies upon them as such.

Before taking any particular course of action, readers should contact their own professional advisor to discuss matters in the context of their particular situation.

3. ECONOMIC IMPACT APPROACH

To estimate the economic impacts, MNP employed an input-output methodology based on economic multipliers published by Statistics Canada.

Input-output modeling is a widely-used and widely-accepted approach, making it recognizable by many different stakeholders and audiences. The structure of the approach also facilitates easy comparisons between reported results for different projects and facilities.

In general, economic impacts are viewed as being restricted to quantitative, well-established measures of economic activity. The most commonly used of these measures are output, GDP, government tax revenue and employment:

- **Output** is the total gross value of goods and services produced by a given company or industry measured by the price paid to the producer. This is the broadest measure of economic activity.
- **Gross Domestic Product (“GDP”)**, or value added, refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. Thus GDP is equal to the unduplicated value of goods and services produced.
- **Employment** is the number of additional jobs created. Employment is measured in terms of full-time equivalents (“FTEs”). One FTE may be considered one person-year of employment. That is, one FTE is the equivalent of one person working full-time for a period of one year
- **Labour Income** refers to the salaries and wages for the FTE jobs created.
- **Government Tax Revenues** are the total amount of tax revenues generated for different levels of government. Tax revenues arise from personal income taxes, corporate income taxes, taxes on products and taxes on production. Please note that because tax revenues can frequently change due to modifications in tax policy, the tax revenue impacts in this report are estimates only and subject to change. They should be viewed as approximate in nature

Economic impacts may be estimated at the direct, indirect and induced levels.

- **Direct impacts** are due to changes to “front end” businesses that would initially receive operating revenue as a direct consequence of the operations and activities of a facility or industry.
- **Indirect impacts** arise from changes in activity for suppliers of the “front end” businesses.
- **Induced impacts** arise from shifts in spending on goods and services as a consequence of changes to the payroll of the directly and indirectly affected businesses.

Appendix B provides definitions of economic impact terms, and Appendix C provides a description of the methodology used by MNP to develop economic impact estimates.

Data Sources

Information used in the study was gathered from publicly available sources, VIEA and through interviews with industry representatives. For a list of data sources consulted and companies interviewed, please see Appendix A.

4. VALUE-ADDED WOOD MANUFACTURING ON VANCOUVER ISLAND

Wood product manufacturing is a key component of the forest industry on Vancouver Island, accounting for approximately one-third of the forest industry's direct employment (see Table 1).

Table 1: Forestry Employment by Subsector on Vancouver Island, 2016

| | Employment | Share of Employment |
|------------------------------|------------|---------------------|
| Forestry and Logging | 5,400 | 50% |
| Wood Product Manufacturing | 3,600 | 33% |
| Pulp and Paper Manufacturing | 1,900 | 17% |
| Total | 10,900 | 100% |

Source: Statistics Canada, Labour Force Survey, Custom Tabulation. Prepared by BC Stats, April 2016

The wood product manufacturing sector includes both primary manufacturing and value-added manufacturing. Primary manufacturing facilities convert raw logs into lumber products or panels for use in structural, industrial and appearance applications and for use in value-added manufacturing. Value-added manufacturing uses primary manufacturing products (e.g. dimensional lumber, pulp and paper, and panels) to produce semi-finished and finished products. These products include engineered wood, mouldings, window and door frames, cabinets, furniture components and pallets. Log homes are also produced by value-added wood manufacturers.

According to data provided by VIEA there are approximately 137 value-added wood manufacturing businesses on Vancouver Island.⁵ These businesses are generally small-scale producers employing fewer than 20 people.

The main categories of products produced on Vancouver Island are:

- **Remanufactured Products** - The remanufactured lumber industry uses sawn lumber to produce semi-finished and finished products. Remanufacturers put hardwood and softwood lumber through processes, such as re-sawing and kiln drying, which change product characteristics (thickness, width, length or profile), or which join pieces together by finger joint or otherwise.⁶ The sector's finished products are generally sold to wholesale distributors and building contractors. Semi-finished products, such as veneer, cut stock and components, are also sold to downstream industry sectors for further processing into finished wood products.

There are approximately 60 value-added wood manufacturing businesses on Vancouver Island that are involved in the remanufacturing of wood and wood products. Most of those businesses are small sawmills that produce remanufactured wood products for use in building construction and furniture and cabinetry applications.

- **Cabinets and Furniture** - The cabinets and furniture industry produces cabinets, vanities and countertop products, and furniture that are made of wood and wood coverings. Products are supplied to customers as stock items, semi-custom or custom manufactured items. Demand for cabinets is primarily for residential construction and renovation, while demand for furniture is primarily retail.

There are more than 20 producers of wooden cabinets and furniture ranging in size from a single employee to almost forty employees. These manufacturers serve both commercial and residential customers.

- **Artisanal Products** - A relatively large segment of the value-added wood manufacturing industry on Vancouver Island is the artisanal and woodworking products market (not including furniture makers).

⁵ VIEA estimate. This estimate excludes manufacturers primarily engaged in the production of dimensional lumber.

⁶ Canada Wood, Value-added Products, http://www.canadawood.org/pro_value.php.

This segment includes musical instrument manufacturers, wooden hot-tub and sauna producers, an oar and paddle maker, a wooden greenhouse manufacturer, wooden crate and garden box makers, as well as several producers of wooden art and other artisanal crafted wood products.

There are approximately 20 manufacturers of artisanal products on Vancouver Island.

- **Millwork** - The millwork products industry produces interior and exterior doors, windows, flooring, moulding, architectural woodwork, turned wood and stairs. Standard millwork products that do not require customisation, such as flooring and moulding, are manufactured using highly automated processes, while products such as doors and windows that require customization have a higher labour component and are manufactured using processes that are not as easily automated.

There are more than 20 businesses are involved in producing millwork products on Vancouver Island.

- **Prefabricated Wood Buildings/Sections and Log home and Timber Frames** - Prefabricated wood buildings and sections are manufactured in facilities and transported to building sites for final assembly. Other common applications for prefabricated buildings include home extension applications (e.g., outdoor living areas and storage areas) and commercial and institutional applications in rural and remote areas.

There are approximately 10 businesses involved in the production of log homes, prefabricated homes, and prefabricated building sections on Vancouver Island.

- **Engineered Wood Products** - Engineered wood products are manufactured on Vancouver Island by several specialized producers. These businesses produce structural wood members and reconstituted wood panel products, such as glue laminated timber (glulam) and laminated veneer lumber (LVL).

Glulam is created by adhesively bonding individual pieces of lumber or structural composite lumber. The products can easily be shaped into forms ranging from straight beams to complex curved members, and are used in a variety of structural and design applications in both residential and non-residential construction.

LVL is a structural composite lumber product and is produced by bonding thin wood veneers that are then sawn to desired dimensions and lengths depending on the end use. Popular LVL applications include headers, beams, scaffold planking and flange material for prefabricated wood I-joists.⁷

There are approximately 4 businesses involved in the production of engineered wood products on Vancouver Island.

Value-Added Wood Manufacturing Value Chain

Vancouver Island's value-added wood manufacturing industry generates economic impacts through its linkages with other industries. The relationships between the industry's core activities and its suppliers are shown in the value chain graphics in Figures 2 and 3.

Figure 2 shows the industry's primary activities and the stakeholders with which it interacts. Figure 3 shows how inputs flow through the value chain as value-added manufacturers purchase inputs such as logs, dimensional lumber and other materials from their suppliers. These inputs are turned into value added products such as plywood, veneer pallets, furniture and other wood products, which are sold to the construction industry or to wholesale and retail businesses.

⁷ APA - Engineered Wood Association, Structural Composite Lumber (SCL), <http://www.apawood.org/structural-composite-lumber#laminated-veneer-lumber>.

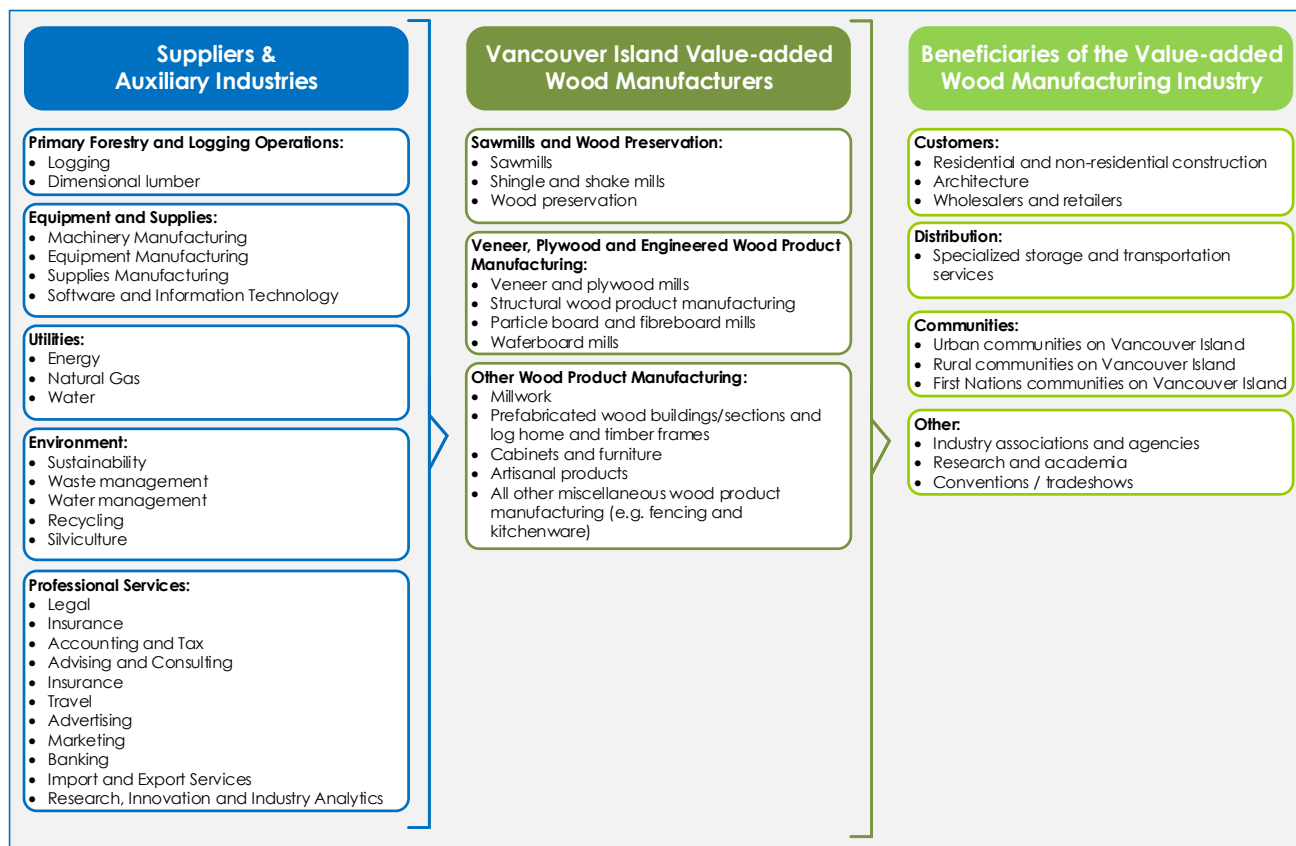
According to industry representatives interviewed by MNP, value-added manufacturers source many of their inputs from local suppliers. This includes the majority of logs, custom cut wood and dimensional lumber used, and where possible, operational supplies and equipment such as spare parts, lubricants, safety equipment and stains. Specialized parts may be ordered from other areas of the province or from suppliers outside of BC. Specialized equipment for wood processing such as specialty saws, blades and other timber tools are often purchased from producers outside of Canada (e.g. Germany, Switzerland or the United States).

Many of the value-added products produced on Vancouver Island are sold in BC. Some manufacturers also sell their products in other parts of Canada, the United States, China, Japan and Russia.

Figure 2: Value Chain for Value-Added Wood Manufacturing on Vancouver Island – Links with Different Industries



Figure 3: Value Chain for Value-Added Wood Manufacturing on Vancouver Island – Flow of Input through the Value Chain



5. ECONOMIC IMPACT ANALYSIS

Economic Impacts of Value-Added Wood Manufacturing on Vancouver Island

The value-added wood manufacturing industry on Vancouver Island generates positive economic impacts through direct expenditures on goods and services, the generation of employment and the generation of tax revenues for local, provincial and federal governments.

Table 1 shows the estimated economic impacts of value-added wood manufacturing on Vancouver Island. In 2016 value-added wood manufacturing was estimated to generate impacts of approximately:

- \$241.7 million in direct output and \$506.1 million in total economic output in BC.
- \$78.8 million in direct GDP and \$212.7 million in total GDP in BC.
- 1,587 FTEs of direct employment and 2,893 FTEs of total employment in BC.
- \$16.0 million in direct revenue for all three levels of government and \$50.1 million in total government revenue.

Table 1: Estimated Economic Impacts of Value-Added Wood Manufacturing on Vancouver Island (2016)

| | Output (Millions) | GDP (Millions) | Employment (FTEs) | Federal Tax (Millions) | Provincial Tax* (Millions) | Municipal Tax (Millions) |
|----------------------------|----------------------|-------------------|----------------------|---------------------------|----------------------------------|-----------------------------|
| Direct | \$241.7 | \$78.8 | 1,587 | \$9.5 | \$5.4 | \$1.1 |
| Indirect and Induced | \$264.4 | \$133.9 | 1,306 | \$16.9 | \$12.9 | \$4.2 |
| Total | \$506.1 | \$212.7 | 2,893 | \$26.4 | \$18.3 | \$5.3 |

* Please note that tax revenues do not include stumpage fees or other resource royalties from the harvest of timber used in value-added manufacturing.

Industry Comparisons

To provide perspective on the relative size of the economic impacts of Vancouver Island's value-added wood manufacturing industry, it is useful to provide a comparison with other industries and initiatives in BC. We have compared the estimated industry impacts to those generated by home construction, film and television productions, aquaculture and tourism:

Home Construction

The direct and indirect jobs supported by the value-added wood manufacturing industry on Vancouver Island are equivalent to the direct and indirect employment supported by the construction of approximately 1,155 new

homes in BC.⁸ In 2016, this was equivalent to roughly 25 percent of the new home starts in Vancouver Island's seven largest communities.^{9,10}

Film and Television

The total employment supported by the production of a season of a high-end television series or the filming of a large budget motion picture is between 1,000 FTEs and 1,800 FTEs.¹¹ The total annual employment supported by the value-added wood manufacturing industry on Vancouver Island is therefore equivalent to the employment supported by the annual production of about two to three high-end television series or large budget motion pictures.

Aquaculture

The total contribution to GDP and employment of the value-added wood manufacturing industry on Vancouver Island is comparable to the GDP and employment generated by the salmon farming industry on Vancouver Island. The value-added wood manufacturing industry generates about 212.8 million in total GDP and 2,893 in total employment on Vancouver Island, while the salmon farming industry generates approximately \$246.6 million in GDP and 2,986 in employment.¹²

Tourism

Hosting the 2015 FIFA Women's World Cup in BC generated approximately \$52.0 million in total output.¹³ The total annual economic output generated by value-added wood manufacturers on Vancouver Island (\$506.1 million) is therefore roughly equivalent to hosting 10 of the FIFA Women's World Cup.

⁸Canadian Home Builders Association, 2016 British Columbia Impacts of New Home Construction, http://www.chba.ca/CHBA/Housing_in_Canada/Information_and_Statistics/impacts/1%20British%20Columbia%20Economic%20Impacts%20of%20New%20Home%20Construction%202016.pdf.

⁹ The seven largest communities on Vancouver Island include Victoria, Nanaimo, Campbell River, Courtenay, Duncan, Port Alberni, and Parksville - Qualicum Beach.

¹⁰ New home starts data retrieved from BC Stats, Housing Starts, <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Economy/BuildingPermitsHousingStartsandSales.aspx>.

¹¹ Motion Picture Association – Canada, Economic Impacts of *Tomorrowland*, <http://www.mpa-canada.org/wp-content/uploads/2015/05/MNP-Analysis-For-May-21-2015-Release.pdf/>, and Economic Impacts of *Supernatural*, <http://www.mpa-canada.org/wp-content/uploads/2016/05/Economic-Impacts-of-Supernatural.pdf>.

¹² BC Salmon Farmers Association, Economic Impact Study of the Farm-Raised Salmon Industry in BC, https://bcsalmonfarmers.ca/wp-content/uploads/2015/01/1_BCSFA_2014_EconImpactStudy.pdf.

¹³ BC Government News, FIFA Women's World Cup will add \$52 million to B.C. economy, <https://news.gov.bc.ca/stories/fifa-womens-world-cup-will-add-52-million-to-bc-economy>.

6. DIRECT EMPLOYMENT BY SUBSECTOR AND REGION

To illustrate the impact of value-added wood manufacturing at the subsector and regional level we used information on the revenues and employment at local manufacturers to develop estimates of the economic impacts and the employment multiplier for different categories of value-added wood products. The product categories were based on the North American Industry Classification System (NAICS) as follows:

- **Sawmills and wood preservation (NAICS 3211)** – Businesses producing both primary products such as dimensional lumber and remanufactured products such as posts, poles, shakes and shingles.
- **Veneer, plywood and engineered wood product manufacturing (NAICS 3212)** – Businesses producing veneer, plywood and structural wood members (except lumber), as well as reconstituted wood panel products from softwood and hardwood lumber.
- **Other wood product manufacturing (NAICS 3219)** – This grouping includes businesses producing millwork (e.g., window frames, doors and moulding), wood container and pallet manufacturing, prefabricated wood buildings, artisan products (e.g., bowls and kitchenware) and all other wood product manufacturing.

Table 2 shows the number of value-added manufacturers on Vancouver Island and the estimated direct employment multiplier by subsector. In 2016, value-added wood product manufacturing directly employed over 1,600 people on Vancouver Island. On average every \$1 million in revenue generated by the industry was estimated to support 6.77 FTEs.

Table 2: Estimated Employment Impacts of Value-Added Manufacturing by Subsector (2016)

| Subsector | Number of Value-Added Manufacturers | Direct Employment | | Estimated Direct Employment per \$ Million of Output | |
|--|-------------------------------------|-------------------|--------------------|--|-------------|
| | | Jobs | FTEs ¹⁴ | Jobs | FTEs |
| Sawmills and wood preservation | 60 | 853 | 810 | 7.80 | 7.40 |
| Veneer, plywood and engineered wood products | 6 | 215 | 204 | 7.86 | 7.46 |
| Other wood product manufacturing | 71 | 603 | 573 | 5.75 | 5.46 |
| Overall | 137 | 1,671 | 1,587 | 6.91 | 6.77 |

Table 2 shows the estimated employment impacts of value-added manufacturing by region. The reliance on local suppliers for inputs such as wood and other materials suggests that a significant share of the indirect and induced employment associated with value-added wood manufacturing would also be located on Vancouver Island.

¹⁴ Jobs were converted to FTEs based on the share of full-time employment in durable product manufacturing reported by Statistics Canada (CANSIM) Table 282-0008

Table 2: Estimated Employment Impacts of Value-Added Manufacturing by Region (2016)

| Region | Number of Value-Added Manufacturers | Direct Employment (FTEs) | Indirect Employment (FTEs) | Induced Employment (FTEs) |
|-------------------|-------------------------------------|--------------------------|----------------------------|---------------------------|
| Cowichan Valley | 32 | 305 | 250 | 119 |
| Capital | 32 | 287 | 156 | 73 |
| Nanaimo | 34 | 519 | 247 | 120 |
| Mt Waddington | 10 | 36 | 20 | 8 |
| Alberni-Clayoquot | 12 | 227 | 105 | 45 |
| Comox Valley | 12 | 161 | 76 | 32 |
| Strathcona | 5 | 5 | 52 | 39 |
| Total | 137 | 1,587 | 893 | 413 |

APPENDIX A: DATA SOURCES

Secondary Research - Sources Consulted

Industry Research:

- Government of British Columbia, Generating More Value from Our Forests: A Vision and Action Plan for Further Manufacturing, http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/generating-more-value/generating_more_value_from_our_forests.pdf.
- First Research, US Furniture Manufacturing, December 2014.
- IBISWorld, Millwork in Canada, June 2014.
- Statistics Canada, Beyond 20/20 IVT tables, Location Counts by CSD, NAICS 113 – Forestry and logging, June 2016.
- Statistics Canada Labour Force Survey, Custom Tabulation, Prepared by BC Stats, April 2016.

Industry Comparisons:

- APA - Engineered Wood Association, CLT, <http://www.apawood.org/CLT>.
- APA - Engineered Wood Association, Structural Composite Lumber (SCL), <http://www.apawood.org/structural-composite-lumber#laminated-veneer-lumber>.
- BC Government News, FIFA Women's World Cup will add \$52 million to B.C. economy, <https://news.gov.bc.ca/stories/fifa-womens-world-cup-will-add-52-million-to-bc-economy>.
- BC Salmon Farmers Association, Economic Impact Study of the Farm-Raised Salmon Industry in BC, https://bcsalmonfarmers.ca/wp-content/uploads/2015/01/1_BCSFA_2014_EconImpactStudy.pdf.
- BC Stats, Housing Starts, <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Economy/BuildingPermitsHousingStartsandSales.aspx>.
- Canada Wood, Value-added Products, http://www.canadawood.org/pro_value.php.
- Canadian Home Builders Association, 2016 British Columbia Impacts of New Home Construction, http://www.chba.ca/CHBA/Housing_in_Canada/Information_and_Statistics/impacts/1%20British%20Columbia%20Economic%20Impacts%20of%20New%20Home%20Construction%202016.pdf.
- Motion Picture Association – Canada, Economic Impacts of Supernatural, <http://www.mpa-canada.org/wp-content/uploads/2016/05/Economic-Impacts-of-Supernatural.pdf>.
- Motion Picture Association – Canada, Economic Impacts of Tomorrowland, <http://www.mpa-canada.org/wp-content/uploads/2015/05/MNP-Analysis-For-May-21-2015-Release.pdf>

Primary Research – Interviewees

To gather information for this study, MNP talked to value-added wood manufacturers on Vancouver Island. We spoke to representatives from the following businesses:

- Paulcan and Jemco Enterprises Ltd., <http://www.paulcan.com/>
- Island Timber Frame Ltd., <http://islandtimberframe.com/>
- BC Coastal Grilling Planks, <http://www.bccoastalgrillingplanks.com/>

APPENDIX B: GLOSSARY OF ECONOMIC TERMS

| Term | Definition |
|-------------------------------|---|
| Output | <ul style="list-style-type: none"> Output is the total gross value of all business revenue. This is the broadest measure of economic activity. |
| GDP | <ul style="list-style-type: none"> GDP is the “value added” to the economy (the unduplicated total value of goods and services). |
| Government Tax Revenue | <ul style="list-style-type: none"> Government tax revenue is the total amount of tax revenue generated for different levels of government, including municipal, provincial and federal taxes. |
| Employment | <ul style="list-style-type: none"> The number of additional jobs created, measured in full-time equivalent employees (FTEs). |
| Direct Impacts | <ul style="list-style-type: none"> Direct impacts are changes that occur in front-end businesses that receive expenses or operating revenue as a direct consequence of an industry. |
| Indirect Impacts | <ul style="list-style-type: none"> Indirect impacts are changes in the activity of suppliers to front-end businesses. Indirect impacts include the spending suppliers make when purchasing goods and services. |
| Induced Impacts | <ul style="list-style-type: none"> Induced impacts are due to shifts in spending on goods and services as a consequence of the payroll of the directly and indirectly affected businesses. Induced impacts reflect the additional spending by employees of the front-end businesses and suppliers. |

APPENDIX C: ECONOMIC IMPACT METHODOLOGY

Step 1: Reviewed data provided by VIEA

VIEA provided data on value-added wood manufacturers on Vancouver Island. The data included the company name, location, type of products, revenues and number of employees. The data were reviewed by MNP to identify gaps. There were 81 records that had complete information and 65 records that were missing the number of employees and/or revenues.

Step 2: Group manufacturers by product type

The data on value-added wood manufacturers was grouped into three categories corresponding to the North American Classification System (NAICS) classifications for wood product manufacturers. These classifications were based on the types of value-added wood products they produce. The categories were: Sawmills and wood preservation; Veneer, plywood, and engineered Wood; and Other wood product manufacturing.

Step 3: Estimate total revenues and total employment

The total revenues and employment were estimated as the sum of the revenues and employment for each business included in the study. For those businesses that had incomplete records values were estimated based on the average for businesses producing similar products and of a similar size with complete records.

Step 4: Estimate economic impacts on Vancouver Island

The economic impacts of the value-added wood manufacturing industry were estimated using an economic impact model developed using Statistics Canada multipliers. MNP mapped the estimated revenues from the industry to provincial economic impact multipliers published by Statistics Canada. The model used multipliers from 2010. Direct jobs for the industry were estimated using the total estimated job numbers and converting them to full-time equivalent jobs (FTEs) based on the share of full-time employment in durable product manufacturing reported by Statistics Canada (CANSIM Table 282-0008).

Step 5: Develop regional estimates of employment

After developing the economic impact estimates for Vancouver Island, MNP estimated the allocation of employment in the six regions of Vancouver Island using data provided by Vancouver Island Economic Alliance and Canadian business patterns data for each region.

APPENDIX D: ABOUT MNP

MNP is the fastest growing major chartered accountancy and business advisory firm in Canada. Founded in 1945, MNP has grown to more than 70 offices and 3,000 team members across Canada. In British Columbia, MNP has more than 800 staff located in 19 offices throughout the province. The map below shows our office locations.

MNP provides a wide range of accounting, finance and business advisory services to clients. These include:

- Assurance
- Taxation
- Corporate Finance
- Mergers and Acquisitions
- Enterprise Risk Services
- Forensic Accounting
- Consulting
- Insolvency and Corporate Recovery
- Succession
- Valuations and Litigation Support



About MNP's Economics and Research Practice

Economic and industry studies are carried out by MNP's Economics and Research practice. Based in Vancouver, the Economics and Research practice consists of a team of professionals that has a successful track record of assisting clients with a wide variety of financial and economic impact studies. Our work has encompassed a wide range of programs, industries, company operations and policy initiatives, and has helped clients with decision-making, communication of economic and financial contributions, documentation of the value of initiatives and activities and development of public policy.

MNP's Economics and Research practice has carried out many economic impact studies in BC. These studies have included primary industries, secondary industries, individual projects and the operations of individual companies throughout BC. For more information on our work please contact the Economics and Research practice at economics@mnp.ca or visit www.mnp.ca/en/consulting/economics-and-research